# NIBBLE NEWS

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## IN THIS ISSUE:

# September Already?

This month we have several articles for both beginners and advanced users. The column 'Fun With The Sector Editor' debuts this month with an explanation of binary and HEX, and also a taste of things to come in future articles. We also have an article on the creation of Auto-Load files for all those who have questioned on that subject. Also there is an article on several GLOBAL modifications which can be made to NIBBLES AWAY ][ to provide extra features. We also have a description of the control-R function in the Track/Bit Editor for more advanced users.

As always we have the current parameter list, and the user contributed parameter list which has grown considerably this month! We wish to thank all of those who have contributed parameters, keep up the good work!

So with that in mind, enjoy the articles and I'll see you next month!

Randy Ubillos

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# PATCH—WORK

This article will describe some of the GLOBAL modifications which can be done to NIBBLES AWAY ][ (version B1 only unless otherwise specified) to generate new functions which have been requested by different users. They should be entered in in sequence each time that their use is desired (Many of them will be on the next Auto-Load diskette.

1. Several people have told us that they have had a problem with write errors on some disks which that were trying to back-up, this change should help that:
   Byte D972 from 03 to 00
2. Another request has been to allow the Track/Bit Editor to function with drive 2, those changes are as follows:
   For READING: Byte 539A from B7 to 0D
                Byte 53E5 from 1B to 1C
   For WRITING: Byte 525F from B7 to 0D
                Byte 525E from 1B to 1C
3. If you have a parallel printer interface in a slot other than 1, these changes are for you:
   Byte 701D from C1 to CN   (N is desired slot)
   Byte 701A from C1 to CN   (N is desired slot)
   Byte 70F4 from C1 to CN   (N is desired slot)
   Byte 70FD from 90 to X0   (X is 8 + desired slot)
4. For serial card users the changes are:
   Byte 706A from C1 to CN   (N is desired slot)
   Byte 7073 from C1 to CN   (N is desired slot)
   Byte 70D3 from 9E to XE   (X is 8 + desired slot)
   Byte 7025 from 9F to XF   (X is 8 + desired slot)
5. Anyone who has a new MicroBuffer ][ from Practical Peripherals can use the following changes to make it compatible with the print function in the TBE:
   Byte 703B from 90 to 91
   Byte 7003 from 91 to 90
6. If you have a printer capable of 132 columns, the following changes will allow the print function to print out in a wider format which will put more data in less space:
   Byte 7109 from 20 to 2C
   Byte 7160 from 49 to 6B
   Byte 71D5 from 49 to 6B
   Byte 7129 from 02 to 03
   Byte 70BD from 04 to 06
   Byte 7373 from A0 to XX } Insert the HEX codes for
   Byte 7372 from A0 to XX } compressed print for your
                                printer here. (Optional)

7.  Several people have asked if it is possible to have the nibble-count routine allow the user to adjust the count by hand on their drives. The following changes enable this:

>           Byte C552 from 38 to 30
>           Byte C55D from A5 to 2F
>           Byte C4F6 from A5 to 4C
>           Byte C4F1 from 5E to 51
>           Byte C4F0 from D0 to 10

8.  Anyone with NIBBLES AWAY ][ Vers-A1 will have to use the following byte instead of 5E67 to access the extra directories on the Auto-Load diskettes:

>           Byte 58E1 from 11 to (Same as for Vers-B1)

9.  The following change will cause all Auto-Load files to execute at extremely high speeds. This is very handy if you have a frequently used Auto-Load and do not wish to see it operate each time:

>           Byte 553A from 20 to 2C

These changes will last as long as NA ][ is booted, or you can make an Auto-Load file to do them for you if you will be using them frequently.

If anyone has any suggestions for future additions to this article, please let us know!

# MAKING AUTO-LOADS

The Auto-Load system in NIBBLES AWAY ][ providess the user with a very convenient way to control the various operations of the program. In order to create an Auto-Load file, you must know the sequence of commands that you would type in to perform the operations by hand.

The best way to show this is with an example. We will use the sample parameter which was described in last months step by step guide to parameters:

```
J o h n   D o e   S o f t w a r e   I n c:
ABC Programname ---- Ø-A.............Addr=D5 AA 96
                   B-18 by 1.5.....Ins=DE AA EB, SYNC SIZ=ØA
                   19.5-21.5.......FIND MAX=25
                   SECTMOD [F=16,C=OFF,T=Ø1,S=Ø5]
                     Change address 23 from 14 to 76
                     Change address 56 from 34 to 9A
                   SECTMOD [F=16,C=OFF,T=Ø2,S=ØF]
                     Change address 1Ø from 47 to 48
```

To start an Auto-Load file, we press 'F' from the main NIBBLES AWAY ][ menu to enter the Filer. Then we press 'F' again to enter the File Maintenance system. Then we press 'C' to Create an Auto-Load file. The program will ask if we are sure, and you should respond with a 'Y'.

You will then see a block of asterisks on the screen, this is a 'blank' Auto-Load which you will enter your information into. The flashing cursor can be moved left and right with the left and right arrows.

To start our Auto-Load, we will follow the steps described in last months issue. What we will type into the Auto-Load editor are the commands that we would type if we were going to perform the operation by hand. Starting with step 1, we must press 'M' for modify, and then 'B' for backup. Since we are entering an address mark, we would answer 'Y' to the next question and type it in, so in the Auto-Load editor we would type 'MBYD5 AA 96'. These characters will show on the screen and the cursor will be to the right of the '6'. The instructions now say that we would press return for the rest of the options. This is one of the cases where you may have to perform the steps first and count the number of carriage returns required. In our case we need 7, so we type 7 returns into the editor. These will show as inverse 'M's on the screen so that you can identify them. The last part of step 1 is to press 'Q', so we enter that into the editor.

Now step 2 tells us to press the following keys 'NY',four returns,'A',seven returns and one space. Our editor screen should now show the following 'MBYD5 AA 96MMMMMMMQNYMMMMAMMMMMMM '. If you were to start at the main menu of NIBBLES AWAY ][ and press this sequence of keys, you would perform step 1 of the backup procedure. This is what an Auto-Load file does. When it is started, NIBBLES AWAY ][ takes the characters out of the Auto-Load file instead of from the keyboard, so it thinks that you are actually typing them in very fast!

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To see this, we can test the portion of the Auto-Load file that we have typed in. To do this we need to put and end on the Auto-Load file. This is done byte typing a shift-M, which will put an inverse bracket on the screen. When an Auto-Load file reaches this, it will stop and return to the main menu. We can now press control-E to exit the editor. If we were done with this Auto-Load, we would want to save it to disk with the 'S' option at this point. If we wish to go back and make changes to the file, we can use the 'E' option which will put us back in edit mode without erasing those keys which we had already typed in. To test the file out, we can press the 'R' option, which will 'Run' the file currently in memory. This can be used to watch the file execute and catch any typing errors.

If we select the 'E' option now, we can return to the editor. We notice that the cursor is at the beginning of the line, but it can be moved to any other point with the left and right arrow keys. There are several other command which are available. If you type any characters in the middle of some which had been typed previously, they will automatically be inserted into the Auto-Load file. If you type control-D, the character under the cursor will be deleted and all of the characters to the right will move one space to the left. Since the left and right arrows move the cursor around, we need some way to type left and right arrows into the file. This is done byte typing the less than and greater than symbols, which will show in inverse on the screen.

By moving to the end of the characters which we typed previously, we can type in the rest of the characters needed to complete the back-up, as listed in the step by step guide last month. One thing to remember is that if a disk change is required, the Auto-Load should be broken into two parts (as with a SECTMOD), since they will not pause for you to switch disks while the program is running.

This should give everyone a new feature of NIBBLES AWAY II to experiment with. And remember, you cannot hurt it by experimenting, so see what new uses you can find for using the Auto-Load system!


## Easy Auto-Loads

Anyone with a Videx Enhancer II can use the following technique for generating Auto-Load files.

Start the definition of a macro for any key that you wish, then type in the commands to perform the function that you would like to generate, starting from the NIBBLES AWAY II main menu. When all of the keys have been typed, end the macro definition by pressing the REPEAT key. Now enter the Auto-Load editor and press the key that you defined the macro for. All of the key sequences, except forward and backward arrow, will now be entered in the buffer, ready for you to add an ESC (entered with shift-M) at the end, insert any required left and right arrows and save to disk.

# USING CONTROL-R

The control-R function of the Track/Bit Editor (TBE) in NIBBLES AWAY ][
is a very useful tool for figuring out the protection systems on certain
disks.  It's function is to detect and display the SYNC bytes which exist on
a particular diskette.

To see this, try the following example. Boot NIBBLES AWAY ][, enter the
TBE, then place a DOS 3.3 master diskette in drive one. Press control-R and
watch the screen.  If you use the forward and backward arrows to move through
the buffer, you will see that there are sections of bytes which are shown in
inverse video.  These bytes represent SYNC bytes on the disk. In the case of
the 3.3 master disk, these bytes are FF's.  The bytes which follow the FF's
make up the address mark for that particular track.  This information is very
useful if you have a disk which has a non-standard SYNC byte.  Using the
control-R option you can locate the areas of SYNC, and use the bytes that
follow in the address mark parameter in NIBBLES AWAY ][.

When looking through the memory dump you may see one or two bytes off by
themselves which are shown in inverse.  Most of the time these are just
glitches and not really SYNC bytes, so you can ignore them.  The two places
where SYNC bytes are normally used as part of a protection system are after
the address and data fields.

The address field normally consists of 13 bytes.  The first three are the
address mark (D5 AA 96 for DOS 3.3), then there are two bytes for the volume
number, two for the track number, to for the sector number, two for the
checksum, and finally two for the closing mark.  Sometimes either the second
byte of the closing mark, or the byte after the closing mark will always be
sync.  This is what is known as an 'INSERT MARK'.  To duplicate this on a
backup disk, you should key in the sequence of bytes up to and including the
byte which is SYNC (2 or 3 bytes is enough) into the insert mark parameter in
NIBBLES AWAY ][.

There is also a closing mark for the data field.  The data field begins a
few bytes after the end of the address field (It begins with D5 AA AD for DOS
3.3).  At the end of the data field is a section of SYNC leading up to the
next address mark.  In between the data field and the next section of SYNC, is
the data field closing mark (DE AA for 3.3).  As with the closing mark for the
address field, sometimes the second byte and sometimes the one after that are
SYNC, and are handled in the same way as are those for the address field.

The control-R function is set up to display in inverse for 10 bit SYNC,
which is what DOS 3.3 and all insert marks use.  If a disk has 9 bit SYNC
(used by DOS 3.2) then the areas where this type of SYNC exists will appear as
alternating inverse and non-inverse.  This is easy to see if you have a DOS
3.2 diskette and read it with control-R.  The sections of FF's between the
data will show alternating between inverse and normal video.

In this article we discussed some basic uses for control-R, in future
issues we will delve more deeply into its possible uses for decoding disk
protection schemes.

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# FUN WITH THE SECTOR EDITOR
## By Mike Street

Welcome to the first in a series of articles collectively refered to as "Fun with the Sector Editor". In this series we will cover several topics including:

1. Basic information and disk layout
2. Format of disk files (APPLESOFT,INTEGER,etc.)
3. Disk trouble-shooting
4. Disk tricks (getting more space, hiding files,etc.)
5. Exploring disks from other operating systems

This series assumes that the reader has a working knowledge of the Nibbles Away ][ Track/Sector Editor (TSE). For information concerning the operation of the TSE please consult chapter 4 of your Nibbles Away ][ manual. Also, all track and sector values will be given in hexadecimal. For a Hex to Decimal conversion chart see Appendix D of your Nibbles Away ][ manual. All track and sector locations given will be for DOS 3.3 version diskettes. Altough the locations and values may be different for DOS 3.2 and lower, the basic theory remains the same.

In this issue, we are going to cover topics which may be new to some and familiar to others but they are presented to give everyone a common starting point for our journey through the Apple ][ disk structure. Topics to be covered include the basics of the binary and hexadecimal numbering systems, a quick review of the commands of the Nibbles Away ][ Track/Sector Editor and an introduction to the basic layout of an Apple ][ diskette. For those familiar with one or more of these topics, I suggest that you at least skim through the material. Later on we may refer back to information presented here.

In the familiar decimal (base ten) numbering system that we have used all our lives there are ten basic symbols that, when put together in different orders, can represent any conceivable quantity. These symbols are the familiar digits 0 through 9 which are known as the arabic numerals. It makes sense that the numbering system that we use is based on the number ten if you remember that ancient civilizations did not have calculators and computers and were forced to use the only thing they did have...their fingers. The decimal numbering system uses what is known as a positional notation system. This means that a person need only remember the ten basic symbols and the significance of each position to be able to perform all of the standard arithmetic operations. For example... the number 624 is read as six-hundred twenty-four. This is short for $(6 \times 10^2) + (2 \times 10^1) + (4 \times 10^0)$ or $(6 \times 100) + (2 \times 10) + (4 \times 1)$. Remember that any number raised to the power of zero equals one. As you can see each position is assigned a positional value. Moving from right to left, the first is given the value of one, the next the value of ten, and the next the value of one-hundred and so on. The important point to note is that the value of each digit is determined by its location. (ie. the '5' in 50 has a different value than the '5' in 5,000).

The same logic that holds true for the decimal numbering system follows through to the binary (base two) system. At the most basic level a computer only understands two things, either the presence or absence of a signal on a wire. Therefore computers use a numbering system in which there are only two basic symbols. The two symbols (1,0) can be aranged in any order to represent any quantity. Much like the decimal system, the value of a digit is actually determined by its position. For example... the binary number 1101 (remember this is not one-thousand, one hundred an one) can be broken down using the same procedure that we used on a decimal number. It can be represented as (1 X 2^3) + (1 X 2^2) + (0 X 2^1) + (1 X 2^0) or more compactly... (1 X 8) + (1 X 4) + (0 X 2) + (1 X 1). If you follow through with the arithmetic, it works out to the decimal number 13. Therefore binary 1011 = decimal 13. From this notation it is obvious that the binary system is cumbersome to work with, requiring far more digits to represent the same quantity than the decimal system. It is for this reason that the hexadecimal system came into being.

Most small computers and a few larger systems organize their memory into groups of BYTEs, each consisting of eight binary digits. These bytes are further subdivided into nibbles, each four digits in size. From the previous discussion on the binary system you can see that there are 16 possible combinations of four binary digits or bits. These facts led to the development of a numbering system that would make handling the BYTES easy. As the name suggests, hexadecimal is a counting system using base sixteen, or in other words there are sixteen symbols that can appear in each position of a number. This causes a slight problem in that the digits 0 through 9 are no longer enough to represent all sixteen possibilities. New symbols must be found. The first six letters of the alphabet (A, B, C, D, E, F) are used to supply the missing symbols (see TABLE 1-1). To convert a number from binary to hexadecimal we only have to break the number into nibbles (4 bit segments) and then convert each to a hex digit according to the previous code. Using letters intermixed with numbers may seem strange at first, but remember that the letters are only symbols just like 0, 1, 2, etc. For those who are a little confused by all of this, some examples may clear things up for you.

| BINARY | HEXADECIMAL |
| --- | --- |
| 1000 1100 | 8C |
| 1011 0011 | B3 |
| 1010 0101 | A5 |
| 0111 1111 | 7F |

You can see how the hexadecimal notation saves space and reduces the chance of error when dealing with binary numbers. It is much easier to use and remember '8C' than it is '10001100'. The same theory applies if the binary number is larger than 8 bits. You still divide the bits into nibbles and go from there. If the number of bits is not an even multiple of eight, then the number is 'padded' with zeros added to the left of the number.

The Nibbles Away JC Sector Editor has 18 basic commands that you will
need to be familiar with during the course of this series.  They are outlined
below.  For a more in-depth discussion of each command see chapter 4 of your
Nibbles Away JC manual.

```
I,J,K,M .........Move the cursor up, left, right, down respectivly.
<-,-> ...........Move the cursor to the left and the right.
A ...............Toggle the display between ASCII and Hex
R ...............Read the current Track/Sector into the buffer.
W ...............Write the buffer to the current Track/Sector.
T ...............Enter a new track number.
S ...............Enter a new sector number.
O ...............Selects the options page.
      S .........Increments the slot number.
      D .........Toggles the drive number between 1 and 2.
      F .........Toggles the disk format between 13 and 16 sector.
      C .........Toggles the checksum flag in the read/write routines.
L ...............Disassemble the data in the buffer into 6502
                 assembly language.
B ...............Change the current buffer number.
<space> .........Enter the edit mode.
+ ...............Increment the sector number.
- ...............Decrement the sector number.
Q ...............Exit the Track/Sector editor.
```

TABLE   1-1

----------------------------------------------------------------

| BINARY | HEXADECIMAL | DECIMAL |
|--------|-------------|---------|
| 0000 | 0 | 0 |
| 0001 | 1 | 1 |
| 0010 | 2 | 2 |
| 0011 | 3 | 3 |
| 0100 | 4 | 4 |
| 0101 | 5 | 5 |
| 0110 | 6 | 6 |
| 0111 | 7 | 7 |
| 1000 | 8 | 8 |
| 1001 | 9 | 9 |
| 1010 | A | 10 |
| 1011 | B | 11 |
| 1100 | C | 12 |
| 1101 | D | 13 |
| 1110 | E | 14 |
| 1111 | F | 15 |

----------------------------------------------------------------

An Apple ][ diskette is divided into 35 tracks of a certain number of sectors per track. Before the release of DOS 3.3 in August of 1980, each track was divided into 13 sectors but then with the release of DOS 3.3 that number was increased to 16. Each sector on the disk contains a total of 256 bytes of information. Anyone quick with a calculator can figure out that 35 tracks x 16 sectors x 256 bytes gives you a total of 143,360 bytes on a disk. Unfortunatly not all of this space is available to the user. DOS requires some room for its own purposes. More specifically, 3 tracks (0,1 and 2) are used to contain an image of DOS that gets loaded in when the system is booted and one track (11 hex) is used to store the catalog. This adds up to 16,384 bytes that are unusable for data or program storage. That leave 126,976 bytes free. Later in the series we will discuss ways of releasing at least part of the tied up space for other uses.

Since the smallest subdivision is the 256 byte sector then it follows that the smallest amount of space that can be allocated to a file is one sector. For example... suppose you save a binary file named "BILBO.HOBBIT" with a starting address of 2048 and a length of 1450 (BSAVE BILBO.HOBBIT,A2048,L1450). Then you type "CATALOG" to see what you have created. The disk now contains an entry called "BILBO.HOBBIT" which has a length of 7 sectors. What happened was this, the file used 5 complete sector and still had 170 bytes left over. It therefore allocated another complete sector but only used the 170 bytes. The seventh sector is used for the TRACK/SECTOR list which will be discussed later.

The key to the method by which your Apple keeps track of all the different files on the disk is the catalog. The catalog can be divided into two primary sections, the Volume Table Of Contents (VTOC) and the catalog sectors themselves. The Track/Sector list mentioned previously also comes into play by keeping a list of which sectors have been allocated to a certain file. Starting with the next issue we will cover each of these in more detail and the with the knowledge that we have gained, go on to explore and experiment. See you next time.

# USER CONTRIBUTED PARAMETERS

The following parameters have been received from Nibbles Away ][ users, and have not been tested by COMPUTER:applications, Inc.

```
COMPANY NAME:                                          AUTO-LOAD FILE
PROGRAM NAME        COPY TRACKS   PARAMETERS TO CHANGE    TO USE
----------------    -----------   --------------------  ----------------
AUTOMATED   SIMULATIONS:
Temple of Apshai -- 0-22..........Addr=D5 AA B5


AVANTE-GARDE
Hi-Res Secrets ---- 0-22..........Addr=D5 AA 96


BRODERBUND   SOFTWARE:
Warlords ---------- 0-F...........Addr=D5 AA B5


CENTRAL   POINT   SOFTWARE:
Copy II Plus ------ 0-2...........Normal
                                  Del Byte =20


DATA   MOST:
Space Kadet ------- 0-22..........Addr=D5 AA 96
Mars cars                         Overide Standardizer
Crazy Mazey
Tax Beater -------- 0-22..........Addr=D5 AA 96
REAP                SECTMOD [F=16,C=OFF,T=0,S=03]
                         Change address 42 from 38 to 18


EDUWARE:
The Prisioner ----- 0-22..........Sync
Algebra I --------- 0-22..........Addr=D5 AA B5


INSOFT:
Electric Duet ----- 0-22..........Addr=D5 AA 96
                                  Ins= DE AA EB
                                  Overide Standardizer
                                  Fix Amnt=04
IDS:
Prism Print ------- 0-21..........Addr=D5 AA 96
                                  Overide Standardizer
                         SECTMOD [F=16,C=ON,T=21,S=00]
                         Change address 27 from FB to 22
MUSE:
Best of MUSE ------ 0-22..........Sync
Three Mile Island
Global War
```

```
M I C R O S O F T:
Olympic Decathalon  0-22..........Addr=D5 AA B5
O N L I N E   S Y S T E M S:
General Manager --- 0-22..........Addr=D5 AA 96
V1.5                     SECTMOD [F=16,C=ON,T=1F,S=0E]
                            Change address C1 from -- to 4B
                            Change address C2 from -- to E0
                            Change address C3 from -- to 49
                         SECTMOD [F=16,C=ON,T=21,S=01]
                            Change address 2E from -- to 60
Sabotage ---------- 0-22..........Normal
Alien Rain
Snoggle ----------- 0-22..........Addr=D5 AA B5


P H O E N I X   S O F T W A R E:
Zoom Graphics ----- 0-22 by 2......Addr=D5 AA 96
2nd Edition                        Ins=DD AA ED B5
                    1-21 by 2......Addr=D4 AA 96


                    N O T E: Write Protect before booting!!


P I C A D I L L Y   S O F T W A R E:
Falcons ----------- 0-0...........Addr=D5 AA B5
                    1.5-4.5x1.5....Addr DF AD DE
                    5.5-5.5x1
                    7-Ax1
                    B.5-E.5x1.5
                    10-12x1
                    13.5-14.5x1
                    16-19x1.5
                    1A-1B.5x1.5


S E N S I B L E   S O F T W A R E:
Image Printer ----- 0-2...........Addr=D5 AA 96
                    3-7...........Addr=F7 AA 96
                    9-22
                      SECTMOD [F=16,C=OFF,T=0,S=03]
                         Change address 42 from 38 to 18
                      SECTMOD [F=16,C=OFF,T=2,S=03]
                         Change address 2A from 2C to 4C
                         Change address 2B from 06 to 5D
                         Change address 2C from B7 to B4
Super Disk Copy --- 0-22..........Addr=D5 AA 96
(Version 3.7)                      Errors OK
The Bug ----------- 0-0...........Normal
                    15-15.........Gap Byte 2=FF
                                   Gap Size=10
```

S E R I U S   S O F T W A R E:
```
Kabul Spy --------- 0-21..........Addr=D5 AA 96
(both sides)         SECTMOD [F=16,C=OFF,T=0,S=0]
                        Change address 49 from -- to EA
                        Change address 4A from -- to EA
                        Change address 4B from -- to EA
Dark Forest ------- 0-22..........Addr=D5 AA B5
                                Overide Glitch detect
```

S I L I C O N   V A L L E Y   S O F T W A R E:
```
Word Handler II --- 0-0C..........Addr=FF DF DE
                    11-22..........Addr=D5 AA 96
```
S O F T A P E:
```
Draw Poker -------- 0-22..........Addr=D5 AA B5
```

S O F T W A R E   P U B L I S H I N G   C O R P.:
```
PFS/PFS Report ---- 0-13..........Addr=D5 AA 96
(Revised)                       Overide Standardizer
                                Gap Byte 1=C0, Gap Byte 2=D0
                                Filter=C0-C8 (no inverse)
                N O T E: Write Protect before booting!!
PFS Graph --------- 0-22..........Addr=D5 AA 96
                                Overide Standardizer
                                Gap Byte 1=C0, Gap Byte 2=D0
                                Filter=C0-C8 (no inverse)
```

S P E C I A L   D E L I V E R Y   S O F T W A R E:
```
Utopia Graphics --- 0-22..........Addr=D5 AA 96
System                          Turn on 3.3 filter
                    SECTMOD [F=16,C=ON,T=0,S=0]
                    Change address 42 from 38 to 18
```

S T R A T E G I C   S I M U L A T I O N S:
```
Battle of Shiloh -- 0-22..........Addr=D4 AA B7
Warp Factor
```

S Y T O N I C   S O F T W A R E:
```
Interlude ----------0-22..........Addr=D5 AA B5
```

X P S:
```
Apple Cillin ------ 0-0...........Addr=D5 AA 96
                    1-22..........Addr=D5 AA B5
                    11-11..........Addr=D5 AA 96
```

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the company which reserves these rights.

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```
COMPANY NAME:
PROGRAM NAME        COPY TRACKS    PARAMETERS TO CHANGE
----------------    -----------    --------------------
Adventure  International:
Eliminator -------- 0-21..........Addr=D5 AA 96
                        SECTMOD [F=16,C=OFF,T=03,S=0D]
                            Change address 2E from 20 to EA
                            Change address 2F from 30 to EA
                            Change address 30 from 72 to EA
Apple  Computer:
Visicalc /// ------ 0-22..........SYNC
Apple Writer /// -- 0-22..........SYNC
Apple Logo -------- 0-22..........Addr D5 AA 96
                    1-1...........Addr AA D6 EE
                            NIBBLE COUNT=Y
                               FIND MAX=03
                              SHIFT N+ = 08
                              SHIFT N- = 00
Apple Writer II --- 0-3...........Addr D5 AA DA (or D5 AA DB)
                    4-22..........Addr D5 AA 96
Avante-Garde  Creations
Zero Gravity Pinball 0-22.........Addr=D5 AA B5
B P(REVISED)
Accounting -------- 0-22..........Addr=D5 AA 96
   System                FIX AMNT=04,  GAPBYTE1=C8
                         GLOBAL MOD BYTE D972 from 03 to 00
                    11-11.........Ins=AD FB E6 FF E6
                            SYNC SIZ=0A
Broderbund  Software:
Apple Panic ------- 0-D
Genetic Drift ----- 0-0...........Addr=D5 AA B5
                    1-3...........Addr=BB D5 BB
                    4.5-6 by 1.5
                    7.5-8.5
                    D-D...........Addr=D4 D5 BB
                    E.5-12.5......Addr=AD B5 DE
```

```
Space Quarks ------ 0-0............Addr=D5 AA B5
                    1-2............Addr=FF DF DE, DATA MAX=25
                    3.5-5.5
                    7-9 by 2
                    A.5-B.5
                    D-15
Space Warrior ----- 0-0............Addr=D5 AA B5, DATA MAX=30
                    2.5-3.5........Addr=DF AD DE
                    5-8 by 3
                    6.5-6.5
                    A-10 by 3
B u d g c o:
Raster Blaster ---- 0-0............Addr=D5 AA 96, SYNC
                                   DATA MIN=18, DATA MAX=40
                    5-11 by 4......Addr=AD DE, DATA MIN=13, SYNC
                    6-12 by 4......SYNC
                    7.5-F.5 by 4...SYNC
                    1.5-3.5 by 2...SYNC
C a v a l i e r   C o m p u t e r:
Microwave --------- 0-22...........Addr=D5 AA 96
                    SECTMOD [F=16,C=ON,T=02,S=01]
                         Change address DA from A9 to AD
                         Change address DB from 60 to 03
                         Change address DC from 8D to 81
                         Change address DD from 7E to 60
C o n t i n e n t a l   S o f t w a r e:
Guardian ---------- 0-1............Addr=D5 AA B5
                    2-11...........Addr=D6 AA B5
                                   Ins=DF AA EB F7, SYNC SIZ=0A
D a t a   M o s t:
County Fair ------- 0-22...........Addr=D5 AA B5
Snack Attack        SECTMOD [F=13,C=OFF,S=03,T=00]
                         Change address 63 from 38 to 18
Snack Attack ------ 0-22...........Addr=D5 AA 96
(revised)           SECTMOD [F=13,C=off,S=01,T=00]
                         Change address 39 from 38 to 18
Swashbuckler ------ 0-22...........Addr=D5 AA 96
Casino 21           SECTMOD [F=16,C=OFF,S=03,T=00]
                         Change address 42 from 38 to 18
D a t a   S o f t:
Dung Beetles ------ 0-0............Addr=D5 AA B5
                    1-1............Addr=F5 F6 F7
                    4-22
                    SECTMOD [F=13,C=ON,T=00,S=01]
                         Change address 6D from 01 to 7B
                         Change address 6E from 61 to 69
```

```
Gebelli  Software:
Firebird ---------- 0-0............Addr=DD AD DA, SYNC
                    1.5-8.5.......SYNC
Howardsoft:
Tax Preparer ------ 0-22..........Addr=D5 AA 96
Infocom:
Deadline ---------- 0-22..........Addr=D5 AA 96
Innovative  Design  Software:
Pool 1.5 ---------- 0-15..........Addr=D5 AA B5
                    1E-21
                      SECTMOD[F=13,C=OFF,T=0B,S=07]
                        Change address 6A from 8D to 60
                      SECTMOD[F=13,C=OFF,T=00,S=03]
                        Change address 63 from 38 to 18
LJK  Enterprises:
Letter Perfect ---- 0-22..........Addr=D5 AA B5
Level  10  Software:
Neutrons ---------- 0-22..........Addr=D5 AA 96
Kaves of Karkhan


Ligntning  Software:
Master Type ------- 0-2...........Addr=D5 AA B5
                    3-22..........Addr=D4 AA B5
                            (Error on $1B OK)
                    SECTMOD [F=13,C=OFF,S=03,T=00]
                        Change address 63 from 38 to 18
                    SECTMOD [F=13,C=OFF,S=0A,T=02]
                        Change address 2E from 23 to 2E
Magna  Soft:
Tunnel Terror ----- 0-0...........Addr=D5 AA B5
                    1-12..........Addr=D6 AA B5
                            Ins=DF AA D7 EB, SYNC SIZ=0A
Micro  Lab:
Peeping Tom ------- 0-0...........Addr=D5 AA B5
                    1-1...........Addr=F5 AB BE
                    4-22
                     SECTMOD [F=13,C=ON,T=00,S=01]
                        Change address 6D from 01 to 7B
                        Change address 6E from 60 to 68
Roach Hotel ------- 0-0...........Addr=D5 AA B5
                    1-1...........Addr=EE EA FE
                    4-22
                     SECTMOD [F=13,C=OFF,T=00,S=01]
                        Change address 75 from 01 to 7B
                        Change address 76 from 61 to 69
```

```
VisiFactory ------- 0-22..........Addr=D5 AA 96
                    SECTMOD [F=16,C=OFF,T=00,S=03]
                          Change address 42 from 38 to 18
                    SECTMOD [F=16,C=OFF,T=01,S=00]
                          Change address 84 from 4C to AD
                          Change address 85 from 8E to E9
                          Change address 86 from AE to B7
Invoice Factory --- 0-22..........Addr=D5 AA 96
M i n d   S y s t e m s   Inc:
AirSim 1 ---------- 0-2...........Addr=D5 AA B5
                    8-F
                    3-7...........Addr=FF FF AB
M i n d   T o y s:
Jabbertalky ------- 0-22..........Addr=D5 AA 96
Ricochet ---------- 0-22..........Addr=D5 AA 96


O n l i n e   S y s t e m s:
Cranston Manor ---- 0-22..........ERASE DEST TRACKS
Expediter ][ ------ 0-22..........Addr=D5 AA 96
                                  ERASE DEST TRACKS
Gobbler ----------- 0-22..........Addr=D5 AA B5
                                  ERASE DEST TRACKS
Jaw Breaker ------- 0-22..........Addr=D5 AA B5
                                  ERASE DEST TRACKS
Hires Adv #1 ------ 0-22..........Addr=D5 AA B5
Hires Adv #2 ------ 0-22..........Addr=D5 AA B5
Paddle Graphics --- 0-23..........Addr=D5 AA B5
Hires Soccer ------ 0-22..........Addr=D5 AA B5, SYNC
Thrilogy ---------- 0-22..........Addr=D5 AA B5, SYNC
Hires Cribbage ---- 0-22..........Addr=D5 AA B5, SYNC
Missile Defense --- 0-22..........Addr=D5 AA B5, SYNC
Marauder ---------- 0-22..........Addr=D5 AA 96, Overide Standardizer
                    SECTMOD [F=16,C=ON,T=03,S=07]
                      Change Address 90 from A8 to 60
Pegasus ][ -------- 0-22..........Addr=D5 AA B5
                                  ERASE DEST TRACKS
ScreenWriter ][ --- 0-22..........Addr D5 AA 96
                                       Sync Siz=0A, Fix Amnt=04
                    SECTMOD [F=16,C=ON,T=03,S=0B]
                    Change Address 94 from 20 to EA
                                   95 from 00 to EA
                                   96 from 7F to EA
                    SECTMOD [F=16,C=ON,T=13,S=04]
                    Change Address 4D from 20 to EA
                                   4E from 00 to EA
                                   4F from 60 to EA
```

```
Softporn ---------- 0-22..........Addr=D5 AA B5
  Adventure 3.2              ERASE DEST TRACKS
Softporn ---------- 0-22..........Addr=D5 AA 96
  Adventure 3.3              ERASE DEST TRACKS
Threshold --------- 0-22..........Addr=D5 AA B5
                            ERASE DEST TRACKS
Ulysses & --------- 0-22..........Addr=D5 AA 96
  Golden Fleece             Erase DEST TRACKS
Time Zone  (V1.0)
    Disks A-L ---- 0-22..........Addr=D5 AA 96, 'OVERIDE STANDARDIZER'
  then Disk A ------ SECTMOD [F=16,C=ON,T=03,S=05]
                    Change address 5B from 4C to 60
                    SECTMOD [F=16,C=ON,T=03,S=03]
                    Change address AB from A9 to 60
Time Zone  (V1.1)
    Disks A-L ---- 0-22..........Addr=D5 AA 96
  then Disk A ------ SECTMOD [F=16,C=ON,T=03,S=00]
                    Change address D9 from FC to 00
                    Change Address DA from 08 to 13
Cannonball Blitz -- 0-22..........Addr=D5 AA 96
                    SECTMOD [F=16,C=ON,T=17,S=0E]
                    Change address CD from 49 to 60
Mouskattack ------- 0-22..........Addr=D5 AA 96
                    SECTMOD [F=16,C=ON,T=18,S=03]
                    Change address B1 from 49 to 60
P e r s o n a l   B u s i n e s s   S y s t e m s:
Executive --------- 0-22..........Addr=D5 AA 96
  Secretary
P i c a d i l l y   S o f t w a r e:
Suicide ----------- 0-0..........Addr=D5 AA B5
                    11.5-22 by 1.5.Addr=DF AD DE
Star Blaster ------ 0-0..........Addr=D5 AA 96
                    7-20 by 1.5....Addr=DF AD DE
P h o e n i x   S o f t w a r e:
Zoom Grafix ------- 0-0..........Addr=D5 AA 96, Ins=DD AA ED B5
                              Sync Siz=0A
                    1-22..........Addr=D4 AA 96
P r o f e s s i o n a l   S o f t w a r e   T e c h n o l o g y:
Executive --------- 0-22..........Addr=D5 AA 96, Override Standardizer
  Briefing System   SECTMOD [F=16,C=ON,T=21,S=00]
                    Change Address 27 from FB to 22
R i v e r b a n k   S o f t w a r e
International ----- 0-C..........Addr=FF FF FF AA
Grand Prix


S e n t i e n t   S o f t w a r e
Gold Rush --------- 0-22..........Addr=D5 AA 96
```

```
Silicon  Valley  Software:
Word Handler II --- 0-0............Addr=D5 AA 96
                    11-22
                    1-C...........Addr=FF DF DE
Sirius  Software:
Autobahn --------- 0-0...........SYNC
                   4-6...........SYNC
                   9.5-C.5.......SYNC
Beer Run, Epoch --- 0-0...........Addr=DD AD DA, DATA MAX=25, SYNC
Copts & Robbers,   1.5-13.5......SYNC
Hadron, Snake Byte
NOTE: Errors will begin to occur somewhere between track C.5 and track  13.5,
    depending on the particular disk.  This is normal.
Gorgon ------------ 0-0...........Addr=DD AD DA, DATA MAX=25, SYNC
                    1.5-C.5.......SYNC
                    E.5-E.5.......SYNC
                    D.5-D.5.......Addr=D5 AA B5, SYNC
Sneakers ---------- 0-0...........Addr=DD AD DA, SYNC
                    1.5-C.5.......SYNC
                    D.5-D.5.......Addr=D5 AA B5, SYNC
Gamma Goblins ----- 0-0...........Addr=DD AD DA, SYNC
                    1.5-B.5.......SYNC
                    D-D...........Addr=FF FF FF D5 AA EE
                                       DATA MAX=30
Orbitron ---------- 0-0...........Addr=DD AD DA, DATA MAX=25, SYNC
                    1.5-E.5.......SYNC
                    F.5-F.5.......Addr=FF B5 D5 AA
Outpost ----------- 0-0...........Addr=DD AD DA, SYNC
                    1.5-9.5.......SYNC
                    B.5-B.5.......Addr=D5 AA AD, DATA MAX=25
Pulsar ][ --------- 0-C
                    13-19
                    1A.5-1D.5
Dark Forest ------- 0-0...........Addr=DD AD DA, SYNC
                    1-22..........Addr=D5 AA A5, SYNC
                        (Errors on 6-8 and last few tracks OK)
Twerps ------------ 0-0...........Addr=DD AD DA, SYNC
                    1.5-E.5.......SYNC
                    1A-1A
Borg -------------- 0-0...........Addr=DD AD DA, SYNC
                    1.5-B.5.......SYNC
                    D-20..........SYNC
Wayout ------------ 0-1C..........Addr=AD DA DD
                    22-22.........Addr=AA D5 D5 FF D6 FF FD
                    21-21.........Addr=AA,  USE NIBBLE COUNT
                                     SYNC SIZ=0A, MATCH NM=06
```

Software Publishing Corp
PFS/PFS Report ---- 0-0...........Addr=93 F3 FC FF
                              Ins=93 F3 FC FF
                              Offset -2, SYNC SIZ=0A
                   1-13..........Addr=D5 AA 96, Ins=D5 AA 96
NOTE: Write Protect the backup diskette BEFORE using!!!


Softape:
Photar ----------- 0-22..........Addr=D5 AA 96


Special Delivery Software:
Personal ---------- 0-22...........Addr=D5 AA 96
  Finance Manager


Stoneware:
DB Master (old) --- 0-5...........Addr=D5 AA 96
                   6.5-22.5
DB Master (new) --- 0-5...........Addr=D5 AA 96, SYNC
                   6.5-22.5
Strategic  Simulations:
Cartels & --------- 0-0...........Addr=D5 AA B5
  Cuthroats        2-22..........Addr=DB D5 DE
Operation          1-1...........Addr=D5 AA DA FF
  Apocalypse
Torpedo Fire ------ 0-22..........Addr=D4 AA B7
Southern Command


Sublogic:
FS-1 -------------- 0-0
                   1.5-21 by 1.5..Addr=DB AB BF
                                      REDUCED ERROR CHECK
                   7-8...........REDUCED ERROR CHECK
                   9.5-9.5.......REDUCED ERROR CHECK
Saturn Navigator -- 8-22..........Addr=D5 AA FD, FIND MAX=08
                       (Errors on $11 and $17 OK)
                   6.5-6.5.......FF FF D5 AA, FIND MAX=0C
                   0-4...........Addr=D5 AA B5
                   11-11
Escape ------------ 0-22..........Addr=D5 AA 96
A2-PB1 Pinball ---- 0-0...........Addr=D5 AA 96, DATA MAX=25
                   1-15..........Addr=DB AB BF
Synergistic  Software:
Escape from ------- 0-22..........Addr=D5 AA 96, 'OVERIDE STANDARDIZER'
    Arcturus                     'OVERIDE NIBBLE FILTER'




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Turnkey  Software:
Ceiling Zero ------ 0-2............Addr=D5 AA B5
                   3-11..........Addr=D6 AA B5
                            Ins=DE AA EB F9, SYNC SIZ=0A
USA  Software:
Apple World ------- 0-23
Star Dance -------- 0-22..........Addr=D5 AA B5


VIDEX  CORP
Pre-Boot System --- 0-22..........Addr=D5 AA 96


Visicorp:
Visicalc 3.3 ------ 0-0...........Addr=D5 AA 96
                   2-22..........Addr=D5 AA B5
                       (Errors toward end OK)
Visidex ----------- 0-22..........Addr=D5 AA 96, Ins=DE AA EB FD
                              SYNC SIZ=0A, FIX AMNT=04
Visiterm ---------- 0-22..........Addr=D5 AA 96, Ins=DE AA EB FC
                              SYNC SIZ=0A, FIX AMNT=04
Visitrend --------- 0-22..........Addr=D5 AA 96, Ins=DE AA EB
  /Visiplot                     SYNC SIZ=0A, FIX AMNT=04
Desktop Plan II --- 0-22..........Addr=D5 AA 96, Ins=AA EB FD
                              SYNC SIZ=0A, FIX AMNT=04
Visifile ---------- 0-22..........Addr=D5 AA 96, Ins=DE AA EB
                              SYNC SIZ=0A, FIX AMNT=04
Visischedule------- 0-22..........Addr=D5 AA 96, Ins=DE AA EB EC
                              SYNC SIZ=0A, FIX AMNT=04
XPS  SOFTWARE
Apple-cillin------- 0-D...........Addr=D5 AA 96
```

presents

# APPLE - LINK
## A Communications System

<  Price   >                                          <  F R E E  >
<  $ 59.95 >          F E A T U R E S                 <  Back-up  >
                      ---------------------

* **TRANSMIT & RECEIVE**......Send or Receive 'ANY' type of file between Apple II
  Systems; (Inc. Random Access Text, and Relocatable)

* **EASY TO USE**............Complete **MENU DRIVEN** operation requires **NO** previous
  Communications experience.

* **MULTI-FILE TRANSFER**.,...Select  as many files  as desired  for  Transmit or
  Receive, with complete **AUTOMATIC** file transfer.

* **UNIQUE FILE SELECTION**...Both  SEND  &  RECEIVE  catalogs  are displayed  on
  screen, with 'Single Keystroke Selection' of files,
  <as many as you want !>,  for  transfer.   NO File
  Conversions by User.  Just Select and Go...

* **REAL  TIME  CLOCK**.......Exact **File Transfer Time** is displayed on screen, in
  Minutes & Seconds, during the transfer process.....

* **ONLY ONE A-L NEEDED**.....Complete File Operation requires only 'one' side to
  have the  **APPLE-LINK Communications System** !!

* **COMPLETE ERROR CHECK**....All  file transfers  are **checked for errors**, and if
  detected, will retransmit the bad block until it is
  received correctly ... **No more BAD data**...

* **XFER COMPLETION REPORT**..As an operator aid, a **Transfer Completion Report** is
  generated automatically showing the  status  of all
  selected files. Errors,  displayed in inverse, show
  type of problem encountered, for **easy** correction.

* **CONVERSE  MODE**.........Allows two operators to **Communicate** using the apple
  keyboard.

* **DIRECT TO DISK XFER**.....**APPLE-LINK** reads and writes  directly  to diskette,
  eliminating Load/Save time and **reducing phone costs**

presents

## APPLE  —  CRYPT
### Disk  Encryption Device

APPLE-CRYPT is a unique **DATA ENCRYPTION SYSTEM** that employs both Hardware and Software to protect your sensitive information from  unauthorized disclosure.

**When activated,** APPLE-CRYPT provides DATA ENCRYPTION for ANY type of work that is  Read  from,  or Written to the Diskette,  using standard  DOS  3.3 format. Program  development,  as  well  as data derived from the use of  other vender software, may be encrypted using the supplied UTILITY < CRYPT/DE-CRYPT >.

> **HARDWARE SUMMARY:** APPLE-CRYPT comes with a plug-in circuit board with attached  KEY receptacle.  A  programable pocket sized  KEY  is removed  from the system receptacle when unauthorized use of the system is to be avoided.

> **SOFTWARE SUMMARY:** APPLE-CRYPT provides the user with 4 levels of protection..
> 1..The  Disk Encryption Software that actually encodes the data on the diskette.
> 2..The Programable receptacle pocket Key.
> 3..PASSWORD protection when Key is  installed. In-house (employee) security is provided by User changeable  passwords,  which may only be changed by selectable supervisors.
> 4..**APPLE-CRYPT**  is unique  for every  customer ie. Keys are made to operate on  One system only, and will  not  function on  different **APPLE-CRYPT** Systems...

Utility Disk provides 'Backup capability' for  archival purposes

— — — — — — —

Contact  ---> **COMPUTER:applications Inc.**  <--- for additional information

presents

# AUTOMATED BUILDING DIRECTORY SYSTEM

## With   Direct   Telephone   Dialing

Installed  in  a secure cabinet in the lobby of a large  office  building,
this  system  provides a complete Tenent/Personal listing,  along  with  direct
Auto-Dial telephone service to any occupant listed.  Emergency Numbers may also
be listed under seperate catagories to Page: Security, Maint, Manager, and etc.

This  unique  directory  system   eliminates the need for  the  public  to
personally visit an office, by providing telephone service from the main lobby.
Building traffic is effectively reduced, with increased security and effiency.

SIMPLE KEYPAD OPERATION....The entire system is easily operated by remote
                           keypad containing  single keystroke operations
                           The computer hardware is stored, out of sight.

AUTO-DIALING TELEPHONE.....Telephone access to any listed personal is
                           completly automated by the computer. Selected
                           persons are displayed on screen and dialed by
                           the computer.

MULTI-LANGUAGE SUPPORTED...Users may select multiple languages, with all
                           screen prompts,  and data  appearing  in  the
                           respective language. (Eng. Spanish French etc)

BUILDING SECURITY.........Utilizing a computerized Telephone/Directory
                           system, Building Security can be achieved by
                           requiring the public to identify before access
                           to the building is given.

EFFECTIVE ERROR RECOVERY...With any public access, electronic device, the
                           need for effective error recovery is enhanced.
                           This system will prompt the user to: Pick/Hang
                           up the phone, and display pre-dial verification
                           of person being called. A time out feature has
                           been incorporated to return the system to its
                           starting point if left unattended during use..

MULTIPLE TERMINALS........Using the CORVUS Hard disk, multiple terminals
                           may be incorporated for the larger size office
                           building,  providing  instant  access  to  the
                           public directory system.

FLEXIBLE EDITING..........Adding, deleting, or  changing  information in
                           the  system is  accomplished by a  menu driven
                           editing system providing fast data entry.

FAST DATA ACCESS..........Requested tenent information is displayed on
                           screen quickly, to maximize effiency.

CUSTOM GRAPHIC SCREEN......If desired, your corporate logo is displayed
                           on the computer screen at all times when the
                           system is in an idle condition; identifying the
                           building host Corporation.

presenting the

## COMPUTERIZED PAGING SYSTEM

The 'COMPUTERIZED PAGING SYSTEM' provides the means to selectively notify
customers or employees that their attention is required. Television stations
positioned throughout the place of business display a sequence of numbers
indicating the persons being paged.

FULL COLOR.........Using the many different colors provided by the
VIC-20 Computer. a pleasant balance is achieved
for ease of viewing.

VIDEO MARQUEE.......A 'Video Marquee' is provided at the bottom of
the screen to display any or all of SIX user
entered messages.

UNIQUE DISPLAY......Selected numbers are flashed Full Screen Size
and then placed on screen with an animated
Custom Logo. 16 two digit numbers may be stored
on the system at one time.

EASE OF USE.........NO special computer knowledge is required to
operate the system. Paging is initiated by a
remote keypad independent of other functions

HI-RES GRAPHICS.....Ultra smooth high resolution graphics, are used
throughout the system to separate our system
from the competition.

CUSTOM LOGO.........If desired, a Custom Logo can be developed free
of charge to 'animate' the prompted number.

BATTERY BACKUP......Provides uninterupted computer operation in the
event of a power outage. NO DATA LOSS!!!

SYSTEM BACKUP.......An additional custom cartridge may be purchased
at a nominal fee, providing additional backup.

WARRANTY INFO.......90 days parts and labor

The above system, primarlly used in restaurant applications, includes the
VIC-20 computer, wired entry keypad, and a custom built cartridge.

Please contact COMPUTER:applications, Inc. for additional information.