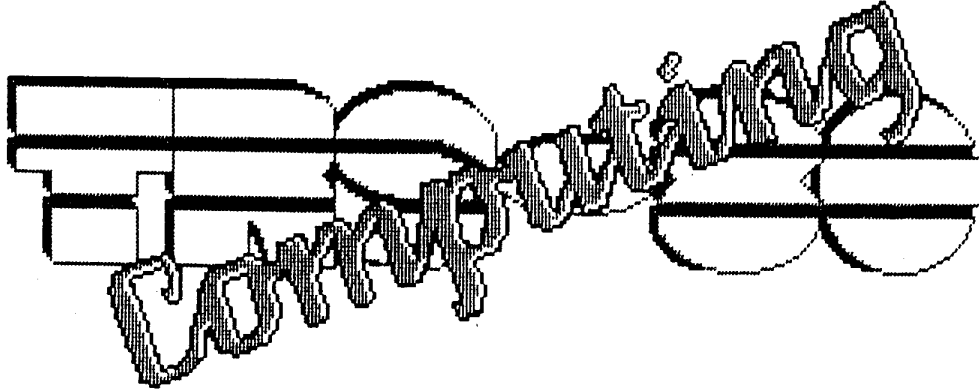


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VOLUME 4
NUMBER 6

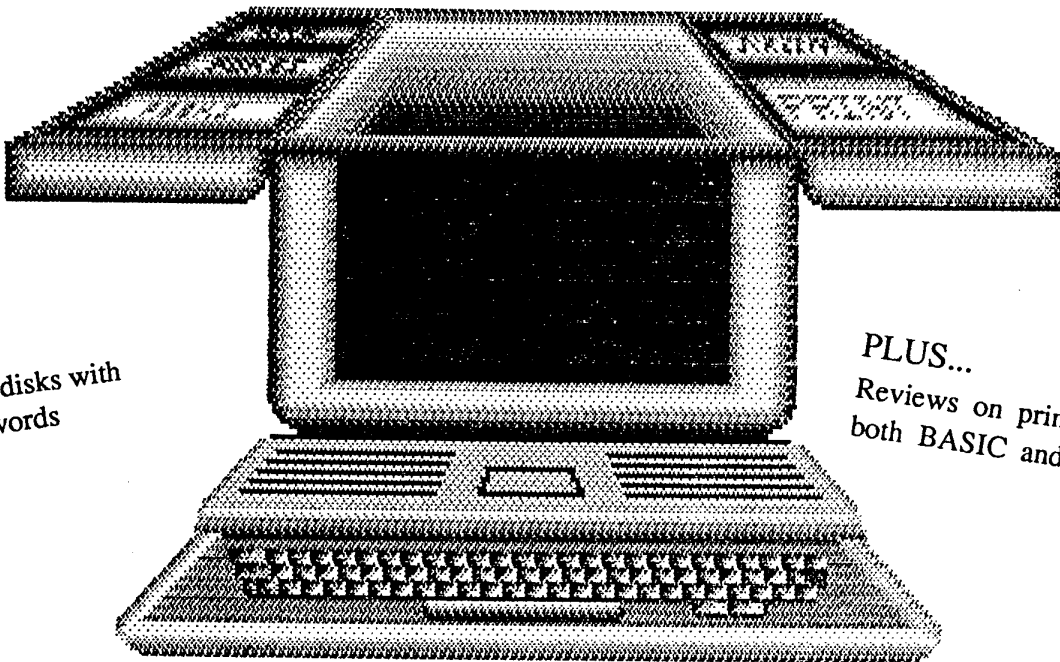


The bi-monthly magazine for Color Computer users

**USING YOUR COCO
AS A TOOLBOX**

UTILITIES

• Learn to use the key repeat routine in your BASIC programs



• Secure your disks with secret passwords

PLUS...
Reviews on printer utilities for both BASIC and OS-9

UTILITIES ISSUE!



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Rather than going into detail on what is contained within this issue, I would like to take the time to explain to you about a major word that keeps this magazine on the go - SUPPORT. When we began nearly four years ago we had little, if any, readers or advertisers. We practically were putting out each issue with money out of our own pockets. Gradually as the months went on, we started to very slowly obtain more readers and advertisers. With this help we were able to increase the number of our pages and improve the overall quality of the magazine. We reached our peak about a year ago, and since then we've very slowly decreased in the number of readers and advertisers. A couple of other CoCo magazines ceased publication and many software companies called it quits. Right now we're up and down - somedays we're doing very well and somedays it doesn't look to good. This trend doesn't really "scare" us, because, as you can see, each issue since June of 1987 has been slowly improving. We have no intentions of cutting the amount of pages per issue nor dropping sections and columns that everyone looks forward to in each issue. The bottom line is to continue supporting the CoCo - don't stop! Most important continue supporting TRS-80 Computing and our advertisers. When your subscription runs out, please renew. When you see we've gotten a new advertiser, at least write a letter requesting a complete software list (sometimes what you see in the ad, isn't everything the company is selling). And, please spread the word. If you have another friend(s) that loves the CoCo show them an issue of our publication. Your help is needed right now. I think our big flaw is that we had started a little too late, and if we had started earlier, we could be doing better at this time. Yes, Radio Shack has given up on the CoCo. But we and many others in the community haven't.

Joe Ahern

**TRS-80 COMPUTING
SINCE 1987**

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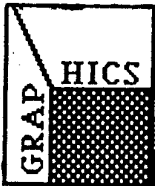
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COVER DESIGN BY ROSS KRAMER



CoCo Graphics Corner

ECB REQUIRED



The following graphics program allows you to enter a number which will represent the number of sides and the number of times you want a polygon to be drawn on the PMODE 4 screen. For example, if you enter the number eight, the CoCo will draw an 8-sided polygon eight times in a circular fashion. This is a simple way to create wild designs in your CoCo's high-resolution graphics mode.

Key in the listing and save it to tape or disk. When the computer asks you how many sides you want on the polygon, procede by typing a number between 3 and 100. The higher the number the longer it will take to complete the drawing.

```
1 ' ** POLYGON DESIGNS **
2 ' WRITTEN BY DAVID MCNALLY
3 ' COPYRIGHT (C) 1991
4 ' BY TRS-80 COMPUTING
10 DIM X1(150),Y1(150)
15 CLS:V=57.29577951:R=40:X=128:
Y=96:Z=1
35 PRINT"HOW MANY SIDES ON THE P
OLYGON? (MIN=3 MAX=100)":INPUT
A:IF A>100 OR A<3 THEN CLS:GOTO
35
40 K=INT(360/A)
45 PMODE 4,1:PCLS:SCREEN 1,1
50 FOR T=0 TO 360 STEP K:X1(Z)=R
*COS((90+T)/V)+X:Y1(Z)=-R*SIN((9
0+T)/V)+Y:Z=Z+1:NEXT T
65 X1(Z)=X1(1):Y1(Z)=Y1(1)
70 FOR H=1 TO Z-2:X=X1(H):Y=Y1(H)
)
80 FOR T=0 TO 360 STEP K
85 X2=R*COS((90+T)/V)+X:Y2=-R*SI
N((90+T)/V)+Y
90 TMP=T+K:X3=R*COS((90+TMP)/V)+
X:Y3=-R*SIN((90+TMP)/V)+Y:LINE(X
2,Y2)-(X3,Y3),PSET
92 NEXT T,H
95 GOTO 95
```

END OF PROGRAM

SPECIALS

(COCO3 POKES/REPORT)

Below are sets of POKEs for use on the CoCo 3. These can be entered in direct mode or put into a BASIC program.

I. 40-TRACK DISK SYSTEM

The following POKEs into memory the necessary information for a 40-track disk system. All blank disks being put into use in 40-track mode should be reformatted. In this mode the disk drive can still read 35-track disks, but you may get an error if you try to read a 40-track disk in the 35-track mode.

```
POKE&HD29,40:POKE&HD65F,40:POKE&HD682,40:POKE&HD44D,78:POKE&HC735,78:POKE
&HC7BB,78:POKE&HC7D0,78:POKE&HC7EF,78:POKE&HCD26,78:POKE&HCEB5,78:POKE
&HD534,39:POKE&HC75A,1
```

II. LOWERCASE THROUGH [SHIFT/0]

These two POKEs configure the 32-character screen so that it displays true lowercase letters rather than reverse video when <SHIFT>+<0> is pressed.

```
POKE&H167,57:POKE &HFF22,21
```

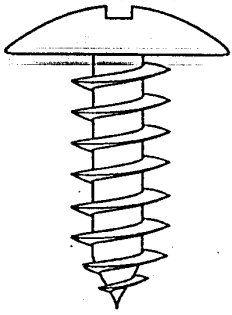
COCOPRO! ACQUIRES ALPHA SOFTWARE TECHNOLOGIES

CoCoPro! Products has the aquisition of Alpha Software Technologies and their fine line of OS9/6809 software products. Included in the new lineup are Data Windows (full-featured database), Data Merger (mail-merger for use with Data Windows and/or your favorite word processor), Presto-Partner (RAM-resident desktop accessory package), Disk Manager Tree (complete control over directory structures), Multi-Menu (easily creates pop-down menus for Multivue), OS-9 Level 2 BBS (complete, ready to use bulletin board system), The Zapper (disk zapper for OS-9 Level 1 or 2), and Level II Tools.

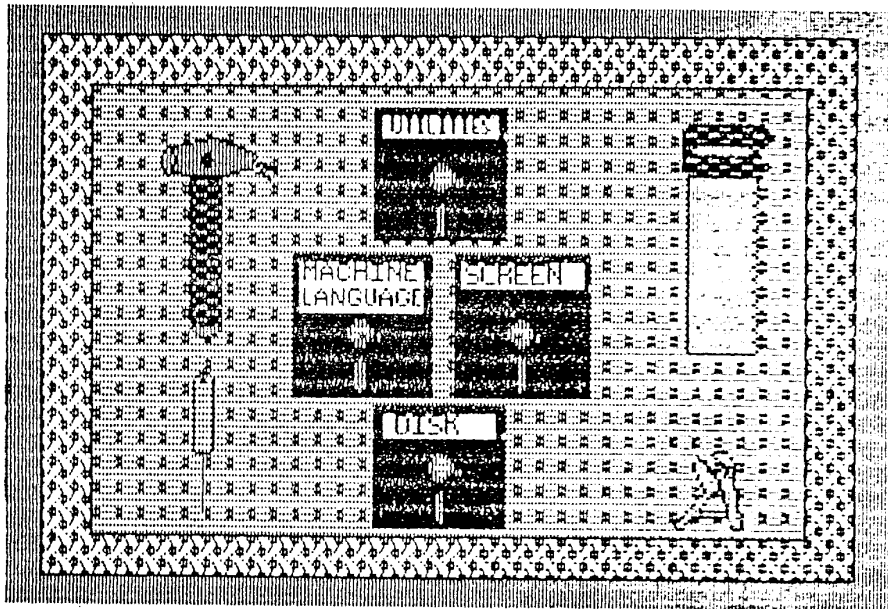
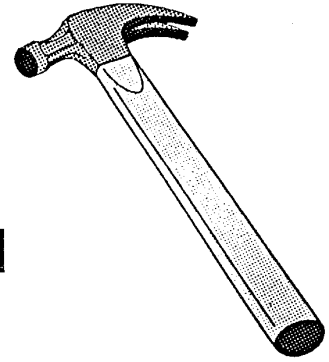
In other related announcements, CoCoPRO! has announced the addition of a line of OS-9/68000 software. Planned introductions include OS-9/68000 versions of several of the Alpha Software products mentioned above as well as a special OSK Tools package. This product line will offer time-tested utility to the relatively uncluttered OS-9/68000 landscape.

CoCoPRO! also announced the planned introduction (at the Chicago Rainbowfest) of a new OS-9/6809 product, Tools II. This product will consist of utilities for OS-9 Level 2, written by Keith Alphonso with the user's computing convenience in mind. This package will offer a great amount of flexibility to the OS-9 user, at an exceptional price for the value received.

For product and purchasing information and OS-9/68000 product availability, contact CoCoPRO! Products at (313) 481-3283 1-9 PM EST Monday through Friday, 1-7 PM Saturday.



THE PROGRAMMER



(COCO MAX III DRAWING BY THOMAS SINCLAIR)

THE PROGRAMMER APRIL '91

This month...

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- PART 2: USING A 3-D PLANE

SECURING YOUR DISK

by Joe Ahern



INTRODUCTION

Most avid CoCo users who own a disk system have on an average of at least 30 disks filled with all types of different programs for their CoCo. Some of these disks contain very valuable information, and, even if you have backups, you don't want anyone else making use of this information. Disk Protector will allow you to lock and unlock disks for protection. Simply by entering a password and codeword for the disk you can safely lock it so that no one will be able to get access to the disk's directory. Each time you want to get access to the protected disk you must enter your secret password to unlock it for use. It is very important that you keep track of the password/codeword of each disk, because if you lose the password you could lose the contents of the entire disk.

USING THE PROGRAM

After typing in the program, save it to a disk other than the one(s) you want to have protected. Now proceed by running the program. A menu will appear with three choices: LOCK A DISK, UNLOCK A DISK, and QUIT AND RETURN TO BASIC. Choose option <1> to lock the disk you have in the disk drive. At the prompts, enter your own password and codeword for the disk. After a few turns of the drive head the disk will be locked for protection. Now try getting a directory of the disk you have just locked. Everything is gone except for one file labeled, "LOCKED" (This tells you whether a disk is locked or not.). Don't fear, your disk is not erased like many would assume. The directory is simply hidden from track 17. No one can get access to any of the files because they don't know what the filenames are. If someone did attempt to load in one of the files, they would be returned with a non-existing file error (as if the disk is erased). Now choose option <2> from the menu, and type the correct password and codeword for the disk. You only have three tries to enter the correct password, after that the program will terminate. After a few more turns of the drive head your disk will be unlocked for use. Now if you try getting a directory of the disk you will see that all the contents is there as if nothing

ever happened to it. You can choose option <3> at any time to exit the program (this will clear the screen and return to the normal 32cpl mode).

NOTES...

- a) Do not attempt to lock a disk that has been previously locked, or vice-versa. This could cause trouble with the disk.
- b) The password/codeword that you first enter is not permanently saved onto the disk. If desired, you will have to re-lock the disk after unlocking.
- c) Remember: Never save this program onto the disk you are going to lock!

THE LISTING: DISKPROT

```
10 ' DISK PROTECTOR
15 ' PROGRAMMED BY JOE AHERN
20 ' TRS-80 COMPUTING. APRIL '91
22 CLEAR 8000:DIM D$(40):DIM P(8)
25 CLS:WIDTH 40
30 ATTR 2,0,U:LOCATE 7,0
35 PRINT"D I S K P R O T E C T
O R";
40 ATTR 2,0:LOCATE 6,1
45 PRINT"Program written by Joe
Ahern"
50 LOCATE 7,5:PRINT"Would you li
ke to:"
55 LOCATE 7,7:PRINT"1. LOCK A DI
SK FOR PROTECTION":LOCATE 7,8:PR
INT"2. UNLOCK A DISK FOR USE":LO
CATE 7,9:PRINT"3. QUIT AND RETUR
N TO DISK BASIC"
60 LOCATE 7,11:PRINT"CHOOSE <1>,
<2>, OR <3> ";
65 LINEINPUT CH$:CH=VAL(CH$)
70 IF CH<1 OR CH>3 THEN SOUND 28
,1:GOTO 25
75 ON CH GOTO 100,200,300
90 IF CH=1 THEN 100 ELSE 200
100 CLS:ATTR 2,4
105 PRINT"INSERT DISK TO BE LOCK
ED...":PRINT"STRIKE ANY KEY WHEN
READY!";
108 R$=INKEY$:IF R$=""THEN 108
109 FOR Y=1 TO 18:X=2*Y:DSKI$ 0,
17,Y,D$(X-1),D$(X):NEXT Y
110 O$=CHR$(0):FOR Y=1 TO 5:O$=O
$+O$:NEXT
112 CL$="LOCKED "+O$
114 LOCATE 0,4:LINEINPUT"Enter a
password for this disk: ";P$
115 MID$(D$(22),1,16)=CL$:MID$(D
$(22),22,8)=P$+D$(4)
120 LINEINPUT"Enter a code word
for this disk: ":C$
125 LOCATE 0,8:ATTR 2,4,B:PRINT"
Please wait...";
130 P$=C$+D$(4)
135 FOR X=1 TO 8:C$=MID$(P$,X,1):P(
X)=ASC(C$):NEXT X
140 X=0:FOR Y=1 TO 68:D=ASC(MID$(D$
(3),Y,1)):X=X+1
145 IF D+1>P(X) THEN C=D-P(X)
150 IF D<P(X) THEN C=D+255-P(X)
155 IF X=8 THEN X=0
160 MID$(D$(2),Y,1)=CHR$(C):NEXT
Y
165 FOR X=1 TO 68:MID$(D$(3),X,1)=
CHR$(200):NEXT X
170 X=0:FOR Y=1 TO 18:X=X+2:DSKO$ 0
,17,Y,D$(X-1),D$(X)
175 IF X=4 THEN X=21
180 IF X=23 THEN X=4
185 NEXT Y
195 ATTR 2,4:PRINT:PRINT"DISK LO
CKED";
198 FOR DLAY=1 TO 2000:NEXT:ATTR
2,0:GOTO 25
200 CLS:ATTR 2,1
205 PRINT"INSERT DISK TO BE UNLO
CKED...":PRINT"STRIKE ANY KEY WH
EN READY";
208 R$=INKEY$:IF R$=""THEN 208
209 FOR Y=1 TO 18:X=2*Y:DSKI$ 0,
17,Y,D$(X-1),D$(X):NEXT Y
210 O$=CHR$(0):FOR Y=1 TO 5:O$=O
$+O$:NEXT
212 CL$="LOCKED "+O$
213 X=0
214 LOCATE 0,4:LINEINPUT"Enter p
assword to open: ";P$
215 P$=P$+D$(4)
220 IF MID$(D$(5),22,8)=LEFT$(P$
,8) THEN PRINT:PRINT"PASSWORD AC
CEPTED":GOTO 240
```



```

225 PRINT:PRINT"PASSWORD DENIED"
:PRINT:X=X+1
230 IF X=3 THEN GOTO 300 ELSE 21
0
240 X=0:PRINT:LINEINPUT"Enter co
de word: ";C$
245 PRINT:PRINT:ATTR 2,1,B:PRINT
"Please wait...";
250 P$=C$+D$(4)
255 FORX=1TO8:C$=MID$(P$.X,1):P(
X)=ASC(C$):NEXT X
260 X=0:FORY=1TO68:C=ASC(MID$(D$
(2),Y,1)):X=X+1
265 IF C+P(X)<256 THEN D=C+P(X)


```

```

270 IF C+P(X)>255 THEN D=C+P(X)-
255
275 IF X=8 THEN X=0
280 MID$(D$(3),Y,1)=CHR$(D):NEXT
Y
285 X=0:FOR Y=1TO18:X=X+2:DSKO$
0,17,Y,D$(X-1),D$(X)
290 IF X=4 THEN X=6
295 NEXT Y
298 ATTR 2,1:PRINT:PRINT"DISK UN
LOCKED";
299 FOR DLAY=1 TO 2000:NEXT:ATTR
2,0:GOTO 25
300 WIDTH 32:END

```


END OF PROGRAM



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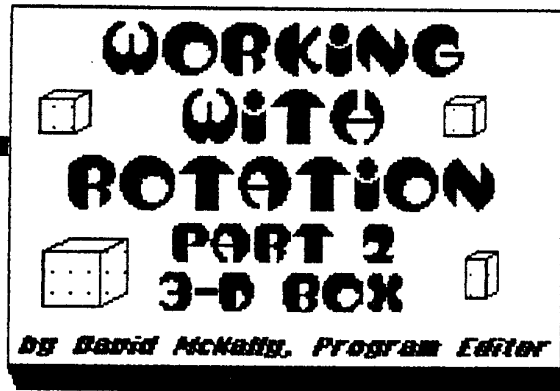
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```

*****
PROGRAMMING PUZZLE SOLUTION
(FROM FEBRUARY 1991 ISSUE)
5 CLS
10 PRINT "ENTER THE DIVISOR: ";INPUT A
15 PRINT "ENTER THE DIVIDEND: ";INPUT B
20 PRINT "REMAINDER= ";A-(INT(B/A)*B)
*****

```



In last month's issue we used the two dimensional plane to create and rotate a triangle. If you recall, we used an imaginary circle to find the three points on the triangle and then drew the lines to form the triangle. This same method can be used again to create and rotate a three dimensional object.

The program listed below uses two ellipses as the foundation to draw a 3-D box. One imaginary ellipse is used to form the top of the box, and the other is used to form the bottom. After the imaginary ellipses are formed, the degrees in the ellipses are divided by four to find the coordinates of each corner of the box. When the four points have been found, they are connected to form the sides of the box. The box can be rotated by changing the degrees in both ellipses, recomputing the four corners, and reconnecting the sides (this is all done on the CoCo's spare graphics pages and then copied to the page you are viewing).

After executing the program, you will see the 3-dimensional box on your screen. This can be rotated by using the <1> and <2> keys, and made smaller or larger using the <3> and <4> keys respectively. Remember, we are not using machine language, so this routine is a little slow.

THE LISTING: BOX

```

1 ' BOX ROTATION
2 ' PROGRAMMED BY DAVID MCNALLY
3 ' COPYRIGHT (C) 1991
4 ' BY TRS-80 COMPUTING
5 PCLEAR 8
6 CLS
8 PMODE 4,1:PCLS
10 REM ** SET VARIABLES **
12 X1=128:Y1=46:X2=128:Y2=130:F=
0:Z=1
14 V=57.29577951:R1=70:R2=20
16 L=INT(360/4)
18 GOTO 36
20 REM ** RECOMPUTE POINTS **
22 FOR T=0 TO 360 STEP L
24 A1(Z)=R1*COS((90+T+F)/V)+X1:B
1(Z)=-R2*SIN((90+T+F)/V)+Y1:A2(Z
)=R1*COS((90+T+F)/V)+X2:B2(Z)=-R
2*SIN((90+T+F)/V)+Y2:Z=Z+1
26 NEXT T
28 REM *DRAW BOX ON SPARE PAGE*
30 LINE(A1(1),B1(1))-(A1(2),B1(2
)),PSET:LINE-(A1(3),B1(3)),PSET:
LINE-(A1(4),B1(4)),PSET:LINE-(A1
(1),B1(1)),PSET:LINE(A2(1),B2(1)
)-(A2(2),B2(2)),PSET:LINE-(A2(3)
,B2(3)),PSET:LINE-(A2(4),B2(4)),
PSET:LINE-(A2(1),B2(1)),PSET
32 LINE(A1(1),B1(1))-(A2(1),B2(1
)),PSET:LINE(A1(2),B1(2))-(A2(2)
,B2(2)),PSET:LINE(A1(3),B1(3))-
(A2(3),B2(3)),PSET:LINE(A1(4),B1
(4))-(A2(4),B2(4)),PSET
34 RETURN
36 GOSUB 22:SCREEN 1,1
38 A$=INKEY$:IF A$="" THEN 38
40 KK=VAL(A$):ON KK GOTO 52,58,6
4,70
    
```


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PROGRAMMING

KEY REPEAT

by David Michally
Program Editor

I have had a numerous amount of people write telling me that they use the keyboard roll over table on the CoCo to produce a key repeat routine. I would like to take this opportunity to explain how this is done to any unexperienced CoCoers in advanced BASIC.

When you press a key on the keyboard, there is a place in the computer's memory that is altered until the key is released. The numbers in these memory locations seem to "roll over" to other values, which tells the computer a key is being pressed. Checking these memory locations is the way in letting the computer know a key is being pressed.

Using this method is very simple. First, find the character you want to check for in the chart below. In this example we will use the letter <T>. Secondly, in the row where the <T> is located, follow across to the left and find the memory location you need to PEEK at (for <T> it would be 342). Finally, in the column where the <T> is located, follow all the way up to the top. This is the number that will be returned when you press the <T> key (which is 251). Now that you have this information, all you need to do now is PEEK(342). If the value returned is 251, you know the <T> key is being pressed.

In the example program below, use the up arrow key to raise the numbers and the down arrow to lower them. Notice that this method replaces all those INKEY\$'s. Try experimenting with this concept. I know you will find it very useful, especially in creating graphics programs.

```
5 X=50
10 CLS
15 IF PEEK(341)=247 AND X<200 THEN X=X+1
20 IF PEEK(342)=247 AND X>0 THEN X=X-1
25 CLS:PRINT X
30 GOTO 15
```

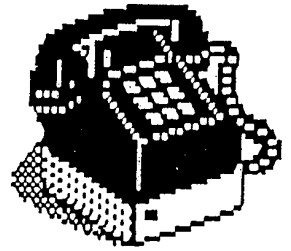
RETURN THESE VALUES

	254	253	251	247	239	223	191
338	@	H	P	X	O	8	<ENTER>
339	A	I	Q	Y	1	9	<CLEAR>
340	B	J	R	Z	2	:	<BREAK>
341	C	K	S	↑	3	;	
342	D	L	T	↓	4	.	
343	E	M	U	←	5	-	
344	F	N	V	→	6	,	
345	G	O	W	space	7	!	

PEEK AT THESE LOCATIONS

CHARACTERS TO CHECK FOR

THE WORLD OF TELECOMMUNICATIONS



COLLECTED WRITTEN BY MICHAEL HEITZ

I came across a couple of text files on a Color Computer bulletin board. I thought that you might find them of interest, so here they are. The first one is long and will continue through several future issues, so stay tuned! Here is an excerpt from The Modem Reference, written by Michael A. Bank and recommended by Jerry Pournelle in Byte, The Smithsonian Magazine, et al. The right to reproduce this article is granted on the condition that all text, including this notice and the notice at the end of the article, remain unchanged, and that no text is added to the body of the article.

BITS, BAUD RATE, AND BPS Taking the Mystery Out of Modem Speeds By Michael A. Banks

Modem transmission speed is the source of a lot of confusion, even among otherwise informed computer and modem users. The root of the problem is the fact that the terms "baud" and "bits per second" are used indiscriminately. I strongly suspect this is a result of the fact that it's easier to say "baud" than "bits per second", though misinformation has a hand in it, too.

If you've ever found yourself confused by the relationship between bits and baud rate, or if you think that a modem's baud rate is the same as the number of bits or characters it transmits per second, please read this article carefully; I guarantee to clear up the confusion and disabuse you of any false concepts...

BITS PER SECOND (bps)

Bits per second is a measure of the number of data bits (digital 0's and 1's) transmitted each second in a communications channel. This is sometimes referred to as "bit rate." Individual characters (letters, numbers, etc.), also referred to as bytes, are composed of several bits. While a modem's bit rate is tied to its baud rate, the two are not the same, as explained below.

BAUD RATE

Baud rate is a measure of the number of times per second a signal in a communications channel varies, or makes a transition between states (states being frequencies, voltage levels, or phase angles). One baud is one such change. Thus, a 300-baud modem's signal changes state 300 times each second, while a 600-baud modem's signal changes state 600 times per second. This does not necessarily mean that a 300-baud and a 600-baud modem transmits 300 and 600 bits per

second, as you'll learn in a few lines.

DETERMINING BITS PER SECOND.

Depending on the modulation technique used, a modem can transmit one bit--or more or less than one bit--with each baud, or change in state. Or, to put it another way, one change of state can transmit one bit--or more or less than one bit. As I mentioned earlier, the number of bits a modem transmits per second is directly related to the number of bauds that occur each second, but the numbers are not necessarily the same.

To illustrate this, first consider a modem with a baud rate of 300, using a transmission technique called FSK (Frequency Shift Keying, in which four different frequencies are turned on and off to represent digital 0 and 1 signals from both modems). When FSK is used, each baud (which is, a gain, a change in state) transmits one bit; only one change in state is required to send a bit. Thus, the modem's bps rate is also 300:

$$300 \text{ bauds per second} \times 1 \text{ bit per baud} = 300 \text{ bps}$$

Similarly, if a modem operating at 1200 baud were to use one change in state to send each bit, that modem's bps rate would be 1200. (There are no 1200 baud modems, by the way; remember that. This is only a demonstrative and hypothetical example.)

Now, consider a hypothetical 300-baud modem using a modulation technique that requires two changes in state to send one bit, which can also be viewed as 1/2 bit per baud. Such a modem's bps rate would be 150 bps:

$$300 \text{ bauds per second} \times 1/2 \text{ baud per bit} = 150 \text{ bps}$$

To look at it another way, bits per seconds can also be obtained by dividing the modems baud rate by the number of changes in state, or bauds, required to send one bit:

$$\frac{300 \text{ baud}}{2 \text{ bauds per bit}} = 150 \text{ bps}$$

Now let's move away from the hypothetical and into reality, as it exists in the world of modulation.

First, least you be misled into thinking that "any 1200 baud modem" should be able to operate at 2400 bps with a two-bits-per-baud modulation technique, remember that I said there are no 1200 baud modems. Medium- and high-speed modems use baud rates that are lower than their bps rates. Along with this, however, they use multiple-state modulation to send more than one bit per baud.

Well, that is all for this month, take care until next time. Keep on modeming!



MORE CHARACTERS FOR SCRIPSIT

by Ray Kornele

I. COLOR SCRIPSIT II

The following is a list of undocumented commands available in the Color Scripsit II ROMpak. These codes work on the CoCo 2. I don't know about CoCo 3, but, some experimentation should give you some comparable results.

Codes ASCII 1 through ASCII 26 are available from the keyboard using the [CLEAR] key with "a" through "z". ASCII 27 can be generated by [CLEAR] with BREAK.

Below is a BASIC program which will generate a file of all 256 ASCII characters to load into the Color Scripsit II ROMpak. They can then be moved into whatever position desired.

```
10 OPEN"O",-1,"CODES          30 PRINT#-1,X;ASC(X);
20 FOR X=0 TO 255            40 NEXT:CLOSE
```

Executing this BASIC program will save the ASCII characters to cassette tape under the filename CODES. You can now plug the ROMpak into your CoCo and load in CODES off the tape. You will now see all 256 characters as they look to the program. The ones which show a question mark indicate that the program does not recognize the code, but, the printer will.

You can also use fill (fi) and hex (hx) dot commands to send control codes. Avoid code ASCII 28 since the program "eats" it. When you do a delete, change, insert, or yank, the dot will make the command repeat at any time another one of these commands has not been made. The /find/replace command operates independently from those commands and can be repeated by the n command. If you make a change and then decide you don't want to, pressing u will undo the last command. This includes delete, change, yank, insert, find/replace, etc.

II. COLOR DISK SCRIPSIT

The following is a BASIC program which will generate a file of all 256 ASCII characters to load into Color Disk Scripsit. Any character can then be moved into the position desired.

```
10 OPEN"O",1,"CODES          30 PRINT#1,X;ASC(X);
20 FOR X=0 TO 255            40 NEXT:CLOSE
```

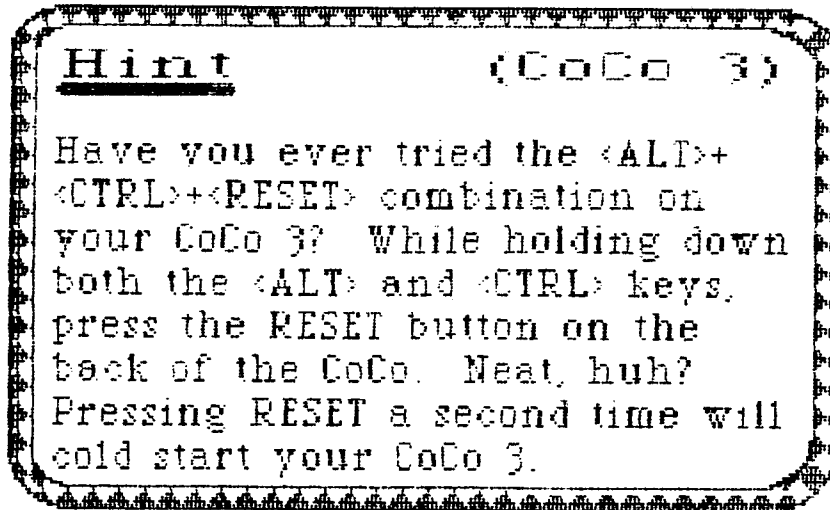
Executing this BASIC program will save the ASCII characters to disk under the filename, CODES.DAT. You can now boot in Color Disk Scripsit and load CODES.DAT into the word processor. You will see all 256 characters as they appeared in the program.

Also, you can go into the insert mode and use right arrow, down arrow, and up arrow to move around. Then, you can use the left arrow to delete one character at a time.

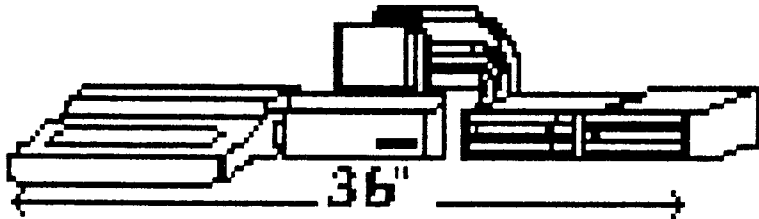
The editing functions in this word processor are not as powerful as those in the Color Scripsit II ROMpak, but the formatting functions are somewhat more powerful.

Also, this program has the advantage of background printing (a multi-task operation).

One caution to users of this program- when you use elongated type, your printer stops elongating at the end of each line. You can change this by changing the END ELONGATION code in MENU item 7 to 000 000 000. Use one line for START ELONGATION and write your text on lines 2 et on.



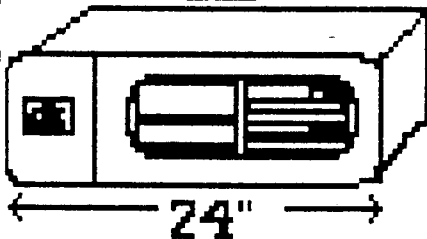
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The Ins and Outs of Machine Language

Column by David McNally, Program Editor

LISTING 1

Purpose: This machine language routine causes the PMODE 4,1 graphics page to scroll up by one pixel.

Use: To use the subroutine, add it to the very beginning of your BASIC program. To call it during your program use A=USR(0). This routine should be called several times in a row for best effects.

Limits: Due to the change of graphics memory when a disk drive is installed, this routine will only work with DISK EXTENDED COLOR BASIC.

The Listing:

```
20 CLEAR 50,20000
60 FOR G=20000 TO 20040:READ S:POKE G,S:NEXT G
80 DATA
214,185,222,186,158,186,48,133,236,129,237,193,156,183,37,248,214,
85,80,48,133,204,0,0,237,129,156,183,37,250,57,84,170,162,168,168,117
,84,85,85,170
100 DEFUSRO=20000
```

NOTE: We do have a CoCo 3 graphics word scroll program available free of charge for anyone who is interested. Please send \$1.00 for postage upon your request.

LISTING 2

Purpose: The following PEEK is used to find out if the user is using a CoCo 2 or a CoCo 3.

Use: Place the PEEK where needed in your program. It will return 50 if the machine is a CoCo 3.

The Listing:

```
PRINT PEEK(33021)
```

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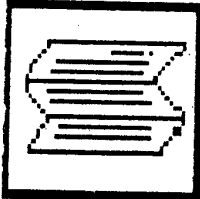
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COCO PEN-PALS

THE FOLLOWING PEOPLE ARE PROUD OWNERS OF TANDY COLOR COMPUTERS WHO ARE LOOKING FOR OTHER COCO USERS TO COMMUNICATE BY SHARING IDEAS AND TALKING ABOUT THEIR COMPUTER. PLEASE - NO SOFTWARE PIRACY!

- My name is Ernest Bazzinotti and I am looking for some pen-pals. My system consists of a CoCo 3 with 512k of memory, two 40-track disk drives, modem, CM-8 monitor, and a DMP-130A printer. I'm looking for any kind of a user group within the greater Boston, eastern Massachusetts area. My interests are OS-9, telecommunications, and almost anything concerning the CoCo 3 and computers in-general. All correspondence will be answered, please enclose a S.A.S.E. for a reply.

*Ernest Bazzinotti jr.
93 Auckland St. #2
Dorchester MA 02125*

- I have a 512K CoCo 3 with a CM-8 RGB monitor, an FD-502 and a Teac 3 1/2" disk drive, an OMTI 5200 with a 40 megabyte harddrive, 2400 baud modem, multipak interface, and a DMP-105 printer. I'm 32 years young and I enjoy communicating. I will answer all letters, but I prefer computer-related matters. I am also interested in forming a BBS.

*Art Foley
600 S. 27th St., #914
Omaha NE 68105*

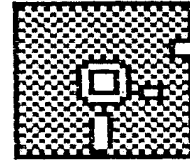
If you would like to have your name printed in the CoCo Pen-pals section, send in your name & full address, along with a few short sentences telling about your CoCo system. We will then print it in an upcoming issue.

Programming Puzzle

Using random numbers and the ASCII code numbers from 32 to 126, inclusive, have the CoCo generate a string of 100 characters, allowing repetitions. Tabulate how many characters are letters, numbers, or misc. characters (*,\$,%,&, etc.). Print the results.



COCO



PRODUCT REVIEWS

Software Review

PRINTER UTILITY
COCO 1,2,3 (min. 16K)

ENVELOPE WRITER

Color Computer Envelope Writer is a program that allows you to print the return and sending address directly onto an envelope. It allows up to six lines of text for both the return and sending addresses entered. Printer fonts and baud rates can be changed directly through the program. You can even set tabs and space settings making it easy to customize the format of the printout. All settings, including your return address, are saved on disk and loaded into the program upon start-up. This routine will save you time because you will not have to repeatedly enter the data every time you use the program.

The program includes one, single-sided, disk on which there are three files: the main program, a RESET program that restores all the settings in the program to their default values, and a data file which contains the current settings. Also included is a four page manual explaining every last detail of the program, including how to insert the envelopes in the printer. (DMP printers require special fanfold envelopes not included. Daisywheel printers can print on any ordinary envelope.). I feel that this program would be of help to CoCoers since it will save money on having to buy mailing labels.

(Trading Post, P.O. Box 3453, Carbondale, IL 62902-3453; \$19.95 (current sale price: \$17.95) + \$3.00 shipping/handling)

- David McNally

PRINT 5

Print 5 is a set of programs which perform screen dumps under OS-9 Level II on the CoCo 3. There are six programs which constitute the Print 5 package: ps, pg, pgw, fls, and flv. Each program is found on the CMDS directory (main execution directory) on the Print 5 disk. In order to use these programs (procedures), your system must consist of a CoCo 3 (512K is recommended for faster output of the programs and to avoid any out-of-memory errors), OS-9 Level II, a disk drive (two drives would be more helpful), and a DMP-105/130 or compatible printer. The instruction manual recommends that you have a high-resolution (RGB) monitor and a copy of the book, The Complete Rainbow Guide to OS-9 Level II, Volume 1 (I find this to be imperative for those just starting out in OS-9).

Before making use of any of the procedures, you must have the tmode and display system modules in memory. Also, the Type 5 graphics window must be full size (640 x 192 pixels, which is 80 columns). Now I am going to procede by explaining each procedure individually.

ps, the fastest of all six procedures, dumps the current text screen (80 or 40 column) to the printer. Rather than just printing a portion of the screen, ps will print everything that's on the screen, prompts and all. The procedure has a feature that gives you the liberty of adjusting the position of the printed text by identifying the left margin size and the number of lines to print. For example, if you were to enter ps 10 5 at the OS-9 prompt, the printer would print the top five rows of text with a margin of ten.

pg will print a sideways screen dump of the Type 5 graphics screen. As with ps, you are given the option to specify a left margin and the number of lines to print per page.

pgw is very similar to pg, but gives you a printout that is twice as wide as one using the pg procedure.

phc essentially has the same setup as ps, but gives you more options to choose from. Along with being able to specify a left margin the number of lines per page, you can also specify the typestyle (condensed, elite, or pica) and the number of columns to print. Although, when the manual explains the phc module, it refers to the typestyle option as "type". At first this can be somewhat confusing. A user wouldn't know whether it's referring to the type of graphics screen or the type of print.

flv flips a graphics screen vertically (top-to-bottom), while **fls** does so sideways. flv is much faster than fls, so if you were to flip the entire screen in order to make an iron-on print, you would most likely use flv instead of fls.

In addition to the six command modules, there are a

number of BASIC09 procedures which draw some simple graphics screens and show uses for the programs. A printout of one of the procedures, fish.b, is shown below. The actual printout was blue and was much bigger in size (full-page).

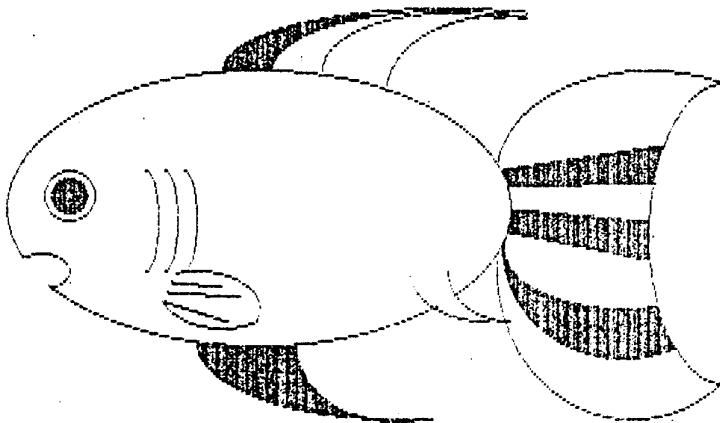
I didnot encounter any errors while using each of the six programs. Although, I think the number of programs and options makes it somewhat confusing. It would be nice if the programs were combined into one (somewhat larger) program which would do all the various functions. It would also be nice if options could be selected from an overlay menu. An overlay menu would not affect the contents of the current screen, so the contents of the dump would not be affected. I think the most serious problems with all these programs is that they must be run from the window which contains the data to be printed. This means that (unless the program is called from within a Basic09, C, etc. program) the command line will always appear on the printout.

The instruction manual supplied with the Print 5 package is a 10-page, home-made booklet. There are two parts; Part One explains how to use the command modules and Part Two discusses the different Basic09 procedures and how to use them. The manual is neatly put together, but, is the worst and most confusing set of instructions I have read through in a long time! They need a lot of work! A new user will be hopelessly confused, an experienced user will probably just trash the whole thing. There is a section in the documentation on error trapping (what to do if an error occurs in the program). No user should be expected to go through this kind of a procedure to use a program (it should be 100% error-free). I know why the author is suggesting what he is; but there are other ways (from within the program) to do the same thing.

I hope the last couple of paragraphs of this product review aren't too heavy on the negative side; but this is the 90's and we are dealing with a mature operating system.

(G.T.T.D. Software, P.O. Box 187, Pablo, MT 59855; telephone # 406-883-2306; \$23.95 + \$2 shipping/handling)

- Joe Ahern & Bob van der Poel



TYPE 5 SCREEN
PRINTOUT (VERTICALLY)

EXEC 44539 T1P

EXEC 44539, the wait for key-press routine, works in other ways as well. For example, if you have a line such as:

```
100 K$=INKEY$:IF K$="" THEN GOTO 100
```

and you are using TRON for debugging, when the program gets to line 100, it will start printing [100] all over the screen. This will be done so much that you won't be able to see what happened to the rest of your lines.

Replace this with:

```
100 EXEC 44539:K$=INKEY$
```

It does the same thing without the trace problem. Or, you can leave off the last part if you don't need K\$ for some purpose. When the program reaches line 100 it will stop and wait for your keypress.

- Ray Kornele

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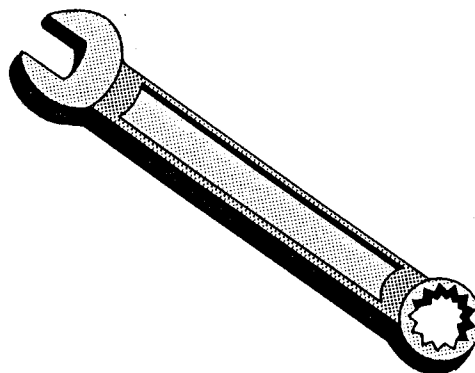
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VED Port Update
and a LIST
Command in C
*by Bob van der Poel,
Contributing Editor*

Since this is the utilities issue I thought it might be a nice time to show you a real C program: but first, an update. A few issues ago I told you that I was writing a version of VED for the new MM/1. This program was originally written in 6809 assembly language; the new one is written in C. The trick was that at the time I didn't have a MM/1 and the initial development for this 68K program was being done on a CoCo running OS-9 Level II. I assured you that it would be trivial to move the program over to the new machine once it arrived.

Well, it wasn't quite as trivial as I promised. It took about two days to get the first version running--probably not bad considering the fact that there are over 175,000 bytes of source code spread over 25 files. The main problem was that the C compiler for the MM/1 does more error checking than the one for OS-9 Level II and things which I got away with were flagged by this more sophisticated program. In addition I did not have proper documentation for the screen output of the MM/1 and it took a fair amount of detective work to figure out the proper codes--not a problem of C.

A reader wrote and took me to task--he didn't think that porting C programs was as easy as I made out in that article. In many ways he is correct--especially when the original intent of the original programmer is not all that clear. But I still maintain that the porting of a C program is much easier than one written in BASIC, and porting programs written in assembler is a real nightmare. In addition he suggests that the real strength of C is not its portability, but that it can do byte and bit manipulation just like assembler. A fair point. He also points out that the power of C is not without a price--it takes a lot of work to learn to program in C. Again, he is correct--but is there anything worth doing or learning which does not exact that same price?

Now, on to new things. Most operating systems come with a command which will list the contents of a file or files to the terminal screen. In OS-9 that command is LIST. Just to show you that there is nothing magical about LIST (after all, it is just a program) I've rewritten it in C. You should place the following code in a file called "nlist.c".

```
/* This is a simple duplicate of the standard list program in C.  
It demonstrates the use of buffered I/O and the parsing of  
command line parameters. To avoid conflict with the standard  
list command you should compile it as NLIST. */
```

```

#include <stdio.h>

main(argc,argv) int argc; char *argv[]; {
    FILE *infile;
    register char c;
    register int t;

    for(t=1; t<argc; t++){
        if((infile=fopen(argv[t],"r"))==NULL)
            fprintf(stderr,"Can't open %s, error %d\n",
                argv[t],errno);
        else{
            while(!feof(infile)){
                c=getc(infile);
                putc(c,stdout);
            }
            fclose(infile);
        }
    }
}

```

Take some time between now and the next issue to type it in, compile it and figure out how it works. Any basic C reference will contain a program similar to this one and will contain much more tutorial information than is possible in this short column.

A valid question you might ask is: "Why re-write a program which already comes with my operating system?" The answers are many: Not only is it a valuable learning experience, but more important, you can now modify the program to do the things you want it to do. Already, this program has an advantage over the standard LIST command. If LIST cannot open one of the files specified it will end; NLIST reports errors as they are encountered, but continues on to the next file.

In the next issue we will add some options to NLIST. In the meantime, get those compilers humming. And if you have comments or suggestions for this column drop me a note care of this magazine or at:

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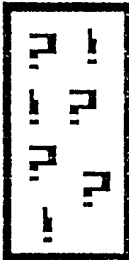
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COCO QUERIES

Q. Regarding the Balloon Basher program that appeared on page 11 of the June 1990 issue, how can I make the cursor more visible?

A. If you were to take the blinking routine out of the cursor it would be cheating in some sense, because that would make the game too easy to play. But, you can change the blinking cursor to a bigger size which would make it somewhat easier to see while playing. Change line 270 of that program to read:
`270 COLORRND(4):LINE(A,B)-(A+4,B+4),PSET,B:COLORC:LINE(A,B)-(A+4,B+4),PSET,B`
This will increase the size of the cursor by four (4) pixels.

Q. How would you install a small fan in the CoCo?

*Fred Wilson
556 Cherokee Drive
Waynesboro GA 30830*

Q. I would like to find out more about my CoCo 3 and CM-8 monitor without spending a lot of money. Can you help me out?

A. I sure can. Tandy has a great deal of technical information on your Tandy equipment (such as computers, printers, modems, disk drives, etc.). Call toll free 1-800-442-2425 and have the Radio Shack catalog numbers (#26-xxx) of the equipment ready. They will tell you the shipping/handling cost and send the information right to your front door. These technical manuals tell you just about everything you'll ever need, plus it gives part numbers to order with/from.
(- Terry Laraway, Bremerton, WA)

Q. My friend owns an IBM-PC with a built-in clock. Would I be able to get one for my CoCo?

A. No problem! There have been several clock systems for the CoCo but the newest one on the market would be Spectrosystem's *Smartwatch*, or Disto's optional real-time clock driver on Extended ADOS-3. Both systems will allow you to date/time file entries on the disk's directory, date/time program listings, and date/time the OS-9 bootup. Also, you will not have to keep on typing in the date/time every time you cold start your CoCo, simply type PRINT DATES in RS-DOS and it will print the date/time in your program or on the screen. The systems will work with both RS-DOS and OS-9. Write to Spectrosystems, 1111 N. Kendall Drive, Suite A108, Miami, Fl., 33176 for more information on both drivers.
(- Terry Laraway, Bremerton, WA)

* Send in your questions regarding to the Color Computer! Address all response to CoCo Queries in c/o this magazine. All queries will be published, and most likely answered by a member on our editorial staff or another reader. Your address will be left beneath your question if a reader should answer. Please note that all queries must be received by the 20th of the month prior to the month published (May 20th for the June issue).

ADVERTISING INFORMATION

TRS-80 COMPUTING ACCEPTS DISPLAY AND CLASSIFIED ADVERTISEMENTS. WHEN DISPLAY ADVERTISING, YOU HAVE AN OPTION OF PLACING 1/4, 1/2, AND FULL PAGE ADVERTISEMENTS. YOU CAN ALSO PLACE AN ADVERTISEMENT ON THE INSIDE FRONT OR BACK COVER OF THE MAGAZINE. TO RECEIVE ALL OUR RATES AND MORE DETAILED INFORMATION, PLEASE REQUEST OUR ADVERTISING RATES AND INFORMATION PACKET.

(CLASSIFIED ADVERTISING RATES are \$.60 per line, with a minimum of 3 lines)

PROGRAM SUBMISSIONS

ATTENTION ALL PROGRAMMERS! IF YOU HAVE A BASIC PROGRAM THAT YOU HAVE WRITTEN, AND WOULD LIKE TO SUBMIT IT TO TRS-80 COMPUTING, PLEASE SEND IT TO US ON TAPE OR DISK. (WE'RE SORRY BUT WE CAN'T TYPE IN LISTINGS.) IF THE PROGRAM MEETS OUR NEEDS FOR A PARTICULAR ISSUE, WE WILL PUBLISH IT. YOU WILL BE NOTIFIED BEFORE YOUR SUBMISSION IS PUBLISHED. MAKE SURE THE PROGRAM IS ERROR-FREE, AND ANY INSTRUCTIONS OR DESCRIPTIONS ARE INCLUDED WITH IT. WE ARE CURRENTLY LOOKING FOR 1 OR 2 LINE PROGRAMS (WHICH MAY BE TYPED ON A REGULAR PIECE OF PAPER), AND OS-9 LEVEL II PROGRAMS FOR THE SHELL.

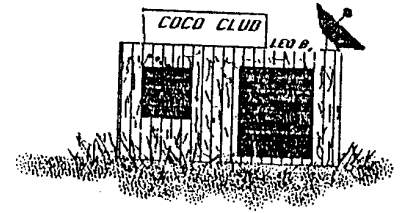
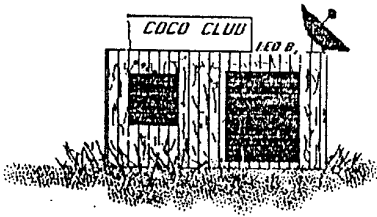
* FOR MORE INFORMATION ON SUBMITTING MATERIAL TO TRS-80 COMPUTING SUCH AS ARTICLES AND PRODUCT REVIEWS, ASK FOR OUR SUBMISSION INFORMATION PACKET AND THE 1991 EDITORIAL CALENDAR.

Note: All submissions become the property of TRS-80 Computing magazine.

DO YOU HAVE ANY QUESTIONS REGARDING THIS MAGAZINE? DIRECT ALL RESPONSE TO OUR ADDRESS ON THE BACK COVER, OR FEEL FREE TO GIVE US A CALL AT (617) 828-7749. WE'D BE GLAD TO HEAR FROM YOU!

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