FAST ™
HACK'EM

designed
by
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**DATEL
ELECTRONICS**

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1. INTRODUCTION.

Congratulations on purchasing the finest disk duplication system available for the Commodore 64 and 128 home computer. Many hours of research have been spent in designing the software used in this package in order to achieve a goal. By utilizing the standard Commodore hardware to its fullest extent in order to achieve a software product that would equal or surpass the speed and ability to duplicate nearly any disk, protected or not, of a $10,000 hardware disk duplication system, we have designed Fast Hack'em.

2. SYSTEM REQUIREMENTS.

In order to use this software product you must have the following equipment:

A Commodore 64 or C-128 home computer with a monitor or TV set

An SX-64 portable home computer with built-in disk drive

A serial disk drive (see below for drive types)

This software is compatible and has been fully tested with the following disk drives:

Commodore 1541
MSD SD-2 dual drive (V2.3 ROM)
INDUS-GT
Commodore 1571 (as a 1541 in 64 mode)
Commodore 1571 (for 128 mode)

3.BEGINNERS GUIDE TO USING FAST HACK'EM

Fast Hack'em is very easy to use, even for the newest Commodore user. Single keystroke commands, command menus, and a simple consistent screen format allow anyone to take full advantage of the speed and copy ability of this powerful utility. Now, on with booting the disk.

BOOTING THE DISK

Reset your computer and disk drive. Put the Fast Hack'em disk in the drive (device 8), then type:

LOAD"SLOW",8,1

The main menu should appear in about 5 seconds.

This is where you select which computer and disk drive configuration you would like to use.

Select A-C.

A) C-64 (or C-128 in 64 or 128 mode) and one or two 1541 or compatible drives.

B) C-64 (or C-128 in 64 or 128 mode) and an MSD SD-2 dual disk drive (V2.3 ROM).

C) C-128 in 128 mode and one or two 1571 drives.

4. SELECTING MODULES for a SINGLE 1541

Module selections must be made from this menu with the Fast Hack'em diskette in the disk drive (device 8)

MODULE: FAST COPY (single drive)

PURPOSE: Backup a standard diskette in under 2 minutes on a single 1541 or compatible drive or in under 2:40 with full write verify enabled.

HOW TO USE: Select 'A' from the 1541 menu.

DIRECTORY- See under 'Frequently Used Commands'.

COPY- See under 'Frequently Used Commands'. Any read/write
errors will be displayed on the screen at the end of each pass.
Copying an entire diskette takes three passes.

RE-BOOT ORIGINAL- See under 'Frequently Used Commands'.

F1) VERIFY- If verify mode is turned on, after writing the data
on the destination disk, the data will be read back into the
computer and checked against the data that was written out. This
will verify that your backup copy is the same as the original.
Using verify mode will add about 40 seconds to the copy time.

     MODULE: 1541 AUTO NIBBLER V2.0

     PURPOSE: Backup a protected diskette with standard read
              errors (20,21,22,23,27,29) renumbered tracks, extra
              or duplicate sectors, duplicate half tracks, or
              non-standard data blocks and automatically place most
              parameters   on a diskette if necessary. Copies
              a disk in under 3 minutes on a single 1541 or
              compatible drive.

HOW TO USE: Select 'B' from the 1541 menu.

     This nibbler contains an auto-detect parameter feature.When
the source diskette is placed in the drive and initialized, the
nibbler will automatically set the starting and ending tracks,
the header and tail gaps, and check to see if it recognizes it as
a heavily protected diskette requiring parameters. If it does
recognize it, then after the nibbling is complete, it will ask
you to place the Fast Hack'em disk in the drive so it can read
the parameters into the computer. Then, just follow the screen
prompts to complete the copy automatically.

D)IRECTORY- See under 'Frequently Used Commands'.
C)OPY- See under 'Frequently Used Commands'. Any write errors

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will be displayed on the screen after the end of each pass. It
takes at least five passes to copy an entire diskette.

R)E-BOOT ORIGINAL - See under 'Frequently Used Commands'.

MODULE: 1541 PARAMETER COPIER

PURPOSE: Using a 1541 or compatible drive, this routine fixes
         a nibbled copy of a disk so it will run.

HOW TO USE: Select 'C' from the 1541 menu. (U.K. Users,see page 26)

     In order to use the parameter copier, you must have first
made a copy of the disk with one of the nibblers. Then, after
you have loaded the parameter Copier and read-in the parameters
off the Fast Hack'em original or a parameter disk, look for
the name of the disk you are trying to copy. Use the Cursor
controls to search for it. If you see it, with the Fast Hack'em
disk still in the drive, press 'return' and the parameters will
be loaded into the computer. Then follow the screen prompts. After
the parameter has been run, you may do one of the following:
E)XECUTE PARAMETER AGAIN- Run the same parameter again on another
copy.
P)ARAMETER MENU- Return to the parameter menu so you can load
another parameter without re-booting the disk again.
R)E-BOOT ORIGINAL-See under 'Frequently Used Commands'.
Q)UIT- Reset the computer and exit to BASIC.

     If the program is not on the Parameter Copier's menu then
that program may not require parameters. Try booting your backup
copy of the program. If it doesn't load or function properly it
probably needs a parameter that we haven't developed yet. You
can either try to write your own parameter (see the Parameter
Editor section) or call or write to us and we will try to develop

one for you and put it on our next update.

MODULE: FAT TRACK FORMATTER

PURPOSE: Using a 1541 or compatible drive, this routine
creates a 'fat track' on a diskette. A 'fat track'
is a track that covers three half-tracks, making
two normal tracks look like one.

HOW TO USE: Select 'O' from the 1541 menu.

D)IRECTORY- See under 'Frequently Used Commands'.

C)REATE FAT TRACK- Create a fat track on a diskette. When prompted
enter the track you would like to have the fat track placed on
(ie. if you place it on 34, tracks 34-35 will be formatted as
one 'fat' track 34). Fat tracks may be placed on tracks 1-39.
NOTE: Since this routine is software driven, the fat tracks
created on one drive may not be compatible on other drives.

R)E-BOOT ORIGINAL- See under 'FrequentlyUsed Commands'.

Examples of using fat tracks:

Art's diskettes-track 34
New Activision-track 35
New Microprose-track 35
New Imagic - track 6

MODULE: NIBBLER(single drive)

PURPOSE: Backup a protected diskette with standard read
errrors(20,21,22,23,27,29), renumbered tracks,
extra or duplicate sectors, duplicate half tracks
or non standard data blocks in just over 2 minutes
on a single 1541 or compatible drive.

HOW TO USE: Select 'H' from the 1541 menu.

D)IRECTORY- See under 'Frequently Used Commands'.

C)OPY- See under 'Frequently Used Commands'. Any write errors will be displayed on the screen at the end of each pass. Copying an entire diskette requires five passes.

R)E-BOOT ORIGINAL- See under 'Frequently Used Commands'.

F1 VERIFY- If verify mode is turned on, after writing the data on the destination disk, the data will be read back into the computer and checked against the data that was written out. This will verify that your backup copy is the same as the original. Using verify mode will add about 40 seconds to the copy time if you are copying an entire disk.

F3/F4) STARTING TRACK- Select the starting track from 00.5-40.0 Hit F3 to decrease the number, F4 to increase the number. The default value is 01.0.

F5/F6) ENDING TRACK-Select the ending track from 00.5-40.0. Hit F5 to decrease the number, F6 to increase the number. The default value is 35.0.

F7/F8) TRACK INCREMENT- This is how many tracks to move to get to the next track to copy. Select from 01.0 to 40.0 (maximum limit depends on how many tracks you have selected to copy). The default value is 01.0.

SHFT H)EADER GAP-When the destination disk is formatted, this is how many bytes are written in between the end of a sector's header and the start of the sector's data block. Hit SHFT 'H' to decrease and 'H' to increase. The default value is 09.

SHFT T)AIL GAP- When the destination disk is formatted, this is how many bytes are written in between the end of a sector's data block and the start of the next sector's header. Hit SHFT 'T' to decrease and 'T' to increase. The default value is 09.

MODULE: FILE COPIER (single drive)

PURPOSE: Copy or scratch individual or multiple files on
diskettes, fast format a diskette in under 9 seconds,
or update the BAM on a diskette using one 1541 or
compatible drive.

HOW TO USE: Select 'I' from the 1541 menu.
D)IRECTORY-See under 'Frequently Used Commands'.
C)OPY FILES-Copy files from one diskette to another. Insert the
source diskette before selecting this command. The directory will
be read-in and then displayed in a window on the lower half of the
screen. Use the following commands to select the files you want
to copy:

CURSOR CONTROLS- The cursor UP, DOWN, LEFT, RIGHT,
HOME, and shift-HOME keys are all supported.

<SPACE> - Toggle the filename where the cursor is at.
The 'SELECTION:' status in the middle of thescreen will
toggle showing that the file has been selected or not.

T)OGGLE- Toggle all the filenames in memory.

<RETURN>- Begin copying the files.

R)ETURN-Exit to the file copier's main menu.

S)RATCH FILES- Scratch files from a disk, select the files you
want to scratch the same way you select files for copying (see
above). After you are done selecting the files, hit 'return' to
begin scratching them.

I)NITIALIZE (FORMAT)- Fast formats a diskette. Enter the filename
(up to 16 characters) then the ID code (2 characters) at the screen

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prompts. Insert the disk you would like formatted and hit 'return'.
The disk will be completely formatted (tracks 1-35), the BAM
written, and the directory initialized, all in under 9 seconds.

V)ALIDATE DISK- Validates the BAM on a disk (the standard DOS
validate command is used). Use this command to repair/update the
BAM of a disk that contains an improperly closed file or a disk
that has had many programs saved and scratched on it.

R)E-BOOT ORIGINAL- See under 'Frequently Used Commands).

        MODULE: ART'S BACKUP

        PURPOSE: Fix a backup copy of most Arts' diskettes so
                 they will run on a single 1541, or compatible.

HOW TO USE: Select 'J' from the 1541 menu.
        First you must copy the Art's diskette with either the
standard disk backup or one of the nibblers. Then run this
routine on your backup copy of the Art's diskette. It will fix
it so it will run. After this routine has been run once on a
backup copy, to make another backup of that backup you don't have
to run this module again.

NOTE: You may use the Fat Track Formatter (track34) instead of
using Art's backup. This will give you a protected duplicate of
the original, instead of an un-protected copy that the Art's
module creates.

        MODULE: FASTBOOT V2 SOFTWARE

        PURPOSE: Load most disk software, protected or not, ona
                 MSD SD-2,1571,1541 or compatible drive at up to 7
                 times faster than normal and up to 30% faster than
                 EPYX Fastload.

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HOW TO USE: Select 'K' on the 1541 menu.

This routine accepts and emulates the following DOS filename specifications:

         * - Wildcard
       ? -single character wildcard
        0: -load off drive 0
        1: -load off drive 1

Don't load any programs that may reside in the upper $C000 block,
    (FASTBOOT V2 resides in memory locations $C800-$CFFF).

NOTE: You may also load FASTBOOT directly from the Fast Hack'em
disk without loading the main menu. Follow these directions to do
this:
Insert the Fast Hack'em disk into the drive and type:

                    LOAD"FASTBOOT",8,1

To enable FASTBOOT V2 type: SYS51200:NEW To disable: SYS65418

5. SELECTING MODULES for TWO 1541's.

        MODULE: FAST COPY (two drives)

        PURPOSE: Backup a standard diskette in 35 seconds using two
                 1541 or compatible drives with no R/W verify.

HOW TO USE: Select 'E' from the 1541 menu.

D)IRECTORY- See under 'Frequently Used Commands'.
C)OPY-   "   "   "   "   "   . Before you can
copy any diskettes, you must first define the source and
destination drive numbers (use the fix 2nd drive command). Any
read/write errors will be displayed on the screen after the copy
is completed.

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F)IX 2nd DRIVE NUMBER- This command will allow you to software re-number a disk drive to device 9 for use as a destination drive. Just follow the screen prompts.

R)E-BOOT ORIGINAL - See under 'Frequently Used Commands'.

F1) SOURCE/DESTINATION- Toggle the source and destination drives.

F5/F6) STARTING TRACK- Select the starting track from 1-40. Hit F5 to decrease the number. F6 to increase the number. The default value is 01.

F7/F8) ENDING TRACK- Select the ending track from 1-40. Hit F7 to decrease the number, F8 to increase the number. The default value is 35.

          MODULE: NIBBLER (two drives)

          PURPOSE: Backup a protected diskette with standard read
                   errors (20,21,22,23,27,29), renumbered tracks,
                   extra or duplicate sectors, duplicate half tracks
                   or non-standard data blocks in under 1 minute
                   on two 1541's or compatible drives.

HOW TO USE: Select 'F' from the 1541 menu.

D)IRECTORY See under 'Frequently Used Commands'

C)OPY -   "   "   "   "   "   . Before you can copy any diskettes, you must first define the source and destination drive numbers (use the fix 2nd drive command). Any write errors will be displayed on the screen after the copy is complete.

F)IX 2nd DRIVE NUMBER- This command will allow you to software renumber a disk drive to device 9 for use as a destination drive. Just follow the screen prompts.

R)E-BOOT ORIGINAL- See under 'F U C'

F1) SOURCE/DESTINATION- Toggle the source and destination drives.

F3/F4) STARTING TRACK- Select the starting track from 01-40 Hit F3 to decrease the number, F4 to increase the number. The default value is 01.

F5/F6) ENDING TRACK - Select the ending track from 01-40. Hit F5 to decrease the number, F6 to increase the number. The default value is 35.

SHFT H)EADER GAP - When the destination disk is formatted, this is how many bytes are written in between the end of a sector's header and the start of the sector's data block. Hit SHFT 'H' to decrease and 'H' to increase. The default value is 09.

SHFT T)AIL GAP - When the destination disk is formatted, this is how many bytes are written in between the end of a sector's data block and the start of the next sector's header. Hit SHFT 'T' to decrease and 'T' to increase. The default value is 09.

MODULE: FAST COPY AUTOMATIC (two drives verify)

PURPOSE: Same as 56 second fast copier (with verify) except this is the automatic copier version.

HOW TO USE: Select 'G' from the 1541 menu.
See under 'Auto-backup modules' for more information.

MODULE: FAST COPY (two drives verify)

PURPOSE: Backup a standard diskette in 56 seconds with verify using two 1541 or compatible drives.

HOW TO USE: Select 'L' from the 1541 menu.

All the commands are the same as 'Fast copy (two drives)' (see above).

MODULE: FAST COPY AUTOMATIC (two drives)

PURPOSE: Same as 35 second fast copier except this is the automatic copier version.

HOW TO USE: Select 'M' from the 1541 menu.
See under 'Auto-backup Modules' for more information.

6. SELECTING MODULES for an MSD SD-2 DUAL DRIVE.

MODULE: STANDARD NIBBLER.

PURPOSE: Backup a protected diskette with standard read errors (20,21,22,23,27,29) in 60 seconds on a MSD SD-2 dual drive with version 2.3·ROM.

HOW TO USE: Select 'A' from the SD-2 menu.

D)IRECTORY- See under 'F U C'.

C)OPY-   "   "   "   .

R)E-BOOT ORIGINAL "   "   .

F1) DRIVES- SOURCE, DESTINATION- Select the source and destination drives. On the MSD, the drive on the left is drive 0 and the drive on the right is drive 1. This is the default set-up.

F5/F6) STARTING TRACK- Select the starting track from 1-40. Hit F5 to decrease the number, F6 to increase the number. The default value is 01.

F7/F8) ENDING TRACK- Select the ending track from 1-40. Hit F7
to decrease the number, F8 to increase the number. The default
value is 35.

MODULE: STANDARD NIBBLER AUTOBACKUP

PURPOSE: Same as SD2 V2.0 except this is the automatic
copier version.

HOW TO USE: Select '8' from the SD-2 menu.

See under 'Auto-backup Modules' for more information.

MODULE: SD2 PARAMETER COPIER.

PURPOSE: Using an MSD SD-2 dual drive, this routine fixes
a nibbled copy of a disk so it will run.

HOW TO USE: Select 'C' from the SD-2 menu.
In order to use the Parameter Copier you must have first
made a copy of the disk with one of the nibblers. Then, after
you have loaded the Parameter Copier, look for the name of the disk
you are trying to copy. Use the cursor controls to search for it.
If you see it, with the Fast Hack'em disk still in the drive, press
'return' and the parameters will be loaded into the computer. Then
follow the screen prompts. If the program is not on the Parameter
Copier's menu then that program may not require parameters.
Try booting your backup copy of the program. If it doesn't load
or function properly it probably needs a parameter that we havent
developed yet. You can either try to write your own parameter(see the
Parameter Editor section) or call or write us and we will try to
develop one for you and put it on our next update.

MODULE: DEEP SCAN NIBBLER

PURPOSE: Backup a protected diskette with standard read
errors (20,21,22,23,27,29), renumbered tracks,
extra or duplicate sectors, duplicate half tracks,
or non-standard data blocks in 68 seconds on an
MSD SD-2 dual drive with version 2.3 ROM.

HOW TO USE: Select 'D' from the SD-2 menu.

All the commands are the same as 'Standard Nibbler' (see above).

MODULE: DEEP SCAN NIBBLER AUTOBACKUP.

PURPOSE: Same as 'Deep Scan Nibbler' except this is the
automatic copier version.

HOW TO USE: Select 'E' from the SD-2 menu.

See under 'Auto-backup Modules' for more information.

MODULE: FASTBOOT V2

PURPOSE: Load most disk software, protected or not, on an MSD
SD-2, 1541 or compatible drive at up to 7 times
faster than normal and up to 30% faster than EPYX
Fastload.

HOW TO USE: Select 'F' from the SD-2 menu.

See under 'Fastboot' in the single1541 copier section for more
information.

7.   SELECTING MODULES for a C-128 in 128 MODE.

MODULE: FAST COPY (single 1571)

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PURPOSE: Backup a standard diskette in just over 1 minute on
a single 1571 or in under 1:40 with full write verify
enabled.

HOW TO USE: Select 'A' from the 1541 menu.

DIRECTORY- See under 'Frequently Used Commands'.

C)OPY-   "   "   "   "   ".   Any read/write
errors will be displayed on the screen at the end of each pass.
copying an entire diskette takes two passes.

R)E-BOOT ORIGINAL- See under 'Frequently Used Commands'.
F1) VERIFY- If verify mode is turned on, after writing the data
on the destination disk, the data will be read back into the computer
and checked against the data that was written out. This will verify
that your backup copy is the same as the original.
Using verify mode will add about 20 seconds to the copy time.

F7)COPY (TOP,BOTTOM,BOTH)-Side of disk to copy. If you select to
copy the bottom or both sides of the disk and the disk you will be
copying is only top sided, you will get a read error if you try
to take a directory of that disk or try to copy it, because the
program will be trying to read the back side.

NOTE: You may use this module to copy diskettes that were designed
for use only on the C-64 by setting the COPY side status to TOP
only. This will allow you to take advantage of the tremendous
speed and buffer size using a single drive to backup these diskettes.

8. FREQUENTLY USED COMMANDS.

These are commands that are used in a majority of the
modules. To see exactly which modules these commands are used in,
look in the sections of this manual under each specific module.

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D)IRECTORY- Displays directory of a diskette in the drive. While
the directory is being listed, you may hit the space bar to pause
the listing and then hit again to continue it or hit run/stop
to stop the listing.

C)OPY- Copy a diskette. When prompted to insert the source or
destination diskette, put it in the drive and press 'return'.
The program automatically formats the destination disk as it copies,
so you don't need to use a pre-formatted diskette.

R)E-BOOT ORIGINAL- Allows you to return to the Fast hack'em main
menu so you may select another module. You will be prompted with
'Are you sure?' Put the Fast Hack'em disk in the drive (device 8)
and hit 'Y'.

9. THE AUTO BACKUP MODULES.

The idea of copying diskettes without using a computer is
kind of strange but that is just what these auto backup modules do.
Actually, the disk drives have their own computers inside them, so
once these routines take over complete control of both drives, the
'keyboard' computer is no longer necessary and the drives computers
handle the copying from there. The following instructions are for all
of the auto-backup modules:

After booting-up the auto backup copy utility, set-up and
select the source and destination drives, and the tracks you would
like the drives to repeatedly copy. Hit the 'A' key and follow the
instructions on the screen. Disconnecting the drives from the computer
is not necessary as long as you don't try to access the serial bus.
Insert the source diskette into the source drive. The source drive's
red light will come on. Now insert the destination diskette into the
destination drive. After the destination drive's red light comes on,
you have three seconds to get the diskette completely into the drive
and the drive door shut. The drives will begin to copy the diskettes.
When both drives stop spinning, the backup is complete. Remove

the destination diskette and the destination drive's red light will turn off. Remove the source diskette and the source drive's red light will turn off. Wait three seconds, and the drives are ready to copy more.

Note: When using two 1541 or compatible drive's, after the copy starts, the source diskette is checked for a valid BAM. If there is no BAM block the copy will halt, signifying a bad source diskette. Remove the diskettes to copy more.

10. DESIGNING YOUR OWN PARAMETERS.

In order to design parameters, one must have a full understanding of DOS and the 1541 GCR format. It also helps to have a fairly good understanding of 6502 machine language. Assuming you feel comfortable in dealing with these areas, we will continue on with the technical aspect of designing parameters for Fast Hack'em.

There are three basic types of parameters: GCR duplication, task drive routines, and sector modification. They can be broken down as follows:

GCR DUPLICATION: This parameter is in the form of a data file that the 'Parameter Copier' uses. This data tells the copier how to duplicate a section of a disk by giving a track, a unique sync header, and any combination of densities, data positions, and data lengths. By using this type of 'dumb' copier and data files that tell the copier how to copy a disk, many protection schemes that a 'nibble' copier can't copy, can be duplicated.

OPERATION: After the parameter copier is loaded and the parameter is in memory, source and destination diskette exchanges are prompted as the copier follows the instructions of the parameter.

THE FORMAT: The parameter data file starts at $2000 in the 64's memory. Each file is saved on disk under the filename of the program it was designed for. The contents of the data file

are arranged in the following example formats (in hex):

Sample #1

```
2000: 48 02 55 0A (55 AD 96 AD 77 52 95 A5 EA 7A) 12 00
2010: 00
2011: 00
```

```
2000: $48- Track in half-steps (this is actually track $24).
      $02- Density for track.
      $55- Byte to erase track with.
      $0A- Number of bytes in origin header. The origin header
           is a unique set of bytes written after a sync on a
           particular track that the parameter copier uses as a
           zero reference.
$55-$74- The origin header.
$12-$00- Number of bytes in origin header + necessary data
           bytes. (low, high byte format, $0012 in this case)
```

```
2010: $00- zero here means done with that track.
```

```
2011: $00- zero here means done with the parameters, non-zero
           means next track to operate on.
```

Sample #2

```
2000: 1E 03 55 05 (52 D5 25 4D 4E)0B 00
200B: 01 0B 00 02 4D 00
2011: 02 4D 00 01 85 00
2017: 03 85 00 00 92 00
201D: 00
201E: 00
```

```
2000: $1E- Track in half-steps (this is actually track $0F)
      $03- Density for track.
      $55- Byte to erase track with.
      $05- Number of bytes in origin header.
$52-$4E- The origin header.
$0B-$00- Number of bytes in origin header+necessary data
           bytes, (low,high byte format, $0008 in this case)
```

2008: $01- Number of syncs after origin sync.
  $08-$00- When writing, number of bytes to skip after origin.
           sync. (low byte, high byte format, $0008 in this case).
     $02- density for the following data.
  $4D-$00- Number of bytes in data block (low, high byte format).

2011: $02-$00- Same as the above (2008: $01-$00).

2017: $03-$00- Same as the above (2011: $02-$00).

201D: $00- zero here means done with that track, non-zero means
           number of syncs after origin sync (next group as
           above).

201E: $00- zero here means done with parameter, non-zero means
           next track to operate on (in half steps of course).

Sample #3

2000: 04 00 FF 00 00 00
2006: 00
2007: 48 01 55 01 (5C) 46 01
200E: 00
200F: 4A 01 55 00 00 00
2015: 00
2016: 00

2000: $04- Track in half-steps (this is actually track $02).
     $00- Density for track.
     $FF- Byte to erase track with.
     $00- Zero bytes in origin header (no headers on track).
  $00-$00- Dummy bytes (fill, unused).

2006: $00- Done with that track.

2007: $48- Track in...guess what?
     $01- Density for track.
     $55- Byte to erase track with.
     $01- Number of bytes in origin header.

```
         $5C- The origin header.
$46-$01- Number of bytes in origin header+necessary data.
         (low, high byte format).


200E: $00- Done with that track.


200F: $4A- Track in half-steps.
      $01- Density for track.
      $55- Byte to erase track with.
  $00-$00- Dummy bytes (fill, unused).


2015: $00- Done with that track.


2016: $00- Done with the parameter.
```

TASK DRIVE ROUTINES: This parameter is a drive routine that
resides in the drive's memory and functions with the backup copy
of the disk in the drive in order to write special synchronized
tracks, no sync data patterns, or any other protection scheme
that even a parameter data file copier can't copy.

        OPERATION: After the 'Extra' file is loaded and the
parameter is in memory, the destination diskette is prompted to
be inserted in the drive, and after doing so, the drive routine
is downloaded into the drive and executed, thus the backup is
complete.

        THE FORMAT: The starting address of the drive routine
in the drive is $0400 and may be up to four blocks long. The routine
is patched into a BASIC program that looks like this:

```
10 IFPEEK(4096)=0THENLOAD'EXTRA',8,1
20 SYS(4099)
```

        The length of the routine,in blocks, resides in memory
location $082F and the routine is stored starting at location
$0830. Each task file is saved on disk under the filename of the
program it was designed for.

SECTOR MODIFICATION: This parameter is afile that consists of
track and sector data, and functions with the backup copy of the
disk in the drive in order to change data bytes on a sector or
sectors allowing the copy to function properly.

        OPERATION: After the 'Extra' file is loaded and the
parameter is in memory, the destination diskette is prompted to
be inserted in the drive, and after doing so, the track and sector
information is downloaded into the drive and executed, thus the
backup is functional.

        THE FORMAT: The track/sector information is stored at
$0400-$04FF in the drive. The routine is patched into a BASIC
program that looks like this:

```
10 IFPEEK(4096)=0THENLOAD'EXTRA',8,1
20 SYS(4096)
```

        The track/sector information is stored in the computer
starting at location $0830. Each information file is saved on
disk under the filename of the program it was designed for. The
track/sector information is arranged as follows:

Sample #1

```
0830: 01 00
0832: 02 47 EA 48 EA
0835: 00
```

0830: $01- Track in normal steps.
      $00- Sector.

0832: $02- Number of bytes to change.
      $47- Position of first byte to change.
      $EA- Byte to change to.
      $48- Position of second byte to change.
      $EA- Byte to change to.

0835: $00- Zero means parameter done, otherwise new track, etc.

U.K.USERS.

The parameters included on this disk are developed to combat
the protection system used on the U.S. version of the program
referred to. On the U.K. version of the same program, a different
method may have been used. If the parameter listed for a particular
program fails to work,then try a different parameter for a game by
the same manufacturer. You will probably find that there is a
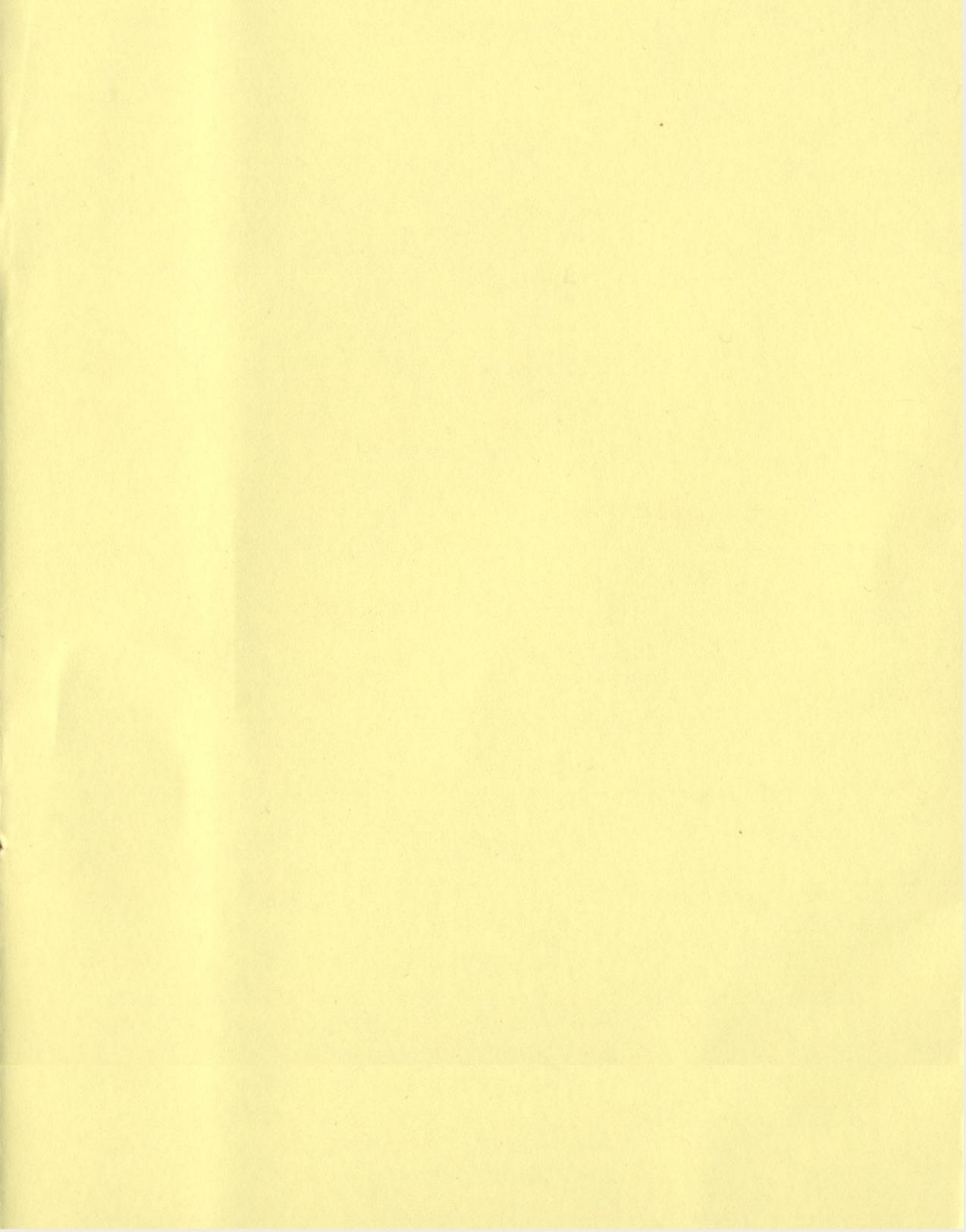parameter which is suitable for most programs.

e.g. The parameter listed for 'EIDLON' does not work on the
U.K. version of this game, but the one listed for 'LITTLE COMPUTER
PEOPLE' does work with 'EIDLON'.

This is because although we get many of the latest titles from the
U.S. the protection method used by the U.K. distributor sometimes
lags behind in sophistication.

FUTURE DISK AND PARAMETER UPDATES.

Software and parameter updates will be released approximately
quarterly. These will include items such as new documentation, new
parameters (20-50 more), and software changes such as new utilities,
faster existing routines and customer requests.

Updated versions will be advertised when available and can be
obtained by sending your original Fast Hack'em disk with £6.00.

Defective media should be returned to:

Units 8/9
Fenton Industrial Estate,
Dewsbury Road, Fenton,
Stoke-on-Trent Tel: 0782 273815

Please include a brief statement describing the defect.

DATEL ELECTRONICS