```
 0|( DOIT AND STACK FRAME VERBS )
 1|( CODE VERB TO INDIRECTLY CALL VERB WHOSE ADDR IS ON STACK )
 2|CODE DOIT H POP, PCHL, NEXT
 3|
 4|: P@ PARAM @ ;
 5|: >P PARAM ;
 6|: P! PARAM ! ;
 7|: P@+ PARAM @ + ;
 8|: P@+@ P@+ @ ;
 9|: P@+! P@+ ! ;
10|-->
11|
12|
13|
14|
15|
```

```
 OK
.NLIST
 ( TERSE TEMPORARY ARGS )
 ( ERROR CATCHERS )

SUBR OVERB
809A  C9                                  RET,

SUBR UNDER
80A8  C9                                  RET,

SUBR DIVO
80B5  C9                                  RET,

SUBR MERR
80C2  C9                                  RET,   ( UTILITY SUBROUTINES )

SUBR zero
80CF  DD 36  0  0                      0 0 X MVIX,
80D3  DD 36  1  0                      0 1 X MVIX,
80D7  DD 36  2  0                      0 2 X MVIX,
80DB  DD 36  3  0                      0 3 X MVIX,
80DF  C9                                  RET,

SUBR STO1
8126  11 14 E1                      0 TEMP1 D LXI,
8129  C3 35 81                          STO JMP,
    LABEL STO2
812C  11 18 E1                      0 TEMP2 D LXI,
812F  C3 35 81                          STO JMP,
    LABEL STO3
8132  11 1C E1                      0 TEMP3 D LXI,
    LABEL STO
8135  DD E5                             X PUSHX,
8137  E1                                H POP,
    LABEL MOVER
8138   1  4  0                         4 B LXI,
813B  ED B0                             LDIR,
813D  C9                                RET,
    LABEL LD
813E  DD E5                             X PUSHX,
8140  D1                                D POP,
8141  18 F5                         MOVER JMPR,   ( FROUND )

SUBR FROUND
815D  D9                            <ASSEMBLE EXX,
815E  19                                D DAD,
815F  D9                                EXX,
8160  11  0  0                        0 D LXI,
8163  ED 5A                            D DADC,
8165  30  4                         FSTO JRNC,
8167   C                                C INR,
8168  CA 9A 80                       OVERB JZ,
    LABEL FSTO
816B  DD 71  3                      C 3 X STX,
816E  7C                              H A MOV,
816F  E6 7F                           7F ANI,
8171  B0                              B ORA,
8172  DD 77  0                      A 0 X STX,
8175  DD 75  1                      L 1 X STX,
8178  D9                                EXX,
8179  DD 74  2                      H 2 X STX,
817C  C9                                  RET,   ( FLOATING POINT ALIGN ROUTINE )

SUBR ALIGN
8184  7D                              A L MOV,
```

```
8196   7D                                  L A MOV,
8197   2E  0                               0 L MVI,
8199   D9                                    EXX,
819A   4F                                  A C MOV,
819B   D9                                    EXX,
819C   93                                    E SUB,
819D   5D                                  L E MOV,
819E   C8                                     RZ,
819F    6 19                DECIMAL 25 HEX B MVI,
    LABEL AL10
81A1   D9                                     EXX,
81A2   CB 3A                                D SRLR,
81A4   CB 1B                                E RARR,
81A6   D9                                     EXX,
81A7   CB 1A                                D RARR,
81A9   CB 1B                                E RARR,
81AB   3D                                   A DCR,
81AC   C8                                      RZ,
81AD   10 F2                             AL10 DJNZ,
81AF   C9                                      RET,   ( FLOATING ADD AND SUBTRACT ROUTINE

SUBR SUB
8226   FD 7E  0                          0 Y A LDX,
8229   EE 80                               80 XRI,
822B   57                                 A D MOV,
822C   DD 66  0                          0 X H LDX,
822F   C3 38 82                          AD05 JMP,
    LABEL ADD
8232   DD 66  0                          0 X H LDX,
8235   FD 56  0                          0 Y D LDX,
    LABEL AD05
8238   AF                                    A XRA,
8239   DD BE  3                          3 X CMPX,
823C   C2 4E 82                          AD06 JNZ,
823F   FD BE  3                          3 Y CMPX,
8242   C8                                     RZ,
8243   7A                                 D A MOV,
8244   FD E5                              Y PUSHX,
8246   E1                                   H POP,
8247   CD 3E 81                           LD CALL,
824A   DD 77  0                         A 0 X STX,
824D   C9                                      RET,
    LABEL AD06
824E   DD 74  0                         H 0 X STX,
8251   FD BE  3                          3 Y CMPX,
8254   C8                                     RZ,
    LABEL AD07
8255   7C                                 H A MOV,
8256   E6 80                               80 ANI,
8258   47                                 A B MOV,
8259   CB FC                              7 H SET,
825B   7A                                 D A MOV,
825C   E6 80                               80 ANI,
825E   4F                                  A C MOV,
825F   CB FA                               7 D SET,
8261   A8                                   B XRA,
8262    8                                  EXAF,
8263   DD 6E  1                          1 X L LDX,
8266   FD 5E  1                          1 Y E LDX,
8269   D9                                    EXX,
826A   DD 66  2                          2 X H LDX,
826D   FD 56  2                          2 Y D LDX,
8270   DD 6E  3                          3 X L LDX,
8273   FD 5E  3                          3 Y E LDX,
    LABEL AD10
8276   7D                                 L A MOV,
8277   BB                                   E CMP,
```

```
8278  30  5                      AD20 JRNC,
827A  EB                            XCHG,
827B  D9                            EXX,
827C  EB                            XCHG,
827D  41                          C B MOV,
827E  D9                            EXX,   ( ADD, SUBRTRACT CONTINUED )
    LABEL AD20
827F  CD 96 81                  ALIGN CALL,
8282   8                            EXAF,
8283  FA A1 82                    SB20 JM,
8286  19                          D DAD,
8287  11 80  0                   80 D LXI,
828A  D9                            EXX,
828B  ED 5A                       D DADC,
828D  D2 5D 81                  FROUND JNC,
8290   C                          C INR,
8291  CA 9A 80                  OVERB JZ,
8294  CB 1C                       H RARR,
8296  CB 1D                       L RARR,
8298  D9                            EXX,
8299  CB 1C                       H RARR,
829B  CB 1D                       L RARR,
829D  D9                            EXX,
829E  C3 5D 81                  FROUND JMP,
    LABEL SB20
82A1  A7                          A ANA,
82A2  ED 52                       D DSBC,
82A4  11 80  0                   80 D LXI,
82A7  D9                            EXX,
82A8  ED 52                       D DSBC,
82AA  D2 C3 82                    SB30 JNC,
82AD  3E 80                      80 A MVI,
82AF  A8                          B XRA,
82B0  47                        A B MOV,
82B1  D9                            EXX,
82B2  EB                          XCHG,
82B3  21  0  0                   0 H LXI,
82B6  A7                          A ANA,
82B7  ED 52                       D DSBC,
82B9  11 80  0                   80 D LXI,
82BC  D9                            EXX,
82BD  EB                          XCHG,
82BE  21  0  0                   0 H LXI,
82C1  ED 52                       D DSBC,
    LABEL SB30
82C3  FA 5D 81                  FROUND JM,
82C6  D9                            EXX,
82C7   6 18             DECIMAL 24 HEX B MVI,
    LABEL SB40
82C9  29                          H DAD,
82CA  D9                            EXX,
82CB   D                          C DCR,
82CC  CA A8 80                  UNDER JZ,
82CF  ED 6A                       H DADC,
82D1  FA 5D 81                  FROUND JM,
82D4  D9                            EXX,
82D5  10 F2                     SB40 DJNZ,
82D7  C3 CF 80                   zero JMP,   ( FLOAT ROUTINE )

SUBR float
8319  DD 6E  0                   0 X L LDX,
831C  DD 66  1                   1 X H LDX,
    LABEL FLOAT1
831F  7C                          H A MOV,
8320  B5                          L ORA,
8321  CA CF 80                    UNDER JZ,
```

```
8321  CA CF 80                    zero JZ,
8324  7C                          H A MOV,
8325  E6 80                        80 ANI,
8327  28  6                      FL10 JRZ,
8329  EB                            XCHG,
832A  21  0  0                  0 H LXI,
832D  ED 52                       D DSBC,
    LABEL FL10
832F   E 90                     90 C MVI,
8331  FA 3B 83                    FL30 JM,
8334  A7                           A ANA,
    LABEL FL20
8335   D                           C DCR,
8336  ED 6A                       H DADC,
8338  F2 35 83                    FL20 JP,
    LABEL FL30
833B  CB BC                      7 H RES,
833D  B4                           H ORA,
833E  DD 77  0                 A 0 X STX,
8341  DD 75  1                 L 1 X STX,
8344  DD 36  2  0             0 2 X MVIX,
8348  DD 71  3                 C 3 X STX,
834B  C9                             RET,   ( FIX ROUTINE )

SUBR fix
83B7  FD 21 7B 80             C.5 Y LXIX,
83BB  CD 32 82                  ADD CALL,
83BE  CD D9 83                 FIXA CALL,
83C1  30  F                    FX60 JRNC,
83C3  21 20 E1              ERROR H LXI,
83C6  CB F6                      6 M SET,
83C8  21 FF 7F               7FFF H LXI,
83CB  DD CB  0 7E            7 0 X BITX,
83CF  28  1                     FX60 JRZ,
83D1  23                           H INX,
    LABEL FX60
83D2  DD 75  0                 L 0 X STX,
83D5  DD 74  1                 H 1 X STX,
83D8  C9                             RET,
    LABEL FIXA
83D9  AF                           A XRA,
83DA  67                         A H MOV,
83DB  6F                         A L MOV,
83DC  DD BE  3                  3 X CMPX,
83DF  C8                              RZ,
83E0  DD 66  0                 0 X H LDX,
83E3  CB FC                      7 H SET,
83E5  DD 6E  1                 1 X L LDX,
83E8  3E 90                     90 A MVI,
83EA  DD 96  3                  3 X SUBX,
83ED  D8                              RC,
83EE  28 13                     FX25 JRZ,
83F0   6 10        DECIMAL 16 HEX B MVI,
83F2  B8                           B CMP,
83F3  30  1                    FX10 JRNC,
83F5  47                         A B MOV,
    LABEL FX10
83F6  AF                           A XRA,
83F7  DD BE  2                  2 X CMPX,
83FA  17                             RAL,   ( FIX CONTINUED )
    LABEL FX20
83FB  CB 3C                       H SRLR,
83FD  CB 1D                       L RARR,
83FF  CE  0                        0 ACI,
8401  10 F8                    FX20 DJNZ,
    LABEL FX25
8403  DD CB  0 7E            7 0 X BITX,
```

```
8407  28 10                        FX40 JRZ,
8409  A7                              A ANA,
840A  28  1                       FX30 JRZ,
840C  23                             H INX,
    LABEL FX30
840D  EB                            XCHG,
840E  21  0  0                    0 H LXI,
8411  A7                              A ANA,
8412  ED 52                        D DSBC,
8414  F2 1D 84                    FX50 JP,
8417  A7                              A ANA,
8418  C9                              RET,
    LABEL FX40
8419  A7                              A ANA,
841A  CB 7C                      7 H BIT,
841C  C8                             RZ,
    LABEL FX50
841D  37                            STC,
841E  C9                            RET,   ( ROUTINE TO PUSH AND POP TERSE TEMP

SUBR POPTT1
842D  E1                             H POP,
842E  D1                             D POP,
842F  ED 53  C E1              0 TT1 SDED,
8433  D1                             D POP,
8434  ED 53  E E1              2 TT1 SDED,
8438  E9                             PCHL,

SUBR POPTT2
8447  E1                             H POP,
8448  D1                             D POP,
8449  ED 53 10 E1              0 TT2 SDED,
844D  D1                             D POP,
844E  ED 53 12 E1              2 TT2 SDED,
8452  E9                             PCHL,

SUBR POPT16
8461  E1                             H POP,
8462  D1                             D POP,
8463  ED 53  C E1              0 TT1 SDED,
8467  E9                             PCHL,

SUBR PUSHTT1
8477  E1                             H POP,
8478  ED 5B  E E1              2 TT1 LDED,
847C  D5                             D PUSH,
847D  ED 5B  C E1              0 TT1 LDED,
8481  D5                             D PUSH,
8482  E9                             PCHL,

SUBR PUSHTT2
8492  E1                             H POP,
8493  ED 5B 12 E1              2 TT2 LDED,
8497  D5                             D PUSH,
8498  ED 5B  C E1              0 TT1 LDED,
849C  D5                             D PUSH,
849D  E9                             PCHL,

SUBR PUSHT16
84AD  E1                             H POP,
84AE  ED 5B  C E1              0 TT1 LDED,
84B2  D5                             D PUSH,
84B3  E9                             PCHL,

SUBR SAVER
84C1  E1                             H POP,
```

```
84C1   E1                                H POP,
84C2   C5                                B PUSH,
84C3   DD E5                           X PUSHX,
84C5   FD E5                           Y PUSHX,
84C7   DD 21  C E1               0 TT1 X LXIX,
84CB   FD 21 10 E1               0 TT2 Y LXIX,
84CF   E9                                PCHL,

SUBR RESTORER
84E0   E1                                H POP,
84E1   FD E1                           Y POPX,
84E3   DD E1                           X POPX,
84E5   C1                                B POP,
84E6   E9                                PCHL,   ( MULTIPLY UTILITIES )

SUBR RSTO
8500   11   0   0                    0 D LXI,
8503   ED 5A                         D DADC,
8505   CE   0                          0 ACI,
8507   30   1                     RSTOA JRNC,
8509    4                              B INR,
    LABEL RSTOA
850A   DD 74   1                  H 1 X STX,
850D   DD 75   2                  L 2 X STX,
8510   E6 7F                          7F ANI,
8512   67                             A H MOV,
8513    8                              EXAF,
8514   B4                             H ORA,
8515   DD 77   0                  A 0 X STX,
8518   FD 7E   3                  3 Y A LDX,
851B   E6 80                          80 ANI,
851D   4F                             A L MOV,
851E   DD 7E   3                  3 X A LDX,
8521   D6 80                          80 SUI,
8523   C9                             RET,

SUBR LOADY
8531   FD 4E   0                  0 Y C LDX,
8534   FD 56   1                  1 Y D LDX,
8537   FD 5E   2                  2 Y E LDX,
853A   A9                             C XRA,
853B   E6 80                          80 ANI,
853D   CB F9                          7 C SET,
853F   C9                              RET,   ( MULTIPLY ROUTINE )

SUBR MULT
85AD   AF                     <ASSEMBLE A XRA,
85AE   DD BE   3                  3 X CMPX,
85B1   CA CF 80                    zero JZ,
85B4   FD BE   3                  3 Y CMPX,
85B7   CA CF 80                    zero JZ,
85BA   DD 66   0                  0 X H LDX,
85BD   DD 6E   1                  1 X L LDX,
85C0   DD 56   2                  2 X D LDX,
85C3   7C                              H A MOV,
85C4   CB FC                          7 H SET,
85C6   D9                              EXX,
85C7   CD 31 85                  LOADY CALL,
85CA    8                              EXAF,
85CB   AF                              A XRA,
85CC   67                              A H MOV,
85CD   6F                              A L MOV,
85CE    6 18             DECIMAL 24 B HEX MVI,
85D0   18   5                     ML1 JMPR,
    LABEL MLOOP
85D2   1F                              RAR,
85D3   CB 1C                           H RARR
```

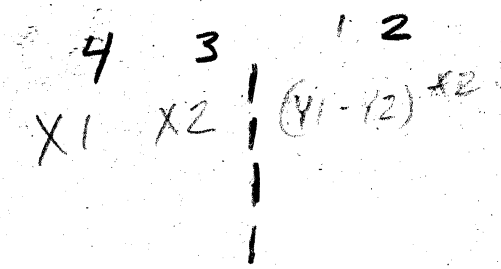
D6 SUB

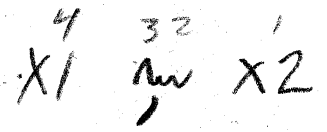
```
85D5  CB 1D                          L RARR,
    LABEL ML1
85D7  D9                               EXX,
85D8  CB 1C                          H RARR,
85DA  CB 1D                          L RARR,
85DC  CB 1A                          D RARR,
85DE  D9                               EXX,
85DF  30  2                        ML2 JRNC,
85E1  19                             D DAD,
85E2  89                             C ADC,
    LABEL ML2
85E3  10 ED                       MLOOP DJNZ,
85E5  D2 F0 85                    MROUND JNC,
85E8  1F                               RAR,
85E9  CB 1C                          H RARR,
85EB  CB 1D                          L RARR,
85ED  C3 F5 85                    MROUN1 JMP,
    LABEL MROUND
85F0  D9                               EXX,
85F1  CB 14                          H RALR,
85F3  D9                               EXX,
85F4   5                             B DCR,
    LABEL MROUN1
85F5  CD  0 85                     RSTO CALL,
85F8  81                             C ADD,   ( MULTIPLY CONTINUED )
    LABEL MCHK
85F9  EA  3 86                       M10 JPE,
85FC  80                             B ADD,
85FD  EA C2 80                      MERR JPE,
8600  C3  7 86                       M20 JMP,
    LABEL M10
8603  80                             B ADD,
8604  E2 C2 80                      MERR JPO,
    LABEL M20
8607  C6 80                          80 ADI,
8609  CA A8 80                    UNDER JZ,
860C  DD 77  3                   A 3 X STX,
860F  C9                               RET,   ( DIVIDE ROUTINE )

SUBR DIVI
8610  AF                        <ASSEMBLE A XRA,
8611  FD BE  3                     3 Y CMPX,
8614  CA B5 80                      DIVO JZ,
8617  DD BE  3                     3 X CMPX,
861A  CA CF 80                      zero JZ,
861D  DD 46  0                    0 X B LDX,
8620  DD 66  1                    1 X H LDX,
8623  DD 6E  2                    2 X L LDX,
8626  CD 31 85                    LOADV CALL,
8629   8                             EXAF,
862A  78                           B A MOV,
862B  F6 80                          80 ORI,
862D   6 1A                DECIMAL 26 HEX B MVI,
862F  C3 A3 86                     DVSUB JMP,
    LABEL DVOV
8632  A7                             A ANA,
8633  ED 52                        D DSBC,
8635  99                             C SBB,
    LABEL DVRES1
8636  37                               STC,
8637   5                             B DCR,
8638  28 16                      DVNORM JRZ,
    LABEL DVLOOP
863A  D9                               EXX,
863B  ED 6A                          H DADC,
```

78
B A MOV,

```
869B  CB 13                                E RALR,
869C  CB 12                                D RALR,
869E  D9                                     EXX,
869F  29                                   H DAD,
86A0  8F                                     A ADC,
86A1  38 EC                              DVOV JRC,
    LABEL DVSUB
86A3  ED 52                                D DSBC,
86A5  99                                     C SBB,
86A6  30 EB                            DVRES1 JRNC,
86A8  19                                     D DAD,
86A9  89                                     C ADC,
86AA  A7                                     A ANA,
86AB  10 EA                            DVLOOP DJNZ,   ( MORE DIVIDE )
    LABEL DVNORM
86AD  D9                                     EXX,
86AE   6  0                                0 B MVI,
86B0  7B                                   E A MOV,
86B1  CB 42                                0 D BIT,
86B3  28  7                             DROUND JRZ,
86B5   4                                     B INR,
86B6  37                                     STC,
86B7  1F                                     RAR,
86B8  CB 1C                                H RARR,
86BA  CB 1D                                L RARR,
    LABEL DROUND
86BC  CD  0 85                          RST0 CALL,
86BF  91                                     C SUB,
86C0  C3 F9 85                          MCHK JMP,   ( SQUARE ROOT ROUTINE )

SUBR SQR
86E7  DD 7E  3                 <ASSEMBLE 3 X A LDX,
86EA  B7                                     A ORA,
86EB  CA CF 80                            zero JZ,
86EE  DD CB  0 7E                      7 0 X BITX,
86F2  C4 34 87                         SQERR CNZ,
86F5  D6 80                                80 SUI,
86F7  47                                   A B MOV,
86F8  CB 2F                                A SRAR,
86FA  CE  0                                0 ACI,
86FC  F5                                 PSW PUSH,
86FD  87                                     A ADD,
86FE  90                                     B SUB,
86FF  ED 44                                NEG,
8701  C6 80                                80 ADI,
8703  3D                                     A DCR,
8704  DD 77  3                          A 3 X STX,
8707  CD 26 81                         STO1 CALL,
870A  FD 21 6C 80                   PSQ00 Y LXIX,
870E  CD 32 82                         ADD CALL,
8711   6  3                                3 B MVI,
    LABEL SQ10
8713  C5                                   B PUSH,
8714  CD 2C 81                         STO2 CALL,
8717  21 14 E1                    0 TEMP1 H LXI,
871A  CD 3E 81                           LD CALL,
871D  FD 21 18 E1                   0 TEMP2 Y LXIX,
8721  CD 6D 86                         DIVI CALL,
8724  FD 35  3                          3 Y DCRX,
8727  CD 32 82                         ADD CALL,
872A  C1                                   B POP,
872B  10 E6                              SQ10 DJNZ,
872D  F1                                 PSW POP,
872E  C6 80                                80 ADI,
8730  DD 77  3                          A 3 X STX,
8733  C9                                     RET,
    LABEL SQERR
```

```
8734  21 20 E1                ERROR H LXI,
8737  CB DE                      3 M SET,
8739  DD CB  0 BE              7 0 X RESX,
873D  C9                           RET,   ( LINKS TO TERSE FLOATING POINT CRUD

CODE FLOAT
8746  CD 61 84                 POPT16 CALL,
8749  CD C1 84                  SAVER CALL,
874C  CD 19 83                  float CALL,
874F  CD E0 84               RESTORER CALL,
8752  CD 77 84                PUSHTT1 CALL,
8755  FD E9                         NEXT

CODE FIX
875D  CD 2D 84                 POPTT1 CALL,
8760  CD C1 84                  SAVER CALL,
8763  CD B7 83                    fix CALL,
8766  CD E0 84               RESTORER CALL,
8769  CD AD 84                PUSHT16 CALL,
876C  FD E9                         NEXT

CODE F+
8773  CD 2D 84                 POPTT1 CALL,
8776  CD 47 84                 POPTT2 CALL,
8779  CD C1 84                  SAVER CALL,
877C  CD 32 82                    ADD CALL,
877F  CD E0 84               RESTORER CALL,
8782  CD 77 84                PUSHTT1  CALL,
8785  FD E9                         NEXT

CODE F-
878C  CD 2D 84                 POPTT1 CALL,
878F  CD 47 84                 POPTT2 CALL,
8792  CD C1 84                  SAVER CALL,
8795  CD 26 82                    SUB CALL,
8798  CD E0 84               RESTORER CALL,
879B  CD 77 84                PUSHTT1 CALL,
879E  FD E9                         NEXT
```

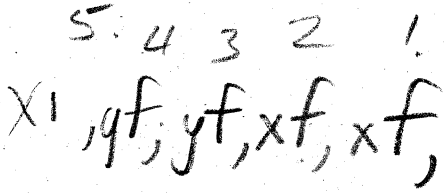




X1 X2 Y1 X2

Y1 Y2

X1 Y1 X2 Y2



```
 OK
.NLIST
 ( ERROR CATCHERS )

SUBR OVERB
8075  C9                                  RET,

SUBR UNDER
8083  C9                                  RET,

SUBR DIVO
8090  C9                                  RET,   ( UTILITY SUBROUTINES )

SUBR zero
809D  DD 36  0  0                   0 0 X MVIX,
80A1  DD 36  1  0                   0 1 X MVIX,
80A5  DD 36  2  0                   0 2 X MVIX,
80A9  DD 36  3  0                   0 3 X MVIX,
80AD  C9                                  RET,

SUBR STO1
80F4  11  C E1                    0 TEMP1 D LXI,
80F7  C3  3 81                          STO JMP,
    LABEL STO2
80FA  11 14 E1                    0 TEMP2 D LXI,
80FD  C3  3 81                          STO JMP,
    LABEL STO3
8100  11 1C E1                    0 TEMP3 D LXI,
    LABEL STO
8103  DD E5                             X PUSHX,
8105  E1                                  H POP,
    LABEL MOVER
8106   1  4  0                          4 B LXI,
8109  ED B0                               LDIR,
810B  C9                                   RET,
    LABEL LD
810C  DD E5                             X PUSHX,
810E  D1                                  D POP,
810F  18 F5                       MOVER JMPR,   ( FROUND )

SUBR FROUND
812B  D9                         <ASSEMBLE EXX,
812C  19                                  D DAD,
812D  D9                                    EXX,
812E  11  0  0                          0 D LXI,
8131  ED 5A                              D DADC,
8133  30  4                           FSTO JRNC,
8135  C                                   C INR,
8136  CA 75 80                          OVERB JZ,
    LABEL FSTO
8139  DD 4E  3                    [illegible]     ← C 3 X STX ——
813C  7C                                H A MOV,
813D  E6 7F                              7F ANI,
813F  B0                                  B ORA,
8140  DD 77  0                        A 0 X STX,
8143  DD 75  1                        L 1 X STX,
8146  D9                                    EXX,
8147  DD 74  2                        H 2 X STX,
814A  C9                                   RET,   ( FLOATING POINT ALIGN ROUTINE )

SUBR ALIGN
8164  7D                                L A MOV,
8165  2E  0                             0 L MVI,
8167  D9                                    EXX,
8168  4F                                A C MOV,
8169  D9                                    EXX,
```

```
816A  93                          E SUB,
816B  5D                        L E MOV,
816C  C8                          RZ,
816D   6 19           DECIMAL 25 HEX B MVI,
    LABEL AL10
816F  D9                          EXX,
8170  CB 3A                     D SRLR,
8172  CB 1B                     E RARR,
8174  D9                          EXX,
8175  CB 1A                     D RARR,
8177  CB 1B                     E RARR,
8179  3D                        A DCR,
817A  C8                          RZ,
817B  10 F2                   AL10 DJNZ,
817D  C9                          RET,   ( FLOATING ADD AND SUBTRACT ROUTINE

SUBR SUB
81F4  FD 7E  0                0 Y A LDX,
81F7  EE 80                     80 XRI,
81F9  57                      A D MOV,
81FA  DD 7E  0                0 X H LDX,
81FD  C3  6 82                ADO5 JMP,
    LABEL ADD
8200  DD 66  0                0 X H LDX,
8203  DD 56  0                0 X D LDX,
    LABEL ADO5
8206  AF                         A XRA,
8207  DD BE  3                3 X CMPX,
820A  C2 1C 82                ADO6 JNZ,
820D  FD BE  3                3 Y CMPX,
8210  C8                          RZ,
8211  7A                      D A MOV,
8212  FD E5                   Y PUSHX,
8214  E1                        H POP,
8215  CD  C 81                LD CALL,
8218  DD 77  0                A 0 X STX,
821B  C9                          RET,
    LABEL ADO6
821C  DD 74  0                H 0 X STX,
821F  FD BE  3                3 Y CMPX,
8222  C8                          RZ,
    LABEL ADO7
8223  7C                      H A MOV,
8224  E6 80                     80 ANI,
8226  47                      A B MOV,
8227  CB FC                   7 H SET,
8229  7A                      D A MOV,
822A  E6 80                     80 ANI,
822C  4F                      A C MOV,
822D  CB FA                   7 D SET,
822F  A8                        B XRA,
8230   8                        EXAF,
8231  DD 6E  1                1 X L LDX,
8234  FD 5E  1                1 Y E LDX,
8237  D9                          EXX,
8238  DD 66  2                2 X H LDX,
823B  FD 56  2                2 Y D LDX,
823E  DD 6E  3                3 X L LDX,
8241  FD 5E  3                3 Y E LDX,
    LABEL AD10
8244  7D                      L A MOV,
8245  BB                        E CMP,
8246  30  5                 AD20 JRNC,
8248  EB                        XCHG,
8249  D9                          EXX,
```

0 X H LDX

0 Y D LDX

```
8244  EB                                XCHG,
824B  41                              C B MOV,
824C  D9                                 EXX,   ( ADD, SUBRTRACT CONTINUED )
    LABEL AD20
824D  CD 64 81                      ALIGN CALL,
8250   8                               EXAF,
8251  FA 6F 82                      SB20 JM,
8254  19                               D DAD,
8255  11 80  0                     80 D LXI,
8258  D9                               EXX,
8259  ED 5A                         D DADC,
825B  D2 2B 81                    FROUND JNC,
825E   C                              C INR,
825F  CA 75 80                     OVERB JZ,
8262  CB 1C                           H RARR,
8264  CB 1D                           L RARR,
8266  D9                               EXX,
8267  CB 1C                           H RARR,
8269  CB 1D                           L RARR,
826B  D9                               EXX,
826C  C3 2B 81                    FROUND JMP,
    LABEL SB20
826F  A7                              A ANA,
8270  ED 52                        D DSBC,
8272  11 80  0                     80 D LXI,
8275  D9                               EXX,
8276  ED 52                        D DSBC,
8278  D2 91 82                   SB30 JNC,
827B  3E 80                      80 A MVI,
827D  A8                              B XRA,
827E  47                            A B MOV,
827F  D9                               EXX,
8280  EB                              XCHG,
8281  21  0  0                    0 H LXI,
8284  A7                              A ANA,
8285  ED 52                        D DSBC,
8287  11 80  0                     80 D LXI,
828A  D9                               EXX,
828B  EB                              XCHG,
828C  21  0  0                    0 H LXI,
828F  ED 52                        D DSBC,
    LABEL SB30
8291  FA 2B 81                    FROUND JM,
8294  D9                               EXX,
8295   6 18                DECIMAL 24 HEX B MVI,
    LABEL SB40
8297  29                               H DAD,
8298  D9                               EXX,
8299   D                              C DCR,
829A  CA 83 80                   UNDER JZ,
829D  ED 6A                         H DADC,
829F  FA 2B 81                    FROUND JM,
82A2  D9                               EXX,
82A3  10 F2                      SB40 DJNZ,
82A5  C3 9D 80                     zero JMP,   ( FLOAT ROUTINE )

SUBR FLOAT
82E7  DD 6E  0                   0 X L LDX,
82EA  DD 66  1                   1 X H LDX,
    LABEL FLOAT1
82ED  7C                            H A MOV,
82EE  B5                            L ORA,
82EF  CA 9D 80                     zero JZ,
82F2  7C                            H A MOV,
82F3  E6 80                       80 ANI,
82F5  28  6                     FL10 JRZ,
82F7  EB                              XCHG,
```

```
82F7  EB                          XCHG,
82F8  21  0  0                 0 H LXI,
82FB  ED 52                      D DSBC,
    LABEL FL10
82FD   E 90                    90 C MVI,
82FF  FA  9 83                  FL30 JM,
8302  A7                          A ANA,
    LABEL FL20
8303   D                          C DCR,
8304  ED 6A                      H DADC,
8306  F2  3 83                  FL20 JP,
    LABEL FL30
8309  CB BC                     7 H RES,
830B  B4                          H ORA,
830C  DD 77  0                A 0 X STX,
830F  DD 75  1                L 1 X STX,
8312  DD 36  2  0            0 2 X MVIX,
8316  DD 71  3                C 3 X STX,
8319  C9                           RET,   ( FIX ROUTINE )

SUBR FIX
8385  FD 21 64 80             C.5 Y LXIX,
8389  CD  0 82                 ADD CALL,
838C  CD A7 83                FIXA CALL,
838F  30  F                   FX60 JRNC,
8391  21 24 E1              ERROR H LXI,
8394  CB F6                     6 M SET,
8396  21 FF 7F               7FFF H LXI,
8399  DD CB  0 7E            7 0 X BITX,
839D  28  1                    FX60 JRZ,
839F  23                          H INX,
    LABEL FX60
83A0  DD 75  0                L 0 X STX,
83A3  DD 74  1                H 1 X STX,
83A6  C9                           RET,
    LABEL FIXA
83A7  AF                          A XRA,
83A8  67                        A H MOV,
83A9  6F                        A L MOV,
83AA  DD BE  3                 3 X CMPX,
83AD  C8                            RZ,
83AE  DD 66  0                0 X H LDX,
83B1  CB FC                     7 H SET,
83B3  DD 6E  1                1 X L LDX,
83B6  3E 90                    90 A MVI,
83B8  DD 96  3                 3 X SUBX,
83BB  D8                            RC,
83BC  28 13                    FX25 JRZ,
83BE   6 10       DECIMAL 16 HEX B MVI,
83C0  B8                          B CMP,
83C1  30  1                   FX10 JRNC,
83C3  47                        A B MOV,
    LABEL FX10
83C4  AF                          A XRA,
83C5  DD BE  2                 2 X CMPX,
83C8  17                           RAL,   ( FIX CONTINUED )
    LABEL FX20
83C9  CB 3C                      H SRLR,
83CB  CB 1D                      L RARR,
83CD  CE  0                      0 ACI,
83CF  10 F8                   FX20 DJNZ,
    LABEL FX25
83D1  DD CB  7 46            0 X 7 BITX,
83D5  28 10                    FX40 JRZ,
83D7  A7                          A ANA,
83D8  28  1                    FX30 JRZ,
83DA  23                          H INX,
```

7 0 X BITX ?

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```
83DA  23                         H INX,
    LABEL FX30
83DB  EB                         XCHG,
83DC  21  0  0                 0 H LXI,
83DF  A7                         A ANA,
83E0  ED 52                      D DSBC,
83E2  F2 EB 83               FX50 JP,
83E5  A7                         A ANA,
83E6  C9                           RET,
    LABEL FX40
83E7  A7                         A ANA,
83E8  CB FC                   7 H SET,   BIT,  <------  CB,7C
83EA  C8                            RZ,
    LABEL FX50
83EB  37                           STC,
83EC  C9                           RET,   OK
   OK
 .NLIST
```