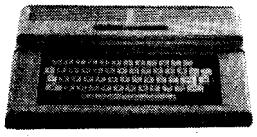
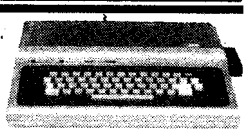
COCO-ADS



THE COLOR COMPUTER USERS MAGAZINE



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PROGRAMS IN COCO THIS MONTH

NAME	PAGE
AMORITZATION	7
COCO SPOOLER	7
DISK-COPY	9
USA PUZZLE	16
STOCKMARKET	17
WIDTH CHANGE	19
BIORHYTHM	21
TANKS	29

OTHER ITEMS OF INTEREST

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COCO CLUB LIST	14
CLASSIFIES	1-20-21
COCO ADDRESSES	24

==========

N E W F O R M A T F O R C O C O A D S

As you can see COCO ADS has changed there format from a newspaper type to a magazine type. For better storage, easier reading, and many more reasons. We hope you enjoy it and would like any comments you might have.

As you also might notice, the last two programs in this issue are larger print to make it easier to read and punch in. Please notice the two different sizes, from BIO- page 21 and TANKS page 29. Please let us know which you prefer.

Thanks to all for your support in the last year of COCO ADS. It has grown very well and hope it keeps growing.

B B S LIST

201 267 1207 THE ARMORY
201 376 4462 THE MORGUE
201 486 2956 CFONJ
201 569 0162 NAME UNKNOWN
201 572 0617 COLORAMA COCO BBS
201 637 6286 B&J SOFTWARE ORDR
201 637 6644 B&J SOFTWARE 24HR
201 790 6795 PHOTO-80
201 928 9488 COCO CREATIONS
203 237 2668 DAVE SCHWARTZ
206 255 5150 MARSHALL BUTLER
206 256 6624 DIAL YOUR MATCH
206 435 4803 COLORAMA
206 692 8408 US ONLINE
206 762 5141 MINI-BIN
206 883 0403 JCTS
209 836 1074 KEN DENNY
212 423 4623 ARNOLD SCHIFFMAN
212 682 0681 STEVE SCHECHTER
213 388 5198 MAGNETIC FANTASIES
213 926 9553 DATA EXCHANGE
214 769 3036 MICROSERVE
215 244 0864 THE CITADEL
215 857 3035 JOE BRACH
216 788 7910 LARRY CADMAN
301 344 9156 NASA GET AWAY SPEC
301 599 1726 JOE SARTORI
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602 245 0488 DENNIS CONNOLLY
612 699 5657 PH.B.I. PHREAKERS
615 581 9752 COCO PALACE
617 321 6809 ORMAN BECKLER
617 646 6809 GR&G MOORE
707 257 1485 PHIL RUSIN
713 280 8711 NASA
713 479 7006 COCO EXPRESS
713 666 9076 NETHER WORLD
713 923 6809 COCO LOGO
713 941 1542 GOLDEN COCO
713 946 2825 DATA BASE
714 350 2668 COLOR CORNER BBS
714 354 8004 KANDY SHACK
714 359 1586 GROWTH NET BBS
718 441 3755 RAINBOW CONNECTION
718 441 3766 RAINBOW CONNECTION
718 441 5719 RAINBOW CONNECTION
718 441 5907 RAINBOW CONNECTION
718 499 1633 ELECT. CALL BOARD
718 837 2881 KING BYTE C.C.
800 323 0905 MCI MAIL SERVICE
800 438 2438 ON-LINE MAGAZINE
804 285 0041 SKELTON ISLAND
804 868 0922 PENINSULA COCO BD
805 687 9400 JIM LEDOUX
806 374 9711 BURG BOARD
813 321 0397 EMERY MANDEL
813 474 0491 JIM KOCMOND
813 879 1105 ERIC BODLEY
813 924 2626 DANA CAMPBELL
817 789 2254 TY TRAVERS
904 264 0335 WIZARD PENDLETON
904 456 7195 GARY DUNSFORX
904 728 4859 MICRO CONNECTION
907 356 2626 KERRY CLABAUGH
912 686 5917 NASHVILLE SHOP
913 432 5544 MOVIE GD
914 965 7600 COLORAMA YONKERS

IF YOU HAVE A BBS OR KNOW OF SOME IN YOUR AREA, PLEASE SEND THE INFORMATION TO BE LISTED.

P D SOFTWARE
PO BOX 13124 HOUSTON,TX 77219

A R T I C L E S A R E W E L C O M E

ARTICLES ARE WELCOME and will be published if it is of interest to COCO owners. Please send it in on any ASCII word processor program tape or disk. They will be returned to you with a gift. If you don't have a word prodcessor program, just drop us a letter and ask for a REPORTER KIT. We will send you a program you can enter your report and return the data to us. We do need it saved ASCII to use on a special printer. SENT TO -

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COCO ADS & PD SOFTWARE are not responsible for typing errors

All the programs that appear in this issue of COCO ADS are available already typed in and runing. On cassette for only $4.00 and on disk for only $7.00 sent first class mail. Just fill in the below coupon and mail in with payment.

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HELP BOARD

I have a Radio Shack DMP 400 printer. It prints fine until I want to list a program or for that matter anything that hase more than 80 columns. It prints off the paper, goes to the end of the carriage, and then returns. I called Radio Shack and they told me that the carriage return had to be send with softwear. when I list a program, there is no softwear and it prints off the paper. Also, if I buy a program such as a data mgmt. file the same thing happens because there are no carriage returns in the program. It seems to me that there should be some way to set the printer at 80 columns without it being in the software. can anyone help???? Larry H. Loar
5521 S. Buickhorn Ave Cudahy, Wi 53110

I am looking for information of an EPROM programmer for the COCO and a program to burn 2708's. I would like to build one. Everett Thompson RFD 1 box 61 Lagrange, Me 04453

==========

The HELP board is a feature of the COCO ADS for people who would like some help in finding something, help with a program they have, or help with a program that they are writting. Send in your questions to-

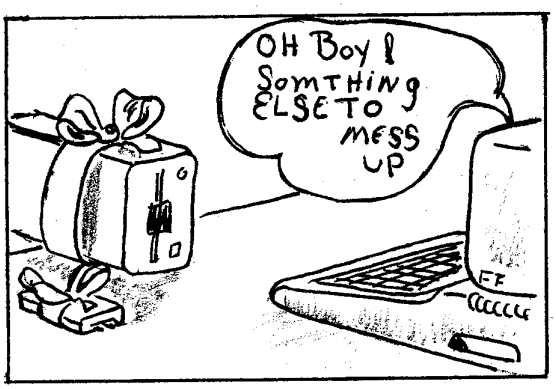
P D SOFTWARE /HELP
P O BOX 13124
HOUSTON, TEXAS 77219

A DAY IN THE LIFE OF A SYSOP

YAWN-BOY 5:30 SURE COMES EARLY. WELL LETS GET UP(BUMP,BUMP) HUMM THIS HALLWAY IS DARK(FIND THE DAM LIGHT SWITCH) CLICK,WOW THATS BRIGHT. COFFEE, COFFEE, GOTTA GET SOME COFFEE TO WAKE UP.(BZZZZZZ)THANK GOD FOR MICROWAVES. WELL OPEN UP EYES LETS LOOK AT THE OLE COCO AND SEE WHAT WENT ON THE BBS.
HUMM WONDER IF ANY ONE USED MY NEW MOD TO THE BBS, AH THERES THE KEY BOARD, NOW TURN ON THE SCREEN.
NOPE, NO ERRORS REPORTED HUMM 50 CALLERS LAST NIGHT! WELL LETS GO READ THE MESSAGE BASE(5:45 ALMOST TIME FOR WORK) SAME OLE CHIT CHAT. SAY, A NEW POKE IN THAT MSG, MUST TRY THAT LATER ON THIS EVENING.
YOU KNOW SOMTHIN STILL BUGS ME ABOUT THAT NEW MODIFICATION TO THE BOARD. WELL, NO TIME NOW. BOARD IS RESET, ALL IS WELL (OFF TO WORK-BOY 6:30 AM COMES EARLY.
DONT FORGET YOUR LUNCH-YEA, I KNOW, AND YOU THOUGHT ALL A SYSOP DID WAS JUST SIT THERE AT THE KEYBOARD JUST WAITING FOR YOU TO CALL-HUH. 10:30(BRAKE TIME HERE AT THE SHOP) AND WHY AM I THINKING ABOUT THE MOD TO THE BBS? (DAM, NOW I KNOW IF IT IS RUN IT WILL CRASH), OH CUSS, CUSS (CANT PUT THAT IN TO PRINT).
12:32 WHY CANT I GET THAT MOD OFF MY MIND-OLE 'FAT FINGERS' IS A WORRY WART!.
13:00 -WHY DO THESE PEOPLE KEEP PUTTING THIS WORK ON ME CANT THAY SEE I HAVE MORE IMPORTANT THINGS ON MY MIND, LIKE BBS STUFF. COMEON QUITING TIME LETS MOVE
16:00 (AH THATS 4:00PM TO YOU FOLK) NOW TO GET HOME (RING,RING)-HELLO-BRING A LOAF OF WHAT HOME?-CHEZZ ONE MORE STOP-
18:00 (6:00 PM) SUPPER IS OVER NOW TO THE BOARD, 20 CALLS TODAY AND NO MAJOR ERRORS, HUMM GOOD DEAL-AND NO ONE IS ON LINE NOW(GET THE BOARD DOWN)-RING, RING-NO NOT A CALLER NOW, HURRY GET THE BOARD BACK UP.
DONE-A NEW USER TO THE BOARD (DAM HE IS GOING STRAIGHT TO THE NEW MOD)--CRASH--HEHEH AT LEAST I AM HERE, BET THAT SHOOK HIM UP HE CRASHED THE BIG BAD BBS, WELL NOW I CAN FIX THE MOD AT MY LEISURE-
WHAT? IT CANT BE 10:30PM-YES DEAR I AM COMING TO BED ---'JUST'--AS SOON AS I FINISH THIS UP.
11:31-DONE-BOARD BACK UP, (RING,RING)-AH A CALLER, WELL I'LL WAIT AND SEE HOW IT GOES-11:46 HE DIDNT EVEN SEE THE MOD AND ALL THAT WORK, AND HE DIDNT -EVEN-LOOK AT IT WELL OK COMPUTER I AM GOING TO BED AND YOU CAN TAKE CARE OF YOUR SELF, GOOD NIGHT--

AS 'FAT FINGERS' GETS UP FROM HIS CHAIR HE LOOKS UPON HIS WORK-2 FULL ASHTRAYS, SEVRAL EMPTY SMOKE PACKS, AN EMPTY GLASS, SOME DISKETS LAYING HERE AND THERE, A THICK CLOUD

OF SMOKE HOVERING AROUND THE COMPUTER AND A FEW EMPTY CANS OF BUD
FAT FINGERS' STOPS AND GIVES ONE LAST LOOK AND SAYS -ITS IN YOUR HANDS 'COCO' DO YOUR STUFF--AND GOOD NIGHT-!
FROM THE KEYBOARD OF 'FAT FINGERS'
A DAY IN THE LIFE OF A SYSOP



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SPECIAL SUPPLEMENT FOR NEW ROM PAKS

Multipak Crack will not work Cyrus, Dragon fire, or with Demon Attack.... three new Rom Paks from Tandy. To help you put them onto disk, Spectrum Projects is providing a special extra program: LDR16.BIN. Here's how to use it:

(1) Take the RomPak you want to copy and put tape over pin number 7 of the RomPak (that's the first pin on the left on the top of the pack). Be sure to cover only pin 7.

(2) Turn off the power to all of your system, remove your multipak or disk controller from the computer's system port (also know as the cartridge port), and plug the prepared ROM Pak into the comuter's expansion port where the Multipak used to be. Turn on the computer. It should come on in Extenced Basic and the Rom Pak should not auto start when taped as discribed in step 1.

(3) Hook up your cassette recorder, put a tape in it, and save out the Rom Pak as follows:

Type CSAVE "NAME",&HC000,&HFEFF,&HA027

Save several copies to tape.

(4) Rewind the tape and turn off the whole system again. Remove the cartridge, insert your Multipak or your disk controller, and turn the system on again.

(5) Type CLOAD"name",&H7000. Use this instruction to load the Rom Pak into memory from the tape you just made.

(6) Now, put the disk with LDR16K.BIN that is available from Spectrum Projects, into your disk drive and type LOADM"LDR16K/BIN"

If you are trying to make a disk version of CYRUS, go directly to step 9.

(7) If you are trying to make a disk version of Dragon Fire, type the following statements and hit enter after each one:

POKE &H301A,18 <ENTER> POKE &H301B,18 <ENTER>
POKE &H301C,18 <ENTER> POKE &H301D,18 <ENTER>
POKE &H301E,18 <ENTER> POKE &H301F,18 <ENTER>
POKE &H3020,18 <ENTER> POKE &H3021,18 <ENTER>
POKE &H31BQ,&H70 <ENTER>
NOW GO TO STEP 9

(8) If you are trying to make a disk copy of Demon Attack, type and RUN the following:

```
10 FOR L=&H3027 TO &H302F
20 POKE L,18:NEXT
```

After running this program, proceed to step 9

(9) Put a blank, formatted disk into your drive, and type:

SAVEM"NAME",&H3000,&H6F6F,&H6F00

That's it, you're done. Now to run the game, merely LOADM and EXEC it from disk.

These instructions are furnished by Spectrum Projects, Who in turn received this information from Marty Goodman, who wrote LDR16K/BIN.1 LDR16K/BIN is copyright Marty Goodman. All rights to it are reserved.

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SPECTRUM PROJECTS P.O. BOX 21272
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International Color Computer Club Library now has back issues of its Newsletters PLUS a cassette with the programs that were in them. Each newsletter has many articles, reviews, and programs.

NEWSLETTER	PAGES	PROGRAMS					
1-3	24	PIVADERS	(G,K)	SCRPRINT	(U,P)	SHORTDAT	(F,C)
		BLOCK	(G,J)	BUBLSORT	(U)		
1-4	24	FREEWAY	(G,J)	RANSTAR	(G)	DRAWING	(G,K)
		MEMBERS	(BFPD)	LEDGER	(BFP)	BUSIN	(F,F,P)
1-5	32	SKETCH	(G,K)	AREAVOL	(U,E)	TUNBOX	(G)
		DISKPEEK	(U,D)	DIRPROM	(U,D)	SLOTS	(G,K)
1-6	32	PHOLIST	(F,C)	PERCALEN	(U,B)	SCTMKER	(G,K)
2-1	56	INVEN16K	(B,D,P)	METRIC	(U,B)	CGPDEMO	(U,P)
		LORESPT	(U,P)	WORDS	(G,K)	TITLER	(B,K)
		BACH	(E,M)				
2-2	80	40COLL	(B,P,D)	MONTHDUE	(FDP)	SALES1.9	(BDP)
		VIDTEX	(U,P)	5 FILE	(FDPC)	CAGE	(G,J)
		WIDTH	(U,P)	PRICEQ	(BFDP)	CONVERT	(B,K)
		REFLEX	(G,K)	RANDGRAF	(G)	GR DS1&2	(G)
		MAZE2	(G,J)	TAPEINVI	(FCP)	CHKWRITE	(B,P)
		MASH	(M)	HI DOT	(U)	SQUARGRA	(E)
		GAMES	(G,K)	FIGURES	(G,E)	FINDWORD	(G,P)
		FORESTRY	(B,P)				
2-3	80	TAPEIN1	(FCP)	BASSXREF	(U,C)	CMERGE	(U,C)
		CKBANKST	(B,P)	TICOTICO	(M)	FOURIER	(U,C)
		CAT	(UDP)	COLRTRAP	(G,K)	CLOCK	(E,K)
		ATACMAN	(G,J)				
2-4	80	CLBLPRIN	(U,P)	LOTTO	(G)	TELLTIME	(E,M)
		ARTHUR	(E,M)	SEE	(U,D)	COPYCAM	(B,K)
		CAMERA	(B,K)				
2-5	80	ATOCCMND	(E,D)	DTOFCMND	(E,D)	GTOICMND	(E,D)
		DISKDIR	(U,D)	SOCCER	(G,J)	TUTORIAL	(E)
		CKANAL	(FDP)	CLRCOUNT	(E)	RVWRTR	(UCP)
		NEWQUIZ	(E,P)	CALC	(U,E)	ASTERIOD	(G,K)
2-6	80	TRIXDEV	(B,K)	COCO	(PICT)	YANKEE	(E,M)
		THE WIZ	(E,M)	FGRAPH	(B)	ABC POP	(EGK)
		JOUST	(G,K)	TEENMONY	(FDP)		

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RS4

RS5

INTERNATIONAL COLOR COMPUTER CLUB

The International Color Computer Club's library now has it's program library available to the public. There are 165 programs in it and are available for only $24.95 on tape or $34.95 on disks. All the programs are by club members and some are very good ones. Business, games, utilitys, adventures, educational, all types. If you are interested in joining the club, please send in your name and address and we will send you an application.

International Color Computer Club 119 County Fair Houston, Tx 77060

FINANCIAL AMORTIZATION

LOAD IN THE INFORMATION THAT THE PROGRAM REQUESTS, LOAN AMOUNT, INTEREST (USE A .) AND YEARS OF THE LOAN AND IT WILL PRINT OUT TO THE SCREEN OR PRINTER ALL YOU DON'T WANT TO KNOW ABOUT YOUR LOAD.

```
100 'AMORT.BAS
110 'FINANCIAL AMORTIZATION
120 CLEAR3000:DIMI(500),B(500)
130 PRINT:INPUT"PRINCIPAL";P
140 INPUT"RATE";R
150 INPUT"YEARS TO PAY";Y
160 YR=Y
170 N=Y*12:M=12
180 X=R/M:Y=R/M+1:Z=Y^N
190 MP=P*X*Z/(Z-1)
200 IF A$<>"" THEN 220
210 INPUT"OUTPUT TO PRINTER";A$:
IF A$=LEFT$("YES",LEN(A$)) THEN
DN=-2 ELSE DN=0
220 IF DN=-2 THEN PRINT#-2,USING
"PRINCIPAL       =$$$$$$$.##";
P
230 IF DN=-2 THEN PRINT#-2,USING
"RATE            =     ###.##";
R
240 IF DN=-2 THEN PRINT#-2,USING
"YEARS           =       ###";
YR
250 PRINT#DN,USING"MONTHLY PAYME
NT  =  $$$$$$.##";MP
260 PRINT#DN,USING"TOTAL PAYBACK
    =$$$$$$$$.##";N*MP
270 PRINT#DN
280 INPUT"AMORT SCHEDULE";A$
290 IF A$<>LEFT$("YES",LEN(A$))
THEN 130
300 FOR Y=1TO N STEP 12
310 PRINT#DN,"      PRIN     INT
      BAL"
320 FORZ=Y TO Y+11
330 B(0)=P
340 I(Z)=R/M*B(Z-1)
350 B(Z)=B(Z-1)-(MP-I(Z))
360 I=I+I(Z)
370 PRINT#DN,USING"### $$$$.##
$$$$.##  $$$$$$.##";Z;MP-I(Z);I(
Z);ABS(B(Z))
380 IF B(Z)>.0010 THEN NEXT Z
390 PRINT#DN,USING"INTEREST THIS
 YEAR $$$$$$.##";I:I=0
400 IF DN=-2 THEN 460
410 PRINT"PRESS C TO CONTINUE,X
TO EXIT.";
420 Q$=INKEY$:IF Q$=""THEN 420
430 IF Q$="C"THEN460
440 IF Q$="X"THEN PRINT#DN:GOTO
130
450 GOTO 420
460 NEXT Y
470 GOTO 130
480 END
```

<< COCO SPOOLER >>
64K/8K PRINT BUFFER

THIS PROGRAM WILL WORK ONLY FOR COCO 32K DISK BASIC COLOR COMPUTER. IT FIRST RUNS A SHORT MACH LANG PROGRAM TO CONVERT TO 64K OPERATION WITH THE ROM COPIED INTO THE UPPER 32K RAM (NO H/W MOD REQUIRED) IT THEN INITIATES ANOTHER ML PROGRAM WHICH RUNS ALL THE TIME UNDER INTERRUPT IT TRAPS ALL PRINTER OUTPUTS TO AN 8K BUFFER IN THE UNUSED UPPER 32K RAM A PIECE OF THAT PROGRAM IS ALWAYS CHECKING TO SEE IF THERE'S ANY UNPRINTED INFO IN THE BUFFER.. AND IF THE PRINTER IS AVAILABLE. IF SO, IT PRINTS FROM THE BUFFER TO THE PRINT THIS SPOOLER NOT ONLY LETS THE COMPUTER TO GET DONE
WITH PRINTING AND THE USER TO GET ON WITH SOMETHING ELSE WHILE ACTUAL PRINTING IS STILL GOING ON, BUT IT ELMINATES ALL COCO-BASIC WAITS ON THE PRINTER READY SIGNAL... SIGNIFICANTLY INCREASING PRINT SPEED - PARTICULARLY IN BASIC IF ANY CALCULATIONS ARE BEING DONE BETWEEN PRINT STATEMENTS. TO TEST IT, RUN THE PROGRAM AND WHEN IT SAYS 'OK' AT THE BOTTOM, TYPE
LLIST....LLIST SHOULD COMPLETE WITH 'OK' LONG BEFORE THE PRINTER IS DONE PRINTING.

```
10 JP=1:JC=1:DI=3
20 GOSUB50
30 SOUND200,2:PRINT@388,S$S$"REA
DY"S$S$S$;:PRINT@448,"";
40 END
50 ' <<CCES DISP>>
60 CLS(8)
70 T$=CHR$(128):S$=STRING$(4,T$)
:FOR L=0TO15:PRINT@L*32+4,S$;:NE
XT L
80 PRINT@388,T$"INITIALIZING"T$"
COMPUTER"T$T$;:PRINT@170,T$"COC
O"T$"STARTUP"T$;
90 A=111:POKE57344,A:IF PEEK(573
44)=A THEN UP=1:GOTO130
100 GOSUB 160:SA=H:GOSUB160:EA=H
:GOSUB160:EP=H
110 FOR A=SA TO EA:GOSUB160:POKE
 A,H:NEXT A
120 DEFUSR0=EP:X=USR0(0):SOUND20
0,1
130 PRINT@87,"64K";:IF UP THEN20
0ELSE190
140 DATA 7F00,7F19,7F00,1A,50,8E
,80,00,A6,84,B7,FF,DF
150 DATA A7,80,B7,FF,DE, 8C,FF,0
0,26,F1,B7,FF,DF,1C,AF,39
160 READ A$
170 H=VAL("&H"+A$)
180 RETURN
190 FOR L=3584TO3727:READK:POKEL
,K:NEXT L
200 DEFUSR=3584:L=USR(0):PRINT@1
19,"SPOOL";:IF UP THEN220
210 FOR L=3736TO3757:READK:POKEL
,K:NEXT L:DEFUSR2=3736
220 SOUND200,1:RETURN
230 DATA52,18,48,141,0,79,191,1,
104,150,150,151,230,48,140
240 DATA 240,4 8,137,240,255,175
,141,0,120,48,141,210,122
250 DATA 175,141,0,114,175,1 41,
0,112,48,141,0,5,191,1,13,53,146

260 DATA 174,141,0,97,172,141,0,
95,39,27,246,255,34,84,37
270 DATA 21,166,132,189,142,12,4
8,1,172,141,0,72,38,4,48,141,210

280 DATA 72,175,141,0,64,126,215
,188,52,2,150,111,129,254,39
290 DATA 5,53,2,126,203,74,53,2,
12,156,129,13,38,4,15,156,134
300 DATA 13,50,9 8,52,16,174,141
,0,30,167,132,48
310 DATA 1,172,141,0,18,38,4,48,
141,210,18,172,141,0,10,39
320 DATA 250,17 5,141,0,6,53,144

330 DATA 52,18,174,141,0,12,191,
1,13,174,141,0,7,191,1,104
340 DATA 53,146 ,215,188,203,74
```

Back Issues

BACK ISSUES OF THE 'COCO ADS' WITH THE PROGRAMS ON TAPE OR DISK ARE NOW AVAILABLE TO YOU. THE PACKAGE COMES WITH THE NEWSPAPAER AND TAPE OR DISK WITH THE PROGRAMS ALREADY TYPED IN AND READY TO RUN. THE FOLOWIING ARE AVAILABLE.

ISSUE A1

YAHTZEE	- GAME OF DICE, LIKE THE GAME YAHTZEE
SORT	- BASIC BUBBLE SORT DEMO

ISSUE A2

SCREEN DUMP	- DUMPS SCREEN TO PRINTER
SEE	- DISK DIRECTORY UTILITY
CALENDAR	- PRINT TO PRINTER A CALENDAR
LABYRINTH	- ADVENTURE (VERY GOOD)
FINDWORD	- WORD SEARCH PUZZLE

ISSUE A3

TAPE LIST	- PROGRAM NAMES ON TAPE TO PRINTER & ENTER COUNTER #
CLOCK	- DISPLAYS CLOCK IN CORNER OF SCREEN
DISKMAP	- DISK UTILITY SHOWS DISK USAGE
LIST	- LIST TO PRINTER DATA FILES
KEYBOMBER	- GAME
PONG	- GAME
BOX LABEL	- LABEL INSERTS FOR YOUR CASSETTE BOXES
DESIGNS	- MAKES DESIGNS
REMULAK'S	- ADVENTURE (VERY GOOD)

ISSUE A4

LABELS	- MAKES 2 ACCROSS LABELS
DATA BASE	- 5 PROGRAMS IN THIS PACKAGE OF A VERY POWERFUL DATA BASE PROGRAM.

ISSUE A5

LABELS	- CENTERS LABELS
DATA SPEAK	- UTILITY TO MAKE YOUR PROGRAMS LINES TALK
MULTI PAC	- UTILITY FOR SPECTRUM PROJECTS MULIT-PAK
GONDOLA	- GAME (VERY GOOD)
AUTO LINE	- ML UTILITY TO MAKE AUTO-LINES
DISK FILE	- KILLS FILES ON MULTI-DISKS
ODD COUPLE	- TRIVIA GAME
HANGMAN	- HANGMAN GAME
FLIP-FLOP	- FLIP-FLOP GAME
TRANSFER	- DISK UTILITY TO TRANSFER PROGRAMS FROM DRIVE 0 TO 1

ISSUE A6

AIR-RAID	- GAME
GRAPH	- BUSINESS MAKES NICE LOOKING GRAPHICS
AUTOLINE #2	- BASIC VERSION OF ML AUTOLINE PROGRAM
TANKS	- GAME OF TANKS
RACE-ACE	- CAR GAME
PERCENT	- KEEP STUDENTS AVERAGE
SUB DESTROYER	- GAME
ANIMAL	- GAME AGAINST THE COMPUTER
COPYTRACK 17	- DISK UTILITY
AUTO-WRITE	- UTILITY TO MAKE BASIC PROGRAMS

ISSUE A7

AIRATTACK	- GAME
ST. GEORGE	- ADVENTURE
CASDICE	- DICE GAME
PURCHASE ORDER	- BUSINESS TO WRITE PURCHASE ORDERS-DISK
EQUATION	- CALCULATOR UP TO FOUR VARIABLES
TRACK MOVE	- DISK UTILITY
PHONE	- KEEP TRACK OF YOUR PHONE NUMBERS

ISSUE A8

DISKCOPY	- DISK UTILITY
CERIFY	- DISK UTILITY
SCANNER	- DISK UTILITY
TIME	- EDUCATIONAL FOR THE YOUNG TO LEARN TIME
MUSIC	- HELPS MAKE MUSIC
PING PONG	- GAME
PHONE DIALER	- DIAL A TOUCH TONE PHONE THROUGH YOUR COCO
PHONE SORTER	- SORTS YOUR PHONE NUMBERS

ISSUE A9

COMPAC	- UTILITY TO REMOVE ALL UNWANTED LINES (REM
DISK LISTER	- DISK UTILITY
JEWELS	- ADVENTURE
CASSETTE LIB	- FILE PROGRAM FOR YOUR CASSETTE PROGRAMS
TITLE PAGE	- TO FORMAT A TERM PAPER
CHANGE SQUAR	- GAME TO MATCH COLOR SQUARES
MYSTER ISLND	- ADVENTURE
PIG	- GAME

ISSUE A10

ROM MAP	- A LOOK AT YOUR RAM
ROLLOVER	- UTILITY
CODE TABLE	- GENERATE CODE TABLE
MAZE	- NEAT LITTLE GAME
MUSIC	- HELPS YOU TO WRITE MUSIC
ANIMAL DISK	- GUESS THE ANIMAL GAME
SOUND REQU	- SEE DIFFERENT SOUNDS ON YOUR SCREEN
DESTROYER	- SHIP GAME
SAFE CRAKER	- OPEN THE SAFE (GAME)

ISSUE A11

TAX ESTIMATE	- HELPS ESTIMATE YOUR TAX THOURGH THE YEAR
M L T T D	- UTILITY TO TRANSFER TAPE TO DISK
PARTS INVEN	- INVENTORY FILE PROGRAM
DATA MAKER	- MAKES DATA STATEMENT FROM JUST INPUTS
KABOOM	- GAME
DEF MOV	- GAME
R/C AIRPLANE	- GAME
MATCH SQU	- GAME

ISSUE A12

PILOT	- UTILITY
TEST	- UTILITY
SCHOOL ADV	- ADVENTURE
MINI-GEN	- GENERATOR TO MAKE YOUR OWN ADVENTURES
DISK-CALC	- VERY GOOD SPREADSHEET CALCULATOR PROGRAM
COCO-MONITOR	- UTILITY

YES, I WOULD LIKE TO ORDER SOME BACK ISSUES OF COCO ADS:
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_____	_____	_____	.	_____	_____	_____
_____	_____	_____	. TOTAL ENCLOSED		$_____	

NAME _____

ADDRESS _____

CITY STATE _____ ZIP _____

MAKE CHECKS PAYABLE TO- P D SOFTWARE P O BOX 13124 HOUSTON TX 77219

DISK COPY

THIS DISK UTILITY WILL COPY FILES ONE BY ONE. THE ORIGINAL DISK WILL GO INTO DRIVE 0 AND THE TARGET DISK INTO DRIVE 1. THE PROGRAM WILL READ THE DISK DIRECTORY IN DRIVE 0 AND THEN WILL ASK YOU WHERE YOU WANT TO START COPYING. ENTER THE NAME YOU WISH TO START AT. MAKE SURE YOU HAVE 8 LETTER OR FILL IN AFTER THE PROGRAM NAME WITH BLANK SPACES AND THEN THE EXTENTION. 12345678/EXT LIKE THIS > 'NAME /BAS' FROM THAT PROGRAM ON THEY WILL ALL BE TRANSFERED FROM DRIVE 0 TO DRIVE 1 AUTOMATICALLY.

```
10 'CONSCOPY
20 'COPIES FILES, ONE BY ONE,
30 'FROM DRIVE 0 TO DRIVE 1.
40 'LEAVES ORIGINAL FILES ON 1.
50 'DOESN'T TRY TO COPY
60 'EXISTING FILES.
70 'LETS YOU START COPYING
80 'WHEREVER YOU DESIRE.
140 CLS
150 CLEAR 2000
160 DIM D0$(72),D1$(72),K(72),L(
72)
170 '
200 'STORE DRIVE 0 FILE NAMES
210 '
220 PRINT:PRINT" READING DRIVE 0

230 FORK=3TO11
240 DSKI$0,17,K,AD$,BD$
250 AD$=AD$+LEFT$(BD$,120)
260 FORL=0TO7
270 SB$=MID$(AD$,L*32+1,8)
280 EXT$=MID$(AD$,L*32+9,3)
290 AC=ASC(SB$)
300 IFAC=255THENL=7:K=11:GOTO380

310 IFAC=0THEN350
320 FILE$=SB$+"/"+EXT$
330 PRINT FI$
340 J=J+1
350 D0$(J)=FI$
360 K(J)=K
370 L(J)=L
380 NEXTL,K
390 PRINT" FREE"FREE(0)
400 PRINT" FILES"J
410 M0=J
420 FORX=1TO1000:NEXTX
430 '
500 'STORE DRIVE1 FILE NAMES
510 '
```


E.T.T. Electronic Typing Teacher

by CHERRYSoft

Learning to type the right way can save you hours of tedious work when entering programs into your CoCo, and this is just what ETT was designed to do. Devote a little time every day practicing with ETT and before you know it you will be typing with confidence. Entering those programs will no longer be the chore it use to be.

ETT's video keyboard lets you practice with all the keys labeled, all the keys blank or only the "home" keys labeled. The visual cues guide you while you learn to type without watching your fingers. ETT shows your accuracy, response time, and words per minute. You will quickly see that you are improving with practice.

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READER SERVICE IS FOR THE READERS OF COCO ADS WHO WOULD LIKE TO RECEIVE MORE INFORMATION ON AN ADVERTISERS PRODUCTS.JUST CIRCLE THE APPROPRIATE NUMBER, WHICH IS FOUND BY THE (RS #) ADVERTISMENT. YOUR NAME WILL BE SENT TO THAT ADVERTISER FOR THEM TO SEND YOU MORE INFORMATION OF THERE PRODUCTS.

1 2 3 4 5 6 7 8 9 10 11 12

13 14 15 16 17 18 19 20 21 22 23 24

NAME _____

ADDRESS _____

CITY _____ ST_____ ZIP_____

SENT TO - P D SOFTWARE P O BOX 13124 HOUSTON, TX 77219

```
520 PRINT:PRINT" READING DRIVE 1
"
530 J=0
540 FORK=3TO11
550 DSKI$1,17,K,AD$,BD$
560 AD$=AD$+LEFT$(BD$,120)
570 FORL=0TO7
580 SB$=MID$(AD$,L*32+1,8)
590 EXT$=MID$(AD$,L*32+9,3)
600 AC=ASC(SB$)
610 IFAC=255THENL=7:K=11:GOTO670

620 IFAC=0THEN 670
630 FILE$=SB$+"/"+EXT$
640 PRINT FI$
650 J=J+1
660 D1$(J)=FI$
670 NEXTL,K
680 PRINT" FREE"FREE(1)
690 PRINT" FILES"J
700 FORX=1TO1000:NEXTX
710 '
800 'DISPLAY DRIVE0 FILES
810 '
820 CLS
830 FORX=1TOM0 STEP 2
840 PRINT D0$(X)":0   "D0$(X+1)"
:0"
850 NEXTX
860 '
900 'INDICATE START FILE
910 '
920 INPUT" START COPY";IP$
930 IF IP$="" THEN 1000
940 FORX=1TO72
950 IF D0$(X)=IP$ THEN S0=X:S1=1
:GOTO1030
960 NEXT X
970 PRINT" PROGRAM NOT FOUND":FO
RX=1TO1000:NEXTX:GOTO800
980 '
1000 'COPY FILES
1010 '
1020 S0=1:S1=1
1030 FOR X=S0 TO 72
1040 FOR Y=S1 TO 72
1045 IF LEN(D0$(X))=0 THEN END
1050 IF D0$(X)=D1$(Y) THEN PRINT
" SKIPPED "D0$(X)":0":Y=0:GOTO11
10
1060 NEXTY
1070 IF Y=73 THENPRINT" COPY "D0
$(X)":0 TO DRIVE1"
1080 F0=FREE(0):F1=FREE(1):IF F1
<F0 THEN PRINT" DRIVE1 FULL.":PR
INT" REPLACE DRIVE1 DISK.":LINE
INPUT" ANY KEY TO CONTINUE.";IP$
1090 F0=FREE(0):F1=FREE(1):IF F1
<F0 THEN 1070
1100 COPY D0$(X) TO D0$(X)+":1"
1110 NEXT X
1120 END
1130 DATA 44,41,54,35,34
1140 DATA 35,34,31,31,37
1150 DATA 30,20,44,41,31
1160 DATA 39,30,20,44,41
1170 DATA 54,41,20,33,30
1180 DATA 2C,54,41,20,32
1190 DATA 43,2C,31,32,32
1200 DATA 30,20,44,32,34
1210 DATA 30,20,44,41,54
1220 DATA 41,20,33,30,2C
1230 DATA 2C,32,43,32,43
1240 DATA 31,32,36,30,20
1250 DATA 44,31,32,39,30
1260 DATA 20,44,41,54,41
1270 DATA 20,34,34,30,20
1280 DATA 44,41,54,41,20
1290 DATA 32,30,2C,33,34
1300 DATA 33,2C,33,34,33
1310 DATA 34,31,33,33,30
1320 DATA 20,41,54,41,20
1330 DATA 32,30,2C,31,33
1340 DATA 36,30,20,41,20
1350 DATA 33,36,2C,33,30
1360 DATA 2C,32,30,2C,31
1370 DATA 33,32,2C,33,30
1380 DATA 2C,32,43,2C,33
1390 DATA 31,33,54,41,20
1400 DATA 33,31,2C,33,33
1410 DATA 33,33,31,54,41
1420 DATA 20,33,33,2C,33
1430 DATA 33,2C,33,31,2C
1440 DATA 33,31,2C,32,43
1450 DATA 32,43,31,34,37
1460 DATA 30,20,2C,32,30
1470 DATA 32,30,31,35,30
1480 DATA 30,20,44,31,35
1490 DATA 32,30,20,44,41
1500 DATA 54,41,20,33,30
1510 DATA 34,30,20,44,41
1520 DATA 54,41,20,35,34
1530 DATA 2C,34,43,2C,33
1540 DATA 34,33,34,31,35
1550 DATA 37,30,20,41,54
1560 DATA 41,20,33,37,2C
1570 DATA 33,30,2C,32,30
1580 DATA 54,41,20,33,33
1590 DATA 2C,33,30,2C,32
1600 DATA 43,2C,20,44,41
1610 DATA 54,41,20,34,33
1620 DATA 2C,32,43,32,33
1630 DATA 32,2C,34,33,2C
1640 DATA 33,32,33,32,31
1650 DATA 41,54,41,20,33
1660 DATA 33,2C,33,32,2C
1670 DATA 33,33,33,33,2C
1680 DATA 33,33,33,33,31
1690 DATA 37,31,30,20,2C
1700 DATA 32,30,32,30,31
1710 DATA 37,33,30,20,44
1720 DATA 30,31,37,35,30
1730 DATA 20,44,41,54,41
1740 DATA 20,33,20,32,30
1750 DATA 2C,33,33,2C,31
1760 DATA 37,38,30,20,30
1770 DATA 2C,32,30,32,30
1780 DATA 31,38,30,30,20
1790 DATA 33,31,2C,33,38
1800 DATA 2C,33,30,2C,33
1810 DATA 30,2C,32,2C,58
1820 DATA 58,58,2E,42,41
1830 DATA 53,26,48,37,46
1840 DATA 46,46,26,48,37
1850 DATA 45,38,30,0,"END"
1860 'END
```

D E S K M A T E

Deskmate for the Color Computer is an integrated package of seven commonly used personal productivity applications on one disk: text, ledger, index cards, paint, telecom, calendar and calculator.

Applications are identified by icons and can be selected using a mouse, joystick or keyboard arrows.

Look for a review in next months issue of COCO ADS.

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- CoCo Legends Collection - Bob "Whiffle" Rosen

Coming SOON in '86 - 256K RAM upgrades for CoCo II & more good stuff!

256K THUNDER RAM 256K

STRIKE 1 - RAM !

Easy installation, software and tech information!
(NOT available for CoCo II's)

OS-9 DRIVER $24.95

The first 256K memory Bd for the CoCo! Load four 32K pgms at once, emulate a 40trk RAMDISK, 60K Print Spooler, FAST access, 30+ Hi-Res screens in memory!! $99.95 (see Sept '85 Rainbow Review)

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STRIKE 3 - A HIT !

It's here!!! Another AMAZING CoCo breakthrough from Spectrum Projects! Add an 80 column display, Real Time Clock and Parallel Printer port to your CoCo for under $100! Requires our Super Controller (see above). Another smash hit from Tony Di Stefano - The CoCo Guru. Avoid delays, ORDER NOW! The complete package for only $99.95

SUPER CONTROLLER

STRIKE 2 - DOS !

Uses 2764 ($6.95) or 27128 ($14.95) EPROMS !

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The most AMAZING CoCo Disk Controller ever! Switch up to 4 DOS's (up to 16K) via a single software POKE! Choose between R/S 1.0/1.1, Spectrum DOS, JDOS, etc. Designed by "Turn of the Screw" Guru - T. Di Stefano $99.95 (see Nov '85 Rainbow Review)

R/S DOS $19.95 and/or Spectrum DOS $29.95 (27128 EPROM) with purchase of Super Controller

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RS8

DEALERS

YOU MAY SUBMIT PROGRAMS FOR REVIEW BY SENDING IT WITH ANY DOCUMENTATION SUPPORTING IT. OUR STAFF WILL RUN IT AND GIVE IT A MOST HONEST REVIEW.
SEND TO - P D SOFTWARE P O BOX 13124 HOUSTON,TX 77219

NEW OS9 FROM TANDY

Tandy will be releasing a new version of OS9 for the Color Computer this month.
Color Computer OS9 Version 02.00.00 upgrade
Catalog # 700-2331 Price $24.95
New Features :
- We have added total programability to the /T2 device. The user can now completely program all functions like parity, stop bits, in Real Time. This seems to have cleared up all compatibility problems using this port. We have added some programability to /T1 as well.
- The Speech/Sound cartridge is now supported as a device. DIR >/ssc will have your directory spoken.
- We have include a 'config' program that allows a user to generate a new system disk with any or all devices from a MENU. For example a user with only 2 drives and a rs232 pak can create a new custom boot disk with NO knowledge of OS9GEN or COBBLER. The program also allows third party vendors to add new devices to a module directory so that they will show up on Config's menu.
- We have added a HELP command
- We have separated CCIO into separate devices so the user can save memory by not including devices not used, like graphics. This design also makes the addition of 80 column cards, and the like, much easier to implement because the keyboard driver is a separate device and does not have to be changed.
- All modules are now COMPLETELY independent. For example /t2 can be renamed to /term and all of /term (ccio, etc.) modules can be removed from memory.
- We have included Harddisk, nil, and 80 column card Driver/Descriptors.
- The keyboard driver now includes auto repeat and an ALT key (using the '@'key)
- The graphics device now includes a fill command and supports multiple graphic pages
- Memory fragmentation no longer is a problem.
- We have included a TUNEPORT utility to allow the user to adjust the timing values on the bit-banging port. Great for running your printer at 9600 baud.
- Dir and other utilities configure themselves for screen size.
- We have added a new call F$VIRQ which is a virtual interrupt system. VIRQ is useful with devices in the Multi-Pac expansion slots that can generate physical interrupts on the processor but which cannot be recognized by the processor due to a hardware limitation on the Multi-Pac. It is also useful for devices not having physical interrupts. It also provides a way to do time critical event timing.

The new version should be available sometime soon. You will need to show proof of purchase (sales slip, original OS9 disk, etc.) to be able to get the upgrade. It should come with 2 disks and addendum explaining the new features. New copies of OS9 will be shipped with 02.00.00. Please be patient with store personal as you are getting this information before some of them. We have tried very hard to incorporate all enhancements that have been suggested here and from other sources, without limiting the users available RAM.
Note: Most all new OS9 software (like Deskmate) will require Version 2.0.0.
Jonathan C. Cluts Tandy Third Party Products
- Express Order Software
- Additonally, Bob Rosen, the new Public Relations Committee chairman for the OS-9 Users Group has reported that Vers 02.00.00 includes the following new drivers:
- SSCPAK - Speech/Sound pack driver
- MODPAK and /M1 and /M2 drivers - drivers/descriptors for a 300 baud ACIA Cartridge Addressed at $FF6C and to be used in IAPAK (? poss sp?) which is addressed at $FF68 can be modified to work with this driver. - CO80 and /TERM80 - CCIO module for an 80 column display card - CO32 and /TERM - CCIO module for a 32 column display (normal) - CCHDISK and /H0 and /H1 - hard disk descriptor and drivers for the WD1000-TB1 controller board (for the rumored hard disk controller from Tandy?)

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B O O T O S 9

If you have a Color Computer but do not have Disk BASIC Vsn 1.1 (or greater) and you need to run an application requiring the "DOS" command, type in the following program and use it in place of the "DOS" command.
Enter the following program from Disk Extended BASIC:

```
 10 REM ****************
 20 REM * BOOT OS-9 FROM BASIC
 30 REM ****************
 40 FOR I=0 TO 70
 50 READ A$
 60 POKE &H5000+I,VAL("&H"+A$)
 70 NEXT I
 80 CLS:PRINT"INSERT OS9 DISKETTE"
 90 PRINT"INTO DRIVE 0 AND PRESS A KEY"
100 A$=INKEY$IF A$=""THEN 100
110 EXEC &H5000
120 DATA 86,22,8E,26,00,8D,0D
130 DATA FC,26,00,10,83,4F,53
140 DATA 26,03,7E,26,02,39,34
150 DATA 20,10,8E,C0,06,A7,22
160 DATA 86,02,A7,A4,6F,21,6F
170 DATA 23,6C,23,AF,24,10,8E
180 DATA C0,06,A6,23,81,13,27
190 DATA 12,AD,9F,C0,04,4D,27
200 DATA 06,6C,23,6C,24,20,E9
210 DATA 7F,FF,40,35,A0,4F,20
220 DATA F8
```

Type SAVE "*" at the OK prompt to save this program.
Type RUN * to use this program to start the application.
When the prompt appears, insert the application diskette and answer the date and time prompts. When the OS-9 prompt appears, type the name of the application.

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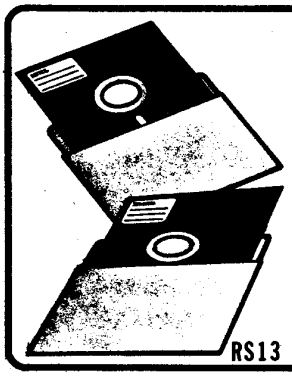

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RS13


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TELECOMMUNICATIONS TALK

By: Charles Roman

There is not one single accessory that I have bought for my CoCo that has given me more enjoyment that my phone modem. It has helped me make many friends that I would not have met otherwise.

Getting started in modeming can be very confusing so I thought I'd help get more people interested in this facet of the CoCo hobby. .

First of all, I'll cover the equipment. You'll need a minimum of a CoCo (16K is fine), a tape deck, and a modem. Other add-ons can be used, but are not needed. A disk drive and a printer do make things easier though.

If you're just getting started, it's very likely that you don't have a modem. You can obtain a low cost modem at Radio Shack. I've seen some modems selling for as low as $19 so you may get a good bargain. Also make sure to get a cable that connects the modem to the RS232 port on the CoCo.

Once you get the hardware squared away, you'll need to get some software for your modem. Many fine companies will sell you software, but the best way is to use a free public-domain terminal program, then buy a better package later. The best free terminal that I know of is called MIKEYTERM. It does everything that the beginner needs it to do. The program can be downloaded by you or a friend from the CoCo SIG on CompuServe if you have access to it, or obtained from a local bulletin board system. If you send $4.00 to me I can send it to you on tape or disk. I will also include many other helpful programs for telecommunications.

My address is: Charles Roman, 3735 Stark St., Bellaire Ohio 43906. I will also include full instructions for MIKEYTERM.

The next big step, which is sometimes the hardest, is finding another computer system to call. The easiest is to subscribe to a major system such as CompuServe or Delphi who charge a fee for their usage. You can also call a local bulletin board system which are usually free. Lists of board numbers are often printed in computer magazines. I have a lot of numbers so I could probably find something in your area.

That's enough for now. Next time I'll talk about the various features of different models of modems and also about how to actually use a bulletin board. If you need help with anything, drop me a line. Please include a SASE if you wish a reply.

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1
2
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4 '*  BY MICHAEL B. KROMEKE
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84
8
9
10 X=RND(-TIMER):CLEAR50
20 PCLEAR4:PMODE1:DIM DR$(15),G1
(15),G2(15),LL(15),KT(42):ST=42:
P=169:FORX=0TO15:READ DR$(X):NEX
TX:FORX=1TO42:KT(X)=X:NEXTX:GOTO
680
30 FORX=1TO200:NEXTX:POKE1122,49
:POKE1186,50:POKE1250,51:I$=INKE
Y$:IFI$=""THEN FORX=1TO200:NEXTX
:POKE1122,113:POKE1186,114:POKE1
250,115:GOTO30ELSEA=VAL(I$)
40 IFA<1 OR A>3THENSOUND1,1:GOTO
30
50 PCLS:SCREEN1,0:COLOR2:LINE(0,
0)-(240,140),PSET,BF
60 ON A GOTO 260,290,70
70 DRAW"BM14,18;C3U6E2U2H2U2R18F
2R10D14G2L12H2L4H2L8D4G2D8GD4R4F
6R4F2R8U4E4U4E4U8BM8,38;D8F2D8F2
D8F2D8F2D6F8R8E6H2U4H4U6H2U8H4U1
1"
80 DRAW"R18F2R8FR4U18D4L4H4U12H2
U6E2U2L4R16F2R6F2R16F2D18L32D24R
32U24BM46,48;D2BF2G4L6BM32,92F4R
4F2R2F2R20U6E2U4E2U8NU22L10HL12"

90 DRAW"BM92,54;R4D22L24R20D20L2
1D2L4BM90,10;R2F2R10F2R10D14L16H
L8D1BR12FR12NU18D2F2D2F2D2F2NL24
"
100 DRAW"D4F2D12NL26D12L20U8L10B
M74,96;F6R2F6R2F4R2E2R2F8D4F4R2E
6U4E2U2E4R4E2U8H2U2H2U4L2"
110 DRAW"BM132,108;R4FR6FR12U2H2
L4U4L6E4H4U2NL14E2U2E2U2E2U4L24B
M122,54;R22D2F2D4F2D4F2D4F26BM11
6,14;R8E2R8F2R8G10D8F2D4F2NL20"
120 DRAW"F8D2G2D2BM144,14;E6R8F1
4R2F2R4F2L4D4F2D2G2H2G2U2H2U2H2U
2L2G2D2H2D4F2D2G2D2G2D2L4H2U2H2U
4E4H2G4L2U2E6R2E2R4H2L8G2L2E4L46
2L2G2L2G2L4"
130 DRAW"BM144,44;R14D18G6BM148,
84;R10D20L6BM160,46;R14E2U8BM156
,66;R6E6NU14FR4F2R6F6D2G4L32BM16
0,84;R8"
140 DRAW"E2R8E4R4E2U2L4BM158,98;
R30E4D2F2D4F2D2F2D2F8D4D2G2L4H4U
2H2U2H2U2H2U2H4L10H2L10G2L4U6R20
U2H2U2H2U2H2U2H2R16F10D2G2E4U2E6
"
150 DRAW"H2L14BM204,82;E4U2E4U2L
8G2L6G2L4BM212,72;U2H2U2H2H8G4D2
G4L2G4BM182,64;E4U2E4U2H6NL8E6R2
U2E6U2E4R2E2L8G4L2G4F4L6G4L2G2"
160 DRAW"BM190,50;D4R16E2U6H4L16
BM194,54;D2R6F2R4F6R4U4H8L2D2F4R
4H6R4F4U8H4L4BM206,26;E4D2F2D8F2
D8"
170 DRAW"BM212,22;E4R6D4F4D6L12R
4NU14L6F4R6ND4R6D4L12R14E6L2G4U6
H4U2E6U4R2U2R2H6U2H2G4D4G2D4BM21
6,42;R8F2L8H"
180 DRAW"BM8,106;D8R6U8BR4ND8F8U
8BR4D8BR6U8NL2R2BR6NR4D4NR2D4R4B
R4U8R2F2D4G2BM24,126;NR4D4R4D4L4
BR10U8NL2R2"
190 DRAW"BR8ND8R4D4NL4D4BR6U8NL2
R2BR4NR4D4NR2D4R4BR4R4U4L4U4R4BR
18R4D8L4U8BR10NR4D4NR2D4BR32U8R4
D4NL4D4"
200 DRAW"BR4U8F4E4D8BR4NR4U4NR2U
4R4BR8ND8R6D4L6R2F4BR4U8BR4NR4D8
R4BR4U8R4D4NL4D4BM220,100;NE6NU8
NH6NG6ND8F6"
210 PAINT(16,44),3,3:PAINT(24,10
),1,3:PAINT(100,24),3,3:PAINT(32
,60),1,3:PAINT(68,44),1,3
220 PAINT(80,64),3,3:PAINT(200,6
4),1,3:PAINT(108,104),1,3:PAINT(
136,64),1,3:PAINT(140,104),3,3
230 PAINT(136,64),1,3:PAINT(150,
56),3,3:PAINT(224,16),1,3:PAINT(
176,56),1,3:PAINT(192,108),1,3:P
AINT(168,92),3,3:PAINT(52,88),4,
3
240 PAINT(106,48),4,3:PAINT(214,
24),1,3:PAINT(168,80),4,3:PAINT(
128,28),4,3:PAINT(120,84),4,3:PA
INT(46,36),4,3
250 POKE178,154:PAINT(152,12),,3
:PAINT(192,32),,3:PAINT(184,42),
,3:POKE137,2:GOTO320
260 COLOR3:GOSUB730:DRAW"BR32BU1
0;XDR$(1);BU12BR6XDR$(0);BR24BU4
;XDR$(1);BR4BU12;XDR$(1);BR24BU1
2;XDR$(1);BR4BU12;XDR$(2);BM8,44
":GOSUB740:DRAW"BM8,64;XDR$(1);B
R6BU12;XDR$(9);BR28BU10;":GOSUB7
50:DRAW"BM8,84;":GOSUB760
270 DRAW"BR28BU10;XDR$(3);BR12BU
10;XDR$(0);BM8,104;XDR$(3);BR14B
U10;XDR$(1);BR20;BU12;XDR$(3);BR
14BU10;XDR$(2);BR20BU12;XDR$(3);
BR12BU10;XDR$(3);BR26BU10;XDR$(3
);BR12BU10;XDR$(4);BR24BU12;XDR$
(3);BR12BU10;XDR$(5);BR28BU10;XD
R$(3);BR12BU10;XDR$(6);
280 DRAW"BM8,124;XDR$(3);BR14BU1
0;XDR$(7);BR22BU12;XDR$(3);BR14B
U10;XDR$(8);BR28BU2;XDR$(3);BR12
BU10;XDR$(9);BR26BU10;XDR$(4);BR
6BU12;XDR$(0);BR26BU4;XDR$(4);BR
6;BU12;XDR$(1);":GOTO320
290 COLOR4:GOSUB730:DRAW"BR38BU1
0;XDR$(10);BR38BD2;XDR$(11);BR44
;XDR$(12);BM14,44;XDR$(13);BR42;
XDR$(14);BR34;XDR$(15);BR26;XDR$
(1);BR4BU12;XDR$(0);BR24BU4;XDR$
(1);BR4BU12;XDR$(1);BR24BU12;XDR
$(1);BR4BU12;XDR$(2);BM8,64":GOS
UB740
300 DRAW"BM8,84;XDR$(1);BR6BU12;
XDR$(9);BR28BU10;XDR$(1);BR6BU12
;XDR$(10);BR26;XDR$(1);BR6BU10;X
DR$(11);BR28;XDR$(1);BR8BU12;XDR
$(12);BR20BU10;XDR$(1);BR4BU12;X
DR$(13);BR30;XDR$(1);BR6BU12;XDR
$(14);"
310 DRAW"BM8,104;XDR$(1);BR8BU12
;XDR$(15);BR20;":GOSUB750:DRAW"B
M8,124;":GOSUB760
320 COLOR4,1:FORL=0TO240STEP40:L
INE(L,0)-(L,140),PSET:NEXTL
330 FORL=0TO140STEP20:LINE(0,L)-
(240,L),PSET:NEXTL:D=226:D=126:D
G=D:DG=D
340 PAINT(D,D),1,4:PCOPY1TO3:PCO
PY2TO4:DRAW"BM66,148;C3NR16G12R2
0G12L16E4R10EBL8E8R10E4BM96,148G
24R16E4L10E20L6BR22NR8G2NR8G2R8E
4BG8G16L6E16R6BR18BU8NR9G24R20E1
8H6BL5BD4G17R8E12H4BR26BU4G24R16
E4L10E7R7E4L7E6R7E4L12BM0,172;R4
0BR124R46BE12L48"
350 DRAW"BL126L36BE12R36BR124R48
BM16,182;C3NG8R6G4L6G4BR12E8R6G4
L6R2F4BR6NR6E4NR4E4R6BR6NR6G4R6G
4NL6BR6R6E4L6E4R6BR10D1U1BR6G8BR
6E4NL6E4BR4D1U1BR12NR6G4NR4G4BR1
0NE8R6E8NL6BR6NG8R6G4L6R2F4BR16E
```

```
8BR6B4NL6B4BR6NR6E4NR4E4R6BR6B8R
6BR6E8R6B4L6"
360 FORX=0TO99STEP21:PAINT(61+X,
170),3,3:NEXTX:PAINT(62,154),3,3

370 PMODE1,3:DRAW"BM66,150;C3NR1
2G12R12BR8E12R12G12NL12BR8E12R12
B6L12R4F6BR8E12R12B6L12R4F6BR8NR
12E6NR8E6R12BR8NR12G12R12BR14E12
NLBR6"
380 DRAW"BM0,182;R24BE16L24BE16R
24BL10BD20NR12B6R12B6NL12BR6E12R
12B12NL12BR8NR12E12BR18G12R12E12
BR6R8NR6G12BR16E12BR8NR12G12R12E
12BR8NG12D12R2NE12BR8R24BE16L24B
E16R24":PMODE1,1
390 FOR R=1TO6:FOR L=1TO6
400 N=RND(41):M=N:Q=R+((L-1)*6):
IFN=Q THENGOTO400
410 IF M<=6 THEN X=(M-1)*40:XX=X
+40:GOTO430
420 M=M-6:GOTO 410
430 Y=INT((N-1)/6)*20:YY=Y+20
440 TS=KT(Q):KT(Q)=KT(N):KT(N)=T
S
450 GET((R-1)*40,(L-1)*20)-(R*40
,L*20),G1,G
460 GET(X,Y)-(XX,YY),G2,G
470 PUT((R-1)*40,(L-1)*20)-(R*40
,L*20),G2,PSET
480 PUT(X,Y)-(XX,YY),G1,PSET:PLA
Y"T255ABC":NEXTL,R
490 I$=INKEY$
500 IFD>26AND I$=CHR$(9) THEND6=
D-40:SM=-1:GOSUB550ELSEIFD<226AN
D I$=CHR$(8) THEND6=D+40:SM=1:GO
SUB550
510 IFD>6AND I$=CHR$(10) THEND6=
D-20:SM=-6:GOSUB550ELSEIFD<126AN
D I$="^" THEND6=D+20:SM=6:GOSUB5
50
520 IF I$="H"THEN GOSUB600
540 GOTO490
550 KT(ST)=KT(ST+SM):ST=ST+SM:KT
(ST)=42:GET(D6-23,D6-4)-(D6+14,D
6+13),LL,G
560 PUT(D-23,D-4)-(D+14,D+13),LL
,PSET:PLAY"T200;V25BDF"
570 LINE(D6-23,D6-4)-(D6+13,D6+1
3),PRESET,BF:D=D6:D=D6:NM=NM+1
575 IFKT(42)=42THEN FORX=1TO41:I
FKT(X)=X THENNEXTX:GOTO620:ELSER
ETURNELSERETURN
580 DATA"BR2R4F2D8G2L4H2NU8E6","
BR4D2NL2D10L2R4","BD2E2R4F2D2G2L
4G2D4R8","BD2E2R4F2D2G2NL4F2D2G2
L4H2","D6R6NU6NR2D6","NR8D4F2R4F
2D2G2L4H2","BR8BD2H2L4G2D8F2R4E2
U2H2L4","D2U2R8D2G4D6","BR2R4F2D
2G2F2D2G2L4H2U2E2NR2H2U2","BR6L4
G2D2F2R6U4D8G2L4H2"
590 DATA"BD2D10BR8U6NL8U4H2L4","
D10R6E2U2H2NL4E2U2H2L6","BR4NF2L
4G2D8F2R4E2","D12R6E2U8H2L6","NR
6D6NR4D6R6BU12","NR6D6NR4D6BR6BU
12"
600 PMODE1,3:SCREEN1,0:GOSUB720
610 PMODE1,1:SCREEN1,0:RETURN
620 FORX=1TO5:PMODE1:GOSUB650:PM
ODE3:GOSUB650:PMODE4:GOSUB650:PM
ODE1:GOSUB650:NEXTX:CLS3:P=169:G
OSUB670
630 PRINT@132," * CONGRATULATION
S!!! * ";:PRINT@196," YOU HAVE C
OMPLETED THE ";:PRINT@260," PUZZ
LE IN "NM" MOVES. ";:PRINT@324,"
** PLAY AGAIN ? (Y/N) **";:GOSUB
720
640 IFI$="N"THEN END ELSE RUN
650 SCREEN1,0:PLAY"T75ABCDEFFEDC
BAABCDEF":SCREEN1,1:PLAY"FEDCBAA
BCDEFFEDCBA":RETURN
670 FORX=1024TO1055:POKEX,P:POKE
X+480,P:NEXTX:FORX=1056TO1472STE
P32:POKEX,P:POKEX+31,P:NEXTX:RET
URN
680 CLS3:GOSUB670:PRINT@68,"* U.
S.A. SLIDING PUZZLE *";:PRINT@13
2," USE ARROW KEYS TO MOVE ";:P
RINT@196," PIECES AROUND THE BOA
RD.";:PRINT@260," PRESS 'H' T
O SEE THE ";
690 PRINT@324," PUZZLE'S SOLUTI
ON ,ANY ";:PRINT@388," KEY TO R
ETURN TO GAME. ";:PRINT@457,"PRE
SS ANY KEY ";:GOSUB720
700 CLS3:GOSUB670:PRINT@98,"1) D
ECIMAL SLIDE     (EASY).";:PRINT
@162,"2) HEXADECIMAL SLIDE (HARD
).";:PRINT@226,"3) MAP OF U.S.A.
  (HARDEST).";
710 PRINT@290,"NOW ENTER YOUR CH
OICE AND...";:PRINT@354,"*******
* GOOD LUCK ******** ";:GOTO30
720 I$=INKEY$:IFI$=""THEN720ELSE
RETURN
730 DRAW"BM16,4;XDR$(1);BR34BU12
;XDR$(2);BR32BU12;XDR$(3);BR38BU
10;XDR$(4);BR34BU12;XDR$(5);BR42
BU10;XDR$(6);BM14,24;XDR$(7);BR3
8BU12;XDR$(8);BR40BU2;XDR$(9);":
RETURN
740 DRAW"XDR$(1);BR6BU12;XDR$(3)
;BR28BU10;XDR$(1);BR6BU12;XDR$(4
);BR24BU12;XDR$(1);BR6BU12;XDR$(
5);BR26BU10;XDR$(1);BR6BU12;XDR$
(6);BR28BU6;XDR$(1);BR4BU12;XDR$
(7);BR26BU12;XDR$(1);BR4BU12;XDR
$(8);":RETURN
750 DRAW"XDR$(2);BR6BU12;XDR$(0)
;BR22BU4;XDR$(2);BR4BU12;XDR$(1)
;BR20BU12;XDR$(2);BR4BU12;XDR$(2
);BR22BU12;XDR$(2);BR4BU12;XDR$(
3);BR28BU10;XDR$(2);BR4BU12;XDR$
(4);BM8,84":RETURN
760 DRAW"XDR$(2);BR6BU12;XDR$(5)
;BR26BU10;XDR$(2);BR6BU12;XDR$(6
);BR26BU6;XDR$(2);BR4BU12;XDR$(7
);BR22BU12;XDR$(2);BR4BU12;XDR$(
8);BR30BU2;XDR$(2);BR4BU12;XDR$(
9);":RETURN
```

STOCK MARKET COMPUTATION

THIS PROGRAM WILL HELP YOU KEEP TRACK OF YOUR INVESTMENTS IN THE STOCK MARKET WHEN YOU ARE BUYING AND SELLING LONG. YOU WILL BE ABLE TO SAVE, LOAD, ENTER, DELETE, DISPLAY AND PRINT STOCK NAMES AND OTHER NECESSARY DATA, SUCH AS PURCHASE PRICE, CURRENT VALUE, AND GAIN/LOSS.

THIS PROGRAM WAY DONATED BY T&D SOFTWARE. PLEASE SEE THERE AD ON PAGE 30.

```
10 REM COPYRIGHT (C) T&D SOFTWAR
E 1983
20 REM STOCK MARKET COMPUTATION
30 GOTO 1070
40 IFMEM>10000THENCLEAR5000 ELSE
CLEAR2000
50 CLS:M$="$$$$$$$.$$$":GL$="$$
$$$$$$.$$$+"
60 IFMEM>10000THENNM=600ELSEM=200

70 DIM SN$(M),PP(M),CP(M),SN(M)
80 CLS:PRINTTAB(4)"STOCK MARKET
COMPUTATION":PRINTTAB(4)STRING$(
24,"-")
90 PRINT:PRINT"  THIS PROGRAM W
ILL HELP YOU  KEEP TRACK OF YOU
R INVESTMENTS  IN THE STOCK MARK
ET WHEN YOU AREBUYING AND SELLIN
G LONG."
100 PRINT"  YOU WILL BE ABLE TO
 SAVE,   LOAD, ENTER, DELETE, D
ISPLAY ANDPRINT STOCK NAMES AND
OTHER    NECESSARY DATA, SUCH A
S PURCHASEPRICE, CURRENT VALUE,
AND GAIN/ LOSS."
```

```
110 GOSUB930
120 CLS
130 PRINTTAB(14)"MENU":PRINTTAB(
14)"----"
140 PRINT:PRINT"  1. LOAD DATA F
ROM TAPE/DISK"
150 PRINT"  2. SAVE DATA TO TAPE
/DISK"
160 PRINT"  3. ENTER STOCK DATA"

170 PRINT"  4. ENTER CURRENT PRI
CES"
180 PRINT"  5. DISPLAY GAINS/LOS
SES"
190 PRINT"  6. PRINT GAINS/LOSSE
S"
200 PRINT"  7. DELETE STOCK DATA
"
210 PRINT"  8. END PROGRAM"
220 PRINT:PRINTTAB(7)"YOUR CHOIC
E ? (1-8)"
230 K$=INKEY$:IFK$=""THEN230
240 K=VAL(K$):IFK<1 OR K>8 THEN2
30
250 ON K GOTO 260,310,350,460,50
0,670,850,920
260 GOSUB960
270 OPEN"I",#DN,"STOCKDAT":I=1
280 IF EOF(DN) THEN300
290 INPUT#DN,SN$(I),PP(I),CP(I),
SN(I):I=I+1:GOTO280
300 L=I-1:GOTO120
310 GOSUB960
320 OPEN"O",#DN,"STOCKDAT":FORI=
1TO L:IFDN=-1THENPRINT#DN,SN$(I)
,PP(I),CP(I),SN(I) ELSEWRITE#DN,
SN$(I),PP(I),CP(I),SN(I)
330 NEXT:CLOSE#DN
340 GOTO120
350 L=L+1:CLS
360 INPUT"NAME OF STOCK";SN$(L)
370 INPUT"PURCHASE PRICE";PP(L)
380 INPUT"NO. OF SHARES";SN(L)
390 PRINT:PRINT"  IS THE INPUT C
ORRECT ? (Y/N)"
400 GOSUB1040
410 IFK$="N"THENCLS:GOTO360
420 PRINTTAB(5)"ANOTHER STOCK ?
(Y/N)"
430 GOSUB1040
440 IFK$="Y"THEN350
450 GOTO120
460 IFL=0THEN230ELSEFORI=1TOL:CL
S
470 PRINT"STOCK: ";SN$(I)
480 PRINT:INPUT"CURRENT PRICE";C
P(I)
490 NEXT:GOTO120
500 IFL=0THEN230ELSETG=0:TL=0
510 FORI=1TOL:CLS
520 PRINT"STOCK NAME: ";SN$(I)
530 PRINT"NO. OF SHARES:";SN(I)
540 PRINT"PURCHASE PRICE:";:PRIN
TUSINGM$;PP(I)
550 PC=PP(I)*SN(I):PRINT"PURCHAS
E COST :";:PRINTUSINGM$;PC
560 PRINT"CURRENT PRICE :";:PRIN
TUSINGM$;CP(I)
570 CV=CP(I)*SN(I):PRINT"CURRENT
 VALUE :";:PRINTUSINGM$;CV
580 GL=CV-PC:PRINT"GAIN/LOSS
 :";:PRINTUSINGGL$;GL
590 IFGL<0THENTL=TL+GL ELSETG=TG
+GL
600 GOSUB930
610 NEXT:CLS:PRINTTAB(12)"SUMMAR
Y":PRINT
620 PRINT"TOTAL GAINS     :";:PR
INTUSINGGL$;TG
630 PRINT"TOTAL LOSSES    :";:PR
INTUSINGGL$;TL
640 PRINT:PRINT"NET GAINS/LOSSES
:";:PRINTUSINGGL$;TG+TL
650 GOSUB930
660 GOTO120
670 IFL=0THEN230ELSECLS:PRINT" R
EADY PRINTER - PRESS [ENTER]"
680 GOSUB940:TL=0:TG=0
690 PRINT#-2:PRINT#-2,"NAME
 PUR. PRICE  # SHARES  CUR. PRIC
E   PUR. COST  CURRENT VALUE  GA
IN/LOSS":PRINT#-2
700 FORI=1TOL
710 PRINT#-2,LEFT$(SN$(I),8);
720 PRINT#-2,TAB(10);:PRINT#-2,U
SING"$$#####.###";PP(I);
730 PRINT#-2,TAB(24);:PRINT#-2,U
SING"#####";SN(I);
740 PRINT#-2,TAB(31);:PRINT#-2,U
SING"$#####.###";CP(I);
750 PC=SN(I)*PP(I):CV=SN(I)*CP(I
)
760 PRINT#-2,TAB(43);:PRINT#-2,U
SING"$######.###";PC;
770 PRINT#-2,TAB(58);:PRINT#-2,U
SING"$######.###";CV;
780 GL=CV-PC:PRINT#-2,TAB(69);:P
RINT#-2,USING"$#####.###+";GL
790 IFGL<0THENTL=TL+GL ELSETG=TG
+GL
800 NEXT
810 PRINT#-2:PRINT#-2,"TOTAL GAI
NS  :";:PRINT#-2,USINGGL$;TG
820 PRINT#-2,"TOTAL LOSSES :";:P
```


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```
RINT#-2,USING6L$;TL
830 PRINT#-2,"NET GAIN/LOSS:";:P
RINT#-2,USING6L$;TG+TL
840 GOTO120
850 IFL=0THEN230
860 I=1
870 CLS
880 PRINT"STOCK NAME: ";SN$(I)
890 PRINT:PRINTTAB(9)"DELETE ? (
Y/N)":GOSUB1040:IFK$="N"THEN910
900 FORJ=I TO L-1:SN$(J)=SN$(J+1
):PP(J)=PP(J+1):CP(J)=CP(J+1):SN
(J)=SN(J+1):NEXT:L=L-1:I=I-1
910 I=I+1:IFI<=L THEN870 ELSE120

920 END
930 PRINT@484,"PRESS [ENTER] TO
CONTINUE";
940 IFINKEY$<>CHR$(13)THEN940
950 RETURN
960 CLS:PRINT"   CASSETTE OR DIS
K ? (C/D)"
970 K$=INKEY$:IFK$="C"THENDN=-1:
GOTO1000
980 IFK$<>"D"THEN970
990 DN=1
1000 PRINT" READY ";:IFDN=-1THEN
PRINT"CASSETTE"; ELSEPRINT"DISK"
;
1010 PRINT" - PRESS [ENTER]"
1020 GOSUB940
1030 RETURN
1040 K$=INKEY$:IFK$="Y"THEN1060
1050 IFK$<>"N"THEN1040
1060 RETURN
1070 PMODE0:PCLEAR1:GOTO40
```

P R I N T E R U T I L I T Y

HERE IS A NICE LITTLE PRINTER UTILITY TO CHANGE THE WIDTH OF YOUR PRINT-OUTS OR GRAPHICS.

```
10 R1=0:R2=0:R3=0
20 CLS:PRINT@7,"*DRIVER MENU*"
30 PRINT
40 PRINT"<1> = LINE WDTH DRIVER"

50 PRINT
60 PRINT"<2> = GRAPHICS DRIVER"
70 PRINT
80 PRINT"<3> = SPEED ADJUSTER"
90 PRINT
100 PRINT"<4> = ALL IN TURN"
110 PRINT
120 PRINT"<5> = E N D "
130 PRINT
140 PRINT"  warning  !!!!"
150 PRINT"DO NOT RUN ANY OF THES
E ROUTINES MORE THAN ONCE..."
160 INPUT"       SELECTION";Z:SO
UND 200,1
170 IF (Z=1 OR Z=4) AND R1=1 THE
N GOTO  1020
180 IF (Z=2 OR Z=4) AND R2=1 THE
N GOTO  1030
190 IF (Z=3 OR Z=4) AND R3=1 THE
N GOTO  1040
200 ONZ GOTO 220,470,710,220,210

210 END
220 DATA 182,1,103,167,141,0,46
230 DATA190,1,104,175,141,0,40
240 DATA134,126,183,1,103,48,141

250 DATA0,4,191,1,104,57,52
260 DATA 2,150,111,129,254,38,16

270 DATA150,156,139,1,145,155,37

280 DATA8,15,156,134,13,173,159
290 DATA160,2,53,2,18,18,18
300 ST=16320
310 FOR AD=ST TO ST+55
320 READ CD
330 POKE AD,CD
340 NEXT
350 EXEC ST
360 CLS
370 PRINT"LINE WIDTH DRIVER ";
380 PRINT"LOADED @ 16320"
390 INPUT"DESIRED WIDTH";W:SOUND
 200,1
400 POKE 155,W+1
410 R1=1
420 PRINT"WIDTH SET FOR ";W
430 PRINT
440 INPUT"<ENTER> TO CONTINUE";P
:SOUND 200,1
450 RESTORE
460 IF Z<>4THEN20 ELSE GOTO 470
470 CLS:PRINT"8BIT GRAPHICS DRIV
ER"
480 PRINT"SET PRINTER TO 8BIT ";

490 PRINT"MODE"
500 RESTORE:FORQ=0TO55:READQ$:NE
XT
510 INPUT"<ENTER> WHEN SET";Q$:S
OUND 200,1
520 LD=16220
530 FORI=0TO40
540 READ VL$
550 PK=VAL("&H"+VL$)
560 POKE LD+I,PK
570 NEXTI
580 EXEC LD
590 PRINT"GRAPHICS 8BIT DRIVER";
600 PRINT" LOADED @ 16220"
610 R2=1
620 PRINT
630 INPUT"<ENTER> TO CONTINUE";P
:SOUND 200,1
640 IFZ<>4THEN20ELSEGOTO710
650 DATA83,00,00,30,8D,00,08
660 DATA8F,01,68,96,96,97,E6
670 DATA39,34,04,D6,6F,5C,2B
680 DATA02,35,84,35,04,32,62
690 DATA34,04,F6,FF,22,54,25
700 DATAFA,BD,8E,0C,35,84
710 '---SLOWS DOWN COMPUTER ---
720 ' POKE 0-255 IN 1013
730 '  0=FASTEST--255=SLOWEST
740 DATA52,16,142,0,1,48,31,38
750 DATA252,53,16
760 RESTORE
770 FORWW=1TO97:READWW$:NEXT
780 CLS
790 PRINT"SPEED ROUTINE"
800 INPUT"<ENTER> TO LOAD";P:SOU
ND 200,1
810 FORX=1010TO1020
820 READA
830 POKE X,A
840 NEXTX
850 POKE1021,PEEK(359)
860 POKE1022,PEEK(360)
870 POKE1023,PEEK(361)
880 POKE359,126
890 POKE360,3
900 POKE361,242
910 PRINT"0=FASTEST-255=SLOWEST"

920 INPUT"ENTER SPEED FACTOR";S:
SOUND 200,1
930 POKE 1013,S
940 R3=1
950 PRINT"SPEED IS SET AT ";S
960 PRINT"POKE 0(FAST)TO 255";
970 PRINT"(SLOW) IN 1013 TO ";
980 PRINT"CHANGE--do not rerun"
990 PRINT
1000 INPUT"<ENTER> TO CONTINUE";
P:SOUND 200,1
1010 IF Z<>4THEN20ELSE END
1020 CLS:PRINT"LINE WIDTH ALREAD
Y SET":INPUT "<ENTER> TO RETURN
TO MENU";P:SOUND 200,1:GOTO20
1030 CLS:PRINT"GRAPHICS 8BIT ALR
EADY SET":INPUT"<ENTER> TO RETUR
N TO MENU";P:SOUND 200,1:GOTO20
1040 CLS:PRINT"SPEED ALREADY SET
 - USE POKE 1013 TO CHANGE":INPU
T"<ENTER> TO RETURN TO MENU";P:S
OUND 200,1:GOTO20
```

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B I O R H Y T H M

```
10 CLS:PRINTTAB(8)"**BIORHYTHM**
":PRINT:PRINT"THIS PROGRAM WILL
GENERATE A     BIORHYTHM CHART FO
R THE USER     FROM KEYBOARD RESP
ONSE TO        QUESTIONS."
20 PRINT:PRINT"YOU MUST HAVE A P
RINTER ON-LINE TO OPERATE THIS P
ROGRAM!!!!!"
30 PRINT:LINEINPUT "TO BEGIN, PR
ESS <ENTER> KEY.";RD$:SOUND 200,
3
40 PS=PEEK(65314):IF PS=4 OR PS=
6 THEN 90 ELSE 50
50 CLS:PRINT @ 224,"PRINTER NOT
ON-LINE.....":PRINT"DO YOU
 HAVE A PRINTER-ENTER(Y/N)";:INP
UT X$:SOUND 200,3
60 IF LEFT$(X$,1)="Y" THEN 70 EL
SE PRINT"SORRY BUT PROGRAM WILL
NOT RUN  WITHOUT A LINE PRINTER.
":END
70 CLS:PRINT @ 224,"YES ?":PRINT
"PLEASE PLACE PRINTER ON-LINE.":
LINEINPUT "PRESS ENTER WHEN ON-L
INE.";X$:SOUND 200,3
80 PS=PEEK(65314):IF PS=4 OR PS=
6 THEN 90 ELSE 50
90 CLEAR 200:CLS
100 L=0:T=25:P=3.1415926535
110 B$="YES":CLS:PRINT @ 224,"I
AM NOW READY FOR FURTHER INPUT";
:FOR I=1 TO 1000:NEXT I
120 L=0:T=25:P=3.1415926535
130 CLS:PRINT @ 224," ":LINEINPU
T "WHAT IS YOUR NAME?";N$:SOUND
200,3
140 CLS:PRINT @ 224,"":INPUT"THI
S CHART IS FOR HOW MANY DAYS";E1
:SOUND 200,3
150 GOSUB 1340
160 ZZ=0
170 CLS:PRINT @ 224,"ENTER BIRTH
 DATE............."
180 GOSUB 430
190 GOSUB 1390
200 GOSUB 620
210 JB=JD
220 CLS:PRINT @ 224,"ENTER START
 DATE FOR CHART....."
230 ZZ=1
240 GOSUB 430
250 GOSUB 1440
260 GOSUB 620
270 JC=JD
280 IF JC>=JB THEN 300
```

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```
290 PRINT:PRINT"CHART DATE IS EA
RLIER THAN BIRTHDATE. PLEASE TRY
 AGAIN.":FOR I=1 TO 1600:NEXT I:
GOTO 160
300 GOSUB 690
310 N=JC-JB
320 V=23:GOSUB 790:GOSUB 810
330 V=28:GOSUB 790:GOSUB 810
340 V=33:GOSUB 790:GOSUB 810
350 GOSUB 980
360 GOSUB 1260
370 Z1=Z1+1:PRINT#-2,"* "+C$;TAB
(15)L$;TAB(75)DW$+" *"
380 DW1=DW1+1
390 IF DW1>7 THEN DW1=1
400 JC=JC+1:L=L+1:IF L<E1 THEN 3
10
410 IF Z1>=E1 THEN 1130
420 L=0:GOTO 300
430 S4=S4+1:PRINT
440 INPUT "MONTH (1 TO 12)";M:SO
UND 200,3
450 IF S4<=1 THEN L1=M
460 M=INT(M):IF M<1 OR M>12 THEN
 440
470 INPUT "DAY (1 TO 31)";D:SOUN
D 200,3
480 IF S4<=1 THEN L2=D
490 IF ZZ=1 THEN 500 ELSE 530
500 CLS:PRINT @ 96,"PLEASE ENTER
 THE DAY OF THE WEEK";:PRINT" 1
= MONDAY":PRINT" 2 = TUESDAY":PR
INT" 3 = WEDNESDAY":PRINT" 4 = T
HURSDAY":PRINT" 5 = FRIDAY":PRIN
T" 6 = SATURDAY":PRINT" 7 = SUND
AY"
510 PRINT:INPUT DW1:SOUND 200,3
520 IF DW1<1 OR DW1>7 THEN 500
530 D=INT(D):IF D<1 OR D>31 THEN
 470
540 INPUT "YEAR (ENTER ONLY LAST
 TWO DIGITSOF THE YEAR)";Y$:SOUN
D 200,3
550 IF LEN(Y$) >=3 THEN 540 ELSE
 GOTO 560
560 Y=VAL(Y$): IF S4<=1 THEN L3=
Y
570 IF S4<=1 THEN D4=M+D+Y
580 Y=INT(Y):IF Y<0 THEN 540
590 IF Y>99 THEN 610
600 Y=Y+1900:PRINT:PRINT Y;"ASSU
MED.":FOR I=1 TO 500:NEXT I:CLS
610 RETURN
620 W=FIX((M-14)/12)
630 JD=INT(1461*(Y+4800+W)/4)
640 B=FIX(367*(M-2-W*12)/12)
650 JD=JD+B
660 B=INT(INT(3*(Y+4900+W)/100)/
4)
670 JD=JD+D-32075-B
680 RETURN
690 IF B$="YES"AND Z>=1 THEN RET
URN ELSE 700
700 Z=Z+1:CLS:PRINTTAB(98)"PRINT
ING CHART---PLEASE WAIT"
710 PRINT#-2,CHR$(31)TAB(14)"BIO
RHYTHM CHART":PRINT#-2,TAB(13)"*
**************":PRINT#-2,CHR$(30
)
720 PRINT#-2,TAB(39)"FOR"
730 X1=(40-(INT(LEN(N$)/2))):REM
*CENTERS NAME
740 PRINT#-2,TAB(X1)N$:PRINT#-2,
" ":PRINT#-2," ":PRINT#-2,"THIS
CHART IS FOR"E1"DAYS.";TAB(54)"B
IRTHDATE IS"L1;"/";L2;"/";L3:PRI
NT#-2," "
750 PRINT#-2,TAB(34)"CRITICAL LI
NE"
760 PRINT#-2,"  DATE  ";TAB(17);
770 PRINT#-2,"L O W";TAB(38)"* O
 *";TAB(55)"H I G H";TAB(73)"  D
AY"
780 PRINT#-2,STRING$(80,95):RETU
RN
790 W=INT(N/V):R=N-(W*V)
800 RETURN
810 IF V<>23 THEN 860
820 L$=CHR$(32):FOR K=1 TO 5:L$=
L$+L$:NEXT
830 L$=L$+LEFT$(L$,19)
840 L$=LEFT$(L$,T)+CHR$(48)+RIGH
T$(L$,T)
850 IF V=23 THEN C$="P"
860 IF V=28 THEN C$="E"
870 IF V=33 THEN C$="I"
880 W=R/V:W=W*2*P
890 W=T*SIN(W):W=W+T+1.5
900 W=INT(W):A$=MID$(L$,W,1)
910 IF A$="P" OR A$="E" OR A$="*
" THEN C$="*"
920 IF W=1 THEN 960
930 IF W=T+T+1 THEN 970
940 L$=LEFT$(L$,W-1)+C$+RIGHT$(L
$,T+T+1-W)
950 RETURN
960 L$=C$+RIGHT$(L$,T+T):RETURN
970 L$=LEFT$(L$,T+T)+C$:RETURN
980 W=JC+68569:R=INT(4*W/146097)

990 W=W-INT((146097*R+3)/4)
1000 Y=INT(4000*(W+1)/1461001)
1010 W=W-INT(1461*Y/4)+31
1020 M=INT(80*W/2447)
1030 D=W-INT(2447*M/80)
1040 W=INT(M/11):M=M+2-12*W
1050 Y=100*(R-49)+Y+W
1060 A$=STR$(M):W=LEN(A$)-1
```

```
1070 C$=MID$(A$,2,W)+"/"
1080 A$=STR$(D):W=LEN(A$)-1
1090 C$=C$+MID$(A$,2,W)+"/"
1100 A$=STR$(Y):W=LEN(A$)-1
1110 C$=C$+MID$(A$,W,2)
1120 RETURN
1130 PRINT#-2,STRING$(80,95):PRI
NT#-2," ":PRINT#-2,TAB(3)"DAYS P
ER":PRINT#-2,TAB(4)"CYCLE":PRINT
#-2,TAB(3)"---------"
1140 PRINT#-2,TAB(6)"23";TAB(11)
"P = PHYSICAL CYCLE"
1150 PRINT#-2,TAB(6)"28";TAB(11)
"E = EMOTIONAL CYCLE"
1160 PRINT#-2,TAB(6)"33";TAB(11)
"I = INTELLECTUAL CYCLE":PRINT#-
2," "
1170 PRINT#-2,TAB(3)"NOTE : CRIT
ICAL DAY WHEN CURVE CROSSES (0)
CRITICAL LINE !!":PRINT#-2,TAB(3
)"* = INTERSECTION OF CURVES"
1180 PRINT#-2," ":PRINT#-2," "
1190 PRINT TAB(11)"END OF RUN":P
RINT#-2,TAB(36)"END OF RUN"
1200 PRINT#-2,CHR$(31);TAB(17)"T
HANK YOU"; CHR$(30)
1210 IF E1<=30 THEN PRINT#-2,CHR
$(12):REM*TOP OF FORM
1220 CLS:PRINT @ 224,"DO YOU WAN
T TO RUN AGAIN (Y/N) ?";
1230 AR$=INKEY$:IF AR$=""THEN 12
30
1240 IF AR$<>"Y" THEN 1250 ELSE
90
1250 CLS:PRINT @ 224,"THANKS ANY
WAY, BYE FOR NOW.":FOR I=1 TO 15
00:NEXT I:CLS:END
1260 ON DW1 GOTO 1270,1280,1290,
1300,1310,1320,1330
1270 DW$="MON":RETURN
1280 DW$="TUE":RETURN
1290 DW$="WED":RETURN
1300 DW$="THU":RETURN
1310 DW$="FRI":RETURN
1320 DW$="SAT":RETURN
1330 DW$="SUN":RETURN
1340 CLS:PRINT:PRINT:PRINT:PRINT
"NAME : ";N$
1350 PRINT:PRINT"CHART IS FOR ";
E1;" DAYS."
1360 PRINT:PRINT:INPUT "IS THIS
INFORMATION CORRECT ?     ENTER
(Y/N)";X$:SOUND 200,3
1370 IF LEFT$(X$,1)<>"Y" THEN GO
TO 130
1380 RETURN
1390 CLS:PRINT:PRINT:PRINT"MONTH
 :";M
1400 PRINT:PRINT"DAY :";D
1410 PRINT:PRINT"YEAR :";Y
1420 PRINT:INPUT "IS THIS INFORM
ATION CORRECT ?     ENTER (Y/N)
:";X$:SOUND 200,3
1430 IF LEFT$(X$,1)<>"Y" THEN GO
TO 170 ELSE RETURN
1440 CLS:PRINT:PRINT:PRINT"MONTH
 :";M
1450 PRINT:PRINT"DAY :";D
1460 PRINT:PRINT"YEAR :";Y
1470 PRINT:INPUT "IS THIS INFORM
ATION CORRECT ?     ENTER (Y/N)
:";X$:SOUND 200,3
1480 IF LEFT$(X$,1)<>"Y" THEN GO
TO 220 ELSE RETURN
1490 REM*---VARIABLE LIST---*
1500 REM* Z1=COUNTER FOR NUMBER
OF TIMES THRU PRINT STATEMENT
1510 REM* E1=NUMBERS OF DAYS SHO
WN IN CHART
1520 REM* M=MONTH
1530 REM* D=DAY
1540 REM* Y=YEAR
1550 REM* DW$/DW1=DAY OF WEEK
1560 REM* N$=NAME
1570 REM* L$=COMBINED P,E,I PRIN
TOUT ON SINGLE LINE
1580 REM* C$=DATE IN DATE COLUMN
```


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RS18

****
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* LAST MONTH COCO ADS HAD A PROGRAM CALLED * WIZARD'S CASTLE, AN ADVENTURE GAME. THIS * PROGRAM IS NOT SIMULAR TO THE ONE THAT IS * BY SPECTAL ASSOCIATES ADVERTISING ON PAGE * 32 (THE LAST PAGE) OF THIS ISSUE. THE * NAMES JUST HAPPEN TO BE THE SAME.LOOK FOR * A REVIEW IN NEXT MONTHS ISSUE OF SPECTRAL * ASSOCATES 'WIZARD'S CASTLE.
****

PROGRAMS WANTED FOR PUBLICATION

If you wrote a programs which you would like to share with others, send it in on cassette or disk. Our staff will review it and if it passes (most do) we will use it in COCO ADS. Your tape or disk will be returned to you with a gift. Please include some form of instructions on how your program works. On a ASCII word proscess program.

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LETTERS TO THE EDITOR

PLEASE LIST OUR CLUB IN YOUR NEWSLETTER. WE CURRENTLY HAVE 35 MEMBERS AND GROWING. ANYONE INTERESTED PLEASE WRITE:
ISLAND COCO CLUB P.O. BOX 1729
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PLEASE DISCONTINUE MY REQUEST THATS LISTED IN YOUR HELP BOARD COLUMN. MY LISTING ON YOUR HELP BOARD WAS A REAL HELP TO ME AND THE INDIVIDUALS THAT WROTE TO ME ABOUT IT IN THE PAST FEW MONTHS. THANKS FOR THE USE OF YOUR FINE PUBLICATION. COCO ADS IS THE MOST USEFUL MAGAZINE THAT I'VE EVER SUBSCRIBED TO FOR THE COLOR COMPUTERE. THOMAS E. DONALD

****

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****

C O C O A D D R E S S E S

Written by: John Mc Namee & Archimedes Bud

The following addresses are related to Color Basic and have no Relation to the Color Computer hardware. I do not claim to be the original source for all of this information, much of it has come from friends and magazines. My idea is to bring together all the information I could get in one place.

The currently pressed key can be found at the following addresses (addresses in decimal) :

	Returned Value						
	254	253	251	247	239	223	191
338	@	H	P	X	0	8	Enter
339	A	I	Q	Y	1	9	Clear
340	B	J	R	Z	2	*	Break
341	C	K	S	Up	3	+	
342	D	L	T	Down	4	<	
343	E	M	U	Left	5	-	
344	F	N	V	Right	6	>	
345	G	O	W	Space	7	?	Shift

Low RAM vectors - Address in HEX from now on

DEAR EDITOR:

This is in reference to my letter which appeared in the January issue, and Arthur J. Flexser's January 2nd letter to me (of which you got a copy), pointing out that the procedure in my letter does not work.

I hate to admit it, but he's right! In reviewing my original letter, I see that the trick suggested is actually a simplification of what I do in STAR-DOS, and really does not work in its simplified form. As it turns out, the problem lies not in the disign of the Radio Shack disk controller, but in the 1793 controller IC used in it. When basic tells the controller to go to track 17 but the disk drive reaches track 0 instead, the 1793 IC clears its track register. It essentially forgets where it was going. It therefore reads the granule allocation table from track 0, rather than from track 17, since it doesn't realize it should be somewhere else on the disk.

Fortunately, there is a simple way of solving that problem by still following the procedure originally suggested in the January issue, but poking in the number 17 rather that the 55 as suggested. In other words, do the command:

POKE 2430,17

for drive 0 (or POKE 2431,17 for drive 1 etc) This method works because basic always accesses the directory track, which is track 17, before doing anything else. POKEing a 17 into the location shown makes basic think the disk drive is already on that track. There are now two possibilities:

1. If the disk drive really is already on track 17 (which is quite likely), then basic will read the directory without delay and all is well.
2. If the disk drive is on some other track, then basic will try to read a sector without moving the head, get a 'sector not found' error message from the controller, gracefully retract the head to track 0 (the outermost track), and finally reposition the head to the correct track without any further error and without banging the head.

Once again, my apologies for leading you astray with my original letter.

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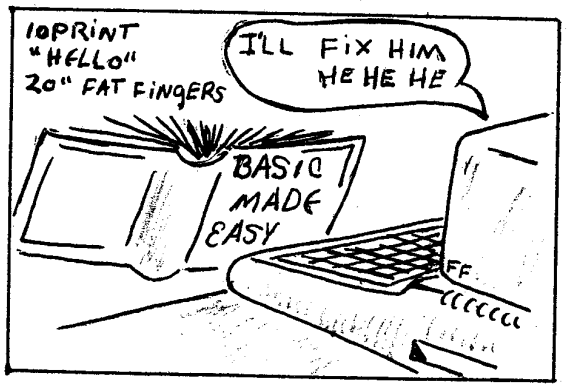

If the addres contains a pointer to somthing it is listed with parenthesis (A habit from using the Z80 too much). Such parenthesized address can be assumed to also include the following address becuase it take two bytes to point somewhere.

(0000): Address of next program line
0003: General math routine counter
0013: Math routine product area
(0017): BASIC stack pointer
(0019): Start of BASIC program pointer
(001B): Start of simple variables
(001D): Start of array variables
(001F): Start of free space
(0021): Start of string space
(0023): Next available byte in string space
(0027): High memory pointer
0029: Line number used by CONT command
(002D): Address of program text used by CONT command
(002F): Addres of current BASIC line
(0033): Pointer to next item to READ
004F: FPAC1 Exponent
0050: FPAC1 Mantissa
0054: FPAC1 Sign
0056: Current string length
(0058): Pointer to start of current string
005C: FPAC2 Exponent
005D: FPAC2 Mantissa
0061: FPAC2 Sign
0062: Sign comparison
0063: Extended precision byte
0068: Current program line number
006C: Column of cursor
006F: Device number for output: 0=CRT,-1=Tape,-2=RS232
0071: RESET flag. Put $55 here and address at $0072
(0072): RESET vector
(0074): Physical end of memory
0078: Mode of open for tape ops: 1=Input, 2=Output
007C: Block type for tape operations
007D: Block length for tape operations
(007E): Pointer to address of tape data block
0081: Tape error type: 0=None,1=Checksum,2=Bad RAM
0086: Quadrant of SET position: 1=Lower right
2=Lower left, 3=Upper right, 4=Upper left
0087: Last key pressed
(0088): Cursor position in screen memory
008C: Pitch for SOUND command
008D: Duration for SOUND command
0094: Blink rate of cursor
0095: Baud rate code
0097: RS232 end of line delay
0099: RS232 last comma field
009B: RS232 line width
009C: RS232 line position
009D: EXEC address
009F: Get next byte of basic code (Like Mod I RST 10H)
Returns byte in A, C set means number
(00A6): Input buffer pointer
00AB: Extended product area
00AF: Trace flag
00B6: PMODE mode

00B7: High address of current graphics screen
00B9: # of bytes per row in graphics mode
00BA: Low address of current graphics screen
00C1: SCREEN type (0=Text, 8=Graphics)
00EA: Disk operation (0=Restore, 2=Read, 3=Write)
00EB: Drive
00EC: Track
00ED: Sector
00EE: Disk Buffer location
00F0: Last known FDC status
(0100): SWI3 vector
(0103): SWI2 vector
(0106): SWI1 vector
(0109): NMI vector
010C: IRQ vector location
(010D): Timer interrupt routine address
(010F): FIRQ address
0112: Timer counter
011A: Keyboard lock flag (0=Not locked,255=Locked)
011B: Debounce delay constant
(0120): Color basic token pointer: LEN, MSB, LSB
(0123): Address of color basic commands
(0125): Color basic function token pointer
(0128): Address of color basic functions
(012A): Extended basic command token pointer
(012D): Address of extended basic command handler
(012F): Extened basic function token pointer
(0132): Addres of extended basic function handler
(0134): Disk basic command token pointer
(0137): Address of disk basic command handler
(0139): Disk basic function token pointer
(013C): Address of disk basic function handler
(013E): After disk basic command token pointer
(0141): Address of command handler after disk basic
(0143): After disk basic function token pointer
(0146): Functions after disk basic
0152: Keyboard map (8 bytes)
015A: Joystick 0 X position
015B: Joystick 0 Y position
015C: Joystick 1 X position
015D: Joystick 1 Y position
015E: Vector used by OPEN command. Allow OPEN to device number 1 to 16
0161: Vector used by device number check. Allow use of device number 1 to 16
0164: Vector to return information about a device.
0167: Vector used by character output routines. Allows output to disk and RS232
016A: Vector used by character input routines. Allows input from disk and RS232
016D: Vector to make sure a device is open for input
0173: Vector to close all open files
0176: Vector to close one file. Used by disk BASIC
0179: Vector for PRINT USING command
017C: Vector to scan data after input from a device Used by INPUT # in disk BASIC
017F: Vector for BREAK key check during output
0182: Vector used in get keyboard line routine
0185: Vector to clean up after load of ASCII file
0188: Vector to check for end of file

018B: Vector used in operand evaluation
018E: Vector that could allow user to trap errors
0191: Vector used in error print routine. In a disk system it closed all open files
0194: Vector for RUN command. Allows RUN "filespec"
0197: Vector from get number routine so it can evaluate hex and octal (&H and &O)
019A: Vector called during line execution. Allow for trace of program (TRON,TROFF)
01A0: Vector from GET and PUT (and others). Allow GET and PUT to be used on disk files
01A3: Vector from tokenize routine
01A6: Vector from untokenize routine
01D2: 8 byte tape filename
01DA: Filename read from tape (8 bytes)
01E2: Filetype read from tape
01E3: Data type read from tape
01E4: Gap flag read from tape
01E5: EXEC address read from tape
01E7: Start address read from tape
02DA: Keyboard input buffer (240 bytes long)
03DB: Work area for printing number on the screen
0600: 256 byte system disk buffer
094C: Filename
0954: Extension
0957: File type (BASIC/MACHINE/DATA)
0958: File mode (ASCII/BINARY)
095A: Default drive
0973: Directory sector number
0976: Granule number
097E: Drive head position table
0983: Disk supplied vector for NMI
0985: Drive motor off down counter
0986: Last used drive selection code

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T A N K S

```
10 A$="         P D SOFTWARE"
20 CLS
30 FOR X = 1 TO 20
40 B$=RIGHT$(A$,X)
50 PRINT@224,B$;:FORI=1TO50:NEXTI
:NEXTX
60 FOR X= 1 TO 500:NEXT
70 'P D SOFTWARE
80 'P.O. BOX 13124
90 'HOUSTON, TEXAS  77219
100 '**************************
*
110
120 PMODE3,1
130 PCLEAR4
140 DIM TK(28,20)
150 CLS
160 PRINT@12,"TANKS":PRINT
170 INPUT"DO YOU WISH WINDS (Y O
R N)";Q$
180 IF Q$="N" THEN W=0 ELSE W=RN
D(20)-10
190 IF W>0 THEN PRINT"WINDS FROM
 LEFT AT FORCE";W ELSE PRINT"WIN
DS FROM RIGHT AT FORCE";ABS(W)
200 PRINT:PRINT"MOVE JOYSTICKS T
O AIM AND RED   BUTTON TO FIRE":
PRINT
210 PRINT"WAIT A MOMENT, PLEASE"

220
230 A$="L255;O1V31BV30FV29DV28GV
27EV25CV23FV21CV19GV17BV15;L210;
O2;D#V13C#V11F#V9DV7AV5BV3EV1G"
240 B$="L200;O1;V31BV28AV24GV20F
V16DV10C#V5C"
250 C$="H4G3U3L4E4H4E4U2F4E4D3R4
G3F2R3G4F3L3D2L2"
260 PCLS
270 COLOR3,1
280 '
290 CIRCLE(6,14),4,3
300 CIRCLE(14,14),4,3
310 CIRCLE(22,14),4,3
320 LINE(6,10)-(22,10),PSET
330 LINE(6,18)-(22,18),PSET
340 CIRCLE(14,10),8,3,1,.5,1
350 PAINT(14,8),3
360 GET(0,0)-(28,20),TK,G
370 PCLS
380 GOSUB820
390 SCREEN1,0
400 FALSE=0
```


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```
410 MASK=127:KO=123:LI=63
420 BU=65280:TS=.09:G=16:S=.1
430 P1=X1+20:P2=X2+8
440 F1=FALSE:F2=FALSE:F3=FALSE
450 Q1=Y1+5:Q2=Y2+5
460 O=70:L=10
470 T1=.1:T2=.1
480 X4=-1:Y4=-1:X5=0:Y5=0
490 B1=P1:B2=P2:D1=Q1:D2=Q2
500 PI=3.14159256:PH=PI/3:M=PI/8
:PM=PI-M:LP=LI*PH
510 '
520 V2=LI-JOYSTK(0)+O:V1=JOYSTK(
2)+O:A2=PM-(LI-JOYSTK(1))/LP
530 A1=(LI-JOYSTK(3))/LP+M:BT=(P
EEK(BU) AND MASK) - KO
540 IF F1 THEN GOSUB 1180 ELSE G
OSUB 1370
550 IF F2 THEN GOSUB 1420 ELSE G
OSUB 1610
560 IF F3 THEN IF F1 OR F2 THEN
570 ELSE 590
570 ON BT GOSUB 1660,1110,1040
580 GOTO 520
590 FOR I=1 TO 800:NEXTI
600 CLS: SCREEN 0,0
610 PRINT@10,"TANK GUNNER":PRINT

620 PRINT"   LEFT TANK","  RIGHT
 TANK"
630 PRINT"     SCORE",  "     SC
ORE":PRINT
640 S1=S1+H1:S2=S2+H2
650 H1=0:H2=0
660 PRINT TAB(6) S1 TAB(22) S2
670 PRINT:PRINT
680 GOTO 170
690 END
700 '
710 D$="BM"+STR$(INT(X3+14))+","
+STR$(INT(Y3+19))
720 COLOR 2,1
730 DRAW D$+C$
740 PAINT(X3+14,Y3+6),4,2 'RED
```

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```
750 FOR I=1 TO 10: NEXT I
760 PAINT(X3+14,Y3+6),1,2 'GREEN

770 COLOR 1,3 'UNDRAW BORDER
780 DRAW D$+C$
790 COLOR 3,1
800 PLAY A$
810 RETURN
820 '
830 X1=RND(30)
840 Y1=191-RND(50)-20
850 PUT (X1,Y1)-(X1+28,Y1+20),TK
,PSET
860 X2=RND(30)+197
870 Y2=191-RND(50)-20
880 PUT (X2,Y2)-(X2+28,Y2+20),TK
,PSET
890 DT=X2-X1
900 COLOR 2,1
910 LINE(0,Y1+20)-(X1+30,Y1+20),
PSET
920 LINE(X2-8,Y2+20)-(255,Y2+20)
,PSET
930 LINE(0,191)-(255,191),PSET
940 LINE(255,Y2+20)-(255,191),PS
ET
950 M=(Y1+Y2)/2-20-RND(60)
960 N=X1+RND(14)+DT/2
970 'DRAW MT
980 LINE(X1+30,Y1+20)-(N,M),PSET

990 LINE(N,M)-(X2-8,Y2+20),PSET
1000 PAINT(N,M+2),2,2
1010 COLOR 3,1
1020 RETURN
1030 '
1040 IF F2 THEN RETURN ELSE F2=1

1050 C2=V2*SIN(A2)
1060 C1=V2*COS(A2)+W
1070 PLAY B$
1080 XA=0:YB=0
1090 RETURN
1100
1110 IF F1 THEN RETURN ELSE F1=1

1120 K1=V1*COS(A1)
1130 K2=V1*SIN(A1)
1140 PLAY B$
1150 X4=0:Y4=0
1160 RETURN
1170 '
1180 T1=T1+TS
1190 IF Y4>0 THEN X5=X4:Y5=Y4
1200 X4=K1*T1+P1:Y4=Q1-(K2*T1-G*
T1*T1)
1210 PRESET(X5,Y5)
1220 IF X4>255 THEN F1=FALSE:T1=
S:RETURN
1230 IF Y4<0 THEN RETURN

1240 ON PPOINT(X4,Y4)-1 GOTO 130
0,1270,1330
1250 PSET(X4,Y4,4)
1260 RETURN
1270 F1=FALSE:F3=1:T1=S:H1=1
1280 X3=X2:Y3=Y2:GOSUB 700:T1=S
1290 LINE (P2,Q2)-(B2,D2),PRESET
:RETURN
1300 F1=FALSE:X3=X4-14:Y3=Y4-10:
GOSUB700:T1=S
1310 PUT (X2,Y2)-(X2+28,Y2+20),T
K,PSET
1320 GOTO 1610
1330 X3=X4-14:Y3=Y4-10
1340 GOSUB700:T1=S:T2=S
1350 F1=FALSE:F2=FALSE:RETURN
1360 '
1370 XO=P1+L*COS(A1)
1380 YO=Q1-L*SIN(A1)
1390 LINE(P1,Q1)-(B1,D1),PRESET:
LINE(P1,Q1)-(XO,YO),PSET
1400 B1=XO:D1=YO:RETURN
1410 '
1420 T2=T2+TS
1430 IF YA>0 AND XA>0 THEN XB=XA
:YB=YA
1440 XA=C1*T2+P2:YA=Q2-(C2*T2-G*
T2*T2)
1450 PRESET(XB,YB)
1460 IF XA<0 THEN F2=FALSE:T2=S:
RETURN
1470 IF YA<0 THEN RETURN
1480 ON PPOINT(XA,YA)-1 GOTO 154
0,1510,1570
1490 PSET(XA,YA,4)
1500 RETURN
1510 F2=FALSE:F3=1:T2=S:H2=1
1520 X3=X1:Y3=Y1:GOSUB700:T2=S
1530 LINE(P1,Q1)-(B1,D1),PRESET:
RETURN
1540 F2=FALSE:X3=XA-14:Y3=YA-10:
GOSUB700:T2=S
1550 PUT(X1,Y1)-(X1+28,Y1+20),TK
,PSET
1560 GOTO 1370
1570 X3=XA-14:Y3=YA-10
1580 GOSUB700:T2=S:T1=S
1590 F1=FALSE:F2=FALSE:RETURN
1600 '
1610 XT=P2+L*COS(A2)
1620 YT=Q2-L*SIN(A2)
1630 LINE(P2,Q2)-(B2,D2),PRESET:
LINE(P2,Q2)-(XT,YT),PSET
1640 B2=XT:D2=YT:RETURN
1650 '
1660 IF F1 AND F2 THEN RETURN
1670 GOSUB1040
1680 GOTO 1110
1690 END
```

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