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Utility Disk #2 (tm)1982
for LDOS(tm) Mod I or III
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**********

These programs require the LDOS(tm) Disk Operating System, version 5.1.x or later. All utilities will operate in a TRS80(tm) Model I or III on 5 or 8 inch floppies or rigid drives, single and double density, single and double sided except:

1) UNREPAIR works ONLY on a Model I, and ONLY on 5" single density single sided floppies.
2) RE-FORMATTER works ONLY on 5" floppies. (double density in a Model I only with the appropriate double density adapter)

There are 14 files on the diskette:

PFORM/CMD - Disk Re-Formatter Utility
PMOD/CMD - Modification Utility
PVER/CMD - Disk Verification Utility
DVORAK/FLT - DVORAK/QWERTY Keyboard Filter
PCLEAR/CMD - Clears Unassigned Sectors and Unused Directory Slots.
PMOVE/CMD - Multiple File Copy Utility
PUN/CMD - Un-Repair Utility
PFILT/FLT - User Definable Filter
DVORAK/JCL - DVORAK Keyboard Table (use with PFILT/FLT)
PASSNO/CMD - Password Removal Utility
CODE/JCL - Keyboard ENcoding Table (use with PFILT/FLT)
PMAP/CMD - Diskette/File Mapping Utility
PEX/CMD - Disk Exerciser Utility
DECODE/JCL - Video DEcoding Table (use with PFILT/FLT)

Thanks to RØY SØLTØFF for assorted help and tips given in time of need.
Kim

Documentation by: Kim Watt and Dennis Brent

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**********
PFORM/CMD
**********

Only 2 user responses are required for this utility, the drive number, and if you wish the program to pause on faulty sectors. Only 5" floppies are accepted by this program. If you specify to pause on faulty sectors, you will be given the chance to Skip, Retry, or Abort on each sector found bad. Both parameters may be supplied with the command line (PFORM,1Y), or you will be prompted for them.

The diskette will be re-formatted a track at a time. First the entire track is read into memory a sector at a time, then it is formatted, and then the sectors are written back to the disk one at a time. This process continues throughout the entire disk. You may abort between tracks by pressing the <BREAK> key. If you do wish to abort, use the BREAK key and not the computer RESET button. If you use the latter, the program will indeed stop, but the track being operated on could be left in a questionable state. The BREAK key is only acknowledged after the completion of each track, and the diskette will be left intact.

This utility should be used on diskettes that have been in storage for quite some time. It will strengthen the recording on the media, as it weakens after awhile. It may also be used to correct SECTOR NOT FOUND errors. This utility will replace a readable sector back on the disk so that it may be used normally in the future. If a bad sector does exist, it is advised to determine which file belongs to the bad sector so that it may be re-copied or killed. The verify utility enclosed will help you determine this.

**********
PMOD/CMD
**********

This is a comprehensive disk/memory modification utility. There are 3 modes of operation of the program as indicated by the command line.

- Memory Modify -

Enter the memory address where modification is to begin. You may enter the number in Hex, Decimal, Octal or Binary by PRECEEDING the number with H, D, O or B respectively. Decimal is the default value if none of the above are specified.

After entering the address and pressing <ENTER>, you will view the contents of 1 page of memory (256 bytes) starting at the specified address. The format of the display is as follows. The far left column of the screen indicated the current modify BASE

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(hex, decimal, ascii, octal, binary), and the MEM indicated that you are in the MEMORY MODIFY operation. The next column is the 4 character HEX address where the data is that you are viewing. The center columns of the display is the HEX representation of 16 bytes starting at the address indicated at the row beginning. There is a space between each quad (2 bytes, 4 HEX ASCII characters) for easier viewing. On the far right is the representative ASCII character for the 16 bytes on that row. All bytes less than 20H (32 decimal) are displayed as a period (.) to indicate a non printing character. You are now in the MEMORY PAGING MODE. Several keys are active at this point:

BREAK - terminate the program
SHIFT CLEAR - prompt for a new address
M - enter MODIFY mode
A - set ASCII modify
B - set BINARY modify
D - set DECIMAL modify
H - set HEXIDECIMAL modify
O - set OCTAL modify
RIGHT ARROW - increment displayed address by 1 byte
LEFT ARROW - decrement displayed address by 1 byte
UP ARROW - increment displayed address by 1 page (256 bytes)
DOWN ARROW - decrement displayed address by 1 page

- Disk Modify -

Enter a Drive, Cylinder, and Sector where modification is to begin. You MUST preceed the drive number with a colon (:) to distinguish between a memory address. The Cylinder and Sector numbers default to 0 if not issued (:0,20 = drive 0, cylinder 20, sector 0). After answering the prompt and pressing <ENTER>, the specified cylinder and sector will be read and displayed. The screen format is similar to Memory Modify except for the far left column of data, which indicates the source of the information. You are given the Drive, Cylinder, Side, and Sector that are currently being viewed. The last 4 bits of data indicate information about the disk itself, 5" or 8", floppy or rigid, single or double density (SD/DD), and single or double sided (SS/DS). You are now in the SECTOR PAGING MODE. The following keys are active:

BREAK - terminate the program
SHIFT CLEAR - prompt for new Drive, Cylinder, Sector
M - enter MODIFY mode
A - set ASCII modify
B - set BINARY modify
D - set DECIMAL modify
H - set HEX modify
O - set OCTAL modify
0-9 - page to corresponding sector
@ - page to current sector on the directory track

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R - restore drive to cylinder Ø, sector Ø
RIGHT ARROW - increment sector
LEFT ARROW - decrement sector
UP ARROW - increment track
DOWN ARROW - decrement track
SHIFT RIGHT ARROW - page to highest sector on current track
SHIFT LEFT ARROW - page to sector Ø on current track
SHIFT UP ARROW - page to highest track on disk, current sector

- File Modify -

Enter a filespec that you wish to view. After locating the file, the first relative sector assigned to the file will be read and displayed to the screen. The screen layout is similar to memory modify except for the far left column. You are given the drive you are working on. The filename you are viewing is displayed vertically starting just to the right of the cursor. Near the bottom you are given the RELATIVE SECTOR you are viewing, and the END OF FILE SECTOR. Normally, you will only be able to view up to 1 less than the EOFS. You are now in the FILE PAGING MODE. Several keys are active:

BREAK - terminate the program
SHIFT CLEAR - prompt for a new filespec
M - enter MODIFY mode
A - set ASCII modify
B - set BINARY modify
D - set DECIMAL modify
H - set HEX modify
O - set OCTAL modify
RIGHT ARROW - increment to the next relative sector
UP ARROW - same as right arrow
LEFT ARROW - decrement to the next relative sector
DOWN ARROW - same as left arrow

- Modify Mode -

The modify mode is common to all the above 3 modes of operation, and is entered by pressing M when the desired data is being viewed. The cursor will move into the HEX display area of the screen, and will flash very rapidly. At the top left of the display, you are given the RELATIVE BYTE within the viewed data where the cursor location is. The following keys are active at this point.

<u>BREAK</u> - abort the modify mode, re-read the source data as it was before any changes were made, and return back to the PAGING mode you came from. NOTE: In the MEMORY MODE, the changes are immediate, and cannot be re-read. In this case, the BREAK key is identical to the ENTER key.
<u>ENTER</u> - terminate the modify mode, write the modified data back to

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the source with all changes, and return to the PAGING mode you came from. NOTE: Changes are immediate in the MEMORY MODE, and control is merely passed back to the paging mode.
SHIFT-CLEAR - homes the cursor to the first byte on the screen.
CLEAR ENTER - allows you to change the current BASE you are modifying in. You will have a new flashing prompt at the left column of the screen. Enter A, B, D, H or O to set ASCII, BINARY, DECIMAL, HEX or OCTAL bases. Any other keys are ignored. You will then return to the modify mode.
ARROW KEYS - move the cursor in the corresponding direction without affecting any of the bytes.
SHIFT ARROW KEYS - move the cursor to extreme row or column ends indicated by the arrow direction.

NOTE: In the DISK MODIFY, and FILE MODIFY you will not be able to move the cursor beyond the edges of the displayed data. In the MEMORY MODIFY, if you attempt to move the cursor beyond the edges, additional data is brought to the screen to supply the desired information.

If you are in ASCII MODE, and the key you enter is none of the above, that character is entered at the current cursor location, and the cursor is then advanced by one.

If you are NOT in ascii mode, several additional features are available.

G - followed by a number moves the cursor immediately to the RELATIVE BYTE specified.
L - followed by a number moves the cursor to the NEXT OCCURANCE of the byte specified. The cursor will move to the last byte on the screen if it is not located.
P - followed by a number DUPLICATES the current byte located under the cursor the indicated number of following byte.
< - will shift all bytes from the cursor to the end by one byte, and place a Ø at the last location on the screen. This allows you to delete text at the cursor.

NOTE: The above 5 commands are disabled in the ASCII base, and will merely insert the character into the text.
If you are NOT in ASCII base, and NONE of the above conditions are met, then the input is interpreted as part of NUMERICAL input. If you are in HEX mode, for example, you must enter 2 HEX DIGITS (Ø-9,A-F) to change a single byte. Decimal mode expects 3 digits (Ø-9), Octal mode expects 3 digits (Ø-7), and Binary mode expects 8 digits (Ø-1). You may pre-terminate the input by pressing ENTER. Thus, in HEX mode, 3 ENTER is the same as entering Ø 3, in BINARY mode, 1 1 1 ENTER is the same as entering Ø Ø Ø Ø Ø 1 1 1. When you are in the middle of entering a number, the cursor will change to indicate that more input is required to complete the current operation.

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Any keys entered that do not meet the above conditions will be ignored.

From the LDOS Ready prompt, you may supply the modification parameters with the filename:

```
PMOD,:Ø,2Ø,4
PMOD,h4Ø2d
PMOD,pmod/cmd
```

NOTE: If you wish to examine a FILE that could be interpreted as an address by PMOD (hfØØØ is a valid filespec), you may PRECEED the filename with an exclamation point (!) to force PMOD to interpret it as a filename.

```
PMOD,hfØØØ        will display memory at address FØØØH
PMOD,!hfØØØ       will display the file HFØØØ
```

```
**********
PVER/CMD
**********
```

There is only 2 parameters in this program. You will be prompted for a target drive (Ø-7). Then you will be asked if you wish the program to pause on faulty sectors. If you specify YES, then each time a sector is found unreadable, you will be prompted for Skip, Retry, or Cancel. When completed, you will be given the total number of sectors verified along with the count of bad sectors if any. If faulty sectors were found, you will be given a list of each of them. If drive Ø is specified, you will be prompted when to mount the diskette.

You may also specify the parameters with the program name:

```
PVER 1y
```

```
**********
DVORAK/FLT
**********
```

This is the famous DVORAK keyboard driver. It is loaded in via the LDOS FILTER command:

```
FILTER *KI DVORAK
```

You can toggle from DVORAK to QWERTY with the CLEAR Ø. The SHIFT Ø toggles upper case lock. The driver can be disabled with the CLEAR BREAK. If it was the last driver in memory, then the memory that it occupies will be re-claimed.

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**********
PCLEAR/CMD
**********

This is a dual function utility. If you enter a drive number, then all un-assigned sectors and unused directory entries will be cleared (set to all Ø's). If you enter a filespec, then all sectors assigned to the file up to the end of file sector will be cleared, but the directory record will be left untouched.

PCLEAR 1 - clears unused sectors and directory records drive 1.
PCLEAR PCLEAR/CMD - clears sectors in file PCLEAR/CMD.

**********
PMOVE/CMD
**********

This is a multiple file copy utility with renaming capability. The parameter line is in the following syntax:

:a,:b,/EXT,file1,file1>file2

a = source drive
b = destination drive
/EXT = add this default extension to all viles
file1 = copy file1/EXT from drive a to b
file1>file2 = copy file1/EXT:a to file2/EXT:b

The parameter line may be specified with the program name.
PMOVE Ø1/cmd,pmove - copies PMOVE/CMD from drive Ø to 1.
PMOVE Ø1pmove/cmd - same thing.

If the parameter line is specified with the program name, you will be limited to the 64 character input buffer in LDOS. If you use answer the parameter line in PMOVE, you will have a full 256 byte buffer to enter commands. If you enter an asterisk (*) as the first character in the command line, then the screen will not be cleared. Thus, if you execute a DIR command from LDOS, you can then enter PMOVE,*. This will allow you to look at the directory while you enter the command line, and allow you a full 256 byte input buffer.

PMOVE can be used to copy a single file, but the time savings is really noticed when several files are to be copied.
PMOVE,Ø1/cmdpmove,pmod,pver,pfilt/flt,passno,pmap,pex,decode
The above command will copy 8 files from drive Ø to 1, /CMD will be appended to all files except PFILT/FLT.

PMOVE can also be used to duplicate the same source file to several destination files.

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PMOVE,Ø1/cmd,pmove,pmove>pmove1,pmove>pmove2,pmove>pmove3

The above command will take PMOVE/CMD:Ø, and create 4 identical copies of the program on drive 1 with the names PMOVE/CMD, PMOVE1/CMD, PMOVE2/CMD, PMOVE3/CMD

********
PUN/CMD
********

This program will take a single density diskette that was either formatted with LDOS, or run through the REPAIR(ALIEN) command, and alter the data address marks back to a form readable by TRSDOS. This can only be executed on a Mod I, and only on 5" floppy single sided, single density diskettes.

**********
PFILT/FLT
**********

This is a user definable filter. It may be used to filter either input or output devices. The program will read an ascii file created via the BUILD command to determine the parameters. There are 3 files supplied that can be used with this filter. The format for the data file is as follows:

A numerical value, followed by an equal sign (=), followed by the value to be converted to.

31=37

If the above line was entered, then all bytes of 31 will be converted to a 37. You may also enter the values in Hex, Binary, or Octal by PRECEEDING the number with H, B or O.

31=h44
o37=d44
b11Ø11Ø11=o177
hff=hfe

All of the above examples are acceptable.
The values may optionally be separated with a space or comma.

31 34
31,34
31=34

Are all valid.

If the first character is a colon (:), then the program will use the following character in its ASCII form.

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```
:A=a
:A,a
```

The above 2 examples will change all upper case A's to lowercase a's. In this form of entry, there must be a single character separating the values (the = or , in the above).

```
:A=a
h41=h61
```

Both of the above 2 lines would produce the same results.
If the first character in a line is a period (.), then it is treated as a remark. The line is displayed, but no action is taken on the line.

There are 3 data files supplied that can be used with this filter, DVORAK/JCL, CODE/JCL, and DECODE/JCL.

The program is initialized using the FILTER command.

```
FILTER *KI PFILT DVORAK
```

will load the dvorak driver. If no data filespec is supplied on the command line, then you will be prompted for one. From LDOS Ready, you can use the LIST command to view the supplied data files to see the syntax more clearly.

A default extension of /JCL will be added to the data filespec if one is not supplied.

```
**********
DVORAK/JCL
**********
```

This is a data file supplied to be used with the PFILT/FLT driver to turn your keyboard into DVORAK. It takes up less memory than using the DVORAK/FLT program, but does not have the ability to convert back to QWERTY. If you LIST this file, you can see just what a DVORAK driver does.

```
FILTER *KI PFILT DVORAK
```

```
**********
PASSNO/CMD
**********
```

This is a dual function utility. You may remove passwords from a single file, or from all files on the diskette.

PASSNO PASSNO/CMD - removes the passwords from PASSNO/CMD.

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NOTE: If the file currently has a non-blank password, then you must supply the password to remove it. If you don't know what it is, then use the master system password of RSØLTØFF.

PASSNO PASSNO/CMD.RSØLTØFF

This is similar to the following LDOS command:

ATTRIB PASSNO/CMD.RSØLTØFF (ACC=,UPD=,PROT=FULL)

You may optionally remove ALL passwords from a diskette. In this case, you will not need to supply any passwords, only a drive number. All passwords will be removed, and the master password will be set to PASSWORD.

When using the full diskette password removal, you may additionally specify which class of files is to be included.

V = visible files (default)
I = invisible files
S = system files
N = NOT visible files

PASSNO,1i - visible and invisible files affected
PASSNO,1in - only invisible files

**********
CODE/JCL
**********

This is a data file to be used with PFILT/FLT. It shows how this filter can be used to encode/decode messages.

FILTER *KI PFILT CODE

After this command, your lower case letters will not be converted so that you may still issue DOS commands. Upper case will be converted to a scrambled form. There is a data file supplied called FORU/MSG that was created using this filter. Here is how to create a coded message.

FILTER *KI PFILT CODE
build message
THIS IS A TEST MESSAGE <ENTER>
<BREAK>
reset *ki

After the above, you will have a file called MESSAGE/JCL on your diskette. If you try to read it, you will see that it is not quite what you had typed in.

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**********
DECODE/JCL
**********

This is the decoding portion of the above data file. Using this file you may now read the message that you created above.

```
FILTER *DO PFILT DECODE
list message/jcl
reset *do
```

It has interesting possibilities. The coding schemes used are by no means "state of the art", but they can be fun to use.

**********
PMAP/CMD
**********

This is a dual function diskette mapping utility. You may map out a single file, or the entire GAT sector of a disk.
PMAP,PMAP/CMD - displays all sectors assigned to file PMAP/CMD.
When using the file mapping feature, each sector assigned to the file is read. If the sector is OK, it will be surrounded by a thin line. If the sector is unreadable, it will be surrounded with bold graphic blocks.

PMAP,:1 - displays the condition of all granules on the disk. Each track is listed one at a time as follows:
The current track number, followed by a list of the sector numbers encompassing that track. A single sided, double density 5" floppy may show:

Cylinder ØØ: ØØ-Ø5=. Ø6-11=. 12-17=.

On floppy diskettes, there may be one or 2 characters following the = sign. IMMEDIATELY following the = sign will be either a graphic block if the gran is allocated, or a period if the gran is free. Following one of these characters will be an X if the associated granule is LOCKED OUT. Hard drives do not keep a lockout table, and therefore, that information is not supplied on these drives. The sectors are not read to be verified, only the GAT table is used to print these results.

The screen will pause each 16 lines of display. Press <ENTER> to continue. You may also manually pause the listing by pressing the SHIFT @.

**********
PEX/CMD
**********

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This is an exerciser program. It can position the head on your drive to any specified track at any step rate. It may also be set to a continuous mode where the head will be moved along it's full length of travel. If you have a head cleaning diskette, the continuous mode can be used to move the head across the disk. Use directions supplied by the head cleaning manufacturer. You may turn the clock on prior to entry into the program to have a second timer available. Press the BREAK key to abort the program at any time.

** WARNING **

It is NOT adviseable to run PEX/CMD on any one drive for more than 15-30 seconds maximum at a time when a head cleaning disk is in the specified drive. Although most manufacturers claim that the head cleaning kits are non-abrasive, too much off a good thing always means trouble, and in this case, we spell trouble, "HEAD WEAR". Please follow your kits instructions. We suggest that if you only use your computer for a few hours a day, then ONE cleaning a year should be enough. If you use your drives in a business and they are in use all day every day, then ONCE a month, or even once every three months is plenty. You'll notice that they don't tell you HOW to actually clean the head. The only thing most people do is stick in the head cleaning disk and BOOT the system. This DOES NOT do the job. Aren't you glad you have PEX?

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