# HARD DRIVE TIPS & TRICKS

First and MOST important!!!! Make a backup of the DDP which you just received!!! It is your ONLY link to the harddrive, and you must have it backed up!!!
The harddrive is setup to your specifications at the time of purchase. IF or WHEN you add hardware to your setup, you will want and need to change the setup. To do this, boot the original TDOS DDP you received with the harddrive and run 40ITD45N OR boot the harddrive with the EOS DDP, go into TDOS and run 40ITD45N from the A0: drive.

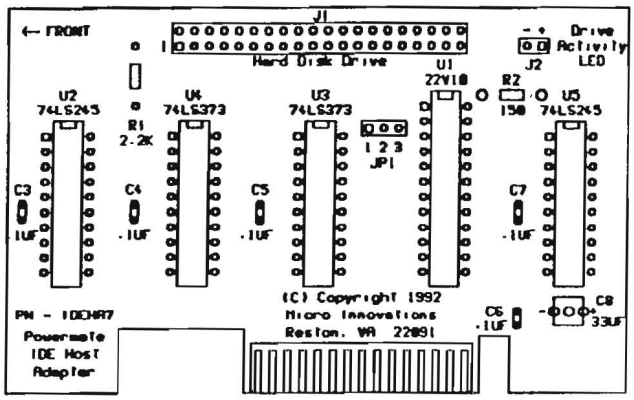
You MUST park the harddrive when you are finished with it; press the left SHIFT key AND the WILDCARD key at the same time to park the harddrive.

To reset the harddrive while in EOS mode; press the right SHIFT key and the UNDO key at the same time. To get to TDOS mode from EOS mode; press the WILDCARD key. To return to EOS mode from TDOS mode; type in the command EOS.

To use the 10 EOS partitions, you MUST be in the correct partition in order to access the information. Example..... select your partition labeled SmartBASIC first, then select boot from harddisk and boot SmartBASIC. You will be able to access the hard drive partition and the other drives in the system. You MUST also have the program on that particular pertition - the BOOT file is only that, it just boots the program you have placed in the partition.

For any problems you encounter, contact me email @:
r.slopsema@worldnet.att.net OR call (616) 949-9461 OR
snail mail 2261 ShadeTree SE Kentwood, MI 49546. Also,
visit the ADAM NEWS NETWORK webpage @
home.att.net/~r.slopsema
and check out the ADAM suppliers, etc.

Figure 1 - IDE Disk Interface Boards (Component Side)




Place the interface board in front of you on the table or desk you're working at, with the printed circuit board edge connector towards you. Look at figure 1 above to identify the connectors.

Align the pins on J1 with the holes in the socket connector. Make sure that all pins on J1 align with all holes on the socket connector. Gently push the socket connector onto J1 until it seats.

## Selecting the default operating system

All Powermates come with the 40 column version of TDOS installed on the hard disk as the default operating system. If you prefer to boot up the EOS hard disk operating system instead, simply run the SETBOOT program to switch the default operating system. Type the command "SETBOOT" and hit the return key. The SETBOOT program will ask you to select which operating system you want to boot at RESET time. Enter your selection. The program will write your selection to the hard disk and the next time you hit the RESET key, your selected operating system will boot up.

If you want the 80 column version of TDOS to boot up at RESET time, you'll need to install it. Simply type the command "80ITD459" and hit the return key. TDOS will prompt you for information about your setup, then install your custom configuration on the hard disk for boot-up by the PROM. It will also allow you to create a boot diskette or tape (you'll need to create a boot disk or tape if you have the LC version). If you have the HP version, you do not need to create a boot diskette or tape.

A distribution diskette is provided for your use in case you need to reinstall either EOS or TDOS on the hard disk. This is normally needed only after a hard disk "crash". Keep in mind that the hard disk should not be reformatted or repartitioned unless you have read the instructions and know what you are doing. Unless you have backed up all of the programs provided on the hard disk, they will be lost when you reformat or repartition it.

## Re-Installing TDOS

The TDOS operating system can be re-installed directly from the distribution diskette by executing the appropriate version of the TDOS installation program - either 40ITD459 or 80ITD459.

When TDOS signs on, the TDOS release number is shown on the top line. The first screen asks for you to specify which ADAM disk or tape drive to write the boot block to. It checks immediately after your selection to see if the device is connected. If not, it gives you an error message and lets you try again. You can get out of the installation program at any prompt by typing a CONTROL-C (that is holding down the CONTROL key and hitting the "C" key).

If TDOS finds an expansion memory board, it will then ask you whether you want it placed before or after the disk and tape drives. The following screen tells you what your TDOS drive assignments are. Drives A through D are the hard disk. The expansion memory board will be next if you selected "before". ADAM disk drives are next,

if any. ADAM tape drives are next, at least one. The expansion memory board will be last if you selected "after". An example drive assignment for a stock single tape drive ADAM with a single ADAM floppy disk drive and a memory board (selected as "after") is:

A - Hard Drive Volume 1
B - Hard Drive Volume 2
C - Hard Drive Volume 3
D - Hard Drive Volume 4
E - Disk Drive 1
F - Tape Drive 1
G - Ram Disk

The next screens ask you to specify the size of the the ADAM floppy disk drives it found - one screen for each drive. The choices are:

1 - 145K Standard Coleco single-sided 40 track format
2 - 254K Medium sized double-sided 40 track format
3 - 304K Full-sized double-sided 40 track format
4 - 356K IBM-sized double-sided 40 track format
5 - 702K Quad density 80 track format
6 - 714K Quad density 80 track format
7 - 1418K High density 80 track format

Formats 1 through 4 are normally used for 5 1/4" floppy diskettes and formats 5, 6, and 7 for 3.5" diskettes. Any format can be selected but may be meaningful only on the proper size diskette. The proper operation of the format also depends on the PROM installed in your ADAM or Micro Innovations floppy disk drive. All formats except the 356K, the 714K, and 1418K formats are compatible with existing ADAM formats.

The DISKSZ?? program lets you temporarily change formats so that you can keep your permanent format different than one you might use only for information interchange. To permanently change to another format, you must re-install TDOS.

After selecting floppy diskette formats, the next two screens ask if you'd like to change the parameters on the your serial ports. If you don't have serial ports, you can select the "0" option to bypass these screens. Micro Innovations compatible serial ports are provided by the MIB2, MIB3 and dual serial I/O cards, which you must purchase separately.

You are next asked if you would like to change the IOBYTE assignments. CP/M and TDOS use the IOBYTE to know which physical devices to use for each of their logical devices. The latest version of TDOS has five logical devices. They are CON: (the system console), KEY: (the system keyboard), RDR: (the reader), PUN: (the punch), and LST: (the system printer). The reader and punch device names are left over from the days when a paper tape reader or a paper tape punch were common microcomputer peripheral devices. Each of the five logical devices can be assigned to any of four physical devices, and the physical devices to be selected from can be different from logical device to logical device. The valid assignments for logical devices are shown in the table below:

| Logical Device Assignments | Permitted Physical Device | | | |
|---|---|---|---|---|
| CON: | CRT: | SR1: | SR2: | UC1: |
| KEY: | KYB: | SR1: | SR2: | UK1: |
| RDR: | | SR1: | SR2: | |
| PUN: | | SR1: | SR2: | |
| LST: | LPT: | SR1: | SR2: | PAR: |

Definitions for the physical devices are as follows:

For Logical device CON:, the system console -

CRT: The ADAM 40 column display
SR1: Serial Port #1 out
SR2: Serial Port #2 out
UC1: 80 column terminal out

NOTE - on the 80 column version of TDOS, physical device CRT: is the ADAM Serial Port

For Logical device KEY:, the system keyboard -

CRT: The ADAM keyboard
SR1: Serial Port #1 in
SR2: Serial Port #2 in
UC1: 80 column terminal in

For logical device RDR:, the reader -

SR1: Serial Port #1 in
SR2: Serial Port #2 in

For logical device PUN:, the punch -

SR1: Serial Port #1 out
SR2: Serial Port #2 out

For logical device LST:, the printer -

LPT: The ADAM printer
SR1: Serial Port #1 out
SR2: Serial Port #2 out
PAR: Dot Matrix parallel port

So it is possible during the installation to define where you want your printer output to go or what device you want to use for the system console. The reader and punch logical devices are not used by many programs. About the only one we know of is the PIP (Peripheral Interchange Program) program supplied with CP/M. You can use PIP to copy files in and out the assigned physical devices (for example - between computers) but no error checking protocol is used. You will be much better off to use a modem program to transfer files. All of the modem programs available for the ADAM are designed to talk directly to the physical devices and purposefully bypass the reader and punch logical devices.

The default IOBYTE assignments are:

CON: CRT: (the ADAM 40 column display)
KEY: KYB: (the ADAM keyboard)
RDR: SR1: (serial port #1 in)
PUN: SR1: (serial port #1 out)
LST: PAR: (the parallel printer port)

NOTE - The default system console (CON:) for the 80 column version is the ADAM Serial Port)

After you've selected your IOBYTE assignments or chosen not to change them, the installation program asks if you'd like to change the function key definitions. This is a rather long and technical operation so if you're even marginally satisfied with the function key translations, avoid this part of the process.

The next screen asks if you would like to change the SMART key strings. These are the character strings that are sent to the operating system whenever you hit a SMART key. The default settings are:

I - COPY
II - REN (to rename a file)
III - DEL (to delete a file)
IV - LIST (to print a file)
V - TYPE (to display a file on the console)
VI - DIR (to display a directory listing on the console)

The last screen asks you to insert a formatted tape or disk for the boot block to be written on. If you have an LC version, you'll need to create boot media (unless you purchased one of our center slot cards with boot PROMS on them - an MIB3 or a parallel printer card). After you hit the return key, the installation program writes the operating system to the hard disk and the boot block to the diskette or tape. TDOS installation is now complete.

NOTE: The 80 column version asks two additional questions before it prompts you to insert a tape or disk. It asks you if you want the SMART key definitions displayed on line 25 of your 80 column display (the display must have a command set compatible with the Heathkit H-19 or Zenith Z-19 terminal, which is what the ADAM uses) and whether or not ADAM Serial Port 2 is configured for an EVE 80 column display.

## Re-Installing EOS

To re-install the EOS hard disk operating system, use the CLONE program to place a bootable image of EOS on a formatted disk or tape. Then reset the computer and EOS will boot entirely from the boot diskette or tape. After EOS signs on, select a maintenance function (SMART key V) to install EOS on the hard disk. It will also allow you to create a boot disk or tape if you need to (LC owners will, HP owners will not - normally).

To install the EOS operating system on the hard disk, you will need two formatted tapes or diskettes. Use the CLONE.COM program to copy the EOSHD??.IMG file to a diskette or tape by typing "CLONExx EOSHD???.IMG Y:" and hitting the return key. The ??? characters are the actual release number of the EOSHD program on the distribution diskette. As of the time these instructions are being written, it would be EOSHD391.IMG. The release number on the copy you have on your distribution media may differ as updates are made to the program. Y: is the TDOS or CPM name of the drive you are copying to.

The distribution media boots up a version of TDOS without hard disk drivers in it. If you boot a distribution diskette in an ADAM floppy disk drive, the boot drive is the A: drive. If you have a second ADAM floppy disk drive, it will be the B: drive. The tape drives will be the C: and D: drives. If you boot a distribution tape, the boot drive is the A: drive and the other tape drive is the B: drive.

After you have CLONEd the EOSHD??.IMG file to a boot tape or diskette, pull the computer reset switch.

EOS will sign on with a nice ADAM graphic screen which identifies the release version of the program and the authors. It immediately goes to a second screen that indicates that this version of EOS is for the Micro Innovations hard disk (it will not run on any other hard disk). This screen tells you what hard disk partition you are using and shows the SMART key definitions along with explanations of the functions associated with each (it will also show that you can go to TDOS by hitting the "WILDCARD" key and to SmartWriter by hitting the "ESCAPE" key).

If you had just partitioned your hard disk, EOS will give you an invalid name for your partitions. Only in this particular case, will you need to initialize your hard disk directories prior to installing the operating system on the hard disk. Select the "Maintenance Functions" option by pressing SMART key V. The Maintenance Menu will now appear. Note that the "Initialize Directory" function is accomplished by using SMART key II, but is only needed after reformatting the hard disk. Your hard disk has already been formatted here at Micro Innovations so you shouldn't need to format it unless you've had a power glitch during a disk write operation or something has gone wrong with your unit or you simply decide that you should do it. You should format the hard disk if you decide to repartition it. If or when you do format the hard disk, make sure you have a back-up copy of everything on it, because you will overwrite ALL files when you perform a format.

Next, to install the operating system on to the hard disk, select "Install System", executed by hitting SMART key IV. This function will copy the EOS operating system from memory to the hard disk and prompt you to insert a diskette or tape to write a boot block on. If you wish to avoid making a boot media, hit the ESCAPE key when it asks you to insert the tape or disk. After the boot media is made, you can pull the computer reset switch and EOS will boot from the hard disk. This completes the EOS installation process. You can also use the SETBOOT program to select the EOS operating system as the default operating system and it will automatically come up when you hit the RESET button if you have a BOOT PROM.

There are many other features of EOSHD not mentioned here during the installation process. Some of the other options on the maintenance menu allow you to format the hard disk or to repartition the hard disk. Any time you perform either of these two operations, you will wipe out the data on the hard disk. Make sure you've got a back-up if you use these functions. AJM Software's File Manager program, which we provide for patching EOS application programs to run on the hard disk, can perform the back-up and restore functions for EOS partitions. For TDOS partitions, we provide the public domain ACOPY program. Krunching your directory will be necessary if you use File Manager to delete files (the files are marked for deletion but aren't actually deleted until the directory is Krunched).

Another feature not apparent is the SHIFT-UNDO key combination. If you execute an EOS program and want to get out of it back to the operating system, you don't need to pull the reset switch to do it. Simply use the SHIFT-UNDO key combination and EOS will reboot itself directly from the hard disk. **ALWAYS** park the hard disk when powering it down. The SHIFT-WILDCARD combination performs this function from either EOS or TDOS.

## INSTALLING EOS APPLICATION PROGRAMS

We provide SmartBasic version 1 already patched for the hard disk. If you have programs written in SmartBasic, use the File Manager to copy them from floppy or tape to the hard disk. You select the hard disk partition used as an executable or data partition on the opening screen (with SMART key I). Boot programs (such as BOOTCALC) are always stored on partition 0. Some executable programs (such as SmartBasic, and File Manager) are also stored on partition 0. The other partitions can be used for storage of executable programs (such as ADAMCALC) or for data and BASIC program storage.

You can repartition the hard disk to have more than the number of EOS partitions we set up at the factory - up to the limit of the disk. You do not have to have any TDOS partitions. Conversely, you don't have to have any EOS partitions - they can all be TDOS partitions. It's up to you. Just be sure to back up your data before you re-partition.

We've provided patch programs for popular ADAM application programs and directions for performing those patches with Powermate. They're located on TDOS hard disk partition D:. The patch program files have .IMG file extensions and the directions are included in the EOSPATCH.DOC file. The directions will tell you how to patch your applications. As this document is being written, Micro Innovations is

providing patches for ADAMCalc, ExperType, SmartLogo, MacAdam, Splat, Davinci, SmartBasic version 2,and Flashcard Maker. Other patches are purported to be in existence and will be distributed on future units or on the BBS as they become available.

Some of the directions for patching the programs tell you to change certain bytes in each program. We've included AJM Software's File Manager program, release 3.0, for that purpose. This version is custom for Micro Innovations and will not work on a system without a Powermate hard disk.

SmartWriter works fine with the hard disk partitions. You have to remember, however, that all EOS application programs, including SmartWriter, think that the hard disk is tape 2. Therefore, you can only use one hard disk partition at a time. You don't lose the ability to use the tape drives - File Manager can read or write all of the drives, so you can copy to and from them. You just can't execute programs from them or get or send data to them from an application.

## INCLUDED SOFTWARE

We've included quite a lot of software for you on the hard disk. All of the critical programs needed to recover from a hard disk crash and configure the system are also on the distribution media - either diskette or tape.

Hard disk drive A: contains all of the TDOS distribution files (programs and documentation) and some public domain utilities we thought you would normally need to use to the hard disk.

Hard disk drive B: contains all of the public domain files we felt might be of interest to you. They are usually compressed in some manner for transmission to bulletin board systems. You will need to use one of the uncompressing programs provided on the A: drive. LBR files will require the DELIB program and then the UNCR program. ARC files will require the UNARC program.

Hard disk drive C: is empty.

Hard disk drive D: contains all of the EOS hard disk programs and documentation. Also included are a couple of the public domain applications programs for your enjoyment.