fig-FORTH for 1802

ASSEMBLY SOURCE LISTING

RELEASE 1

WITH COMPILER SECURITY

AND

VARIABLE LENGTH NAMES

V1.0
Mar 1981

```
FFFF I  GGG      FFFF OO  RRRR TTTTT H   H
F    I G         F    O  O R  R   T   H   H
FFF  I G GGG  XX FFF  O  O RRR    T   HHHHH
F    I G   G     F    O  O R  R   T   H   H
F    I  GGG      F     OO  R   R  T   H   H

        1 8888  00  2222
        1 8  8  0  0    2
        1 8888  0  0   22
        1 8  8  0  0  2
        1 8888  00  2222
```

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            KEN MANTEI

            FIG INSTALLATION MANUAL

            FIG 8080 ASSEMBLY SOURCE LISTING..

            THIS LISTING TYPED   PRINTED 3/18/81

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..
..

..        THE I/O VECTORS FOR DISC  ARE POINTING TO
..        ROUTINES FOR THE RCA CDP18S007, CDP18S008
..        OR THE CDP18S005..
..        FOR OTHER SYSTEMS YOU WILL NEED TO
..        CHANGE THE POINTERS AND WRITE YOUR
..        OWN ROUTINES.
..
..
..THE USER VARIABLE  DV  IS 3 BYTES LONG
..(USER AREA OFFSET 32H 33H 34H) AND IS USED
..TO PASS VARIABLES TO THE RCA ROM UTILITY
..WHEN CALLING FOR DISK I/O.  THE RESIDENT ROM
..UTILITIES PRODUCE THEIR OWN ERROR MESSAGES.
..
.. THIS VERSION ASSEMBLES WITH START UP CONSTANTS THAT
.. ASSUME 28K OF RAM. DISC BUFFERS ARE
.. SET FOR 1K ( THIS CAN BE EASILY CHANGED
.. BY CHANGING FIRST,LIMIT,B/BUF,AND B/SCR).
.. BLOCK 0 BEGINS AT TRACK 0 SECTOR 1.
..
..
..DR1 ( SET DRIVE TO 1) IS IMPLEMENTED AS:
.. : DR1 B/SCR 250 * OFFSET ! ;
..THEREFORE B/SCR AND B/BUF CAN BE CHANGED WITHOUT
..WITHOUT HAVING TO REWRITE
..DR1.
.. THE TERMINAL I/O ASSUMES THE USE OF AN
.. RCA CD1854 UART CONFIGURED IN ONE OF THE
..ABOVE MENTIONED SYSTEMS. THE UART IS DRIVEN
..DIRECTLY WITHOUT CALLING RCA ROM UTILITY
..ROUTINES.
..
..
..THE FORTH WORD  MON  EXITS FORTH AND RETURNS
..TO THE RESIDENT ROM UTILITY.
..
..THE FORTH WORD  BYE  IS DEFINED AS:
..: BYE  FLUSH  MON ;
..
..
..
..
..
..
..
..
..
..
..
..
```

2

REGISTER ALLOCATIONS FOR THIS VERSION

         R2   RETURN STACK POINTER   R0
               GROWS DOWN LEFT POINTING TO
               FREE LOCATION

         R3   PC FOR I/O AND PRIMITIVES

         R7,R8   TEMPORARY ACCUMULATORS

         R9   COMPUTATION STACK POINTER   S0
               GROWS UPWARD
               LEFT POINTING AT HIGH BYTE

         RA   FORTH "I" REGISTER   IP

         RB   FORTH "W" REGISTER   WP

         RC   PC FOR INNER INTERPRETER

         RD   USER POINTER   UP

         RF   DISC I/O

         OTHER REGISTERS ARE LEFT AVAILABLE
         EXCEPT THAT RF.0 IS ZERO AFTER COLD
         OR WARM STARTS

         MEMORY MAP

         ------------------------------ LIMIT

         RAM BUFFERS

         ------------------------------ FIRST

         USER AREA

         ------------------------------ UP
         RETURN STACK   R0

```
..
..        -------------------------------------
..            TERMINAL BUFFER
..        -------------------------------------   TIB
..             COMPUTATION
..                STACK
..        -------------------------------------   SO
..
..               FREE
..                SPACE
..
..        -------------------------------------
..               TEXT
..              BUFFER
..        -------------------------------------   PAD
..            WORD
..              BUFFER
..        -------------------------------------   DP
..
..            DICTIONARY
..
..        -------------------------------------
..          BOOT UP PARAMETERS
..        -------------------------------------   ORIGIN   005E
..          ANY REQUIRED I/O
..          INITIALIZATION
..        -------------------------------------   0000
..
..
..
```

4

```
!M
0000 ;                              0001 FIRSTB=#4000      ..ADDRESS OF FIRST DISK BUFFER
0000 ;                              0002 LIMITB=#6C2C      ..END OF DISK BUFFER AREA
0000 ;                              0003 CSTACK=9
0000 ;                              0004 RSTACK=2
0000 ;                              0005 ..
0000 ;                              0006            ..
0000 ;                              0007            ..SET-UP ROUTINES
0000 ;                              0008            ..
0000 7100;                          0009            DIS,00
0002 6101;                          0010            OUT 1,1 ..SET LEVEL 1 I/O
0004 631D;                          0011            OUT 3,#1D   .. SET-UP UART
0006 F800;                          0012            LDI 0
0008 B3;                            0013            PHI 3
0009 F85E;                          0014            LDI #5E
000B A3;                            0015            PLO 3
000C F82F;                          0016            LDI #2F
000E B2;                            0017            PHI 2
000F F8FF;                          0018            LDI #FF
0011 A2;                            0019            PLO 2
0012 D3;                            0020            SEP 3
0013 ;                              0021            ..
0013 ;                              0022 ..
0013 ;                              0023 ..
0013 ;                              0024 ..
0013 ;                              0025 ORG #005E
005E ;                              0026 ..
005E C4;                            0027 START:  NOP
005F C01900;                        0028         LBR COLD          ..COLD START
0062 C4;                            0029         NOP
0063 C01915;                        0030         LBR WARM          ..WARM START
0066 070A;                          0031         ,#070A            ..CPU NUMBER
0068 0001;                          0032         ,#0001            .. REVISION NUMBER
006A 18BF;                          0033         ,A(TASK-7)        ..TOPMOST PRGM IN FORTH VOCAB
006C 0008;                          0034         ,#0008            ..BACKSPACE
006E 2000;                          0035         ,#2000            ..INITIAL USER AREA    UP
0070 1F00;                          0036         ,#1F00            ..INITIAL STACK        S0
0072 1FFF;                          0037         ,#1FFF            ..INIT RETURN STACK    R0
0074 1F80;                          0038         ,#1F80            ..TERMINAL BUFFER      TIB
0076 001F;                          0039         ,#001F          ..NAME FIELD WIDTH      WIDTH
0078 ;                              0040                           .. (31 DECIMAL)
0078 0000;                          0041         ,#0000            ..WARNING            WARNING
007A 193D;                          0042         ,A(LEND)          ..FENCE              FENCE
007C 193D;                          0043         ,A(LEND)          ..INIT DICTIONARY POINTER    DP
007E 0F6A;                          0044         ,A(FRTH+16)       ..INIT VOCAB     VOC-LINK
0080 ;                              0045         ..
0080 ;                              0046         ..
0080 834C49D4;                      0047         ,#83,T'LI',#D4        ..LIT
0084 0000;                          0048         ,#0000
0086 0088;                          0049 LIT:    ,A(*+2)
0088 1919;                          0050         INC R9;INC R9
008A 4A5919;                        0051         LDA RA;STR R9;INC R9
008D 4A5929;                        0052         LDA RA;STR R9;DEC R9
0090 DC;                            0053         SEP RC
0091 ;                              0054         ..
0091 ;                              0055         ..
0091 ;                              0056         ..   NEXT    INNER INTERPRETER
0091 D3;                            0057         SEP R3  ..LEAVE RC AT NEXT
0092 4ABB;                          0058 NEXT:   LDA RA;PHI B
0094 4AAB;                          0059         LDA RA;PLO B
0096 4BB3;                          0060 WBR:    LDA B;PHI R3
0098 4BA3;                          0061         LDA B;PLO R3
009A 3091;                          0062         BR NEXT-1
```

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```
009C ;                   0063              ..
009C ;                   0064              ..
009C ;                   0065              ..          EXECUTE
009C 87455845435554;0066               ,#87,T'EXECUT',#C5        ..EXECUTE
00A3 C5;                 0066
00A4 0080;               0067               ,A(LIT-6)
00A6 00A8;               0068 EXE:          ,A(*+2)
00A8 49BB;               0069              LDA R9;PHI B
00AA 09AB;               0070              LDN R9;PLO B    ..LOAD W FROM STACK
00AC 292929;             0071              DEC R9;DEC R9;DEC R9
00AF 1C1C;               0072              INC RC;INC RC
00B1 1C1C;               0073              INC RC;INC RC    ..POINT TO WBR
00B3 DC;                 0074              SEP RC
00B4 ;                   0075              ..
00B4 ;                   0076              ..
00B4 864252414E43C8;0077               ,#86,T'BRANC',#C8        ..BRANCH
00BB 009C;               0078               ,A(EXE-10)
00BD 00BF;               0079 BRCH:         ,A(*+2)
00BF 4A52;               0080 BRANCH: LDA RA;STR R2
00C1 4AAA;               0081              LDA RA;PLO RA
00C3 02BA;               0082              LDN R2;PHI RA
00C5 DC;                 0083              SEP RC
00C6 ;                   0084              ..
00C6 ;                   0085              ..
00C6 87304252414E43;0086               ,#87,T'OBRANC',#C8        ..OBRANCH
00CD C8;                 0086
00CE 00B4;               0087               ,A(BRCH-9)
00D0 00D2;               0088 ZBRCH:        ,A(*+2)
00D2 493ADD;             0089              LDA R9;BNZ NO
00D5 093ADD;             0090              LDN R9;BNZ NO
00D8 292929;             0091              DEC R9;DEC R9;DEC R9
00DB 30BF;               0092              BR BRANCH
00DD 1A1A;               0093 NO:          INC RA;INC RA
00DF 292929;             0094              DEC R9;DEC R9;DEC R9
00E2 DC;                 0095              SEP RC
00E3 ;                   0096              ..
00E3 86284C4F4F50A9;0097               ,#86,T'(LOOP',#A9        ..(LOOP)
00EA 00C6;               0098               ,A(ZBRCH-10)
00EC 00EE;               0099 LUPE:         ,A(*+2)
00EE 12;                 0100              INC R2
00EF 92B8B7;             0101              GHI R2;PHI R8;PHI R7
00F2 82A8A7;             0102              GLO R2;PLO R8;PLO R7
00F5 22;                 0103              DEC R2
00F6 08FC01;             0104              LDN R8;ADI 01
00F9 5818;               0105              STR R8;INC R8
00FB 087C00;             0106              LDN R8;ADCI 00
00FE C4C4;               0107              NOP;NOP        ..TO NEW PAGE
0100 5818;               0108 COMP:   STR R8;INC R8
0102 E7;                 0109              SEX R7
0103 48F5;               0110              LDA R8;SD
0105 1708;               0111              INC R7;LDN R8
0107 75FA80;             0112              SDB;ANI #80
010A 3213;               0113              BZ CEND
010C 4A52;               0114              LDA RA;STR R2
010E 0AAA02BA;           0115              LDN RA;PLO RA;LDN R2;PHI RA
0112 DC;                 0116              SEP RC
0113 1A1A;               0117 CEND:   INC RA;INC RA
0115 1212;               0118              INC R2;INC R2
0117 1212;               0119              INC R2;INC R2
0119 DC;                 0120              SEP RC
011A ;                   0121              ..
011A 87282B4C4F4F50;0122               ,#87,T'(+LOOP',#A9        ..(+LOOP)
0121 A9;                 0122
```

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```
0122 00E3;        0123          ,A(LUPE-9)
0124 0126;        0124 PLUPE:   ,A(*+2)
0126 12;          0125          INC R2
0127 92B8B7;      0126          GHI R2;PHI R8;PHI R7
012A 82A8A7;      0127          GLO R2;PLO R8;PLO R7
012D 22;          0128          DEC R2
012E E919;        0129          SEX R9;INC R9
0130 08F458;      0130          LDN R8;ADD;STR R8
0133 1829;        0131          INC R8;DEC R9
0135 0874;        0132          LDN R8;ADC
0137 5809;        0133          STR R8;LDN R9
0139 FE;          0134          SHL
013A 2929;        0135          DEC R9;DEC R9
013C 3340;        0136          BDF LUPE1
013E 3001;        0137          BR COMP+1
0140 18;          0138 LUPE1:   INC R8
0141 E7;          0139          SEX R7
0142 48;          0140          LDA R8
0143 F7;          0141          SM
0144 17;          0142          INC R7
0145 08;          0143          LDN R8
0146 77;          0144          SMB
0147 3008;        0145          BR COMP+8
0149 ;            0146          ..
0149 ;            0147          ..
0149 8428444FA9;  0148          ,#84,T'(DO',#A9    ..(DO)
014E 011A;        0149          ,A(PLUPE-10)
0150 0152;        0150 PDO:     ,A(*+2)
0152 2929;        0151          DEC R9;DEC R9
0154 E2;          0152          SEX R2
0155 4973;        0153          LDA R9;STXD
0157 4973;        0154          LDA R9;STXD
0159 4973;        0155          LDA R9;STXD
015B 0973;        0156          LDN R9;STXD
015D 2929292929;  0157          DEC R9;DEC R9;DEC R9;DEC R9;DEC R9
0162 DC;          0158          SEP RC
0163 ;            0159          ..
0163 ;            0160          ..
0163 854449474904; 0161         ,#85,T'DIGI',#D4   ..DIGIT
0169 0149;        0162          ,A(PDO-7)
016B 016D;        0163 DGT:     ,A(*+2)
016D E9;          0164          SEX R9
016E 29;          0165          DEC R9
016F 09FF30;      0166          LDN R9;SMI #30
0172 3B88;        0167          BNF BAD
0174 FF11;        0168          SMI #11
0176 337C;        0169          BDF DOK
0178 FFF9;        0170          SMI #F9
017A 3388;        0171          BDF BAD
017C FC0A;        0172 DOK:     ADI #0A
017E 59;          0173          STR R9
017F 1919;        0174          INC R9;INC R9
0181 F7;          0175          SM
0182 3386;        0176          BDF BAD2
0184 29;          0177          DEC R9
0185 DC;          0178          SEP RC
0186 2929;        0179 BAD2:    DEC R9;DEC R9
0188 F800;        0180 BAD:     LDI 00
018A 7359;        0181          STXD;STR R9
018C DC;          0182          SEP RC
018D ;            0183          ..
018D 862846494E44A9; 0184       ,#86,T'(FIND',#A9    ..(FIND)
0194 0163;        0185          ,A(DGT-8)
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019B            ,A(*+2)
0198 2929;      DEC R9;DEC R9
019A            DEC R9
019C 49B8;      LDA R9;PHI R8
019E 49A8;      LDA R9;PLO R8
0190 4987;      LDA R9;PHI R7
0191            LDA R9;PLO R7
01A0 09A729297; LDA R9;PLO R7;DEC R9
01A4 E70252?;   SEX R7;LDN R7;STR R2
01A7 48F3?;     LDA R8;XOR
01A9 FA3E?;     LDA R8;XOR
01AB 3AD3?;     INC R7
01AD 17;        BNZ BADLEN
01AE 48F3?;     LDA R8;XOR      .SAVE LENGTH BYTE
01B0 FE;        ANI #3F
01B1 3AD4?;     LDA R8;XOR      .COMPARE LENGTH BYTES
01B3 7E?;
01B4 32AD?; NEXCHR: INC R7
01B6 47?;       LDA R8;XOR
01B7 FA80?;     INC R7
01B9 32B6?;     BNZ BADLEN
01BB E9?;       SHL
01BC 87FC04?;   BNZ BADCHR
01BF 73?;       SHLC
01C0 977C00?;   BNZ NEXCHR      .. COMPARE NEXT CHARACTER
01C3 5919197;   LDA R7
01C6 F8005919?; BZ NEXCHR
01CA 0259197?;  LDA R7          .. NO MATCH ON 7 BITS
01CD F8FF5919?; ANI #80
01D1 73?;       BZ LOOP2
01D2 DC?;       LDI #FF;STR R9;INC R9
01D3 17?;       SEX R9          ..AND TRUE FLAG
01D4 47FA80?; BADCHR: BZ LOOP2
01D7 3204?;     GLO R7;ADI 04   ..END OF DICT NAME
01D9 07?;       STXD
01DA 3AE7?;     GHI R7;ADCI 00
01DC 170727?;   STR R9;INC R9
01DF 3AE7?;     LDI 0;STR R9;INC R9   ..LEAVE PFA
01E1 F80059?;   LDN R2;STR R9;INC R9  ..GET LENGTH BYTE
01E4 2959?;     LDI 0;PLO R7    ..IF NOT LAST CHARACTER
01E6 DC?;       SEP RC          ..ELSE END OF STRING
01E7 4752?; BOK: INC R7;LDN R7;DEC R7
01E9 07A7?;     BNZ BOK
01EB 02B7?;     INC R7;LDN R7
01ED 09A8?;     BNZ BOK
01EF 2949B8?;   LDA R7;STR R2
01F2 30A4?;     DEC R9;STR R9
01F4         ;  LDN R7;PLO R7
01F4         ;  LDN R2;PHI R7
01F4 87454E434C4F53;0233  LDN R9;PLO R8
01FB C5;        DEC R9;LDA R9;PHI R8
01FC 018D?;     BR LOOP1        ..LINK = 0   RETURN FALSE
01FE 0200?;     SEP RC
0200 2929? ENCL: DEC R9;STR R9
0202 49B8?;     ,A(*+2)
0204 49A8?;     LDA R9;PHI R8
0207 F800A7?;   LDA R9;PLO R8
020A 0952E2?;   LDI 0;PLO R7
020D 02F7?;     ,A(FIND-9)      ..ENCLOSE
020F 3A15? LOF1: #87,T'ENCLOS',#C5
0211 1817?;     BNZ FRST
0213 300D?;     INC R8;INC R7
0215 8759B7?;   LDN R9;PLO R7
0218 19F80059?; LDN R2;SEX R2
021B 191959197; LDN R8;SM       ..FIND FIRST NON-
021C 191959197; BNZ FRST        ..DELIM CHAR
                INC R8;INC R7
                BR LOF1
0245 0247  FRST: GLO R7;STR R9;PHI R7   ..SAVE OFFSET TO
0246        INC R9;LDI 0;STR R9         ..FIRST CHARACTER
0247        INC R9;STR R9;INC R9

.R7.0 IS OFFSET
..SAVE DELIM
```

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0220 08;          0248 LOP2:   LDN R8
0221 322A;        0249         BZ NULL              ..EQUAL NULL ?
0223 F7;          0250         SM                   ..SUBTRACT DELIMIN
0224 3238;        0251         BZ DELIM
0226 1817;        0252         INC R8;INC R7
0228 3020;        0253         BR LOP2
022A 87E959;      0254 NULL:   GLO R7;SEX R9;STR R9  ..LEAVE OFFSET
022D 97F7;        0255         GHI R7;SM            ..TO NEXT CHARACTER
022F 3A32;        0256         BNZ SKIP
0231 17;          0257         INC R7
0232 872929;      0258 SKIP:   GLO R7;DEC R9;DEC R9  ..LAST CHARACTER IN
0235 5919;        0259         STR R9;INC R9        ..WORD
0237 DC;          0260         SEP RC
0238 17;          0261 DELIM:  INC R7
0239 87;          0262         GLO R7
023A 59;          0263         STR R9
023B 27;          0264         DEC R7
023C 3032;        0265         BR SKIP
023E ;            0266         ..
023E 85434D4F56C5; 0267        ,#85,T'CMOV',#C5 ..CMOVE
0244 01F4;        0268         ,A(ENCL-10)
0246 0248;        0269 CMOVE:  ,A(*+2)
0248 49FC01B7;    0270         LDA 9;ADI 1;PHI 7
024C 09A727;      0271         LDN 9;PLO 7;DEC 7
024F 292929;      0272         DEC 9;DEC 9;DEC 9
0252 9A5222;      0273         GHI A;STR 2;DEC 2   ..PUSH RA
0255 8A52;        0274         GLO A;STR 2
0257 49BA;        0275         LDA 9;PHI A      ..RA IS "TO"
0259 09AA;        0276         LDN 9;PLO A
025B 292929;      0277         DEC 9;DEC 9;DEC 9
025E 49B8;        0278         LDA 9;PHI 8      ..R8 IS "FROM"
0260 09A8;        0279         LDN 9;PLO 8
0262 292929;      0280         DEC 9;DEC 9;DEC 9
0265 97326E;      0281 LUUP:   GHI 7;BZ END2
0268 485A1A;      0282         LDA 8;STR A;INC A
026B 273065;      0283         DEC 7;BR LUUP
026E 42AA02BA;    0284 END2:   LDA 2;PLO A;LDN 2;PHI A  ..POP RA
0272 DC;          0285         SEP RC
0273 ;            0286         ..
0273 8255AA;      0287         ,#8255AA            ..        U*
0276 ;            0288                              .. UNSIGNED 16X16 BIT MULTIPLY
0276 023E;        0289         ,A(CMOVE-8)
0278 027A;        0290 USTAR:  ,A(*+2)
027A E9F800;      0291         SEX 9;LDI 0
027D A7B7;        0292         PLO 7;PHI 7      ..R7 IS LOW 2 BYTES
027F F810;        0293         LDI #10          ..OF PRODUCT
0281 52;          0294 LP7B:   STR 2            ..MEM(2) IS LOOP COUNT
0282 87FEA7;      0295         GLO 7;SHL;PLO 7
0285 977EB7;      0296         GHI 7;SHLC;PHI 7
0288 19;          0297         INC 9            ..DOUBLE THE PRODUCT AND
0289 097E73;      0298         LDN 9;SHLC;STXD  ..TEST HIGH BIT
028C 097E59;      0299         LDN 9;SHLC;STR 9  ..OF OP2
028F 3BA0;        0300         BNF SKP9A
0291 2987F4A7;    0301         DEC 9;GLO 7;ADD;PLO 7
0295 299774B7;    0302         DEC 9;GHI 7;ADC;PHI 7     ..ADD OP1
0299 191919;      0303         INC 9;INC 9;INC 9     ..TO 24 BIT PRODUCT
029C F8007473;    0304         LDI 0;ADC;STXD
02A0 02FF01;      0305 SKP9A:  LDN 2;SMI 1
02A3 3A81;        0306         BNZ LP7B
02A5 298773;      0307 UOUT:   DEC 9;GLO 7;STXD   ..MOVE REST OF
02A8 9759;        0308         GHI 7;STR 9        ..PRODUCT TO STACK
02AA 1919;        0309         INC 9;INC 9
02AC DC;          0310         SEP RC
```

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02AD ;                  0311            ..
02AD 8255AF;            0312            ,#8255AF            ..U/   UNSIGNED DIVIDE
02B0 0273;              0313            ,A(USTAR-5)
02B2 02B4;              0314 USLSH:     ,A(*+2)
02B4 E92929;            0315            SEX 9;DEC 9;DEC 9
02B7 49B709A7;          0316            LDA 9;PHI 7;LDN 9;PLO 7
02BB 292949FE;          0317            DEC 9;DEC 9;LDA 9;SHL
02BF 19732929;          0318            INC 9;STXD;DEC 9;DEC 9
02C3 497E195919;        0319            LDA 9;SHLC;INC 9;STR 9;INC 9
02C8 F810;              0320            LDI #10
02CA A8;                0321            PLO 8
02CB 877EA7;            0322 LPC5:      GLO 7;SHLC;PLO 7
02CE 977EB71919;        0323            GHI 7;SHLC;PHI 7;INC 9;INC 9
02D3 87F7B829;          0324            GLO 7;SM;PHI 8;DEC 9
02D7 9777;              0325            GHI 7;SMB
02D9 3BDE;              0326            BNF SKPD8
02DB B798A7;            0327            PHI 7;GHI 8;PLO 7
02DE 29097E73;          0328 SKPD8:     DEC 9;LDN 9;SHLC;STXD
02E2 097E5919;          0329            LDN 9;SHLC;STR 9;INC 9
02E6 2888;              0330            DEC 8;GLO 8
02E8 3ACB;              0331            BNZ LPC5
02EA 29;                0332            DEC 9
02EB 30A5;              0333            BR UOUT
02ED ;                  0334            ..
02ED 83414EC4;          0335            ,#83,T'AN',#C4         ..AND
02F1 02AD;              0336            ,A(USLSH-5)
02F3 02F5;              0337 FAND:      ,A(*+2)
02F5 89A899B8;          0338            GLO 9;PLO 8;GHI 9;PHI 8
02F9 28E81909F2;        0339            DEC 8;SEX 8;INC 9;LDN 9;AND
02FE 732909F2;          0340            STXD;DEC 9;LDN 9;AND
0302 582929;            0341            STR 8;DEC 9;DEC 9
0305 DC;                0342            SEP RC
0306 ;                  0343            ..
0306 824FD2;            0344            ,#824FD2               ..OR
0309 02ED;              0345            ,A(FAND-6)
030B 030D;              0346 FFOR:      ,A(*+2)
030D 89A899B8;          0347            GLO 9;PLO 8;GHI 9;PHI 8
0311 28E8;              0348            DEC 8;SEX 8
0313 1909F1;            0349            INC 9;LDN 9;OR
0316 732909F1;          0350            STXD;DEC 9;LDN 9;OR
031A 582929;            0351            STR 8;DEC 9;DEC 9
031D DC;                0352            SEP RC
031E ;                  0353            ..
031E 83584FD2;          0354            ,#83,T'XO',#D2        ..XOR
0322 0306;              0355            ,A(FFOR-5)
0324 0326;              0356 FXOR:      ,A(*+2)
0326 89A899B8;          0357            GLO 9;PLO 8;GHI 9;PHI 8
032A 28E8;              0358            DEC 8;SEX 8
032C 1909F3;            0359            INC 9;LDN 9;XOR
032F 732909F3;          0360            STXD;DEC 9;LDN 9;XOR
0333 582929;            0361            STR 8;DEC 9;DEC 9
0336 DC;                0362            SEP RC
0337 ;                  0363            ..
0337 835350C0;          0364            ,#83,T'SP',#C0        ..SP@
033B 031E;              0365            ,A(FXOR-6)
033D 033F;              0366 FSPAT:     ,A(*+2)
033F 995289;            0367            GHI 9;STR 2;GLO 9
0342 191919;            0368            INC 9;INC 9;INC 9
0345 59290259;          0369            STR 9;DEC 9;LDN 2;STR 9
0349 DC;                0370            SEP RC
034A ;                  0371            ..
034A 835350A1;          0372            ,#83,T'SP',#A1        ..SP!
034E ;                  0373                                  ..STACK POINTER STORE
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034E 0337;          0374              ,A(FSPAT-6)
0350 0352;          0375 SP1:         ,A(*+2)
0352 8DFC06A8;      0376              GLO D;ADI 6;PLO 8
0356 9D7C00B8;      0377              GHI D;ADCI 0;PHI 8
035A 48B908A9;      0378              LDA 8;PHI 9;LDN 8;PLO 9
035E DC;            0379              SEP RC
035F ;              0380              ..
035F 835250A1;      0381              ,#83,T'RP',#A1        ..RP!
0363 ;              0382                        ..RETURN STACK POINTER STORE
0363 034A;          0383              ,A(SP1-6)
0365 0367;          0384 RF1:         ,A(*+2)
0367 8DFC08A8;      0385              GLO D;ADI 8;PLO 8
036B 9D7C00B8;      0386              GHI D;ADCI 0;PHI 8
036F 48B208A2;      0387              LDA 8;PHI 2;LDN 8;PLO 2
0373 DC;            0388              SEP RC
0374 ;              0389              ..
0374 823BD3;        0390              ,#823BD3             .. ;S (UNEST)
0377 035F;          0391              ,A(RF1-6)
0379 037B;          0392 SEMIS:       ,A(*+2)
037B 1242AA02BA;    0393              INC 2;LDA 2;PLO A;LDN 2;PHI A
0380 DC;            0394              SEP RC
0381 ;              0395              ..
0381 854C454156C5;  0396              ,#85,T'LEAV',#C5         ..LEAVE
0387 0374;          0397              ,A(SEMIS-5)
0389 038B;          0398 LVE:         ,A(*+2)
038B 92B882A8;      0399              GHI 2;PHI 8;GLO 2;PLO 8
038F 18481858;      0400              INC 8;LDA 8;INC 8;STR 8
0393 28481858;      0401              DEC 8;LDA 8;INC 8;STR 8
0397 DC;            0402              SEP RC
0398 ;              0403              ..
0398 823ED2;        0404              ,#823ED2            .. >R     TO R
039B 0381;          0405              ,A(LVE-8)
039D 039F;          0406 GR:          ,A(*+2)
039F E249730973;    0407              SEX 2;LDA 9;STXD;LDN 9;STXD
03A4 292929;        0408              DEC 9;DEC 9;DEC 9
03A7 DC;            0409              SEP RC
03A8 ;              0410              ..
03A8 8252BE;        0411              ,#8252BE            ..  R)     FROM R
03AB 0398;          0412              ,A(GR-5)
03AD 03AF;          0413 RG:          ,A(*+2)
03AF 191919;        0414              INC 9;INC 9;INC 9
03B2 12425929;      0415              INC 2;LDA 2;STR 9;DEC 9
03B6 0259;          0416              LDN 2;STR 9
03B8 DC;            0417              SEP RC
03B9 ;              0418              ..
03B9 81D2;          0419              ,#81D2       ..R    COPY TOP OF RETN
03BB 03A8;          0420              ,A(RG-5)     ..STACK TO TOP OF
03BD 03BF;          0421 R:           ,A(*+2)      ..COMPUTATION STACK
03BF 82A892B8;      0422              GLO 2;PLO 8;GHI 2;PHI 8
03C3 18191919;      0423              INC 8;INC 9;INC 9;INC 9
03C7 485929;        0424              LDA 8;STR 9;DEC 9
03CA 0859;          0425              LDN 8;STR 9
03CC DC;            0426              SEP RC
03CD ;              0427              ..
03CD 8230BD;        0428              ,#8230BD             ..0=
03D0 03B9;          0429              ,A(R-4)
03D2 03D4;          0430 ZEQAL:       ,A(*+2)
03D4 493ADE;        0431              LDA 9;BNZ NONE
03D7 093ADE;        0432              LDN 9;BNZ NONE
03DA F801;          0433 ZONE:        LDI 1
03DC 30E0;          0434              BR STOR
03DE F800;          0435 NONE:        LDI 0
03E0 59;            0436 STOR:        STR 9
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03E1  29F80059;       0437              DEC 9;LDI 0;STR 9
03E5  DC;             0438              SEP RC
03E6  ;               0439              ..
03E6  8230BC;         0440              ,#8230BC          ..0<
03E9  03CD;           0441              ,A(ZEQAL-5)
03EB  03ED;           0442  ZLESS:      ,A(*+2)
03ED  49FE33DA;       0443              LDA 9;SHL;BDF ZONE
03F1  30DE;           0444              BR NONE
03F3  ;               0445              ..
03F3  81AB;           0446              ,#81AB            ..  +
03F5  03E6;           0447              ,A(ZLESS-5)
03F7  03F9;           0448  PLUS:       ,A(*+2)
03F9  89A899B8;       0449              GLO 9;PLO 8;GHI 9;PHI 8
03FD  2858;           0450              DEC 8;SEX 8
03FF  1909F4;         0451              INC 9;LDN 9;ADD
0402  7329;           0452              STXD;DEC 9
0404  0974;           0453              LDN 9;ADC
0406  582929;         0454              STR 8;DEC 9;DEC 9
0409  DC;             0455              SEP RC
040A  ;               0456              ..
040A  854D494E55D3;   0457              ,#85,T'MINU',#D3    ..MINUS
0410  03F3;           0458              ,A(PLUS-4)
0412  0414;           0459  MINUS:      ,A(*+2)
0414  FF00;           0460              SMI 0    ..SET CARRY
0416  1909FBFF;       0461  MINOS:      INC 9;LDN 9;XRI #FF
041A  7C005929;       0462              ADCI 0;STR 9;DEC 9
041E  09FBFF;         0463              LDN 9;XRI #FF
0421  7C0059;         0464              ADCI 0;STR 9
0424  DC;             0465              SEP RC
0425  ;               0466              ..
0425  8244AB;         0467              ,#8244AB       ..D+ DBL PRCN INTEGERS
0428  040A;           0468              ,A(MINUS-8) ..ARE STORED HIGH 16 BITS TOP
042A  042C;           0469  DPLUS:      ,A(*+2)       ..LOW 16 BITS BENEATH
042C  89FF05A8;       0470              GLO 9;SMI 5;PLO 8
0430  997F00B8;       0471              GHI 9;SMBI 0;PHI 8
0434  29E8;           0472              DEC 9;SEX 8
0436  09F473;         0473              LDN 9;ADD;STXD
0439  29;             0474              DEC 9
043A  097458;         0475              LDN 9;ADC;STR 8
043D  181818;         0476              INC 8;INC 8;INC 8
0440  191919;         0477              INC 9;INC 9;INC 9
0443  097473;         0478              LDN 9;ADC;STXD
0446  29;             0479              DEC 9
0447  097458;         0480              LDN 9;ADC;STR 8
044A  29292929;       0481              DEC 9;DEC 9;DEC 9;DEC 9
044E  DC;             0482              SEP RC
044F  ;               0483              ..
044F  86444D494E55D3; 0484              ,#86,T'DMINU',#D3        ..DMINUS
0456  0425;           0485              ,A(DPLUS-5)
0458  045A;           0486  DMIN:       ,A(*+2)
045A  E9;             0487              SEX 9
045B  2909FBFF;       0488              DEC 9;LDN 9;XRI #FF
045F  FC0173;         0489              ADI 1;STXD
0462  09FBFF;         0490              LDN 9;XRI #FF
0465  7C0059;         0491              ADCI 0;STR 9
0468  1919;           0492              INC 9;INC 9
046A  3016;           0493              BR MINOS
046C  ;               0494              ..
046C  844F5645D2;     0495              ,#84,T'OVE',#D2 ..OVER
0471  044F;           0496              ,A(DMIN-9)
0473  0475;           0497  OVER:       ,A(*+2)
0475  292949;         0498              DEC 9;DEC 9;LDA 9
0478  191919;         0499              INC 9;INC 9;INC 9
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047B 59292929;       0500          STR 9;DEC 9;DEC 9;DEC 9
047F 49;             0501          LDA 9
0480 191919;         0502          INC 9;INC 9;INC 9
0483 5929;           0503          STR 9;DEC 9
0485 DC;             0504          SEP RC
0486 ;               0505          ..
0486 8444524FD0;     0506          ,#84,T'DRO',#D0          ..DROP
048B 046C;           0507          ,A(OVER-7)
048D 048F;           0508 DROP:    ,A(*+2)
048F 2929;           0509          DEC 9;DEC 9
0491 DC;             0510          SEP RC..
0492 ;               0511              ..
0492 84535741D0;     0512          ,#84,T'SWA',#D0 ..SWAP
0497 0486;           0513          ,A(DROP-7)
0499 049B;           0514 SWAP:    ,A(*+2)
049B 89A899B8;       0515          GLO 9;PLO 8;GHI 9;PHI 8
049F 280852;         0516          DEC 8;LDN 8;STR 2
04A2 190958;         0517          INC 9;LDN 9;STR 8
04A5 02592928;       0518          LDN 2;STR 9;DEC 9;DEC 8
04A9 0852;           0519          LDN 8;STR 2
04AB 0958;           0520          LDN 9;STR 8
04AD 0259;           0521          LDN 2;STR 9
04AF DC;             0522          SEP RC
04B0 ;               0523          ..
04B0 834455D0;       0524          ,#83,T'DU',#D0  ..DUP
04B4 0492;           0525          ,A(SWAP-7)
04B6 04B8;           0526 DUP:     ,A(*+2)
04B8 491959;         0527          LDA 9;INC 9;STR 9
04BB 294919;         0528          DEC 9;LDA 9;INC 9
04BE 5929;           0529          STR 9;DEC 9
04C0 DC;             0530          SEP RC
04C1 ;               0531          ..
04C1 822BA1;         0532          ,#822BA1        ..  +!       PLUS STORE
04C4 04B0;           0533          ,A(DUP-6)
04C6 04C8;           0534 PLUSS:   ,A(*+2)
04C8 49B809A8;       0535          LDA 9;PHI 8;LDN 9;PLO 8
04CC 292918E8;       0536          DEC 9;DEC 9;INC 8;SEX 8
04D0 09F473;         0537          LDN 9;ADD;STXD
04D3 29097458;       0538          DEC 9;LDN 9;ADC;STR 8
04D7 2929;           0539 POP:     DEC 9;DEC 9
04D9 DC;             0540          SEP RC
04DA ;               0541          ..
04DA 86544F47474CC5; 0542          ,#86,T'TOGGL',#C5         ..TOGGLE
04E1 04C1;           0543          ,A(PLUSS-5)
04E3 04E5;           0544 TGLE:    ,A(*+2)
04E5 1909A7;         0545          INC 9;LDN 9;PLO 7
04E8 292929;         0546          DEC 9;DEC 9;DEC 9
04EB 49B809A8;       0547          LDA 9;PHI 8;LDN 9;PLO 8
04EF E887F35829;     0548          SEX 8;GLO 7;XOR;STR 8;DEC 9
04F4 30D7;           0549          BR POP
04F6 ;               0550          ..
04F6 81C0;           0551          ,#81C0          ..  @
04F8 04DA;           0552          ,A(TGLE-9)
04FA 04FC;           0553 AT:      ,A(*+2)
04FC 49B809A8;       0554          LDA 9;PHI 8;LDN 9;PLO 8
0500 294859;         0555          DEC 9;LDA 8;STR 9
0503 19085929;       0556          INC 9;LDN 8;STR 9;DEC 9
0507 DC;             0557          SEP RC
0508 ;               0558          ..
0508 8243C0;         0559          ,#8243C0        ..  C@
050B 04F6;           0560          ,A(AT-4)
050D 050F;           0561 CAT:     ,A(*+2)
050F 49B809A8;       0562          LDA 9;PHI 8;LDN 9;PLO 8
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0513 085929;      0563          LDN 8;STR 9;DEC 9
0516 F80059;      0564          LDI 0;STR 9
0519 DC;          0565          SEP RC
051A ;            0566          ..
051A 81A1;        0567          ,#81A1          ..  !     STORE
051C 0508;        0568          ,A(CAT-5)
051E 0520;        0569 EX:      ,A(*+2)
0520 49B809A8;    0570          LDA 9;PHI 8;LDN 9;PLO 8
0524 292929;      0571          DEC 9;DEC 9;DEC 9
0527 495818;      0572          LDA 9;STR 8;INC 8
052A 0958;        0573          LDN 9;STR 8
052C 292929;      0574          DEC 9;DEC 9;DEC 9
052F DC;          0575          SEP RC
0530 ;            0576          ..
0530 8243A1;      0577          ,#8243A1        ..  C!    C STORE
0533 051A;        0578          ,A(EX-4)
0535 0537;        0579 CEX:     ,A(*+2)
0537 49B809A8;    0580          LDA 9;PHI 8;LDN 9;PLO 8
053B 2929;        0581          DEC 9;DEC 9
053D 0958;        0582          LDN 9;STR 8
053F 292929;      0583          DEC 9;DEC 9;DEC 9
0542 DC;          0584          SEP RC
0543 ;            0585  ..
0543 ;            0586  ..
0543 ;            0587  ..   THE FOLLOWING FOUR ROUTINES ARE USER DEFINED
0543 ;            0588  ..   FOR THE CONSULE INPUT AND OUTPUT
0543 ;            0589          ..
0543 ;            0590          ..   SEND ASCII TO TERMINAL
0543 ;            0591          ..
0543 84454D49D4;  0592          ,#84,T'EMI',#D4 ..EMIT
0548 0530;        0593          ,A(CEX-5)
054A 05C2;        0594 EMIT:    ,A(NEST)          ..OUTPUT CHAR TO
054C ;            0595                            ..TERMINAL AND INCREMENT
054C ;            0596                            .."OUT"
054C 06DB;        0597          ,A(FOUT)          ..GET ADDRESS OF OUT
054E 0552;        0598          ,A(CSEND)
0550 0379;        0599          ,A(SEMIS)
0552 0554;        0600 CSEND:   ,A(*+2)
0554 ;            0601  ..INCREMENT USER VARIABLE "OUT"
0554 ;            0602  ..WHOSE ADDRESS IN ON THE COMPUTATION
0554 ;            0603  ..STACK
0554 49B8;        0604          LDA 9; PHI 8
0556 09A8;        0605          LDN 9; PLO 8
0558 292929;      0606          DEC 9;DEC 9; DEC 9
055B 1808;        0607          INC 8; LDN 8
055D FC0158;      0608          ADI 1; STR 8
0560 2808;        0609          DEC 8; LDN 8
0562 7C0058;      0610          ADCI 0; STR 8
0565 ;            0611  ..WAIT UNTIL UART FREE AND
0565 ;            0612  ..SEND OUT CHARACTER WHICH IS ON
0565 ;            0613  ..THE COMP.STACK
0565 E2;          0614 CSEND1:  SEX 2
0566 6B;          0615          INP 3    ..GET UART STATUS
0567 FE;          0616          SHL      ..GET THRE FLAG
0568 3B65;        0617          BNF CSEND1
056A E919;        0618          SEX 9; INC 9
056C 62;          0619          OUT 2
056D 29292929;    0620          DEC 9; DEC 9; DEC 9;DEC 9
0571 DC;          0621          SEP RC
0572 ;            0622          ..
0572 ;            0623          ..
0572 834B45D9;    0624          ,#83,T'KE',#D9  ..KEY     READ KEYBOARD
0576 0543;        0625          ,A(EMIT-7)
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0578 057A;              0626 KEY:       ,A(*+2)
057A E9;                0627           SEX CSTACK
057B 606060;            0628           IRX; IRX; IRX
057E 6BF6;              0629 KEY1:      INP 3; SHR        ..GET DA BIT FROM
0580 ;                  0630                             ..UART STATUS BYTE
0580 3B7E;              0631           BNF KEY1          ..WAIT 'TILL DATA AVAIL.
0582 6A;                0632           INP 2             ..GET DATA
0583 FA7F;              0633           ANI #7F           ..STRIP PARITY BIT
0585 59;                0634           STR CSTACK
0586 29F80059;          0635           DEC CSTACK; LDI 0; STR CSTACK
058A DC;                0636           SEP RC
058B ;                  0637           ..
058B ;                  0638           ..  TEST FOR BREAK
058B ;                  0639           ..
058B 893F5445524D49;    0640           ,#89,T'?TERMINA',#CC      ..?TERMINAL
0592 4E41CC;            0640
0595 0572;              0641           ,A(KEY-6)
0597 ;                  0642   ..ASSUME THAT A FRAMING ERROR INDICATES
0597 ;                  0643   ..THAT THE BREAK KEY IS OR WAS PRESSED.
0597 0599;              0644 QTERM:     ,A(*+2)
0599 E9;                0645           SEX CSTACK
059A 606060;            0646           IRX; IRX; IRX
059D 6B;                0647           INP 3    ..GET NEW STATUS BYTE
059E FA08;              0648           ANI #08 ..GET FRAMING ERROR BIT
05A0 73;                0649           STXD
05A1 6A;                0650           INP 2    ..DO A DUMMY READ TO
05A2 ;                  0651   ..CLEAR THE DATA AVAILABLE SIGNAL
05A2 F80059;            0652           LDI 0; STR CSTACK
05A5 DC;                0653           SEP RC
05A6 ;                  0654           ..
05A6 ;                  0655           ..SEND CR/LF TO TERMINAL
05A6 ;                  0656           ..
05A6 8243D2;            0657           ,#8243D2              ..  CR
05A9 058B;              0658           ,A(QTERM-12)
05AB 05AD;              0659 CR:        ,A(*+2)
05AD E2;                0660           SEX RSTACK
05AE 6BFE;              0661 CR1:       INP 3; SHL       ..GET THRE BIT
05B0 3BAE;              0662           BNF CR1
05B2 F80D52;            0663           LDI #0D; STR RSTACK
05B5 6222;              0664           OUT 2; DEC RSTACK
05B7 6BFE;              0665 CR2:       INP 3; SHL
05B9 3BB7;              0666           BNF CR2
05BB F80A52;            0667           LDI #0A; STR RSTACK
05BE 6222;              0668           OUT 2; DEC RSTACK
05C0 E9;                0669           SEX 9
05C1 DC;                0670           SEP RC
05C2 ;                  0671           ..
05C2 ;                  0672           ..
05C2 9A5222;            0673 NEST:      GHI A;STR 2;DEC 2
05C5 8A5222;            0674           GLO A;STR 2;DEC 2
05C8 9BBA;              0675           GHI B;PHI A
05CA 8BAA;              0676           GLO B;PLO A
05CC DC;                0677           SEP RC
05CD ;                  0678           ..
05CD 1919;              0679 VAR:       INC 9;INC 9
05CF 9B5919;            0680           GHI B;STR 9;INC 9
05D2 8B5929;            0681           GLO B;STR 9;DEC 9
05D5 DC;                0682           SEP RC
05D6 ;                  0683           ..
05D6 1919;              0684 CONST:     INC 9;INC 9
05D8 4B5919;            0685           LDA B;STR 9;INC 9
05DB 4B5929;            0686           LDA B;STR 9;DEC 9
05DE DC;                0687           SEP RC
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05DF ;                    0688           ..
05DF 1919E9;              0689 USER:      INC 9;INC 9;SEX 9
05E2 4B5919;              0690           LDA B;STR 9;INC 9
05E5 4B59;                0691           LDA B;STR 9
05E7 8DF473;              0692           GLO D;ADD;STXD
05EA 9D7459;              0693           GHI D;ADC;STR 9
05ED DC;                  0694           SEP RC
05EE ;                    0695 ..
05EE ;                    0696 ..   FROM HERE ON THE SOURCE IS GENERALLY
05EE ;                    0697 ..   DEFINED WITH FORTH WORD ADDRESSES
05EE ;                    0698 ..
05EE 81B0;                0699    .       ,#81B0              ..   0
05F0 05A6;                0700           ,A(CR-5)
05F2 05D6;                0701 ZERO:     ,A(CONST)
05F4 0000;                0702           ,#0000
05F6 ;                    0703           ..
05F6 81B1;                0704           ,#81B1              ..   1
05F8 05EE;                0705           ,A(ZERO-4 )
05FA 05D6;                0706 ONE:      ,A(CONST)
05FC 0001;                0707           ,#0001
05FE ;                    0708           ..
05FE 81B2;                0709           ,#81B2              ..   2
0600 05F6;                0710           ,A(ONE-4)
0602 05D6;                0711 TWO:      ,A(CONST)
0604 0002;                0712           ,#0002
0606 ;                    0713           ..
0606 8242CC;              0714           ,#8242CC            ..   BL
0609 05FE;                0715           ,A(TWO-4)           ..CONSTANT ASCII BLANK
060B 05D6;                0716 BL:       ,A(CONST)
060D 0020;                0717           ,#0020
060F ;                    0718           ..
060F 83432FCC;            0719           ,#83432FCC          ..        C/L
0613 ;                    0720                               ..CHARACTERS PER LINE
0613 0606;                0721           ,A(BL-5)
0615 05D6;                0722 CL:       ,A(CONST)
0617 0040;                0723           ,#0040              ..64 (DECIMAL)
0619 ;                    0724           ..
0619 8546495253D4;        0725           ,#85,T'FIRS',#D4        .. FIRST
061F 060F;                0726           ,A(CL-6)
0621 05D6;                0727 FIRST:    ,A(CONST)
0623 4000;                0728           ,A(FIRSTB)
0625 ;                    0729           ..
0625 854C494D49D4;        0730           ,#85,T'LIMI',#D4        .. LIMIT
062B 0619;                0731           ,A(FIRST-8)
062D 05D6;                0732 LIMIT:    ,A(CONST)
062F 6C2C;                0733           ,A(LIMITB)
0631 ;                    0734           ..
0631 85422F4255C6;        0735           ,#85,T'B/BU',#C6        .. B/BUF
0637 ;                    0736                               ..BYTES PER BUFFER
0637 0625;                0737           ,A(LIMIT-8)
0639 05D6;                0738 BBUF:     ,A(CONST)
063B 0400;                0739           ,#0400  ..1024 BYTES/BUFFER
063D ;                    0740           ..
063D 85422F5343D2;        0741           ,#85,T'B/SC',#D2        ..B/SCR
0643 ;                    0742                               ..BUFFERS/SCREEN
0643 0631;                0743           ,A(BBUF-8)
0645 05D6;                0744 BSCR:     ,A(CONST)
0647 0001;                0745           ,#0001
0649 ;                    0746           ..
0649 864F52494749CE;      0747           ,#86,T'ORIGI',#CE       ..ORIGIN
0650 063D;                0748           ,A(BSCR-8)
0652 05D6;                0749 ORGN:     ,A(CONST)
0654 005E;                0750           ,#005E
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0656 ;                        0751                    . .
0656 872B4F52494749;0752                    ,#87,T'+ORIGI',#CE        ..+ORIGIN
065D CE;                      0752
065E 0649;                    0753                    ,A(ORGN-9)
0660 05C2;                    0754 PORGN:  ,A(NEST)
0662 0652;                    0755                    ,A(ORGN)
0664 0357;                    0756                    ,A(PLUS)
0666 0379;                    0757                    ,A(SEMIS)
0668 ;                        0758                    . .
0668 ;                        0759                    . .   USER VARIABLES   . .
0668 ;                        0760                    . .
0668 8253B0;                  0761                    ,#8253B0           ..S0
066B 0656;                    0762                    ,A(PORGN-10)
066D 05DF;                    0763 S0:     ,A(USER)
066F 0006;                    0764                    ,#0006
0671 ;                        0765                    . .
0671 8252B0;                  0766                    ,#8252B0           ..R0
0674 0668;                    0767                    ,A(S0-5)
0676 05DF;                    0768 R0:     ,A(USER)
0678 0008;                    0769                    ,#0008
067A ;                        0770                    . .
067A 835449C2;               0771                    ,#83,T'TI',#C2  ..TIB
067E 0671;                    0772                    ,A(R0-5)
0680 05DF;                    0773 TIB:    ,A(USER)
0682 000A;                    0774                    ,#000A
0684 ;                        0775                    . .
0684 8557494454C8;           0776                    ,#85,T'WIDT',#C8         ..WIDTH
068A 067A;                    0777                    ,A(TIB-6)                ..MAXIMUM WORD LENGTH
068C 05DF;                    0778 WIDTH:  ,A(USER)
068E 000C;                    0779                    ,#000C
0690 ;                        0780                    . .
0690 875741524E494E;0781                    ,#87,T'WARNIN',#C7       ..WARNING
0697 C7;                      0781
0698 0684;                    0782                    ,A(WIDTH-8)
069A 05DF;                    0783 WRNG:   ,A(USER)
069C 000E;                    0784                    ,#000E
069E ;                        0785                    . .
069E 8546454E43C5;            0786                    ,#85,T'FENC',#C5   ..FENCE   FORGET BOUNDARY
06A4 0690;                    0787                    ,A(WRNG-10)
06A6 05DF;                    0788 FNCE:   ,A(USER)
06A8 0010;                    0789                    ,#0010
06AA ;                        0790                    . .
06AA 8244D0;                  0791                    ,#8244D0                    ..DP
06AD 069E;                    0792                    ,A(FNCE-8)
06AF 05DF;                    0793 DP:     ,A(USER)
06B1 0012;                    0794                    ,#0012
06B3 ;                        0795                    . .
06B3 88564F432D4C49;0796                    ,#88,T'VOC-LIN',#CB       ..VOC-LINK
06BA 4ECB;                    0796
06BC 06AA;                    0797                    ,A(DP-5)
06BE 05DF;                    0798 VL:     ,A(USER)
06C0 0014;                    0799                    ,#0014
06C2 ;                        0800                    . .
06C2 83424CCB;               0801                    ,#83424CCB         ..BLK
06C6 06B3;                    0802                    ,A(VL-11)
06C8 05DF;                    0803 BLK:    ,A(USER)
06CA 0016;                    0804                    ,#0016
06CC ;                        0805                    . .
06CC 8249CE;                  0806                    ,#8249CE           ..IN
06CF 06C2;                    0807                    ,A(BLK-6)
06D1 05DF;                    0808 FIN:    ,A(USER)
06D3 0018;                    0809                    ,#0018
06D5 ;                        0810                    . .
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06D5 834F55D4;        0811                  ,#83,T'OU',#D4   ..OUT
06D9 06CC;            0812                  ,A(FIN-5)
06DB 05DF;            0813 FOUT:            ,A(USER)
06DD 001A;            0814                  ,#001A
06DF ;               0815                  ..
06DF 835343D2;        0816                  ,#83,T'SC',#D2   ..SCR
06E3 06D5;            0817                  ,A(FOUT-6)
06E5 05DF;            0818 FSCR:            ,A(USER)
06E7 001C;            0819                  ,#001C
06E9 ;               0820                  ..
06E9 864F46465345D4; 0821                  ,#86,T'OFFSE',#D4        ..OFFSET
06F0 06DF;            0822                  ,A(FSCR-6)
06F2 05DF;            0823 OFST:            ,A(USER)
06F4 001E;            0824                  ,#001E
06F6 ;               0825                  ..
06F6 87434F4E544558; 0826                  ,#87,T'CONTEX',#D4       ..CONTEXT
06FD D4;             0826
06FE 06E9;            0827                  ,A(OFST-9)
0700 05DF;            0828 CNTX:            ,A(USER)
0702 0020;            0829                  ,#0020
0704 ;               0830                  ..
0704 8743555252454E; 0831                  ,#87,T'CURREN',#D4       ..CURRENT
070B D4;             0831
070C 06F6;            0832                  ,A(CNTX-10)
070E 05DF;            0833 CRNT:            ,A(USER)
0710 0022;            0834                  ,#0022
0712 ;               0835                  ..
0712 855354415C5;    0836                  ,#85,T'STAT',#C5         ..STATE
0718 0704;            0837                  ,A(CRNT-10)
071A 05DF;            0838 STT:             ,A(USER)
071C 0024;            0839                  ,#0024
071E ;               0840                  ..
071E 844241535;      0841                  ,#84,T'BAS',#C5          ..BASE
0723 0712;            0842                  ,A(STT-8)
0725 05DF;            0843 BASE:            ,A(USER)
0727 0026;            0844                  ,#0026
0729 ;               0845                  ..
0729 834450CC;        0846                  ,#834450CC               ..DPL
072D 071E;            0847                  ,A(BASE-7)
072F 05DF;            0848 DPL:             ,A(USER)
0731 0028;            0849                  ,#0028
0733 ;               0850                  ..
0733 83464CC4;        0851                  ,#83464CC4               ..FLD
0737 0729;            0852                  ,A(DPL-6)
0739 05DF;            0853 FLD:             ,A(USER)
073B 002A;            0854                  ,#002A
073D ;               0855                  ..
073D 834353D0;        0856                  ,#834353D0               ..CSP
0741 0733;            0857                  ,A(FLD-6)
0743 05DF;            0858 CSP:             ,A(USER)
0745 002C;            0859                  ,#002C
0747 ;               0860                  ..
0747 8252A3;          0861                  ,#8252A3                 ..R#
074A 073D;            0862                  ,A(CSP-6)
074C 05DF;            0863 RNU:             ,A(USER)
074E 002E;            0864                  ,#002E
0750 ;               0865                  ..
0750 83484CC4;        0866                   ,#83484CC4              ..HLD
0754 0747;            0867                  ,A(RNU-5)
0756 05DF;            0868 HLD:             ,A(USER)
0758 0030;            0869                  ,#0030
075A 8244D6;          0870                  ,#8244D6                 ..DV
075D 0750;            0871                  ,A(HLD-6) .. 3 BYTE VECTOR AREA
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075F ;                      0872  ..USED DURING DISK OPERATIONS
075F 05DF;                  0873  DV:     ,A(USER)
0761 0032;                  0874          ,#0032
0763 ;                      0875          ..
0763 ;                      0876          ..   END OF USER VARIABLES  ..
0763 ;                      0877          ..
0763 8231AB;               0878          ,#8231AB                    ..1+
0766 075A;                  0879          ,A(DV-5)
0768 05C2;                  0880  PLUS1:  ,A(NEST)
076A 05FA;                  0881          ,A(ONE)
076C 03F7;                  0882          ,A(PLUS)
076E 0379;                  0883          ,A(SEMIS)
0770 ;                      0884          ..
0770 8232AB;               0885          ,#8232AB                    ..2+
0773 0763;                  0886          ,A(PLUS1-5)
0775 05C2;                  0887  PLUS2:  ,A(NEST)
0777 0602;                  0888          ,A(TWO)
0779 03F7;                  0889          ,A(PLUS)
077B 0379;                  0890          ,A(SEMIS)
077D ;                      0891          ..
077D 844845522C5;           0892          ,#84,T'HER',#C5             ..HERE
0782 0770;                  0893          ,A(PLUS2-5)
0784 05C2;                  0894  HERE:   ,A(NEST)
0786 06AF;                  0895          ,A(DP)
0788 04FA;                  0896          ,A(AT)
078A 0379;                  0897          ,A(SEMIS)
078C ;                      0898          ..
078C 85414C4C4FD4;         0899          ,#85,T'ALLO',#D4            ..ALLOT
0792 077D;                  0900          ,A(HERE-7)
0794 05C2;                  0901  ALLOT:  ,A(NEST)
0796 06AF;                  0902          ,A(DP)
0798 04C6;                  0903          ,A(PLUSS)
079A 0379;                  0904          ,A(SEMIS)
079C ;                      0905          ..
079C 81AC;                  0906          ,#81AC                     ..  ,  (COMMA)
079E 078C;                  0907          ,A(ALLOT-8)
07A0 05C2;                  0908  COMMA:  ,A(NEST)
07A2 0784;                  0909          ,A(HERE)
07A4 051E;                  0910          ,A(EX)
07A6 0602;                  0911          ,A(TWO)
07A8 0794;                  0912          ,A(ALLOT)
07AA 0379;                  0913          ,A(SEMIS)
07AC ;                      0914          ..
07AC 8243AC;               0915          ,#8243AC                   ..  C,
07AF 079C;                  0916          ,A(COMMA-4)
07B1 05C2;                  0917  CCMA:   ,A(NEST)
07B3 0784;                  0918          ,A(HERE)
07B5 0535;                  0919          ,A(CEX)
07B7 05FA;                  0920          ,A(ONE)
07B9 0794;                  0921          ,A(ALLOT)
07BB 0379;                  0922          ,A(SEMIS)
07BD ;                      0923          ..
07BD 81AD;                  0924          ,#81AD              .. - (MINUS SIGN)
07BF 07AC;                  0925          ,A(CCMA-5)
07C1 05C2;                  0926  MINS:   ,A(NEST)
07C3 0412;                  0927          ,A(MINUS)
07C5 03F7;                  0928          ,A(PLUS)
07C7 0379;                  0929          ,A(SEMIS)
07C9 ;                      0930          ..
07C9 81BD;                  0931          ,#81BD          .. = EQUAL SIGN
07CB 07BD;                  0932          ,A(MINS-4)
07CD 05C2;                  0933  EQL:    ,A(NEST)
07CF 07C1;                  0934          ,A(MINS)
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07D1 03D2;          0935            ,A(ZEQAL)
07D3 0379;          0936            ,A(SEMIS)
07D5 ;              0937            ..
07D5 81BC;          0938            ,#81BC    .. <   (LESS THAN SIGN)
07D7 07C9;          0939            ,A(EQL-4)
07D9 05C2;          0940 LESS:      ,A(NEST)
07DB 07C1;          0941            ,A(MINS)
07DD 03EB;          0942            ,A(ZLESS)
07DF 0379;          0943            ,A(SEMIS)
07E1 ;              0944            ..
07E1 81BE;          0945            ,#81BE    .. >   (GTR THAN`SIGN)
07E3 07D5;          0946            ,A(LESS-4)
07E5 05C2;          0947 GTR:       ,A(NEST)
07E7 0499;          0948            ,A(SWAP)
07E9 07D9;          0949            ,A(LESS)
07EB 0379;          0950            ,A(SEMIS)
07ED ;              0951            ..
07ED 83524FD4;      0952            ,#83524FD4       .. ROT
07F1 07E1;          0953            ,A(GTR-4)
07F3 05C2;          0954 ROT:       ,A(NEST)
07F5 039D;          0955            ,A(GR)
07F7 0499;          0956            ,A(SWAP)
07F9 03A9;          0957            ,A(RG)
07FB 0499;          0958            ,A(SWAP)
07FD 0379;          0959            ,A(SEMIS)
07FF ;              0960            ..
07FF 8553504143C5;  0961            ,#85,T'SPAC',#C5        ..SPACE
0805 07ED;          0962            ,A(ROT-6)
0807 05C2;          0963 SPC:       ,A(NEST)
0809 060B;          0964            ,A(BL)
080B 054A;          0965            ,A(EMIT)
080D 0379;          0966            ,A(SEMIS)
080F ;              0967            ..
080F 842D4455D0;    0968            ,#84,T'-DU',#D0 ..  -DUP
0814 07FF;          0969            ,A(SPC-8)
0816 05C2;          0970  MDUP:     ,A(NEST)
0818 04B6;          0971            ,A(DUP)
081A 00D00820;      0972            ,A(ZBRCH),A(*+4)
081E 04B6;          0973            ,A(DUP)
0820 0379;          0974            ,A(SEMIS)
0822 ;              0975            ..
0822 8854524156455 20976            ,#88,T'TRAVERS',#C5        ..TRAVERSE
0829 53C5;          0976
082B 080F;          0977            ,A(MDUP-7)
082D 05C2;          0978 TRVS:      ,A(NEST)
082F 0499;          0979            ,A(SWAP)
0831 0473;          0980 TR1:       ,A(OVER)
0833 03F7;          0981   .        ,A(PLUS)
0835 0086007F;      0982            ,A(LIT),#007F
0839 0473;          0983            ,A(OVER)
083B 050D;          0984            ,A(CAT)
083D 07D9;          0985            ,A(LESS)
083F 00D00831;      0986            ,A(ZBRCH),A(TR1)
0843 0499;          0987            ,A(SWAP)
0845 048D;          0988            ,A(DROP)
0847 0379;          0989            ,A(SEMIS)
0849 ;              0990            ..
0849 ;              0991            ..
0849 864C41544553D4;0992           ,#86,T'LATES',#D4        ..LATEST
0850 0822;          0993            ,A(TRVS-11)
0852 05C2;          0994 LTST:      ,A(NEST)
0854 070E;          0995            ,A(CRNT)
0856 04FA;          0996            ,A(AT)
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0859 04FA;          0997              ,A(AT)
085A 0379;          0998              ,A(SEMIS)
085C ;              0999              ..
085C ;              1000              ..
085C 834C46C1;      1001              ,#834C46C1       ..LFA
0860 0849;          1002              ,A(LTST-9)       ..LINK FIELD ADDRESS
0862 05C2;          1003 LFA:         ,A(NEST)
0864 00860004;      1004              ,A(LIT),#0004
0868 07C1;          1005              ,A(MINS)
086A 0379;          1006              ,A(SEMIS)
086C ;              1007              ..
086C 834346C1;      1008              ,#834346C1       ..CFA
0870 085C;          1009              ,A(LFA-6)        ..CODE FIELD ADDRESS
0872 05C2;          1010 CFA:         ,A(NEST)
0874 0602;          1011              ,A(TWO)
0876 07C1;          1012              ,A(MINS)
0878 0379;          1013              ,A(SEMIS )
087A ;              1014              ..
087A ;              1015              ..
087A 834E46C1;      1016              ,#834E46C1       ..NFA
087E 086C;          1017              ,A(CFA-6)        ..NAME FIELD ADDRESS
0880 05C2;          1018 NFA:         ,A(NEST)
0882 00860005;      1019              ,A(LIT),#0005
0886 07C1;          1020              ,A(MINS)
0888 0086FFFF;      1021              ,A(LIT),#FFFF
088C 082D;          1022              ,A(TRVS)
088E 0379;          1023              ,A(SEMIS)
0890 ;              1024              ..
0890 ;              1025              ..
0890 835046C1;      1026              ,#835046C1       ..PFA
0894 087A;          1027              ,A(NFA-6)        ..PARAMETER FIELD ADDRESS
0896 05C2;          1028 PFA:         ,A(NEST)
0898 05FA;          1029              ,A(ONE)
089A 082D;          1030              ,A(TRVS)
089C 00860005;      1031              ,A(LIT),#0005
08A0 03F7;          1032              ,A(PLUS)
08A2 0379;          1033              ,A(SEMIS)
08A4 ;              1034              ..
08A4 ;              1035              ..
08A4 84214353D0;    1036              ,#84214353D0     .. !CSP
08A9 0890;          1037              ,A(PFA-6)
08AB 05C2;          1038 DCSP:        ,A(NEST)
08AD 033D;          1039              ,A(FSPAT)
08AF 0743;          1040              ,A(CSP)
08B1 051E;          1041              ,A(EX)
08B3 0379;          1042              ,A(SEMIS)
08B5 ;              1043              ..
08B5 ;              1044              ..
08B5 863F4552524FD2;1045             ,#86,T'?ERRO',#D2          .. ?ERROR
08BC 08A4;          1046              ,A(DCSP-7)
08BE 05C2;          1047 QERR:        ,A(NEST)
08C0 0499;          1048              ,A(SWAP)
08C2 00D008CC;      1049              ,A(ZBRCH),A(*+8)
08C6 0CE5;          1050              ,A(ERROR)
08C8 00BD08CE;      1051              ,A(BRCH),A(*+4)
08CC 048D;          1052              ,A(DROP)
08CE 0379;          1053              ,A(SEMIS)
08D0 ;              1054              ..
08D0 ;              1055              ..
08D0 853F434F4DD0;  1056              ,#85,T'?COM',#D0           .. ?COMP
08D6 08B5;          1057              ,A(QERR-9)
08D8 05C2;          1058 QCMP:        ,A(NEST)
08DA 071A;          1059              ,A(STT)
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08DC 04FA;          1060            ,A(AT)
08DE 03D2;          1061            ,A(ZEQAL)
08E0 00860011;      1062            ,A(LIT),#0011
08E4 08BE;          1063            ,A(QERR)
08E6 0379;          1064            ,A(SEMIS)
08E8 ;              1065            ..
08E8 ;              1066            ..
08E8 853F45584503;  1067            ,#85,T'?EXE',#C3         ..  ?EXEC
08EE 08D0;          1068            ,A(QCMP-8)
08F0 05C2;          1069 EXC:       ,A(NEST)
08F2 071A;          1070            ,A(STT)
08F4 04FA;          1071            ,A(AT)
08F6 00860012;      1072            ,A(LIT),#0012
08FA 08BE;          1073            ,A(QERR)
08FC 0379;          1074            ,A(SEMIS)
08FE ;              1075            ..
08FE ;              1076            ..
08FE 863F50414952D3;1077            ,#86,T'?PAIR',#D3        ..  ?PAIRS
0905 08E8;          1078            ,A(EXC-8)
0907 05C2;          1079 QPR:       ,A(NEST)
0909 07C1;          1080            ,A(MINS)
090B 00860013;      1081            ,A(LIT),#0013
090F 08BE;          1082            ,A(QERR)
0911 0379;          1083            ,A(SEMIS)
0913 ;              1084            ..
0913 ;              1085            ..
0913 843F4353D0;    1086            ,#843F4353D0         ..  ?CSP
0918 08FE;          1087            ,A(QPR-9)
091A 05C2;          1088 QCSP:      ,A(NEST)
091C 033D;          1089            ,A(FSPAT)
091E 0743;          1090            ,A(CSP)
0920 04FA;          1091            ,A(AT)
0922 07C1;          1092            ,A(MINS)
0924 00860014;      1093            ,A(LIT),#0014
0928 08BE;          1094            ,A(QERR)
092A 0379;          1095            ,A(SEMIS)
092C ;              1096            ..
092C ;              1097            ..
092C 883F4C4F414449;1098            ,#88,T'?LOADIN',#C7      ..  ?LOADING
0933 4EC7;          1098
0935 0913;          1099            ,A(QCSP-7)
0937 05C2;          1100 QLDG:      ,A(NEST)
0939 06C8;          1101            ,A(BLK)
093B 04FA;          1102            ,A(AT)
093D 03D2;          1103            ,A(ZEQAL)
093F 00860016;      1104            ,A(LIT),#0016
0943 08BE;          1105            ,A(QERR)
0945 0379;          1106            ,A(SEMIS)
0947 ;              1107            ..
0947 ;              1108            ..
0947 87434F4D50494C;1109           ,#87,T'COMPIL',#C5       ..  COMPILE
094E C5;            1109
094F 092C;          1110            ,A(QLDG-11)
0951 05C2;          1111 CMPL:      ,A(NEST)
0953 08D8;          1112            ,A(QCMP)
0955 03AD;          1113            ,A(RG)
0957 04B6;          1114            ,A(DUP)
0959 0775;          1115            ,A(PLUS2)
095B 039D;          1116            ,A(GR)
095D 04FA;          1117            ,A(AT)
095F 07A0;          1118            ,A(COMMA)
0961 0379;          1119            ,A(SEMIS)
0963 ;              1120            ..
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0963 ;              1121                    ..
0963 C1DB;          1122                    ,#C1DB             ..  [   LEFT BRACKET
0965 0947;          1123                    ,A(CMPL-10)
0967 05C2;          1124 LB:               ,A(NEST)
0969 05F2;          1125                    ,A(ZERO)
096B 071A;          1126                     ,A(STT)
096D 051E;          1127                    ,A(EX)
096F 0379;          1128                    ,A(SEMIS)
0971 ;              1129                    ..
0971 ;              1130                    ..
0971 81DD;          1131                    ,#81DD            ..  ]   RIGHT BRACKET
0973 0963;          1132                    ,A(LB-4)
0975 05C2;          1133 RB:               ,A(NEST)
0977 008600C0;      1134                    ,A(LIT),#00C0
097B 071A;          1135                    ,A(STT)
097D 051E;          1136                    ,A(EX)
097F 0379;          1137                    ,A(SEMIS)
0981 ;              1138                    ..
0981 ;              1139                    ..
0981 86534D554447C5;1140                    ,#86,T'SMUDG',#C5         ..SMUDGE
0988 0971;          1141                    ,A(RB-4)
098A 05C2;          1142 SMDG:             ,A(NEST)
098C 0852;          1143                    ,A(LTST)
098E 00860020;      1144                    ,A(LIT),#0020
0992 04E3;          1145                    ,A(TGLE)
0994 0379;          1146                    ,A(SEMIS)
0996 ;              1147                    ..
0996 ;              1148                    ..
0996 834845D8;      1149                    ,#834845D8                ..HEX
099A 0981;          1150                    ,A(SMDG-9)
099C 05C2;          1151 MHEX:             ,A(NEST)
099E 00860010;      1152                    ,A(LIT),#0010
09A2 0725;          1153                    ,A(BASE)
09A4 051E;          1154                    ,A(EX)
09A6 0379;          1155                    ,A(SEMIS)
09A8 ;              1156                    ..
09A8 ;              1157                    ..
09A8 87444543494D41;1158                    ,#87,T'DECIMA',#CC        ..DECIMAL
09AF CC;            1158
09B0 0996;          1159                    ,A(MHEX-6)
09B2 05C2;          1160 MDCML:            ,A(NEST)
09B4 0086000A;      1161                    ,A(LIT),#000A
09B8 0725;          1162                    ,A(BASE)
09BA 051E;          1163                    ,A(EX)
09BC 0379;          1164                    ,A(SEMIS)
09BE ;              1165                    ..
09BE ;              1166                    ..
09BE 87283B434F4445;1167                    ,#87,T'(;CODE',#A9     .. (;CODE)
09C5 A9;            1167
09C6 09A8;          1168                    ,A(MDCML-10)
09C8 05C2;          1169 PCODE:            ,A(NEST)
09CA 03AD;          1170                    ,A(RG)
09CC 0852;          1171                    ,A(LTST)
09CE 0896;          1172                    ,A(PFA)
09D0 0872;          1173                    ,A(CFA)
09D2 051E;          1174                    ,A(EX)
09D4 0379;          1175                    ,A(SEMIS)
09D6 ;              1176                    ..
09D6 ;              1177                    ..
09D6 C53B434F44C5;  1178                    ,#C5,T';COD',#C5       .. ;CODE    (IMMEDIATE)
09DC 09BE;          1179                    ,A(PCODE-10)
09DE 05C2;          1180 CODE:             ,A(NEST)
09E0 091A;          1181                    ,A(QCSP)
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09E2 0951;          1182              ,A(CMPL)
09E4 09C8;          1183              ,A(PCODE)
09E6 0967;          1184              ,A(LB)
09E8 098A;          1185              ,A(SMDG)
09EA 0379;          1186              ,A(SEMIS)
09EC ;              1187              ..
09EC ;              1188              ..
09EC 85434F554ED4;  1189              ,#85,T'COUN',#D4          ..COUNT
09F2 09D6;          1190              ,A(CODE-8)
09F4 05C2;          1191  CNT:        ,A(NEST)
09F6 04B6;          1192              ,A(DUP)
09F8 0768;          1193              ,A(PLUS1)
09FA 0499;          1194              ,A(SWAP)
09FC 050D;          1195              ,A(CAT)
09FE 0379;          1196              ,A(SEMIS)
0A00 ;              1197              ..
0A00 ;              1198              ..
0A00 8454595OC5;    1199              ,#84,T'TYP',#C5          ..TYPE
0A05 09EC;          1200              ,A(CNT-8)
0A07 05C2;          1201  TYPE:       ,A(NEST)
0A09 0816;          1202              ,A(MDUP)
0A0B 00D00A25;      1203              ,A(ZBRCH),A(*+24)
0A0F 0473;          1204              ,A(OVER)
0A11 03F7;          1205              ,A(PLUS)
0A13 0499;          1206              ,A(SWAP)
0A15 0150;          1207              ,A(PDO)
0A17 03BD;          1208  TYP1:       ,A(R)
0A19 050D;          1209              ,A(CAT)
0A1B 054A;          1210              ,A(EMIT)
0A1D 00EC;          1211              ,A(LUPE)
0A1F 0A17;          1212              ,A(TYP1)
0A21 00BD0A27;      1213              ,A(BRCH),A(*+4)
0A25 048D;          1214              ,A(DROP)
0A27 0379;          1215              ,A(SEMIS)
0A29 ;              1216              ..
0A29 ;              1217              ..
0A29 892D545241494C;1218              ,#89,T'-TRAILIN',#C7     ..-TRAILING
0A30 494E C7;       1218
0A33 0A00;          1219              ,A(TYPE-7)
0A35 05C2;          1220  TRLG:       ,A(NEST)
0A37 04B6;          1221              ,A(DUP)
0A39 05F2;          1222              ,A(ZERO)
0A3B 0150;          1223              ,A(PDO)
0A3D 0473;          1224  TRL1:       ,A(OVER)
0A3F 0473;          1225              ,A(OVER)
0A41 03F7;          1226              ,A(PLUS)
0A43 05FA;          1227              ,A(ONE)
0A45 07C1;          1228              ,A(MINS)
0A47 050D;          1229              ,A(CAT)
0A49 060B;          1230              ,A(BL)
0A4B 07C1;          1231              ,A(MINS)
0A4D 00D00A57;      1232              ,A(ZBRCH),A(*+8)
0A51 0389;          1233              ,A(LVE)
0A53 00BD0A5B;      1234              ,A(BRCH),A(*+6)
0A57 05FA;          1235              ,A(ONE)
0A59 07C1;          1236              ,A(MINS)
0A5B 00EC0A3D;      1237              ,A(LUPE),A(TRL1)
0A5F 0379;          1238              ,A(SEMIS)
0A61 ;              1239              ..
0A61 ;              1240              ..
0A61 84282E22A9;    1241              ,#84282E22A9      ..  (.")
0A66 0A29;          1242              ,A(TRLG-12)
0A68 05C2;          1243  PDQ:        ,A(NEST)
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0A6A 03BD;        1244          ,A(R)
0A6C 09F4;        1245          ,A(CNT)
0A6E 04B6;        1246          ,A(DUP)
0A70 0768;        1247          ,A(PLUS1)
0A72 03AD;        1248          ,A(RG)
0A74 03F7;        1249          ,A(PLUS)
0A76 039D;        1250          ,A(GR)
0A78 0A07;        1251          ,A(TYPE)
0A7A 0379;        1252          ,A(SEMIS)
0A7C ;            1253          ..
0A7C ;            1254          ..
0A7C 864558504543D4;1255        ,#86,T'EXPEC',#D4         ..    EXPECT
0A83 0A61;        1256          ,A(PDQ-7)
0A85 05C2;        1257 EXPT:    ,A(NEST)
0A87 0473;        1258          ,A(OVER)
0A89 03F7;        1259          ,A(PLUS)
0A8B 0473;        1260          ,A(OVER)
0A8D 0150;        1261          ,A(PDO)
0A8F 0578;        1262 EXPT4:   ,A(KEY)
0A91 04B6;        1263          ,A(DUP)
0A93 0086000E;    1264          ,A(LIT),#000E
0A97 0660;        1265          ,A(PORGN)
0A99 04FA;        1266          ,A(AT)
0A9B 07CD;        1267          ,A(EQL)
0A9D 00D00ABF;    1268          ,A(ZBRCH),A(EXPT1)
0AA1 048D;        1269          ,A(DROP)
0AA3 00860008;    1270          ,A(LIT),#0008
0AA7 0473;        1271          ,A(OVER)
0AA9 03BD;        1272          ,A(R)
0AAB 07CD;        1273          ,A(EQL)
0AAD 04B6;        1274          ,A(DUP)
0AAF 03AD;        1275          ,A(RG)
0AB1 0602;        1276          ,A(TWO)
0AB3 07C1;        1277          ,A(MINS)
0AB5 03F7;        1278          ,A(PLUS)
0AB7 039D;        1279          ,A(GR)
0AB9 07C1;        1280          ,A(MINS)
0ABB 00BD0AE5;    1281          ,A(BRCH),A(EXPT2)
0ABF 04B6;        1282 EXPT1:   ,A(DUP)
0AC1 0086000D;    1283          ,A(LIT),#000D
0AC5 07CD;        1284          ,A(EQL)
0AC7 00D00AD7;    1285          ,A(ZBRCH),A(EXPT3)
0ACB 0389;        1286          ,A(LVE)
0ACD 048D;        1287          ,A(DROP)
0ACF 060B;        1288          ,A(BL)
0AD1 05F2;        1289          ,A(ZERO)
0AD3 00BD0AD9;    1290          ,A(BRCH),A(EXPT5)
0AD7 04B6;        1291 EXPT3:   ,A(DUP)
0AD9 03BD;        1292 EXPT5:   ,A(R)
0ADB 0535;        1293          ,A(CEX)
0ADD 05F2;        1294          ,A(ZERO)
0ADF 03BD;        1295          ,A(R)
0AE1 0768;        1296          ,A(PLUS1)
0AE3 051E;        1297          ,A(EX)
0AE5 054A;        1298 EXPT2:   ,A(EMIT)
0AE7 00EC0A8F;    1299          ,A(LUPE),A(EXPT4)
0AEB 048D;        1300          ,A(DROP)
0AED 0379;        1301          ,A(SEMIS)
0AEF ;            1302          ..
0AEF ;            1303          ..
0AEF 8551554552D9;1304          ,#85,T'QUER',#D9         ..    QUERY
0AF5 0A7C;        1305          ,A(EXPT-9)     ..    INPUT LINE OF TEXT
0AF7 05C2;        1306 QUER:    ,A(NEST)
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0AF9 0680;        1307        ,A(TIB)
0AFB 04FA;        1308        ,A(AT)
0AFD 00860050;    1309        ,A(LIT),#0050
0B01 0A85;        1310        ,A(EXPT)
0B03 05F2;        1311        ,A(ZERO)
0B05 06D1;        1312        ,A(FIN)
0B07 051E;        1313        ,A(EX)
0B09 0379;        1314        ,A(SEMIS
0B0B ;            1315        ..
0B0B ;            1316        ..
0B0B C180;        1317        ,#C180           ..   X   (IMMEDIATE)
0B0D 0AEF;        1318        ,A(QUER-8)
0B0F 05C2;        1319 X:     ,A(NEST)
0B11 06C8;        1320        ,A(BLK)
0B13 04FA;        1321        ,A(AT)
0B15 00D00B3F;    1322        ,A(ZBRCH),A(X2)
0B19 05FA;        1323        ,A(ONE)
0B1B 06C8;        1324        ,A(BLK)
0B1D 04C6;        1325        ,A(PLUSS)
0B1F 05F2;        1326        ,A(ZERO)
0B21 06D1;        1327        ,A(FIN)
0B23 051E;        1328        ,A(EX)
0B25 06C8;        1329        ,A(BLK)
0B27 04FA;        1330        ,A(AT)
0B29 00860007;    1331        ,A(LIT),#0007
0B2D 02F3;        1332        ,A(FAND)
0B2F 03D2;        1333        ,A(ZEQAL)
0B31 00D00B3B;    1334        ,A(ZBRCH),A(X1)
0B35 08F0;        1335        ,A(EXC)
0B37 03AD;        1336        ,A(RG)
0B39 048D;        1337        ,A(DROP)
0B3B 00BD0B43;    1338 X1:    ,A(BRCH),A(XEND)
0B3F 03AD;        1339 X2:    ,A(RG)
0B41 048D;        1340        ,A(DROP)
0B43 0379;        1341 XEND:  ,A(SEMIS)
0B45 ;            1342        ..
0B45 ;            1343        ..
0B45 8446494CCC;  1344        ,#84,T'FIL',#CC ..FILL   FILL MEMORY
0B4A 0B0B;        1345        ,A(X-4)
0B4C 05C2;        1346 FILL:  ,A(NEST)
0B4E 0499;        1347        ,A(SWAP)
0B50 039D;        1348        ,A(GR)
0B52 0473;        1349        ,A(OVER)
0B54 0535;        1350        ,A(CEX)
0B56 04B6;        1351        ,A(DUP)
0B58 0768;        1352        ,A(PLUS1)
0B5A 03AD;        1353        ,A(RG)
0B5C 05FA;        1354        ,A(ONE)
0B5E 07C1;        1355        ,A(MINS)
0B60 0246;        1356        ,A(CMOVE)
0B62 0379;        1357        ,A(SEMIS)
0B64 ;            1358        ..
0B64 ;            1359        ..
0B64 8545524153C5;1360       ,#85,T'ERAS',#C5           ..ERASE   ZERO MEMORY
0B6A 0B45;        1361        ,A(FILL-7)
0B6C 05C2;        1362 ERS:   ,A(NEST)
0B6E 05F2;        1363        ,A(ZERO)
0B70 0B4C;        1364        ,A(FILL)
0B72 0379;        1365        ,A(SEMIS)
0B74 ;            1366        ..
0B74 ;            1367        ..
0B74 86424C414E4BD3;1368     ,#86,T'BLANK',#D3          ..BLANKS
0B7B 0B64;        1369        ,A(ERS-8)                  ..FILL MEMORY WITH
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0B7D 05C2;      1370 BLNK:   ,A(NEST)              ..ASCII BLANKS
0B7F 060B;      1371         ,A(BL)
0B81 0B4C;      1372         ,A(FILL)
0B83 0379;      1373         ,A(SEMIS)
0B85 ;          1374         ..
0B85 ;          1375         ..
0B85 84484F4CC4; 1376        ,#84,T'HOL',#C4      ..  HOLD
0B8A 0B74;      1377         ,A(BLNK-9)
0B8C 05C2;      1378 HOLD:   ,A(NEST)
0B8E 0086FFFF;  1379         ,A(LIT),#FFFF        ..  -1
0B92 0756;      1380         ,A(HLD)
0B94 04C6;      1381         ,A(PLUSS)
0B96 0756;      1382         ,A(HLD)
0B98 04FA;      1383         ,A(AT)
0B9A 0535;      1384         ,A(CEX)
0B9C 0379;      1385         ,A(SEMIS)
0B9E ;          1386         ..
0B9E ;          1387         ..
0B9E 835041C4;  1388         ,#83,T'PA',#C4       ..  PAD
0BA2 0B85;      1389         ,A(HOLD-7)
0BA4 05C2;      1390 PAD:    ,A(NEST)
0BA6 0784;      1391         ,A(HERE)
0BA8 00860044;  1392         ,A(LIT),#0044
0BAC 03F7;      1393         ,A(PLUS)
0BAE 0379;      1394         ,A(SEMIS)
0BB0 ;          1395         ..
0BB0 ;          1396         ..
0BB0 84574F52C4; 1397        ,#84,T'WOR',#C4      ..  WORD
0BB5 0B9E;      1398         ,A(PAD-6)
0BB7 05C2;      1399 WORD:   ,A(NEST)
0BB9 06C8;      1400         ,A(BLK)
0BBB 04FA;      1401         ,A(AT)
0BBD 00D00BCB;  1402         ,A(ZBRCH),A(WD1)
0BC1 06C8;      1403         ,A(BLK)
0BC3 04FA;      1404         ,A(AT)
0BC5 160A;      1405         ,A(BLOCK)
0BC7 00BD0BCF;  1406         ,A(BRCH),A(WD2)
0BCB 0680;      1407 WD1:    ,A(TIB)
0BCD 04FA;      1408         ,A(AT)
0BCF 06D1;      1409 WD2:    ,A(FIN)
0BD1 04FA;      1410         ,A(AT)
0BD3 03F7;      1411         ,A(PLUS)
0BD5 0499;      1412         ,A(SWAP)
0BD7 01FE;      1413         ,A(ENCL)
0BD9 0784;      1414         ,A(HERE)
0BDB 00860022;  1415         ,A(LIT),#0022
0BDF 0B7D;      1416         ,A(BLNK)
0BE1 06D1;      1417         ,A(FIN)
0BE3 04C6;      1418         ,A(PLUSS)
0BE5 0473;      1419         ,A(OVER)
0BE7 07C1;      1420         ,A(MINS)
0BE9 039D;      1421         ,A(GR)
0BEB 03BD;      1422         ,A(R)
0BED 0784;      1423         ,A(HERE)
0BEF 0535;      1424         ,A(CEX)
0BF1 03F7;      1425         ,A(PLUS)
0BF3 0784;      1426         ,A(HERE)
0BF5 0768;      1427         ,A(PLUS1)
0BF7 03AD;      1428         ,A(RG)
0BF9 0246;      1429         ,A(CMOVE)
0BFB 0379;      1430         ,A(SEMIS)
0BFD ;          1431         ..
0BFD ;          1432         ..
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0BF9  6826A4E554042453;  1433          ,#88,T'<NUMBER>,#A9    ..  <NUMBER>
0C04  52A9;               1434          ,A<WORD--7>
0C06  0BB0;               1435  FNMBR:  ,A<NEST>
0C08  05C2;               1436          ,A<PLUS1>
0C0A  0768;               1437          ,A<DUP>
0C0C  04B6;               1438          ,A<GR>
0C0E  039D;               1439          ,A<CAT>
0C10  050D;               1440          ,A<AT>
0C12  0725;               1441          ,A<BASE>
0C14  04FA;               1442          ,A<AT>
0C16  016B;               1443          ,A<DGT>
0C18  00D00C46;           1444          ,A<ZBRCH>,A<FNM2>
0C1C  0499;               1445          ,A<SWAP>
0C1E  0725;               1446          ,A<BASE>
0C20  04FA;               1447          ,A<AT>
0C22  0278;               1448          ,A<USTAR>
0C24  0481;               1449          ,A<DROP>
0C26  07F3;               1450          ,A<ROT>
0C28  0725;               1451          ,A<BASE>
0C2A  04FA;               1452          ,A<AT>
0C2C  0278;               1453          ,A<USTAR>
0C2E  042A;               1454          ,A<DPLUS>
0C30  072F;               1455          ,A<DPL>
0C32  04FA;               1456          ,A<AT>
0C34  0768;               1457          ,A<PLUS1>
0C36  00D00C40;           1458          ,A<ZBRCH>,A<FNM1 >
0C3A  05FA;               1459          ,A<ONE>
0C3C  072F;               1460          ,A<DPL>
0C3E  04C6;               1461          ,A<PLUSS>
0C40  03AD;               1462          ,A<RG>
0C42  00B00C0A;           1463  FNM1:   ,A<BRCH>,A<FNMBR+2>
0C46  03AD;               1464          ,A<RG>
0C48  0379;               1465          ,A<SEMIS>
0C4A  ;                   1466          ..
0C4A  ;                   1467          ..
0C4A  864E55404245D2;     1468  FNM2:   ,#86,T'NUMBE',#D2     ..  NUMBER
0C51  0BFD;               1469  NMBR:   ,A<NEST>
0C53  05C2;               1470          ,A<NEST>
0C55  05F2;               1471          ,A<ZERO>
0C57  05F2;               1472          ,A<ZERO>
0C59  07F3;               1473          ,A<ROT>
0C5B  04B6;               1474          ,A<GR>
0C5D  0768;               1475          ,A<DUP>
0C5F  050D;               1476          ,A<CAT>
0C61  0086002D;           1477          ,A<LIT>,#002D
0C65  07CB;               1478          ,A<EQL>
0C67  04B6;               1479          ,A<DUF>
0C69  039D;               1480          ,A<GR>
0C6B  03F7;               1481          ,A<PLUS>
0C6D  0086FFFF;           1482          ,A<LIT>,#FFFF   ..  -1
0C71  072F;               1483  NMB1:   ,A<DPL>
0C73  051E;               1484          ,A<EX>
0C75  0C08;               1485          ,A<PNMBR>
0C77  04B6;               1486          ,A<DUF>
0C79  050D;               1487          ,A<CAT>
0C7B  060B;               1488          ,A<RL>
0C7D  07C1;               1489          ,A<MINS>
0C7F  00D00C97;           1490          ,A<ZBRCH>,A<NMB2>
0C83  04B6;               1491          ,A<DUF>
0C85  050D;               1492          ,A<CAT>
0C87  0086002E;           1493          ,A<LIT>,#002E
0C8B  07C1;               1494          ,A<MINS>
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0C8D 05F2;          1495            ,A(ZERO)
0C8F 08BE;          1496            ,A(QERR)
0C91 05F2;          1497            ,A(ZERO)
0C93 00BD0C71;      1498            ,A(BRCH),A(NMB1)
0C97 048D;          1499 NMB2:      ,A(DROP)
0C99 03AD;          1500            ,A(RG)
0C9B 00D00CA1;      1501            ,A(ZBRCH),A(NMB3)
0C9F 0458;          1502            ,A(DMIN)
0CA1 0379;          1503 NMB3:      ,A(SEMIS)
0CA3 ;              1504            ..
0CA3 ;              1505            ..
0CA3 852D46494EC4;  1506            ,#85,T'-FIN',#C4         ..   -FIND
0CA9 0C4A;          1507            ,A(NMBR-9)
0CAB 05C2;          1508 MFIND:     ,A(NEST)
0CAD 060B;          1509            ,A(BL)
0CAF 0BB7;          1510            ,A(WORD)
0CB1 0784;          1511            ,A(HERE)
0CB3 0700;          1512            ,A(CNTX)
0CB5 04FA;          1513            ,A(AT)
0CB7 04FA;          1514            ,A(AT)
0CB9 0196;          1515            ,A(FIND)
0CBB 04B6;          1516            ,A(DUP)
0CBD 03D2;          1517            ,A(ZEQAL)
0CBF 00D00CCB;      1518            ,A(ZBRCH),A(MF1)
0CC3 048D;          1519            ,A(DROP)
0CC5 0784;          1520            ,A(HERE)
0CC7 0852;          1521            ,A(LTST)
0CC9 0196;          1522            ,A(FIND)
0CCB 0379;          1523 MF1:       ,A(SEMIS)
0CCD ;              1524            ..
0CCD ;              1525            ..
0CCD 872841424F5254;1526           ,#87,T'(ABORT',#A9       ..   (ABORT)
0CD4 A9;            1526
0CD5 0CA3;          1527            ,A(MFIND-8)
0CD7 05C2;          1528 PABRT:     ,A(NEST)
0CD9 0FBE;          1529            ,A(ABORT)
0CDB 0379;          1530            ,A(SEMIS)
0CDD ;              1531            ..
0CDD 854552524FD2;  1532            ,#85,T'ERRO',#D2         ..   ERROR
0CE3 0CCD;          1533            ,A(PABRT-10)
0CE5 05C2;          1534 ERROR:     ,A(NEST)
0CE7 069A;          1535            ,A(WRNG)
0CE9 04FA;          1536            ,A(AT)
0CEB 03EB;          1537            ,A(ZLESS)
0CED 00D00CF3;      1538            ,A(ZBRCH),A(ERR1)
0CF1 0CD7;          1539            ,A(PABRT)
0CF3 0784;          1540 ERR1:      ,A(HERE)
0CF5 09F4;          1541            ,A(CNT)
0CF7 0A07;          1542            ,A(TYPE)
0CF9 0A680320203F;  1543            ,A(PDQ),#03,T'  ?'
0CFF 148C;          1544            ,A(MSG)
0D01 0350;          1545            ,A(SP1)
0D03 06D1;          1546            ,A(FIN)
0D05 04FA;          1547            ,A(AT)
0D07 06C8;          1548            ,A(BLK)
0D09 04FA;          1549            ,A(AT`
0D0B           ;    1550            ,A(QUIT)
0D0D 0379;          1551            ,A(SEMIS)
0D0F ;              1552            ..
0D0F 834D49CE;      1553            ,#83,T'MI',#CE           ..   MIN
0D13 0CDD;          1554            ,A(ERROR-8)
0D15 05C2;          1555 MIN:       ,A(NEST)
0D17 0473;          1556            ,A(OVER)
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0D19 0473;        1557            ,A(OVER)
0D1B 07E5;        1558            ,A(GTR)
0D1D 00D00D23;    1559            ,A(ZBRCH),A(MN1)
0D21 0499;        1560            ,A(SWAP)
0D23 048D;        1561 MN1:       ,A(DROP)
0D25 0379;        1562            ,A(SEMIS)
0D27 ;            1563            ..
0D27 834944AE;    1564            ,#83,T'ID',#AE              ..   ID.
0D2B 0D0F;        1565            ,A(MIN-6)
0D2D 05C2;        1566 ID:        ,A(NEST)
0D2F 0BA4;        1567            ,A(PAD)
0D31 00860020;    1568            ,A(LIT),#0020
0D35 0086005F;    1569            ,A(LIT ),#005F
0D39 0B4C;        1570            ,A(FILL)
0D3B 04B6;        1571            ,A(DUP)
0D3D 0896;        1572            ,A(PFA)
0D3F 0862;        1573            ,A(LFA)
0D41 0473;        1574            ,A(OVER)
0D43 07C1;        1575            ,A(MINS)
0D45 0BA4;        1576            ,A(PAD)
0D47 0499;        1577            ,A(SWAP)
0D49 0246;        1578            ,A(CMOVE)
0D4B 0BA4;        1579            ,A(PAD)
0D4D 09F4;        1580            ,A(CNT)
0D4F 0086001F;    1581            ,A(LIT),#001F
0D53 02F3;        1582            ,A(FAND)
0D55 0A07;        1583            ,A(TYPE)
0D57 0807;        1584            ,A(SPC)
0D59 0379;        1585            ,A(SEMIS)
0D5B ;            1586            ..
0D5B ;            1587            ..
0D5B 864352454154C5;1588         ,#86,T'CREAT',#C5          .. CREATE
0D62 0D27;        1589            ,A(ID-6)
0D64 05C2;        1590 CRTE:      ,A(NEST)
0D66 033D;        1591            ,A(FSPAT)
0D68 0784;        1592            ,A(HERE)
0D6A 008600A0;    1593            ,A(LIT),#00A0
0D6E 03F7;        1594            ,A(PLUS)
0D70 07D9;        1595            ,A(LESS)
0D72 0602;        1596            ,A(TWO)
0D74 08BE;        1597            ,A(QERR)
0D76 0CAB;        1598            ,A(MFIND)
0D78 00D00D8A;    1599            ,A(ZBRCH),A(CRT1)
0D7C 048D;        1600            ,A(DROP)
0D7E 0880;        1601            ,A(NFA)
0D80 0D2D;        1602            ,A(ID)
0D82 00860004;    1603            ,A(LIT),#0004
0D86 148C;        1604            ,A(MSG)
0D88 0807;        1605            ,A(SPC)
0D8A 0784;        1606 CRT1:      ,A(HERE)
0D8C 04B6;        1607            ,A(DUP)
0D8E 050D;        1608            ,A(CAT)
0D90 068C;        1609            ,A(WIDTH)
0D92 04FA;        1610            ,A(AT)
0D94 0D15;        1611            ,A(MIN)
0D96 0768;        1612            ,A(PLUS1)
0D98 0794;        1613            ,A(ALLOT)
0D9A 04B6;        1614            ,A(DUP)
0D9C 008600A0;    1615            ,A(LIT),#00A0
0DA0 04E3;        1616            ,A(TGLE)
0DA2 0784;        1617            ,A(HERE)
0DA4 05FA;        1618            ,A(ONE)
0DA6 07C1;        1619            ,A(MINS)
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0DA8 00860080;      1620              ,A(LIT),#0080
0DAC 04E3;          1621              ,A(TGLE)
0DAE 0852;          1622              ,A(LTST)
0DB0 07A0;          1623              ,A(COMMA)
0DB2 070E;          1624              ,A(CRNT)
0DB4 04FA;          1625              ,A(AT)
0DB6 051E;          1626              ,A(EX)
0DB8 0784;          1627              ,A(HERE)
0DBA 0775;          1628              ,A(PLUS2)
0DBC 07A0;          1629              ,A(COMMA)
0DBE 0379;          1630              ,A(SEMIS)
0DC0 ;              1631              ..
0DC0 ;              1632              ..
0DC0 C1BA;          1633              ,#C1BA                      ..  :   (IMMEDIATE)
0DC2 0D5B;          1634              ,A(CRTE-9)
0DC4 05C2;          1635  COLON:      ,A(NEST)
0DC6 08F0;          1636              ,A(EXC)
0DC8 08AB;          1637              ,A(DCSP)
0DCA 070E;          1638              ,A(CRNT)
0DCC 04FA;          1639              ,A(AT)
0DCE 0700;          1640              ,A(CNTX)
0DD0 051E;          1641              ,A(EX)
0DD2 0D64;          1642              ,A(CRTE)
0DD4 0975;          1643              ,A(RB)
0DD6 0086FFFE;      1644              ,A(LIT),#FFFE    ..  -2
0DDA 06AF;          1645              ,A(DP)
0DDC 04C6;          1646              ,A(PLUSS)
0DDE 0951;          1647              ,A(CMPL)
0DE0 05C2;          1648              ,A(NEST)
0DE2 0379;          1649              ,A(SEMIS) .
0DE4 ;              1650              ..
0DE4 ;              1651              ..
0DE4 8521434F44C5;  1652              ,#85,T'!COD',#C5            ..   !CODE
0DEA 0DC0;          1653              ,A(COLON-4)
0DEC 05C2;          1654  DCODE:      ,A(NEST)
0DEE 0D64;          1655              ,A(CRTE)
0DF0 098A;          1656              ,A(SMDG)
0DF2 0852;          1657              ,A(LTST)
0DF4 0896;          1658              ,A(PFA)
0DF6 0872;          1659              ,A(CFA)
0DF8 051E;          1660              ,A(EX)
0DFA 07A0;          1661              ,A(COMMA)
0DFC 0379;          1662              ,A(SEMIS)
0DFE ;              1663              ..
0DFE ;              1664              ..
0DFE 88434F4E535441;1665             ,#88,T'CONSTAN',#D4         ..   CONSTANT
0E05 4ED4;          1665
0E07 0DE4;          1666              ,A(DCODE-8)
0E09 05C2;          1667  CNST:       ,A(NEST)
0E0B 008605D6;      1668              ,A(LIT),A(CONST)
0E0F 0DEC;          1669              ,A(DCODE)
0E11 0379;          1670              ,A(SEMIS)
0E13 ;              1671              ..
0E13 ;              1672              ..
0E13 8856415249414 2;1673           ,#88,T'VARIABL',#C5         ..   VARIABLE
0E1A 4CC5;          1673
0E1C 0DFE;          1674              ,A(CNST-11)
0E1E 05C2;          1675  VARB:       ,A(NEST)
0E20 008605CD;      1676              ,A(LIT),A(VAR)
0E24 0DEC;          1677              ,A(DCODE)
0E26 0379;          1678              ,A(SEMIS)
0E28 ;              1679              ..
0E28 ;              1680              ..
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OE28  84555345D2;     1681            ,#84,T'USE',#D2              ..    USER
OE2D  OE13;           1682            ,A(VARB-11)
OE2F  05C2;           1683 USR:       ,A(NEST)
OE31  008605DF;       1684            ,A(LIT),A(USER)
OE35  ODEC;           1685            ,A(DCODE)
OE37  0379;           1686            ,A(SEMIS)
OE39  ;               1687            ..
OE39  ;               1688            ..
OE39  873C4255494C44;1689             ,#87,T'<BUILD',#D3          ..    <BUILDS
OE40  D3;             1689
OE41  OE28;           1690            ,A(USR-7)
OE43  05C2;           1691 LBLD:      ,A(NEST)
OE45  05F2;           1692            ,A(ZERO)
OE47  OE09;           1693            ,A(CNST)
OE49  0379;           1694            ,A(SEMIS)
OE4B  ;               1695            ..
OE4B  ;               1696            ..
OE4B  85444F4553BE;   1697            ,#85,T'DOES',#BE            ..    DOES>
OE51  OE39;           1698            ,A(LBLD-10)
OE53  05C2;           1699 DOESG:     ,A(NEST)
OE55  03AD;           1700            ,A(RG)
OE57  0852;           1701            ,A(LTST)
OE59  0896;           1702            ,A(PFA)
OE5B  051E;           1703            ,A(EX)
OE5D  09C8;           1704            ,A(PCODE)
OE5F  E2;             1705 DUZ1:      SEX R2
OE60  9A73;           1706            GHI RA;STXD
OE62  8A73;           1707            GLO RA;STXD
OE64  4BBA;           1708            LDA B;PHI RA
OE66  4BAA;           1709            LDA B;PLO RA
OE68  1919;           1710            INC R9;INC R9
OE6A  9B5919;         1711            GHI B;STR R9;INC R9
OE6D  8B5929;         1712            GLO B;STR R9;DEC R9
OE70  DC;             1713            SEP RC
OE71  ;               1714            ..
OE71  ;               1715            ..
OE71  C74C4954455241;1716            ,#C7,T'LITERA',#CC     ..  LITERAL (IMMEDIATE)
OE78  CC;             1716
OE79  OE4B;           1717            ,A(DOESG-8)
OE7B  05C2;           1718 LTL:       ,A(NEST)
OE7D  071A;           1719            ,A(STT)
OE7F  04FA;           1720            ,A(AT)
OE81  00D00E8B;       1721            ,A(ZBRCH),A(LT1)
OE85  0951;           1722            ,A(CMPL)
OE87  008607A0;       1723            ,A(LIT),A(COMMA)
OE8B  0379;           1724 LT1:       ,A(SEMIS)
OE8D  ;               1725            ..
OE8D  ;               1726            ..
OE8D  C8444C49544552;1727            ,#C8,T'DLITERA',#CC    ..DLITERAL (IMMEDIATE)
OE94  41CC;           1727
OE96  OE71;           1728            ,A(LTL-10)
OE98  05C2;           1729 DLTL:      ,A(NEST)
OE9A  071A;           1730            ,A(STT)
OE9C  04FA;           1731            ,A(AT)
OE9E  00D00EA8;       1732            ,A(ZBRCH),A(DLTL1)
OEA2  0499;           1733            ,A(SWAP)
OEA4  OE7B;           1734            ,A(LTL)
OEA6  OE7B;           1735            ,A(LTL)
OEA8  0379;           1736 DLTL1:     ,A(SEMIS)
OEAA  ;               1737            ..
OEAA  ;               1738            ..
OEAA  863F53544143CB;1739            ,#86,T'?STAC',#CB           ..    ?STACK
OEB1  OE8D;           1740            ,A(DLTL-11)
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OEB3 05C2;          1741 QSTK:     ,A(NEST)
OEB5 066D;          1742           ,A(S0)
OEB7 04FA;          1743           ,A(AT)
OEB9 04B6;          1744           ,A(DUP)
OEBB 033D;          1745           ,A(FSPAT)
OEBD 07E5;          1746           ,A(GTR)
OEBF 05FA;          1747           ,A(ONE)
OEC1 08BE;          1748           ,A(QERR)
OEC3 00860100;      1749           ,A(LIT),#0100
OEC7 03F7;          1750           ,A(PLUS)
OEC9 033D;          1751           ,A(FSPAT)
OECB 07D9;          1752           ,A(LESS)
OECD 00860007;      1753           ,A(LIT),#0007
OED1 08BE;          1754           ,A(QERR)
OED3 0379;          1755           ,A(SEMIS)
OED5 ;              1756           ..
OED5 ;              1757           ..
OED5 89494E54455250;1758          ,#89,T'INTERPRE',#D4     ..   INTERPRET
OEDC 5245D4;        1758
OEDF 0EAA;          1759           ,A(QSTK-9)
OEE1 05C2;          1760 INPT:     ,A(NEST)
OEE3 0CAB;          1761           ,A(MFIND)
OEE5 00D00F05;      1762           ,A(ZBRCH),A(PT1)
OEE9 071A;          1763           ,A(STT)
OEEB 04FA;          1764           ,A(AT)
OEED 07D9;          1765           ,A(LESS)
OEEF 00D00EFB;      1766           ,A(ZBRCH),A(PT2)
OEF3 0872;          1767           ,A(CFA)
OEF5 07A0;          1768           ,A(COMMA)
OEF7 00BD0EFF;      1769           ,A(BRCH),A(PT3)
OEFB 0872;          1770 PT2:      ,A(CFA)
OEFD 00A6;          1771           ,A(EXE)
OEFF 0EB3;          1772 PT3:      ,A(QSTK)
OF01 00BD0F1F;      1773           ,A(BRCH),A(PT4)
OF05 0784;          1774 PT1:      ,A(HERE)
OF07 0C53;          1775           ,A(NMBR)
OF09 072F;          1776           ,A(DPL)
OF0B 04FA;          1777           ,A(AT)
OF0D 0768;          1778           ,A(PLUS1)
OF0F 00D00F19;      1779           ,A(ZBRCH),A(PT5)
OF13 0E98;          1780           ,A(DLTL)
OF15 00BD0F1D;      1781           ,A(BRCH),A(PT6)
OF19 048D;          1782 PT5:      ,A(DROP)
OF1B 0E7B;          1783           ,A(LTL)
OF1D 0EB3;          1784 PT6:      ,A(QSTK)
OF1F 00BD0EE3;      1785 PT4:      ,A(BRCH),A(INPT+2)
OF23 0379;          1786           ,A(SEMIS)
OF25 ;              1787           ..
OF25 ;              1788           ..
OF25 8A564F43414255;1789          ,#8A,T'VOCABULAR',#D9    ..VOCABULARY
OF2C 4C4152D9;      1789
OF30 0ED5;          1790           ,A(INPT-12)
OF32 05C2;          1791 VBLY:     ,A(NEST)
OF34 0E43;          1792           ,A(LBLD)
OF36 008681A0;      1793           ,A(LIT),#81A0
OF3A 07A0;          1794           ,A(COMMA)
OF3C 070E;          1795           ,A(CRNT)
OF3E 04FA;          1796           ,A(AT)
OF40 0872;          1797           ,A(CFA)
OF42 07A0;          1798           ,A(COMMA)
OF44 0784;          1799           ,A(HERE)
OF46 06BE;          1800           ,A(VL)
OF48 04FA;          1801           ,A(AT)
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0F4A  07A0;          1802       ,A(COMMA)
0F4C  06BE;          1803       ,A(VL)
0F4E  051E;          1804       ,A(EX)
0F50  0E53;          1805       ,A(DOESG)
0F52  0775;          1806 VB1:  ,A(PLUS2)
0F54  0700;          1807       ,A(CNTX)
0F56  051E;          1808       ,A(EX)
0F58  0379;          1809       ,A(SEMIS)
0F5A  ;              1810       ..
0F5A  ;              1811       ..
0F5A  C5464F5254C8;  1812 FRTH: ,#C5,T'FORT',#C8     .. FORTH  (IMMEDIATE)
0F60  0F25;          1813       ,A(VBLY-13)
0F62  0E5F0F52;      1814       ,A(DUZ1),A(VB1)
0F66  81A0;          1815       ,#81A0
0F68  18BF;          1816       ,A(TASK-7)     .. DICTION  LINK
0F6A  0000;          1817       ,#0000         ..  NOTE THIS MUST BE CHANGED
0F6C  ;              1818                      .. TO REFLECT THE LINK TO THE
0F6C  ;              1819                      .. LAST DICT WORD IN THE
0F6C  ;              1820                      .. FORTH VOCAB
0F6C  ;              1821
0F6C  ;              1822                           ..
0F6C  ;              1823                           ..
0F6C  8B444546494E49;1824       ,#8B,T'DEFINITION',#D3  ..DEFINITIONS
0F73  54494F4ED3;    1824
0F78  0F5A;          1825       ,A(FRTH)
0F7A  05C2;          1826 DFN:  ,A(NEST)
0F7C  0700;          1827       ,A(CNTX)
0F7E  04FA;          1828       ,A(AT)
0F80  070E;          1829       ,A(CRNT)
0F82  051E;          1830       ,A(EX)
0F84  0379;          1831       ,A(SEMIS)
0F86  ;              1832       ..
0F86  84515549D4;    1833       ,#84,T'QUI',#D4            ..   QUIT
0F8B  0F6C;          1834       ,A(DFN-14)
0F8D  05C2;          1835 QUIT: ,A(NEST)
0F8F  05F2;          1836       ,A(ZERO)
0F91  06C8;          1837       ,A(BLK)
0F93  051E;          1838       ,A(EX)
0F95  0967;          1839       ,A(LB)
0F97  0365;          1840 Q2:   ,A(RP1)
0F99  05AB;          1841       ,A(CR)
0F9B  0AF7;          1842       ,A(QUER)
0F9D  0EE1;          1843       ,A(INPT)
0F9F  071A;          1844       ,A(STT)
0FA1  04FA;          1845       ,A(AT)
0FA3  03D2;          1846       ,A(ZEQAL)
0FA5  00D00FB0;      1847       ,A(ZBRCH),A(Q1)
0FA9  0A68042020 4F4B;1848      ,A(PDQ),#04,T'  OK'
0FB0  00BD0F97;      1849 Q1:   ,A(BRCH),A(Q2)
0FB4  0379;          1850       ,A(SEMIS)
0FB6  ;              1851       ..
0FB6  ;              1852       ..
0FB6  8541424F52D4;  1853       ,#85,T'ABOR',#D4        .. ABORT
0FBC  0F86;          1854       ,A(QUIT-7)
0FBE  05C2;          1855 ABORT: ,A(NEST)
0FC0  0350;          1856       ,A(SP1)
0FC2  09B2;          1857       ,A(MDCML)
0FC4  05AB;          1858       ,A(CR)
0FC6  0A681C313833032;1859      ,A(PDQ),28,T'1802 FIG-FORTH R0.4  3/16/81'
0FCD  204649472D464F;1859
0FD4  5254482052302E;1859
0FDB  34202033 2F3136;1859
0FE2  2F3831;        1859
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0FE5 17B5;          1860              ,A(DRZER)
0FE7 15AB;          1861              ,A(MTBUF)
0FE9 0621;          1862              ,A(FIRST)
0FEB 04B6;          1863              ,A(DUP)
0FED 154D;          1864              ,A(PREV)
0FEF 051E;          1865              ,A(EX)
0FF1 1542;          1866              ,A(USE)
0FF3 051E;          1867              ,A(EX)
0FF5 0F62;          1868              ,A(FRTH+8)
0FF7 0F7A;          1869              ,A(DFN)
0FF9 0F8D;          1870              ,A(QUIT)
0FFB 0379;          1871              ,A(SEMIS)
0FFD ;              1872              ..
0FFD ;              1873              ..
0FFD C1BB;          1874              ,#C1BB            ..    ;   (IMMEDIATE)
0FFF 0FB6;          1875              ,A(ABORT-8)
1001 05C2;          1876 SEMIC:       ,A(NEST)
1003 091A;          1877              ,A(QCSP)
1005 0951;          1878              ,A(CMPL)
1007 0379;          1879              ,A(SEMIS)
1009 098A;          1880              ,A(SMDG)
100B 0967;          1881              ,A(LB)
100D 0379;          1882              ,A(SEMIS)
100F ;              1883              ..
100F ;              1884              ..
100F ;              1885              ..
100F C22EA2;        1886              ,#C22EA2          ..   ."   (IMMEDIATE)
1012 0FFD;          1887              ,A(SEMIC-4)
1014 05C2;          1888 DOTQ:        ,A(NEST)
1016 00860022;      1889              ,A(LIT),#0022
101A 071A;          1890              ,A(STT)
101C 04FA;          1891              ,A(AT)
101E 00D01034;      1892              ,A(ZBRCH),A(DOTQ1)
1022 0951;          1893              ,A(CMPL)
1024 0A68;          1894              ,A(PDQ)
1026 0BB7;          1895              ,A(WORD)
1029 0784;          1896              ,A(HERE)
102A 050D;          1897              ,A(CAT)
102C 0768;          1898              ,A(PLUS1)
102E 0794;          1899              ,A(ALLOT)
1030 00BD103C;      1900              ,A(BRCH),A(DOTQ2)
1034 0BB7;          1901 DOTQ1:       ,A(WORD)
1036 0784;          1902              ,A(HERE)
1038 09F4;          1903              ,A(CNT)
103A 0A07;          1904              ,A(TYPE)
103C 0379;          1905 DOTQ2:       ,A(SEMIS)
103E ;              1906              ..
103E ;              1907              ..
103E C95B434F4D5049;1908             ,#C9,T'[COMPILE',#DD    .. [COMPILE]
1045 4C45DD;        1908
1048 100F;          1909              ,A(DOTQ-5)              .. (IMMEDIATE)
104A 05C2;          1910 BCOMP:       ,A(NEST)
104C 0CAB;          1911              ,A(MFIND)
104E 03D2;          1912              ,A(ZEQAL)
1050 05F2;          1913              ,A(ZERO)
1052 08BE;          1914              ,A(QERR)
1054 048D;          1915              ,A(DROP)
1056 0872;          1916              ,A(CFA)
1058 07A0;          1917              ,A(COMMA)
105A 0379;          1918              ,A(SEMIS)
105C ;              1919              ..
105C ;              1920              ..
105C 89494D4D454449;1921             ,#89,T'IMMEDIAT',#C5    .. IMMEDIATE
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1063 4154C5;       1921
1066 103E;         1922
1068 05C2;         1923              ,A(NEST)
106A 0852;         1924              ,A(LTST)
106C 00860040;     1925              ,A(LIT),#0040
1070 04E3;         1926              ,A(TGLE)
1072 0379;         1927              ,A(SEMIS)
1074 ;             1928    IMMED:                              .    (  (IMMEDIATE)
1074 ;             1929
1074 C1A8;         1930              #C1A8
1076 105C;         1931              ,A(IMMED-12)
1078 05C2;         1932              ,A(NEST)
107A 00860029;     1933              ,A(LIT),#0029
107E 0RR7;         1934              ,A(WORD)
1080 0379;         1935              ,A(SEMIS)
1082 ;             1936
1082 ;             1937
1082 81R3;         1938              #81R3
1084 1074;         1939              ,A(PAREN-4)
1086 05D6;         1940    THREE:    ,A(CONST)                 ..    3
1088 0003;         1941              #0003
108A ;             1942
108A ;             1943
108A C1A7;         1944              #C1A7
108C 1082;         1945              ,A(THREE-4)
108E 05C2;         1946              ,A(NEST)
1090 0CAB;         1947    TICK:     ,A(MFIND)                 ..    (TICK)  (IMMEDIATE)
1092 03D2;         1948              ,A(ZEQAL)
1094 05F2;         1949              ,A(ZERO)
1096 08BE;         1950              ,A(QERR)
1098 0480;         1951              ,A(DROP)
109A 0E7E;         1952              ,A(LTL)
109C 0379;         1953              ,A(SEMIS)
109E ;             1954
109E ;             1955
109E 86464F524745D4;1956   FORG:     ,#86,T'FORGE',#D4         ..    '  FORGET
10A5 108A;         1957              ,A(TICK-4)
10A7 05C2;         1958              ,A(NEST)
10A9 070E;         1959              ,A(CRNT)
10AB 04FA;         1960              ,A(AT)
10AD 0700;         1961              ,A(CNTX)
10AF 04FA;         1962              ,A(AT)
10B1 07C1;         1963              ,A(MINS)
10B3 00860018;     1964              ,A(LIT),#0018
10B7 08BE;         1965              ,A(QERR)
10B9 108E;         1966              ,A(TICK)
10BB 04R6;         1967              ,A(DUP)
10BD 06A6;         1968              ,A(FNCE)
10BF 04FA;         1969              ,A(AT)
10C1 07D9;         1970              ,A(LESS)
10C3 00860015;     1971              ,A(LIT),#0015
10C7 08EE;         1972              ,A(QERR)
10C9 04B6;         1973              ,A(DUP)
10CB 0880;         1974              ,A(NFA)
10CD 06AF;         1975              ,A(DP)
10CF 051E;         1976              ,A(EX)
10D1 0862;         1977              ,A(ALFA)
10D3 04FA;         1978              ,A(AT)
10D5 0700;         1979              ,A(CNTX)
10D7 04FA;         1980              ,A(AT)
10D9 051E;         1981              ,A(EX)
10DB 0379;         1982              ,A(SEMIS)
10DD ;             1983
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10DD ;                  1984            ..
10DD 822BAD;            1985            ,#822BAD          ..    +-
10E0 109E;              1986            ,A(FORG-9)
10E2 05C2;              1987 PM:        ,A(NEST)
10E4 03EB;              1988            ,A(ZLESS)
10E6 00D010EC;          1989            ,A(ZBRCH),A(PM1)
10EA 0412;              1990            ,A(MINUS)
10EC 0379;              1991 PM1:       ,A(SEMIS)
10EE ;                  1992            ..
10EE 83442BAD;          1993            ,#83442BAD        ..   D+-
10F2 10DD;              1994            ,A(PM-5)
10F4 05C2;              1995 DPM:       ,A(NEST)
10F6 03EB;              1996            ,A(ZLESS)
10F8 00D010FE;          1997            ,A(ZBRCH),A(DPM1)
10FC 0458;              1998            ,A(DMIN)
10FE 0379;              1999 DPM1:      ,A(SEMIS)
1100 ;                  2000            ..
1100 834142D3;          2001            ,#834142D3        ..    ABS
1104 10EE;              2002            ,A(DPM-6)
1106 05C2;              2003 ABS:       ,A(NEST)
1108 04B6;              2004            ,A(DUP)
110A 10E2;              2005            ,A(PM)
110C 0379;              2006            ,A(SEMIS)
110E ;                  2007            ..
110E 8444414 2D3;       2008            ,#84,T'DAB',#D3 ..     DABS
1113 1100;              2009            ,A(ABS-6)
1115 05C2;              2010 DABS:      ,A(NEST)
1117 04B6;              2011            ,A(DUP)
1119 10F4;              2012            ,A(DPM)
111B 0379;              2013            ,A(SEMIS)
111D ;                  2014            ..
111D 834D41D8;          2015            ,#834D41D8        ..  MAX
1121 110E;              2016            ,A(DABS-7)
1123 05C2;              2017 MAX:       ,A(NEST)
1125 0473;              2018            ,A(OVER)
1127 0473;              2019            ,A(OVER)
1129 07D9;              2020            ,A(LESS)
112B 00D01131;          2021            ,A(ZBRCH),A(MAX1)
112F 0499;              2022            ,A(SWAP)
1131 048D;              2023 MAX1:      ,A(DROP)
1133 0379;              2024            ,A(SEMIS)
1135 ;                  2025            ..
1135 824DAA;            2026            ,#824DAA          ..    M*
1138 111D;              2027            ,A(MAX-6)
113A 05C2;              2028 MSTAR:     ,A(NEST)
113C 0473;              2029            ,A(OVER)
113E 0473;              2030            ,A(OVER)
1140 0324;              2031            ,A(FXOR)
1142 039D;              2032            ,A(GR)
1144 1106;              2033            ,A(ABS)
1146 0499;              2034            ,A(SWAP)
1148 1106;              2035            ,A(ABS)
114A 0278;              2036            ,A(USTAR)
114C 03AD;              2037            ,A(RG)
114E 10F4;              2038            ,A(DPM)
1150 0379;              2039            ,A(SEMIS)
1152 ;                  2040            ..
1152 824DAF;            2041            ,#824DAF          ..    M/
1155 1135;              2042            ,A(MSTAR-5)
1157 05C2;              2043 MSLAS:     ,A(NEST)
1159 0473;              2044            ,A(OVER)
115B 039D;              2045            ,A(GR)
115D 039D;              2046            ,A(GR)
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115F 1115;          2047           ,A(DABS)
1161 03BD;          2048           ,A(R)
1163 1106;          2049           ,A(ABS)
1165 02B2;          2050      .     ,A(USLSH)
1167 03AD;          2051           ,A(RG)
1169 03BD;          2052           ,A(R)
116B 0324;          2053           ,A(FXOR)
116D 10E2;          2054           ,A(PM)
116F 0499;          2055           ,A(SWAP)
1171 03AD;          2056           ,A(RG)
1173 10E2;          2057           ,A(PM)
1175 0499;          2058           ,A(SWAP)
1177 0379;          2059           ,A(SEMIS)
1179 ;              2060           ..
1179 81AA;          2061           ,#81AA            ..    *
117B 1152;          2062           ,A(MSLAS-5)
117D 05C2;          2063 STAR:     ,A(NEST)
117F 113A;          2064           ,A(MSTAR)
1181 048D;          2065           ,A(DROP)
1183 0379;          2066           ,A(SEMIS)
1185 ;              2067           ..
1185 842F4D4FC4;    2068           ,#842F4D4FC4      ..    /MOD
118A 1179;          2069           ,A(STAR-4)
118C 05C2;          2070 SLMOD:    ,A(NEST)
118E 039D;          2071           ,A(GR)
1190 14F1;          2072           ,A(STOD)
1192 03AD;          2073           ,A(RG)
1194 1157;          2074           ,A(MSLAS)
1196 0379;          2075           ,A(SEMIS)
1198 ;              2076           ..
1198 81AF;          2077           ,#81AF            ..    /
119A 1185;          2078           ,A(SLMOD-7)
119C 05C2;          2079 SLASH:    ,A(NEST)
119E 118C;          2080           ,A(SLMOD)
11A0 0499;          2081           ,A(SWAP)
11A2 048D;          2082           ,A(DROP)
11A4 0379;          2083           ,A(SEMIS)
11A6 ;              2084           ..
11A6 834D4FC4;      2085           ,#834D4FC4        ..    MOD
11AA 1198;          2086           ,A(SLASH-4)
11AC 05C2;          2087 MODD:     ,A(NEST)
11AE 118C;          2088      .     ,A(SLMOD)
11B0 048D;          2089           ,A(DROP)
11B2 0379;          2090           ,A(SEMIS)
11B4 ;              2091           ..
11B4 852A2F4D4FC4;  2092           ,#85,T'*/MO',#C4              ..    */MOD
11B9 11A6;          2093           ,A(MODD-6)
11BC 05C2;          2094 SSMOD:    ,A(NEST)
11BE 039D;          2095           ,A(GR)
11C0 113A;          2096           ,A(MSTAR)
11C2 03AD;          2097           ,A(RG)
11C4 1157;          2098           ,A(MSLAS)
11C6 0379;          2099           ,A(SEMIS)
11C8 ;              2100           ..
11C8 822AAF;        2101           ,#822AAF          ..    */
11CB 11B4;          2102           ,A(SSMOD-8)
11CD 05C2;          2103 SSLA:     ,A(NEST)
11CF 11BC;          2104           ,A(SSMOD)
11D1 0499;          2105           ,A(SWAP)
11D3 048D;          2106           ,A(DROP)
11D5 0379;          2107           ,A(SEMIS)
11D7 ;              2108           ..
11D7 854D2F4D4FC4;  2109           ,#85,T'M/MO',#C4             ..    M/MOD
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11DD 11C8;        2110          ,A(SSLA-5)
11DF 05C2;        2111 MSMOD:   ,A(NEST)
11E1 039D;        2112          ,A(GR)
11E3 05F2;        2113          ,A(ZERO)
11E5 03BD;        2114          ,A(R)
11E7 02B2;        2115          ,A(USLSH)
11E9 03AD;        2116          ,A(RG)
11EB 0499;        2117          ,A(SWAP)
11ED 039D;        2118          ,A(GR)
11EF 02B2;        2119          ,A(USLSH)
11F1 03AD;        2120          ,A(RG)
11F3 0379;        2121          ,A(SEMIS)
11F5 ;            2122          ..
11F5 ;            2123          ..
11F5 83404FCE;    2124          ,#83,T'MO',#CE       ..   MON
11F9 11D7;        2125          ,A(MSMOD-8)    .. RETURN TO MONITOR
11FB 11FD;        2126 MON:     ,A(*+2)        .. AT 8000 HEX
11FD F880;        2127          LDI #80
11FF B0;          2128          PHI R0
1200 F800;        2129          LDI 00
1202 A0;          2130          PLO R0
1203 E0;          2131          SEX R0
1204 D0;          2132          SEP R0
1205 ;            2133          ..
1205 ;            2134          ..
1205 834259C5;    2135          ,#83,T'BY',#C5  ..      BYE
1209 11F5;        2136          ,A(MON-6)
120B 05C2;        2137 BYE:     ,A(NEST)
120D 189B;        2138          ,A(FLUSH)
120F 11FB;        2139          ,A(MON)
1211 ;            2140 ..
1211 ;            2141 ..
1211 84424143CB;  2142          ,#84,T'BAC',#CB           ..   BACK
1216 1205;        2143          ,A(BYE-6)
1218 05C2;        2144 BACK:    ,A(NEST)
121A 07A0;        2145          ,A(COMMA)
121C 0379;        2146          ,A(SEMIS)
121E ;            2147          ..
121E C542454749CE; 2148         ,#C5,T'BEGI',#CE          ..   BEGIN
1224 1211;        2149          ,A(BACK-7)
1226 05C2;        2150 BEGIN:   ,A(NEST)
1228 08D8;        2151          ,A(QCMP)
122A 0784;        2152          ,A(HERE)
122C 05FA;        2153          ,A(ONE)
122E 0379;        2154          ,A(SEMIS)
1230 ;            2155          ..
1230 C5454E4449C6; 2156        ,#C5,T'ENDI',#C6          ..   ENDIF
1236 121E;        2157          ,A(BEGIN-8)
1238 05C2;        2158 ENDIFF:  ,A(NEST)
123A 08D8;        2159          ,A(QCMP)
123C 0602;        2160          ,A(TWO)
123E 0907;        2161          ,A(QPR)
1240 0784;        2162          ,A(HERE)
1242 0499;        2163          ,A(SWAP)
1244 051E;        2164          ,A(EX)
1246 0379;        2165          ,A(SEMIS)
1248 ;            2166          ..
1248 C4544845CE;  2167          ,#C4,T'THE',#CE          ..   THEN
124D 1230;        2168          ,A(ENDIFF-8)
124F 05C2;        2169 THEN:    ,A(NEST)
1251 1238;        2170          ,A(ENDIFF)
1253 0379;        2171          ,A(SEMIS)
1255 ;            2172          ..
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1255 C244CF;          2173              ,#C244CF                    ..   DO
1258 1248;            2174              ,A(THEN-7)
125A 05C2;            2175 DO:          ,A(NEST)
125C 0951;            2176              ,A(CMPL)
125E 0150;            2177              ,A(PDO)
1260 0784;            2178              ,A(HERE)
1262 1086;            2179              ,A(THREE)
1264 0379;            2180              ,A(SEMIS)
1266 ;                2181              ..
1266 C44C4F4FD0;      2182              ,#C44C4F4FD0                ..   LOOP
126B 1255;            2183              ,A(DO-5)
126D 05C2;            2184 LOOP:        ,A(NEST)
126F 1086;            2185              ,A(THREE)
1271 0907;            2186              ,A(QPR)
1273 0951;            2187              ,A(CMPL)
1275 00EC;            2188              ,A(LUPE)
1277 1218;            2189              ,A(BACK)
1279 0379;            2190              ,A(SEMIS)
127B ;                2191              ..
127B C52B4C4F4FD0;    2192              ,#C5,T'+LOO',#D0            ..   +LOOP
1281 1266;            2193              ,A(LOOP-7)
1283 05C2;            2194 PLOOP:       ,A(NEST)
1285 1086;            2195              ,A(THREE)
1287 0907;            2196              ,A(QPR)
1289 0951;            2197              ,A(CMPL)
128B 0124;            2198              ,A(PLUPE)
128D 1218;            2199              ,A(BACK)
128F 0379;            2200              ,A(SEMIS)
1291 ;                2201              ..
1291 C5554E5449CC;    2202              ,#C5,T'UNTI',#CC           ..   UNTIL
1297 127B;            2203              ,A(PLOOP-8)
1299 05C2;            2204 UNTIL:       ,A(NEST)
129B 05FA;            2205              ,A(ONE)
129D 0907;            2206              ,A(QPR)
129F 0951;            2207              ,A(CMPL)
12A1 00D01218;        2208              ,A(ZBRCH),A(BACK)
12A5 0379;            2209              ,A(SEMIS)
12A7 ;                2210              ..
12A7 C3454EC4;        2211              ,#C3454EC4                  ..   END
12AB 1291;            2212              ,A(UNTIL-8)
12AD 05C2;            2213 ENDD:        ,A(NEST)
12AF 1299;            2214              ,A(UNTIL)
12B1 0379;            2215              ,A(SEMIS)
12B3 ;                2216              ..
12B3 C541474149CE;    2217              ,#C5,T'AGAI',#CE           ..   AGAIN
12B9 12A7;            2218              ,A(ENDD-6)
12BB 05C2;            2219 AGAIN:       ,A(NEST)
12BD 05FA;            2220              ,A(ONE)
12BF 0907;            2221              ,A(QPR)
12C1 0951;            2222              ,A(CMPL)
12C3 00BD1218;        2223              ,A(BRCH),A(BACK)
12C7 0379;            2224              ,A(SEMIS)
12C9 ;                2225              ..
12C9 C65245504541D4; 2226              ,#C6,T'REPEA',#D4          ..   REPEAT
12D0 12B3;            2227              ,A(AGAIN-8)
12D2 05C2;            2228 REPEA:       ,A(NEST)
12D4 039D;            2229              ,A(GR)
12D6 039D;            2230              ,A(GR)
12D8 12BB;            2231              ,A(AGAIN)
12DA 03AD;            2232              ,A(RG)
12DC 03AD;            2233              ,A(RG)
12DE 0602;            2234              ,A(TWO)
12E0 07C1;            2235              ,A(MINS)
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12E2 1238;        2236           ,A(ENDIFF)
12E4 0379;        2237           ,A(SEMIS)
12E6 ;            2238           ..
12E6 C249C6;      2239           ,#C249C6               ..   IF
12E9 12C9;        2240           ,A(REPEA-9)
12EB 05C2;        2241 IFF:      ,A(NEST)
12ED 0951;        2242           ,A(CMPL)
12EF 00D00784;    2243           ,A(ZBRCH),A(HERE)
12F3 05F2;        2244           ,A(ZERO)
12F5 07A0;        2245           ,A(COMMA)
12F7 0602;        2246           ,A(TWO)
12F9 0379;        2247           ,A(SEMIS)
12FB ;            2248           ..
12FB C4454C53C5;  2249           ,#C4,T'ELS',#C5       ..   ELSE
1300 12E6;        2250           ,A(IFF-5)
1302 05C2;        2251 ELSEE:    ,A(NEST)
1304 0602;        2252           ,A(TWO)
1306 0907;        2253           ,A(QPR)
1308 0951;        2254           ,A(CMPL)
130A 00BD0784;    2255           ,A(BRCH),A(HERE)
130E 05F2;        2256           ,A(ZERO)
1310 07A0;        2257           ,A(COMMA)
1312 0499;        2258           ,A(SWAP)
1314 0602;        2259           ,A(TWO)
1316 1238;        2260           ,A(ENDIFF)
1318 0602;        2261           ,A(TWO)
131A 0379;        2262           ,A(SEMIS)
131C ;            2263           ..
131C C55749494CC5; 2264          ,#C5,T'WHIL',#C5      ..   WHILE
1322 12FB;        2265           ,A(ELSEE-7)
1324 05C2;        2266 WHILE:    ,A(NEST)
1326 12EB;        2267           ,A(IFF)
1328 0775;        2268           ,A(PLUS2)
132A 0379;        2269           ,A(SEMIS)
132C ;            2270           ..
132C 86535041434523;2271         ,#86,T'SPACE',#D3     ..   SPACES
1333 131C;        2272           ,A(WHILE-8)
1335 05C2;        2273 SPACS:    ,A(NEST)
1337 05F2;        2274           ,A(ZERO)
1339 1123;        2275           ,A(MAX)
133B 0816;        2276           ,A(MDUP)
133D 00D0134B;    2277           ,A(ZBRCH),A(SPAX1)
1341 05F2;        2278           ,A(ZERO)
1343 0150;        2279           ,A(PDO)
1345 0807;        2280 SPAX2:    ,A(SPC)
1347 00EC1345;    2281           ,A(LUPE),A(SPAX2)
134B 0379;        2282 SPAX1:    ,A(SEMIS)
134D ;            2283           ..
134D 823CA3;      2284           ,#823CA3              ..   <#
1350 132C;        2285           ,A(SPACS-9)
1352 05C2;        2286 BDIGS:    ,A(NEST)
1354 0BA4;        2287           ,A(PAD)
1356 0756;        2288           ,A(HLD)
1358 051E;        2289           ,A(EX)
135A 0379;        2290           ,A(SEMIS)
135C ;            2291           ..
135C 8223BE;      2292           ,#8223BE              ..   #>
135F 134D;        2293           ,A(BDIGS-5)
1361 05C2;        2294 EDIGS:    ,A(NEST)
1363 048D;        2295           ,A(DROP)
1365 048D;        2296           ,A(DROP)
1367 0756;        2297           ,A(HLD)
1369 04FA;        2298           ,A(AT)
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136B 0BA4;          2299             ,A(PAD)
136D 0473;          2300             ,A(OVER)
136F 07C1;          2301             ,A(MINS)
1371 0379;          2302             ,A(SEMIS)
1373 ;              2303             ..
1373 84534947CE;    2304             ,#84,T'SIG',#CE          ..   SIGN
1378 135C;          2305             ,A(EDIGS-5)
137A 05C2;          2306 SIGN:       ,A(NEST)
137C 07F3;          2307             ,A(ROT)
137E 03EB;          2308             ,A(ZLESS)
1380 00D0138A;      2309             ,A(ZBRCH),A(SIGN1)
1384 0086002D;      2310             ,A(LIT),#002D
1388 0B8C;          2311             ,A(HOLD)
138A 0379;          2312 SIGN1:      ,A(SEMIS)
138C ;              2313             ..
138C 81A3;          2314             ,#81A3                   ..   #
138E 1373;          2315             ,A(SIGN-7)
1390 05C2;          2316 DIG:        ,A(NEST)
1392 0725;          2317             ,A(BASE)
1394 04FA;          2318             ,A(AT)
1396 11DF;          2319             ,A(MSMOD)
1398 07F3;          2320             ,A(ROT)
139A 00860009;      2321             ,A(LIT),#0009
139E 0473;          2322             ,A(OVER)
13A0 07D9;          2323             ,A(LESS)
13A2 00D013AC;      2324             ,A(ZBRCH),A(DIG1)
13A6 00860007;      2325             ,A(LIT),#0007
13AA 03F7;          2326             ,A(PLUS)
13AC 00860030;      2327 DIG1:       ,A(LIT),#0030
13B0 03F7;          2328             ,A(PLUS)
13B2 0B8C;          2329             ,A(HOLD)
13B4 0379;          2330             ,A(SEMIS)
13B6 ;              2331             ..
13B6 8223D3;        2332             ,#8223D3                 ..   #S
13B9 138C;          2333             ,A(DIG-4)
13BB 05C2;          2334 DIGS:       ,A(NEST)
13BD 1390;          2335 DIGS1:      ,A(DIG)
13BF 0473;          2336             ,A(OVER)
13C1 0473;          2337             ,A(OVER)
13C3 030B;          2338             ,A(FFOR)
13C5 03D2;          2339             ,A(ZEQAL)
13C7 00D013BD;      2340             ,A(ZBRCH),A(DIGS1)
13CB 0379;          2341             ,A(SEMIS)
13CD ;              2342             ..
13CD 83442ED2;      2343             ,#83442ED2               ..   D.R
13D1 13B6;          2344             ,A(DIGS-5)
13D3 05C2;          2345 DDOTR:      ,A(NEST)
13D5 039D;          2346             ,A(GR)
13D7 0499;          2347             ,A(SWAP)
13D9 0473;          2348             ,A(OVER)
13DB 1115;          2349             ,A(DABS)
13DD 1352;          2350             ,A(BDIGS)
13DF 13BB;          2351             ,A(DIGS)
13E1 137A;          2352             ,A(SIGN)
13E3 1361;          2353             ,A(EDIGS)
13E5 03AD;          2354             ,A(RG)
13E7 0473;          2355             ,A(OVER)
13E9 07C1;          2356             ,A(MINS)
13EB 1335;          2357             ,A(SPACS)
13ED 0A07;          2358             ,A(TYPE)
13EF 0379;          2359             ,A(SEMIS)
13F1 ;              2360             ..
13F1 822ED2;        2361             ,#822ED2                 ..   .R
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13F4 13CD;        2362         ,A(DDOTR-6)
13F6 05C2;        2363 DOTR:    ,A(NEST)
13F8 039D;        2364         ,A(GR)
13FA 14F1;        2365         ,A(STOD)
13FC 03AD;        2366         ,A(RG)
13FE 13D3;        2367         ,A(DDOTR)
1400 0379;        2368         ,A(SEMIS)
1402 ;            2369         ..
1402 8244AE;      2370         ,#8244AE             ..  D.
1405 13F1;        2371         ,A(DOTR-5)
1407 05C2;        2372 DDOT:    ,A(NEST)
1409 05F2;        2373         ,A(ZERO)
140B 13D3;        2374         ,A(DDOTR)
140D 0807;        2375         ,A(SPC)
140F 0379;        2376         ,A(SEMIS)
1411 ;            2377         ..
1411 81AE;        2378         ,#81AE              ... .   (DOT)
1413 1402;        2379         ,A(DDOT-5)
1415 05C2;        2380 DOT:     ,A(NEST)
1417 14F1;        2381         ,A(STOD)
1419 1407;        2382         ,A(DDOT)
141B 0379;        2383         ,A(SEMIS)
141D ;            2384         ..
141D 81BF;        2385         ,#81BF              ..    ?
141F 1411;        2386         ,A(DOT-4)
1421 05C2;        2387 QUES:    ,A(NEST)
1423 04FA;        2389         ,A(AT)
1425 1415;        2389         ,A(DOT)
1427 0379;        2390         ,A(SEMIS)
1429 ;            2391         ..
1429 8255AE;      2392         ,#8255AE            ..   U.
142C 141D;        2393         ,A(QUES-4)
142E 05C2;        2394 UDOT:    ,A(NEST)
1430 05F2;        2395         ,A(ZERO)
1432 1407;        2396         ,A(DDOT)
1434 0379;        2397         ,A(SEMIS)
1436 ;            2398         ..
1436 85564C4953D4; 2399        ,#85,T'VLIS',#D4    ..  VLIST
143C 1429;        2400         ,A(UDOT-5)
143E 05C2;        2401 VLIST:   ,A(NEST)
1440 05AB;        2402         ,A(CR)
1442 ;            2403
1442 00860080;    2404         ,A(LIT),#0080
1446 06DB;        2405         ,A(FOUT)
1448 051E;        2406         ,A(EX)
144A 0700;        2407         ,A(CNTX)
144C 04FA;        2408         ,A(AT)
144E 04FA;        2409         ,A(AT)
1450 06DB;        2410 VLIS1:   ,A(FOUT)
1452 04FA;        2411         ,A(AT)
1454 0615;        2412         ,A(CL)
1456 07E5;        2413         ,A(GTR)
1458 00D01464;    2414         ,A(ZBRCH),A(VLIS2)
145C 05AB;        2415         ,A(CR)
145E 05F2;        2416         ,A(ZERO)
1460 06DB;        2417         ,A(FOUT)
1462 051E;        2418         ,A(EX)
1464 0486;        2419 VLIS2:   ,A(DUP)
1466 0D2D;        2420         ,A(ID)
1468 0807;        2421         ,A(SPC)
146A 0807;        2422         ,A(SPC)
146C 0896;        2423         ,A(PFA)
146E 0862;        2424         ,A(LFA)
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1470 04FA;            2425            ,A(AT)
1472 04B6;            2426            ,A(DUP)
1474 03D2;            2427            ,A(ZEQAL)
1476 0597;            2428            ,A(QTERM)
1478 030B;            2429            ,A(FFOR)
147A 00D01450;        2430            ,A(ZBRCH),A(VLIS1)
147E 048D;            2431            ,A(DROP)
1480 0379;            2432            ,A(SEMIS)
1482 ;               2433            ..
1482 ;               2434            ..
1482 874D4553534147;  2435            ,#87,T'MESSAG',#C5  ..   MESSAGE
1489 C5;             2435
148A 1436;           2436            ,A(VLIST-8)
148C 05C2;           2437 MSG:       ,A(NEST)
148E 069A;           2438            ,A(WRNG)
1490 04FA;           2439            ,A(AT)
1492 00D014B2;       2440            ,A(ZBRCH),A(MESS1)
1496 0816;           2441            ,A(MDUP)
1498 00D014AE;       2442            ,A(ZBRCH),A(MESS2)
149C 00860004;       2443            ,A(LIT),#0004
14A0 06F2;           2444            ,A(OFST)
14A2 04FA;           2445            ,A(AT)
14A4 0645;           2446            ,A(BSCR)
14A6 119C;           2447            ,A(SLASH)
14A8 07C1;           2448            ,A(MINS)
14AA 1532;           2449                     ,A(DLINE)
14AC 0807;           2450            ,A(SPC)
14AE 00BD14BE;       2451 MESS2:     ,A(BRCH),A(MESS3)
14B2 0A6807204D5347; 2452 MESS1:     ,A(PDQ),#07,T' MSG # '
14B9 202320;         2452
14BC 1415;           2453            ,A(DOT)
14BE 0379;           2454 MESS3:     ,A(SEMIS)
14C0 ;               2455            ..
14C0 ;               2456            ..
14C0 81C9;           2457            ,#81C9            .. I
14C2 1482;           2458            ,A(MSG-10)
14C4 14C6;           2459 I:         ,A(*+2)
14C6 12;             2460            INC 2
14C7 191919;         2461            INC 9;INC 9;INC 9
14CA 42;             2462            LDA 2
14CB 59;             2463            STR 9
14CC 29;             2464            DEC 9
14CD 02;             2465            LDN 2
14CE 59;             2466            STR 9
14CF 22;             2467            DEC 2
14D0 22;             2468            DEC 2
14D1 DC;             2469            SEP RC
14D2 ;               2470            ..
14D2 84574152CD;     2471            ,#84,T'WAR',#CD             .. WARM
14D7 14C0;           2472            ,A(I-4)
14D9 14DB;           2473 WRM:       ,A(*+2)
14DB C01915;         2474            LBR WARM
14DE ;               2475            ..
14DE ;               2476            ..
14DE 84434F4CC4;     2477            ,#84,T'COL',#C4            .. COLD
14E3 14D2;           2478            ,A(WRM-7)
14E5 14E7;           2479 CLD:       ,A(*+2)
14E7 C01900;         2480            LBR COLD
14EA ;               2481            ..
14EA ;               2482
14EA ;               2483            ..
14EA 84532D3EC4;     2484            ,#84,T'S->',#C4           .. S->D
14EF 14DE;           2485            ,A(CLD-7)
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14F1 14F3;           2486 STOD:    ,A(*+2)
14F3 49FE;           2487         LDA R9;SHL
14F5 33FB;           2488         BDF SNEG
14F7 F800;           2489         LDI #00
14F9 30FD;           2490         BR SSKP
14FB F8FF;           2491 SNEG:   LDI #FF
14FD 19;             2492 SSKP:   INC R9
14FE 5919;           2493         STR R9;INC R9
1500 5929;           2494         STR R9;DEC R9
1502 DC;             2495         SEP RC
1503 ;               2496         ..
1503 86284C494E45A9; 2497         ,#86,T'(LINE',#A9          ..  (LINE)
150A 14EA;           2498         ,A(STOD-7)
150C 05C2;           2499 PLINE:  ,A(NEST)
150E 039D;           2500         ,A(GR)
1510 00860040;       2501         ,A(LIT),#0040
1514 0639;           2502         ,A(BBUF)
1516 11BC;           2503         ,A(SSMOD)
1518 03AD;           2504         ,A(RG)
151A 0645;           2505         ,A(BSCR)
151C 117D;           2506         ,A(STAR)
151E 03F7;           2507         ,A(PLUS)
1520 160A;           2508         ,A(BLOCK)
1522 03F7;           2509         ,A(PLUS)
1524 00860040;       2510         ,A(LIT),#0040
1528 0379;           2511         ,A(SEMIS)
152A ;               2512         ..
152A 852E4C494EC5;   2513         ,#85,T'.LIN',#C5          ..      .LINE
1530 1503;           2514         ,A(PLINE-9)
1532 05C2;           2515 DLINE:  ,A(NEST)
1534 150C;           2516         ,A(PLINE)
1536 0A35;           2517         ,A(TRLG)
1538 0A07;           2518         ,A(TYPE)
153A 0379;           2519         ,A(SEMIS)
153C ;               2520         ..
153C 835553C5;       2521         ,#83,T'US',#C5            ..    USE    (ADDR OF
1540 152A;           2522         ,A(DLINE-8)    ..   NEXT BUFFER TO USE )
1542 05CD4000;       2523 USE:    ,A(VAR),A(FIRSTB)
1546 ;               2524         ..
1546 84505245D6;     2525         ,#84,T'PRE',#D6           ..  PREV   (ADDR OF
154B 153C;           2526         ,A(USE-6)     ..  PREVIOUSLY USED BUFFER)
154D 05CD4000;       2527 PREV:   ,A(VAR),A(FIRSTB)
1551 ;               2528         ..
1551 842B4255C6;     2529         ,#84,T'+BU',#C6           ..  +BUF
1556 1546;           2530         ,A(PREV-7)            ..  ADVANCE
1558 05C2;           2531 PBUF:   ,A(NEST)              ..  BUFFER
155A 0639;           2532         ,A(BBUF)
155C 00860004;       2533         ,A(LIT),#0004
1560 03F7;           2534         ,A(PLUS)
1562 03F7;           2535         ,A(PLUS)
1564 04B6;           2536         ,A(DUP)
1566 062D;           2537         ,A(LIMIT)
1568 07CD;           2538         ,A(EQL)
156A 00D01572;       2539         ,A(ZBRCH),A(PBUF1)
156E 048D;           2540         ,A(DROP)
1570 0621;           2541         ,A(FIRST)
1572 04B6;           2542 PBUF1:  ,A(DUP)
1574 154D;           2543         ,A(PREV)
1576 04FA;           2544         ,A(AT)
1578 07C1;           2545         ,A(MINS)
157A 0379;           2546         ,A(SEMIS)
157C ;               2547         ..
157C 86555044415CC5; 2548         ,#86,T'UPDAT',#C5         ..  UPDATE
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1583 1551;          2549              ,A(FBUF-7)
1585 05C2;          2550  UPDAT:      ,A(NEST)
1587 154D;          2551              ,A(PREV)
1589 04FA;          2552              ,A(AT)
158B 04FA;          2553              ,A(AT)
158D 00868000;      2554              ,A(LIT),#8000
1591 030B;          2555              ,A(FFOR)
1593 154D;          2556              ,A(PREV)
1595 04FA;          2557              ,A(AT)
1597 051E;          2558              ,A(EX)
1599 0379;          2559              ,A(SEMIS)
159B ;              2560              ..
159B 8D454D5054592D; 2561             ,#8D,T'EMPTY-BUFFER',#D3          ..   EMPTY-BUFFER
15A2 42554646552D3; 2561
15A9 157C;          2562              ,A(UPDAT-9)
15AB 05C2;          2563  MTBUF:      ,A(NEST)
15AD 0621;          2564              ,A(FIRST)
15AF 062D;          2565              ,A(LIMIT)
15B1 0473;          2566              ,A(OVER)
15B3 07C1;          2567              ,A(MINS
15B5 0B6C;          2568              ,A(ERS)
15B7 0379;          2569              ,A(SEMIS)
15B9 ;              2570              ..
15B9 ;              2571              ..
15B9 864255464645D2; 2572            ,#86,T'BUFFE',#D2          ..   BUFFER
15C0 159B;          2573              ,A(MTBUF-16)
15C2 05C2;          2574  BUFFE:      ,A(NEST)
15C4 1542;          2575              ,A(USE)
15C6 04FA;          2576              ,A(AT)
15C8 04B6;          2577              ,A(DUP)
15CA 039D;          2578              ,A(GR)
15CC 1558;          2579  BUFF1:      ,A(PBUF)
15CE 00D015CC;      2580              ,A(ZBRCH),A(BUFF1)
15D2 1542;          2581              ,A(USE)
15D4 051E;          2582              ,A(EX)
15D6 03BD;          2583              ,A(R)
15D8 04FA;          2584              ,A(AT)
15DA 03EB;          2585              ,A(ZLESS)
15DC 00D015F2;      2586              ,A(ZBRCH),A(BUFF2)
15E0 03BD;          2587              ,A(R)
15E2 0775;          2588              ,A(PLUS2)
15E4 03BD;          2589              ,A(R)
15E6 04FA;          2590              ,A(AT)
15E8 00867FFF;      2591              ,A(LIT),#7FFF
15EC 02F3;          2592              ,A(FAND)
15EE 05F2;          2593              ,A(ZERO)
15F0 1668;          2594              ,A(RSLW)
15F2 03BD;          2595  BUFF2:      ,A(R)
15F4 051E;          2596              ,A(EX)
15F6 03BD;          2597              ,A(R)
15F8 154D;          2598              ,A(PREV)
15FA 051E;          2599              ,A(EX)
15FC 03AD;          2600              ,A(RG)
15FE 0775;          2601              ,A(PLUS2)
1600 0379;          2602              ,A(SEMIS)
1602 ;              2603              ..
1602 ;              2604
1602 85424C4F43CB;  2605              ,#85,T'BLOC',#CB          ..   BLOCK
1608 15B9;          2606              ,A(BUFFE-9)
160A 05C2;          2607  BLOCK:      ,A(NEST)
160C 06F2;          2608              ,A(OFST)
160E 04FA;          2609              ,A(AT)
1610 03F7;          2610              ,A(PLUS)
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1612 039D;        2611            ,A(GR)
1614 154D;        2612            ,A(PREV)
1616 04FA;        2613            ,A(AT)
1618 04B6;        2614            ,A(DUP)
161A 04FA;        2615            ,A(AT)
161C 03BD;        2616            ,A(R)
161E 07C1;        2617            ,A(MINS)
1620 04B6;        2618            ,A(DUP)
1622 03F7;        2619            ,A(PLUS)
1624 00D0165A;    2620            ,A(ZBRCH),A(BLOC1)
1628 1558;        2621 BLOC2:     ,A(PBUF)
162A 03D2;        2622            ,A(ZEQAL)
162C 00D01642;    2623            ,A(ZBRCH),A(BLOC3)
1630 048D;        2624            ,A(DROP)
1632 03BD;        2625            ,A(R)
1634 15C2;        2626            ,A(BUFFE)
1636 04B6;        2627            ,A(DUP)
1638 03BD;        2628            ,A(R)
163A 05FA;        2629            ,A(ONE)
163C 1668;        2630            ,A(RSLW)
163E 0602;        2631            ,A(TWO)
1640 07C1;        2632            ,A(MINS)
1642 04B6;        2633 BLOC3:     ,A(DUP)
1644 04FA;        2634            ,A(AT)
1646 03BD;        2635            ,A(R)
1648 07C1;        2636            ,A(MINS)
164A 04B6;        2637            ,A(DUP)
164C 03F7;        2638            ,A(PLUS)
164E 03D2;        2639            ,A(ZEQAL)
1650 00D01628;    2640            ,A(ZBRCH),A(BLOC2)
1654 04B6;        2641            ,A(DUP)
1656 154D;        2642            ,A(PREV)
1658 051E;        2643            ,A(EX)
165A 03AD;        2644 BLOC1:     ,A(RG)
165C 048D;        2645            ,A(DROP)
165E 0775;        2646            ,A(PLUS2)
1660 0379;        2647            ,A(SEMIS)
1662 ;            2648            ..
1662 83522FD7;    2649            ,#83522FD7              .. R/W
1666 1602;        2650            ,A(BLOCK-G)
1668 05C2;        2651 RSLW:      ,A(NEST)
166A 0499;        2652            ,A(SWAP)
166C 008600FA;    2653            ,A(LIT),#00FA
1670 118C;        2654            ,A(SLMOD)
1672 04B6;        2655            ,A(DUP)
1674 00860003;    2656            ,A(LIT),#0003
1678 07E5;        2657            ,A(GTR)
167A 00860005;    2658            ,A(LIT),#0005
167E 08BE;        2659            ,A(QERR)
1680 0499;        2660            ,A(SWAP)
1682 00860008;    2661            ,A(LIT),#0008
1686 117D;        2662            ,A(STAR)
1688 00860001;    2663            ,A(LIT),#0001
168C 03F7;        2664            ,A(PLUS)
168E 0086001A;    2665            ,A(LIT),#001A
1692 118C;        2666            ,A(SLMOD)
1694 075F;        2667            ,A(DV)
1696 0535;        2668            ,A(CEX)
1698 05FA;        2669            ,A(ONE)
169A 07C1;        2670            ,A(MINS)
169C 0499;        2671            ,A(SWAP)
169E 00860040;    2672            ,A(LIT),#0040
16A2 117D;        2673            ,A(STAR)
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16A4 03F7;            2674              ,A(PLUS)
16A6 075F;            2675              ,A(DV)
16A8 0768;            2676              ,A(PLUS1)
16AA 0535;            2677              ,A(CEX)
16AC 05F2;            2678              ,A(ZERO)
16AE 075F;            2679              ,A(DV)
16B0 0775;            2680              ,A(PLUS2)
16B2 0535;            2681              ,A(CEX)
16B4 075F;            2682              ,A(DV)
16B6 0639;            2683              ,A(BBUF)
16B8 07F3;            2684              ,A(ROT)
16BA 00D016C4;        2685              ,A(ZBRCH),A(RWELSE)
16BE 16D5;            2686              ,A(BLKRD)
16C0 00BD16C6;        2687              ,A(BRCH),A(RWEND)
16C4 171F;            2688 RWELSE:      ,A(BLKWT)
16C6 0379;            2689 RWEND:       ,A(SEMIS)
16C8 0A42404F434B2D;  2690              ,#0A,T'BLOCK--REA',#C4    ..BLOCKREAD
16CF 524541C4;        2690
16D3 1662;            2691              ,A(RSLW--6)
16D5 16D7;            2692 BLKRD:       ,A(*+2)
16D7 F883B4;          2693              LDI #83; PHI 4
16DA B5;              2694              PHI 5
16DB F864A4;          2695              LDI #64; PLO 4
16DE F874A5;          2696              LDI #74 ; PLO 5
16E1 ;                2697              ..
16E1 E2;              2698              SEX 2
16E2 9C73;            2699              GHI C; STXD
16E4 8C73;            2700              GLO C; STXD
16E6 49B7;            2701              LDA 9; PHI 7
16E8 09A7;            2702              LDN 9; PLO 7
16EA 2929;            2703              DEC 9; DEC 9
16EC 09AC;            2704              LDN 9; PLO C
16EE 2909BC;          2705              DEC 9; LDN 9; PHI C
16F1 1C1C;            2706              INC C; INC C
16F3 29;              2707              DEC 9
16F4 09A8;            2708              LDN 9; PLO 8
16F6 2909B8;          2709              DEC 9; LDN 9; PHI 8
16F9 2929;            2710              DEC 9; DEC 9
16FB D48502;          2711 BLKRD2:      CALL #8502
16FE 9F5818;          2712              GHI F; STR 8; INC 8
1701 27;              2713              DEC 7
1702 97CA16FB;        2714              GHI 7; LBNZ BLKRD2
1706 87CA16FB;        2715              GLO 7; LBNZ BLKRD2
170A ;                2716              ..
170A E2;              2717              SEX 2
170B 6072AC;          2718              IRX; LDXA; PLO C
170E F0BC;            2719              LDX; PHI C
1710 DC;              2720              SEP C
1711 ;                2721              ..
1711 0B42404F434B2D;  2722              ,#0B,T'BLOCK-WRIT',#C5   ..BLOCK-WRITE
1718 57524954C5;      2722
171D 16C8;            2723              ,A(BLKRD-13)
171F 1721;            2724 BLKWT:       ,A(*+2)
1721 F883B4;          2725              LDI #83; PHI 4
1724 B5;              2726              PHI 5
1725 F864A4;          2727              LDI #64; PLO 4
1728 F874A5;          2728              LDI #74 ; PLO 5
172B ;                2729              ..
172B E2;              2730              SEX 2
172C 9C73;            2731              GHI C; STXD
172E 8C73;            2732              GLO C; STXD
1730 49B7;            2733              LDA 9; PHI 7
1732 09A7;            2734              LDN 9; PLO 7
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1734 2929;           2735            DEC 9; DEC 9
1736 09AC;           2736            LDN 9; PLO C
1738 2909BC;         2737            DEC 9; LDN 9; PHI C
173B 1C1C;           2738            INC C; INC C
173D 29;             2739            DEC 9
173E 09A8;           2740            LDN 9; PLO 8
1740 2909B8;         2741            DEC 9; LDN 9; PHI 8
1743 2929;           2742            DEC 9; DEC 9
1745 48BF;           2743 BLKWT2:    LDA 8; PHI F
1747 D48500;         2744            CALL #8500
174A 27;             2745            DEC 7
174B 97CA1745;       2746            GHI 7; LBNZ BLKWT2
174F 87CA1745;       2747            GLO 7; LBNZ BLKWT2
1753 ;               2748            ..
1753 E2;             2749            SEX 2
1754 6072AC;         2750            IRX; LDXA; PLO C
1757 F0BC;           2751            LDX; PHI C
1759 DC;             2752            SEP C
175A ;               2753            ..
175A 844C4F41C4;     2754            ,#84,T'LOA',#C4          ..   LOAD
175F 1711;           2755            ,A(BLKWT-14)
1761 05C2;           2756 LOAD:      ,A(NEST)
1763 06C8;           2757            ,A(BLK)
1765 04FA;           2758            ,A(AT)
1767 039D;           2759            ,A(GR)
1769 06D1;           2760            ,A(FIN)
176B 04FA;           2761            ,A(AT)
176D 039D;           2762            ,A(GR)
176F 05F2;           2763            ,A(ZERO)
1771 06D1;           2764            ,A(FIN)
1773 051E;           2765            ,A(EX)
1775 0645;           2766            ,A(BSCR)
1777 117D;           2767            ,A(STAR)
1779 06C8;           2768            ,A(BLK)
177B 051E;           2769            ,A(EX)
177D 0EE1;           2770            ,A(INPT)
177F 03AD;           2771            ,A(RG)
1781 06D1;           2772            ,A(FIN)
1783 051E;           2773            ,A(EX)
1785 03AD;           2774            ,A(RG)
1787 06C8;           2775            ,A(BLK)
1789 051E;           2776            ,A(EX)
178B 0379;           2777            ,A(SEMIS)
178D ;               2778            ..
178D C32D2DBE;       2779            ,#C3;T'--',#BE  ..       -->)
1791 175A;           2780            ,A(LOAD-7)
1793 05C2;           2781 ARROW:     ,A(NEST)
1795 0937;           2782            ,A(QLDG)
1797 05F2;           2783            ,A(ZERO)
1799 06D1;           2784            ,A(FIN)
179B 051E;           2785            ,A(EX)
179D 0645;           2786            ,A(BSCR)
179F 06C8;           2787            ,A(BLK)
17A1 04FA;           2788            ,A(AT)
17A3 0473;           2789            ,A(OVER)
17A5 11AC;           2790            ,A(MODD)
17A7 07C1;           2791            ,A(MINS)
17A9 06C8;           2792            ,A(BLK)
17AB 04C6;           2793            ,A(PLUSS)
17AD 0379;           2794            ,A(SEMIS)
17AF ;               2795            ..
17AF ;               2796            ..
17AF 834452B0;       2797            ,#834452B0  ..           DRO
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17B3  178D;            2798              ,A(ARROW-6)
17B5  05C2;            2799  DRZER:      ,A(NEST)
17B7  05F2;            2800              ,A(ZERO)
17B9  06F2;            2801              ,A(OFST)
17BB  051E;            2802              ,A(EX)
17BD  0379;            2803              ,A(SEMIS)
17BF  ;                2804  ..
17BF  ;                2805  ..
17BF  834452B1;        2806              ,#834452B1              ..DR1
17C3  17AF;            2807              ,A(DRZER-6)
17C5  05C2;            2808  DRONE:      ,A(NEST)
17C7  0645;            2809              ,A(BSCR)
17C9  008600FA;        2810              ,A(LIT),#00FA    .. 250 SCREENS/DISK
17CD  117D;            2811              ,A(STAR)
17CF  06F2;            2812              ,A(OFST)
17D1  051E;            2813              ,A(EX)
17D3  0379;            2814              ,A(SEMIS)
17D5  ;                2815  ..
17D5  ;                2816  ..
17D5  844C4953D4;      2817              ,#84,T'LIS',#D4 ..        LIST
17DA  17BF;            2818              ,A(DRONE-6)
17DC  05C2;            2819  LIST:       ,A(NEST)
17DE  09B2;            2820              ,A(MDCML)
17E0  05AB;            2821              ,A(CR)
17E2  04B6;            2822              ,A(DUP)
17E4  06E5;            2823              ,A(FSCR)
17E6  051E;            2824              ,A(EX)
17E8  0A680653435220;  2825              ,A(PDQ),#06,T'SCR # '
17EF  2320;            2825
17F1  1415;            2826              ,A(DOT)
17F3  00860010;        2827              ,A(LIT),#0010
17F7  05F2;            2828              ,A(ZERO)
17F9  0150;            2829              ,A(PDO)
17FB  05AB;            2830  LIST1:      ,A(CR)
17FD  14C4;            2831              ,A(I)
17FF  00860003;        2832              ,A(LIT),#0003
1803  13F6;            2833              ,A(DOTR)
1805  0807;            2834              ,A(SPC)
1807  14C4;            2835              ,A(I)
1809  06E5;            2836              ,A(FSCR)
180B  04FA;            2837              ,A(AT)
180D  1532;            2838              ,A(DLINE)
180F  0597;            2839              ,A(QTERM)
1811  00D01817;        2840              ,A(ZBRCH),A(LIST2)
1815  0389;            2841              ,A(LVE)
1817  00EC17FB;        2842  LIST2:      ,A(LUPE),A(LIST1)
181B  05AB;            2843              ,A(CR)
181D  0379;            2844              ,A(SEMIS)
181F  ;                2845  ..
181F  ;                2846  ..
181F  85494E4445D8;    2847              ,#85,T'INDE',#D8          ..    INDEX
1825  17D5;            2848              ,A(LIST-7)
1827  05C2;            2849  INDEX:      ,A(NEST)
1829  05AB;            2850              ,A(CR)
182B  0768;            2851              ,A(PLUS1)
182D  0499;            2852              ,A(SWAP)
182F  0150;            2853              ,A(PDO)
1831  05AB;            2854  INDE1:      ,A(CR)
1833  14C4;            2855              ,A(I)
1835  00860003;        2856              ,A(LIT),#0003
1839  13F6;            2857              ,A(DOTR)
183B  0807;            2858              ,A(SPC)
183D  05F2;            2859              ,A(ZERO)
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183F 14C4;          2860           ,A(I)
1841 1532;          2861           ,A(DLINE)
1843 0597;          2862           ,A(QTERM)
1845 00D0184B;      2863           ,A(ZBRCH),A(INDE2)
1849 0389;          2864           ,A(LVE)
184B 00EC1831;      2865 INDE2:    ,A(LUPE),A(INDE1)
184F 0379;          2866           ,A(SEMIS)
1851 ;              2867 ..
1851 8554524941C4;  2868           ,#85,T'TRIA',#C4          ..  TRIAD
1857 181F;          2869           ,A(INDEX-8)
1859 05C2;          2870 TRIAD:    ,A(NEST)
185B 05AB;          2871           ,A(CR)
185D 00860003;      2872           ,A(LIT),#0003
1861 119C;          2873           ,A(SLASH)
1863 00860003;      2874           ,A(LIT),#0003
1867 117D;          2875           ,A(STAR)
1869 00860003;      2876           ,A(LIT),#0003
186D 0473;          2877           ,A(OVER)
186F 03F7;          2878           ,A(PLUS)
1871 0499;          2879           ,A(SWAP)
1873 0150;          2880           ,A(PDO)
1875 05AB;          2881 TRIA1:    ,A(CR)
1877 14C4;          2882           ,A(I)
1879 17DC;          2883           ,A(LIST)
187B 0597;          2884           ,A(QTERM)
187D 00D01883;      2885           ,A(ZBRCH),A(TRIA2)
1881 0389;          2886           ,A(LVE)
1883 00EC1875;      2887 TRIA2:    ,A(LUPE),A(TRIA1)
1887 05AB;          2888           ,A(CR)
1889 0086000F;      2889           ,A(LIT),#000F
188D 148C;          2890           ,A(MSG)
188F 05AB;          2891           ,A(CR)
1891 0379;          2892           ,A(SEMIS)
1893 ;              2893 ..
1893 ;              2894 ..
1893 85464C5553C8;  2895           ,#85,T'FLUS',#C8          ..  FLUSH
1899 1851;          2896           ,A(TRIAD-8)
189B 05C2;          2897 FLUSH:    ,A(NEST)
189D 062D;          2898           ,A(LIMIT)
189F 0621;          2899           ,A(FIRST)
18A1 07C1;          2900           ,A(MINS)
18A3 0639;          2901           ,A(BBUF)
18A5 00860004;      2902           ,A(LIT),#0004
18A9 03F7;          2903           ,A(PLUS)
18AB 119C;          2904           ,A(SLASH)
18AD 05F2;          2905           ,A(ZERO)
18AF 0150;          2906           ,A(PDO)
18B1 00867FFF;      2907 FL1:      ,A(LIT),#7FFF
18B5 15C2;          2908           ,A(BUFFE)
18B7 048D;          2909           ,A(DROP)
18B9 00EC18B1;      2910           ,A(LUPE),A(FL1)
18BD 0379;          2911           ,A(SEMIS)
18BF ;              2912 ..
18BF ;              2913 ..
18BF 84544153CB;    2914           ,#84,T'TAS',#CB ..  TASK
18C4 1893;          2915           ,A(FLUSH-8)
18C6 05C2;          2916 TASK:     ,A(NEST)
18C8 0379;          2917           ,A(SEMIS)
18CA ;              2918           ..
18CA ;              2919           ..
18CA ;              2920 PAGE
1900 ;              2921           ..
1900 ;              2922           ..
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1900 ;                    2923
1900 F800B7;              2924 COLD:    LDI A.1(START+12);PHI R7
1903 F86AA7;              2925             LDI A.0(START+12);PLO R7
1906 F80FB8;              2926             LDI A.1(FRTH+14);PHI R8
1909 F868A8;              2927             LDI A.0(FRTH+14);PLO R8
190C 475818;             2928             LDA R7;STR R8;INC R8
190F 4758;               2929             LDA R7;STR R8
1911 F816;               2930             LDI #16
1913 3017;               2931             BR PUTF
1915 F810;               2932 WARM:    LDI #10
1917 AF;                 2933 PUTF:    PLO RF
1918 F800B7;             2934             LDI A.1(START+#10);PHI R7
191B F86EA7;             2935             LDI A.0(START+#10);PLO R7
191E 47BDB8;             2936             LDA R7;PHI RD;PHI R8
1921 07ADA8;             2937             LDN R7;PLO RD;PLO R8
1924 F86AA7;             2938             LDI A.0(START+12);PLO R7
1927 475818;             2939 WRMLP:   LDA R7;STR R8;INC R8
192A 2F8F;               2940             DEC RF;GLO RF
192C 3A27;               2941             BNZ WRMLP
192E F800BC;             2942             LDI A.1(NEXT);PHI RC
1931 F892AC;             2943             LDI A.0(NEXT);PLO RC
1934 F8C0AA;             2944             LDI A.0(ABORT+2);PLO RA
1937 F80FBA;             2945             LDI A.1(ABORT+2);PHI RA
193A C00367;             2946             LBR RP1+2
193D ;                   2947 ..
193D C4;                 2948 LEND:    NOP    .. INITIAL FENCE IS HERE
193E ;                   2949          ..
193E ;                   2950          ..TO EXTEND THIS PORTION TO INCLUDE
193E ;                   2951          ..NEW WORDS,  FIRST USE
193E ;                   2952          ..     HERE .   TO FIND END OF YOUR NEW VERSION
193E ;                   2953          ..THEN USE THE FOLLOWING:
193E ;                   2954          ..
193E ;                   2955          ..     LATEST 12 +ORIGIN !
193E ;                   2956          ..     HERE   28 +ORIGIN !
193E ;                   2957          ..     HERE   30 +ORIGIN !
193E ;                   2958          ..     HERE FENCE !
193E ;                   2959          ..
193E ;                   2960          ..THEN USE    BYE   TO GET BACK TO YOUR MONITOR
193E ;                   2961          ..THEN USE YOUR MONITOR ROUTINES TO SAVE MEMORY
193E ;                   2962          ..FROM 0000 TO END ADDRESS
193E ;                   2963          ..
193E ;                   2964          ..THIS PROCEDURE WILL ALLOW YOU TO CONTINUE
193E ;                   2965          ..BUILDING ON YOUR FORTH VOCABULARY WITHOUT THE
193E ;                   2966          ..DISC INTERFACE.
193E ;                   2967          ..
193E ;                   2968          ..
193E ;                   2969          ..
193E ;                   2970          ..
193E ;                   2971          ..
193E ;                   2972
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