```
                        .Z80
0000'                   ASEG
                        ORG  19C6H
                        ;
                        ;
0010                    .RADIX 16
                        ;
0E56                    ABS     EQU     0E56
FDCC                    ACC1    EQU     0FDCC
128F                    ACCSTA  EQU     128F
0E86                    ADD     EQU     0E86
35F9                    ADJDES  EQU     35F9
0C4F                    ADJVAL  EQU     0C4F
FDBE                    ADLABE  EQU     0FDBE
3C45                    AE      EQU     3C45
                        ;ALIST  EQU     1FA5
13F3                    ALOP1   EQU     13F3
3B87                    ALPHA   EQU     3B87
209A                    ANDACC  EQU     209A
FDB7                    APRO6   EQU     0FDB7
FACC                    ARRTOP  EQU     0FACC
FDA8                    ASBYTE  EQU     0FDA8
3F4B                    ASC     EQU     3F4B
FD6D                    ASTACK  EQU     0FD6D
241D                    ATN     EQU     241D
2452                    ATNT2   EQU     2452
FD7B                    AUTOCT  EQU     0FD7B
FD77                    AUTOIN  EQU     0FD77
FD79                    AUTOST  EQU     0FD79
FAAA                    BASBOT  EQU     0FAAA
FACF                    BASELI  EQU     0FACF
FDC7                    BASEM   EQU     0FDC7
025D                    BASENT  EQU     025D
0259                    BASIC   EQU     0259
0244                    BASIC0  EQU     0244
0244                    BASIC1  EQU     0244
0250                    BASIC2  EQU     0250
024A                    BASIC4  EQU     024A
0205                    BASICS  EQU     0205
FAD1                    BASLNP  EQU     0FAD1
FAA7                    BASTOP  EQU     0FAA7
FAAC                    BASTP0  EQU     0FAAC
FAA9                    BASTPG  EQU     0FAA9
0D3C                    BAUDST  EQU     0D3C
0DD0                    BCDEC   EQU     0DD0
                        ;BEGIN  EQU     1C33
0953                    BELL    EQU     0953
0DE4                    BIND1   EQU     0DE4
20FD                    BINTOA  EQU     20FD
35C9                    BLOCK   EQU     35C9
0CF3                    BREAIO  EQU     0CF3
FD81                    BREAK   EQU     0FD81
09B0                    BREAKK  EQU     09B0
09F2                    BREAKM  EQU     09F2
3A6F                    BSLOAD  EQU     3A6F
FE3F                    BSSTR   EQU     0FE3F
```

```
0679                    BSTPHL  EQU     0679
FA7F                    CALCBO  EQU     0FA7F
FA81                    CALCST  EQU     0FA81
                        ;CALLEN EQU     1B43
3980                    CAPITA  EQU     3980
3D0B                    CARAC   EQU     3D0B
FD5F                    CASBAU  EQU     0FD5F
FE14                    CHAN    EQU     0FE14
3296                    CHKS30  EQU     3296
32A1                    CHKST1  EQU     32A1
3299                    CHKSTK  EQU     3299
                        ;CHOUT  EQU     1B6A
FF59                    CHPTR   EQU     0FF59
0A3A                    CHR$    EQU     0A3A
0A43                    CHR0    EQU     0A43
0A41                    CHR1    EQU     0A41
153A                    CHRDS   EQU     153A
FD57                    CLOCK   EQU     0FD57
                        ;CODETE EQU     1BE3
FDBC                    COMAD   EQU     0FDBC
FD82                    COMMAN  EQU     0FD82
FDBB                    COMMEN  EQU     0FDBB
3F5B                    COMP$   EQU     3F5B
3F8A                    COMP5   EQU     3F8A
0FEA                    COMPAC  EQU     0FEA
115D                    COMPAD  EQU     115D
1163                    COMPAR  EQU     1163
11EC                    COMPBC  EQU     11EC
                        ;COMPST EQU     1BC4
FD6A                    CONTAD  EQU     0FD6A
FD69                    CONTFL  EQU     0FD69
FD6C                    CONTPG  EQU     0FD6C
FDDE                    COPY    EQU     0FDDE
12F3                    COPYAC  EQU     12F3
04B0                    COPYDO  EQU     04B0
0EE3                    CORECS  EQU     0EE3
137D                    COSINE  EQU     137D
001B                    CRLF    EQU     001B
FAD3                    CRNTPG  EQU     0FAD3
FA52                    CTRBAD  EQU     0FA52
FB45                    CTYSLT  EQU     0FB45
FDC9                    CURLAB  EQU     0FDC9
FF5B                    CURSCR  EQU     0FF5B
FDA6                    DADD    EQU     0FDA6
FB46                    DATAAD  EQU     0FB46
FDC3                    DATALA  EQU     0FDC3
FB4B                    DATAPG  EQU     0FB4B
FDC6                    DBLABE  EQU     0FDC6
FDAA                    DBYTE   EQU     0FDAA
05D1                    DDBCM   EQU     05D1
06ED                    DECPG   EQU     06ED
06CF                    DELET1  EQU     06CF
                        ;DELETE EQU     06C7
FE52                    DELSPR  EQU     0FE52
FB49                    DESAVE  EQU     0FB49
1274                    DESTAC  EQU     1274
```

```
                        ;GETDE1 EQU     2350
06DB                    GETLIN  EQU     06DB
06DE                    GETLN1  EQU     06DE
                        ;GETLNE EQU     19E5
24CC                    GETNEX  EQU     24CC
351D                    GETNVA  EQU     351D
2FE9                    GETSPA  EQU     2FE9
00BC                    GETSTR  EQU     00BC
3066                    GETVAL  EQU     3066
FB41                    GOPTR   EQU     0FB41
FB43                    GOSNUM  EQU     0FB43
FAD8                    GOSTAC  EQU     0FAD8
10A6                    GOTZER  EQU     10A6
20C8                    GREATE  EQU     20C8
20DB                    GREEQU  EQU     20DB
1541                    GRRDS   EQU     1541
3505                    GST5VA  EQU     3505
3508                    GSTNVA  EQU     3508
0A8C                    HIGH    EQU     0A8C
097F                    IJINIT  EQU     097F
FFF0                    IJTABL  EQU     0FFF0
                        ;IMOVE  EQU     1C73
0A6B                    INBIT   EQU     0A6B
0ACB                    INBLK2  EQU     0ACB
0ABA                    INBLOC  EQU     0ABA
0A9A                    INBYTE  EQU     0A9A
35AC                    INCLRA  EQU     35AC
06F3                    INCP6   EQU     06F3
FDA8                    INDEX   EQU     0FDA8
FDC1                    INDEXL  EQU     0FDC1
3ECE                    INKEY$  EQU     3ECE
0AAE                    INOUT   EQU     0AAE
02FE                    INSERT  EQU     02FE
                        ;INSTR  EQU     1B85
200A                    INT     EQU     200A
0996                    INT125  EQU     0996
121D                    INT64K  EQU     121D
119D                    INTEGE  EQU     119D
FD5E                    INTFFF  EQU     0FD5E
FDF2                    INTTAB  EQU     0FDF2
FA8F                    IOPL    EQU     0FA8F
FD76                    IOPR    EQU     0FD76
FD87                    ITYPE   EQU     0FD87
07BB                    JPHL    EQU     07BB
0079                    KBD     EQU     0079
FA83                    KBDBUF  EQU     0FA83
3618                    KBDPO   EQU     3618
FA91                    KBFLAG  EQU     0FA91
3622                    KEY1    EQU     3622
098A                    KILLIN  EQU     098A
27FB                    KILLVA  EQU     27FB
093A                    KILSND  EQU     093A
FDB5                    LABTAB  EQU     0FDB5
11C5                    LARGE1  EQU     11C5
11C8                    LARGEN  EQU     11C8
FD7D                    LASTAS  EQU     0FD7D
```

```
FD7E                    LASTDR  EQU     0FD7E
FD7C                    LASTKY  EQU     0FD7C
06AC                    LDBSBT  EQU     06AC
3F20                    LEFT$   EQU     3F20
3F95                    LEN     EQU     3F95
FDAE                    LENGTH  EQU     0FDAE
FF57                    LENHI   EQU     0FF57
0FF5                    LENLO   EQU     0FF5
20E2                    LESEQU  EQU     20E2
                        ;LESSTH EQU     20D2
2680                    LEXFUN  EQU     2680
FDAC                    LINKER  EQU     0FDAC
0B40                    LOAD    EQU     0B40
089E                    LOAD2   EQU     089E
0891                    LOADER  EQU     0891
2D0C                    LOADSN  EQU     2D0C
2398                    LOG     EQU     2398
23A5                    LOG2X   EQU     23A5
2494                    LOGE2   EQU     2494
23BC                    LOGNX   EQU     23BC
0A82                    LOW     EQU     0A82
3593                    LRATOV  EQU     3593
FA7A                    LSTPG   EQU     0FA7A
FD91                    MAF     EQU     0FD91
FD89                    MAFD    EQU     0FD89
0351                    MAKESP  EQU     0351
FD93                    MBC     EQU     0FD93
FD8B                    MBCD    EQU     0FD8B
FD95                    MDE     EQU     0FD95
FD8D                    MDED    EQU     0FD8D
FDD9                    MEM1    EQU     0FDD9
FDA1                    MEMPOI  EQU     0FDA1
FD97                    MHL     EQU     0FD97
FD8F                    MHLD    EQU     0FD8F
3EDD                    MID$    EQU     3EDD
FD60                    MIDVAL  EQU     0FD60
FD99                    MIX     EQU     0FD99
FD9B                    MIY     EQU     0FD9B
                        ;MOREHE EQU     297E
12B9                    MOVDEO  EQU     12B9
224C                    MOVEAC  EQU     224C
12A7                    MOVEDE  EQU     12A7
                        ;MOVHL  EQU     1BDD
FD9F                    MPC     EQU     0FD9F
FD9D                    MSP     EQU     0FD9D
100B                    MULPLY  EQU     100B
FE4D                    MVDIST  EQU     0FE4D
FE51                    MVNO    EQU     0FE51
FAA4                    NBTOP   EQU     0FAA4
FAA6                    NBTPG   EQU     0FAA6
06F7                    NCP1    EQU     06F7
0F13                    NEGACC  EQU     0F13
0221                    NEWENT  EQU     0221
2BC9                    NEWLIN  EQU     2BC9
2F90                    NEWSCR  EQU     2F90
2D7C                    NODDY   EQU     2D7C
```

```
06E7                    DETPN   EQU     06E7
FDAF                    DETYPE  EQU     0FDAF
3B96                    DIGIT   EQU     3B96
08EB                    DIROUT  EQU     08EB
FDB1                    DISAD   EQU     0FDB1
0E3D                    DIV10   EQU     0E3D
0E28                    DIVBY1  EQU     0E28
109E                    DIVIDE  EQU     109E
0C9D                    DJVL4   EQU     0C9D
FE4F                    DLSPNO  EQU     0FE4F
331F                    DODIM   EQU     331F
3E38                    DOJUMP  EQU     3E38
0FBE                    DONIB   EQU     0FBE
FDB3                    DPROG   EQU     0FDB3
FDB0                    DTYPE   EQU     0FDB0
1448                    EDEND   EQU     1448
02D9                    EDENT   EQU     02D9
FDAD                    EDIT    EQU     0FDAD
1424                    EDIT1   EQU     1424
1429                    EDITOR  EQU     1429
02CB                    EFFENT  EQU     02CB
2CFE                    ENDLIN  EQU     2CFE
FDB9                    ENDTAB  EQU     0FDB9
                        ;ENTER3 EQU     1C03
                        ;ENTERI EQU     1C11
2499                    ENUMBE  EQU     2499
20C0                    EQUAL   EQU     20C0
197B                    ERR34   EQU     197B
18AF                    ERROR   EQU     18AF
FD84                    ERRPOS  EQU     0FD84
3D84                    EVALAB  EQU     3D84
3E5B                    EVALFN  EQU     3E5B
3E7E                    EVALSE  EQU     3E7E
1183                    EXCHAN  EQU     1183
23EC                    EXP     EQU     23EC
1372                    EXP01   EQU     1372
23F2                    EXP2X   EQU     23F2
FA9E                    FEXPAN  EQU     0FA9E
                        ;FIND   EQU     19DD
3FEC                    FIND$   EQU     3FEC
3FE9                    FIND1$  EQU     3FE9
0689                    FINDJP  EQU     0689
316E                    FINDLE  EQU     316E
061A                    FINDLI  EQU     061A
2E39                    FINDNO  EQU     2E39
                        ;FINDNS EQU     1A19
0BFE                    FINFF   EQU     0BFE
FD86                    FLAGS1  EQU     0FD86
FB44                    FORCOU  EQU     0FB44
112B                    FRAC    EQU     112B
033C                    FREESP  EQU     033C
FE16                    FREQ    EQU     0FE16
FE02                    GASH    EQU     0FE02
351A                    GETSVA  EQU     351A
0BC5                    GETBAS  EQU     0BC5
                        ;GETCHA EQU     2FF3
```

```
FA9B                    NODLOC  EQU     0FA9B
02C0                    NOGOOD  EQU     02C0
FE4E                    NOSPR   EQU     0FE4E
20AF                    NOTACC  EQU     20AF
20E9                    NOTEQU  EQU     20E9
08C6                    OFREQ   EQU     08C6
24F3                    OL1     EQU     24F3
29AF                    ONELIN  EQU     29AF
399E                    ONESP   EQU     399E
FDD2                    OP11    EQU     0FDD2
129E                    OP1STA  EQU     129E
2672                    OPS     EQU     2672
0D72                    OPTABL  EQU     0D72
20A6                    ORACC   EQU     20A6
0AFC                    OTBLK2  EQU     0AFC
0A7B                    OUTBIT  EQU     0A7B
0AE6                    OUTBLO  EQU     0AE6
0AA4                    OUTBYT  EQU     0AA4
1219                    OUTRAN  EQU     1219
39C1                    OUTSP   EQU     39C1
1907                    OUTSTR  EQU     1907
121B                    OVERFL  EQU     121B
3B73                    OVERHL  EQU     3B73
3B74                    OVERSP  EQU     3B74
08F9                    OVOL    EQU     08F9
FFED                    OVRLAY  EQU     0FFED
2E6B                    P1JTBL  EQU     2E6B
FAD2                    PAGE    EQU     0FAD2
2BE8                    PAU1    EQU     2BE8
0671                    PGCHK   EQU     0671
066E                    PGCHK1  EQU     066E
FAD4                    PGN1    EQU     0FAD4
FAD5                    PGN2    EQU     0FAD5
0647                    PGSLC1  EQU     0647
0644                    PGSLC2  EQU     0644
064A                    PGSLCT  EQU     064A
FAD6                    PGTOP   EQU     0FAD6
120B                    PIOP1   EQU     120B
FE50                    PLSPNO  EQU     0FE50
FDA5                    POINTE  EQU     0FDA5
13C1                    POLY2   EQU     13C1
13D2                    POLYNO  EQU     13D2
233F                    POWER   EQU     233F
0CAB                    PRINTX  EQU     0CAB
FD75                    PRORPL  EQU     0FD75
3037                    PSHNAM  EQU     3037
3534                    PST5VA  EQU     3534
3537                    PSTNVA  EQU     3537
3544                    PUT5VA  EQU     3544
3547                    PUTNVA  EQU     3547
2FCD                    PUTSTA  EQU     2FCD
34FE                    RAMPGC  EQU     34FE
2BD7                    RAND1   EQU     2BD7
FA90                    REALBY  EQU     0FA90
0FFA                    REMAIN  EQU     0FFA
2316                    REPDEC  EQU     2316
```

```
0B06                    RESINT  EQU     0B06
2C8D                    RESTEN  EQU     2C8D
12D1                    RETACC  EQU     12D1
FD61                    RETSAV  EQU     0FD61
07B5                    RETT    EQU     07B5
FD4B                    RICHJL  EQU     0FD4B
3F1A                    RIGHT$  EQU     3F1A
0697                    RMTPHL  EQU     0697
2048                    RND     EQU     2048
FD7F                    RNSEED  EQU     0FD7F
0FA1                    ROAHL   EQU     0FA1
0FBD                    ROTR    EQU     0FBD
0F2B                    ROUNAC  EQU     0F2B
2CFD                    RUN4    EQU     2CFD
2CF0                    RUN5    EQU     2CF0
2CDB                    RUN55   EQU     2CDB
2CEC                    RUN8    EQU     2CEC
26F7                    RWTAB   EQU     26F7
15FC                    SAANGL  EQU     15FC
15BB                    SADJSP  EQU     15BB
16CE                    SARC    EQU     16CE
15E2                    SATTR   EQU     15E2
0A07                    SAUTO   EQU     0A07
0B90                    SAVE    EQU     0B90
12BF                    SAVEAC  EQU     12BF
0D38                    SBAUD   EQU     0D38
1876                    SCENT   EQU     1876
188F                    SCENT4  EQU     188F
00CB                    SCENTR  EQU     00CB
180F                    SCIRCL  EQU     180F
1595                    SCLS    EQU     1595
00DA                    SCODE   EQU     00DA
15B3                    SCOLOU  EQU     15B3
FF5D                    SCRN0   EQU     0FF5D
FF6C                    SCRN1   EQU     0FF6C
FF7B                    SCRN2   EQU     0FF7B
FF8A                    SCRN3   EQU     0FF8A
FF99                    SCRN4   EQU     0FF99
FFA8                    SCRN5   EQU     0FFA8
FFB7                    SCRN6   EQU     0FFB7
FFC6                    SCRN7   EQU     0FFC6
15EA                    SCRVS   EQU     15EA
159B                    SCTLSP  EQU     159B
1583                    SCURS0  EQU     1583
1687                    SDRAW   EQU     1687
157C                    SDSI    EQU     157C
3C91                    SE      EQU     3C91
3EA1                    SEQ0    EQU     3EA1
2000                    SET1AC  EQU     2000
FD48                    SETCAL  EQU     0FD48
27B7                    SETINI  EQU     27B7
0B10                    SETINT  EQU     0B10
10A9                    SETZER  EQU     10A9
15A3                    SGENPA  EQU     15A3
00AD                    SHIF    EQU     00AD
FDD8                    SIGN    EQU     0FDD8
```

```
208F                    SIGNAC  EQU     208F
161F                    SINCOS  EQU     161F
1382                    SINE    EQU     1382
1590                    SINK    EQU     1590
29DA                    SLET    EQU     29DA
1574                    SLINE   EQU     1574
11B9                    SMALL1  EQU     11B9
11BB                    SMALLE  EQU     11BB
FF55                    SMBYTE  EQU     0FF55
15D1                    SMVSPR  EQU     15D1
27B3                    SNDBUF  EQU     27B3
0205                    SNEW    EQU     0205
09FD                    SOUT    EQU     09FD
158A                    SPAPER  EQU     158A
2BE4                    SPAUSE  EQU     2BE4
FE4C                    SPBASE  EQU     0FE4C
FE4B                    SPEED   EQU     0FE4B
1670                    SPLOT   EQU     1670
2B88                    SPRINT  EQU     2B88
FE55                    SPRTBL  EQU     0FE55
236E                    SQROOT  EQU     236E
2391                    SQUA1   EQU     2391
1008                    SQUARE  EQU     1008
0A15                    SQUASH  EQU     0A15
160A                    SRANGL  EQU     160A
27AA                    SREM    EQU     27AA
009E                    SROM    EQU     009E
2CAF                    SRUN    EQU     2CAF
2D0C                    SSOUND  EQU     2D0C
15C4                    SSPRIT  EQU     15C4
FA96                    SSTACK  EQU     0FA96
1311                    STA     EQU     1311
1317                    STAC    EQU     1317
FD73                    STACCT  EQU     0FD73
FD48                    STACK   EQU     0FD48
1286                    STACKA  EQU     1286
1298                    STACKO  EQU     1298
0744                    STACKS  EQU     0744
0F58                    STAHLH  EQU     0F58
FB4B                    START   EQU     0FB4B
                        ;STASEM EQU     1CC3
1348                    STBC    EQU     1348
136B                    STHLHL  EQU     136B
315B                    STKLEN  EQU     315B
FA92                    STKLIM  EQU     0FA92
3EC9                    STKTES  EQU     3EC9
FA7A                    STKTOP  EQU     0FA7A
2D62                    STOP    EQU     2D62
2D56                    STOPPP  EQU     2D56
3FC6                    STR$    EQU     3FC6
02E7                    STRHL   EQU     02E7
0DBE                    STRJP   EQU     0DBE
02E8                    STROUT  EQU     02E8
3FCB                    STRSTA  EQU     3FCB
0E83                    SUBTRA  EQU     0E83
15F6                    SVS     EQU     15F6
```

```
15DA                    SWINDO  EQU     15DA
00F4                    SWITCH  EQU     00F4
3C40                    SYFAIL  EQU     3C40
398C                    SYN     EQU     398C
14B9                    SYNPRO  EQU     14B9
FA94                    SYSTOP  EQU     0FA94
3C38                    SYSUCC  EQU     3C38
FE04                    TEMP    EQU     0FE04
                        ;TEST1  EQU     1A0C
                        ;TEST2B EQU     2A8D
                        ;TESTHL EQU     1BB6
0344                    TESTSP  EQU     0344
3F38                    TIME$   EQU     3F38
                        ;TINSER EQU     2A7A
FD71                    TMPA    EQU     0FD71
FD6F                    TMPHL   EQU     0FD6F
124F                    TOKMIN  EQU     124F
06BB                    TPCH1   EQU     06BB
FD68                    TYPE    EQU     0FD68
FFD5                    TYPTBL  EQU     0FFD5
3182                    UPDATE  EQU     3182
FA89                    USER    EQU     0FA89
FA98                    USERIN  EQU     0FA98
FD51                    USERIO  EQU     0FD51
FAA1                    USERNO  EQU     0FAA1
FD54                    USERRO  EQU     0FD54
203D                    USR     EQU     203D
FD4E                    USRRST  EQU     0FD4E
34A0                    UVITOS  EQU     34A0
3F9E                    VAL     EQU     3F9E
FA7D                    VALBOT  EQU     0FA7D
3580                    VALRA1  EQU     3580
FA7B                    VARNAM  EQU     0FA7B
357C                    VATOLR  EQU     357C
FD65                    VAZERO  EQU     0FD65
FE53                    VCOUNT  EQU     0FE53
2E85                    VDINIT  EQU     2E85
FE54                    VDPSTS  EQU     0FE54
FD67                    VERIF   EQU     0FD67
3A55                    VINT    EQU     3A55
FF58                    VINTFG  EQU     0FF58
FE18                    VOL     EQU     0FE18
FDA3                    WCHJUM  EQU     0FDA3
FE1A                    WKAREA  EQU     0FE1A
253B                    WORDLS  EQU     253B
FDD7                    YORN    EQU     0FDD7
0FAF                    ZERACC  EQU     0FAF
355D                    ZERONV  EQU     355D


000A                    .RADIX 10

                        ;
                C       INCLUDE FPORTS.INC
000A            C       CTC3 EQU 2+8
                C
```

```
                        ;
                        ;
                        PUBLIC  ALIST,BEGIN,CALLEN
                        PUBLIC  CHOUT,COMPSTR,ENTER30
                        PUBLIC  ENTERIN,FIND,FINDNSPC
                        PUBLIC  GETDE1,GETLNEXT
                        PUBLIC  IMOVE,MOREHEX,MOVHL
                        PUBLIC  STASEM
                        PUBLIC  TEST1,TEST2BYT,TESTHL,TINSERT
                        PUBLIC  INSTR,CODETEST
                        ;
                        ;
0028                    JT      EQU     28H
0008                    DEHLRST EQU     8
00C2                    CODE    EQU     128+66
0008                    DEHLRST EQU     8
0010                    SCRRST  EQU     10H
0028                    JT      EQU     28H
0002                    BRKBIT  EQU     2
                        ;
                        ;
19C6                    VOUTHCOL:
19C6  DD CB 00 46               BIT 0,(IX+FLAGS)
19CA  CA 1B55                   JP Z,VHEX
19CD  FE 20                     CP 32
19CF  38 04                     JR C,NOASCII
19D1  CB 7F                     BIT 7,A
19D3  28 02                     JR Z,ISACII
19D5                    NOASCII:
19D5  3E 2E                     LD A,'.'
19D7  EF                ISACII: RST JT
19D8  AC                        DB 0ACH
                        ;CALL GETSTR
19D9  D7                        RST SCRRST
19DA  81                        DB 80H+1
19DB  20                        DB ' '
19DC  C9                        RET
                        ;
                        ;********************************
                        ;These should dip into page zero
                        ;
19DD  3C                FIND:   INC A
19DE  3D                TOPFIND:        DEC A
19DF  C8                        RET Z
19E0  CD 1BDD                   CALL MOVHL
19E3  18 F9                     JR TOPFIND
                        ;
                        ;
                        ;
                        ;This moves HL to the beginning of the next label
                        ;
19E5  2A FDC9           GETLNEXTL:LD HL,(CURLAB) ;Start of last
19E8  CD 1A12                   CALL TESTEND
19EB  C0                        RET NZ
19EC  23                        INC HL
19ED  A7                        AND A
```

```
19EE  28 14              JR Z,MOVADR  ;No data
19F0  23                 INC HL
19F1  23                 INC HL  ;all require +2
19F2  D6 03              SUB 3
19F4  38 0E              JR C,MOVADR
19F6  FE 05              CP 8-3  ;Comment
19F8  30 01              JR NC,NOC
19FA  23                 INC HL
19FB  C5           NOC:   PUSH BC
19FC  4E                 LD C,(HL)
19FD  23                 INC HL
19FE  06 00              LD B,0
1A00  09                 ADD HL,BC
1A01  C1                 POP BC
1A02  18 05              JR SAVLHL
1A04  EF           MOVADRE:      RST JT
1A05  B3                 DB 0B3H
                  ;       CALL MOVHL  ;Over name
1A06  CD 29A8            CALL ADDHL4
1A09  7E           SAVLHL: LD A,(HL)
1A0A  18 03              JR TESTCUR
                  ;
                  ;This test HL for a 0ffh returns NZ if not
                  ; Z if not found
                  ;
1A0C  2A FDB5      TEST1:  LD HL,(LABTABL)
1A0F  22 FDC9      TESTCUR:      LD (CURLAB),HL
1A12  7E           TESTEND:      LD A,(HL)
1A13  FE FF              CP 0FFH
1A15  3F                 CCF
1A16  9F                 SBC A,A
1A17  7E                 LD A,(HL)
1A18  C9                 RET
                  ;
                  ;
                  ;This finds the first non space at DE
                  ;if DE does not initially point at
                  ;a space then NZ is returned otherwise
                  ;a Z, A is destroyed.
                  ;
1A19  1A           FINDNSPC:     LD A,(DE)
1A1A  FE 20              CP ' '
1A1C  C0                 RET NZ
1A1D  EB                 EX DE,HL
1A1E  BE                 CP (HL)
1A1F  28 02              JR Z,ONESPC
1A21  EB                 EX DE,HL
1A22  C9                 RET
1A23  23           ONESPC: INC HL
1A24  BE                 CP (HL)
1A25  28 FC              JR Z,ONESPC
1A27  AF                 XOR A
1A28  EB                 EX DE,HL
1A29  C9                 RET
                  ;
                  ;
```

```
                        ;THIS LOOKS AT THE CHARCTER POINTED
                        ;TO BY DE TO TEST IF IT IS A HEX NUMBER
                        ;C set if not found , Numbers digit in A
                        ;
1A2A  1A                LKHEX:  LD A,(DE)
1A2B  D6 30                     SUB '0'
1A2D  D8                        RET C
1A2E  FE 0A                     CP 10
1A30  3F                        CCF
1A31  D0                        RET NC
1A32  D6 07                     SUB 7
1A34  FE 0A                     CP 10
1A36  D8                        RET C
1A37  FE 10                     CP 16
1A39  3F                        CCF
1A3A  C9                        RET
                        ;
                        ;FINDREG FINDS THE REGISTER LOCATION
                        ;THAT POINTER POINTS TO.IT WILL AFFECT
                        ;B,C,HL RETURNS WITH ADRRESS OF LEAST
                        ;SIGNIFICANT BYTE
                        ;
1A3B  3A FDA5           FINDREG:        LD A,(POINTER)
1A3E  FE 04                     CP 4
1A40  21 FD91                   LD HL,MAF
1A43  30 09                     JR NC,LESSTH5
1A45  DD CB 00 7E               BIT 7,(IX+FLAGS)
1A49  28 03                     JR Z,LESSTH5
1A4B  21 FD89                   LD HL,MAFD
1A4E  C5                LESSTH5:        PUSH BC
1A4F  4F                        LD C,A
1A50  06 00                     LD B,0
1A52  09                        ADD HL,BC
1A53  09                        ADD HL,BC ;*2
1A54  C1                        POP BC
1A55  C9                        RET
                        ;
                        ;
                        ;This tests to see if BC is a valid
                        ;value for 1 byte things
                        ;
1A56  04                ONEVAL: INC B
1A57  05                        DEC B
1A58  C8                        RET Z
1A59  79                        LD A,C
1A5A  17                        RLA
1A5B  9F                        SBC A,A
1A5C  B8                        CP B
1A5D  C9                        RET
                        ;
                        ;This prints up Exit and waits for prompt
                        ;if Y then returns Z
                        ;
1A5E  D7                EXIT:   RST SCRRST
1A5F  86                        DB 80H+6
1A60  45 78 69 74               DB 'Exit?',CURSON
```

```
1A64  3F 1E
1A66  CD 1B23              CALL GETCHAR
1A69  FE 59                CP 'Y'
1A6B  D7                   RST SCRRST
1A6C  3F 2D 0A             DB CURSOFF+CONTINUE,CONTINUE+CR,LF
1A6F  C9                   RET
                      ;
                      ;This outputs the string pointed to
                      ;by HL to the screen decrementing
                      ;C as it goes
                      ;
1A70  7E              COUNTHL:     LD A,(HL)
1A71  23                   INC HL
1A72  05                   DEC B
1A73  CB 7F                BIT 7,A
1A75  CB BF                RES 7,A
1A77  CD 1B6A              CALL CHOUT
1A7A  28 F4                JR Z,COUNTHL
1A7C  C9                   RET
                      ;
                      ;This converts the line pointed
                      ;by HL to all to capitals if a
                      ;qoute is found then it is advanced
                      ;to the next quote
                      ;
1A7D  23              ALL1:   INC HL
1A7E  7E              ALLCAP: LD A,(HL)
1A7F  FE FF                CP 0FFH
1A81  C8                   RET Z
1A82  FE 22                CP '"'
1A84  20 06                JR NZ,NOQUO
1A86  CD 1A95              CALL MOVQUO
1A89  30 F2                JR NC,ALL1
1A8B  C9                   RET      ;C set
1A8C  FE 61           NOQUO:  CP 'a'
1A8E  38 ED                JR C,ALL1
1A90  D6 20                SUB 32
1A92  77                   LD (HL),A
1A93  18 EB                JR ALL1
                      ;
1A95  23              MOVQUO: INC HL
1A96  7E                   LD A,(HL)
1A97  FE 22                CP '"'
1A99  C8                   RET Z
1A9A  FE FF                CP 0FFH
1A9C  37                   SCF
1A9D  C8                   RET Z
1A9E  0C                   INC C
1A9F  18 F4                JR MOVQUO
                      ;
                      ;This calculates the new value for
                      ;BC given (BASEM) and (APROG) BC
                      ;gives how far it is from (APROG)
                      ;
1AA1  E5              RELBC:  PUSH HL
1AA2  2A FDB7              LD HL,(APROG)
```

Skip to end of quoted string. C set if END LINE (+FF) found first

```
1AA5  09          ADD HL,BC
1AA6  ED 4B FDC7  LD BC,(BASEM)
1AAA  A7          AND A
1AAB  ED 42       SBC HL,BC
1AAD  44          LD B,H
1AAE  4D          LD C,L
1AAF  E1          POP HL
1AB0  C9          RET
                  ;
                  ;This reads a number pointed to by
                  ;DE into BC,DE returns at endP
                  ;
1AB1  1A          READNUM:    LD A,(DE) ;String?
1AB2  FE 22               CP '"'
1AB4  20 17               JR NZ,DONUM
1AB6  01 0000             LD BC,0
1AB9  13                  INC DE
1ABA  1A          STRLP:  LD A,(DE)
1ABB  FE FF               CP 0FFH
1ABD  28 09               JR Z,STREND
1ABF  FE 22               CP '"'
1AC1  13                  INC DE
1AC2  28 04               JR Z,STREND
1AC4  41                  LD B,C
1AC5  4F                  LD C,A
1AC6  18 F2               JR STRLP
1AC8  AF          STREND: XOR A
1AC9  B9                  CP C ;Is C=zero
1ACA  3F                  CCF
1ACB  9F                  SBC A,A
1ACC  C9                  RET
1ACD  1A          DONUM:  LD A,(DE)
1ACE  FE 23               CP '£' ;hex?
1AD0  20 0A               JR NZ,GOTDEC
1AD2  13                  INC DE
1AD3  E5          READ1HEX:   PUSH HL ;save HL
1AD4  CD 1AE0             CALL READHEX ;get number
1AD7  44                  LD B,H
1ADB  4D                  LD C,L
1AD9  9F                  SBC A,A
1ADA  E1                  POP HL
1ADB  C9                  RET
1ADC  CD 121D     GOTDEC: CALL INT64K
1ADF  C9                  RET     ;NZ if no good
                  ;
                  ;
                  ;THIS READS THE HEX NUMBER POINTED TO BY
                  ;DE NUMBER MUST START BETWEEN 0 AND 9
                  ;
                  ;
1AE0  CD 1A2A     READHEX:    CALL LKHEX
1AE3  21 0000             LD HL,0
1AE6  D8                  RET C
1AE7  CD 1A2A     TOPNUM: CALL LKHEX
1AEA  3F                  CCF
1AEB  D0                  RET NC
```

```
1AEC  29          ADD HL,HL
1AED  29          ADD HL,HL
1AEE  29          ADD HL,HL
1AEF  29          ADD HL,HL
1AF0  85          ADD A,L
1AF1  6F          LD L,A
1AF2  13          INC DE
1AF3  18 F2       JR TOPNUM
                  ;
                  ;
1AF5  F5          SETCHL: PUSH AF
1AF6  2A FDB4             LD HL,(ERRPOS)
1AF9  CD 1843             CALL CALLEN
1AFC  F1                  POP AF
1AFD  C9                  RET
                  ;
                  ;
                  ;DE' POINTS TO THE CUURENT POSITION
                  ;IN THE BUFFER,HL' POINTS TO THE
                  ;DATA BYTES B' CANNOT BE USED
                  ;D IS USED TO HOLD CLASS,F AND H
                  ;IN THAT ORDER,C IS USED FOR HOLDING
                  ;VALUES B IS USED TO HOLD 6,HL IS USED
                  ;AND IS UNKNOWN BIT 7 OF B IS USED TO
                  ;FLAG IF THERE HAS BEEN AN UNTRUE COMPARE
                  ;YET.
                  ;
                  ;
1AFE  D9          MA1:    EXX
1AFF  23                  INC HL
1B00  D9                  EXX
1B01  D9          MAST1:  EXX
1B02  ED 5B FD84          LD DE,(ERRPOS)
1B06  D9                  EXX
1B07  06 00               LD B,0;CLEAR THE FLAG
                  ;
                  ;
1B09  D9          MASTER: EXX;GET POINTER TO DATA
1B0A  7E                  LD A,(HL)
1B0B  23                  INC HL
1B0C  D9                  EXX
1B0D  2A FDA3             LD HL,(WCHJUM)
1B10  5F                  LD E,A;SAVE IT
1B11  1F                  RRA
1B12  1F                  RRA
1B13  1F                  RRA
1B14  E6 07               AND 7
1B16  CD 0689             CALL FINDJP
1B19  CD 07B8             CALL JPHL
1B1C  CB 7B               BIT 7,E
1B1E  28 E9               JR Z,MASTER
1B20  CB 78               BIT 7,B;SEND A ZERO FLAG
1B22  C9                  RET
                  ;
                  ;
```

```
                        ;*** IOCPM.INC ***
                        ;
                        ;
                        ;
1B23  CD 09F2           GETCHAR:    CALL BREAKMON
1B26  37                        SCF
1B27  C0                        RET NZ
1B28  CD 0079                   CALL KBD
1B2B  28 F6                     JR Z,GETCHAR
1B2D  A7                        AND A  ;Clear carry
1B2E  C9                        RET
                        ;
                        ;
                        ;This moves the string pointed
                        ;to by HL to the KBDBUF ended
                        ;with a 0FFH,HL returns at end of string
                        ;DE start of new string.
                        ;
1B2F  54                HIPUT:  LD D,H
1B30  5D                        LD E,L
1B31  2A FA83                   LD HL,(KBDBUF)
1B34  E5                        PUSH HL
1B35  1A                NOPUT:  LD A,(DE) ;DE at end HL at start
1B36  CB 7F                     BIT 7,A
1B38  CB BF                     RES 7,A
1B3A  77                        LD (HL),A
1B3B  23                        INC HL
1B3C  13                        INC DE
1B3D  28 F6                     JR Z,NOPUT
1B3F  36 FF                     LD (HL),0FFH
1B41  E1                        POP HL
1B42  C9                        RET
                        ;
                        ;
                        ;This calculates the length of
                        ;the string pointed to by HL
                        ;
1B43  E5                CALLEN: PUSH HL
1B44  3E FF                     LD A,0FFH
1B46  01 0000                   LD BC,0
1B49  BE                DOCOMP: CP (HL)
1B4A  03                        INC BC
1B4B  23                        INC HL
1B4C  20 FB                     JR NZ,DOCOMP
1B4E  E1                        POP HL
1B4F  C9                        RET
                        ;
                        ;
                        ;This outputs BC to the VDP
                        ;chip
                        ;
1B50  78                OUTVBC: LD A,B
1B51  CD 1B55                   CALL VHEX
1B54  79                        LD A,C
                        ;
```

```
1B55  F5          VHEX:   PUSH AF
1B56  CD 1B5C             CALL VHINIB
1B59  F1                  POP AF
1B5A  18 04               JR VLONIB
                  ;
1B5C  0F          VHINIB: RRCA
1B5D  0F                  RRCA
1B5E  0F                  RRCA
1B5F  0F                  RRCA
1B60  E6 0F       VLONIB: AND 0FH
1B62  FE 0A               CP 10
1B64  38 02               JR C,VLESS
1B66  C6 07               ADD A,7
1B68  C6 30       VLESS:  ADD A,'0'
                  ;
1B6A  F5          CHOUT:  PUSH AF
1B6B  EF                  RST JT
1B6C  AC                  DB 0ACH
                  ;CALL PRINTX
1B6D  F1                  POP AF
1B6E  C9                  RET
                  ;
1B6F  2A FA92     INSTR1: LD HL,(STKLIM)
1B72  01 FFEC             LD BC,-20
1B75  09                  ADD HL,BC
1B76  E5                  PUSH HL
1B77  1E 12               LD E,18
1B79  0E 00               LD C,0
1B7B  18 17               JR TOPM
                  ;
                  ;This returns after instr
                  ;
1B7D  D7          RETINP: RST SCRRST
1B7E  1F                  DB CURSOFF
1B7F  36 FF               LD (HL),0FFH ;Mark end
1B81  D1                  POP DE
1B82  0C                  INC C
1B83  0D                  DEC C
1B84  C9                  RET
                  ;
                  ;
                  ;This gets a string from the keyboard
                  ;from the current cursor position
                  ;terminated by overflow of buffer or
                  ;CR.Buffer pointed to by DE
                  ;E contains number in buffer
                  ;C the number of characters input
                  ;
                  ;
1B85  1E FE       INSTR:  LD E,254
1B87  D7          INSTR2: RST SCRRST
1B88  1E                  DB CURSON
1B89  2A FA83             LD HL,(KBDBUF)
1B8C  E5                  PUSH HL ;Save start
1B8D  0E 00               LD C,0 ;For addition
1B8F  CD 1B23     TOPIN:  CALL GETCHAR ;Get character
```

```
1B92  38 E9                   JR C,RETINP
1B94  FE 0D             TOPM: CP CR
1B96  28 E5                   JR Z,RETINP
1B98  FE 08                   CP BS
1B9A  28 0D                   JR Z,DOBACK
1B9C  FE 20                   CP 32
1B9E  38 EF                   JR C,TOPIN
1BA0  77                      LD (HL),A
1BA1  0C                      INC C
1BA2  23                      INC HL
1BA3  EF                      RST JT
1BA4  AC                      DB 0ACH
                      ;       CALL PRINTX
1BA5  7B                      LD A,E
1BA6  B9                      CP C
1BA7  30 E6                   JR NC,TOPIN
                      ;
1BA9  79              DOBACK: LD A,C
1BAA  A7                      AND A
1BAB  28 E2                   JR Z,TOPIN
1BAD  0D                      DEC C
1BAE  2B                      DEC HL
1BAF  D7                      RST SCRRST
1BB0  83                      DB 80H+3
1BB1  08 20 08                DB BS,' ',BS
1BB4  18 D9                   JR TOPIN
                      ;
                      ;
                      ;This tests the bytes pointed to by
                      ;HL to see if they are the same as DE
                      ;Returns Z set if a true compare
                      ;HL returns pointing beyond number.
                      ;
                      ;
1BB6  C5              TESTHLDE:       PUSH BC
1BB7  4E                      LD C,(HL)
1BB8  23                      INC HL
1BB9  46                      LD B,(HL)
1BBA  23                      INC HL
1BBB  D5                      PUSH DE
1BBC  EB                      EX DE,HL
1BBD  A7                      AND A
1BBE  ED 42                   SBC HL,BC
1BC0  EB                      EX DE,HL
1BC1  D1                      POP DE
1BC2  C1                      POP BC
1BC3  C9                      RET
                      ;
                      ;
                      ;This compares the string pointed
                      ;to by DE to the one pointed to by HL
                      ;if there is an untrue compare then
                      ;HL points to the end of the
                      ;next label.
                      ;DE to the beginning of the
```

```
                        ;string.If the compare was true then
                        ;DE points to the beginning of the string.
                        ;HL to the end of the string
                        ;Z if true compare.
                        ;
1BC4  D5                COMPSTR:    PUSH DE
1BC5  1A                CONTCOMP:   LD A,(DE)
1BC6  BE                        CP (HL)
1BC7  20 09                     JR NZ,NOCOMP
1BC9  CB 7E                     BIT 7,(HL)
1BCB  23                        INC HL
1BCC  13                        INC DE
1BCD  28 F6                     JR Z,CONTCOMP
                                        ;carry is cleared
1BCF  AF                        XOR A
1BD0  D1                        POP DE
1BD1  C9                        RET
1BD2  CD 1BDD           NOCOMP: CALL MOVHL
1BD5  D1                        POP DE
1BD6  C9                        RET
                      ;
                      ;
                      ;
                      ;This moves HL to the start of the
                      ;pointers.
                      ;
1BD7  7E              FINPOIN:    LD A,(HL)
1BD8  A7                        AND A
1BD9  28 02                     JR Z,NOHLS
1BDB  23                        INC HL
1BDC  23                        INC HL
1BDD                  NOHLS:
1BDD  CB 7E           MOVHL:    BIT 7,(HL)
1BDF  23                        INC HL
1BE0  28 FB                     JR Z,MOVHL
1BE2  C9                        RET
                      ;
                      ;
                      ;This sets up the pointers for the
                      ;label table etc.DE has length of line
                      ;HL points at end of line A has page n0.
                      ;
1BE3  CF              CODETEST:   RST DEHLRST ;Get line length
1BE4  23                        INC HL
1BE5  23                        INC HL ;Over line number
1BE6  7E                        LD A,(HL)
1BE7  FE C2                     CP CODE
1BE9  C0                        RET NZ
1BEA  23              NOSETUP:      INC HL
1BEB  42                        LD B,D
1BEC  4B                        LD C,E
1BED  CF                        RST DEHLRST ;Get dist to labels
1BEE  22 FDC7                   LD (BASEM),HL;Start of assembly
1BF1  22 FDB7                   LD (APROG),HL
1BF4  E5                        PUSH HL
1BF5  19                        ADD HL,DE ;Address labels
```

```
1BF6  22 FDB5        LD (LABTABL),HL - Address of Labels
1BF9  E1             POP HL
1BFA  09             ADD HL,BC
1BFB  11 FFF8        LD DE,-8 ;2(line length)+2(Line number)
1BFE  19             ADD HL,DE ;+1(code)+2(To label table)
1BFF  22 FDB9        LD (ENDTABL),HL
1C02  C9             RET
                     ;
                     ;
                     ;THIS IS WHERE THE PROGRAM ENTERS ON
                     ;A RESTART 30
                     ;           - Restart 38 via user RST
                     ;
1C03  E3             ENTER30:    EX (SP),HL - Get return address
1C04  F5                         PUSH AF    - Save A
1C05  2B                         DEC HL     - Address of last instr
1C06  3A FA90                    LD A,(REALBY)
1C09  77                         LD (HL),A
1C0A  3E FF                      LD A,RSTD01
1C0C  32 FA90                    LD (REALBY),A
1C0F  F1                         POP AF     - Restore A
1C10  E3                         EX (SP),HL - Restore addr of instr
                      ;
                      ;
                      ;THIS IS WHERE THE PROGRAM ENTERS
                      ;AFTER RECIEVING AN INTERRUPT
                      ;
                      ;
1C11  F3              ENTERIN:      DI;STOP ANY MORE INTERUPTS
1C12  E3                          EX (SP),HL;GET PC
1C13  22 FD9F                     LD (MPC),HL
1C16  E1                          POP HL
1C17  ED 73 FD9D                  LD (MSP),SP
1C1B  31 FD9D                     LD SP,MIY+2
1C1E  FD E5                       PUSH IY
1C20  DD E5                       PUSH IX
1C22  E5                          PUSH HL
1C23  D5                          PUSH DE
1C24  C5                          PUSH BC
1C25  F5                          PUSH AF
1C26  3E 03                       LD A,3
1C28  D3 0A                       OUT (CTC3),A
1C2A  D9                          EXX
1C2B  E5                          PUSH HL
1C2C  D5                          PUSH DE
1C2D  C5                          PUSH BC
1C2E  08                          EX AF,AF'
1C2F  F5                          PUSH AF
1C30  CD 07B5                     CALL RETT  - Clear CTC interrupt flag
                      ;           AND A
                      ;           LD DE,(TEMPC)
                      ;           LD HL,(MPC)
                      ;           SBC HL,DE
                      ;           JP Z,SING1
                      ;           LD (MPC),DE
```

```
                        ;
1C33                    BEGIN:
1C33                    FBEGIN:
                        ;**************Initializse screens
                        ;
                                ;Calculate new stack
1C33    2A FA92                 LD HL,(STKLIM)
1C36    01 FFEC                 LD BC,-20 ;For kbd buf
1C39    09                      ADD HL,BC
1C3A    F9                      LD SP,HL
1C3B    CD 00CB                 caLL SCENTR  ;Switch in page 1
1C3E    D7                      RST SCRRST
1C3F    83 1B 57 FF             DB 83H,27,'W',0FFH
1C43    DD 21 FD86              LD IX,FLAGS1
1C47    21 FD81                 LD HL,BREAK
1C4A    CB 96                   RES BRKBIT,(HL)
1C4C    FB                              EI
                        ;
1C4D    CD FA9E         REENTER:        CALL FEXPAND
1C50    CD 2148                 CALL MAINSC
1C53    CD 2400                 CALL OUTMEM
1C56    D7                      RST SCRRST
1C57    4F                      DB 40H+SEDIT+CLSE
1C58    CD 1B23                 CALL GETCHAR
1C5B    CD 20CE                 CALL JUMROT
1C5E    18 ED                   JR REENTER
                        ;
                        ;
1C60    EF              MOVE:   RST JT
1C61    AB                      DB 0ABH
                        ;CALL MOREHEX
1C62    4D 6F 76 E5             DC 'Move'
1C66    C5                      PUSH BC
1C67    EF                      RST JT
1C68    AB                      DB 0ABH
                        ;       CALL MOREHEX
1C69    45 6E E4                DC 'End'
1C6C    C5                      PUSH BC
1C6D    EF                      RST JT
1C6E    AB                      DB 0ABH
                        ;       CALL MOREHEX
1C6F    54 EF                   DC 'To'
1C71    D1                      POP DE
1C72    E1                      POP HL
                        ;
                        ;
                        ;This moves the block of memory pointed
                        ;to by DE and HL to the block pointed to
                        ;by BC.HL returns at new start DE at new
                        ;end.A=0FFH if DE>HL otherwise zero.
                        ;
                        ;
1C73    AF              IMOVE:  XOR A ;A=0 C=0
1C74    E5                      PUSH HL
1C75    ED 52                   SBC HL,DE
1C77    30 07                   JR NC,HLBEYOND
```

```
1C79  9F                  SBC A,A
1C7A  E1                  POP HL
1C7B  EB                  EX DE,HL
1C7C  A7                  AND A
1C7D  E5                  PUSH HL
1C7E  ED 52               SBC HL,DE
1C80  E3            HLBEYOND:   EX (SP),HL;save number get end
1C81  CD 1C9F             CALL TESTBC
1C84  38 0E               JR C,NOTINSIDE
1C86  50                  LD D,B ;get new start
1C87  59                  LD E,C
1C88  C1                  POP BC ;get number
1C89  D5                  PUSH DE ;save start
1C8A  E8                  EX DE,HL
1C8B  09                  ADD HL,BC
1C8C  EB                  EX DE,HL
1C8D  D5                  PUSH DE ;save new end
1C8E  03                  INC BC
1C8F  ED B8               LDDR
1C91  D1                  POP DE
1C92  E1                  POP HL
1C93  C9                  RET
1C94  EB            NOTINSIDE:EX DE,HL;HL=start
1C95  50                  LD D,B ;DE=new start
1C96  59                  LD E,C
1C97  C1                  POP BC
1C98  D5                  PUSH DE
1C99  03                  INC BC
1C9A  ED B0               LDIR
1C9C  E1                  POP HL
1C9D  1B                  DEC DE
1C9E  C9                  RET
                    ;
                    ;
                    ;This tests if BC lies between
                    ;HL and DE,HL is assumed to
                    ;be greater than DE,NC inside
                    ;
                    ;
1C9F  E5            TESTBC: PUSH HL
1CA0  A7                  AND A
1CA1  ED 42               SBC HL,BC
1CA3  E1                  POP HL
1CA4  D8                  RET C
1CA5  EB                  EX DE,HL
1CA6  E5                  PUSH HL
1CA7  A7                  AND A
1CA8  ED 42               SBC HL,BC
1CAA  E1                  POP HL
1CAB  EB                  EX DE,HL
1CAC  3F                  CCF
1CAD  C9                  RET
                    ;
                    ;
1CAE  7E            TERMIN: LD A,(HL)
1CAF  FE FF               CP 0FFH
```

```
1CB1  C8          RET Z
1CB2  FE 20       CP ' '
1CB4  C8          RET Z
1CB5  FE 2C       CP ','
1CB7  37          SCF
1CB8  C9          RET
                  ;
                  ;This finds the end of a DC string
                  ;A returns with the length HL stays
                  ;the same
                  ;
1CB9  AF          FINDEND:  XOR A
1CBA  E5                    PUSH HL
1CBB  3C          INCA:     INC A
1CBC  CB 7E                 BIT 7,(HL)
1CBE  23                    INC HL
1CBF  28 FA                 JR Z,INCA
1CC1  E1                    POP HL
1CC2  C9                    RET
                  ;
                  ;
                  ;
0020              CONTINUE  EQU  20H
0010              SCRRST    EQU  10H
0008              CLSE      EQU  8
0007              SEDIT     EQU  7
0000              BEDIT     EQU  0
001E              CURSON    EQU  30
0009              TAB       EQU  9
000A              LF        EQU  10
000D              CR        EQU  13
0027              DASH      EQU  27H
                  ;
                  ;
                  ;This is assembler part of the front panel
                  ;
1CC3  ED 73 FD6D  STASEM: LD (ASTACK),SP ;In case of errors
1CC7  CD 06DB             CALL GETLINE ;HI start of line
1CCA  28 22               JR Z,GOTLINE
1CCC  E5                  PUSH HL
1CCD  C5                  PUSH BC ;Save line number
1CCE  01 0009             LD BC,9
1CD1  CD 0351             CALL MAKESPACE
1CD4  36 09               LD (HL),9
1CD6  23                  INC HL
1CD7  36 00               LD (HL),0
1CD9  23                  INC HL
1CDA  C1                  POP BC
1CDB  71                  LD (HL),C
1CDC  23                  INC HL
1CDD  70                  LD (HL),B
1CDE  23                  INC HL
1CDF  36 C2               LD (HL),CODE
1CE1  23                  INC HL
1CE2  36 01               LD (HL),1 ;1 byte of program
1CE4  23                  INC HL
```

Line Length

Line number

Token

```
1CE5  36 00                   LD (HL),0
1CE7  23                      INC HL
1CE8  36 C9                   LD (HL),0C9H
1CEA  23                      INC HL
1CEB  36 FF                   LD (HL),0FFH
1CED  E1                      POP HL
1CEE  D5              GOTLINE:    PUSH DE
1CEF  CD 1BE3                 CALL CODETEST
1CF2  D1                      POP DE
1CF3  C0                      RET NZ
1CF4  D7                      RST SCRRST
1CF5  6D                      DB 40H+5+CLSE+CONTINUE
1CF6  1C                      DB 28 ;Scroll
1CF7                  NOASS:
                      ;
1CF7  AF                      XOR A
1CF8  32 FD75                 LD (PRORPL),A
1CFB  D7                      RST SCRRST
1CFC  6F                      DB 40H+SEDIT+CLSE+CONTINUE;Ready input
1CFD  8A 1E                   DB 80H+10,CURSON
1CFF  41 73 73 65             DB 'Assemble>'
1D03  6D 62 6C 65
1D07  3E
1D08  EF                      RST JT
1D09  E9 AA                   DB 0E9H,0AAH ;EDITOR ,EDEND
1D0B  D7                      RST SCRRST
1D0C  4F                      DB 40H+SEDIT+CLSE
1D0D  CA 1E97                 JP Z,EXASSEM
1D10  FE 09                   CP 9
1D12  38 E3                   JR C,NOASS
1D14  2A FA83                 LD HL,(KBDBUF)
1D17  11 0009                 LD DE,9
1D1A  19                      ADD HL,DE
1D1B  E5                      PUSH HL
1D1C  CD 1A7E                 CALL ALLCAP
1D1F  D1                      POP DE
1D20  CD 1E80                 CALL READDE  ;Get APROG
1D23  28 3E                   JR Z,AL1
1D25  1A                      LD A,(DE)
1D26  13                      INC DE
1D27  FE 4C                   CP 'L'
1D29  20 0B                   JR NZ,NOASS1
1D2B  CD 1EB0         DOLIST: CALL READDE
1D2E  20 C7                   JR NZ,NOASS
1D30  D7                      RST SCRRST
1D31  45                      DB 40H+5
1D32  EF                      RST JT
1D33  41                      DB 41H
                      ;       CALL ALIST
1D34  18 C1                   JR NOASS
1D36  FE 54           NOASS1: CP 'T'
1D38  20 08                   JR NZ,NOASS2
1D3A  2A FDC7                 LD HL,(BASEM)
1D3D  22 FDB7                 LD (APROG),HL
1D40  18 B5                   JR NOASS
1D42  FE 43           NOASS2: CP 'C'
```

```
1D44  20 04              JR NZ,NOASS4
1D46  D7                 RST SCRRST
1D47  4D                 DB 40H+5+CLSE
1D48  18 AD        NOAS11: JR NOASS
1D4A  FE 50        NOASS4: CP 'P'
1D4C  20 07              JR NZ,NOASS3
1D4E  3E FF              LD A,0FFH
1D50  32 FD75            LD (PRORPL),A
1D53  18 D6              JR DOLIST
1D55  FE 45        NOASS3: CP 'E'
1D57  20 EF              JR NZ,NOAS11
1D59  32 FDAD            LD (EDIT),A
1D5C  CD 1E80            CALL READDE
1D5F  20 E7              JR NZ,NOAS11
1D61  18 04              JR WHAT
1D63  AF           AL1:  XOR A
1D64  32 FDAD            LD (EDIT),A ;Flag Z
1D67               WHAT: ;
                   ;This sets up the line for BASIC
                   ;
1D67  ED 4B FACF   NOERROR:      LD BC,(BASELIN)
1D6B  50                 LD D,B
1D6C  59                 LD E,C
1D6D  2A FDB9            LD HL,(ENDTABL)
1D70  A7                 AND A
1D71  ED 42              SBC HL,BC      ;Length of line
1D73  23                 INC HL   ;+1 for 0FFH
1D74  EB                 EX DE,HL
1D75  73                 LD (HL),E
1D76  23                 INC HL
1D77  72                 LD (HL),D
1D78  23                 INC HL
1D79  23                 INC HL
1D7A  23                 INC HL ;Over CODE
1D7B  23                 INC HL ;Now length prog
1D7C  EB                 EX DE,HL
1D7D  2A FDB5            LD HL,(LABTABL)
1D80  ED 4B FDC7         LD BC,(BASEM)
1D84  A7                 AND A
1D85  ED 42              SBC HL,BC
1D87  EB                 EX DE,HL
1D88  73                 LD (HL),E
1D89  23                 INC HL
1D8A  72                 LD (HL),D
                   ;
1D8B  D7                 RST SCRRST
1D8C  4F                 DB 40H+CLSE+SEDIT
1D8D  ED 4B FDB7         LD BC,(APROG)
1D91  ED 43 FDB3         LD (DPROG),BC
1D95  3A FDAD            LD A,(EDIT)
1D98  A7                 AND A
1D99  20 0A              JR NZ,PRE
1D9B  D7                 RST SCRRST
1D9C  86                 DB 80H+6
1D9D  49 6E 73 65        DB 'Insert'
1DA1  72 74
```

← Jump if not C

} Clear list screen

} Jump if not P

} List to printer

} Jump if not E

Flag edit mode

} Read address of label
Jump if not valid

} Flag insert mode

Set Line Length and Code length in Basic line.

} Print Insert or Edit

```
1DA3  18 06                    JR PRE1
1DA5  D7               PRE:    RST SCRRST
1DA6  84                       DB 80H+4
1DA7  45 64 69 74              DB 'Edit'
1DAB  D7               PRE1:   RST SCRRST
1DAC  48                       DB 40H+CLSE+BEDIT
1DAD  CD 243C                  CALL NOTPC
1DB0  32 FDAE                  LD (LENGTH),A
1DB3  CD 1EA9                  CALL PRCOM
1DB6  D7               WHAT1:  RST SCRRST
1DB7  3E                       DB CURSON+CONTINUE
1DB8  23                       DB CONTINUE+3
1DB9  82                       DB 80H+2
1DBA  05 00                    DB 5,0
1DBC  EF                       RST JT
1DBD  E9 AA                    DB 0E9H,0AAH
                       ;CALL EDITOR,CALL EDEND
1DBF  28 87                    JR Z,NOAS11
1DC1  CD 2669                  CALL ASEMBLER
1DC4  0C                       INC C
1DC5  20 05                    JR NZ,NODELETE
1DC7  CD 2004                  CALL DELETE
1DCA  18 9B            WHAT11: JR WHAT
1DCC  0D               NODELETE:       DEC C;NOTHING
1DCD  20 0E                    JR NZ,CANA
1DCF  D7               DOINV:  RST SCRRST
1DD0  6F                       DB 40H+SEDIT+CLSE+CONTINUE
1DD1  A8                       DB 80H+8+CONTINUE
1DD2  42 61 64 20              DB 'Bad code'
1DD6  63 6F 64 65
1DDA  40                       DB 40H+BEDIT
1DDB  18 D9                    JR WHAT1
1DDD  C5               CANA:   PUSH BC
1DDE  D5                       PUSH DE
1DDF  2A FDB7                  LD HL,(APROG)
1DE2  06 01                    LD B,1 ;******** 1
1DE4  CD 033C                  CALL FREESP
1DE7  30 02                    JR NC,ENOU
1DE9  EF                       RST 28H
1DEA  23                       DB 35 ;No space
1DEB  CB 80            ENOU:   RES 0,B
1DED  EF                       RST JT
1DEE  BA                       DB 0BAH
1DEF  11 FDB1                  LD DE,DISAD
1DF2  3E 04                    LD A,4 ;Update DISAD,DPROG,LABTABL
1DF4  EB                       EX DE,HL
1DF5  CD 2A9E                  CALL ADLD ;Not relative
1DF8  D5                       PUSH DE
1DF9  CD 2BBA                  CALL RELDE
1DFC  CD 2B67                  CALL UPDL  ;Adjust all pointers
1DFF  E1                       POP HL ;=(aprog)
1E00  3A FDC6                  LD A,(DBLABEL)
1E03  A7                       AND A
1E04  20 21                    JR NZ,SPDEFB
1E06  11 FDA8                  LD DE,ASBYTE
1E09  EB                       EX DE,HL
```

```
1E0A  ED B0                   LDIR;MOVE IT
1E0C  EB                      EX DE,HL
1E0D  D1                      POP DE
1E0E  C1                      POP BC
1E0F  4B                      LD C,E
1E10  E5                      PUSH HL ;Save APROG
1E11  CD 1F24                 CALL PUTINLABEL
1E14  E1                      POP HL
1E15  22 FDB7         HIRET:  LD (APROG),HL
1E18  3A FDAD                 LD A,(EDIT)
1E1B  A7                      AND A
1E1C  C4 2004                 CALL NZ,DELETE ;Pointers were adjusted
1E1F  18 A9                   JR WHAT11
                      ;
                      ;This deals with invalid lines
                      ;
1E21  ED 7B FD6D      LINEINV:        LD SP,(ASTACK)
1E25  18 A8                   JR DOINV
                      ;
                      ;This sets up any DEFB etc.
                      ;
1E27  D5              SPDEFB: PUSH DE
1E28  2A FDC3                 LD HL,(DATALAB)
1E2B  E5                      PUSH HL
1E2C  54                      LD D,H
1E2D  5D                      LD E,L
1E2E  1B                      DEC DE
1E2F  0E 00                   LD C,0 ;Character count
1E31  7E              TERL1:  LD A,(HL)
1E32  FE 22                   CP '"'
1E34  20 0D                   JR NZ,TERL
1E36  0C                      INC C
1E37  13                      INC DE
1E38  12                      LD (DE),A
1E39  23                      INC HL
1E3A  0C              TERL2:  INC C
1E3B  7E                      LD A,(HL)
1E3C  23                      INC HL
1E3D  13                      INC DE
1E3E  12                      LD (DE),A
1E3F  FE 22                   CP '"'
1E41  20 F7                   JR NZ,TERL2
1E43  CD 1CAE         TERL:   CALL TERMIN
1E46  28 06                   JR Z,CHECKE
1E48  23                      INC HL
1E49  13                      INC DE
1E4A  12                      LD (DE),A
1E4B  0C                      INC C
1E4C  18 F5                   JR TERL
1E4E  EB              CHECKE: EX DE,HL
1E4F  CB FE                   SET 7,(HL)
1E51  EB                      EX DE,HL
1E52  23                      INC HL
1E53  38 DC                   JR C,TERL1
1E55  2A FDB9                 LD HL,(ENDTABL)
1E58  06 00                   LD B,0
```

```
1E5A  EF                      RST JT
1E5B  BA                      DB 0BAH
                        ;     CALL TINSERT
1E5C  79                      LD A,C ;String length
1E5D  D1                      POP DE
1E5E  E5                      PUSH HL
1E5F  EB                      EX DE,HL
1E60  ED B0                   LDIR ;Copy it
1E62  E1                      POP HL
1E63  01 0005                 LD BC,5
1E66  EF                      RST JT
1E67  BA                      DB 0BAH
                        ;     CALL TINSERT
1E68  D1                      POP DE
1E69  33                      INC SP
1E6A  33                      INC SP ;Old DE
1E6B  C1                      POP BC ;B= type ,C=length
1E6C  70                      LD (HL),B
1E6D  23                      INC HL
1E6E  73                      LD (HL),E ;DE still relativ address
1E6F  23                      INC HL
1E70  72                      LD (HL),D
1E71  23                      INC HL
1E72  71                      LD (HL),C ;Space needed
1E73  23                      INC HL
1E74  77                      LD (HL),A
1E75  CD 1F42                 CALL LOWCAL
1E78  2A FDB7                 LD HL,(APROG)
1E7B  06 00                   LD B,0
1E7D  09                      ADD HL,BC
1E7E  18 95                   JR HIRET
                        ;
                        ;This reads whatever is at DE into APROG
                        ;NZ=not valid
1E80  ED 4B FDB7        READDE: LD BC,(APROG)
1E84  EF                      RST JT
1E85  AD                      DB 0ADH
                        ;     CALL FINDNSPC
1E86  1A                      LD A,(DE)
1E87  FE FF                   CP 0FFH
1E89  C8                      RET Z
1E8A  CD 1F66                 CALL EVALL
1E8D  C0                      RET NZ
1E8E  CD 1EBF                 CALL TESTPROG
1E91  C0                      RET NZ
1E92  ED 43 FDB7              LD (APROG),BC
1E96  C9                      RET
                        ;
                        ;
                        ;This resets the linept etc. before
                        ;returning to basic also links it
                        ;
1E97  D7                EXASSEM:      RST SCRRST
1E98  45                      DB 40H+5
1E99  CD 2277                 CALL LINK
1E9C  3A FDAC                 LD A,(LINKER)
```

```
1E9F  A7                    AND A
1EA0  C4 1A5E               CALL NZ,EXIT
1EA3  C2 1CF7               JP NZ,NOASS
1EA6  C3 024A               JP BASIC4 ;Do a KILLVAR
                    ;
                    ;This checks for a comment and then
                    ;prints it.
                    ;
1EA9  3A FDBB       PRCOM:  LD A,(COMMENT)
1EAC  A7                    AND A
1EAD  C8                    RET Z
1EAE  D7                    RST SCRRST
1EAF  29 81 3B              DB TAB+CONTINUE,80H+1,';'
1EB2  2A FDBC               LD HL,(COMAD)
1EB5  23                    INC HL ;Address
1EB6  23                    INC HL
1EB7  C5            PRINDF: PUSH BC
1EB8  23                    INC HL ;Length
1EB9  23                    INC HL ;Size
1EBA  CD 02E7               CALL STRHL
1EBD  C1                    POP BC
1EBE  C9                    RET
                    ;
                    ;
                    ;This tests to see if BC lies in the
                    ;program part.NC if inside
                    ;
1EBF  E5            TESTPROG:      PUSH HL
1EC0  D5                    PUSH DE
1EC1  2A FDB7               LD HL,(APROG)
1EC4  A7                    AND A
1EC5  ED 42                 SBC HL,BC
1EC7  28 46                 JR Z,QUHL
1EC9  ED 5B FDC7            LD DE,(BASEM)
1ECD  2A FDB5               LD HL,(LABTABL)
1ED0  1B                    DEC DE
1ED1  2B                    DEC HL
1ED2  CD 1C9F               CALL TESTBC
1ED5  9F                    SBC A,A
1ED6  20 37                 JR NZ,QUHL ;Now come tests
1ED8  50                    LD D,B
1ED9  59                    LD E,C
1EDA  CD 2BBA               CALL RELDE
1EDD  CD 29B6               CALL SRCADD    ;Look adrress
1EE0  28 27                 JR Z,QU1HL
1EE2  EF                    RST JT
1EE3  B4                    DB 0B4H
                    ;       CALL TEST1     ;Reinitialise
1EE4  18 01                 JR BIGL
1EE6  7E            BIGL1:  LD A,(HL)
1EE7  FE 03         BIGL:   CP 3
1EE9  9F                    SBC A,A
1EEA  28 23                 JR Z,QUHL
1EEC  CD 1BD7               CALL FINPOIN
1EEF  EF                    RST JT
1EF0  BC                    DB 0BCH
```

```
                        ;       CALL TEST2BY
1EF1  28 13                     JR Z,BIGF1
1EF3  1B                        DEC DE ;Maybe at low byte
1EF4  E5                        PUSH HL
1EF5  EF                        RST JT
1EF6  BC                        DB 0BCH
                        ;       CALL TEST2BY
1EF7  E1                        POP HL
1EF8  28 0C                     JR Z,BIGF1
1EFA  13                        INC DE
1EFB  EF                        RST JT
1EFC  BC                        DB 0BCH
                      ;         CALL TEST2BY
1EFD  28 06                     JR Z,BIGF2
1EFF  CD 2ABD                   CALL TEST2BY
1F02  20 E2                     JR NZ,BIGL1 ;Got JR pointer
1F04  0B                        DEC BC
1F05  03              BIGF2:    INC BC
1F06  03              BIGF1:    INC BC
1F07  18 06                     JR QUHL
1F09  23              QU1HL:    INC HL
1F0A  EF                        RST JT
1F0B  B2                        DB 0B2H
                      ;         CALL GETDE1
1F0C  42                        LD B,D
1F0D  4B                        LD C,E
1F0E  AF                        XOR A  ;Set Z flag
1F0F  D1              QUHL:     POP DE
1F10  E1                        POP HL
1F11  C9                        RET
                      ;
                      ;This deals with multiple defintions
                      ;
1F12  D7              MULTDEF:        RST SCRRST
1F13  6F                        DB 40H+SEDIT+CLSE+CONTINUE
1F14  A7                        DB 80H+7+CONTINUE
1F15  4D 75 6C 20               DB 'Mul def'
1F19  64 65 66
1F1C  40                        DB 40H+BEDIT
1F1D  ED 7B FD6D      WHAT3:    LD SP,(ASTACK)
1F21  C3 1DB6                   JP WHAT1
                      ;
                      ;This puts in the labels into the
                      ;label table
                      ;
1F24  CB 68           PUTINLAB:       BIT 5,B
1F26  28 0D                     JR Z,NODBYTE
1F28  0C                        INC C
1F29  C5                        PUSH BC
1F2A  3E 01                     LD A,1
1F2C  2A FDC1                   LD HL,(INDEXLABEL)
1F2F  0E 02                     LD C,2 ;2 from start
1F31  CD 2AFC                   CALL POINLAB
1F34  C1                        POP BC
1F35  CB 60           NODBYTE:        BIT 4,B
1F37  28 09                     JR Z,LOWCAL
```

```
1F39  3A FDC3                 LD A,(DATALABEL)
1F3C  2A FDC4                 LD HL,(DATALABEL+1)
1F3F  CD 2AFC                 CALL POINLAB
1F42  C5              LOWCAL: PUSH BC
1F43  2A FDBE                 LD HL,(ADLABEL)
1F46  7C                      LD A,H
1F47  A7                      AND A
1F48  28 0A                   JR Z,UNSTACK
1F4A  01 0000                 LD BC,0
1F4D  CD 1AA1                 CALL RELBC
1F50  EB                      EX DE,HL
1F51  CD 2B21                 CALL VALLAB
1F54  3A FDBB         UNSTACK:        LD A,(COMMENT)
1F57  A7                      AND A
1F58  28 0A                   JR Z,NOC1
1F5A  2A FA83                 LD HL,(KBDBUF)
1F5D  CD 1B43                 CALL CALLEN
1F60  09                      ADD HL,BC
1F61  CD 2B36                 CALL DOCOM
1F64  C1              NOC1:   POP BC
1F65  C9                      RET
                      ;
                      ;This evaluates a label ended with
                      ;a nonalpha numeric character HL
                      ;is destroyed string unaffected.
                      ;
1F66  D5              EVALL:  PUSH DE
1F67  CD 1AB1                 CALL READNUM
1F6A  E1                      POP HL
1F6B  C8                      RET Z
1F6C  EB                      EX DE,HL
1F6D  D5                      PUSH DE
1F6E  CD 29FB                 CALL ENDLABEL
1F71  9F                      SBC A,A
1F72  EB                      EX DE,HL
1F73  D1                      POP DE
1F74  C0                      RET NZ
1F75  2B                      DEC HL
1F76  E5                      PUSH HL
1F77  CB FE                   SET 7,(HL)
1F79  2A FDC9                 LD HL,(CURLAB)
1F7C  E5                      PUSH HL
1F7D  CD 2A4C                 CALL TESTLAB
1F80  E3                      EX (SP),HL
1F81  22 FDC9                 LD (CURLAB),HL
1F84  E1                      POP HL
1F85  E3                      EX (SP),HL
1F86  CB BE                   RES 7,(HL)
1F88  23                      INC HL
1F89  E3                      EX (SP),HL
1F8A  20 16                   JR NZ,DONTDE
1F8C  D1                      POP DE ;Get end
1F8D  7E                      LD A,(HL)
1F8E  FE 02                   CP 2  ;Address label
1F90  C0                      RET NZ
1F91  23                      INC HL
```

Read numeric value and exit if valid

Find end of label name

Exit with NZ if valid label not found.

Set bit 7 of label end and save address on stack

~~not initialized~~ Save (CURLAB) on stack

HL = Address of matching label, NZ = No match

Restore (CURLAB)

Reset bit 7 of label and and increment pointer

Jump if no match

Test for label type 2 exit if not

```
                        ;
                        ;This gives an absoulute address
                        ;from a relative value of BC
                        ;
1F92  4E                ABS1BC: LD C,(HL)
1F93  23                        INC HL
1F94  46                        LD B,(HL)
1F95  23                        INC HL
1F96  FE 02                     CP 2
1F98  C0                        RET NZ
1F99  E5                ABSBC:  PUSH HL
1F9A  2A FDC7                   LD HL,(BASEM)
1F9D  09                        ADD HL,BC
1F9E  44                        LD B,H
1F9F  4D                        LD C,L
1FA0  E1                        POP HL
1FA1  C9                        RET
                        ;
1FA2  33                DONTDE: INC SP
1FA3  33                        INC SP
1FA4  C9                        RET
                        ;
                        ;This lists out the lines of the program
                        ;
1FA5  D7                ALIST:  RST SCRRST
1FA6  0A                        DB LF
1FA7  ED 4B FDB7                LD BC,(APROG)
1FAB  CD 09F2           ACON:   CALL BREAKMON
1FAE  C0                        RET NZ
1FAF  CD 243C                   CALL NOTPC      ;Print it out
1FB2  CD 1EA9                   CALL PRCOM
1FB5  D7                        RST SCRRST
1FB6  2D 0A                     DB 13+CONTINUE,10
1FB8  2A FDB5                   LD HL,(LABTABL)
1FBB  A7                        AND A
1FBC  ED 42                     SBC HL,BC
1FBE  28 02                     JR Z,ENLIST
1FC0  30 E9                     JR NC,ACON
1FC2  D7                ENLIST: RST SCRRST
1FC3  2A AB                     DB 10+CONTINUE,80H+8+CONTINUE
1FC5  53 79 6D 62               DB 'Symbols:'
1FC9  6F 6C 73 3A
1FCD  2A 0D                     DB CONTINUE+LF,CR
                        ;
                        ;
1FCF  08                LISTLABEL:EX AF,AF'
1FD0  37                        SCF
1FD1  08                        EX AF,AF'
1FD2  EF                        RST JT
1FD3  B4                        DB 0B4H
                        ;       CALL TEST1
1FD4  18 02                     JR STLIST
1FD6  EF                LABTOP: RST JT
1FD7  B5                        DB 0B5H
                        ;CALL GETLNEXTL
1FD8  FE 03             STLIST: CP 3
```

```
1FDA  D2 001B                 JP NC,CRLF
1FDD  A7                      AND A
1FDE  28 F6                   JR Z,LABTOP
1FE0  23                      INC HL
1FE1  CD 09F2                 CALL BREAKMON
1FE4  C0                      RET NZ
1FE5  CD 1F92                 CALL ABS1BC
1FE8  CD 1907         NOREL:  CALL OUTSTR
1FEB  D7                      RST SCRRST
1FEC  09                      DB TAB
1FED  CD 1B50                 CALL OUTVBC
1FF0  08                      EX AF,AF'
1FF1  3F                      CCF
1FF2  38 05                   JR C,DOCLF
1FF4  08                      EX AF,AF'
1FF5  D7                      RST SCRRST
1FF6  09                      DB TAB
1FF7  18 DD                   JR LABTOP
1FF9  08              DOCLF:  EX AF,AF'
1FFA  D7                      RST SCRRST
1FFB  2D 0A                   DB CR+CONTINUE,LF
1FFD  18 D7                   JR LABTOP

                      ;
1FFF  CD 2B9F         GOTDEF: CALL TAKOUT
2002  18 38                  JR ENDEL

                      ;
                      ;This deletes the pointers from dprog
                      ;
2004  3A FDAE         DELETE: LD A,(LENGTH)
2007  4F                      LD C,A
2008  06 00                   LD B,0
200A  2A FDB5                 LD HL,(LABTABL)
200D  A7                      AND A
200E  ED 42                   SBC HL,BC
2010  E5                      PUSH HL ;New label pointer
2011  ED 5B FDB3              LD DE,(DPROG) ;Delete last line?
2015  37                      SCF
2016  ED 52                   SBC HL,DE
2018  E1                      POP HL
2019  D8                      RET C
201A  22 FDB5                 LD (LABTABL),HL
201D  EB                      EX DE,HL
201E  CD 2A65                 CALL TDELETE
2021  EB                      EX DE,HL
2022  CD 11EC                 CALL COMPBC
2025  2A FDB7                 LD HL,(APROG)
2028  ED 52                   SBC HL,DE ;APROG-DPROG (nc)
202A  28 07                   JR Z,NOAPD
202C  38 05                   JR C,NOAPD
202E  19                      ADD HL,DE
202F  09                      ADD HL,BC ;BC been complemented
2030  22 FDB7                 LD (APROG),HL
2033  CD 2BBA         NOAPD:  CALL RELDE
2036  EF                      RST JT
2037  B4                      DB 0B4H
                      ;       CALL TEST1      ;Initialise HL
```

```
2038  18 02                    JR ENDEL
203A  EF              LDEL:    RST JT
203B  B5                       DB 0B5H
                      ;CALL GETLNEXT
203C  20 19           ENDEL:   JR NZ,TAKEPOIN ;End
203E  FE 02                    CP 2
2040  38 F8                    JR C,LDEL ;No address labels
2042  23                      INC HL
2043  CD 2AA8                 CALL TESTADD ;Update
2046  20 F2                    JR NZ,LDEL
2048  FE 03                    CP 3
204A  30 B3                    JR NC,GOTDEF
204C  2B                       DEC HL
204D  2B                       DEC HL
204E  2B                       DEC HL
204F  36 00                    LD (HL),0
2051  23                      INC HL
2052  CD 20C5                 CALL D1DELETE
2055  18 E3                    JR LDEL
2057  3A FD87          TAKEPOIN:      LD A,(ITYPE)
205A  ED 5B FDB3               LD DE,(DPROG)
205E  A7                       AND A
205F  3A FDB0                  LD A,(DTYPE)
2062  28 0B                    JR Z,NOIXY1
2064  13                      INC DE
2065  13                      INC DE
2066  A7                      AND A
2067  28 0A                    JR Z,DATA
2069  37                      SCF
206A  18 03                    JR DATA1
206C  A7              NOIXY1:  AND A
206D  28 04                    JR Z,DATA
206F  ED 5B FDB1      DATA1:   LD DE,(DISAD)
2073  08              DATA:    EX AF,AF'  ;C means decde
2074  CD 2BBA                 CALL RELDE
2077  EF                      RST JT
2078  B4                      DB 0B4H
                      ;        CALL TEST1      ;HL setup
2079  FE 03           LOPTAK:  CP 3
207B  D0                       RET NC
207C  CD 1BD7                  CALL FINPOIN ;To pointers
207F  E5                       PUSH HL  ;Save start
2080  CD 20A9                  CALL REM2BY  ;Update and delete
2083  CD 20A9                  CALL REM2BY
2086  CD 20A9                  CALL REM2BY
2089  08                       EX AF,AF'
208A  30 17                    JR NC,NOIX
208C  08                       EX AF,AF' ;Only 1 byte data allowed
208D  E3                       EX (SP),HL ;Get start save end
208E  E5                       PUSH HL ;Save start
208F  1B                       DEC DE
2090  EF                      RST JT
2091  BC                      DB 0BCH
                      ;        CALL TEST2BY
2092  13                      INC DE
2093  20 0A                    JR NZ,NOIX1
```

```
2095  CD 20C3                  CALL DDELETE
2098  E1                       POP HL
2099  35                       DEC (HL)
209A  E1                       POP HL
209B  2B                       DEC HL
209C  2B                       DEC HL
209D  18 07                    JR NOIX2
209F  E1              NOIX1:   POP HL
20A0  E1              LSPOP:   POP HL ;Stack restored
20A1  18 03                    JR NOIX2
20A3  33              NOIX:    INC SP
20A4  33                       INC SP
20A5  08                       EX AF,AF'
20A6  7E              NOIX2:   LD A,(HL)
20A7  18 D0                    JR LOPTAK
                      ;
                      ;This updates pointers and removes any
                      ;equal to DE
                      ;
20A9  E5              REM2BY:  PUSH HL ;Start of pointers
20AA  7E                       LD A,(HL)
20AB  23                       INC HL
20AC  3C                       INC A
20AD  3D              REM1:    DEC A
20AE  28 0D                    JR Z,GETHL1
20B0  CD 2AAB                  CALL TESTADD
20B3  20 F8                    JR NZ,REM1
20B5  CD 20C3                  CALL DDELETE
20B8  E3                       EX (SP),HL
20B9  35                       DEC (HL)
20BA  E3                       EX (SP),HL
20BB  18 F0                    JR REM1
20BD  E1              GETHL1:  POP HL
20BE  3E 02                    LD A,2
20C0  C3 29AA                  JP ADDHL
                      ;
20C3  2B              DDELETE:         DEC HL
20C4  2B                       DEC HL
20C5  C5              D1DELETE:        PUSH BC
20C6  01 0002                  LD BC,2
20C9  CD 2A65                  CALL TDELETE
20CC  C1                       POP BC
20CD  C9                       RET
                      ;
0027                  DASH     EQU     27H
                      ;
0000                  FLAGS    EQU     0
0020                  CONTINUE         EQU     20H
0010                  SCRRST   EQU     10H
0008                  CLSE     EQU     8
00FF                  RSTDO1   EQU     0FFH
0000                  SLIST    EQU     0
0001                  SREG     EQU     1
0005                  SDISP    EQU     5
0007                  SEDIT    EQU     7
0028                  JT       EQU     28H
```

```
                        ;
0019                    FORWARD EQU     25
                        ;
                        ;
                        ;
                        ;
                        ;####FDATA.INC####
                        ;
                        ;
001E                    CURSON  EQU     30
001F                    CURSOFF EQU     31
0009                    TAB     EQU     9
0003                    CNTLC   EQU     3
000A                    LF      EQU     10
000D                    CR      EQU     13
0008                    BS      EQU     8
0005                    EOL     EQU     5
                        ;
                        ;
                        ;#### FRONT.INC ####
                        ;
                        ;
                        ;
                        ;
                        ;
                        ;
                        ;
                        ;This jumps to the routine in A
                        ;
20CE    21 20E8         JUMROT: LD HL,KEYROT
20D1    01 0010                 LD BC,JUMKEY-KEYROT
20D4    FE 61                   CP 'a'          } Convert to caps.
20D6    38 02                   JR C,NOTCP      }
20D8    D6 20                   SUB 32          }
20DA    ED B1           NOTCP:  CPIR            - Find character in list
20DC    C0                      RET NZ
20DD    09                      ADD HL,BC       } BC = Distance from
20DE    09                      ADD HL,BC       } end of list
20DF    09                      ADD HL,BC       } HL = HL + 3*BC
20E0    5E                      LD E,(HL)
20E1    23                      INC HL
20E2    56                      LD D,(HL)
20E3    D5                      PUSH DE
20E4    2A FDA1                 LD HL,(MEMPOINT)
20E7    C9                      RET
                        ;
                        ;This is the key letters for routines
                        ;
20E8    42 43 44        KEYROT: DB 'BCD'
                        ;       DB 'F'
20EB    47 4C                   DB 'GL'         } List of Panel
20ED    4D 52 53 54             DB 'MRST'       } Codes.
20F1    2E                      DB '.'
20F2    49 58 0D 0A             DB 'IX',CR,LF
20F6    2D 0B                   DB '-',11
                        ;
20F8    211F            JUMKEY: DW SUB8
```

```
20FA  212F                    DW SUB1
20FC  2127                    DW ADD8
20FE  212C                    DW ADD1
2100  2132                    DW DISEXX
2102  213C                    DW DISASC
2104  2143                    DW INCREG
2106  21A9                    DW TRACE
2108  2183                    DW SING
210A  2171                    DW MOVPOINT
210C  1C60                    DW MOVE
210E  21EF                    DW LIST
2110  21CE                    DW JUMP
                      ;Remove this and the F above
                      ;       DW FILL
2112  23C1                    DW CHANMEM
2114  2140                    DW CLEARLIST
2116  2118                    DW DOBASIC
                      ;
                      ;This jumps back to basic after asking yes
                      ;
2118  CD 1A5E          DOBASIC:        CALL EXIT
211B  C0                      RET NZ
211C  C3 0250                 JP BASIC2
                      ;
                      ;This takes 8 off the memory pointer
                      ;
211F  11 FFF8         SUB8:   LD DE,-8
2122  19              SAVEADD:        ADD HL,DE
2123  22 FDA1         SAVEMHL:        LD (MEMPOINT),HL
2126  C9                      RET
                      ;
                      ;This adds 8 to the memory pointer
                      ;
2127  11 0008         ADD8:   LD DE,8
212A  18 F6                   JR SAVEADD
                      ;
                      ;This adds 1 to the memory pointer
                      ;
212C  23              ADD1:   INC HL
212D  18 F4                   JR SAVEMHL
                      ;
212F  2B              SUB1:   DEC HL
2130  18 F1                   JR SAVEMHL
                      ;
                      ;This toggles exchange registers
                      ;
2132  3E 80           DISEXX: LD A,80H
2134  DD AE 00         NEXT:   XOR (IX+FLAGS)
2137  DD 77 00                 LD (IX+FLAGS),A
213A  97                      SUB A
213B  C9                      RET
                      ;
                      ;This toggles ASCII display
                      ;
213C  3E 01           DISASC: LD A,1
213E  18 F4                   JR NEXT
```

Panel function jump table in reverse order.

```
                        ;
                        ;This clears the list
                        ;
2140  D7                CLEARLIST:RST SCRRST
2141  48                        DB SLIST+40H+CLSE
2142  C9                        RET
                        ;
2143  21 FDA5           INCREG: LD HL,POINTER
2146  34                        INC (HL)
2147  C9                        RET
                        ;
                        ;
                        ;
2148  CD 2359           MAINSC: CALL OUTREG
                        ;
                        ;
                        ;THIS DISASSEMBLES THE BYTE POINTED
                        ;TO BY THE PROGRAM COUNTER
                        ;
                        ;
214B  ED 4B FD9F        DISPC:  LD BC,(MPC)
214F  D9                        EXX ;BC IS A DASHED REG
2150  D7                        RST SCRRST
2151  60                        DB 40H+CONTINUE+SLIST
2152  83                        DB 80H+3
2153  03 00 0F                  DB 3,0,15
2156  CD 24EB                   CALL DISAM
2159  D7                        RST SCRRST
215A  05                        DB EOL
                        ;       CALL EMBEDE
                        ;       DB 1,EOL
                        ;
215B  3A FDA5                   LD A,(POINTER)
215E  FE 08                     CP 8
2160  20 01                     JR NZ,NOTBOT
2162  AF                       XOR A
2163  32 FDA5           NOTBOT: LD (POINTER),A
2166  0E 03                     LD C,3
2168  47                       LD B,A
2169  04                        INC B
216A  D7                        RST SCRRST
216B  61                        DB 40H+SREG+CONTINUE
216C  23                        DB 3+CONTINUE
216D  E0                        DB 0C0H+CONTINUE
216E  81 3E                     DB 80H+1,'>'
2170  C9                        RET
                        ;
                        ;
                        ;
                        ;THIS MOVES THE POINTER TO THE
                        ;REGISTERS AND FLAGS
                        ;
                        ;
2171  EF                MOVPOINTR:RST JT
2172  AB                        DB 0ABH
                        ;       CALL MOREHEX
```

```
2173  52 65 67 69            DC 'Register'
2177  73 74 65 F2
217B  C8                     RET Z
217C  CD 1A3B                CALL FINDREG;MEMORY LOCATION
217F  71                     LD (HL),C ;LS BYTE
2180  23                     INC HL
2181  70                     LD (HL),B ;MS BYTE
2182  C9                     RET
                       ;
                       ;THIS IS THE SINGLE STEPPING PART
                       ;
                       ;
2183                   SING:
2183  F3               SING1:  DI
2184  3E 87                    LD A,87H ;Timer mode /16,auto starts, reset
2186  D3 0A                    OUT (CTC3),A
2188  3E 0D                    LD A,0DH
218A  D3 0A                    OUT (CTC3),A
218C  F3               ENSING: DI
218D  31 FD89                  LD SP,MAFD
2190  F1                       POP AF
2191  C1                       POP BC
2192  D1                       POP DE
2193  E1                       POP HL
2194  08                       EX AF,AF'
2195  D9                       EXX
2196  F1                       POP AF
2197  C1                       POP BC
2198  D1                       POP DE
2199  E1                       POP HL
219A  DD E1                    POP IX
219C  FD E1                    POP IY
219E  ED 7B FD9D               LD SP,(MSP)
21A2  E5                       PUSH HL
21A3  2A FD9F                  LD HL,(MPC)
21A6  E3                       EX (SP),HL
                       ;       NOP
21A7  FB                       EI
21A8  C9                       RET
                       ;
                       ;
                       ;THIS IS THE ENTRY POINT WHEN CALLS
                       ;ARE EXECUTED IN ONE GO
                       ;
                       ;
21A9  2A FD9F          TRACE:  LD HL,(MPC)
21AC  7E                       LD A,(HL)
21AD  FE CD                    CP 0CDH ;Call
21AF  28 06                    JR Z,GOTCAL
21B1  E6 C7                    AND 11000111B ;Call
21B3  FE C4                    CP 11000100B
21B5  20 CC                    JR NZ,SING
21B7  11 FD48          GOTCAL: LD DE,SETCALL
21BA  01 0003                  LD BC,3
21BD  ED 53 FD9F               LD (MPC),DE;JUMP FROM HERE
```

```
21C1  ED B0                   LDIR;COPY IT
21C3  ED 7B FD9D              LD SP,(MSP)
21C7  E5                      PUSH HL;PUT NEW PC ON STACK
21C8  ED 73 FD9D              LD (MSP),SP
21CC  18 BE                   JR ENSING
                        ;
                        ;
                        ;
                        ;JUMP IS THE ENTRY POINT WHEN EXECUTING
                        ;WITH A BREAK POINT 2 INPUTS ARE REQUIRED
                        ;THE FIRST IS THE PLACE TO START THE 2ND TO
                        ;FINISH
                        ;
                        ;
21CE  EF                JUMP:   RST JT
21CF  AB                        DB 0ABH
                        ; CALL MOREHEX
21D0  47 EF                     DC 'Go'
21D2  28 07                     JR Z,JNOINPUT
21D4  ED 43 FD9F                LD (MPC),BC
21D8  CD 2148                   CALL MAINSC
21DB  EF                JNOINPUT:       RST JT
21DC  AB                        DB 0ABH
                        ;CALL MOREHEX
21DD  54 EF                     DC 'To'
21DF  28 07                     JR Z,NORST
21E1  0A                        LD A,(BC)
21E2  32 FA90                   LD (REALBY),A
21E5  3E FF                     LD A,RSTD01
21E7  02                        LD (BC),A
21E8  21 FD81           NORST:  LD HL,BREAK
21EB  CB D6                     SET BRKBIT,(HL)
21ED  18 9D                     JR ENSING
                        ;
                        ;
                        ;BIGDIS DISPLAYS A DISSASEMBLE
                        ;LISTING OF THE LISTED BYTES
                        ;
                        ;
21EF  EF                LIST:   RST JT
21F0  AB                        DB 0ABH
                        ;CALL MOREHEX
21F1  4C 69 73 F4               DC 'List'
21F5  D7                        RST SCRRST
21F6  60                        DB 40H+SLIST+CONTINUE
21F7  1A                        DB 26
21F8  20 06                     JR NZ,BEENINP
21FA  30 08                     JR NC,BNOINP
21FC  ED 4B FD9F                LD BC,(MPC)
2200  ED 43 FDA6          BEENINP:        LD (DADD),BC
2204  ED 4B FDA6          BNOINP: LD BC,(DADD)
2208  3E 0E                     LD A,14
220A  F5                        PUSH AF
220B  18 04                     JR MISSONE
220D  F5                TDIS:   PUSH AF
220E  D7                        RST SCRRST
```

```
220F  2D 0A                   DB CR+CONTINUE,LF
2211  ED 43 FDA6      MISSONE:    LD (DADD),BC
2215  CD 243C                 CALL NOTPC
2218  D7                      RST SCRRST
2219  05                      DB EOL
221A  F1                      POP AF
221B  3D                      DEC A
221C  20 EF                   JR NZ,TDIS
221E  C9                      RET
                        ;
221F  CD 1B2F           SIMPL:  CALL HIPUT
2222  D5                      PUSH DE
2223  EB                      EX DE,HL
2224  CD 1AB1                 CALL READNUM ;Evaluate it
2227  E1                      POP HL
2228  28 69                   JR Z,DOLIN2
222A  AF                      XOR A
222B  B6                      OR (HL)
222C  23                      INC HL
222D  B6                      OR (HL)
222E  23                      INC HL
222F  B6                      OR (HL)
2230  23                      INC HL
2231  28 69                   JR Z,SIMPLEN
2233  2A FDC9                 LD HL,(CURLAB)
2236  23                      INC HL
2237  CD 2313                 CALL PRUNDEF
223A  18 43                   JR MORLLIN
                        ;
                        ;
                        ;This links up DEFW and DEFB
                        ;
223C  F5                LINKDEF:    PUSH AF ;Save type
223D  EF                        RST JT
223E  B2                        DB 0B2H
                        ;       CALL GETDE1 ;Get address
223F  4E                        LD C,(HL)
2240  23                        INC HL
2241  23                        INC HL
2242  F1                        POP AF
2243  20 24                     JR NZ,DOWW
2245  7E                BLOOP:  LD A,(HL) ;First byte
2246  FE 22                     CP '"'
2248  20 0D                     JR NZ,DONQ
224A  0C                        INC C  ;Decremrnted below
224B  23                        INC HL
224C  7E                QOL:    LD A,(HL)
224D  23                        INC HL
224E  CB 7F                     BIT 7,A
2250  20 12                     JR NZ,SAFB
2252  12                       LD (DE),A
2253  13                       INC DE
2254  0D                       DEC C
2255  18 F5                    JR QOL
2257  C5                DONQ:   PUSH BC ;Save counter
2258  CD 2302                   CALL EVALHI
```

```
225B  CD 1A56                    CALL ONEVAL
225E  C1                         POP BC
225F  28 03                      JR Z,SAFB
2261  CD 2331                    CALL OUTRDE
2264  0D                   SAFB:  DEC C
2265  20 DE                      JR NZ,BLOOP
2267  18 16                      JR MORLLIN
2269  C5                   DOWW:  PUSH BC ;Save counter
226A  CD 2302                    CALL EVALHI
226D  78                         LD A,B
226E  12                         LD (DE),A
226F  13                         INC DE
2270  C1                         POP BC
2271  0D                         DEC C
2272  0D                         DEC C
2273  20 F4                      JR NZ,DOWW
2275  18 08                      JR MORLLIN
                         ;
                         ;
                         ;
                         ;This inserts all the values into
                         ;the program from the table
                         ;
2277  AF                 LINK:   XOR A
2278  32 FDAC                    LD (LINKER),A
227B  EF                         RST JT
227C  B4                         DB 0B4H
                         ;       CALL TEST1 ;Initialize HL
227D  18 02                      JR LESSLIN
227F  EF                 MORLLIN:        RST JT
2280  B5                         DB 0B5H
                         ;CALL GETLNEXT
2281  C0                 LESSLIN:        RET NZ
2282  23                         INC HL
2283  FE 05                      CP 5
2285  30 F8                      JR NC,MORLLIN
2287  FE 03                      CP 3
2289  30 B1                      JR NC,LINKDEF
228B  A7                         AND A
228C  28 91                      JR Z,SIMPL
228E  CD 1F92                    CALL ABS1BC
2291  EF                         RST JT
2292  B3                         DB 0B3H
                         ;       CALL MOVHL ;Over string
2293  CD 22A1            DOLIN2: CALL PUT1BC
2296  CD 22C0                    CALL PUT2BC
2299  CD 22CE                    CALL PUTJRBC
229C  CD 1A0F            SIMPLEN:        CALL TESTCUR
229F  18 E0                      JR LESSLIN
                         ;
                         ;
                         ;This puts the value of BC into
                         ;1 byte pointers checking errors
                         ;
22A1  7E                 PUT1BC: LD A,(HL)
22A2  23                         INC HL
```

```
22A3  A7                AND A
22A4  C8                RET Z  ;Finished
22A5  F5                PUSH AF
22A6  CD 1A56           CALL ONEVAL
22A9  28 0B             JR Z,PUTOK1
22AB  E5                PUSH HL
22AC  2A FDC9           LD HL,(CURLAB)
22AF  CD 29F4           CALL MOVESTR
22B2  CD 2326           CALL PROUTR
22B5  E1                POP HL
22B6  F1          PUTOK1: POP AF
22B7  EF          PUTOK:  RST JT
22B8  B2                  DB 0B2H
                  ;CALL GETDE1
22B9  EB                  EX DE,HL
22BA  71                  LD (HL),C
22BB  EB                  EX DE,HL
22BC  3D                  DEC A
22BD  20 F8               JR NZ,PUTOK
22BF  C9                  RET
                  ;
                  ;This puts the value of BC into
                  ;hl as 2 byte value
                  ;
22C0  7E          PUT2BC: LD A,(HL)
22C1  3C                  INC A
22C2  23                  INC HL
22C3  3D          PUT2L:  DEC A
22C4  C8                  RET Z
22C5  EF                  RST JT
22C6  B2                  DB 0B2H
                  ;       CALL GETDE1
22C7  EB                  EX DE,HL
22C8  71                  LD (HL),C
22C9  23                  INC HL
22CA  70                  LD (HL),B
22CB  EB                  EX DE,HL
22CC  18 F5               JR PUT2L
                  ;
                  ;This puts JR values of BC
                  ;
22CE  7E          PUTJRBC:      LD A,(HL)
22CF  3C                  INC A
22D0  23                  INC HL
22D1  3D          PUTJRL: DEC A
22D2  C8                  RET Z
22D3  F5                  PUSH AF
22D4  CD 2350             CALL GETDE1
22D7  E5                  PUSH HL
22D8  60                  LD H,B
22D9  69                  LD L,C
22DA  37                  SCF
22DB  ED 52               SBC HL,DE
22DD  9F                  SBC A,A
22DE  BC                  CP H
22DF  20 0A               JR NZ,JROUT
```

```
22E1  AD                    XOR L
22E2  FA 22EB               JP M,JROUT
22E5  7D                    LD A,L
22E6  12                    LD (DE),A
22E7  E1                    POP HL
22E8  F1              PUT2JRL:    POP AF
22E9  18 E6                 JR PUTJRL
22EB  E1              JROUT:  POP HL
22EC  D7                    RST SCRRST
22ED  83                    DB 80H+3
22EE  4A 72 20              DB 'Jr '
22F1  CD 2331               CALL OUTRDE
22F4  18 F2                 JR PUT2JRL
                      ;
                      ;
22F6  F5              UPDLINK:    PUSH AF
22F7  E5                    PUSH HL
22F8  D7                    RST SCRRST
22F9  2D 0A                 DB CONTINUE+CR,LF
22FB  21 FDAC               LD HL,LINKER
22FE  34                    INC (HL)
22FF  E1                    POP HL
2300  F1                    POP AF
2301  C9                    RET
                      ;
2302  D5              EVALHI: PUSH DE ;Save start code
2303  E5                    PUSH HL ;Save start
2304  CD 1B2F               CALL HIPUT
2307  EB                    EX DE,HL
2308  CD 1F66               CALL EVALL
230B  E1                    POP HL ;get adrress
230C  D1                    POP DE
230D  79                    LD A,C
230E  12                    LD (DE),A
230F  13                    INC DE
2310  CA 1BDD               JP Z,MOVHL
                      ;
                      ;This prints undefined label
                      ;
2313  F5              PRUNDEF:    PUSH AF
2314  CD 1907               CALL OUTSTR
2317  D7                    RST SCRRST
2318  8A                    DB 80H+10
2319  20 75 6E 64           DB ' undefined'
231D  65 66 69 6E
2321  65 64
2323  F1                    POP AF
2324  18 D0                 JR UPDLINK
                      ;
                      ;This prints out of range label
                      ;
2326  CD 1907         PROUTR: CALL OUTSTR
2329  D7                    RST SCRRST
232A  81 20                 DB 80H+1,' '
232C  CD 2341               CALL ONOUT
232F  18 C5                 JR UPDLINK
```

```
                        ;
                        ;This prints out out of range at de
2331  CD 2341           OUTRDE: CALL ONOUT
2334  D7                      RST SCRRST
2335  81 20                   DB 81H,' '
2337  C5                      PUSH BC
2338  42                      LD B,D
2339  4B                      LD C,E
233A  0B                      DEC BC
233B  CD 1B50                 CALL OUTVBC
233E  C1                      POP BC
233F  18 B5                   JR UPDLINK
                        ;
2341  D7                ONOUT:  RST SCRRST
2342  8C                      DB 80H+12
2343  6F 75 74 20             DB 'out of range'
2347  6F 66 20 72
234B  61 6E 67 65
234F  C9                      RET
                        ;
                        ;This recalculates the absolute address
                        ;of DE
                        ;
2350  CF                GETDE1: RST DEHLRST
2351  E5                      PUSH HL
2352  2A FDC7                 LD HL,(BASEM)
2355  19                      ADD HL,DE
2356  EB                      EX DE,HL
2357  E1                      POP HL
2358  C9                      RET
                        ;
                        ;
                        ;
                        ;##########L#######################################
                        ;this is fill don't forget to take out of jump
                        ;table above,JUMKEY
                        ;##############################################
                        ;FILL:  CALL MOREHEX
                        ;       DC 'Fill'
                        ;       PUSH BC ;START
                        ;       CALL MOREHEX
                        ;       DC 'To'
                        ;       PUSH BC ;FINISH
                        ;       CALL MOREHEX
                        ;       DC 'With'
                        ;       LD A,C
                        ;       POP HL ;END
                        ;       POP DE ;START
                        ;; LD (DE),A
                        ;       AND A
                        ;       SBC HL,DE
                        ;       LD B,H
                        ;       LD C,L
                        ;       LD H,D
                        ;       LD L,E
                        ;       INC DE
```

```
                        ;       LDIR
                        ;       RET
                        ;
                        ;
                        ;
                        ;
                        ;THIS IS THE ENTRY POINT TO
                        ;START THE ASSEMBLER
                        ;
                        ;
                        ;
                        ;
                        ;
                        ;
                        ;This outputs the registers
                        ;and their pointers etc.
                        ;
                        ;
2359                    OUTREG:
                        ;
                        ;THIS OUTPUTS THE FLAGS CLEARING ANY THAT
                        ;WERE THERE BEFORE
                        ;
2359  D7                OUTFLAG:      RST SCRRST
235A  61                      DB 40H+SREG+CONTINUE
235B  3A                      DB 26+CONTINUE
235C  1F                      DB 31
                        ;     DB 5,ESC,'Z',SREG,26,31
235D  21 2BDA                 LD HL,FLAGTABLE
2360  3A FD91                 LD A,(MAF)
2363  DD CB 00 7E            BIT 7,(IX+FLAGS)
2367  28 03                   JR Z,NOTREG
2369  3A FD89                 LD A,(MAFD)
236C  06 0B             NOTREG: LD B,8
236E  F6 28                   OR 28H
2370  57                      LD D,A
2371  CB 22             REPFLAG:      SLA D ;GET FLAG
2373  3E 20                   LD A,' '
2375  30 01                   JR NC,NOTSET
2377  7E                      LD A,(HL);GET LETTER
2378  EF                NOTSET: RST JT
2379  AC                      DB 0ACH
                        ;CALL GETSTR ;OUTPUT
237A  D7                      RST SCRRST
237B  81                      DB 80H+1
237C  20                      DB ' '
237D  23                      INC HL
237E  10 F1                   DJNZ REPFLAG
2380  D7                      RST SCRRST
2381  08                      DB BS
                        ;
2382  EB                      EX DE,HL
2383  21 FD91                 LD HL,MAF
2386  DD CB 00 7E             BIT 7,(IX+FLAGS)
238A  3E 20                   LD A,' '
```

Get F or F'

Fill spaces in Flag Reg.

Output char from table if flag set, otherwise output space

Output space

repeat

Set normal or alternate register set

```
238C  28 05              JR Z,NOTD
238E  21 FD89            LD HL,MAFD
2391  3E 27              LD A,DASH
2393  CD 239B      NOTD:  CALL OUT4REG
2396  3E 20              LD A,' '
2398  21 FD99            LD HL,MIX
                   ;
                   ;
                   ;This outputs four registers
                   ;
                   ;
239B  F5           OUT4REG:    PUSH AF
239C  06 04              LD B,4
239E  1A           TOPREG: LD A,(DE)
239F  13                 INC DE
23A0  EF                 RST JT
23A1  AC                 DB 0ACH
                   ;     CALL PRINTX
23A2  1A                 LD A,(DE)
23A3  13                 INC DE
23A4  EF                 RST JT
23A5  AC                 DB 0ACH
                   ;     CALL GETSTR
23A6  F1                 POP AF
23A7  F5                 PUSH AF
23A8  EF                 RST JT
23A9  AC                 DB 0ACH
                   ;     CALL GETSTR
23AA  D7                 RST SCRRST
23AB  B1 20              DB 81H,' '
23AD  C5                 PUSH BC
23AE  4E                 LD C,(HL)
23AF  23                 INC HL
23B0  46                 LD B,(HL)
23B1  23                 INC HL
23B2  CD 1B50            CALL OUTVBC
23B5  D7                 RST SCRRST
23B6  B1 20              DB 81H,' '
23B8  0A                 LD A,(BC)
23B9  CD 19C6            CALL VOUTHCOL
23BC  C1                 POP BC
23BD  10 DF              DJNZ TOPREG
23BF  F1                 POP AF
23C0  C9                 RET
                   ;
                   ;THIS CHANGES THE POSITION
                   ;OF THE MEMORY POINTER
                   ;
                   ;
23C1  EF           CHANMEM:    RST JT
23C2  AB                 DB 0ABH
                   ;CALL MOREHEX
23C3  44 69 73 70        DC 'Display'
23C7  6C 61 F9
23CA  20 08              JR NZ,CINP
23CC  30 0A              JR NC,CINPUT
```

```
23CE  CD 1A3B                 CALL FINDREG
23D1  4E                      LD C,(HL)
23D2  23                      INC HL
23D3  46                      LD B,(HL)
23D4  ED 43 FDA1      CINP:   LD (MEMPOINT),BC
23D8  D9              CINPUT: EXX
23D9  CD 2400                 CALL OUTMEM
23DC  D9                      EXX
23DD  D7                      RST SCRRST
23DE  4F                      DB 40H+SEDIT+CLSE
23DF  ED 4B FDA1              LD BC,(MEMPOINT)
23E3  CD 1B50                 CALL OUTVBC
23E6  D7                      RST SCRRST
23E7  81                      DB 80H+1
23E8  20                      DB ' '
23E9  0A                      LD A,(BC)
23EA  CD 19C6                 CALL VOUTHCOL
23ED  D7                      RST SCRRST
23EE  81                      DB 80H+1
23EF  20                      DB ' '
23F0  CD 298B                 CALL INHEX
23F3  2A FDA1                 LD HL,(MEMPOINT)
23F6  28 01                   JR Z,ADVANCE
23F8  71                      LD (HL),C
23F9  D8              ADVANCE:        RET C  ;Dot hit
23FA  23                      INC HL
23FB  22 FDA1                 LD (MEMPOINT),HL
23FE  18 D8                   JR CINPUT
                      ;
                      ;
2400  D7              OUTMEM: RST SCRRST
2401  65                      DB 40H+SDISP+CONTINUE
2402  3A 1F                   DB 26+CONTINUE,CURSOFF
2404  2A FDA1                 LD HL,(MEMPOINT)
2407  E5                      PUSH HL
2408  16 06                   LD D,6 ;counter
240A  01 FFF0                 LD BC,-16 ;START LESS
240D  09                      ADD HL,BC
240E  7D                      LD A,L
240F  E6 F8                   AND 0F8H
2411  4F                      LD C,A
2412  44                      LD B,H
2413  CD 1B50         NEWMEM: CALL OUTVBC
2416  D7                      RST SCRRST
2417  81                      DB 80H+1
2418  3A                      DB ':'
2419  D7              MEMREP: RST SCRRST
241A  81                      DB 80H+1
241B  20                      DB ' '
241C  0A                      LD A,(BC)
241D  CD 19C6                 CALL VOUTHCOL
2420  03                      INC BC ;NEXT MEMORY
2421  79                      LD A,C
2422  E6 07                   AND 07H
2424  20 F3                   JR NZ,MEMREP
2426  15                      DEC D
```