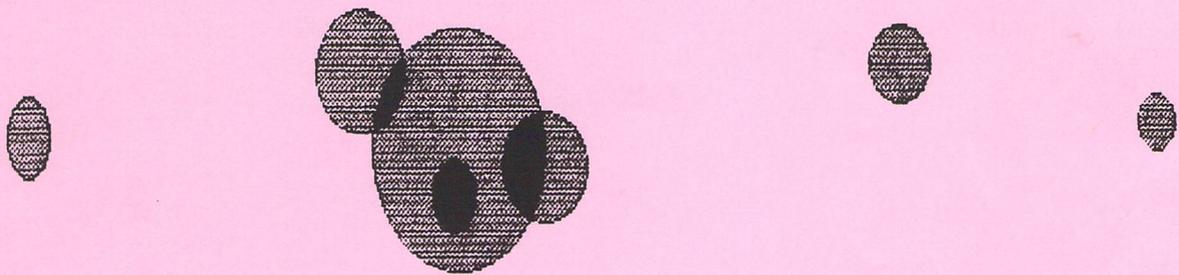


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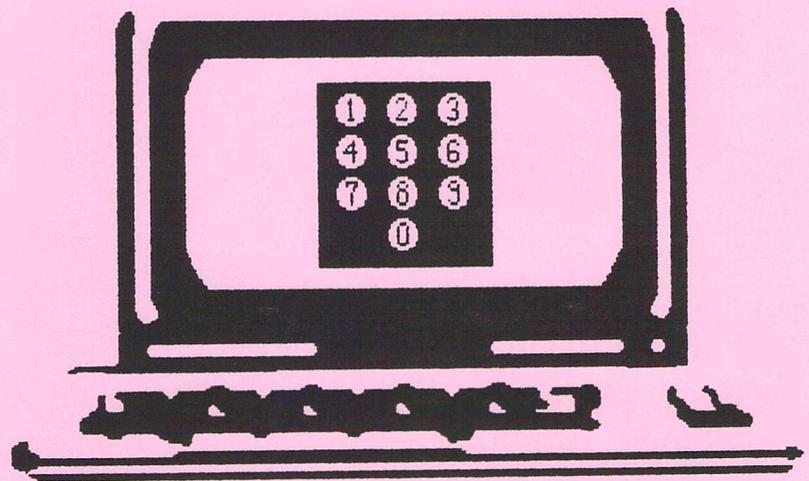
\$1.75 (USA)

# dieHard

the Flyer for commodore 8biters



Tips and Trivia  
Not So Just So Stories  
PAPSAW  
Reviews  
PRG



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# INSIDE STUFF:

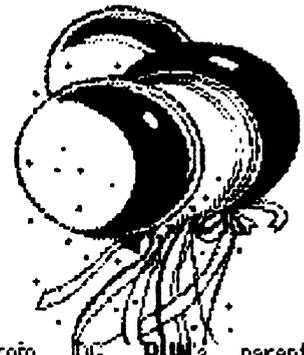
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# View From The Underground

by

Brian L Crosthwaite



HAPPY NEW YEAR!

Subscriptions are pouring in! Fender Tucker of **LOADSTAR** did a write up on us and all he had to say about our Flyer was good stuff. If you do not yet subscribe to **LOADSTAR**, by all means do so. It is highly recommended, see October 92 issue for REVIEW.

I know there are lots of 64 and 128 stuff like this that is around, but I don't want to forget our readers who have 20s, 16s, 4s, PETs and CBMs. As you know we have no PETs or CBMs here to work with, but if you program for these machines send us some stuff and we'll take a look. We can run some of them with emulators. We have BASIC 2, 3.5, 4, and 7. Are there any specialty groups out there for the 20, 16, 4, PET or CBM? Write us and let us know, we'll put your contact points (address and phone) into our **Rarities** column.

Speaking of **Rarities**, this month we feature the Treasure Valley/Boise User Group. This is a good place to start, while we are reaching out to more places across the contry, we need to get the ball rolling now on our LIST. TV/BUG is near by and I know the President personally... ah, well, I am the Preseident.

Developers! Send us your wares for REVIEW! We'll get the word out to the underground. We will review shareware!

With the New Year comes new angles and new ideas. The **Spinner** is doing well, the **Flyer** is starting to take off, and we've a vast uncharted territory to explore.

Last year the **commodore 64** turned 10 years old, and I missed it. Somehow, I thought it came out in 1985, probably because in reading the VIC history I read it came out in 1982.

I caught the 64 bug in '83. When I got my second computer, a **commodore 64**, I called it Noesis Leopard (pronounced Leo pard -- rhymes with bard), named after the Greek God of intelligence. Noesis died of sinility less than a year latter. Noesis was "refurbished."

Noesis Leopard II is fairing well, he's got a bad RF modulator that sends power to the VIC II when a tv is plugged into it, but other than that he's perfectly normal. I still only had a tape drive and **commodore microcomputers and Power Play**.

**CompuTel's Gazette** came into my reality. Around the time I first saw Uptime (I thought it was some IBM thing -- then why did they have a 64 version?), there was this other magazine called **RUN**. The BSU book store had it and I seem to remember that it was on disk, although looking back that must have been the **ReRUN** disk.

I persued neither. It was not until 1988 that I recieved my first copy of the April issue. (Just a note here, I have two copies of that issue.) I tried out **Uptime** as well. I got one six issue subscription to **ReRUN**, I wish I could have afforded to be a regular, but book costs were astronomical.

The last few issues of **RUN** were rather small, but they still managed to pack a full punch with readers letters, solid reviews and those wonderful type-in programs. The **RUN** catalogue was rich with 64/128 reality.

I was talking to the TV/BUG librarian, Doug Parsons, about what we were going to put in our articles and since his was getting a little large and mine was so dismally small he filled me in on some of what he heard about the demise of **RUN**. I can't say these are the official facts, so bear that in mind.

**RUN** staff was just finishing the January/February issue when they got

word from **IBG**, **RUN's** parent company. The subscribers will be compensated in some way, probably with alternate magazine subscriptions. The **RUN** catalogue will remain available. As for the **RUN Forum** on Q-Link, no word on that, although I was told by a club member that nothing had been placed into it since 1988.

I wonder of the work that was to be the January/February issue. You'd think if it had been finished they'd have let it get released and say, "Goodbye." Maybe they will place it into the catalogue.

**RUN** shall be missed. To the writers and staff -- Fare thee well.

**Phone Lines** is this month's feature program. There are several vertions of this program. On the **Spinner** there is a REMed out version called PL CONVERSION PG to load and convert how ever you see fit. There is also a binary file called PHONE PAD that you can BLOAD into 8192 of a 16, +4, 64 or 128.

We have a special treat by Joel Rea and Jim Weiler. The first installment of **DOS AND DON'TS** from **LOADSTAR** #1, an article on the ins and outs of CBM-DOS. Since the actual contents of the first article is of a historic nature it will appear in the **commodore trivia** column, I hope you enjoy it. It is a very enlightening and entertaining account of **commodore** history.

Have a fantastic  
1993!!

READY.  
■

# Cassette Hacking

by

Brian L. Crosthwaite

The Nineties are the age of tape back up. For those **commodore** owners who are fortunate enough to not only have a Datasette, but also to have gotten **LOADSTAR** number 10 (or have gotten the April '85 issue of **Microcomputers**), there are two programs by Lynn Minniti for tape backup. One program makes backups of your disks onto tape and the other reads the information back to disk. (Just an editorial comment here, **commodore** had hard drives long before anyone outside business ever heard of them, and back in '85 we had this backup option available to us. Although, back then I backed my cassettes up onto disk...)

Now, in 1993, we have gone full circle, with used equipment popping up now and then -- and used software, much of which is on tape. I occasionally find a cassette that sparks my interest at some hidden away shop outside Soho or Bangkok. But they never come with instructions, so a little hacking is in order. So how to begin...

Well, first off, I load the program, and since it is either for the 64 or VIC (these instructions should work with all 8bits), I just put it in the Datasette, close the door and press rewind (to make sure the tape is at the beginning and isn't loose). When the tape stops I

press the stop button and reset the counter. Now I press that old **<SHIFT><RUN/STOP>** combination. If the computer is a 128 (in 128 mode) or a Plus4 or 16 you will have to simply type **LOAD** then **<RETURN>**. Lots of the old programs were either in BASIC or loaded from a BASIC program or machine language program loaded at the start of BASIC.

First you'll see:

## PRESS PLAY ON TAPE

Upon pressing play, you'll see:

## OK SEARCHING

On the 64 and 128 the screen will just go blank and you will not see these messages right away. On the 16 and Plus4 you'll see the messages for a second before the screen blanks. On the VIC (the coolest of all) you get to see the messages and no blanking will occur. After a few seconds you should see:

## FOUND FILENAME

Now, write down the file name just as you see it. You may have to hit stop, but you should be able to get it before any auto load occurs. If you have to, start over. If all goes well, you can press either the **<C>** key or **<SPACE>** or wait for the auto load (the computer will just load the program). Then --

## LOADING FILENAME

will appear, however brief, depending on your machine. Now,

the crucial stage, you'll see:

## RUN

Unless you just typed **LOAD** alone, then type **RUN** and **<RETURN>**. The program may also run itself automatically, in which case you will not see **RUN**, nor will you get the opportunity to type it. If the program takes off, you're in good shape. If not, you may need to rewind and start over. If you get garbage when you type **LIST** and **<RETURN>**, the program is probably a machine code file. You may have to reset the computer, either with the reset switch or turning the machine off. Shut off for at least 2 seconds; if you were doing something prior to this operation, leave it off for 30 seconds then turn it back on. If you don't get garbage then you may be fine.

If you got garbage, start again. Instead of using the **<SHIFT><RUN/STOP>** to load, type the following:

## LOAD"FILENAME",1,1

**FILENAME** is the name you wrote down earlier. The first "1" is the device and the second "1" is a secondary address. This tells the computer to load a program from cassette into the same location in memory as the program was saved from. Most machine language programs are loaded this way to place them in the right place in the computer's memory. It will usually begin execution of the program. It might not -- that's

our next step.

If the program loads and runs -- cool. Time to play with your new found friend. If, however you get the "READY." prompt and a cursor, type LIST and <RETURN>. If nothing lists then you probably loaded ok, if you see a jumble of graphics on the screen then something went wrong -- did you remember ,1,1 after the file name?

If you just get the "READY." prompt, it's not over yet. Try typing in SYS commands. A good guess to start with might be SYS49152 (64) or SYS32592 (VIC), SYS30000 (64) is a frequently used address. If the cassette is an Atari game for the 64, SYS64738 is usually the start vector. Use some SYS addresses that are familiar to your machine, look through magazine type-in programs that load machine code and commercial programs for possible addresses. If you know the author's name and have other programs by the same person, he or she may place programs into the same address out of habit. If you have a machine language MONITOR you may be able to use it to locate the address, or enter the program at some point of execution. -- Hey, I said hacking didn't I?

Most machine code files should run from loading and not a SYS command.

If you don't get a file name at all when you first try to load, the cassette may be blank or be for another computer altogether. To find out if it has anything at all

on it, just pop it into an regular audio cassette player, if there is a program on it you'll hear a high pitched squealing sound.

The 128, 64 and VIC can't read a cassette written by a 16 or Plus4 and visa versa even if you used the same Datassette (with an adapter, of course). So the if the computer can't find a file name and the audio test says it's a computer cassette, it may fall into this category.

Of course, if there is information on the label that tells you how to load the program that's your best bet. If that doesn't do it then the information on the cassette may be corrupt. Different versions of the same program often came on the same cassette, i.e. one side VIC and the other side 64. Make sure you have the right side up. Also, the labels may be on the wrong side of the cassette; VIC is shown to be on side 1, when it is in fact, on side two. This is not too likely, but it could happen.

Loading up old unseen or long forgotten programs from cassette can be a fun and sometimes surprising experience. I wish you luck on your future glimpses into the past -- HAPPY HACKING!

READY.  
■

## Tip of the Month

by  
Brian L Crosthwaite

### NO SCROLL 128

I hear people all the time complaining that the 128's no scroll key has no function. Well, not in my life! You can use it every day. I do. When I have to search disks for a certain file, I go to the 128's 80 column screen with my disk in the drive and hit <F3>. The drive spins and the display fills up with the contents -- hold it, not so fast! I don't have time to waste, so I don't want to miss it the first time. Holding the <C=> key doesn't cut it for me and I'm not going to hit <STOP>. I hit the <NO SCROLL> key and everything halts until I'm ready. I press it again and the long directory moves on and places new info onto the screen. I only have to read the directory once, so I only see the info once and am not confused about where things are. Nothing is lost, and if you forget to press it again while accessing your drive, don't worry, the light will stay on but the motor will stop and the disk will stop spinning. I can also control the listings of my programs when I'm looking at program code.

This method along with the <ESC><T> combination, allow me to compare directories. I just call up the first directory and stop it where I want it to be on the screen. I then hit <HOME> and cursor over to the top right of the listing, hit <ESC> then <T>, swap disks, and read the next directory, and I can place 3 directories on screen at once, or list one long one.

READY.  
■



Device No. 3001  
by  
Brian L. Crosthwaite

Lots of people have asked me, "Brian, where do you get your ideas?"

"By accessing device number 3001." That's my brain's device number. Actually, if I wanted a better device-number-kind-of-parody, I'd say my phone number -- that way people could access me and the analogy would be a little better. But that's not what we're talkin' about here. What are we talking about here? Device numbers on the **commodore** computers. Here is a list, it may differ from your set up as every aspect of the computer is programmable -- even the unprogrammable:

<u>Device</u>	<u>Device Nr.</u>
keyboard.....	0
cassette (illegal on SX64 and DX64).....	1
modem (RS232).....	2
48 column text screen.....	3
printer (default).....	4
printer (assigned).....	5
printer plotter.....	6
printer (assigned).....	7
disk drive (default).....	8
disk drive (selected or assigned).....	9
disk drive (selected or assigned).....	10
disk drive (selected or assigned).....	11
disk drive (assigned).....	12
disk drive (assigned).....	13
disk drive (assigned).....	14
disk drive (assigned).....	15

Default is the number set at the factory. That's usually the way it is at power up.

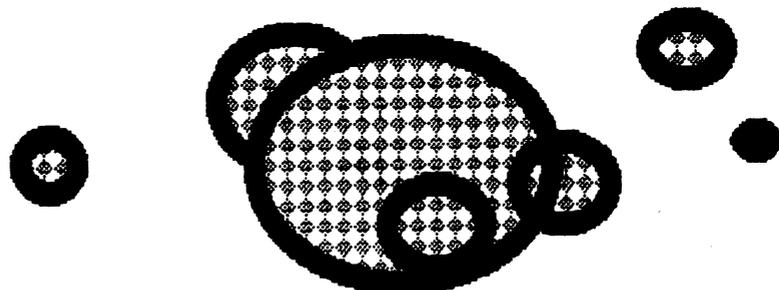
Assigned is set with dip swiches to make a new default value, that is it will default to the new value upon power up. This is often called hard wiring, or a hardware setting.

Selected means it was programmed to be a different number than the default or assigned number. This is also called soft wiring.

READY.



Heavy Metal



# PRG

by  
Brian L. Crosthwaite

As many of our readers know, we've been featuring learning-fun programs. This month is no exception! We've got an imagination game for young ones and not so young ones alike. Our feature program is Phone Lines in it's various forms. The programs ultimately do the same thing, they draw a phone's number pad and draw lines from one number to the next to dial the phone with a number entered by the child.

The program is pretty straight forward. After the phone has dialed the screen will clear and only the lines will be redrawn, revicing a pattern. Letters can also be entered and their number equivalent will be dialed. The cross tones are sounded on the 64 and 128 versions. If you hold a touch tone phone close to your monitor's speaker with the volume up, it should dial the phone as these are the actual cross tones to dial a touch tone phone. They are called cross tones because there are actually only seven different frequencies. Three for each separate column of numbers 1029 Hz (1, 4, 7, and \*), 1336 Hz (2, 5, 8, and 0), and 1477 Hz (3, 6, 9, and #). The other four are for each row of numbers 697 Hz (1, 2 and 3), 770 Hz (4, 5, and 6), 852 Hz (7, 8, and 9), and 941 Hz (\*, 0, and #).

The VIC20 version is set up for the tones but the pokes have been left out because of lack of time. When I get a frequency conversion chart and some time I'll implement and include the updated version on the Spinner.

On the Spinner, the 16+4 version has a ghost. Actually, so do the 64 and 128 versions. The original screen was designed with a program that put some mysterious code into memory, and unfortunately the program seems to keep good track of this elusive BUG.

As always, type carefully and enjoy. These programs are available on the Spinner for \$5, plus \$2 postage. DieHard the Spinner, P. O. Box 392, Boise, Idaho, 83701. The Spinner has extra programs not found in the Flipper.

## Listing 1 Phone Lines.128

```

2 COLOR1,1:COLOR2
10 GRAPHIC0,1:PRINTCHR$(142):SID=54272
:CO=1:FAST:GRAPHIC1,1:GOSUB2000
:GOSUB3000:GOSUB4000:GOSUB5000
100 PRINT"(HOME)C=2(49 space)"
110 PRINT"(50 space)"
120 PRINT"(39 space)ABC(4 space)D";
130 PRINT"EF(24 space)1(6 space)2(6 space)3
(6 space)";
140 PRINT"(48 space)";
150 PRINT"(48 space)";
160 PRINT"(42 space)GHI";
170 PRINT"(3 space)JKL(4 space)MNO
(24 space)4(6 space)";
180 PRINT"5(6 space)6(25 space)(11 space)";
190 PRINT"(48 space)";
200 PRINT"(48 space)";
210 PRINT"(12 space)PRS(4 space)TUV
(4 space)WXY(15 space)";
220 PRINT"(9 space)7(6 space)8(6 space)9
(20 space)";
230 PRINT"(46 space)";
240 PRINT"(48 space)";
250 PRINT"(36 space)OPERC(6 space)";
260 PRINT"(25 space)X(6 space)9(6 space)#
(4 space)";
270 PRINT"(50 space)";
280 PRINT"(50 space)";
290 PRINT"(39 space)HOOK(5 space)";
300 PRINT"(27 space)RDL(37 space)";
310 PRINT"(13 space)";
330 PRINT"(HOME)C=2 (use down)
(39 use right)CHR$(27)B(CLR)"

```

```

340 INPUT"(HOME)ENTER PHONE
NUMBER:NR$:IFNR$=""THEN340
350 FAST:GRAPHIC1,0:GOSUB5000:GOSUB
1000 REM ***** PHONE LINES
128 *****
1010 REM ***** (5 space)NOVEMBER 26 1992
(5 space)*****
1010 REM ***** (6 space)COPYRIGHT 1992
(6 space)*****
1012 REM ***** (2 space)LVNHCARTHY
(2 space)INDUSTRIES(2 space)*****
1012 REM ***** (4 space)ALL RIGHTS RESERVED
(2 space)*****
1020 REM ***** BY BRIAN CROSTHWAIT FOR *****
1030 REM ***** ANTONY BRIAN CROSTHWAIT *****
1040 REM ***** MY BABY BOY -- 13 MONTHS *****
1050 REM (30 *)
1060 WM=319:VM=193:WC=311/2:VC=VM/2
1070 GRAPHIC1,0
1132 GOSUB5000:GOSUB7000
1993 GOTO6000
2000 REM ***** NUMBER PAD *****
*****
2002 CHAR1,0,32/8,"(18 space)ABC(4 space)DEF"
2012 CHAR1,0,40/8,"(12 space)1(6 space)2
(6 space)3";
2020 CHAR1,0,64/8,"(11 space)CH(4 space)JKL
(4 space)MNO";
2030 CHAR1,0,72/8,"(12 space)4(6 space)5
(6 space)6";
2040 CHAR1,0,96/8,"(11 space)PRS
(4 space)TUV(4 space)WXY";
2050 CHAR1,0,104/8,"(12 space)7(6 space)8
(6 space)9";
2070 CHAR1,0,126/8,"(13 space)0(8 space)"
2072 CHAR1,0,(131-3)/8,"(12 space)X
(5 space)Y(5 space)Z";
2090 CHAR1,0,163/8,"(11 space)OFF
(11 space)RDL"
2099 RETURN
3000 FORN=100TO220STEP56
3010 FORV=33TO170STEP32
3020 IFX=156ANDY=166THEN3030
3022 CIRCLE1,X,Y,21,15
3024 CO=CO+1:IFCO=16THENCO=1
3026 COLOR4,CO
3030 NEXT:NEST
3040 RETURN
4000 BOX1,73,16,240,133
4010 PRINT1,77,12
4030 RETURN
5000 FL=1:FORL=1TOLEN(NR$)
5010 IFMID$(NR$,L,1)=""THENX1=156
:V1=134:R=4:C=2:GOSUB10000
5020 IFMID$(NR$,L,1)=""THENX1=100
:V1=134:R=4:C=2:GOSUB10000
5030 IFMID$(NR$,L,1)=""THENX1=156
:V1=134:R=4:C=2:GOSUB10000
5040 IFMID$(NR$,L,1)=""THENX1=212
:V1=134:R=4:C=3:GOSUB10000
5050 IFMID$(NR$,L,1)=""THENX1=100
:V1=107:R=2:C=1:GOSUB10000
5060 IFMID$(NR$,L,1)=""THENX1=156
:V1=107:R=2:C=2:GOSUB10000
5070 IFMID$(NR$,L,1)=""THENX1=212
:V1=107:R=2:C=3:GOSUB10000
5080 IFMID$(NR$,L,1)=""THENX1=100
:V1=102:R=3:C=1:GOSUB10000
5090 IFMID$(NR$,L,1)=""THENX1=156
:V1=102:R=3:C=2:GOSUB10000
5100 IFMID$(NR$,L,1)=""THENX1=212
:V1=102:R=3:C=3:GOSUB10000
5110 IFMID$(NR$,L,1)=""THENX1=100
:V1=134:R=4:C=1:GOSUB10000
5120 IFMID$(NR$,L,1)=""THENX1=212
:V1=134:R=4:C=3:GOSUB10000
5130 IFMID$(NR$,L,1)=""THENX1=100
:V1=166:POKESID+24,0:GRAPHIC0,1
:PRINT"(2 HOME)";END
5140 IFMID$(NR$,L,1)=""CHR$(95)THENX1=212
:V1=134:GRAPHIC0,RUN
5145 IFFL=1THENX2=31:V2=1:FL=0
5150 DRAW1,31,V1TO22,V2:32=31:V2=V1
5160 NEXT:POKESID+24,0
5500 RETURN
6000 GRAPHIC1,1:GOSUB5000:GETKEY$
:GRAPHIC0,1:RUN
7000 CHAR1,16/8,131/8,"(3 space)

```

```

PRESS (SPACE) TO VIEW PATTERN"
7010 GETKEY$
7020 CHAR0,16/8,131/8,"(3 space)
PRESS (SPACE) TO VIEW PATTERN"
7030 RETURN
8000 REM ***** READ ALPHA/WRITE *****
8002 NR$=""*NR$""
8010 SLEN(LEN(NR$)):FORL=1TOST
8020 R$=MID$(NR$,L,1)
8030 IFA$=""ORR$=""ORR$=""THENNR$=
LEFT$(NR$,L-1)+R$+RIGHT$(NR$,SLEN-1)
8040 IFA$=""D"ORR$=""E"ORR$=""F"THENNR$=
LEFT$(NR$,L-1)+R$+RIGHT$(NR$,SLEN-1)
8050 IFA$=""G"ORR$=""H"ORR$=""I"THENNR$=
LEFT$(NR$,L-1)+R$+RIGHT$(NR$,SLEN-1)
8060 IFA$=""J"ORR$=""K"ORR$=""L"THENNR$=
LEFT$(NR$,L-1)+R$+RIGHT$(NR$,SLEN-1)
8070 IFA$=""M"ORR$=""N"ORR$=""O"THENNR$=
LEFT$(NR$,L-1)+R$+RIGHT$(NR$,SLEN-1)
8080 IFA$=""P"ORR$=""Q"ORR$=""R"THENNR$=
LEFT$(NR$,L-1)+R$+RIGHT$(NR$,SLEN-1)
8090 IFA$=""T"ORR$=""U"ORR$=""V"THENNR$=
LEFT$(NR$,L-1)+R$+RIGHT$(NR$,SLEN-1)
8100 IFA$=""W"ORR$=""X"ORR$=""Y"THENNR$=
LEFT$(NR$,L-1)+R$+RIGHT$(NR$,SLEN-1)
8110 NEXT:NR$=MID$(NR$,2,SLEN-2)
8300 RETURN
8399 END
10000 REM PHONE TONES
10010 POKESID+24,15:POKESID+4,16
:POKESID+11,16:POKESID+5,16:POKESID+12,16
10020 POKESID+6,15:16
:POKESID+13,15:16:POKESID+23,16
10030 REM ***** SET UP CROSS-TONES *****
10170 REM ***** ***** ***** ***** ***** ***** ***** ***** ***** ***** *****
10120 IF C=1 THEN POKESID,117:POKESID+1,77
10190 IF C=2 THEN POKESID,152:POKESID+1,85
10200 IF C=3 THEN POKESID,161:POKESID+1,94
10210 IF R=1 THEN POKESID+7,163:POKESID+8,44
10220 IF R=2 THEN POKESID+7,25:POKESID+8,49
10230 IF R=3 THEN POKESID+7,150:POKESID+8,54
10240 IF R=4 THEN POKESID+7,74:POKESID+8,60
10244 IF C=0 AND R=0 THEN 10230
10250 REM ***** TURN TONES ON ***** ***** *****
10260 POKESID+4,11:POKESID+11,17
:FORI=1TO50:NEXT
10270 REM ***** TURN TONES OFF ***** ***** *****
10280 POKESID+4,16:POKESID+11,16
10290 REM ***** VOYAGEUR STUDIOS ***** *****
10320 RETURN

```

## Listing 2 PHONE LINES.564 For 64 with Super Expander

```

1000 COLOR1,0,0
1010 GRAPHIC0,1:PRINTCHR$(142):SID=54272
:CO=1:GRAPHIC2,1:GOSUB1410:GOSUB1520
:GOSUB1600
1012 GRAPHIC0
1020 PRINT"(HOME)C=(1 2)(49 space)";
1030 PRINT"(50 space)";
1040 PRINT"(39 space)ABC(4 space)D";
1050 PRINT"EF(24 space)1(6 space)2
(6 space)3(6 space)";
1060 PRINT"(48 space)";
1070 PRINT"(48 space)";
1080 PRINT"(42 space)GHI";
1090 PRINT"(3 space)JKL(4 space)MNO
(24 space)4(6 space)";
1100 PRINT"5(6 space)6(25 space)(11 space)";
1110 PRINT"(48 space)";
1120 PRINT"(48 space)";
1130 PRINT"(12 space)PRS(4 space)TUV
(4 space)WXY(15 space)";
1140 PRINT"(9 space)7(6 space)8(6 space)9
(20 space)";
1150 PRINT"(46 space)";
1160 PRINT"(48 space)";
1170 PRINT"(36 space)OPERC(6 space)";
1180 PRINT"(25 space)X(6 space)9(6 space)#
(4 space)";
1190 PRINT"(50 space)";
1200 PRINT"(50 space)";
1210 PRINT"(39 space)HOOK(5 space)";
1220 PRINT"(27 space)RDL(37 space)";
1230 PRINT"(13 space)";
1270 INPUT"(ENTER PHONE NUMBER):NR$
:IFNR$=""THEN1270

```

```
1230 GRAPHIC2,0:GOSUB1870
1230 REM ***** PHONE LINES *****
*****
1200 REM ***** NOVEMBER 26 1992
*****
1200 REM ***** COPYRIGHT 1993
*****
1210 REM ***** LYNNCARTHY
*****
1220 REM ***** ALL RIGHTS RESERVED
*****
1230 REM ***** BY BRIAN CROSTHWAIT FOR *****
1240 REM ***** ANTONY BRIAN CROSTHWAIT *****
1250 REM ***** MY BABY BOY -- 13 MONTHS *****
1260 REM *****
1270 WM=219:VM=199:XC=XM/2:VC=VM/2
1280 GRAPHIC2,0
1290 GOSUB1630:GOSUB1830
1400 GOTO1820
1410 REM ***** NUMBER PAD *****
1420 CHAR1,0,32/8,"(13 space)ABC(4 space)DEF"
1430 CHAR1,0,40/8,"(12 space)1(6 space)2
(6 space)3 "
1440 CHAR1,0,64/8,"(11 space)CHI(4 space)JKL
(4 space)MNO"
1450 CHAR1,0,72/8,"(12 space)4(6 space)5
(6 space)6 "
1460 CHAR1,0,96/8,"(11 space)PRS
(4 space)TUUV(4 space)WXYZ"
1470 CHAR1,0,104/8,"(12 space)7(6 space)8
(6 space)9 "
1480 CHAR1,0,136/8,"(13 space)0(2 space)"
1490 CHAR1,0,(131-3)/8,"(12 space)
(5 space)OPR(5 space)* "
1500 CHAR1,0,163/8,"(11 space)OFF
(11 space)ADL"
1510 RETURN
1520 FORX=100TO220STEP56
1530 FORV=32TO170STEP32
1540 IFX=156ANDV=166THEN1530
1550 CIRCLEX,V,21,15
1560 NEXT: NEXT
1590 RETURN
1600 BOX1,73,16,240,128
1610 PRINT1,77,18
1620 RETURN
1630 FL=1:FORL=1TOLEN(NR$)
1640 IFMID$(NR$,L,1)="0"THENX1=156
:V1=134:R=4:C=2:GOSUB2030
1650 IFMID$(NR$,L,1)="1"THENX1=100
:V1=038:R=1:C=1:GOSUB2030
1660 IFMID$(NR$,L,1)="2"THENX1=156
:V1=033:R=1:C=2:GOSUB2030
1670 IFMID$(NR$,L,1)="3"THENX1=212
:V1=033:R=1:C=3:GOSUB2030
1680 IFMID$(NR$,L,1)="4"THENX1=100
:V1=070:R=2:C=1:GOSUB2030
1690 IFMID$(NR$,L,1)="5"THENX1=156
:V1=070:R=2:C=2:GOSUB2030
1700 IFMID$(NR$,L,1)="6"THENX1=212
:V1=070:R=2:C=3:GOSUB2030
1710 IFMID$(NR$,L,1)="7"THENX1=100
:V1=102:R=3:C=1:GOSUB2030
1720 IFMID$(NR$,L,1)="8"THENX1=156
:V1=102:R=3:C=2:GOSUB2030
1730 IFMID$(NR$,L,1)="9"THENX1=212
:V1=102:R=3:C=3:GOSUB2030
1740 IFMID$(NR$,L,1)="*"THENX1=100
:V1=134:R=4:C=1:GOSUB2030
1750 IFMID$(NR$,L,1)="#"THENX1=212
:V1=134:R=4:C=3:GOSUB2030
1760 IFMID$(NR$,L,1)="Q"THENX1=100
:V1=166:POKESID+24,0:GRAPHIC0,1
:PRINT"(CLR)" :END
1770 IFMID$(NR$,L,1)=CHR$(95)THENX1=212
:V1=134:GRAPHIC0:RUN
1780 IFFL=1THENX2=X1:V2=V1:FL=0
1790 DRAW1,X1,V1TOX2,V2:X2=X1:V2=V1
1800 NEXT:POKESID+24,0
1810 RETURN
1820 GRAPHIC2,1:GOSUB1630:
1822 GET$:IF$=""THEN1822
1824 GRAPHIC0,1:RUN
1830 CHAR1,16/8,191/8,"(3 space)
PRESS <SPACE> TO VIEW PATTERN"
1840 GET$:IF$=""THEN1840
1850 CHAR0,16/8,191/8,"(3 space)
PRESS <SPACE> TO VIEW PATTERN"
```

```
1260 RETURN
1270 REM ***** READ ALPHA, WRITE *****
1280 NR$="" :+NR$+""
1290 SL=LEN(NR$):FORL=1TOST
1300 R$=MID$(NR$,L,1)
1310 IFA$="A"ORR$="E"ORR$="I"THENNR$=
LEFT$(NR$,L-1)+2*RIGHT$(NR$,SL-L-1)
1320 IFA$="O"ORR$="E"ORR$="F"THENNR$=
LEFT$(NR$,L-1)+3*RIGHT$(NR$,SL-L-1)
1330 IFA$="C"ORR$="H"ORR$="I"THENNR$=
LEFT$(NR$,L-1)+4*RIGHT$(NR$,SL-L-1)
1340 IFA$="J"ORR$="K"ORR$="L"THENNR$=
LEFT$(NR$,L-1)+5*RIGHT$(NR$,SL-L-1)
1350 IFA$="M"ORR$="N"ORR$="O"THENNR$=
LEFT$(NR$,L-1)+6*RIGHT$(NR$,SL-L-1)
1360 IFA$="P"ORR$="R"ORR$="S"THENNR$=
LEFT$(NR$,L-1)+7*RIGHT$(NR$,SL-L-1)
1370 IFA$="T"ORR$="U"ORR$="V"THENNR$=
LEFT$(NR$,L-1)+8*RIGHT$(NR$,SL-L-1)
1380 IFA$="W"ORR$="X"ORR$="Y"THENNR$=
LEFT$(NR$,L-1)+9*RIGHT$(NR$,SL-L-1)
1390 NEXT:NR$=MID$(NR$,2,SL-2)
2000 RETURN
2010 END
2020 REM ***** PHONE TONES *****
2040 POKESID+24,15:POKESID+16,16:POKESID+11,16
:POKESID+5,...:POKESID+12,...
2050 POKESID+6,15:POKESID+13,15:POKESID+2,15
:POKESID+23,...
2060 REM ***** SET UP CROSS-TONES *****
2070 REM ***** *****
2080 IF C=1 THEN POKESID,117:POKESID+1,77
2090 IF C=2 THEN POKESID,152:POKESID+1,35
2100 IF C=3 THEN POKESID,161:POKESID+1,34
2110 IF R=1 THEN POKESID+7,163:POKESID+8,44
2120 IF R=2 THEN POKESID+7,35:POKESID+8,49
2130 IF R=3 THEN POKESID+7,150:POKESID+8,54
2140 IF R=4 THEN POKESID+7,74:POKESID+8,60
2150 IF C=0 AND R=0 THEN 2200
2160 REM ***** TURN TONES ON *****
2170 POKESID+8,17:POKESID+11,17
:FORI=1TOS0:NEXT
2180 REM ***** TURN TONES OFF *****
2190 POKESID+8,16:POKESID+11,16
2200 REM ***** VOYAGEUR STUDIOS *****
2210 RETURN
-----
Listing 3 PHONE LINES.364
For 64 With Simons' Basic
10 PRINT"(CLR)"CHR$(142)
110 PRINT"(CLR)2(43 space)";
110 PRINT"(50 space)";
120 PRINT"(33 space)ABC(4 space)D";
130 PRINT"(EF)(24 space)(6 space)2(6 space)3
(6 space)";
140 PRINT"(48 space)";
150 PRINT"(48 space)";
160 PRINT"(42 space)CHI ";
170 PRINT"(3 space)JKL(4 space)MNO
(24 space)4(6 space)";
180 PRINT"(5(6 space)6(26 space)";
190 PRINT"(48 space)";
200 PRINT"(48 space)";
210 PRINT"(12 space)PRS(4 space)TUUV
(4 space)WXYZ(15 space)";
220 PRINT"(3 space)7(6 space)2(6 space)9
(20 space)";
230 PRINT"(46 space)";
240 PRINT"(48 space)";
250 PRINT"(36 space)OPER(6 space)";
260 PRINT"(25 space)
(6 space)0(6 space)*
(4 space)";
270 PRINT"(50 space)";
280 PRINT"(50 space)";
290 PRINT"(33 space)HOOK(5 space)";
300 PRINT"(7 space)ADL(37 space)";
310 PRINT"(13 space)";
320 POKESID220,...:POKESID321,...
340 INPUT"ENTER PHONE NUMBER":NR$
:GOSUB2000
1000 REM ***** (2 space)PHONE LINES
*****
1010 REM ***** (5 space)NOVEMBER 25 1992
*****
1001 REM ***** (6 space)COPYRIGHT 1993
*****
1012 REM ***** (5 space)LYNNCARTHY IND.
```

```
(6 space)*****
1014 REM ***** (3 space)ALL RIGHTS RESERVED
*****
1020 REM ***** BY BRIAN CROSTHWAIT FOR *****
1030 REM ***** ANTONY BRIAN CROSTHWAIT *****
1040 REM ***** MY BABY BOY-- 13 MONTHS *****
1050 REM *****
1060 WM=219:VM=199:XC=XM/2:VC=VM/2
1090 HIRE$1,0:COLOUR0,0
1120 WM=0:GOSUB3000:GOSUB2000:GOSUB4000
:GOSUB5000:GOSUBT000
1330 GOTO6000
2000 TEXT0,32,"(12 space)ABC
(4 space)DEF",1,1,3
2010 TEXT0,35-3,"(12 space)1(5 space)",1,2,3
2012 TEXT0,40,"(13 space)2(6 space)3",1,1,3
2020 TEXT0,64,"(11 space)CHI(4 space)JKL
(4 space)MNO",1,1,3
2030 TEXT0,72,"(12 space)4(6 space)5
(6 space)6",1,1,3
2040 TEXT0,96,"(11 space)PRS(4 space)TUUV
(4 space)WXYZ",1,1,3
2050 TEXT0,104,"(12 space)7(6 space)8
(6 space)9",1,1,3
2060 TEXT4,128,"(17 space)OPER(7 space)",1,1,3
2070 TEXT0,136,"(19 space)2(8 space)",1,1,3
2072 TEXT0,121-3,"(12 space)
(13 space)
",1,2,3
2080 TEXT4,163,"(10 space)HOOK
(14 space)",1,1,3
2090 TEXT0,163,"(25 space)ADL",1,1,3
2099 RETURN
3000 FORX=100TO220STEP56
3010 FORV=32TO170STEP32
3020 IFX=156ANDV=166THEN3030
3022 CIRCLEX,V,21,15,1
3030 NEXT: NEXT
3040 RETURN
4000 REC$6,16,200,170,2
4010 PAINT$9,16,1
4020 BLOCK0,0,3M,VM,2
4030 RETURN
5000 FL=1:FORL=1TOLEN(NR$)
5010 IFMID$(NR$,L,1)="0"THENX1=156
:V1=134:R=4:C=2:GOSUB10000
5020 IFMID$(NR$,L,1)="1"THENX1=100
:V1=038:R=1:C=1:GOSUB10000
5030 IFMID$(NR$,L,1)="2"THENX1=156
:V1=033:R=1:C=2:GOSUB10000
5040 IFMID$(NR$,L,1)="3"THENX1=212
:V1=033:R=1:C=3:GOSUB10000
5050 IFMID$(NR$,L,1)="4"THENX1=100
:V1=070:R=2:C=1:GOSUB10000
5060 IFMID$(NR$,L,1)="5"THENX1=156
:V1=070:R=2:C=2:GOSUB10000
5070 IFMID$(NR$,L,1)="6"THENX1=212
:V1=070:R=2:C=3:GOSUB10000
5080 IFMID$(NR$,L,1)="7"THENX1=100
:V1=102:R=3:C=1:GOSUB10000
5090 IFMID$(NR$,L,1)="8"THENX1=156
:V1=102:R=3:C=2:GOSUB10000
5100 IFMID$(NR$,L,1)="9"THENX1=212
:V1=102:R=3:C=3:GOSUB10000
5110 IFMID$(NR$,L,1)="*"THENX1=100
:V1=134:R=4:C=1:GOSUB10000
5120 IFMID$(NR$,L,1)="#"THENX1=212
:V1=134:R=4:C=3:GOSUB10000
5130 IFMID$(NR$,L,1)="Q"THENX1=100:V1=166
5140 IFMID$(NR$,L,1)=CHR$(13)THENX1=212:
5142 IFFL=1THENX2=X1:V2=V1:FL=0
5150 LINEX1,V1,X2,V2,2:X2=X1:V2=V1
5160 NEXT:POKESID+24,0:VX=2
5500 RETURN
6000 PT=0
6010 PT=PT+1:IFPT=1THENPT=0
6020 PAINT0,0,PT
6030 HIRE$1,0:GOSUB5000:GOSUBT000
6040 NR$:END
7000 IFUV=1THEN7040
7004 TEXT16,191,"(3 space)
PRESS <(Ctrl) b>
PRESS <(Ctrl) q>SPACE
<(Ctrl) b> TO VIEW PATTERN",0,1,3
7010 DOKE193,0:WAIT193,1
7020 TEXT16,191,"(3 space)
PRESS <(Ctrl) b>
PRESS <(Ctrl) q>SPACE
<(Ctrl) b> TO VIEW PATTERN",1,1,3
7030 UV=1:RETURN
```

```

7040 TEXT16,131,"C(1) B)
PRESS <(1) >SPACE<(1) B) TO RE
PEAT <(1) >Q<(1) B) TO END",1,1,3
7050 POKE193,0:WAIT193,1:IFPEEK(197)=60THEN
NRM:RUN
7060 TEXT16,131,"C(1) B)
PRESS <(1) >SPACE<(1) B) TO RE
PEAT <(1) >Q<(1) B) TO END",0,1,3
7080 NRM:RETURN
9999 END
10000 REM PHONE TONES AND RINGER ROUTINE
10010 SID=54272:POKESID+24,15:POKESID+4,16
:POKESID+11,16:POKESID+5,16:POKESID+12,
10020 POKESID+6,15*16:POKESID+13,15*16
:POKESID+23,
10030 REM * SET UP CROSS-TONES *
10170 REM * * * * *
10180 IF C=1 THEN POKESID,117:POKESID+1,77
10190 IF C=2 THEN POKESID,152:POKESID+1,35
10200 IF C=3 THEN POKESID,161:POKESID+1,34
10210 IF R=1 THEN POKESID+7,168:POKESID+3,44
10220 IF R=2 THEN POKESID+7,35:POKESID+2,43
10230 IF R=3 THEN POKESID+7,150:POKESID+2,54
10240 IF R=4 THEN POKESID+7,74:POKESID+3,60
10244 IF C=0 AND R=0 THEN 10230
10250 REM * TURN TONES ON * * * * *
10260 POKESID+4,17:POKESID+11,17
:FORI=1TO50:NEXT
10270 REM * TURN TONES OFF * * * * *
10280 POKESID+4,16:POKESID+11,16
10290 REM * VOICEUR STUDIOS * * * * *
10320 RETURN
10330 END
20000 REM * READ ALPHA/WRITE * * *
20010 NR$="" "+NR$+" "
20020 SL=LEN(NR$):FORL=1TOST
20030 A$=MID$(NR$,L,1)
20040 IFA$="A"ORR$="B"ORR$="C"THEN
NR$=LEFT$(NR$,L-1)+"2"+RIGHT$(NR$,SL-L-1)
20050 IFA$="D"ORR$="E"ORR$="F"THENNR$=
LEFT$(NR$,L-1)+"3"+RIGHT$(NR$,SL-L-1)
20060 IFA$="G"ORR$="H"ORR$="I"THENNR$=
LEFT$(NR$,L-1)+"4"+RIGHT$(NR$,SL-L-1)
20070 IFA$="J"ORR$="K"ORR$="L"THENNR$=
LEFT$(NR$,L-1)+"5"+RIGHT$(NR$,SL-L-1)
20080 IFA$="M"ORR$="N"ORR$="O"THENNR$=
LEFT$(NR$,L-1)+"6"+RIGHT$(NR$,SL-L-1)
20090 IFA$="P"ORR$="R"ORR$="S"THENNR$=
LEFT$(NR$,L-1)+"7"+RIGHT$(NR$,SL-L-1)
20100 IFA$="T"ORR$="U"ORR$="V"THENNR$=
LEFT$(NR$,L-1)+"8"+RIGHT$(NR$,SL-L-1)
20110 IFA$="W"ORR$="X"ORR$="Y"THENNR$=
LEFT$(NR$,L-1)+"9"+RIGHT$(NR$,SL-L-1)
20120 NEXT:NR$=MID$(NR$,2,SL-2)
20130 RETURN
20140 END

```

Listing 4 Phone Lines.16+4 For 16 & Plus 4

```

1 REM COPYRIGHT1993 LYNNCARTHY IND ALL
RIGHTS RESERVED
1000 COLOR1,1:COLOR0,2:SCNCLR
1020 GRAPHIC2,1
1030 CHAR1,0,4,"(13 space)ABC(4 space)DEF"
1030 CHAR1,0,5,"(12 space)(6 space)2
(6 space)3 "
1100 CHAR1,0,3,"(11 space)GHC(4 space)JKL
(4 space)MNO"
1110 CHAR1,0,3,"(12 space)4(6 space)5
(6 space)6 "
1120 CHAR1,0,12,"(11 space)PRS(4 space)TUV
(4 space)WXY"
1130 CHAR1,0,13,"(12 space)7(6 space)8
(6 space)9 "
1140 CHAR1,0,17,"(19 space)0(5 space)"
1150 CHAR1,0,16,"(12 space)9(5 space)OPR
(5 space)* "
1180 FORX=100TO220STEP56
1190 FORV=33TO160STEP32
1210 CIRCLE1,X,V,21,15
1220 NEXT:NEXT
1250 INPUT"(HOME)(ctrl 2)(24 (ctrl down))EN
TER PHONE NUMBER":NR$:IFNR$=""THEN1250
1430 NR$="" "+NR$+" "
1500 SL=LEN(NR$):FORL=1TOST
1510 A$=MID$(NR$,L,1)
1520

```

```

IFA$="A"ORR$="B"ORR$="C"THENNR$=
LEFT$(NR$,L-1)+"2"+RIGHT$(NR$,SL-L-1)
1530 IFA$="D"ORR$="E"ORR$="F"THENNR$=
LEFT$(NR$,L-1)+"3"+RIGHT$(NR$,SL-L-1)
1540 IFA$="G"ORR$="H"ORR$="I"THENNR$=
LEFT$(NR$,L-1)+"4"+RIGHT$(NR$,SL-L-1)
1550 IFA$="J"ORR$="K"ORR$="L"THENNR$=
LEFT$(NR$,L-1)+"5"+RIGHT$(NR$,SL-L-1)
1560 IFA$="M"ORR$="N"ORR$="O"THENNR$=
LEFT$(NR$,L-1)+"6"+RIGHT$(NR$,SL-L-1)
1570 IFA$="P"ORR$="R"ORR$="S"THENNR$=
LEFT$(NR$,L-1)+"7"+RIGHT$(NR$,SL-L-1)
1580 IFA$="T"ORR$="U"ORR$="V"THENNR$=
LEFT$(NR$,L-1)+"8"+RIGHT$(NR$,SL-L-1)
1590 IFA$="W"ORR$="X"ORR$="Y"THENNR$=
LEFT$(NR$,L-1)+"9"+RIGHT$(NR$,SL-L-1)
1600 NEXT:NR$=MID$(NR$,2,SL-2)
2260 FL=1:FORL=1TOLEN(NR$)
2270 IFMID$(NR$,L,1)="0"THENX1=156:V1=134
2280 IFMID$(NR$,L,1)="1"THENX1=100:V1=033
2290 IFMID$(NR$,L,1)="2"THENX1=156:V1=033
2300 IFMID$(NR$,L,1)="3"THENX1=212:V1=033
2310 IFMID$(NR$,L,1)="4"THENX1=100:V1=070
2320 IFMID$(NR$,L,1)="5"THENX1=156:V1=070
2330 IFMID$(NR$,L,1)="6"THENX1=212:V1=070
2340 IFMID$(NR$,L,1)="7"THENX1=100:V1=102
2350 IFMID$(NR$,L,1)="8"THENX1=156:V1=102
2360 IFMID$(NR$,L,1)="9"THENX1=212:V1=102
2370 IFMID$(NR$,L,1)="*"THENX1=100:V1=134
2380 IFMID$(NR$,L,1)="#"THENX1=212:V1=134
2410 IFFL=1THENX2=X1:V2=V1:FL=0
2420 DRAW1,X1,V1TOX2,V2:X2=X1:V2=V1
2430 NEXT
2450 PRINT"(5 (ctrl down))(3 space)
PRESS <SPACE> TO CONTINUE"
2460 GETKEY$
2490 SCNCLR:IFP=1THENRUN:ELSEP=1:COTO2260

```

Listing 5 Phone Lines.5E20 For VIC 20 with Super Expander

```

0 REM COPYRIGHT1993ME
3 REM LYNNCARTHY IND.
4 REM * ALL RIGHTS(2 space)*
5 REM *(2 space)RESERVED(3 space)*
999 COSUB3000
1000 PRINTCHR$(142)"(5 (ctrl down)
(2 (ctrl right)(ctrl 3))ENTER PHONE NUM
BER(ctrl 1):COLOR1,0,0,2
1010 INPUT"(4 (ctrl right):NR$
:IFNR$="Q"THEN1000
1012 PRINTCHR$(14)"(CLR)(5 (ctrl down)
(2 (ctrl right)(ctrl 3)"
1013 PRINT"(2 (ctrl right)(shift -)(ctrl 7)
(shift 1)(VNC)(shift 2)(RATHV (shift 1)
ND:(ctrl 3)(shift -)"
1015 PRINT"(2 (ctrl right)(C= X)(16 shift *)
(C= X)"
1030 PRINT"(2 (ctrl right)(T (ctrl right)
(ctrl 6))PRESENTS(5 (ctrl down)
(13 (ctrl left)(ctrl 2)(shift -)(ctrl 1)
(shift 2))HOME(ctrl 8)(shift -)(ctrl 1)
(shift 1))NES(ctrl 2)(shift -)(ctrl 1)
(shift 2)(shift 4)20(ctrl 2)(SHIFT -)"
1032 PRINT"(2 (ctrl up)(2 (ctrl right)(C= 0)
(5 shift *)C= 1)(5 shift *)C= 1)
(4 shift *)C= 3)"
1034 PRINT"(ctrl down)(2 (ctrl right)(C= 2)
(5 shift *)C= 4)(5 shift *)C= 4)
(4 shift *)C= X)"
1036 IFRN$="2"THENNR$=NR$:COTO1060
1040 PRINT"(2 (ctrl down)(5 (ctrl right)
(ctrl 1)D(ctrl 2)O(ctrl 4)N(ctrl 5)D
(ctrl 6)E(ctrl 7)A(ctrl 2)J(ctrl 1)M
(ctrl 3)C(ctrl 4)S(ctrl 5)S(ctrl 6)S"
1050 COSUB4000
1060 COSUB2000
1070 COSUB3000
1080 COSUB4000
2000 GRAPHIC2
2001 XM=1023:VM=3M:XF=XM/319:VF=VM/199
2002 FORX=100TO220STEP56
2010 FORV=33TO170STEP32
2020 IFX=156ANDV=166THEN1040
2030 CIRCLE1,X,VF,17*VF,17*VF,15*VF
2040 NEXT:NEXT
2062 DRAW1,240*XF,16*VFTO240*XF,16*VF
2064 DRAW1,240*XF,16*VFTO240*XF,13*VF

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```

2066 DRAW1,240*XF,18*VFTO240*XF,13*VF
2068 DRAW1,73*XF,13*VFTO240*XF,16*VF
2070 PRINT1,77*XF,13*VF
2080 RETURN
3000 FL=1:FORL=1TOLEN(NR$)
3010 IFMID$(NR$,L,1)="0"THENX1=156
:V1=134:R=4:C=2:COSUB5000
3020 IFMID$(NR$,L,1)="1"THENX1=100
:V1=033:R=1:C=1:COSUB5000
3030 IFMID$(NR$,L,1)="2"THENX1=156
:V1=033:R=1:C=2:COSUB5000
3040 IFMID$(NR$,L,1)="3"THENX1=212
:V1=033:R=1:C=3:COSUB5000
3050 IFMID$(NR$,L,1)="4"THENX1=100
:V1=070:R=2:C=1:COSUB5000
3060 IFMID$(NR$,L,1)="5"THENX1=156
:V1=070:R=2:C=2:COSUB5000
3070 IFMID$(NR$,L,1)="6"THENX1=212
:V1=070:R=2:C=3:COSUB5000
3080 IFMID$(NR$,L,1)="7"THENX1=100
:V1=102:R=3:C=1:COSUB5000
3090 IFMID$(NR$,L,1)="8"THENX1=156
:V1=102:R=3:C=2:COSUB5000
3100 IFMID$(NR$,L,1)="9"THENX1=212
:V1=102:R=3:C=3:COSUB5000
3110 IFMID$(NR$,L,1)="*"THENX1=100
:V1=134:R=4:C=1:COSUB5000
3120 IFMID$(NR$,L,1)="#"THENX1=212
:V1=134:R=4:C=3:COSUB5000
3130 IFMID$(NR$,L,1)="Q"THENX1=100
:V1=166:REM TURN SOUND OFF
:GRAPHIC0:PRINT"(ctrl 1)":END
3140 IFMID$(NR$,L,1)=CHR$(35)THENX1=212
:V1=134:GRAPHIC0:RUN
3150 IFFL=1THENX2=X1:V2=V1:FL=0
3160 IFFL=1THENX2=X1:V2=V1:FL=0
3170 DRAW1,X1*XF,V1*VFTOX2*XF,V2*VF
:X2=X1:V2=V1
3180 NEXT
3190 RETURN
4000 REM * READ ALPHA/WRITE * * *
4010 NR$="" "+NR$+" "
4020 SL=LEN(NR$):FORL=1TOST
4030 A$=MID$(NR$,L,1)

```

Listing 6 Phone Lines.16+4 For 16 & Plus 4

Listings continue on page 16

# RARITIES

By  
Brian L Crosthwaite

This month's LIST features the **Treasure Valley/Boise User Group**. As you may know, we are starting to feature User Groups and their programmers in this column, and since I know these people personally, it seems logical for me to spotlight them first since their President was so easy for me to get a hold of.

Brian Crosthwaite (who?) is the president of TV/BOG. Now I'm switching over to me the President.

"I had these images of what a user group was, way back when I was at ISU in 1984. There were these people doing all these different projects, they all knew what they were doing and were all into each other's stuff. Things looked pretty much like the cover of the April '86 issue of **RUN**. There were these computers in a large pavilion. Well lit. Every system was a full system, disk drive, monitor, dot-matrix, printer, they probably all had modems -- all this and they had lots of open space. I don't even

remember thinking about joining one, there didn't seem to even be any curiosity there. The image was in my head just long enough for me to realize it. It may have been because I was so busy with school -- studying electronics -- up at 5am, home work -- class at 7 -- out at 2, more home work.

"I was programming back then. I had just gotten a datassette, so I could finally store what I wrote on tape rather than have to transcribe it all to paper via pen.

"My system had a slow start and as a result I'm lacking in certain areas and rather advanced in others. I had heard of Commodore BUC and EABUC. I'm not sure of the exact names, from User Group listings in the back of (computer) magazines. Finally about a year ago, I went to my local Commodore shop and the lady who worked there told me about a User Group and she gave me their newsletter. Half a year later I got info on times again and finally went.

"I had a real good time. It was at a local elementary school and there were lots of people and they were into each other's stuff, there were around 20 or so 64s in two rows facing out from the center of the room. The ceiling was high and light was good, but not as bright as the image. It was not a pavilion, but rather a stage in a gymnasium that had been converted to a computer room, the curtain area is now a wall and there are two large ceiling fans way up at the top.

"TU/BUC meets every first Thursday of the month at Kopper Kitchen at 2661 Airport Way in Boise and every third Wednesday of every month except June, July and August, at Jackson Elementary School at 324 S Cole Road. Family membership is \$20 per year and \$15 renewal. Our newsletter **BUC BYTES** is published monthly and is free to members."

Me again, Brian the writer. I did a phone interview with TU/BUC's Librarian, Doug Parsons. He was very busy most of the day as the holidays were upon us, and I thank him for taking time out of his busy schedule to talk to us.

**diHard:** Tell us a little about yourself.

**Parsons:** We began with our Commodore 64 about five years ago I guess, when our daughter got married. She and her husband bought a different kind of computer and they gave us their 64. That launched us in our computerese and since then we've gone from a 64 and a couple 123s, (to) MS-DOS and havin' a heck of a good time. Having computerized our business and gave Ruth a whole bunch of toys to play with and went from there.

**diHard:** I know you are a people person having heard you talk at meetings and give lectures during the worknights: Do you enjoy being the club librarian?

**Parsons:** Yeah, I ah... it's a very time consuming job, I also think it's quite a rewarding one in that... trying to compile all of the files and move 'em around and upgrade and change 'em, you learn a tremendous amount, and of course anytime you work with a computer you're gonna learn something. But in putting together the library, putting together disks of the month, manipulating files, making copies and helping people solve their file problems and disk problems -- it really is rewarding.

**diHard:** You've already touched on this a little bit. How did it all start for you, tell us of the Clory days when you got your first computer or your first exposure to computers.

**Parsons:** Like I say that happened about five years ago. The club, when we started in -- this is back in about '85 or '86 -- the club was only a couple years old. They had just merged, ah the Boise User Group and the Treasure Valley Club had merged into the Treasure Valley Boise User Group. We've got documents going back since 1983, we've got the newsletter from both clubs dating from back in '82, '83 and ah, we heard about the club somewhere and we went to the meetings and that's when they were having them at Borah

High School. We got into all sorts of trouble with the school custodian. We didn't have many more members than we have today -- I guess maybe there was a hundred, but about 20 or 40 was all that showed up at the meetings. We have 20 to 25 that show up at the meetings today. They tried running it then they'd split into another room to hold SIGs, or course at that time we didn't know what SIG meant. We just followed the people who'd say, "Hey, come on we're gonna talk about this." We'd say, "Hey, that's good." We went and listened, not knowing anything about what we were doing.

It wasn't until after we started going and getting more and more into our computers that ah, you learn as you go along, so we all started out "how do you turn it on?" I spent a very frustrating first year listening to people stand up and talk about RAMs and ROMs and Modems and bits and bytes and erks (heh??) and jowels (jouis?) and all that good stuff and I'm wondering what country we're all coming from [ha ha] It was really driven us up the wall and me being the shy person to stand back and let -- shut up Ruth -- me being the shy person to stand back and let everybody just rattle -- I was constantly interrupting meetings saying, "Hey, I don't understand" or (I'd) ask a question "yeah, how what did you say?" and we'd start all over again and people at the club started coming up to me saying, "Hey I'm sure glad you did -- why am I always the one out there [ha ha] saying I don't understand?" So it got to be a standard joke every time Doug would come into the room someone'd say, "ah, he doesn't know how to turn it on yet." And ah, it wasn't till I ran for club president -- I still didn't know how to work the computer all that good, but ah there were people in the club that could and they just needed to have somebody stand up front and say, "talk to us about this and you tell us about that and you give us a demonstration on that" they would, if you asked them to they'd do it. And after a couple years as President I got so I could turn it on. And then I wanted to learn a lot more and that's when I volunteered to become (the) librarian.

**diHard:** Does TU/BUC offer their catalogue either in-state or interstate?

**Parsons:** We have currently sent our catalogue to the ten clubs that we're exchanging disks of the month with. So they have our catalogues, we have their catalogues and their catalogues are in our catalogue, so that if somebody from our club wanted a disk from their club's (library) we could get it on an exchange side-for-side basis or we'd send them a disk -- they'd send us a disk. So there is quite a bit of interchange among a few of the clubs in the User Group area across the states.

**diHard:** Do you offer any commercial titles through the library?

**Parsons:** Yes, we offer **The Write Stuff**, we're a licensee-distributor of **The Write Stuff**, which is a commercial program, and we also sell the **Fun Graphics Machine** which is a very outstanding graphics manipulating program -- a lot like, well it does a lot of the same things that **GEOS** does. It doesn't have quite the same graphics environment, but you can get in and do your letters and signs and set up pages. ...a cross between a graphics program, a publishing program and a word processor. To try to combine the elements of all three into it. ...we just buy them from the distributor at a discount and sell them to our club members at the same price as if they went direct. And the club makes... oh... (from) fifty cents to a dollar on every package -- it isn't a tremendous amount. But it's a savings of two or three dollars to our members.

**diHard:** What percent of the programs in the library would you guess were written in and around this area (this area being Boise and the surrounding Treasure Valley)?

**Parsons:** I don't know about any of the earlier

programs -- we had quite a few programmers many, many years ago that wrote a few but we have some programmers now that are writing some. I can't really give a percentage of that for the entire library, but let me mention the programs that have been put in the library in the last year that I'm getting ready to update our catalogue the latter of this/first part of next month. (From) the programs we've put in, we've got disks of the month that we've received from other clubs which are down loaded from all over. But the local programs -- I would say about twenty percent of the programs that we have put in our library this year have been written locally, by our two or three programmers we have in the club.

**diHard:** One final question for our readers who either are thinking of doing the PD library thing or already are a User Group Librarian, what tips can you offer from 2 years experience?

**Parsons:** I'm in my second year as librarian. The biggest tip I can say to help other club members (as a Librarian) is to have the procedure written down, and try to standardize your disks, not that you can't go innovative -- put out an extra now and then -- but have a standardized disk format that you use. It greatly speeds up the entire process. Make standardized labels, have a standardized format for your disks and also correspond very heavily with libraries of other clubs, and if at all possible get a disk of the month exchange with them so that you can swap programs and have a great (amount of) input. When I first took over the club [that was Freudian!] or over the library we had very few (programs) -- I couldn't get enough programs to make up a disk of the month ahead. Today I have a notebook filled with disk directories that I haven't gotten around to. If I never received another program I could probably go a year of filling disks of the month.

Our list this month consists of programmers from TU/BUC.

The first programmer is myself. (They are listed alphabetically by last name.) I wrote a newsletter called **diHard**, and my programming forte is art. Mainly mathematical art. I program for the Commodore PLUS 4, 16, 20, 64, and 128. I also program Timex Sinclair 1000 & 1500, Atari 200 & 200XL, CP/M BASIC, GWBASIC, TI 99/4A, and many of the older machines.

Scott Derrer is our next Programmer. (He does this for a living, so he knows a little about the subject). He has programs for the Commodore printer/plotter and Epson HI-80 plotter that draw 3d graphics and fractals. He also one of TU/BUC's GEOS Help Area people.

Next is Duane Forte. He has written lots, and I mean lots of utilities for **RUN POINT**. He has written several demo type programs, I saw one at TU/BUC's last worknight meeting, it was a Jacobs ladder. The non-moving part of the picture, by the way, he had drawn using **RUN POINT**, so if you have any questions on this great point program, he's the one to ask.

The last on our list is Al Hale, he's the equipment manager for the group and one of the Programming Help Area people. If you have any questions on programming in general, he's your man. He also has knowledge on EPROM burning. In fact, he is going to do some burn-ins at the next worknight meeting, so if you find yourself in Boise on the 20th of January, you should check it out.

If you want to contact any of these programmers, feel free to do so. Be sure to enclose a self addressed stamped envelop with your letter.

A couple of quick notes about the club, our meetings are open to the public and you are more than welcome to come and see what it's all about. We are active in community education. Each year the club teaches classes on computers in Boise and Kuna, Idaho. Dan Barrard is Vice President, Ueno Bertasso is the Secretary and Ruth Parsons is the Treasurer. Send all correspondence to Treasure Valley/Boise User Group, P O Box 6992, Boise, ID 83707.

And now, this month's LIST.

Programmer	Info	Address
Brian Crosthwaite	BASIC Programming, SHOPLISTER16 (runs on Commodore 16 or +4)	LynnCarthy Ind P O Box 392 Boise ID 83701
Scot Derrer	Graphics & Fractals the MPS1520 Printer/ Plotter and Eson HI-80	The Plotting Shed 1529 Longment Ave Boise ID 83706
Duane Forte	Utilities for <u>RUN Paint</u> Demo Programs	Duane Forte 1420 Highland View Dr Boise ID 83702
Albert M. Hale	Programming, EPROM buring	Albert M. Hale 3825 N Maple Grove Boise ID 83704

If your User Group would like a place in the underground, let us know. This is more than a list of User Groups we want to start here, we want to feature programmers and their programs. Programs may appear in PRC, if the authors desire that (PRC now accepts Shareware, see PRC for details). We will place your group in the spotlight. What kind of information should User Groups send? Their name and address and a short article detailing what they do in their meetings. And MOST important any info on programmers who sell out-right (a small company) or go through PD channels (Freeware, Shareware or Public Domain), what these programs do (send them in for review!), any future programming ventures, and addresses for the LIST. Also any information you can think of that may be appropriate to RARITIES.

Any companies that support any commodore computers in any way (software or hardware) can send us your address and we'll include them in the LIST as well. We are talkin' support hear! This list is not an ad -- it's an avenue for our reader to follow for further support.

READY.



## PAPSAW WHAT -- NO DISK?

by  
Brian L Crosthwaite

### Checking For A File's Presence To Prevent A Crash

The topic of today is not just missing disks, but missing files as well. When running a program that accesses a disk that is missing, a crash is just around the corner.

There are several ways around a potential crash. The first, and possibly the easiest is to simply tell the user to insert the proper disk into the drive. This does not ensure that the device will be turned on and ready when it comes time to access the device.

A simple test is to rename a file that is on the disk. Even if the file is not there the program will not crash. However, you will have a number placed into the error channel area of the drives memory that can be read as a variable, in this case -- ER. This number can help your program to decide what to do next.

Why rename a file? Well, if you try to open a file, the computer will want to tell you that there is a read error, but will not report it. Instead, the program will simply crash with a break error and your drive's light will be left flashing.

You will want to keep the name the same so it doesn't really get renamed. If the file name is a fictitious name or is not on the disk the program continues, but the error is reported to the error channel and the drive light remains flashing.

```
OPEN15,8,15,"R0:OLDNAME=0:NEWNAME"  
:CLOSE15
```

This will rename a file in BASIC 2.0. We'll alter this a little:

```
OPEN15,8,15,"R0:FILENAME=FILENAME"  
:INPUT#15,ER:CLOSE1  
IF ER=63 THEN FILE IS PRESENT  
IF ER=62 THEN FILE NOT PRESENT  
IF ER=21 THEN DISK IN DRIVE, DRIVE  
DOOR OPEN  
IF ER=74 THEN NO DISK IN DRIVE
```

Note that these error reports (ER) are not exactly what they are in your manual, but they better represent what the actual problem MIGHT be. Now, what to do with this information. The best thing to do is let the user know what is going on, even if all is well. Here is a simple sample of what can be done with this technique. Type in the following just as you see it here and save it as "PRGI."

```

60000 REM *** SUBROUTINE TO READ DISK ***
60010 PRINT CHR$(147)"PLACE DISK IN DRIVE AND PRESS
      <SPACE>"
60020 GETA$:IF A$<>" " THEN 60020
60030 OPEN 15,8,15,"R0:PRG1=PRG1":INPUT#15,ER:CLOSE15
60040 IF ER=74 THEN 60010
60050 IF ER=21 THEN PRINT CHR$(147)"CLOSE DOOR ON DRIVE
      AND PRESS <SPACE> ":GOTO 60020
60060 IF ER=62 THEN PRINT CHR$(147)"FILE IS NOT PRESENT"
      :FOR T=0 TO 4999:NEXT:GOTO 60010
60070 IF ER<>63 THEN 60010
60080 PRINT CHR$(147)"AH, SUCCESS!":REM RETURN

```

When you run the program it will instruct you to place the disk in the drive and press space. First open the drive leaving the disk in it, then press space. Now, take the disk out of the drive to see what happens and press space. Try it again with the wrong disk in the drive. Lastly, place the disk with the file on it in the drive with the door closed.

This little routine can be altered anyway you want and can save you some time and grief. There are also a variety of ways to use this routine. For instance, you could have a main program that writes a small file on all your work disk, just so it can later check to make sure you have a work disk in the drive.

If you have more than one drive, you can check all drives present for the file, or you can access the last drive accessed by looking into location 186 (64/128/YIC) 174 (16/+4). This holds the present drive number.

```

DN=PEEK(186):IF DN>15 OR DN<8 THEN DN=8:REM DN IS THE
      DRIVE NUMBER AND WILL DEFAULT TO 8 IF NO PREVIOUS
      ACCESS HAS OCCURRED [DN=PEEK(174) ON 16/+4]
OPEN 15,DN,15,"R0:PRG1=PRG1":INPUT#15,ER
IF ER=...

```

or;

```

INPUT"NUMBER OF DRIVES";DP:DP=8+(DP-1)
FOR DN=8 TO DP
OPEN 15,8,15,"R0:PRG1=PRG1":INPUT#15,ER
IF ER=...
NEXT DN

```

Let's put it all together:

```

10 INPUT "NUMBER OF DRIVES ON";DP:DP=8+(DP-1)
20 IF DP<8 THEN 10
60000 REM SUBROUTINE TO READ DISK ON MULTI-DRIVE SYSTEM
60010 PRINT?CHR$(147)"PLACE DISK IN DRIVE AND PRESS
      <SPACE>"
60020 GETA$:IF A$<>" " THEN 60020
60022 FOR DN=8 TO DP:REM LOOP BEGIN
60030 OPEN 15,DN,15,"R0:PRG1=PRG1":INPUT#15,ER:CLOSE15
60040 IF ER=74 THEN 60010:REM NO DISK IN DRIVE
60050 IF ER=21 THEN PRINT CHR$(147)"CLOSE DOOR ON DRIVE
      AND PRESS <SPACE> ":GOTO 60020:REM DRIVE CAN'T
      READ SYNC CHAR
60060 IF ER=62 THEN PRINT CHR$(147)"FILE IS NOT PRESENT
      :FOR T=0 TO 4999:NEXT:GOTO 60010:REM FILE NOT ON DISK
60070 IF ER<>63 THEN 60010:REM FILE EXISTS
60080 PRINT CHR$(147)"AH, SUCCESS!":REM RETURN
60090 NEXT DN:REM LOOP END

```

What you do with the info is up to you. This should give you a good idea of what you can do and should help

eliminate a possible crash, making you the throbbing hunk of power user you really are!

**PART II**

---VIC20---+---+---+---CBM64---+---+---+---C128---+---+---+---C16&+4---+---+---+---

Turn on cartridge program

**SYS32592**

**WAIT** for keypress

(x= 1=<SHIFT>, 2=<C=>, 3=<SHIFT><C=>, 4=<CTRL>, 5=<SHIFT><CTRL>, 6=<C=><CTRL>, 7=<SHIFT><C=><CTRL>)

**POKE653,0:WAIT653,x**

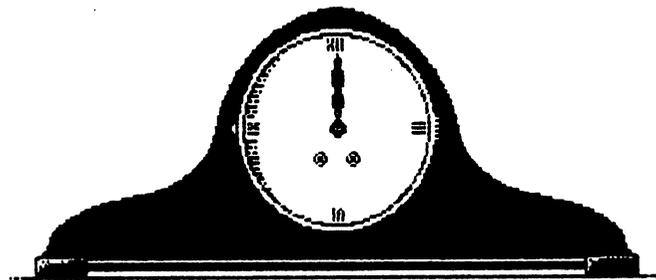
**POKE653,0:WAIT653,x**

**Detect alternate keys**

(38=no alt key or normal key pressed, 103=<SHIFT>, 168=<C=>, 233=<CTRL>)

**PRINTPEEK(236)**

**READY.**



*Archaic Computer*  
*The Computer Store of the Past*



by  
Brian L. Crosthwaite

Welcome to the year 1993! Let's turn our way back machines to 1986. The back side of the heyday hill of the computer revolution. You could get just about anything on the market for the **commodore 64**. Hearsay Incorporated had just released the **HEARSAY 1000**. A cartridge about the size of the 17xx cartridges **commodore** had made. With the cartridge the **commodore 64** could not only talk, it could listen as well. This month, we take a look at that cartridge and what it really does.

*Review*  
**HEARSAY 1000**  
Reviewed by  
reviewer-extra-ok --  
Brian L. Crosthwaite

The **HS1000** is a really cool device. To make a program speak, all you do is activate the cartridge and you don't need to load any other programs to produce speech.

But, there is a requirement as well as a give and take. The program must print text to the screen and print it in a color other than the screen color (although some machine code programs can mysteriously make it talk). But this can be good, if you have a program that loads other programs using the dynamic keyboard technique, printing text onto the screen the same color as the screen. You won't hear, "load laser blast... searching for laser blast, etc." Just about any program with text will speak.

## A couple of draw backs

**Q7C...** The **<RESTORE>** key is used to activate the **HS1000** and therefore the **<RUN/STOP><RESTORE>** combination will no longer get you out of a jam. Another bummer is that you can't use **SAY**, like other voice programs do. This means any thing said must be visible on the screen as text. Now, I haven't tried redefining the character set to be blanks, but color memory would have to be involved, so that might not work (printing an invisible message to the screen in hopes to have speech that is unseen).

These things aside, the speech is rather good. Just load your program -- text adventures are an obvious choice -- and press **<RESTORE>**, the computer repondes with "Hearsay 1000." Press **<S>** and hear "string text," followed by **<F7>** -- "String text will now be spoken." Lastly press **<RETURN>** and with a "return," your program will now speak. Substitute **<K>** for **<S>** and the keyboard echo will turn on. The same key sequences will turn off what is on or turn on what is off.

The voice can be changed from within the **HS1000** environment, it can be sped up or slowed down. It can be made lower or higher with voice and/or pitch. Words can be made to be pronounced differently by making a file that loads into the Editor, giving a proper pronunciation or to create an accent.

You can enter the **HEARSAY1000** at any time, before loading a

program, after loading, before or after running by pressing **<RESTORE>**. The only way you can tell you've entered **HS1000's** environment is that the computer tells you and the cursor disappears.

All things considered, the **SAY** side of the **HEARSAY 1000** gets **\*\*\*\*\*!** A perfect score -- so far.

**The HEAR side** Well, let's face it, having a chance to look at two different **HS1000s**, niether one responded too well. The **DEMO** disk that came with it was geared at the **HEAR**ing portion of the **HS**. A game called **Aqua's Circus** has a clown teaching a class on shapes. You get to train it in your voice; it never learned. It could not decipher the word "square" from the word "circle". The unit can be trained to recognize 64 words.

The **HEAR** side is also full featured, but don't expect much, like most speech recognition programs for the 64, you wind up training yourself instead of the computer. This side gets **\*** -- for the graphics on the **DEMO** disk, if nothing else.

**Another down side** Some of these units have a **SWIFT** load program built in, mine is supposed to have it, but when I press **<Q>**, all it says is "string text - recognition is now off," -- no matter what. The **swift** load could conceivably load a program 5 times its normal load time -- good luck, I don't think this ever really got implimented.

Over all score? **\*\***. (If you

look at it solely as a speech cartridge, then maybe a **\*\*\* \*\***.)

**READY.**

## Archaic Computer

### Q & A

by  
Brian L. Crosthwaite

**Q1** I have an old 8088 machine that can run MS-DOS on it. How do you open one of the subdirectories on my program disks and get back out again?

**A1** In DOS 3.2 you can use change direcorry **DIRNAME** by typing: "**CD DIRNAME**", where **DIRNAME** is the name of the directory that you want to open. Then type "**DIR /P**" to page though that directory, the computer will prompt you to press any key to continue. (**DIR** alone will list the directory without stopping.) To get back to the original directory type: "**CD .**" -- with no space between "D" and ".".

**Q2** Why did you answer that last question? What are you a two-faced, bourgeois-fascist, back-stabing, hypocritic-DOS-lover?

**A2**

**Q3** What happened to the answer to the second question?

**A3** I really don't know. What ever do you mean?

**Q4** What exactly is interlace mode on the VIC 20?

Q When the VIC was being made to standards were changing. Things worked a little different on the older bus than they do now. On older bus, the VIC's picture would freak out the squew and the picture would not fit, causing a rolling, slanted mess. To fix this the VIC could change the scanlines that it wrote to, by a simple poke. **POKE36864, 133** turns it on, and **POKE36864, 5** turns it off. Now somebody write a program that sends two different screens to the two sets of scan lines, switching them really fast and you can have that double-your-vertical-resolution-flicker-the-heck-out-of-the-screen-driven-you-crazy-kind-of-graphics that Amiga and 128 users now enjoy.

Q What joysticks do you recomend for gaming on the 64?

A My all time favorite stick is the **TAC 2** (Totally Awesome Controler 2 -- I'm not kidding, that's what it stands for -- and it's true). This control is totally precise. The fire buttons tend to wear out on them, but not after giving you a couple of years of the best gameplay you've ever experienced.

Send your Qs and/or your As to **dieHard**, ATTN Q&A, P O Box 392, Boise, Idaho, 83701.

**READY.**

**A NOTE TO SUBMITTERS:**

Anyone wishing to submit an article on disk may do so. Be sure to tell us what format the files are in and the names of all files. If you wish the disk returned enclose \$2 for postage and handling and be sure to place **RETURN DISK** on the label. **dieHard**, P O Box 392, Boise, Idaho 83701

# COMMODORE TRIVIA

by  
Brian L Crosthwaite

For the next several months **dieHard** will be running a 39 part series on the complete ins and outs of the 1541 disk drive, by Joel Rea and Jim Weiler of **LOADSTAR**. **DOS and DON'TS** originally appeared in the premier issue of **LOADSTAR** and **LOADSTARs** there after. Because the information is as vital today as it was back then, we are running the complete series (with **LOADSTAR's** permission of course). Since the first two installments deal with a lot of history of Commodore computers, they are appearing here.

The **Complete DOS and Don'ts** is available on 1541 disk from Softdisk for \$9.95 +\$4.50 shipping for 2nd day delivery. Softdisk, P. O. Box 30008, Shreveport, LA, 71130.

A note to users, this disk is for the 64, but the information covers the 1541 disk drive, and is therefore relevant to all computers with 2.0 or higher.

## History of the 1541 Disk Drive

by  
Joel Ellis Rea

First there was the Commodore 2001 Personal Electronic Transactor (PET). It was one of the first personal computers on the market. It had a whopping 4K of RAM, an 8K BASIC in ROM, and a Kernal to control input/output and other system operations. It used Commodore BASIC Version 1.

There were no disk drives then, but provisions were made in the form of an IEEE-488 General Purpose Interface Bus. It also had the funniest little keyboard you ever saw!

Commodore then invented the 2040 Dual Floppy Disk Drive. It was an industry first. Instead of requiring the main computer to control every tiny detail of disk drive operation, not to mention loading a (large) Disk Operating System (DOS) into the computer's RAM in order to use the drive; it was an intelligent drive, with its own computer system inside, and its own DOS in ROM! By simply PRINTing commands to its command channel, BASIC users could SCRATCH, RENAME, and COPY files, and DUPLICATE an entire disk without any further help from the computer. Only problem was, they could not SAVE or LOAD programs, or use data files.

The problem was in BASIC V1. It didn't know about the timing involved with actually transferring data back and forth between the computer's RAM and the disk drive's computer. So, Commodore created Upgrade BASIC (now known as BASIC V2.), and put it into a new PET, called the 2008.

It had 8K of RAM, a REAL keyboard (unlike other companies, Commodore NEVER tried a rinky-dink keyboard again!), and it could use the disk drive!

But the 2040 drive had its faults as well. It couldn't handle random-access files (one of the most important advantages of a disk drive over a tape drive!) without a LOT of effort on the user's part, it couldn't trap errors correctly, it required the user to: OPEN15,8,15,"I";CLOSE15 every time the user wanted to change disks, and it couldn't seem to center the disks properly.

So about the time Commodore came out with their 3008 PET computer (with BASIC V3, with very minor differences from V2.), they came out with the 3040 Dual Disk Drive. This had DOS V1.2 in it, which corrected the problems with error trapping. But they didn't fix much else. Also, people were getting tired of having to type OPEN15,8,15,"R0:newfilename=oldfilename";CLOSE15 to rename a file, when their Apple-owning buddies could do the same with RENAME oldfilename,newfilename.

Almost immediately thereafter, the Commodore 4016 PET came out. It had 16K for starters (expandable to 32K), and BASIC V4. This version of BASIC had nice disk commands like CATALOG, SCRATCH, DLOAD, DSAVE, BACKUP, COPY, etc. These commands simply translated themselves into the old commands the disk drive understood. So COPY D0,"oldfile" TO D1,"newfile" got sent to the disk as "C1:newfile=D0:oldfile".

Along with the PET 4016 came the 4040 Disk Drive. It had it all!

Besides fixing the hardware problems, it had DOS V2.1, which supported RELATIVE FILES! (What other people called Random files, but they used a different terminology so as not to confuse the old disk drive owners who were doing it the H-A-R-D way!) The new DOS also performed an automatic "I" command every time it detected a disk with a different ID, so that the user didn't have to unless he had two or more disks with the same ID (the two characters that appear after the disk name in a directory listing). It also used a slightly different disk format from the 2040's and 3040's, so that a disk made on a 2040 would have to have its files copied to a 4040 disk drive.

Later, Commodore came out with the Commodore Business Machine (CBM) 8032. It had BASIC V4, 32K of RAM, a 12-inch 80-column monitor (the old machines had smaller 40-column screens), and a more business-like keyboard. Indeed, it was a business machine!

A business machine needs a business disk drive. So Commodore presented the 8050 disk drive. It used a double density format that got over twice as much data on each disk. It also could tell if a disk drive door had been opened, and automatically did an "I" command when the door was shut again, so that the user NEVER needed to do that, no matter WHAT his disk ID's.

Later came the 8052 double-sided drive, and the D9060 and D9090 hard disk units that could store 2, 5, and 7.5 Megabytes (1 Meg = 1024 K!) of data!

Then came the VIC-20. Commodore made many advances on this one! Low price! Graphics! Low price! Color! Low Price! 3-channel sound! Low Price! RS-232! Low Price! 8 user-programmable function keys! Low Price! A cartridge slot for games! Not to mention a low price! Even though they were producing a computer to compete with home video games, they learned their lesson on the PET 2001 and gave the VIC a REAL KEYBOARD!

But for the sake of low price, Commodore took several MAJOR steps backwards. Only 5K of RAM. 22-column screen. Back to BASIC V2. And worst of all, they scrapped the wonderful IEEE-488 bus that could shove all 8 bits of a byte down the wires at once, and replaced it with a "serial bus" that had to spool those bits out one at a time.

Commodore then produced the 1540 Single Floppy Disk Drive. It was basically a one-drive, serial bus version of the 4040. It had less RAM, so that fewer files could be open at any one time. It used the new half-high disk drive units. Instead of two micro-processors (one for the drives and one for the interface), it had one processor controlling the single drive and the interface.

About two years later Commodore invented the Commodore 64! (Ever heard of one of those?) I won't go into all of its nice features, but it still had the serial bus and it still had BASIC V2.

Well, the 1540 was supposed to work with the 64, but it couldn't SAVE or LOAD programs

due to timing problems. (Sound familiar?) This time, Commodore upgraded the disk drive instead of the BASIC in the computer, and so was born the 1541. The 1541 is almost identical to the 1540 except for the DOS in ROM.

Anyway, with BASIC V2, it is not easy to send commands to the disk. You have to OPEN the command channel. It's not easy to view the disk directory. You have to LOAD that as a program and LIST it. (Good-bye whatever program you were working on, unless you saved it). If the drive gets an error, it flashes its little red light as a sign. If you want to know what KIND of error, you can't just PRINT DS\$ (Disk Status) like you can with BASIC V4.

These problems existed in the old PETs with BASIC V2 as well, so an enterprising programmer by the name of Bob Fairbairn wrote the DOS Manager, or DOS Wedge as it has come to be known. (Also referred to as the DOS Support Program.) Commodore put this goodie on the TEST/DEMO disk they included with every drive.

So with the 1540/1541, two new versions of The Wedge were written -- one for the VIC-20 and one for the C-64. This program is included on your TEST/DEMO disk, and can really make life easier!

The manual included with the 1541 is actually a hurried revision of one of the earlier drive's manual. (For proof, just read the description of Error #74 "DRIVE NOT READY" on page 46 thereof! Not to mention the red-light/green-light mixup on page 8!)

As a reference manual for

technical-types, the 1541 manual isn't half bad. As a tutorial manual for the first-time computer user, it's a joke!

*dieHard* Editors note: the following two paragraphs have been left intact for the sake of historic preservation (LOADSTAR has already run the series, see above.)

So all this history has been leading up to this announcement:

LOADSTAR will begin publishing an on-going 1541 Tutorial! We will cover basic operations and the DOS Wedge first, then move on into sequential and relative file handling, and later into more esoteric functions.

For now, a few do's and don'ts. I won't tell you why (yet!), but just observe the following.

1. DO NOT use the Save and Replace command described on page 13. Believe me, it can be as unlucky for you as the page number implies!

2. DON'T use the Open and Replace construct described on page 20. Just don't!

3. DO NOT turn on or off either the computer or the drive if there is a disk in the drive and the door is closed. Pop the door open first!

4. DO make sure that all your disks have different ID's.

5. DO plug all components of your computer system into the same GROUNDED 3-wire power circuit. In fact, invest in a power strip!

READY. ■

# NOT SO STORIES

## Resolutions Breakdown

by

Brian L Crosthwaite

This year I resolve to write protect every disk I get. I'm always scratching a file when I mean to save one. I WILL back everything up -- everything. If someone gives me disk with something on it and I don't have a disk to back it up on, I won't accept it. Plain and simple.

I will always -- always keep disks in boxes in alphabetical order, safe from RF and dust, labeled so I know just what is on it. Every disk will have its directory printed out and catalogued. I hate having to look for two days just to find a file.

I promise to pre-format disks just as soon as I get them, so they will always be formatted and ready. There is nothing worse than being on-line, ready to download and not having a disk I can write to.

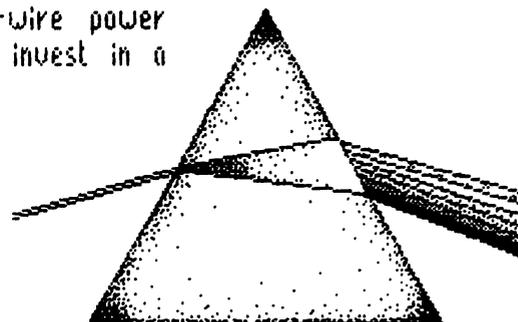
I will always keep the dust covers on all equipment that is not turned on. I get so tired of having to clean my mouse. I will clean drive heads on a regular basis. I will NEVER bring food near my computer!

Good words to live by. Practical, sound advice to all. They also happen to have been last year's resolutions. I have a million un-protected disks lying around, under books on top of monitors, you know, safe from me ever finding them. Every disk I have has write protect tabs -- somewhere -- hey, these things make great tape! I do have some blank disks around here somewhere... here they are -- no that's empty. It's just as well, they aren't formatted anyway.

My dust cover are buried under my C-16. Where did my Atari go? It must be under the dust covers. At least something is safe from all this dust and these crumbs -- where'd those come from?! I need to get organized.

That's it! My resolution for this year is to get organized. Thank goodness nobody takes these New Year's Resolutions seriously anyway. I wonder where that magnet disappeared to, been lookin' for that for a long time. Oh, the cat's been playing with my floppies again... hmmm, I wonder where the disk sleeves went... I need to get organized.

READY. ■





```

2010 PRINT"(CLR)(ctrl down)(ctrl 2)EN
TER TIME(2 space)HHMMSS(6 ctrl right)";
2012 GETKEY$:IFB=0ANDI$=CHR$(12)THEN20322013
IFI$="3"ORIF$="0"THEN2012
2014 IFB=0ANDI$="1"THEN2012
2015 IFB=1ANDI$="3"THEN2012
2016 IFB=2ORB=4)ANDI$="5"THEN2012
2017 IFB=3ORB=5)ANDI$="9"THEN2012
2020 B$=B$+I$:B=B+1:PRINTI$:IFB<6THEN2012
2030 PRINT:I$=B$
2032 PRINT:PRINT"(ctrl 1)DO YOU WANT TO SE
E THE ALARM (ctrl 7)(ctrl 1)/(ctrl 7)(
(ctrl 1))?"
2040 GETKEY$:IFI$="7"THENCOSUB2000
2042 IFI$="7"THEN2040
2050 GRAPHIC3:GOTO100
3000 U=S:P=2:D=30:R=55:COSUB5000
3010 U=M:P=1:D=30:R=50:COSUB5000
3020 U=H:P=3:D=6 :R=30:COSUB5000
3030 RETURN
4000 DATA5,10,3,3,1,6,11,4,3,2,7,12
5000 X=INT(XC+R*MSIN(U/D*(PI)))
5010 Y=INT(YC+R*MCOS(U/D*(PI)))
5020 IFD=2THEN:DRAWO,XC,VCTOX%,YV:YX=X:YV=Y
5022 IFD=1THEN:DRAWO,XC,VCTOMX,MV:MX=X:MV=Y
5024 IFD=3THEN:DRAWO,XC,VCTOMX,MV:MX=X:MV=Y
5030 DRAWUP,XC,VCTOX,Y
5040 XH=S:RETURN
7000 GRAPHIC0,1:B=0:B$=""
7010 PRINT"(CLR)(5 ctrl down)(C= 1)
ENTER ALARM TIME(2 space)HHMMSS
(6 ctrl left)";
7012 GETKEY$:IFB=0ANDI$=CHR$(12)THEN2030
7014 IFI$="3"ORIF$="0"THEN2012
7015 IFB=0ANDI$="1"THEN2012
7016 IFB=2ORB=4)ANDI$="5"THEN2012
7017 IFB=3ORB=5)ANDI$="9"THEN2012
7020 B$=B$+I$:B=B+1:PRINTI$:IFB<6THEN2012
7030 AT$=B$
7040 GRAPHIC3:GOTO100
3000 FORI=0TO53:VOL3
3010 COLOR0,15,7:COLOR1,7,7:COLOR2,12,7
:COLOR3,2,0:COLOR4,6,7
3020 SOUND1,770,30:GETE$:IFE$=""
THEN2060
3030 COLOR0,15,0:COLOR1,7,0:COLOR2,12,0
:COLOR3,2,7:COLOR4,6,0
3040 SOUND1,310,30:GETE$:IFE$="" THEN2060
3050 NEXT
3060 COLOR0,15,0:COLOR1,7,3:COLOR2,12,4
:COLOR3,2,7:COLOR4,6,0
3070 RETURN
3000 REM (22 #)
3010 REM #CLOCK16 RUNS ON +4 AND 12#
3020 REM #COPYRIGHT 1993 LYNNCARTHY #
3030 REM #(4 space)ALL RIGHTS RESERVED
(3 space)#
3040 REM #(11 space)BY(13 space)#
3050 REM #(3 space)BRIAN L CROSTHWATE
(4 space)#
3060 REM # A DIGITAL CLOCK(3 space)TO SET #
3070 REM # PRESS <S> ALSO HAS ALARM #
3080 REM #PRESS <A> GREAT INPUT CODE#
3090 REM (22 #)

```

Listing 10 Alpha Count.20 For the VIC 20

```

2 REM COPYRIGHT 1993
3 REM LYNNCARTHY IND
4 REM ALL RIGHTS RESEVED
500 PRINT"(ctrl 7)(CLR)(10 ctrl down)
HELLO, DO YOU WANT TO PLAY A GAME?"
510 GETA$:IFA$=""THEN510
520 IFA$=""V"THENPRINT"(CLR):END
530 PRINT"(CLR)(10 ctrl down)(6 ctrl right)
OH, GOOD!!":FOR=0TO1900:NEXT
534 INPUT"(CLR)(10 ctrl down)
HOW MANY PLAYERS?";N
540 PRINT"(CLR)(10 ctrl down)
MY NAME IS VICTORIA"
550 DIMN$(N),W$(N),NO(N):FORP=1TON
:PRINT"WHAT IS PLAYER NUM
BER?"D""S NAME?":INPUTN$(P)
560 NEXT
300 PRINT"(CLR)":COSUB2000
1000 POKES679,10:PRINT"(3 ctrl down)
(3 ctrl right)(ctrl 2)(ctrl 2)

```

```

(12 shift 2)(ctrl 2)
1010 PRINT"(3 ctrl right)(ctrl 2)(ctrl 6)
LYNNCARTHY IND(ctrl 2)(ctrl 2)
1020 PRINT"(3 ctrl right)(ctrl 2)
(14 shift 2)(ctrl 2)
1030 PRINT"(3 ctrl down)(6 ctrl right)
(ctrl 2)(ctrl 2)(ctrl 2)(ctrl 2)
1040 PRINT"(6 ctrl right)(ctrl 2)
(ctrl 5)PRESENTS(ctrl 2)(ctrl 2)
1050 PRINT"(3 ctrl right)(ctrl 2)
(2 shift 2)(ctrl 2)
1060 PRINT"(3 ctrl down)(4 ctrl right)
(ctrl 6)(ctrl 2)(ctrl 2)
1070 PRINT"(4 ctrl right)(C= 4)(ctrl 5)A
(ctrl 2)(ctrl 6)(ctrl 2)(ctrl 2)A
(2 space)(ctrl 5)(ctrl 4)(ctrl 6)U
(ctrl 2)(ctrl 5)(ctrl 6)(C= 0)
1080 PRINT"(4 ctrl right)(ctrl 2)(C= 0)
(ctrl 6)
1090 FOR=0TO1200:NEXT
1120 COSUB2000
1130 COSUB3000
1140 COSUB4000
1150 COSUB5000
1160 COSUB6000
1170 COTO1130
1180 REM FINALIZE AND QUIT OPTION
1999 END
2000 PRINT"(HOME)(2 ctrl right)(C= 4)
(12 shift 2)(C= 5)
2002 PRINT"(5 ctrl right)(ctrl 2) DO YOU NE
ED (ctrl 2)
2004 PRINT"(5 ctrl right)
(ctrl 2)-INSTRUCTIONS?(ctrl 2)
2006 PRINT"(5 ctrl right)(C= 2)(13 shift 2)
(C= 1)
2010 GETA$:IFA$=""THEN2010
2012 IFA$=""V"THEN2999
2018 PRINT"(CLR)(5 ctrl down)(ctrl 9)
(ctrl 2)(ctrl 2)(ctrl 4)
(20 space)(ctrl 7)(C= #)";
2020 PRINT"(ctrl 9)(C= #) (ctrl 2)THE ALPHA
BET WILL BE(ctrl 5) ";
2030 PRINT"(ctrl 9)(C= #) (ctrl 2)
DISPLAYED UNDER EACH(ctrl 5) ";
2040 PRINT"(ctrl 9)(C= #) (ctrl 2)LET
TER IS A NUMBER. (ctrl 5) ";
2050 PRINT"(ctrl 9)(C= #) (ctrl 2)SPELL WO
RDS WITH THE(ctrl 5) ";
2060 PRINT"(ctrl 9)(C= #) (ctrl 2)HIGH
EST NUMBERCOUNT.(ctrl 5) ";
2080 PRINT"(ctrl 9)(C= #) (ctrl 2)THE PLAY
ER WITH THE (ctrl 5) ";
2090 PRINT"(ctrl 9)(C= #) (ctrl 2)HIGH
EST COUNT WINS. (ctrl 5) ";
2092 PRINT"(ctrl 9)(ctrl 7)(C= #)(ctrl 9)
(ctrl 5)(20 space)(ctrl 9)(ctrl 1)
(ctrl 2)(ctrl 2)";
2100 PRINT"(ctrl 2)(3 ctrl down)(22 C= 0)";
2102 PRINT"(ctrl 9)PRESS ANY KEY TO START"
2999 GETA$:IFA$=""THEN2999
2999 RETURN
3000 REM DISPLAY GAME
3010 POKES679,030:PRINT"(CLR)
(2 ctrl down)(ctrl 9)
3020 PRINT"(3 space)(ctrl 15)(2 space)
(ctrl 3)(2 space)(ctrl 4)(2 space)
(ctrl 5)(2 space)(ctrl 6)(2 space)
(ctrl 7)(6 space)(ctrl 13)(2 space)
(ctrl 3)(2 space)(ctrl 4)(2 space)
(ctrl 5)(4)(2 space)(ctrl 6)(2 space)
(ctrl 7)(6)(3 space)";
3030 PRINT"(3 space)(ctrl 9)(2 space)
(ctrl 1)(2 space)(ctrl 3)(2 space)(ctrl 4)
(2 space)(ctrl 5)(2 space)(ctrl 6)
(2 space)(ctrl 7)(2 space)(ctrl 13)
(2 space)(ctrl 3)(3 ctrl 4)(ctrl 5)
(11 ctrl 6)(2)(3 space)";
3040 PRINT"(3 space)(ctrl 7)(2 space)
(ctrl 8)(2 space)(ctrl 12)(2 space)
(ctrl 3)(2 space)(ctrl 4)(2 space)
(ctrl 5)(2 space)(ctrl 7)(2 space)
(ctrl 14 ctrl 12)(ctrl 3)(ctrl 4)(ctrl 5)
(18)(3 space)";
3050 PRINT"(3 space)(ctrl 6)(2 space)
(ctrl 7)(2 space)(ctrl 8)(2 space)(ctrl 13)
(2 space)(ctrl 3)(2 space)(ctrl 4)
(5 space)(ctrl 6)(2 space)(ctrl 8)

```

```

21 (ctrl 12)(ctrl 3)(ctrl 4)(2)(2 space)";
3060 PRINT"(3 space)(ctrl 7)(2 space)
(ctrl 2)(ctrl 7 space)(ctrl 7)(2 space)
(3 space)";
3399 RETURN
4000 REM INPUT & PLAY
4010 PRINT"(3 ctrl down)";FORP=1TON:PRINT"
(2 ctrl up)(ctrl 7)PLAYER:(ctrl 5)
"$(P)"(ctrl 1)";
4020 INPUTW$(P)
4022 PRINT"(2 ctrl up)(21 space)";PRINT"
(20 space)";
4030 FORL=1TOLEN(W$(P))
4040 NO(P)=NO(P)+ASC(MID$(W$(P),L,1))-64
4050 NEXT:NEXT
4999 RETURN
5000 REM SELECT WINNER
5010 W=0:W$=""":FORP=1TON
5020 IFNO(P)>WITHENW=NO(P):W$=W$(P)
5030 NEXT:P=H
5040 PRINT"(CLR)(5 ctrl down)(6 ctrl right)
(ctrl 3)";W$:PRINT"(4 ctrl right)(ctrl 5)
IS THE WINNER!!"
5050 FOR=0TO1900:NEXT
5399 RETURN
6000 REM PLAY AGAIN
6010 PRINT"(CLR)(10 ctrl down)(ctrl 1)
WOULD YOU LIKE TO PLAY(3 space)AGAIN?"
6020 GETA$:IFA$=""THEN6020
6030 IFA$=""V"THENPRINT"(CLR)(10 ctrl down)
(2 ctrl right)THANK YOU VERY MU
CH FOR PLAYING -- GOODBYE":COTO6050
6040 RETURN
6050 FORP=1TON
6060 PRINTN$(P) ";:IFD=1ANDP=HTHEN
PRINT" AND"
6070 NEXT
6080 FOR=0TO4900:NEXT:PRINT"(CLR):END
7000 S=7650:C=23400
7010 FORX=0TO21:FORV=0TO22
7020 R=INT(RND(0)*31)
7030 POKESX+228V,21:POKEX+228V,R
7040 NEXT:NEXT
7050 RETURN

```

READY.





Due to some confusion here at dieHard and some misprints, there are a couple of different subscription rates running around out there. So -- here are the correct rates:

single issues: \$1.75  
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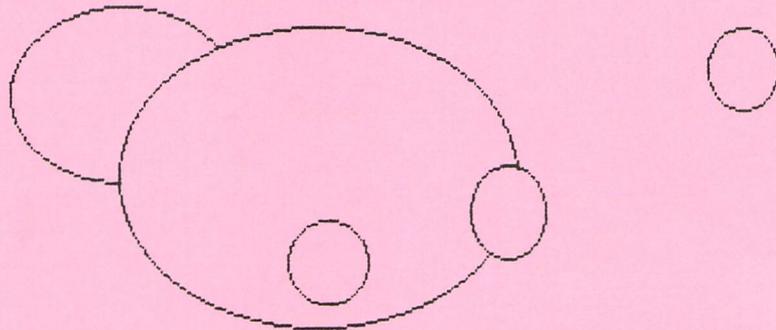
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Mia C Crosthwaite, Subscriptions dieHard

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