

```
3700 ok44 call incts
? 3000 ok3 call incts
? 3700
? 3700 ok4 call incts
? 2
```

```
delt 2440
```

```
? 2471 error POP h
? 2472 POP d
? 2473 POP b
? 2474 stc
? 2475 ret
? 2461 ora a
? asme 4000
```

```
41b3 00 00 00 0 2790 shld mend
41b9 00 00 00 0 2800 mxi h,ms3
? 2790 shld mend
? 2800 lxi h,ms3
? asme 4000
```

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```
? wrt=START? ? files
10 disk 0040 1d93
```

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```
? wrt=START? 0040 END? 1d93
7 NAME? disk!
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```
? rdtr=ADDR? ? file /v/2000
5 v 2000 2000
```

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v 2000 3d53
disk 0040 1d93

? fixfADDR? 2000

? files

v 2000 3d53

disk 0040 1d93

? files

v 2000 3d53

disk 0040 1d93

? file

v 2000 3d53

? file disc

WHAT?

? file /disc/

WHAT?

? file /disk/

disk 0040 1d93

? list

0050 org 4000h

0100 dkin push h

0110 push d

0120 push b

0130 mov a,d #track number

0140 call nwtrk

0150 call dski

0160 POP b

0170 POP d

0180 POP h

0190 ret

0200 dkout push h

0210 push d

0220 push b

0230 mov a,d

0240 call nwtrk

0250 mvi a,137

0260 call dsk0

0270 POP b

0280 POP d

0290 POP h

0300 ret

12 0310 *

11 0320 *

10 0330 *

9 0340 init out 8

8 0350 loop1 in 8

7 0360 ani 40h

6 0370 Jz trk0 #there now

5 0380 wait1 in 8 #wait for head movement

4 0390 ani 02h

0400 Jnz wait1

0410 mvi a,2 #move head

0420 out 9

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0430 mvi a,0
0440 out 9
0450 jmp loop1
0460 trk0 mvi a,0
0470 sta crtrk
0480 ret
0490 nwrtrk push b ;desired trk is in A
0500 mov b,a ;now it's in b
0510 assign lda crtrk
0520 mov c,a ;put real one in c
0530 cmp b
0540 jz done ;all finished
0550 jnc mvout ;must go out
0560 wait2 in 8 ;here we move in
0570 ani 02h
0580 jnz wait2
0590 mvi a,1
0600 out 9
0610 mvi a,0
0620 out 9
0630 inr c
0640 mov a,c
0650 sta crtrk
0660 jmp assign
0670 mvout in 8 ;wait
0680 ani 02h
0690 jnz mvout
0700 mvi a,2
0710 out 9
0720 mvi a,0
0730 out 9
0740 dec c
0750 mov a,c
0760 sta crtrk
0770 jmp assign
0780 done pop b
0790 ret
0800 *
0810 *
0820 *
0830 dsk0 mov c,a ;from MITS
0840 mvi a,136
0850 sub c
0860 mov b,a
0870 call secset
0880 mvi a,128
0890 out 9
0900 ohlds mvi d,1
0910 mvi a,128
0920 ora m
0930 mov e,a
0940 inx h
0950 notwt in 8
0960 ana d
0970 jnz notwt
0980 add e
0990 out 10
1000 mov a,m
1010 inx h
1020 mov e,m
1030 inx h
1040 dec c
1050 jz zrlow
1060 dec c
1070 out 10
1080 jnz notwt

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1090 zrlop in 8
1100 ana d
1110 jnz zrlop
1120 out 10
1130 dcr b
1140 jnz zrlop
1150 ei
1160 mvi a,8
1170 out 9
1180 ret
1190 dski call secset
1200 mvi c,137
1210 reado in 8
1220 ora a
1230 jm reado
1240 in 10
1250 mov m,a
1260 inx h
1270 dcr c
1280 nop
1290 in 10
1300 mov m,a
1310 inx h
1320 jnz reado
1330 retdo ei
1340 mvi a,8
1350 mvi a,8
1360 out 9
1370 ret
1380 secset mvi a,4
1390 out 9
1400 di
1410 seclp in 9
1420 rar
1430 jc seclp
1440 ani 31
1450 cmr e
1460 jnz seclp2
1470 ret
1480 *
1490 * sector write with checksum
1500 *
1510 * hl->data
1520 * de = t/s
1530 *
1540 dout push b
1550 push d
1560 push h
1570 mvi a,-1
1580 sta buff
1590 mov a,d
1600 sta buff+1
1610 mov a,e
1620 sta buff+2
12 1630 mvi a,0
11 1640 sta buff+4
10 1650 sta buff+5
9 1660 sta buff+6
8 1670 sta buff+7
7 1680 pop h
6 1690 push h
5 1700 lxi d,buff+8

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1750  dec b
1760  jnz lf
1770  mvi b,136
1780  lxi h,buff
1790  mvi a,0
1800  lf2 mov c,m
1810  add c
1820  inx h
1830  dec b
1840  jnz lf2
1850  sta buff+136
1860  pop h
1870  pop d
1880  push d
1890  push h
1900  lxi h,buff
1910  call dkout
1920  pop h
1930  pop d
1940  pop b
1950  ret
1960  *
1970  * sector read with checksum
1980  *
1990  * hl->data
2000  * de = t/s
2010  din push b
2020  push d
2030  push h
2040  mvi a,1
2050  sts mode
2060  comb lxi h,buff
2070  call dkin
2080  lxi d,buff+8
2090  pop h
2100  push h
2110  lda mode
2120  ora a
2130  jz nread
2140  mvi b,128
2150  lf3 ldax d
2160  mov m,a
2170  inx h
2180  inx d
2190  dec b
2200  jnz lf3
2210  nread pop h
2220  pop d
2230  push d
2240  push h
2250  lda buff+1
2260  cmp d
2270  jnz error
2280  lda buff+2
12 2290  cmp e
11 2300  jnz error
10 2310  mvi b,136
9 2320  lxi h,buff
8 2330  mvi a,0
7 2340  lf4 mov c,m
6 2350  add c
5 2360  inx h
4 2370  dec b
2380  jnz lf4
2390  mov c,a
2400  lda buff+136

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2410   cmp c
2420   jnz error
2430   pop h
2450   pop d
2460   pop b
2461   ora a
2470   ret
2471 error pop h
2472   pop d
2473   pop b
2474   stc
2475   ret
2480 *
2490 * verification only entry to above
2500 *
2510 dver: push b
2520   push d
2530   push h
2540   mvi a,0
2550   sta mode
2560   jmp comb
2570 *
2580 * routine to increment a t/s in de
2590 * no check is made fro track overflow or validation
2600 *
2610   incts inr e
2620   mov a,e
2630   cpi 32
2640   rnz
2650   mvi e,0
2660   inr d
2670   ret
2680 *
2690 * WRDK - write disk command - prompts for parameters
2700 *
2720 wrdk call nlnc
2730   lxi h,msl1
2740   call hxans
2750   shld mstrt
2760   call nlnc
2770   lxi h,msl2
2780   call hxans
2790   shld mnd
2795   call nlnc
2800   lxi h,msl3
2810   call hxans
2820   shld ts
2830 * are we through?
2840 wloop lhld mnd
2850   xchs
2860   lhld mstrt
2870   call cmphd
2880   jc done2
2890 * prepare for write, and write
12 2900   lhld ts
11 2910   xchs
10 2920   lhld mstrt
9   2930   call dout
8   2940   call dver
7   2950   jnc ok3
6   2960 * here there is an error
5   2970   call dkerr
4   2980   jmp wloop ; retry
2990 * increment ts and addr
3000 ok3 call incts
3010   xchs

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3020 shld ts
3030 xchs
3040 lxi d,128 ; bytes
3050 dad d
3060 shld mstrt
3070 jmp wloop
3080 *
3090 dkerr call nlnc
3100 lxi h,mss4
3110 call tell
3120 mov a,d
3130 call hotnc
3140 mov a,e
3150 call hotnc
3160 ret
3170 *
3180 cmehd mov a,h ; result is carry=1 if hl >= de
3190 sub d
3200 jc hlsml
3210 jnz hlbis
3220 mov a,l
3230 sub e
3240 jc hlsml
3250 hlbis stc
3260 ret
3270 hlsml ora a
3280 ret
3290 *
3300 done2 call nlnc
3310 lxi h,mss5
3320 call tell
3330 lhld ts
3340 mov a,h
3350 call hotnc
3360 mov a,l
3370 call hotnc
3380 ret
3390 *
3400 * RDDK - command to read disk --- prompts for parameters
3410 *
3420 rddk call nlnc
3430 lxi h,mss6
3440 call hxans
3450 shld tstr
3460 call nlnc
3470 lxi h,mss7
3480 call hxans
3490 shld tsend
3500 call nlnc
3510 lxi h,mss1
3520 call hxans
3530 shld mstrt
3540 * are we through?
3550 rloop lhld tsend
12 3560 xchs
11 3570 call incts
10 3580 lhld tstr
9 3590 jc done3
8 3600 * prepare for read, and read
7 3610 lhld tstr
6 3620 xchs
5 3630 lhld mstrt
4 3640 call din
3650 jnc ok4
3660 * here, error
3670 call dkerr

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3680 jmp rloop
3690 * increment ts and mem addr
3700 ok4 call incts
3710 xchs
3720 shld tsstr
3730 xchs
3740 lxi d,128
3750 dad d
3760 shld mstrt
3770 jmp rloop
3780 done3 call nlnc
3790 lxi h,mss8
3800 call ts
3810 lxi h,mstrt
3820 dcx h
3830 mov a,h
3840 call hotnc
3850 mov a,l
3860 call hotnc
3870 ret
7000 nlnc push h
7010 lxi h,crLf
7020 call tell
7030 pop h
7040 ret
7050 crLf dw 0a0dh
7060 dw 0303h
8000 mss1 dw 'EM'
8002 dw ' M'
8004 dw 'TS'
8006 dw 'RA'
8008 dw ':T'
8010 dw 0320h
8012 mss2 dw 'EM'
8014 dw ' M'
8016 dw 'NE'
8018 dw ':D'
8020 dw 0320h
8022 mss3 dw '/T'
8024 dw ':S'
8025 dw 0320h
8028 mss4 dw 'RE'
8030 dw 'OR'
8032 dw ' R'
8034 dw 'TA'
8036 dw 'T '
8038 dw 'S/'
8040 dw ' :'
8042 dw 0303h
8044 mss5 dw 'AL'
8046 dw 'TS'
8048 dw 'T '
8050 dw 'AR'
8052 dw 'KC'
12 8054 dw 'S '
11 8056 dw 'CE'
10 8058 dw 'OT'
9 8060 dw ':R'
8 8062 dw 0320h
7 8064 mss6 dw '/T'
6 8066 dw ' S'
5 8068 dw 'TS'

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8078 dw 'S'
8080 dw 'NE'
8082 dw ':D'
8084 dw 0320h
8086 mss8 dw 'AL'
8088 dw 'TS'
8090 dw 'M '
8092 dw 'ME'
8094 dw 'A '
8096 dw 'DD'
8098 dw ':R'
8100 dw 0320h
9000 crtrk ds 1
9010 mode ds 1 #1-read 0-verify
9020 buff ds 137
9030 mstrt ds 2
9040 mend ds 2
9050 ts ds 2
9060 testr ds 2
9070 tsend ds 2
9500 hotnc equ 0ffbeh
9510 tell equ 0ffdfh
9520 hxans equ 0ffe5h

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