

SECTOR EDITOR FOR DISKS

(Written for the Swedish user group PROGRAMBITEN 89-4)

by Jan Alexandersson, Springarvägen 5, S-142 61 TRANGSUND, Sweden

Several programs for TI-99/4A with a disk drive give you the possibility to read and write a sector regardless of the files. These are the most common:

- Disk Patch (comes with Funnelweb)
- Disk Utilities by John Birdwell
- Disk Aid by Col Christensen
- MG Advanced Diagnostics
- Sector One by Randy Moore
- Hard Master from Asgard

Disk Utilities can be ordered from: John Birdwell, 1310 Kent Court, Wheaton, IL 60187, USA for USD 15 plus postage.

Sector One can be ordered from: Randall W. Moore, 3931 Navaho Dr., N.Highlands, CA 95660, USA for USD 10 plus postage. Mention if you want the 40- (99/4A) or 80- (9938) column version.

Hard Master can be ordered from: Asgard Software, P.O.Box 10306, Rockville, MD 20849, USA for USD 14.95 plus air mail USD 3.00.

A floppy disk has usually 40 tracks per side and 9 or 18 sectors per track. A sector editor will override all write protection on the files so you must know what you are doing. Otherwise you can destroy the whole disk. You can use it to change the characters, alter RS232 to PIO and change DSK1.UTIL1 to DSK1.FW and so on.

A sector editor can be used to repair bad disks where sector 0 and 1 is destroyed which prevents the file access even though the actual files are undamaged. You could copy sector 0 and 1 from an unused disk and then use Recover File in DM 1000. The simplest way is to change disks between read and write of the sector.

	DISK PATCH	DISK UTIL	SECTOR ONE	HARD MASTER
SECTOR				
Read	YES	YES	YES	YES
Edit	YES	YES	YES	YES
ASCII/HEX	YES	YES	YES	YES
Step	YES	YES	(YES)-	YES
Write	YES	YES	(YES)-	YES
Printer	-	YES	YES	YES
Print DSK	-	YES	YES	YES
Compare	-	-	YES	-
Copy	-	(YES)-	YES	(YES)-
Find Text	-	YES	YES	YES
Sect0/Mark	-	YES	-	-
Sect0/Free	-	YES	-	-
FILE				

Find	YES	YES	-	YES
DISK				
number	1-8	1-9	1-9	1-9
letter	-	A-Z	-	-
DSK-catalog	YES	YES	-	YES
directory	-	-	-	YES
WDS-catalog	-	-	-	YES
FORTH				
show scrn	-	-	-	YES
print scrn	-	-	-	YES
MEDIA				
floppy disk	YES	YES	YES	YES
hard disk	-	-	YES	YES
Horizon disk	YES	YES	-	YES
DISPLAY				
40 column	YES	YES	YES	YES
80 column	-	-	YES	YES

DISK-PATCH has also the following original keys:

FCTN 1 Hex
FCTN 2 ASCII
FCTN 4 Next sector
FCTN 5 Jump to another sector
FCTN 6 Previous sector
FCTN 8 Write sector
FCTN 9 Menu

MG Advanced Diagnostics is the only program that can read information between the sectors. A 90 kbytes disk has actually 125 kbytes because much is used for address, synchronization and check sum (CRC).

Disk Utilities can only copy between two disks if the same sector number is used.

Sector One cannot step to other sectors directly in the editor so you must jump to the menu and use READ. Sector One writes a sector without any extra question if you really want. This is a potential risk for error because the memory buffer and the sector number isn't automatically connected to each other. Be warned that BACK and FORWARD don't read the sectors but just change the sector number and NOT the memory buffer. DS/QD 720 kbytes disk shows wrong Map Sector but the sector editor works OK besides this. Sector Used is sometimes shown wrongly (the last one is sometimes missing) despite that the number of sectors is shown correctly. The character = has come in a wrong place on the 80 column screen. The manual on 6 pages is not so well written but has useful information.

Hard Master has two versions on the same disk for 40- and 80-column display. COPY of sectors can only be done within the same unit, so WDS1 to DSK1 isn't possible. Hard Master shows map of used sectors for both floppy disk and hard disk. It can read and show FORTH-screens but not edit them. It is possible to write these to a printer or disk so that only normal ASCII characters is shown (others will be blank). This could be useful for a newsletter editor who wants to convert Companion or Pascal text files to DIS/VAR 80. All control characters are also removed. The

manual on 24 pages is very well written with much to read besides the use of the commands in the program. The author Colin Christensen may have misunderstood the sector >20 - >3F on the hard disk. I think that they should be used to show bad sectors so don't back-up with CO 0 20 20 as is mentioned on page 8 in the manual. Hard Master will always show an even number of data sectors also when the last one isn't used. This is occupied because my 20 Mbytes hard disk has one allocation unit with 2 sectors. Hard Master will show EMULATE files as PROGRAM files.

Sector One and Hard Master are the only ones that also work with a hard disk and this is the main use of them. Of these is Hard Master the best. Both of them are also useful for owners without a hard disk.

*** Sector One/40 v1.1 ***

Diskname.....FW-4-13
Number of Sectors...0720
Sectors/Track.....09
Initialization code.DSK
Disk protection.....No
Tracks/Side.....40
Sides.....Double
Density.....Single
Sectors used.....0705
Sectors free.....0015

Diskname.....HARDDISK
Number of Sectors..>013380
Write Precomp Track>001D
Bufferd Head Step...No
Number of Heads.....4
Sectors/Track.....32
Number of Files.....019
Number of Subdirs...017
Root Dir Map Sect..>0040
Sub Dir Map Sect...>0000DA

Filename.....LOAD
Directory Sector.....>001D
File Type.....Program
Protected.....No
Record Length.....000
Records/Sector.....000
Total Records.....0000
Sector Offset.....>ED
Number of Data Sectors.0030
Sectors Used.....22E-24B

```

Filename.....MICRO/D
Directory Sector.....>0005
File Type.....Int/Fix
Protected.....No
Record Length.....085
Records/Sector.....003
Total Records.....0221
Sector Offset.....>00
Number of Data Sectors.0074
Sectors Used.....02C-073
                        0C1-0C2

```

```

Filename.....FWDOC/REPT
Directory Sector.....>0016
File Type.....Dis/Var
Protected.....No
Record Length.....080
Records/Sector.....003
Total Records.....0054
Sector Offset.....>1C
Number of Data Sectors.0054
Sectors Used.....17D-1B2

```

WDS1	HARDDISK				Size>13380				Sec>0				(HARD MASTER)				
Addr	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
00	4841	5244	4449	534B	2020	99C0	2020	013A	HARDDISK				..	:			
10	131D	8A4A	B2AE	1911	0020	0000	006D	0021	...J.....				...m!				
20	0023	0073	0075	0077	0079	007B	0025	007D	.#.s.u.w.y.{.%.}								
30	007F	0092	009C	013A	009E	00A0	00A8	0000	:								
40	0000	0000	0000	0000	0000	0000	0000	0000	.....								
50	0000	0000	0000	0000	0000	0000	0000	0000	.....								
60	0000	0000	0000	0000	0000	0000	0000	0000	.....								
70	0000	0000	0000	0000	0000	0000	0000	0000	.....								
80	0000	0000	0000	0000	0000	0000	0000	0000	.....								
90	0000	0000	0000	0000	0000	0000	0000	0000	.....								
A0	0000	0000	0000	0000	0000	0000	0000	0000	.....								
B0	0000	0000	0000	0000	0000	0000	0000	0000	.....								
C0	0000	0000	0000	0000	0000	0000	0000	0000	.....								
D0	0000	0000	0000	0000	0000	0000	0000	0000	.....								
E0	0000	0000	0000	0000	0000	0000	0000	0000	.....								
F0	0000	0000	0000	0000	0000	0000	0000	0000	.....								

Filename	Size	Typ	Len	FdrNo	Clusters
ALEX-FORTH	16A	PGM		100	1764-18CB
CAT/DEL	8	PGM		102	18CC-18D1
CAT/MYARC	7	PGM		104	18D2-18D7
HM	22	PGM		368	3376-3395
HM80	22	PGM		36A	3396-33B5
HM81	11	PGM		36C	33B6-33C5
HN	10	PGM		36E	33C6-33D3
LOAD	20	PGM		116	1902-191F
MICRO/D	4C	I/F	85	360	32DA-32DD
MICRO/S	5	I/F	255	30A	2F42-2F45
SECTOR140	22	PGM		318	2FE2-3001
SECTOR141	12	PGM		31A	3002-3011
SECTORONE	22	PGM		370	33D4-33F3
SECTORONF	14	PGM		372	33F4-3405
TIME	3	PGM		120	192A-192B

32E4-3329

```
Diskname=HARDMASTER Free=105 Used=63
```

Filename	Size	Typ	Len	FdrNo	Clusters
HM	21	PGM		2	22-41
HM80	21	PGM		3	42-61
HM81	10	PGM		4	62-70
HN	F	PGM		5	71-7E

Drv1 HARDMASTER Size>168 Sec>0

DISK-SECTOR-BIT-MAP

X = Used - = Free

[illegible]