NATIONAL INTERACT COMPUTER CLUB

JANUARY 1982

HAPPY HOLIDAYS

GENERAL ITEMS

Thank you for all of the wonderful compliments, the contribu-
tions and even the nice Christmas presents. We are sorry that
we cannot publish every letter and contribution, in fact we
were just swamped with letters in December and it will take us
some time to publish most of these.

Great news from Protecto, a brand new computer, information is
enclosed. Sorry, Protecto informs us that they will not take
a trade in, however we have heard that priced right, you can
sell your Interact through the classified section of your
local newspaper. **YOUR SPECIAL PRICE IS $269.00 UNTIL 3-1-82.**

A fantastic new game, Alien Invasion, is now for sale. We heard
it is better than anything on the market. List price is $19.95
and Club price is $14.95. Also for sale, a new deluxe telephone
modem program.

Other Protecto news, they have sold out of Interact Computers,
however they will continue to support ▬ interact with new
programs with the same great quality service as in the past.

Also, the sale of Level II documentation will be discontinued
1/1/82 and the 12/31/81 stock will be sold at wholesale prices,
over 50% off. We suggest you stock up with additional tapes and
manuals, while supply lasts. A 50% sale also applies to the
service and warranty package. All manuals and tapes pertaining
to Level II and the service package will be sold at over 50%
off. Also, there are only 9 Butcher Block stools currently in
their stock that they are willing to sell for $10 each plus
postage and handling.

Protecto thanks you for all of the business and referrals and
extends their apologies for having to backorder printers,
modems, Instant Basic books and RS232 ports. They promised
us they would be caught up by the end of January.

Now for some very embarassing news, and let me tell you our
faces are crimson. We inadvertantly mailed several of our
original newsletters. (Ooooooops!!) And would therefore
greatly appreciate any assistance we might get. The issues we
are lacking are May 1981through and including September 1981.
So please, if you have these issues and are willing to send us
a copy (we will pay for the coping and postage) send them
to us as soon as possible. We are trying to set up a library
to enable back issues to be sold to new members for the price
of coping and postage. THANK YOU!!!!

Enough of Protecto and us, it's time we went on to bigger and
better things. Jeff Tapia has written the following instruc-
tions on how to use Atari joysticks on the Interact.

1)   Remove bottom of the joysticks by unscrewing the four (4)
     bottom screws and pull it off.
2)   Hold the joystick upside down, switch wire #1 with wire
     #2 and then switch wire #3 with wire #4.   (See diagrams 1 &
     2 below.)
3)   Put bottom back on and screw in the four (4) screws.
4)   Play your favorite game.
5)   For the return codes, see diagram 3 below.
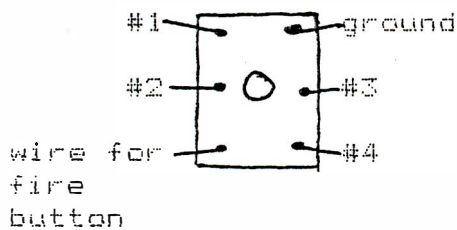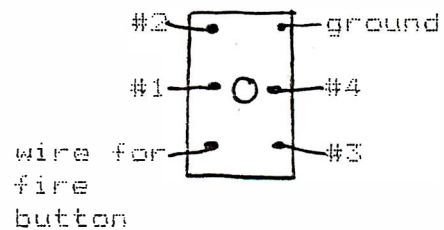
Diagram #1

    #1 ─────┐   ┌───── ground
    #2 ──┐ │ ○ │ ┌── #3
wire for ─┘   └── #4
fire
button

    Diagram #1

Diagram #2

    #2 ─────┐   ┌───── ground
    #1 ──┐ │ ○ │ ┌── #4
wire for ─┘   └── #3
fire
button

    Diagram #2

              Forward
                 4
          5   ↑   6
               ↖ │ ↗
    Left 1 ←───── ○ ─────→ 2 Right
               ↙ │ ↘
          7   ↓   9
                 8
               Back

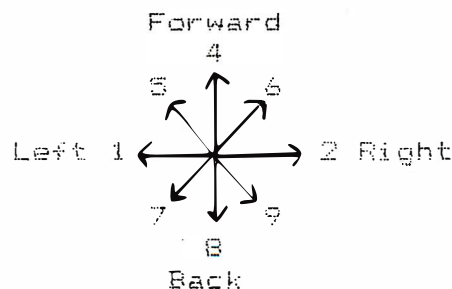## SPECIAL PRICES FOR INTERACT OWNERS

1. NEW 1982 MODEL 23K APF IM-1 COMPUTER (See Attached)
   Has 14K ROM with a simplified Level II built in, 9K User RAM, 16 lines,
   32 characters per line, (APPLE GRAPHICS), plug in expandable to disks,
   and much more!!

   List price $599.00 - Factory package price $289.00 - Your special price:
   Only $269.00. This price is only available until March 1, 1982. You can
   only buy one computer at this price!

2. LEVEL II DOCUMENTATION SURPLUS INVENTORY SALE

	List Price	Surplus Price
Level II program tape-	$24.95	$ 12.00
Level II Users Manual " "	$14.95	6.00
Level II Basic Examples Book	4.95	2.00
Level II Command Cards	1.00	.25

   Level II Documentation Pack includes all of the above

   Items - List Price $39.95 - Surplus Price $17.95

3. SERVICE AND WARRANTY PACKAGE SURPLUS INVENTORY SALE

	List Price	Surplus Price
Diagnostic Program Tape & Manual -	$19.95	$9.00
Alignment Program Tape	9.95	4.00
Service Manual	9.95	4.00
Schematics and Parts List	9.95	4.00

   Service and warranty pack includes all of the above - List Price $39.95
   Surplus Price $17.95

CONTACT OTHER CLUB MEMBERS

ERNEST SULOUFF   315-477-6067
4361 LIMELEDGE ROAD
MARCELLUS, NY 13018

W. R. UPDEGRAFF
2125 FOX VALLEY CIRCLE
BIRMINGHAM, AL 35216

MIKE MCCORMICK   317-787-46227
5626 PERSONALITY CT.
INDIANAPOLIS, IN 46227

LEONARD LOBAITO   212 447-7653
40 HENDERSON AVE.
STATEN ISLAND, NY   10301

ANTHONY J. FERMAN   RE: PROGRAMMING THE INTERACT AS A RTTY
11453 E. CENTER AVE.   TERMINAL AND/OR MORSE CODE TERMINAL,
AURORA, CO   80012   IF YOU'VE DONE IT, PLEASE CONTACT HIM.

PHILIP J. DAVENPORT   RE: MR. DAVENPORT'S HAS USED A TRS80 ALOT
134 N. 184TH ST.   AND IS WILLING TO HELP OTHERS CHANGE
SEATTLE, WA 98133   THOSE PROGRAMS TO RUN ON THE INTERACT.

DOCTOR ART NASH   RE: THEY ARE USING THEIR MACHINE FOR
BOX 8   PARAPSYCHOLOGICAL RESEARCH AND ARE
CUMMINGTON, MA 01026   LOOKING FOR AN ASTROLOGY OR NUMEROLOGY
                          PROGRAM & OTHER ITEMS THAT WOULD AID
                          THEM.

ITEMS FOR SALE

GAMES -

Moon probe, Fathom & Life Support   - $5.00
Robot War VI ----------------------   5.00
All of the above on one tape -------   8.00

All tapes include bonus programs such as graphics demonstrations
and Hex conversion and require only Level II basic. There are
more games to come! Prices rise 30% 2/28/82. Add .75 per tape
for postage.

            Available from Philip J. Davenport
                            134 n. 184th st.
                            Seattle, WA 98133

MORE FOR SALE

Learn Morse Code with your Interact (Mr. Ferman, this was probably meant for you). Avoid buying expensive Code tapes. A Morse Code computer can cost over $200.00. This code program can do the same and better. User choices: speed 1-20 wpm; frequency low to high pitch; sentence input; infinite loops. Letters, numbers and punctuation marks are selected randomly and sounded out in international Morse Code. Characters are displayed on TV screen for later checking. An easy way to get into Ham Radio.

Send $5.00 with tape or $7.00 without tape to Interact Software Canada Division, P.O. Box 67, Fauquier, B.C., Canada, V0E 1K0.

- -

Single Stepper for sale - This program is one of the most useful programs you can have if you want to program in machine language. It will take any machine language program, in ROM or RAM, and execute it one command at a time. After each step it will print out all the registers, program counter and stack pointer. It will help you understand any program or debug your own. RS232 interface and printer are required. A different version that displays on the TV screen will be available in the near future. Price - $10.00

         Available from   George Fleischmann
                           325 Clearwood Drive
                           Grand Prairie, tx 75051

- -

1. How to build a new home for your Interact w/schematics.
2. Turn any calculator into a digital numeric entry keypad
    w/schematics.
3. A new home for your tape recorder w/extension cable
    schematics.
4. Add "Touch Typing" to your present console w/schematics.
5. Add a new keyboard to your console w/schematics.
6. Add four (4) new keys to your keyboard.

    For details and price contact   Leonard Lobaito
                                      40 Henderson ave.
                                      Staten Island, NY 10301

Mr. Lobaito is also on the contact list, he is currently working on a disk interface, 16K ram expansion and basic in ROM and would like to know if anyone else is working on these, please contact him; as one member put it "two heads are better than one."

MORE FOR SALE

RS232'S

Richard G. Young would like to sell his RS232, no price was
stated, just "cheap". He states that it has never been
installed or used. All documentation included.

Contact Richard G. Young
        PO Box 84
        Salem, OR   97308

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

Another RS232 interface, it was installed, but never used,
would sell for $60 including shipping. Please call William
Richter at (814) 967-4347.

- -

And lastly for sale this month is.................

An Interact Computer + games for best offer.

        Contact Roland Tam
                732 36th Ave.
                San Francisco, CA 94121

   TIPS FROM OTHER CLUB MEMBERS

For Mr. Hertel from Larry Ray Newman of Texas

The peek for the left pot is 24,568
                right pot is 24,571
                     Joy (0) 24,561
                     Joy (1) 24,562
                Left fire 24,567
                Right fire 24,570

Also, Mr. Newman wants to know if anyone is interested in a
Machine Language program to bounce two independent balls
against the sides? From what I have read, Mr. Newman, our
members would like as much as they can get regarding Machine
Language programs. We just aren't getting very much on this.

- -

From J. McMullen - a Chase Modification for independent robot
                      movement

```
110 IF JOY(0) <1 GOTO 430
111 IF JOY(0) >0 GOTO 115
411 INPUT "HOW MUCH ROBOT DELAY";U
430 FOR Z = 1 TO U : NEXT
431 GOTO 111
```

- -

From Leonard Lobaito

How to Stop Frequent Head Alignment

A misaligned tape head is one of the most annoying problems an
operator can have. It leads to all kinds of systems.

THE FIX: 1. Align the head to proper specs.
            2. Shut off unit and locate head alignment screw
                (it's the phillips head screw just to the left of
                the read/write head looking at it from the front
                of the console)
            3. Open cassett door, then press the read button all
                the way down, so that the read head is protruding
                into the cassette opening.
            4. Procure a bottle of nail polish (he found that
                bright red adds a nice touch).
            5. VERY CAREFULLY place a small drop of nail polilsh
                on one side of the screwhead to the metal adjustor
                plate.
            6. Leave the door open until nail polish is dry, and
                the odor is gone. (NOTE: do not use the cassette
                in this stage.)

In order to prolong the life of the cassette, proper operation
is a must. Such as, when ejecting a tape, place free hand over
the door, so as not to let the door snap up, and when changing
from the read or read and write mode keep free fingers on the
buttons so that they will not snap up. Keep the head and drive
wheel clean with regularity.

Mr. Lobaito also states the following:

The next tip will be a magic trick, how to extend an RS232 cable
using no money and how to print from 300 to 4800 baud on your
EPSOM printer.

Both of these items will be found in future issues as he has not
included them. We think he likes to keep us in suspense! We
really don't mind, and hope you don't either, and would like to
thank Mr. Lobaito for all of his tips (many previously
published.)

PROGRAMS

MYSTERY HOUSE

.............contributed by W. J. Moore of Pittsburg, CA

```
10 GOTO70
15 C=INT(RND(1)*6)+1
20 IFC=DTHEN15
25 IFC>DTHENFORI=100TO50STEP-1:TONEI,10:NEXT:TONE20,1000
30 IFC<DTHENFORI=50TO100:TONEI,10:NEXT:TONE1000,20
35 D=C:COLOR0,7,C,3
40 X=80:Y=70:GOSUB65:Y=30:GOSUB65
45 Y=50:X=60:GOSUB65:X=100:GOSUB65
50 X=100:GOSUB65
55 X=80:Y=50:GOSUB65
60 RETURN
65 TONET,8:OUTPUTCHR$(1),X,Y,CC:RETURN
70 CC=0:T=C*15:J=JOY(0)
75 PK=PEEK(24560)
80 IFPK=255THENTM=TM+255:POKE24560,0
85 ONJGOTO95,100,70,105,70,70,70,110,70,70
90 FORI=1TO50:NEXT:GOTO70
95 GOSUB65:X=X-5:B=1:GOTO115
100 GOSUB65:X=X+5:B=2:GOTO115
105 GOSUB65:Y=Y+5:B=3:GOTO115
110 GOSUB65:Y=Y-5:B=4:GOTO115
115 CC=2:IFPOINT(X,Y)=CCTHEN165
120 IFPOINT(X,Y)=1THENONBGOTO130,135,140,145
125 GOSUB65:GOTO70
130 X=X+5:GOTO125
135 X=X-5:GOTO125
140 Y=Y-5:GOTO125
145 Y=Y+5:GOTO125
150 OUTPUTCHR$(1),24,62,0:OUTPUTCHR$(1),30,62,0
155 OUTPUTCHR$(1),24,34,0:OUTPUTRM(H,V),18,62,2
160 OUTPUTC,18,34,2:RETURN
165 RM=RM+1
170 IFX=60THENH=H-1
175 IFX=100THENH=H+1
180 IFY=30THENV=V-1
185 IFY=70THENV=V+1
190 IFV>5THENV=1:H=H+1
195 IFV<1THENV=5:H=H+1
200 IFH>5THENH=1:V=V+1:GOTO190
205 IFH<1THENH=5:V=V+1:GOTO190
210 IFRM(H,V)=0THENGOSUB15:V=V+1:GOTO190
215 IFC=ECTHENTFRM(H,V)=RM(EX(TS),EY(TS))THEN540
216 TS=1
220 T=RM(H,V):GOSUB670
225 ONTGOTO685,690,695,740,710,715,705,700,735,700,730,725,705,700,720
230 H=T-15:ONHGOTO725,730,705,710,710
254 GOTO530
```

```
240 CC=0:GOSUB45:CC=2:GOSUB40:GOSUB150
245 X=80:Y=50:GOTO70
270 CLS:COLOR0,7,4,0:FORI=1TO50:PRINTCHR$(I)::NEXT
275 CLS:PRINT:COLOR0,7,4,3:CC=1
280 PRINT"OBJECT IS TO FIND":PRINT"YOUR WAY OUT OF"
285 PRINT"MYSTERY HOUSE.":PRINT
290 PRINT"EACH OF 6 FLOORS":PRINT"HAS 20 ROOMS."
295 PRINTCHR$(7):FORI=1TO2000:NEXT:PRINT
300 PRINT"TO ESCAPE, YOU":PRINT"MUST GO THRU 3"
305 PRINT"ROOMS SELECTED BY":PRINT
310 PRINTTAB(6)"ME!!":PRINTCHR$(7):FORI=1TO1500:NEXT
315 CLS:CLEAR:TS=1:CC=1
320 FORI=1TO9:X=I*5+55:Y=70:T=100:GOSUB65:NEXT
325 FORI=1TO9:Y=75-I*5:X=100:T=90:GOSUB65:NEXT
330 FORI=1TO9:X=105-I*5:Y=30:T=80:GOSUB65:NEXT
335 FORI=1TO9:Y=I*5+25:X=60:T=70:GOSUB65:NEXT
340 CC=2
345 GOSUB15
350 TONE500,10:OUTPUT"ROOM NO.",6,70,1:TONE500,10
355 OUTPUT"FLOOR",6,42,1:OUTPUT"PLEASE WAIT",24,17,1
360 DIMA(25),B(25),RM(5,5):I=0
365 X=INT(RND(1)*25)+1
370 IFB(X)>0THEN365
375 I=I+1:A(I)=X:B(X)=X
380 IFI=25THENGOTO390
385 TONE10,10:GOTO365
390 FORI=1TO25:FORJ=21TO25
395 IFA(I)=JTHENA(I)=0
400 NEXT:NEXT
405 FORI=1TO5:FORJ=1TO5
410 TONE20,10:N=N+1:RM(I,J)=A(N):NEXT:NEXT
415 I=1:X=INT(RND(1)*3)+2:Y=INT(RND(1)*3)+2
420 N=INT(RND(1)*8)+1
425 ONNGOTO445,450,455,460,465,470,475,480
430 IFRM(X,Y)=0THEN415
435 EX(I)=X:EY(I)=Y:I=I+1:TONE10,10
440 RETURN
445 GOSUB430:Y=Y-1:GOSUB430:X=X+1:GOSUB430:GOTO485
450 GOSUB430:Y=Y+1:GOSUB430:X=X+1:GOSUB430:GOTO485
455 GOSUB430:X=X+1:GOSUB430:Y=Y-1:GOSUB430:GOTO485
460 GOSUB430:X=X+1:GOSUB430:Y=Y+1:GOSUB430:GOTO485
465 GOSUB430:Y=Y-1:GOSUB430:X=X-1:GOSUB430:GOTO485
470 GOSUB430:Y=Y+1:GOSUB430:X=X-1:GOSUB430:GOTO485
475 GOSUB430:X=X-1:GOSUB430:Y=Y-1:GOSUB430:GOTO485
480 GOSUB430:X=X-1:GOSUB430:Y=Y+1:GOSUB430:GOTO485
485 CC=INT(RND(1)*6)+1
490 GOSUB70
495 X=80:Y=50:GOSUB150
500 POKE19215,25
505 POKE30462,195
510 POKE30463,25
515 POKE30464,119
520 POKE24560,0
525 WINDOW24:GOTO70
535 TS=1:GOTO260
540 ONTSGOTO545,570,590
545 GOSUB70:OUTPUT"YOUR'E ON THE WAY",6,23,3
550 OUTPUT"OUT! THIS IS THE",6,17,3
555 OUTPUT"FIRST ROOM.",6,11,3
560 FORI=1TO1000:NEXT
```

```
565 GOSUB670:TS=2:GOTO260
570 GOSUB670:OUTPUT"VERY GOOD!  ONLY",6,23,3
575 OUTPUT"ONE MORE TO GO!",6,17,3
580 FORI=1TO1000:NEXT
585 GOSUB670:TS=3:GOTO260
590 CLS:WINDOW77
595 PK=PEEK(24560)
600 TM=TM+PK:TM=INT(TM%.075)
605 PRINT"WELL, YOU FOUND A":PRINT"FIRE ESCAPE AND":PRINT"JUST IN TIME!"
610 PRINT:PRINT"THIS HOUSE IS ON"
620 OUTPUT"F I R E '",36,11,1
625 FORI=1TO20:SOUND5,2500:COLORO,1,4,3:FORJ=1TO100:NEXT
630 COLORO,7,4,3:NEXT:SOUND7,4096:CLS
635 PRINT:PRINT"YOU WERE IN";RM:PRINT"ROOMS AND TOOK"
640 PRINT TM;"MINUTES";PRINT"TO GET OUT."
645 FORI=1TO1000:NEXT
650 PRINT:PRINT:PRINT"PLAY AGAIN - Y"
655 A$=INSTR$(1)
660 IFA$="Y"THEN315
665 END
670 FORI=6TO110STEP6
675 OUTPUTCHR$(1),I,23,0:OUTPUTCHR$(1),I,17,0
680 OUTPUTCHR$(1),I,11,0:NEXT:RETURN
685 OUTPUT"MASTER BEDROOM",6,17,2:GOTO535
690 OUTPUT"HIS BATHROOM",18,23,2:GOTO535
695 OUTPUT"HER BATHROOM",18,11,2:GOTO535
700 OUTPUT"BATHROOM",36,17,2:GOTO535
705 OUTPUT"BEDROOM",36,11,2:GOTO535
710 OUTPUT"GUEST BEDROOM",12,23,2:GOTO535
715 OUTPUT"LIVING ROOM",18,23,2:GOTO535
720 OUTPUT"FAMILY ROOM",24,17,2:GOTO535
725 OUTPUT"KITCHEN",36,23,2:GOTO535
730 OUTPUT"PANTRY",36,11,2:GOTO535
735 OUTPUT"MAIN KITCHEN",12,17,2:GOTO535
740 OUTPUT"KIDS ROOM",24,17,2:GOTO535
```

****

A few additions by Dennis Sunde for his Chase program
The first one is important, it answers many of your questions
regarding the CHR$(1). The remainder are REM statements to help
you to modify it. (Some of you already have & many people have
enjoyed this program, Mr. Sunde thank you again. (More to come
in future issues by Mr. Sunde.)

```
8 PRINT CHR$(8)
45 REM OUTPUT BARRIERS
107 REM MOVE MAN
138 REM MOVE UPPER LEFT ROBOT
169 REM MOVE UPPER RIGHT ROBOT
199 REM MOVE LOWER LEFT ROBOT
229 REM MOVE LOWER RIGHT ROBOT
259 REM MOVE CENTER ROBOT
299 REM ROBOTS BLOW UP-HIT WALL
329 REM MAN HIT WALL OR CAUGHT
364 REM OUTPUT SCORE
379 REM MADE IT OUT OF MAZE
390/1 REM END OF GAME
399 REM INSTRUCTIONS
```

NATIONAL INTERACT COMPUTER CLUB

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* 515 W. Shadylane, Barrington,Illinois-60010:Joe Badger-Pres. *

FEBRUARY 1982

GENERAL ITEMS

Its time to begin a new year. Thank you all for rejoining us
for this year. We hope to make it even better, with more infor-
mation and games than last year. Well, let's begin. But first,
Mr. Klopp, your tapes are being returned to you, you should have
them before you receive this newsletter. We are going to repub-
lish several of the "contact members" who wish special
responses. It you wish to be contacted regarding a special sub-
ject, just write us and let us know, we'll publish the topic.
We have also included the CHECKERS program, since many have had
problems with it.

CONTACT OTHER CLUB MEMBERS

BILL UPDEGRAFF   205 822-2807
2125 FOX VALLEY CIRCLE
BIRMINGHAM, AL 35216

BEN DELANEY-VAARKAART   415-552-3555
333 SEVENTH ST.
SAN FRANCISCO, CA 94103

ANTHONY J. FERMAN   RE: PROGRAMMING THE INTERACT AS A RTTY
11453 E. CENTER AVE.   TERMINAL AND/OR MORSE CODE TERMINAL,
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CUMMINGTON, MA 01026   LOOKING FOR AN ASTROLOGY OR NUMEROLOGY

PROGRAM & OTHER ITEMS THAT WOULD AID
THEM.

GREG VELFLING   313 367-6338
485 S. RICHMAN RD.
SMITHS CREEK, MI   48074

ITEMS FOR SALE

GAMES -

Astro-Blast is a game for 1 or 2 players and requires 8K fast
graphics basic. In this game your mission is to destroy enemy
suicide bombers before they can penetrate your defenses. the
game tape and listing available for $4.00 from:

                    Steve Novotny, Jr.
                    643 Hayes st.
                    Hazleton, PA 18201

TIPS FROM OTHER CLUB MEMBERS

From Cullen O'Day (also see Mr. O'Days program included in this
letter entitled Bombs Away which incorporates his tips.)

Some sounds can be made to "fade out" rather than shutting them
off with SOUND 7,4096, try fading it out with the sound number
plus 1. For example:

          10 SOUND 1,550
          20 FOR X = 0 TO 1:NEXT
          30 SOUND 1,551

Makes a nice explosion sound. Some sounds need longer timing
loops. A convincing gunshot sound can be written as follows:

          10 SOUND 1,3600
          20 FOR X = 0 TO 100:NEXT
          30 SOUND 1,3601

And finally, sounds can be paired with others to produce new
sounds. For example:

```
          10  SOUND 6,60
          20  FOR X = 0 TO 100:NEXT
          30  SOUND 1,3601
```

Experimentation with these techniques will reveal which sounds
can and cannot be faded out. Here also, is a short program
which will help in the search:

```
          10  CLS
          20  PRINT:INPUT"SOUND";A,B
          30  SOUND A,B
          40  FOR X = 0 TO 1:NEXT        (OR FOR X = 0 TO 100:NEXT)
          50  SOUND A,B+1
          60  FOR X = 0 TO 1000:NEXT
          70  GOTO 20
```

ANSWERS TO CLUBMEMBER'S QUESTIONS

To Mr. Biel of Illinois

It is possible to use the Interact with your video recorder.
We have recorded visual aids and graphics on our Interact and
transferred it to the recorder for use in presentations. When
we did this, however, we worked on the Interact prior to
recording, so that when we wanted to record the graphics, it
was already in memory, we were not typing it it as it was
recording. And we were able to designate the colors used. We
hooked the RF Modulator up to the RF in on the recorder.

Also, as far as we know, it is not possible to hook the
Interact up to a monitor, we also have one and were not able
to do it because the Interact only puts out RF not the video
composit signal required by monitors. If there is a club-
member who has accomplished this, please let us know and we
will publish it.

```
****************************************************************
                       PROGRAMS
****************************************************************

CHECKERS
...........contributed by Lawrence Oldaker of Virginia

We realize this is not the original Checkers published
previously, this one is, however based on the one written
by Michael McCuiston in April, 1981.


10 COLOR7,4,1,0
20 CLS:PRINT "CHECKERS"
30 PRINT
40 PRINT:PRINT:PRINT:PRINT:PRINT:PRINT
50 PRINT"THIS IS THE GAME":PRINT"OF CHECKERS. ":PRINT"INTERACT IS X,"
60 PRINT"AND YOU ARE 0.":PRINT"INTERACT WILL":PRINT"MOVE FIRST."
65 FORO1=1TO999:NEXT
70 CLS:PRINT"SQUARES ARE":PRINT"REFERRED TO BY A"
75 PRINT"COORDINATE SYSTEM"
80 PRINT"(0,0) IS THE":PRINT"LOWER LEFT":PRINT"CORNER. ":FORO1=1TO999:NEXT:CLS
90 PRINT"(0,7) IS THE":PRINT"UPPER LEFT":PRINT"CORNER. ":FORO1=1TO999:NEXT:CLS
102 PRINT"(7,0) IS THE":PRINT"LOWER RIGHT":PRINT"CORNER. "
105 FORO1=1TO999:NEXT:CLS
110 PRINT"(7,7) IS THE":PRINT"UPPER RIGHT":PRINT"CORNER. "
115 FORO1=1TO999:NEXT:CLS
120 PRINT"KING='*' FOR":PRINT"INTERACT AND":PRINT"'K' FOR YOU. ":FORO1=1TO999:NEX
T
125 CLS
130 PRINT"INTERACT WILL":PRINT"TYPE '+TO' TO":PRINT"SEE IF YOU":PRINT"HAVE ANOTH
ER"
140 PRINT"JUMP.  TYPE":PRINT"'-1,-1' IF YOU":PRINT"DON'T. ":FORO1=1TO1700:NEXT:CL
S
150 FORO1=1TO999:NEXT:CLS
151 PRINT"IF YOU WISH":PRINT"TO FORFEIT":PRINT"TYPE '-9,-9'":PRINT"WHEN INTERACT
"
152 PRINT"ASKS 'FROM?'":FORO1=1TO1500:NEXT:CLS
153 PRINT"IF YOU HAVE":PRINT"NO MOVES LEFT":PRINT"TYPE '-9,-8'":PRINT"WHEN INTER
ACT"
154 PRINT"ASKS 'FROM?'":FORO1=1TO1500:NEXT:CLS
155 PRINT"IF YOU MADE":PRINT"A MISTAKE IN":PRINT"YOUR 'FROM?'":PRINT"INPUT, TYPE
"
156 PRINT"'-2,-2' WHEN":PRINT"INTERACT ASKS":PRINT"'TO?'. ":FORO1=1TO1500:NEXT:CL
S
160 DIMR(4),S(7,7)
165 G=-1:R(0)=-99
170 DATA 1,0,1,0,0,0,-1,0,0,1,0,0,0,-1,0,-1,15
180 FOR X=0TO7:FORY=0TO7:READJ:IFJ=15THEN200
190 S(X,Y)=J:GOTO210
200 RESTORE:READS(X,Y)
210 NEXTY,X
220 FOR X=0TO7:FORY=0TO7:IFS(X,Y))-1THEN250
230 IFS(X,Y)=-1 THEN FOR A=-1TO1STEP2:B=G:GOSUB260:NEXT A
```

```
240 IFS(X,Y)=-2 THEN FOR A=-1TO1STEP2:FORB=-1TO1STEP2:GOSUB260:NEXT B,A
250 NEXTY,X
255 IFS(R(1),R(2))=-1ORS(R(1),R(2))=-2THEN430
256 GOTO1106
260 U=X+A:V=Y+B:IFU<0ORU>7ORV<0ORV>7THEN310
270 IFS(U,V)=0THEN GOSUB320:GOTO310
280 IFS(U,V)<0THEN310
290 U=U+A:V=V+B:IFU<0ORV<0ORU>7ORV>7THEN310
300 IFS(U,V)=0THEN GOSUB320
310 RETURN
320 IFV=0ANDS(X,Y)=-1THENQ=Q+2
330 IFABS(Y-V)=2THENQ=Q+5
340 IFY=7THENQ=Q-2
350 IFY=0ORU=7THENQ=Q+1
360 FORC=-1TO1STEP2:IFU+C<0ORU+C>7ORV+G<0THEN400
370 IFS(U+C,V+G)<0THENQ=Q+1:GOTO400
380 IFU-C<0ORU-C>7ORV-G>7THEN400
390 IFS(U+C,V+G)>0AND(S(U-C,V-G)=0OR(U-C=XANDV-G=Y))THENQ=Q-2
400 NEXTC:IFQ>R(0)THENR(0)=Q:R(1)=X:R(2)=Y:R(3)=U:R(4)=V
410 Q=0:RETURN
430 PRINTCHR$(30)"FROM"R(1);R(2)"TO"R(3);R(4);:R(0)=-99
440 IFR(4)=0THENS(R(3),R(4))=-2:GOTO460
450 S(R(3),R(4))=S(R(1),R(2))
460 S(R(1),R(2))=0:IFABS(R(1)-R(3))<>2THEN550
470 S((R(1)+R(3))/2,(R(2)+R(4))/2)=0
480 X=R(3):Y=R(4):IFS(X,Y)=-1THENB=-2:FORA=-2TO2STEP4:GOSUB520
490 IFS(X,Y)=-2THENFORA=-2TO2STEP4:FORB=-2TO2STEP4:GOSUB520:NEXTB
500 NEXTA:IFR(0)<>-99THENPRINT"TO"R(3);R(4);:R(0)=-99:GOTO440
510 GOTO550
520 U=X+A:V=Y+B:IFU<0ORU>7ORV<0ORV>7THEN540
530 IFS(U,V)=0ANDS(X+A/2,Y+B/2)>0THENGOSUB320
540 RETURN
550 PRINT:PRINT:PRINT:FORY=7TO0STEP-1:FORX=0TO7:I=5*X
560 PRINTTAB(4)
570 IFS(X,Y)=0THENPRINT" ";
580 IFS(X,Y)=1THENPRINT"O";
590 IFS(X,Y)=-1THENPRINT"X";
600 IFS(X,Y)=-2THENPRINT"*";
610 IFS(X,Y)=2THENPRINT"K";
620 NEXTX:PRINT" ":NEXTY
630 W=60:FORT1=1TO9:FORT=29TO77:PLOT T,W,2:NEXTT
640 W=W-6:NEXTT1
650 T=29:FORT2=1TO9:FORW=12TO60:PLOTT,W,2:NEXTW
660 T=T+6:NEXTT2
670 OUTPUT"7",83,59,3:OUTPUT"5",83,47,3:OUTPUT"3",83,35,3
680 OUTPUT"1",83,23,3:OUTPUT"0",83,17,1:OUTPUT"2",83,29,1
690 OUTPUT"4",83,41,1:OUTPUT"6",83,53,1
700 OUTPUT"0",30,66,1:OUTPUT"1",36,66,3:OUTPUT"2",42,66,1
710 OUTPUT"3",48,66,3:OUTPUT"4",54,66,1:OUTPUT"5",60,66,3
720 OUTPUT"6",66,66,1:OUTPUT"7",72,66,3
730 W=30:L1=59
```

```
740 FORT4=1TO4:OUTPUT"*",W,L1,2:OUTPUT"0",W,L1,2:W=W+12
750 NEXTT4
70 W=36
770 FORT5=1TO4:OUTPUT"*",W,53,2:OUTPUT"0",W,53,2:W=W+12:NEXTT5
780 W=30
790 FORT6=1TO4:OUTPUT"*",W,47,2:OUTPUT"0",W,47,2:W=W+12:NEXTT6:W=36
800 FORT0=1TO4:OUTPUT"*",W,41,2:OUTPUT"0",W,41,2:W=W+12:NEXTT0
810 W=30
820 FORT1=1TO4:OUTPUT"*",W,35,2:OUTPUT"0",W,35,2:W=W+12:NEXTT1:W=36
830 FORT9=1TO4:OUTPUT"*",W,29,2:OUTPUT"0",W,29,2:W=W+12:NEXTT9:W=30
840 FORT8=1TO4:OUTPUT"*",W,23,2:OUTPUT"0",W,23,2:W=W+12:NEXTT8:W=36
850 FORT3=1TO4:OUTPUT"*",W,17,2:OUTPUT"0",W,17,2:W=W+12:NEXTT3
855 GOSUB980
860 INPUT"FROM";E,H:X=E:Y=H
863 IFX=-9ANDY=-9THENPRINT"FORFEITED!!!!":GOTO1090
864 IFX=-8ANDY=-8THEN1106
865 IFS(X,Y)(=0THEN860
870 INPUT"TO";A,B:X=A:Y=B
873 IFA=-2ANDB=-2THEN550
875 IFB(HANDS(E,H)()2THENPRINT"ILLEGAL MOVE!":GOTO550
880 IFS(X,Y)=0ANDABS(A-E)(=2ANDABS(A-E)=ABS(B-H)THEN900
890 PRINTCHR$(7)CHR$(11);:GOTO 870
900 I=46
910 S(A,B)=S(E,H):S(E,H)=0:IFABS(E-A)()2THEN960
920 S((E+A)/2,(H+B)/2)=0
930 INPUT"+TO";A1,B1:IFA1(0THEN960
940 IF S(A1,B1)()0ORABS(A1-A)()2ORABS(B1-B)()2THEN930
950 E=A:H=B:A=A1:B=B1:I=I+15:GOTO910
960 IFB=7THENS(A,B)=2
965 GOSUB980
970 GOTO220
980 C8=0:C7=0:FORX=0TO7:FORY=0TO7
990 IFS(X,Y)=1ORS(X,Y)=2THEN1020
1000 IFS(X,Y)=-1ORS(X,Y)=-2THEN1030
1010 GOTO1040
1020 C8=C8+1:GOTO1040
1030 C7=C7+1
1040 NEXTY,X
1050 PRINT"X";C7;;;"0";C8
1060 IFC7=0THENPRINT"YOU WIN!!!":GOTO1090
1070 IFC8=0THENPRINT"YOU LOSE!!!":GOTO1090
1080 RETURN
1090 PRINT"ANOTHER GAME?":PRINT"1, YES;0, NO";INPUTD
1100 IFD=1THEN165
1105 GOTO1110
1106 PRINT"STALEMATE!!":GOTO1090
1110 END
OK
NEWA$=PORT5(A4$,0)
```

```
****************************************************************
```

BOMBS AWAY!

.................contributed by CULLEN O'DAY   205 E. TENTH ST.
                                            MERRILL,WI 54452

```
1 REM BOMBS AWAY!
2 REM 11/81
3 REM
4 REM C. O'DAY
5 REM 205 E. TENTH ST.
6 REM MERRILL,WI
7 REM 54452
8 REM
10 S=0
20 G$=CHR$(228)
30 R$=CHR$(196)
40 S$=CHR$(1)
50 T$=CHR$(15)
60 CLS:COLOR0,1,2,3
70 OUTPUT"BOMBS",42,65,1:OUTPUT"AWAY!",42,15,2
80 SOUND3,40:Q=Q:SOUND3,41:FORY=65TO25STEP-5
90 OUTPUT"BOMBS",42,Y,0:OUTPUT"BOMBS",42,Y-5,1:NEXT
100 SOUND1,550:Q=Q:SOUND1,551:FORX=1TO400:NEXT
110 OUTPUT"BY CULLEN O'DAY",11,45,3
120 FORX=1TO800:NEXT:CLS
130 FORX=0TO115STEP5:OUTPUTT$,X,76,1:NEXT:OUTPUTG$,55,71,1
140 FORY=5TO10STEP5:FORX=115TO0STEP-5:OUTPUTS$,X,Y,2:NEXT:NEXT
150 FORY=7TO9STEP2:FORX=44TO64:OUTPUTS$,X,Y,0:NEXT:NEXT
160 OUTPUTS,45,8,1
170 X=55:Y=71:B=15
180 V=10*RND(1)
190 IFV>5THENI=-1:A=114:GOTO210
200 I=1:A=0:GOTO220
210 IFS>599THENI=-2:GOTO230
220 IFS>599THENI=2
230 OUTPUTR$,A,B,3
240 IFN=1THENGOSUB390
250 A=A+I
260 OUTPUTR$,A-I,B,0
270 IFA<1THENS3=50:GOSUB590:GOSUB550:GOTO180
280 IFA>114THENS3=50:GOSUB590:GOSUB550:GOTO180
290 IFFIRE(0)=0ANDN=0THENP=X+2:Q=0:R=66:SOUND3,40:GOTO310
300 GOTO320
310 SOUND3,41:U=5.5:K1=K:GOSUB390
320 OUTPUTG$,X,Y,0
330 IFK=0THENGOSUB530
340 IFK=1THENGOSUB540
350 IFX<6THENX=5:K=0
360 IFX>104THENX=105:K=1
370 OUTPUTG$,X,Y,1
380 GOTO230
```

PAGE 7

```
390 N=1:PLOTP,R,0
400 U=U-.5
410 IFK1=0THENP=P+U
420 IFK1=1THENP=P-U:IFP<0THENP=0
430 Q=Q+1:R=R-Q
440 PLOTP,R,3
450 IFR<15ANDP>A-1ANDP<A+5THENGOSUB480:N=0:GOTO180
460 IFR<12THENR=11:N=0:S1=10:GOSUB590
470 RETURN
480 SOUND1,550:Q=0:SOUND1,551
490 FORX1=1TO4:READE:OUTPUTCHR$(E),A,B,3:OUTPUTCHR$(E),A,B,0:NEXT
500 OUTPUT" _",A-1,B,0:RESTORE
510 S2=100:GOSUB590:GOSUB550
520 RETURN
530 X=X+4:RETURN
540 X=X-4:RETURN
550 T=T+1
560 IFT=10THEN620
570 FORZ=1TO1500:NEXT
580 TONE34,50:RETURN
590 OUTPUTS,45,8,0
600 S=S-S1+S2-S3
610 OUTPUTS,45,8,1:S1=0:S2=0:S3=0:RETURN
620 OUTPUT"AGAIN?",38,40,3
630 A$=INSTR$(1)
640 IFA$="N"THENCLS:END
650 CLS:N=0:T=0:S=0:GOTO130
660 DATA1,194,110,97
```

```
********************************************************************

COLOR SEARCH
...................contributed by A. E. JACKSON

Requires one joystick....this program enables the programmer to
determine what colors go best. To use the joystick, Up changes
the background color, down changes color 2, right changes color
1 and left changes color 3. On the screen, the first three lines
reveal the three visible color selections available with the
output statement.  The next three lines show the options
available with plot statements.  The last line shows the color
command which will product the color combinations on the screen.
The color command is in the color available for print statements
and program line 230 always keeps it visible by not letting it
be the same as the background.
```

```
10 GR. LINGRAPH 10
20 COLOR 0,1,2,3
30 OUTPUT "OUTPUT 1",24,70,1
40 OUTPUT CHR$(1),84,70,1
50 OUTPUT "OUTPUT 2",24,61,2
60 OUTPUT CHR$(6),84,61,2
70 OUTPUT "OUTPUT 3",24,52,3
80 OUTPUT CHR$(35),84,52,3
90 OUTPUT "PLOT 1",6,43,1
100 OUTPUT"PLOT 2",6,34,2
110 OUTPUT"PLOT 3",6,25,3
120 FOR X=54 TO 94:PLOT X,39,1:NEXT
130 FOR X=54 TO 100:PLOT X,30,2:NEXT
140 FOR X=54 TO 106:PLOT X,21,3:NEXT
150 FOR Y=39 TO 43:PLOT 94,Y,1:NEXT
160 FOR Y=30 TO 43:PLOT 100,Y,2:NEXT
170 FOR Y=21 TO 43:PLOT 106,Y,3:NEXT
180 A=0:B=1:C=2:D=3
190 IF JOY(0)=4 THEN A=A+1:IF A)7 THEN A=0
200 IF JOY(0)=2 THEN B=B+1:IF B)7 THEN B=0
210 IF JOY(0)=8 THEN C=C+1:IF C)7 THEN C=0
220 IF JOY(0)=1 THEN D=D+1:IF D)7 THEN D=0
230 IF D=A THEN D=D+1:IF D)7 THEND=0
240 COLOR A,B,C,D
250 OUTPUT"   ,   .",51,11,3
260 PRINT"COLOR"A;B;C;D
270 IF JOY(0)=0 GOTO 270
280 GOTO 190
```

```
************************************************************************
VOCABULARY QUIZ
...................contributed by ROYCE (previously published
                                        articles.)

    This program is primarily for children.  It holds up to 50 words
    which you type in for your children to be quizzed with.  The
    words can be any length (usually about 10 letters).
```
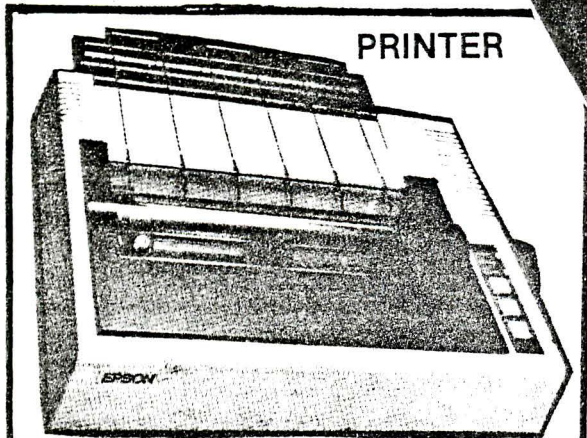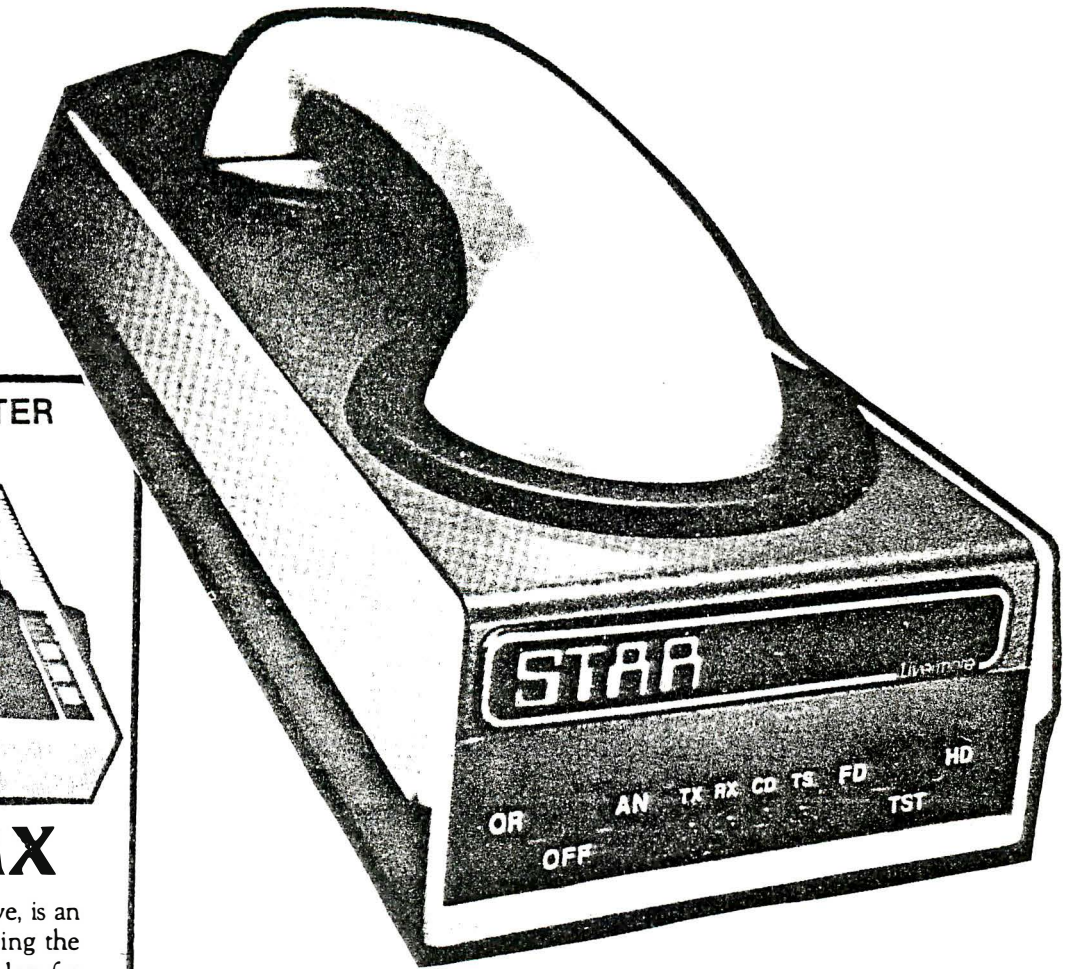
```basic
5 CLS:COLOR7,1,2,4:PRINT" VOCABULARY QUIZ":FORA=1TO1000:NEXT:CLS
10 CLEAR300:DIMW$(50):PRINT"THIS PROGRAM WILL":PRINT"DRILL UP TO 50":PRINT"WORDS"
15 PRINT"OF ANY LENGTH":PRINT:PRINT:PRINT"HOW MANY WORDS":PRINT"WOULD YOU LIKE"
20 INPUT"TO STUDY";X
25 CLS:PRINT"OK PLEASE TYPE":PRINT"EACH WORD BELOW":PRINT"THEN PRESS CR KEY"
30 PRINT:FORI=1TOX
35 PRINTI;"";:INPUTW$(I)
40 IFW$(I)=""THENGOTO35
45 NEXT:CLS:PRINT"TIME FOR SOME":PRINT"SPELLING FUN!":PRINT
50 INPUT"WHAT'S YOUR NAME";N$
55 PRINT:PRINT"HI ";N$;" ,HERE":PRINT"ARE OUR":PRINT"SPELLING WORDS.":PRINT"PLEASE SAY EACH"
60 PRINT"WORD AS IT IS":PRINT"PRINTED.":FORV=1TO1500:NEXT:FORW=1TOX:PRINT:PRINT
65 FORI=1TOX:PRINTW$(I):FORV=1TO1000:NEXT:PRINT:NEXT:FORV=1TO1000:NEXT:CLS
70 PRINT"NOW I AM GOING":PRINT"TO PRINT EACH":PRINT"WORD FOR A SHORT"
75 PRINT"TIME, THEN THE":PRINT"WORD WILL":PRINT"DISAPPEAR AND":PRINT"YOU ARE TO TYPE"
80 PRINT"IT IN USING THE":PRINT"KEYBOARD!":FORA=1TO5000:NEXT
81 FORI=1TOX
82 M$=W$(I)
83 CLS
85 PRINTW$(I):FORC=1TO500:NEXT:CLS:INPUT"    ";H$
89 IFH$=M$THENGOTO200
90 IFH$<>M$THENGOTO210
91 IFF>0THEN85
92 IFI=XTHEN95
95 NEXTI
96 E=E+1
97 IFE<XTHENGOTO300
200 PRINT"THATS RIGHT":F=0:GOTO95
210 PRINT"NO, TRY AGAIN":F=F+1:GOTO91
290 CLS
300 PRINT:PRINT"WHAT WOULD YOU":PRINT"LIKE TO DO NEXT?":PRINT"1.REVIEW LAST"
301 PRINT"WORD LIST.":PRINT"2.ENTER NEW":PRINT"WORD LIST."
302 PRINT"3.END QUIZ."
303 INPUTN
304 IFN=1THENGOTO50
305 IFN=2THENGOTO10
306 IFN=3THENGOTO400
307 IFN>3THENGOTO290
400 CLS:PRINT"O.K.,BYE FOR NOW.":END
```

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PROTECTO
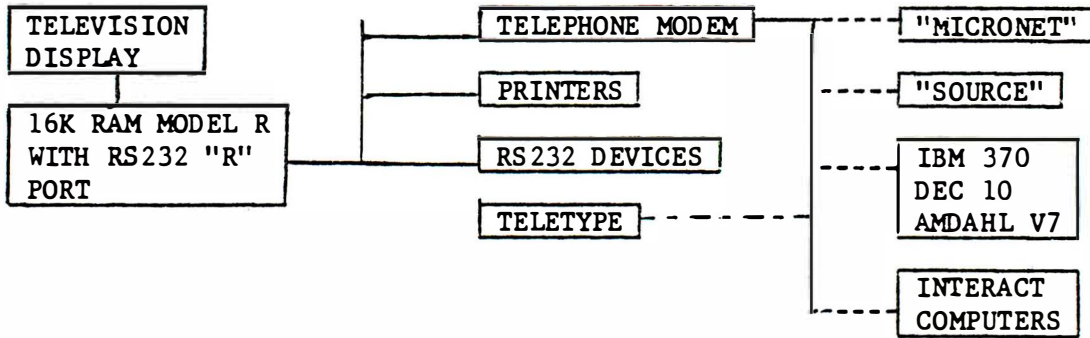### ENTERPRIZES (FACTORY - DIRECT RELIABILITY)
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****

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WARRANTY. 90 days labor and parts. If your unit fails within 90 days of purchase, send via United Parcel Prepaid to Service Center. Your unit will be repaired at no charge and shipped United Parcel Prepaid to you within 48 hours.

*Add $3.00 for postage and $2.00 for C.O.D. orders.

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ENTERPRIZES (FACTORY - DIRECT RELIABILITY).
BOX 550, BARRINGTON, ILLINOIS 60010 — Phone 312/382-5244 to order

H6

NATIONAL INTERACT COMPUTER CLUB

MARCH 1982

GENERAL ITEMS

To begin this month's newsletter, I'd like to say two things!!!
I have finally listed the correct month since this is the March
letter. Secondly, and most important, I would like to thank all
of you for taking the crimson out of our face!!! We have
received enough copies of each month for our library and would
really like to express to you our appreciation for the support
have received for that plea and all through the year. THANK
YOU!!!!!

We also have been asked to inform you, especially those that
did not receive the January newsletter, that Chuck Hallmann
no longer offers a call-in night. He felt that 2 years of
answers were enough to get all of the beginners started. If
you have any questions, please write us, or if you were working
on something with Chuck, write and let us know, we will be happy
to inform him of the outcome, any further problems you might
have he may let us publish some of the questions/answers in the
letter. So let's keep in touch, send us your problems/questions
and games, etc. we will find answers to as many as possible and
publish as many as we can each month. If you submitted a
question in the past and have not yet received an answer, please
write again, my office has gotten a little cluttered recently
with 4 computers, two printers, all kinds of clubletters and
computer information. So don't get frustrated, write us again.

CONTACT OTHER CLUB MEMBERS

JIM PATTERSON   614-947-4758
334 MORNINGSIDE DRIVE   RE: MR. PATTERSON HAS A TELEPHONE MODEM
WAVERLY, OH 45690   AND WOULD LIKE TO BE CONTACTED BY
                             OTHER MEMBERS WITH ONE.

CHARLES H. SHADE
128 BROAD STREET
LEETSDALE, PA 15056

MS. GENE S. BYRGE   RE: AN ASTEROID GAME!!! IF YOU HAVE ONE
ROUTE 2, BOX 22   PLEASE LET HER KNOW. (FOR THAT MAT-
AURORA, CO   80012   TER, LET US KNOW FOR A "SALE" ITEM.

MR. D. J. SZYMANSKI   RE: DESIGNING A "KUNG FU" VIDEO GAME AND
6917 PARMA PARK BLVD.   A VIDEO VERSION OF FENCING.
PARMA HTS, OH 44130

FRANZ BRUNNHOFER   REMEMBER TO ADD EXTRA POSTAGE TO THIS
546 W 20TH ST.   CORRESPONDENCE FOR CANADA.
NORTH VANCOUVER, B.C.
V7M 1Y7, CANADA

MICHAEL BELL   601-649-3977 (AFTER 9:00 PM)
410 ANDERSON ST.   RE: ELECTRONICS ENGINEER. HE HAS MANY
FOREST, MS   39074   IDEAS TO SHARE/EXCHANGE. INTERESTED
                             IN INTERFACING A STANDARD KEYBOARD TO
                             THE INTERACT.

   TIPS FROM OTHER CLUB MEMBERS

Once again, from Jeffery Tapia, who informed us how to adapt an
Atari controller, he has another tip.(Atari must be on to him.)

He informs us that Atari redesigned their joysticks, if yours is
different inside from the one published previously, here is
Jeff's solution:

1. take apart joystick.

2. switch wire 1 with wire 4

3. switch wire 2 with wire 5

4. put joystick back together

5. Hope Atari doesn't change their design again!
    (Jeff, if they do, we will rely on your assistance again.)

From Tom Doerr of Cambridge, Ohio - changes/corrections to the
"Camel" program listed in November's letter.

The following lines may be deleted: 390   1020   1060
1070   1080   1090   2040.

Lines to change/correct as follows:

        880 A=INT(10*RND(1))
        980 IF X=8 THEN 1100
        1030 RETURN
        1110 RETURN
        1240 X1=INT(10*RND(1))
        1250 IF X1)5 THEN 1350
        1350 X1=INT(10*RND(1))

Lines to add:

        820 GOTO 460
        1105 FOR A=1 TO 1000:NEXT

From Mr. Richard Jones of Cole Camp, MO

Mr. Jones submitted some odd little facts - Control H acts like
a backspace key, Control M like a CR key and Control Shift K
acts like an escape key and appears as "LK" on the screen. The
line length may be reduced (ouch, we know you wish to extend it,
just keep reading!) from 17 characters by poking 19538 with the
decimal number of characters wanted. For example, POKE 19538.9
will change the output on the screen from 17 to 9 characters.

"It is possible to have small characters by modifying the
Interact." There are several ways Mr. Jones has written of:

1. Simple, but expensive - requires the installation of a PC
    terminal board available from several manufacturers from
    $90 and up. With an RS 232 port you can install it
    soldering. A more difficult, direct connection can be
    made with internal wiring without needing or using a 232
    port, but it is difficult to disconnect to return to normal
    Interact usage. Color, sound and graphics are lost.

2. Or, through software - the problem here is memory, with the
    Basic program & small character program together, require a
    great deal of memory. He will send information on this and
    requests any assistance/correspondence from others
    interested in small characters through software. (For in-
    formation please send a self-addressed stamped envelope.)
    For $2 to cover costs, he will send a tape with a video
    banner showing all the characters and a brief demonstration
    of how the characters are formed and appear on the screen in
    a 28 character line, the smallest possible character with

the Interact pixel arrangement.

He also covers Disc interfacing. Many of you have questioned
this possibility. This is very expensive, but he states that
the hardware part is not complicated. One problem is the
RAM memory. A disc is not a super ram, it is only a fast tape-
like storage. Mr. Jones does not feel that a disc operating
system is practical for the Interact. He does have an alterna-
tive, a double 8-track recorder/player with 16 tracks available.
Anyone interested in this idea, should also write to Mr. Jones
and enclosed a self-addressed stamped envelope.

Write to him at: Mr. Richard Jones
                  RFD 2
                  Cole Camp, mo 65325

ANSWERS TO CLUBMEMBER'S QUESTIONS

To Mrs. Richard Ridinger

I had a difficult time understanding your question. If this
answer is not what you wanted, please write again. To scroll
the screen you type list, to scroll a certain line you type
listxxxx. The xxxx represents the number of the line you wish
to see on the screen. once the line you wish to see is on the
screen, you can hit CONTROL C to break the list and correct,
by retyping, the line.

Mrs. Ridinger would also like to know if anyone has a game
of Pacman. If so, let us know, we will publish it for sale.

For Philip Moores - your request for the final page (9) of the
"Camel" program is in the mail. As a matter of fact, you should
receive it before you receive this letter. Don't forget to make
the changes indicated above from Mr. Doerr.

****

PROGRAMS

****

DRACULAS BLOOD
.............contributed by W. J. MOORE

```
1 REM DRACULA'S BLOOD
2 REM PRGM BY W.J.MOORE
10 CLS:COLOR0,1,2,1
20 GOTO920
30 FORI=1TOZ
40 SOUND7,4096
50 FORQ=1TOH:NEXT
60 SOUNDF,G
80 A=INT(RND(1)*23)*4+10
90 B=INT(RND(1)*15)*4+14
100 IFPOINT(A+2,B-2)=2GOTO150
110 OUTPUTCHR$(43),A,B,3
120 OUTPUTCHR$(61),A,B,3
130 SOUNDF,G
140 IFPOINT(X(P)+3,Y(P)-2)=3THENOUTPUTCHR$(43),A,B,0:OUTPUTCHR$(61),A,B,0
150 NEXT
160 Z=Z+L
170 SOUND7,4096:RETURN
180 OUTPUTCHR$(43),X,Y,3:OUTPUTCHR$(61),X,Y,3:RETURN
190 OUTPUTCHR$(32),X(P),Y(P),C:RETURN
200 OUTPUTCHR$(43),X(P),Y(P),C:RETURN
210 CLS:COLOR6,0,7,1
220 Z=H:X=50:Y=50:T(1)=0:T(2)=0
230 IFE=10*DTHENE=0:GOTO1330
240 GOTO870
250 FORV=70TO14STEP-4
260 FORW=10TO98STEP4
270 OUTPUT"O",W,V,1
280 NEXT:NEXT
290 GOSUB180
300 Y=30:GOSUB180
310 X(1)=10:X(2)=10:Y(1)=50:Y(2)=30
320 C=2
330 IFD=2THENP=2:J=1:GOSUB200
340 P=1:J=0:GOSUB190
350 IFT(1)=1THENIFT(2)=1GOTO210
360 IFD=2THENIFT(P)=1GOTO660
370 C=0:ONPGOSUB190,200
380 C=2:ONPGOSUB190,200
390 IFJOY(J)=6THENX(P)=X(P)+4:Y(P)=Y(P)+4:GOTO460
400 IFJOY(J)=10THENX(P)=X(P)+4:Y(P)=Y(P)-4:GOTO460
410 IFJOY(J)=2THENX(P)=X(P)+4:GOTO460
420 IFJOY(J)=4THENY(P)=Y(P)+4:GOTO460
430 IFJOY(J)=8THENY(P)=Y(P)-4:GOTO460
440 FORI=1TO50:NEXT
450 GOTO350
460 IFY(P)>70THENY(P)=70
```

```
470 IFY(P)<14THENY(P)=14
480 IFPOINT(X(P)+3,Y(P)-2)=3THEN700
490 TONE10,10
500 GOSUB30
510 S(P)=S(P)+1
520 IFX(P)<98GOTO660
530 ONPGOSUB190,200
540 FORI=1TO50
550 SOUND3,460
560 TONEI,20
570 TONE51-I,20
580 SOUND3,2000
590 COLOR6,0,1,7
600 COLOR6,0,7,1
610 NEXT
620 SOUND7,4096
630 S(P)=S(P)+10
640 E=E+1
650 IFX(P)=>98THEN210
660 IFD=2THENONPGOSUB190,200:IFP=2THENP=1:J=0:GOTO350
670 IFD=2THENONPGOSUB190,200:IFP=1THENP=2:J=1:GOTO350
680 IFD=1THENIFT(P)=1GOTO210
690 P=1:J=0:GOSUB190:GOTO350
700 E=E+1
710 IFT(1)=1THENIFT(2)=1THENT(1)=0:T(2)=0:GOTO210
720 T(P)=1
730 FORI=1TO10
740 FORK=1TO10
750 SOUND3,230
760 NEXT
770 COLOR6,0,1,1
780 FORK=1TO10
790 SOUND3,240
800 NEXT
810 COLOR6,0,7,1
820 NEXT
830 SOUND7,4096
840 IFT(P)=1THEN660
850 IFP=1THENIFT(P)=1GOTO210
860 GOTO700
870 OUTPUTCHR$(30),10,8,2
880 OUTPUTS(1),22,8,2
890 IFD=2THENOUTPUTCHR$(43),64,8,2
900 IFD=2THENOUTPUTS(2),76,8,2
910 GOTO250
920 PRINT"DRACULA'S":PRINT"BLOOD"
930 Z=20:F=5:G=50:H=200:Y(P)=3:GOSUB930:CLEAR
940 FORI=1TO1000:NEXT
950 CLS:COLOR0,3,0,7
960 PRINT"OBJECT IS TO GET"
970 PRINT"ACROSS GRAVEYARD"
980 PRINT"AND AVOID DEADLY"
990 PRINT"VAMPIRES BLOOD!"
```

```
1000 FORI=1TO1000:NEXT:PRINT
1010 PRINT"THERE ARE BONUS"
1020 PRINT"POINTS FOR A"
1030 PRINT"SUCCESSFUL CROSS-"
1040 PRINT"ING OF 10-POINTS."
1050 FORI=1TO1000:NEXT:PRINT
1060 PRINT"REMEMBER THERE IS"
1070 PRINT"NO TURNING BACK!"
1080 FORI=1TO1000:NEXT:PRINT
1090 PRINT"1 - ONE PLAYER"
1100 PRINT"2 - TWO PLAYERS"
1110 PRINT:PRINT
1120 A$=INSTR$(1)
1130 D=VAL(A$)
1140 IFD=1THENP=1:J=0:GOTO1170
1150 IFD=2THENP=2:J=1:GOTO1170
1160 GOTO1120
1170 CLS:PRINTTAB(4)"1 - EASY"
1180 PRINTTAB(4)"2 - MEDIUM"
1190 PRINTTAB(4)"3 - HARD"
1200 A$=INSTR$(1)
1210 IFA$="1"THEN1270
1220 IFA$="2"THEN1290
1230 IFA$="3"THEN1310
1240 GOTO1200
1250 IFP=1THENZ=5:L=1:GOTO210
1260 Z=5:L=.5:GOTO210
1270 IFP=1THENH=2:L=.5:GOTO210
1280 H=1:L=.2:GOTO210
1290 IFP=1THENH=4:L=.75:GOTO210
1300 H=2:L=.3:GOTO210
1310 IFP=1THENH=5:L=1:GOTO210
1320 H=2:L=.4:GOTO210
1330 CLS:COLOR0,3,1,7
1340 PRINT"FINAL SCORES"
1350 PRINT:PRINT
1360 OUTPUTCHR$(30),20,11,1:OUTPUTS(1),32,11,3:PRINT
1370 IFD=2THENOUTPUTCHR$(43),20,11,1:OUTPUTS(2),32,11,3
1380 FORI=1TO1000:NEXT
1390 PRINT:PRINT:PRINT"PLAY AGAIN?":PRINT:PRINT"PRESS - Y"
1400 A$=INSTR$(1):IFA$="Y"THENCLEAR:GOTO10
1410 CLS:OUTPUT"DRACULA",6,11,2:PRINTTAB(9)"SAYS:":PRINT"UNTIL NEXT TIME"
1420 PRINT"KEEP YOUR";:OUTPUT"BLOOD",66,11,2:FORI=1TO500:NEXT
1430 PRINT:PRINT:PRINT"   W A R M":FORI=1TO500:NEXT
1440 PRINT:PRINT:PRINT"FOR ME!!":PRINT:PRINT
1450 FORI=1TO1000:NEXT
1460 CLS:COLOR4,3,0,7:END
Ok
```

MUSEUM
....................contributed by ROYCE (author of last month's
Vocabulary Quiz)

```
1 CLS:SOUND0,24844:FORA=1TO1000:NEXTA:SOUND7,4096
2 CLS:COLOR4,3,7,5:WINDOW30
3 OUTPUT"MUSEUM",40,50,3
4 FORB=1TO10
5 COLOR4,3,7,4
6 FORI=1TO200:NEXTI
7 COLOR4,3,7,5
8 FORI=1TO200:NEXTI:NEXTB
9 CLS:INPUT"DO YOU WANT      INSTRUCTIONS";B$
10 IFB$="NO"THENGOTO13
11 IFB$="YES"THENGOTO999
12 GOTO9
13 CLS:WINDOW77
14 DIMA(9,3),L(5,12)
15 Q=1
16 PRINT"PLEASE WAIT!!!"
20 FORI=1TO9
30 FORJ=1TO3
40 READA
50 A(I,J)=A
60 NEXTJ,I
70 DATA2,4,0,1,3,0,2,6,0
80 DATA1,5,7,4,6,8,3,5,9
90 DATA4,8,0,5,7,9,6,8,0
100 FORI=1TO5
110 L(I,1)=INT(RND(1)*9+1)
120 NEXTI
130 FORI=2TO12
140 FORJ=1TO5
150 K=INT(3*RND(1)+1)
160 L(J,I)=A(L(J,I-1),K)
170 IFL(J,I)=0THEN150
180 NEXTJ,I
190 T=INT(12*RND(1)+1)
200 FORI=1TO5
210 IFL(I,T)=5THEN240
220 NEXTI
230 GOTO190
240 D=INT(5*RND(1)+1)
250 IFL(D,T)()5THEN240
260 PRINT"SOMEONE STOLE      THE DIAMOND."
270 REM-START MAINLOOP
280 PRINT"QUESTION";Q
290 INPUT"SUSPECT";S
295 IFS=0THEN930
300 IFS=6THEN800
310 IFS)6THEN290
320 INPUT"TIME";G
330 IFG(1ORG)12THEN320
340 PRINT"SUSPECT";S;"AT      ";G;":00"
```

```
350 IFS=DTHENP=.5
360 IFS()DTHENP=.05
370 IFRND(1))PORL(S,G)=STHENA=L(S,G):GOTO410
380 I=INT(3*RND(1)+1)
390 A=A(L(S,G),I)
400 IFA=0ORA=STHEN380
410 PRINT"I WAS IN ROOM";A
420 IFA()STHEN450
430 IFT(GTHENPRINT"I DID NOT SEE    THE DIAMOND!":GOTO450
440 PRINT"I SAW THE DIAMOND"
450 IFRND(1)(PTHEN510
460 FORI=1TO5
470 IFI=STHEN500
480 IFL(S,G)()L(I,G)THEN500
490 PRINT"I WAS WITH";I
500 NEXTI:GOTO540
510 I=INT(7*RND(1)+1):IFI=STHEN510
520 IFI(6THENPRINT"I WAS WITH";I
540 IFRND(1)(PTHEN640
550 FORI=1TO3
560 A=A(L(S,G),I)
570 IFA=0THEN610
580 FORJ=1TO5
590 IFL(J,G)=ATHENPRINT"I SAW";J
600 NEXTJ
610 NEXTI
620 GOTO700
640 J=INT(10*RND(1)+1)
650 IFJ(STHENPRINT"I SAW";J
700 IFRND(1))PTHEN770
710 K=INT(10*RND(1)+1)
720 IFK(6ANDK()JTHENPRINT"I SAW";K
770 Q=Q+1:GOTO280
800 INPUT"GUILTY SUSPECT";S
810 IFS(1ORS)5THEN800
820 INPUT"TIME OF CRIME";G
830 IFG(1ORG)12THEN820
840 IFS=DANDG=TTHENPRINT"YOU GOT 'EM!":GOTO872
850 IFS=DORG=TTHENPRINT"PARTLY RIGHT":Q=Q+10:GOTO280
860 PRINT"BETTER GIVE UP":Q=Q+100
870 PRINT"THE THIEF IS";D;"AT    ";T;": 00"
900 PRINT"YOUR RATING IS";100-Q
905 INPUT"PLAY AGAIN";A$
910 IFA$="YES"THENRUN
925 END
930 REM-DRAWS FLOOR PLAN
931 CLS:COLOR4,3,7,5
933 FORX=20TO92:PLOTX,60,3:NEXTX
936 FORY=60TO70:PLOT40,Y,3:NEXTY
939 FORY=60TO70:PLOT72,Y,3:NEXTY
942 FORY=46TO60:PLOT20,Y,3:NEXTY
945 FORY=46TO60:PLOT92,Y,3:NEXTY
```

```
948 FORX=10TO20:PLOTX,53,3:NEXTX
951 FORX=92TO102:PLOTX,53,3:NEXTX
953 FORY=22TO36:PLOT20,Y,3:NEXTY
956 FORY=22TO36:PLOT92,Y,3:NEXTY
959 FORX=10TO20:PLOTX,29,3:NEXTX
962 FORX=92TO102:PLOTX,29,3:NEXTX
965 FORX=20TO51:PLOTX,22,3:NEXTX
968 FORX=61TO92:PLOTX,22,3:NEXTX
971 FORY=11TO22:PLOT40,Y,3:NEXTY
974 FORY=11TO22:PLOT72,Y,3:NEXTY
977 OUTPUT"1",25,67,3
980 OUTPUT"2",53,67,3
983 OUTPUT"3",83,67,3
986 OUTPUT"4",12,42,3
987 OUTPUT"5",53,42,3
988 OUTPUT"6",97,42,3
989 OUTPUT"7",25,17,3
990 OUTPUT"8",53,17,3
991 OUTPUT"9",83,17,3
992 C$=INSTR$(1)
993 IFC$="*"GOTO290
994 GOTO992
999 WINDOW77
1000 CLS:PRINT"A DIAMOND HAS    BEEN STOLEN FROM THE MUSEUM. YOUR JOB IS TO"
1001 PRINT"FIND OUT WHO      STOLE THE DIAMONDAND AT WHAT TIME.YOUR RATING IS"
1002 PRINT"DETERMINED BY HOWQUICKLY YOU":FORZ=1TO1000:NEXTZ
1003 PRINT"IDENTIFY THE      THIEF.THERE ARE 9SUSPECTS AND THEYWERE IN THE"
1004 PRINT"MUSEUM FROM ONE   P.M. UNTIL TWELVE":FORZ=1TO1000:NEXTZ
1005 PRINT"MIDNIGHT. THEY    NEVER STAYED IN  ONE ROOM FOR MORETHAN TWO HOURS"
1006 PRINT"ALTHOUGH THEY MAYHAVE RETURNED TO THE SAME ROOM    MORE THAN ONCE"
1007 FORZ=1TO1000:NEXTZ
1008 PRINT"IN RESPONSE TO    'SUSPECT' IF YOU THINK YOU KNOW   WHO THE THIEF"
1009 PRINT"IS, AND THE       CORRECT TIME.THENYOU SHOULD ENTER A 6. IF YOU"
1010 PRINT"WISH TO SEE A     FLOOR PLAN OF THEMUSEUM THEN ENTERA 0 INSTEAD OF"
1011 FORZ=1TO1000:NEXTZ
1012 PRINT"THE SUSPECTS      NUMBER.WHEN YOU  ARE READY TO     RESUME THE"
1013 PRINT"GAME,THEN PRESS   THE * KEY.IF YOU GET EITHER THE   THIEF OR THE"
1014 PRINT"TIME CORRECT,YOU WILL GET ANOTHER CHANCE,BUT WILL   LOSE A 10"
1015 PRINT"QUESTION PENALTY ON YOUR FINAL     RATING.":FORZ=1TO1000:NEXTZ
1016 PRINT:PRINT"G O O D   L U C K":FORZ=1TO500:NEXTZ
1017 GOTO13
```

OTHER NEWS!!

Mr. Charles Kelly of Texas asked us to publish the address and phone
number of Micro Video, Inc., a company who offers Interact program tapes
and provides additional product, program, and service support for the
Interact Model R Computer; here it is:

> Micro Video, Inc.
> P. O. Box 7357
> Ann Arbor, MI 48107
> Phone 313/996-0626

Write for their catalog. They have many programs PROTECTO does not
carry.

Manutronics has stopped producing the Model R Computer. They will no
longer supply PROTECTO with "Interact" program tapes. PROTECTO is
selling their inventory of "Interact" tapes at 50% off list price while
they last!! You are the first to know, so get what you want before
they are all sold out!

Manutronics sold their complete inventory of Model R parts to Micro
Video and closed their Service Department! Therefore, PROTECTO Enterprizes
will no longer be able to handle your service requirements. Micro Video
will handle all service requirements you might have and honor in warranty
service. If you need repair service call Micro Video Direct - to make
arrangements phone (313) 996-0626 thenship your computer direct to:

> Micro Video Service Department
> 204 East Washington
> Ann Arbor, MI 48104

In the December Club Letter we published an article submitted by a club
member. Micro Video, Inc. had their lawyer advise us this was taken
word for word from their newsletter and accused us of plagiarism. When
you submit articles for publication, you are responsible to see that
these articles are not copyrighted or they can be re-printed. We do
however continue to encourage you to advise us of any articles that
are of interest to other club members. We apologize to Micro Video
for this member. I guess you can say "their newsletter is not really
news after all."

P.S. PROTECTO just cut the price of the RS232R Port to $69.00. Now
     is the time to expand your computer!!

Announcing a new major utility for the "INTERACT"

****

TAPE MASTER

This is the first effective program that has been specifically designed to make
backup copies of program tapes, including those that incorporate anticopy measures.
Functionally, the program has three parts:

1.   TAPE-TO-TAPE COPY ROUTINES.

There are two of these, one for the older 8K tapes and the other for the newer 16K
tapes. The procedures are simple and are directed by prompts on the screen. Des-
pite this simplicity, the 16K routine will handle all of the anticopy methods that
are known to have been used so far, as well as several that might be used in the
future.

2.   TAPE I/O ROUTINES.

These permit the partial loading of program tapes for study and/or modification.
The routines include Load Headers, Load Part (of a specified data block - more power-
ful than the LP command in the original HILO monitor), Load Bottom (for the lower
half of a 16K program), Load Top (for the upper half of a 16K program), and Write
from a tape output list. These routines have been made flexible enough that they
may be used for investigation and probably for breaking of future anticopy methods.

3.   MACHINE-LANGUAGE MONITOR UTILITIES.

For the user who wishes to examine and/or change program content (e.g. to remove
program bombs, such as tests for the second ROM). The routines include Display
memory (as bytes or as ASCII text), Substitute in memory, Fill memory, Move, Dis-
assemble, Assemble (a miniassembler like that in HILO), Find memory references
(three routines for, respectively, addresses in three-byte instructions, addresses
in pairs of two-byte instructions, and addresses stored as data), Hexadecimal arith-
metic, Hexadecimal/decimal interconversions, and a jump to a user-installed routine.

TAPE MASTER is accompanied by comprehensive documentation, including the first avail-
able description of Interact tape anticopy methods.

ANOTHER FANTASTIC PROGRAM BY: HARRY HOLLOWAY

    List Price $29.95   Club Price $24.95
                                      $15.00

****

12.

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MARCH 1, 1982

COMPUTER EXPANSION SALE

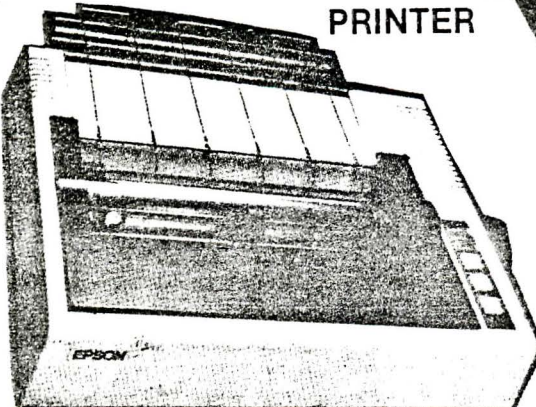RS232 "R" INTERFACE PORT - Regular $109.50. (Add $5.00 for shipping)   SALE $ ~~79.95~~ $69.00

80 COLUMN LINE PRINTER MX-80 EPSON - Regular $726.00 with serial board.   SALE $499.95
(Add $20.00 for shipping)

BEST QUALITY TELEPHONE MODEM - Regular $199.00. (Add $5.00 for shipping)   SALE $ ~~129.95~~ $119.00
300 BPS-RS232 Modem for business or personal computers. Selected by IBM,
GE, RCA, ADP. Transmit-receive, full duplex-test-half duplex, originate-
off-answer. 2 year guarantee - 15 day free trial.

PRINTER

STAR

OR OFF AN TX RX CD TS FD HD TST

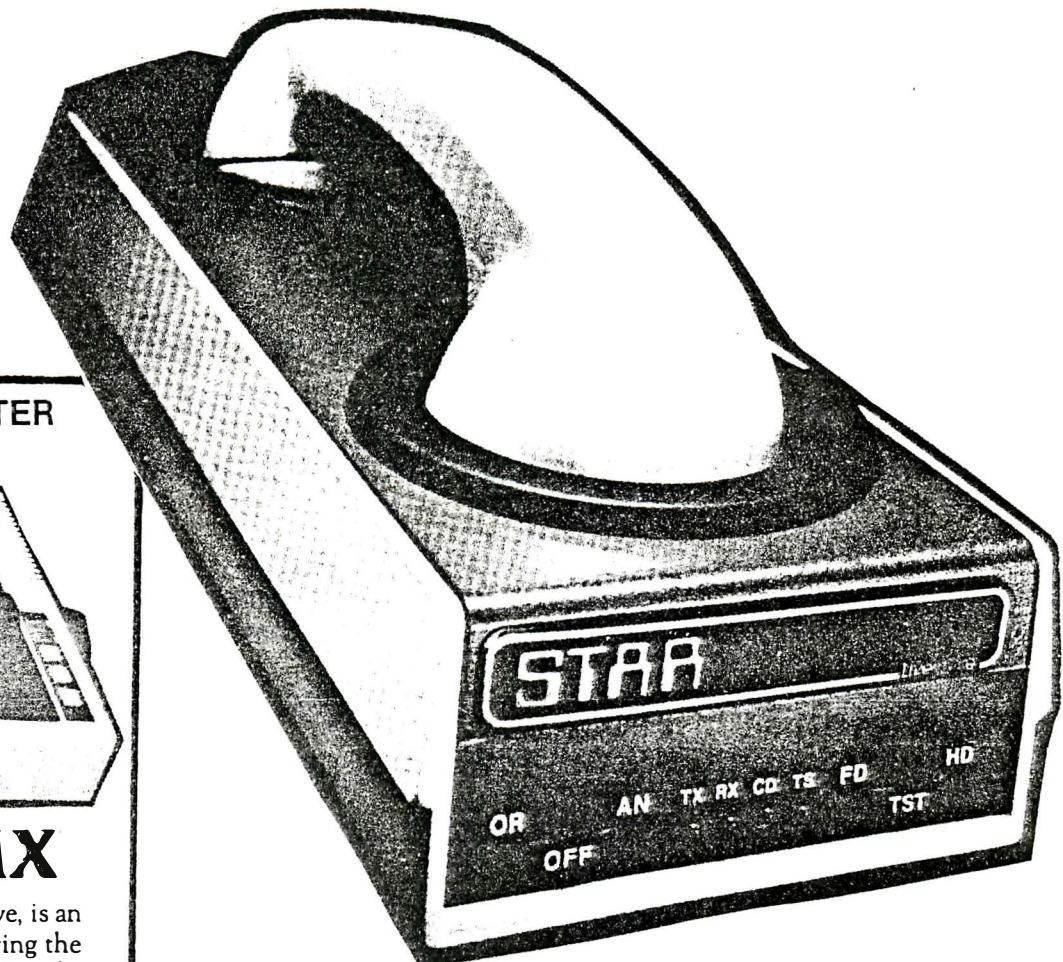## The EPSON MX

The MX-80, shown above, is an 80-column bidirectional printer featuring the full 96-character ASCII set with descenders for easier reading, and offers a user-defined choice of 40, 66, 80 or 132 columns.

One of the biggest breakthroughs offered by the MX-80 is the world's first disposable print head. After its 50-million-character life expectancy, you simply buy a new one for under $30 and replace it yourself in seconds.

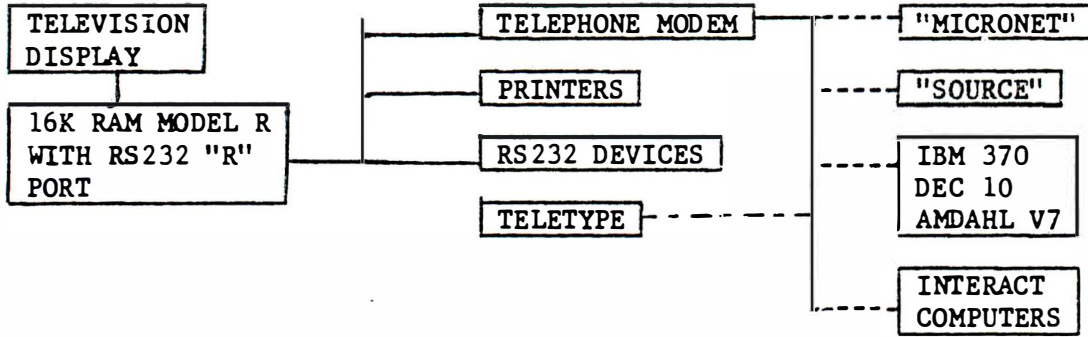# PROTECTO
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NEW FULLY PROGRAMMABLE MULTIBAND RS232 "R" PORT

FOR ONLY $79.95

THIS RS232 "R" PORT ALLOWS INTERACT 16K RAM MODEL "R" OWNERS TO CONNECT THEIR COMPUTERS
TO RS232 COMPATIBLE DEVICES: SERIAL PRINTERS, TELEPHONE MODEMS, "MICRONET" SOURCE".
INTERACT AND OTHER COMPUTERS THROUGH SOFTWARE PROGRAMMABLE BAUD RATE CONTROL.

POSSIBLE CONFIGURATIONS USING RS232 "R" PORT

```
┌──────────────┐              ┌─────────────────────┐      ┌──────────────┐
│ TELEVISION   │              │ TELEPHONE MODEM      ├────┈─┤ "MICRONET"   │
│ DISPLAY      │              └─────────────────────┘      └──────────────┘
└──────┬───────┘              ┌──────────────┐             ┌──────────────┐
       │                      │ PRINTERS     ├──────────┈──┤ "SOURCE"     │
┌──────┴───────────┐          └──────────────┘             └──────────────┘
│ 16K RAM MODEL R  │          ┌──────────────┐             ┌──────────────┐
│ WITH RS232 "R"   │          │ RS232 DEVICES│─────────┈───┤ IBM 370      │
│ PORT             │          └──────────────┘             │ DEC 10       │
└──────────────────┘          ┌──────────────┐             │ AMDAHL V7    │
                              │ TELETYPE     ├ ─ ┈ ─ ┈ ─    └──────────────┘
                              └──────────────┘             ┌──────────────┐
                                                           │ INTERACT     │
                                                           │ COMPUTERS    │
                                                           └──────────────┘
```

FEATURES OF RS232 "R" PORT

. ASSEMBLY AND TESTED READY FOR YOU TO INSTALL. SOLDERLESS INSTALLATION.

. COMPLETE INSTALLATION AND DOCUMENTATION PROVIDED. CUSTOMIZING AREA ON BOARD.

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. PROGRAMMABLE BAUD RATES. HAND SHAKING CAPABILITY.

. ACCESSIBLE THROUGH LEVEL II BASIC OR 8080A MACHINE CODE PROGRAMMING.

/__/ PLEASE SEND ME THE RS232 "R" PORT ASSEMBLED AND TESTED BOARD. READY FOR
      INSTALLATION. INCLUDES: INTERCONNECT CABLE AND DETAILED INSTALLATION
      INSTRUCTIONS. LIST PRICE $109.95, SALE PRICE $~~79.95~~. (ADD $5.00 FOR SHIPPING)
                                                    $69.00

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                                                    $6.00

/__/ DELUXE MODEM OPERATION PROGRAM TAPE - LIST PRICE $14.95 - CLUB PRICE $11.95

/__/ SERIAL PRINTER OPERATION PROGRAM TAPE - LIST PRICE $11.95 - CLUB PRICE ~~$9.95~~
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14

Product Catalog and Price List

COMPUTER PRODUCTS ~~JANUARY~~ MARCH 1, 1982	FACTORY LIST	SALE PRICE
RS232 "R" INTERFACE PORT. Multi Band rate allows connection with telephone modems, other data banks, serial printers, and computers. (Add $5.00 for shipping).	$109.95	$ ~~79.95~~ 69.00
~~FACTORY INSTALLATION OF PORT~~	~~159.95~~	~~99.95~~
80 COLUMN LINE PRINTER MX-80. Best Quality: Impact-dot matrix-Bi Directional 40, 80, 66, 132 columns-uses regular paper. Includes serial port. (Add $20.00 for shipping).	726.00	499.95
PRINTER OPERATION TAPE PROGRAM	11.95	6.00 ~~9.95~~
TELEPHONE MODEM. Best Quality: Transmit-receive, full duplex-text-half duplex, Switches: Originate-off-answer. (Add $5.00 for shipping).	199.95	~~129.95~~ 119.00
MODEM TAPE OPERATING PROGRAM	11.95	6.00 ~~9.95~~
NEW DELUXE MODEM TAPE PROGRAM	14.95	11.95

PROGRAMMING LANGUAGE AND AIDS	FACTORY LIST	*CLUB PRICE
EDU-BASIC. Level I Integer Programming tape and manual.	$ 17.95	5.00 $ ~~14.75~~
LEVEL II BOOSTER-QUICK DRAW GRAPHICS. This program overlays Level II basic and provides many times faster graphic capabilities with substantial savings in programming effort.	9.95	5.00 ~~8.45~~
11K POWERFUL GRAPHICS BASIC. A true work of art-simple statements-30 times faster-saves program space-triangles-circles-peek/poke and much more!	19.95	10.00 ~~16.95~~
PROGRAM EDITOR. Simplifies entry or editing Level II basic programs. English line commands for numbering, adding, or deleting lines, changing lines, substitution, resequencing, appending programs, and more space.	17.95	7.00 ~~14.75~~
8080A MACHINE LANGUAGE-MONITOR. Displays memory RAM-ROM, access over 10K RAM for user programs. Learn 8080A machine language programming, understand your computer organization, write faster programs.	24.95	10.00 ~~19.75~~
HI-LO 8080A MACHINE LANGUAGE-MINI ASSEMBLER. Contains two monitor programs, one each for the HI-AND-LO end of RAM-has assembler and dis-assembler features, enhances creation, debugging, and recording of machine language programs.	29.95	15.00 ~~24.75~~
*NATIONAL COMPUTER CLUB MEMBERSHIP. Allows special discount prices as shown-programming assistance-new development information-program exchange. Factory sponsored.		15.00

EDUCATION PROGRAM TAPES		
MUSIC MAESTRO. Compose and play back tunes, transpose keys, set time signature, a great new way to learn music.	$ 17.95	$ ~~14.75~~ 7.00
COMPUTE-A-COLOR. Create original, color art on your color TV.	9.95	5.00 ~~8.45~~
CONCENTRATION. Improve your memory by matching hidden patterns.	9.95	5.00 ~~8.45~~
ADD 'EM UP. Fascinating brain teaser, great addition drill.	9.95	5.00 ~~8.45~~
HANGMAN. Color game teaches spelling, vocabulary.	9.95	5.00 ~~8.45~~
KNOCKDOWN. Exciting dice game teaches addition while children have fun.	9.95	5.00 ~~8.45~~
TOUCHDOWN. Solve match problems to move down the football field and outscore your opponent.	17.95	5.00 ~~8.45~~

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MANAGEMENT PROGRAM TAPES	FACTORY LIST	*CLUB PRICE

CHECKBOOK BALANCER. Balances your checking records, saves uncleared entries for future input, prepares data for budgeting. $ 17.95   ~~8.75~~ 5.00

FINANCIAL LIBRARY I. Helps you manage your stock portfolio. Reports dollar and percent gains/losses, P/E ratios, yields and more. 17.95 ~~8.75~~ 5.00

FINANCIAL LIBRARY II. Helps you evaluate borrowing alternatives, figure your net worth, evaluate savings plans, analyze and forecast trends. 17.95 ~~8.75~~ 5.00

MESSAGE CENTER. Create, edit, and save colorful messages with sound effects for continuous reply on your color TV. 17.95 ~~8.75~~ 5.00

CALCULATOR. This 4-function calculator with memory register remembers over 150 entries and totals. Made a mistake? Just back up, fix it, and all affected totals are recalculated automatically. 9.95 ~~8.75~~ 5.00

LEARNING AND STRATEGY PROGRAM TAPES

VIDEO CHESS. Use your TV as a board to play an opponent. Save games on tape for later reply and analysis. 17.95 ~~14.75~~ 5.00

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BACKGAMMON. Play this ancient game of strategy, you against the computer. 17.95 7.00 ~~14.75~~

REVERSI. Surround your opponent, but watch out for last minute reverses. 17.95 7.00 ~~14.75~~

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NEW ALIEN INVASION. The most popular electronic game sold - destroy aliens with the battle. 19.95 ~~14.75~~ 7.50

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NATIONAL INTERACT COMPUTER CLUB

APRIL 1982

CONTACT OTHER CLUB MEMBERS

CHUCK SHADE
128 BROAD STREET
LEETSDALE, PA   15056

PHILIP MOORES
3420 ELMIRA ROAD
EUGENE, OR   97402

NICK SPEAKS   714-596-1970
6732 STONECREST DR.
CHARLOTTE, NC   28212

TIPS FROM OTHER CLUB MEMBERS

FROM JOHN A. NEUPAUER OF CHAMPAIGN, ILLINOIS

ATTENTION INTERACT OWNERS WITH MX-80 PRINTERS.

Graphic characters are contained in your printer as is. The
problem is that the printer tape and the serial interface are
set up to send a seven bit code, or from 0 to 127 decimal. To
open up the top 128 codes, an eight code must be sent. This
is easily done by reporgraming the ACIA and the serial
interface. Switch SW1-2 will select an eight bit word length
when in the off position. For the ACIA, load the basic and
printer tape as normal, then poke 25869,25 to program the ACIA
to send an eight bit word. Now the Internal graphics can be
used. My printer will work at 2400 baud in this mode.

Thanks John.

FROM LENOARD LOBAITO OF STATEN ISLAND, NY

A cover for your Interact.................

Description: Have you ever noticed the dust that accumulates
                on the console between usages. (that's only for
                those of you who leave your Interact alone long
                enough.)

Problem: Dust has a few properties that you whould be aware
                of. The first is that it acts as an insulator.
                The second is that it will hold a static charge.
                There are more, but these are two of the most
                important.

The Fix: A dust cover, not at $5 or $0 but free..........

1.   Locate some plastic that will open up to 23" x 15"
2.   The heavier the gauge the better.
3.   If it is larger than 23" x 25", cut it down to this size.
4.   Next, cut 2" squares out of each corner.
5.   Now fold each corner together and scotch tape inside.
6.   Locate a tupe of "clear" silicone tub caulking.
7.   Apply a small bead along the folded corners (outside edges).
8.   Place a strip of scotch tape over each of the corner beads
     squeeze flat, leave tape on for 24 hours.
9.   After 24 hours tape can be removed to expose a smooth edge.

This fix can also be used to repair tears in dust covers.
Static
charges would be a problem with normal computers, but the
chassis that the Interact is housed in is machine gun proof, 1/4
steel, so not to worry.

NOTE: Do not dust the cover while it is on the console. A
        static charge will form on the dust cover, and the keys
        on the keyboard will glow green. (and don't try this
        just to see a green glow!!!!)

FROM WALTER JOPKE, JR. OF BLOOMINGTON, MINNESOTA

Mr. Jopke offers an Interact expansion board. For a business
sized self addressed, stamped envelope, he will send you further
information. This includes descriptive literature on the IE
board, a report on the status and goals of their experimentation

as well as a price sheet. He also states that they will send
a 1:1 photo negative or positive for those of you capable of
making their own double sided PC boards. Write to:

Walter Jopke, Jr.
5016 West 99th Street
Bloomington, MN   55437

ANSWERS TO CLUBMEMBER'S QUESTIONS

To Vard Sutherlin

To make a character disappear after moving it, have it followed
by the background color, that way you can move an object and
the background will fill in the old space at the same time.

For Steve Bakty

We apologize for the delay in answering your questions, however
you must realize, we have other questions from members prior to
yours that we still haven't gotten to, we keep trying to keep
everyone happy and if you think you're frustrated, you should
be us!!!!! Anyway your answers .... The programs printed
in the newsletters are taken directly from the Interact after
we try them out. There must be a typographical error in your
Tic Tac Toe game or you may not have received all of the pages
to the newsletter, please check both. Your second question,
it appears the comment on the bottom of the page was intended
to be used in the graphics program, we tried it and were unable
to achieve any success other than those stated on another page
regarding the Control M, Control H, etc.

To all members who have written in with questions, games, etc.
please, if your's has not been printed, try to be patient. All
questions will be answered as we find them and the time. All
programs will be printed, those that are printed first are those
on tape as we do not always have the time to key in the longer
programs that are sent in listing form only. We do request that
if you send in any games, please send a tape, even a cheap tape
is fine, or even a used tape, just erase whatever is on it
before you save the program as we have lost many programs due to
the background overriding the program.

THANK YOU FOR YOUR PATIENCE!!!!

```
************************************************************
                        PROGRAMS
************************************************************
```

BATTLESHIP
............contributed by Glenn Chamberlin

This program requires Level II and joysticks, as well as two
players. We felt it was written very well and took into account
all of the mistakes that we made without any problems. Thank
you Mr. Chamberlin.

```
1 CLS:PRINT"   BATTLESHIP":PRINT:PRINT:PRINT:PRINT"WANT INSTRUCTIONS":PRINT"(Y/N
) ?":A$=INSTR$(1)
2 IFA$="Y"THENGOSUB450
4 PRINT:PRINT:PRINT"WHO'S THE LEFT":INPUT"PLAYER";L$
5 PRINT:PRINT:PRINT"WHO'S ON THE":INPUT"RIGHT";R$:PRINT:PRINT:PRINT
6 PRINT"OKAY, CAPTAIN":PRINTR$",":PRINT"COVER YOUR EYES":PRINT"WHILE CAPTAIN":PR
INTL$
8 PRINT"HIDES THE SHIPS.":PRINT:PRINT:PRINT"PRESS CR TO START":A$=INSTR$(1)
15 CLS:COLOR0,5,6,7:WINDOW18:C=2:S=0:J=0:DIMS$(384)
20 FORY=70TO22STEP-6:FORX=12TO108:PLOTX,Y,C:NEXT:NEXT
25 FORX=13TO109STEP8:FORY=22TO71:PLOTX,Y,C:NEXT:NEXT
30 Y=65:C=1:FORX=15TO103STEP8:OUTPUTCHR$(Y),X,76,C:Y=Y+1:NEXT
35 X=1:FORY=69TO27STEP-6:OUTPUTX,1,Y,C:X=X+1:NEXT
40 N=96:GOSUB200:PRINT"PRESS ANY KEY":PRINT"TO CLEAR BOARD";:A$=INSTR$(1)
45 GOSUB500:PRINTR$"'S TURN":PRINT"TO HIDE SHIPS";:FORX=0TO1000:NEXT:PRINT
50 N=288:J=1:GOSUB200:PRINT"PRESS ANY KEY":PRINT"TO CLEAR BOARD";:A$=INSTR$(1):P
RINT
51 PRINT:S=1
55 IFJ=0THENJ=1:GOTO60
57 J=0
60 GOSUB500:ONJ+1GOTO65,70
65 N=192:PRINTL$"'S SHOT -":GOTO75
70 N=0:PRINTR$"'S SHOT -"
75 GOSUB300:IFE=1THENGOSUB400:ONJ+1GOTO65,70
80 IFTL=20THENPRINTL$" WINS !":GOTO90
85 IFTR=20THENPRINTR$" WINS !":GOTO90
86 GOTO55
90 PRINT"ANOTHER GAME ?";:A$=INSTR$(1):IFA$<>"Y"THENEND
95 CLS:WINDOW77:RUN4
200 V$="B":FORW=1TO4
205 PRINT"BATTLESHIP":GOSUB300:IFE=1THENGOSUB400:GOTO205
210 NEXT:PRINT:V$="C":FORW=1TO2:FORZ=0TO2
215 PRINT"CRUISER"W:GOSUB300:IFE=1THENGOSUB400:GOTO215
220 NEXT:PRINT:NEXT:V$="D":FORW=1TO3:FORZ=0TO1
225 PRINT"DESTROYER"W:GOSUB300:IFE=1THENGOSUB400:GOTO225
230 NEXT:PRINT:NEXT:PRINT:V$="S":FORW=1TO4
235 PRINT"SUBMARINE"W:GOSUB300:IFE=1THENGOSUB400:GOTO235
240 PRINT:NEXT:RETURN
300 AX=1:AY=1:OUTPUT"XY",90,17,2:IFJOY(J)=0GOTO300
```

PAGE 4

```
301 OUTPUT"XY",90,17,0
305 OUTPUTA$,90,17,0:A$=CHR$(AX+64)+CHR$(AY+48):OUTPUTA$,90,17,3
310 IFFIRE(J)=0THENX=8*AX+7:Y=75-6*AY:GOSUB600:RETURN
312 IFJOY(J)=0GOTO310
315 IFJOY(J)=2THENAX=AX+1:IFAX>12THENAX=12
320 IFJOY(J)=1THENAX=AX-1:IFAX<1THENAX=1
325 IFJOY(J)=4THENAY=AY-1:IFAY<1THENAY=1
330 IFJOY(J)=8THENAY=AY+1:IFAY>8THENAY=8
335 GOTO305
400 E=0:PRINT"ERROR-INPUT AGAIN";:PRINTCHR$(7):FORX=0TO800:NEXT:RETURN
450 CLS:PRINT"EACH PLAYER HAS:":PRINT:PRINT"1 BATTLESHIP-BBBB":PRINT"2 CRUISERS
    -CCC"
455 PRINT"3 DESTROYERS-DD":PRINT"4 SUBMARINES-S":PRINT"TO PLOT ON A GRID"
460 PRINT"USING COORDINATES":PRINT"A1 THROUGH L8":PRINT:PRINT"PRESS CR TO CONT."
;
465 A$=INSTR$(1):CLS:PRINT"THE JOYSTICKS ARE":PRINT"USED TO SELECT"
470 PRINT"COORDINATES.":PRINT"THE FIRE BUTTON":PRINT"STORES THE INFO":PRINT
475 PRINT"PRESS CR TO CONT.":A$=INSTR$(1):CLS:RETURN
500 FORX=15TO103STEP8:FORY=69TO27STEP-6:OUTPUTCHR$(1),X,Y,0:NEXT:NEXT
501 C=3
505 PRINT:PRINT:IFJ=0THENCOLOR0,1,2,3:N=192:GOTO515
510 COLOR0,5,6,7:N=0
515 FORY=69TO27STEP-6:FORX=15TO103STEP8:N=N+1:OUTPUTLEFT$(S$(N),1),X,Y,C
520 NEXT:NEXT:RETURN
600 A=N+12*(AY-1)+AX
605 IFS$(A)="B"ORS$(A)="C"ORS$(A)="D"ORS$(A)="S"ORS$(A)="*"THENE=1:RETURN
610 IFS=0THENTONE50,100:S$(A)=V$:OUTPUTV$,X,Y,3:RETURN
615 FORE=50TO120:TONEE,10:NEXT
620 W=A+96:IFS$(W)="B"ORS$(W)="C"ORS$(W)="D"ORS$(W)="S"GOTO650
624 FORE=0TO10:TONE600,4:NEXT
625 S$(A)="*":OUTPUT"*",X,Y,3:PRINTTAB(2)A$" IS A MISS..":FORZ=0TO800:NEXT
626 RETURN
650 S$(A)=S$(W):V$=S$(W):IFV$="B"THENV$="BATTLESHIP"
655 IFV$="C"THENV$="CRUISER"
660 IFV$="D"THENV$="DESTROYER"
665 IFV$="S"THENV$="SUBMARINE"
666 SOUND1,550:E=0:SOUND1,551
670 FORZ=0TO6:OUTPUTS$(W),X,Y,0:TONE40,40:OUTPUTS$(W),X,Y,3:NEXT
675 PRINT"A HIT--"V$:IFJ=0THENTL=TL+1:RETURN
676 TR=TR+1:RETURN
```

```
***************************************************************

        VEGAS SLOT
        ...............contributed by A. M. DAVIDSON

        The next two program s are written by Mr. Davidson and they
        require joysticks, and 8K graphics basic.  He also incorporated
        machine language into both programs.  Have fun.

1 PRINT"PRESS RIGHT FIRE BUTTON TO START":GOSUB400
2 CLS:COLOR0,1,3,7:WINDOW20
3 S=RND(-PEEK(24559))
5 J=0:H=19473:G=19474
6 POKEH,00:POKEG,88:A=USR(0)
7 OUTPUT"VEGAS SLOT",24,40,2
10 PRINT
15 GOSUB295
20 S1=S
25 GOSUB295
30 S2=S
35 GOSUB295
40 S3=S
45 S=S1
50 GOSUB305
55 S1$=S$
60 S=S2
65 GOSUB305
70 S2$=S$
75 S=S3
80 GOSUB305
85 S3$=S$
90 IFS1$="B"THEN110
95 IFS1$="C"THEN130
100 IFS1$=S2$THEN140
105 GOTO150
110 IFS1$=S2$THEN120
115 GOTO150
120 IFS2$=S3$THEN160
125 GOTO150
130 IFS1$=S2$THEN170
135 GOTO180
140 IFS2$=S3$THEN190
145 IFS3$="B"THEN190
150 J=J-1
155 GOTO195
160 J=J+89
165 GOTO195
170 J=J+2
175 GOTO195
180 J=J+1
185 GOTO195
190 J=J+9
195 PRINT
200 SOUND2,24
```

```
204 POKEH,32:POKEG,88:A=USR(0)
205 IFS1$="B"THENPOKEH,176:POKEG,90:U=USR(0)
210 IFS1$="C"THENPOKEH,240:POKEG,89:U=USR(0)
215 IFS1$="A"THENPOKEH,64:POKEG,88:U=USR(0)
220 IFS1$="L"THENPOKEH,96:POKEG,89:U=USR(0)
225 IFS1$="0"THENPOKEH,208:POKEG,88:U=USR(0)
230 IFS2$="B"THENPOKEH,224:POKEG,90:U=USR(0)
235 IFS2$="C"THENPOKEH,48:POKEG,90:U=USR(0)
240 IFS2$="A"THENPOKEH,116:POKEG,88:U=USR(0)
245 IFS2$="L"THENPOKEH,144:POKEG,89:U=USR(0)
250 IFS2$="0"THENPOKEH,244:POKEG,88:U=USR(0)
255 IFS3$="B"THENPOKEH,16:POKEG,91:U=USR(0)
260 IFS3$="C"THENPOKEH,112:POKEG,90:U=USR(0)
265 IFS3$="A"THENPOKEH,164:POKEG,88:U=USR(0)
270 IFS3$="L"THENPOKEH,192:POKEG,89:U=USR(0)
275 IFS3$="0"THENPOKEH,32:POKEG,89:U=USR(0)
280 SOUND7,4096
281 IFS1$="B"ANDS2$="B"ANDS3$="B"THEN410
285 OUTPUT"$",38,30,2
286 PLOT44,26,0,30,6:OUTPUTJ,44,30,2
290 GOTO360
295 S=INT(RND(1)*5)+1
300 RETURN
305 ONSGOTO310,320,330,340,350
310 S$="B"
315 GOTO355
320 S$="C"
325 GOTO355
330 S$="A"
335 GOTO355
340 S$="L"
345 GOTO355
350 S$="0"
355 RETURN
360 PRINT
370 IFFIRE(0)=1THEN370
371 IFFIRE(0)=0THEN15
380 GOTO15
400 IFFIRE(0)=1THEN400
405 IFFIRE(0)=0THENRETURN
410 TONE168,150:TONE131,192:TONE110,229:TONE80,315
411 GOTO285
```

```
**********************************************************************

BUNKO
..........contributed by A. M. DAVIDSON

1 CLS
2 PRINT" 2,3,4PLAYERS"
3 INPUT T
4 T=T
5 S=RND(-PEEK(24559))
6 GOSUB500
51 P$="1"
52 OUTPUT">",5,38,1
55 IFFIRE(0)=1THEN55
60 IFFIRE(0)=0THEN65
65 GOSUB300
70 S1=S
75 GOSUB300
80 S2=S
85 GOSUB300
90 S3=S
95 S=S1
100 GOSUB310
105 S1$=S$
110 S=S2
115 GOSUB310
120 S2$=S$
125 S=S3
130 GOSUB310
135 S3$=S$
140 SOUND0,312
145 POKEH,16:POKEG,89:A=USR(0)
150 IFS1$="1"THENPOKEH,32:POKEG,89:A=USR(0)
155 IFS2$="1"THENPOKEH,56:POKEG,89:A=USR(0)
160 IFS3$="1"THENPOKEH,80:POKEG,89:A=USR(0)
165 IFS1$="2"THENPOKEH,104:POKEG,89:A=USR(0)
170 IFS2$="2"THENPOKEH,128:POKEG,89:A=USR(0)
175 IFS3$="2"THENPOKEH,200:POKEG,90:A=USR(0)
180 IFS1$="3"THENPOKEH,168:POKEG,89:A=USR(0)
185 IFS2$="3"THENPOKEH,192:POKEG,89:A=USR(0)
190 IFS3$="3"THENPOKEH,216:POKEG,89:A=USR(0)
195 IFS1$="4"THENPOKEH,240:POKEG,89:A=USR(0)
200 IFS2$="4"THENPOKEH,8:POKEG,90:A=USR(0)
205 IFS3$="4"THENPOKEH,32:POKEG,90:A=USR(0)
210 IFS1$="5"THENPOKEH,56:POKEG,90:A=USR(0)
215 IFS2$="5"THENPOKEH,80:POKEG,90:A=USR(0)
220 IFS3$="5"THENPOKEH,104:POKEG,90:A=USR(0)
225 IFS1$="6"THENPOKEH,128:POKEG,90:A=USR(0)
230 IFS2$="6"THENPOKEH,152:POKEG,90:A=USR(0)
235 IFS3$="6"THENPOKEH,176:POKEG,90:A=USR(0)
240 SOUND7,4096
241 IFP$="1"THEN250
242 IFP$="2"THEN445
243 IFP$="3"THEN720
244 IFP$="4"THEN825
```

```
250 IFS1$="6"THENJ=J+1
255 IFS2$="6"THENJ=J+1
260 IFS3$="6"THENJ=J+1
265 IFS1$<"6"ANDS2$<"6"ANDS3$<"6"THEN295
270 IFS1$="6"ANDS2$="6"ANDS3$="6"THENJ=J+7:GOSUB600
275 PLOT16,34,2,20,6
280 OUTPUTJ,16,38,1
285 IFJ=500RJ>50THENPRINT"PLAYER 1 WIN'S":FORI=1TO2000:NEXT:GOSUB500
290 GOTO51
295 PLOT5,34,2,5,5:OUTPUT">",5,32,1:GOTO431
300 S=INT(RND(1)*6+1)
305 RETURN
310 ONSGOTO315,325,335,345,355,365
315 S$="1"
320 GOTO370
325 S$="2"
330 GOTO370
335 S$="3"
340 GOTO370
345 S$="4"
350 GOTO370
355 S$="5"
360 GOTO370
365 S$="6"
370 RETURN
431 P$="2"
432 OUTPUT">",5,32,1
435 IFFIRE(1)=1THEN435
440 IFFIRE(1)=0THEN65
445 IFS1$="6"THENK=K+1
450 IFS2$="6"THENK=K+1
455 IFS3$="6"THENK=K+1
460 IFS1$<"6"ANDS2$<"6"ANDS3$<"6"THEN490
465 IFS1$="6"ANDS2$="6"ANDS3$="6"THENK=K+7:GOSUB600
470 PLOT16,28,2,20,6
475 OUTPUTK,16,32,1
480 IFK=500RK>50THENPRINT"PLAYER 2 WIN'S":FORI=1TO2000:NEXT:GOSUB500
485 GOTO431
490 IFT=2THENPLOT5,28,2,5,5:OUTPUT">",5,38,1:GOTO51
495 PLOT5,28,2,5,5:OUTPUT">",5,26,1:GOTO700
500 H=19473:G=19474
505 COLOR0,3,4,7
510 POKEH,00:POKEG,89:A=USR(0)
515 POKEH,16:POKEG,89:A=SUR(0)
520 OUTPUT"1",10,38,3:OUTPUT"3",10,26,3
525 OUTPUT"2",10,32,3:OUTPUT"4",10,20,3
530 J=0:K=0:L=0:M=0
535 OUTPUT"++++++BUNKO++++++",6,48,1
540 RETURN
600 TONE168,33:TONE124,45:TONE97,58
605 TONE80,40:TONE97,58:TONE80,250
610 RETURN
700 P$="3"
705 OUTPUT">",5,26,1
```

BUNKO (continued)

```
710 IFFIRE(0)=1THEN710
715 IFFIRE(0)=OTHEN65
720 IFS1$="6"THENL=L+1
725 IFS2$="6"THENL=L+1
730 IFS3$="6"THENL=L+1
735 IFS1$<"6"ANDS2$<"6"ANDS3$<"6"THEN765
740 IFS1$="6"ANDS2$="6"ANDS3$="6"THENL=L+7:GOSUB600
745 PLOT16,22,2,20,6
750 OUTPUTL,16,26,1
755 IFL=500RL>50THENPRINT"PLAYER 3 WIN'S":FORI=1TO2000:NEXT:GOSUB500
760 GOTO700
765 IFT=3THENPLOT5,22,2,5,5:OUTPUT">",5,38,1:GOTO51
770 PLOT5,22,2,5,5:OUTPUT">",5,20,1:GOTO800
800 P$="4"
805 OUTPUT">",5,20,1
810 IFFIRE(1)=1THEN810
815 IFFIRE(1)=OTHEN65
825 IFS1$="6"THENM=M+1
830 IFS2$="6"THENM=M+1
835 IFS3$="6"THENM=M+1
840 IFS1$<"6"ANDS2$<"6"ANDS3$<"6"THEN870
845 IFS1$="6"ANDS2$="6"ANDS3$="6"THENM=M+7:GOSUB600
850 PLOT16,16,2,20,6
855 OUTPUTM,16,20,1
860 IFM=500RM>50THENPRINT"PLAYER 4 WIN'S":FORI=1TO2000:NEXT:GOSUB500
865 GOTO800
870 PLOT5,16,2,5,5:OUTPUT">",5,38,1:GOTO51
```
****

ITEMS FOR SALE

****

Air-Land Battle — You are the pilot of a space shuttle and
the computer, or a friend control 2 base launchers on Mars. The
object for the pilot of the space shuttle is to conquer Mars.
Requires Level II and Joysticks.

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can end up Bankrupt or a millionaire. Requires Level II basic
and 1 joystick.

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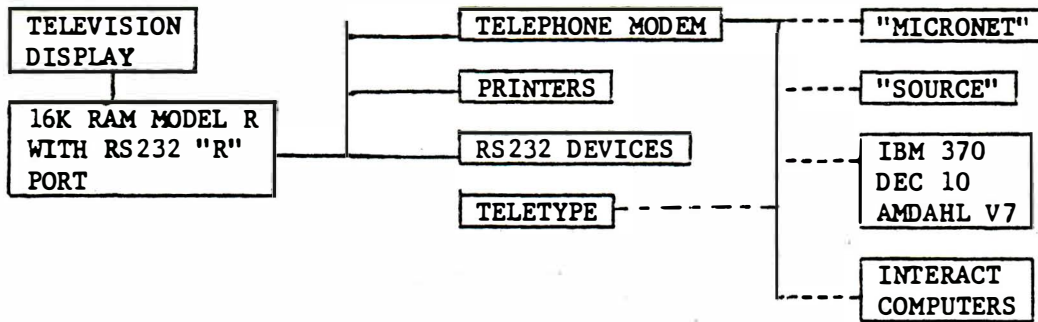required.

$4.50 each including tape or $10.00 for all 3 from:

                    David Nichols
                    509 East 5th St.
                    Wilmington, de   19801
                    302 658-0516 3pm — 7pm EST saturday and sunday.

NEW FULLY PROGRAMMABLE MULTIBAND RS232 "R" PORT

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POSSIBLE CONFIGURATIONS USING RS232 "R" PORT

```
┌──────────────┐        ┌──────────────────┐        ┌─────────────┐
│ TELEVISION   │        │ TELEPHONE MODEM  │        │ "MICRONET"  │
│ DISPLAY      │        └──────────────────┘        └─────────────┘
└──────────────┘        ┌──────────────┐            ┌─────────────┐
┌──────────────────┐    │ PRINTERS     │            │ "SOURCE"    │
│ 16K RAM MODEL R  │    └──────────────┘            └─────────────┘
│ WITH RS232 "R"   │    ┌──────────────────┐        ┌─────────────┐
│ PORT             │    │ RS232 DEVICES    │        │ IBM 370     │
└──────────────────┘    └──────────────────┘        │ DEC 10      │
                        ┌──────────────┐            │ AMDAHL V7   │
                        │ TELETYPE     │            └─────────────┘
                        └──────────────┘
                                                    ┌─────────────┐
                                                    │ INTERACT    │
                                                    │ COMPUTERS   │
                                                    └─────────────┘
```

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MARCH 1, 1982

COMPUTER EXPANSION SALE

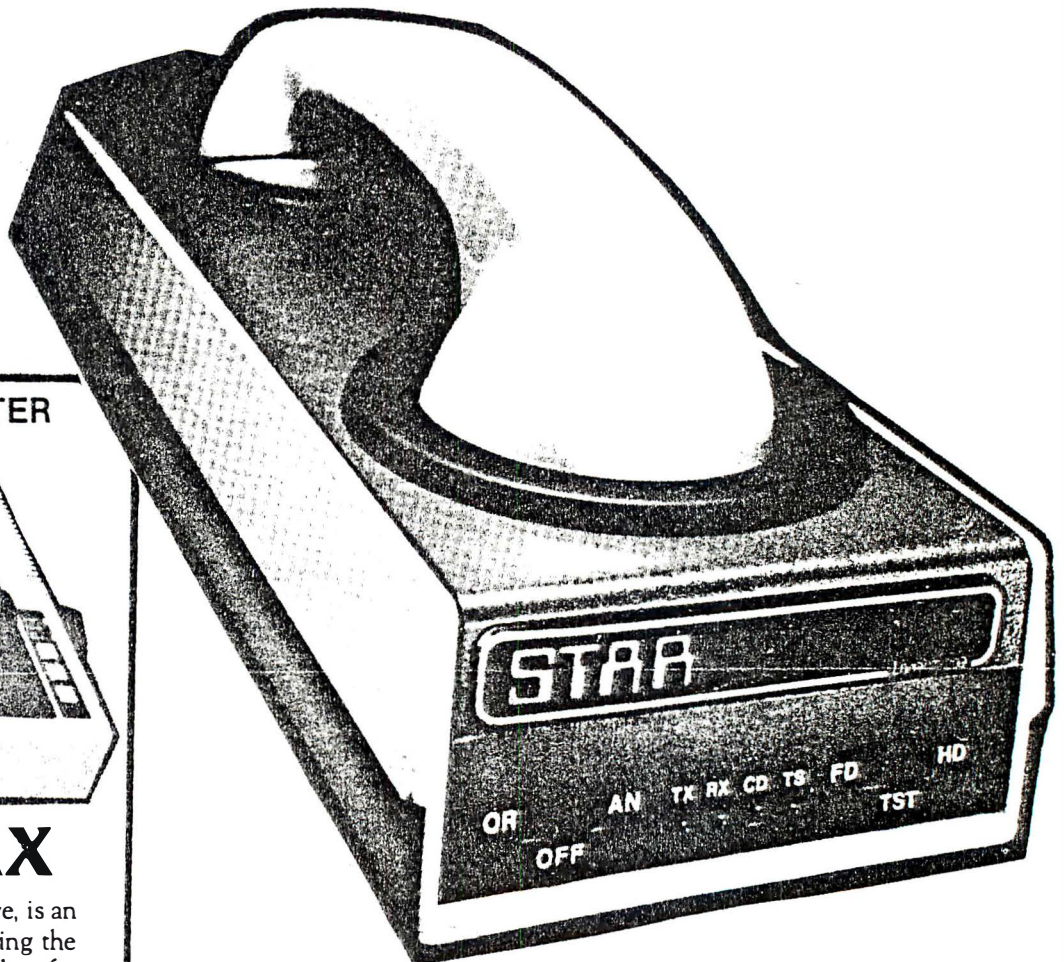RS232 "R" INTERFACE PORT - Regular $109.50. (Add ~~$5.00 for shipping~~)   SALE $ ~~73.95~~
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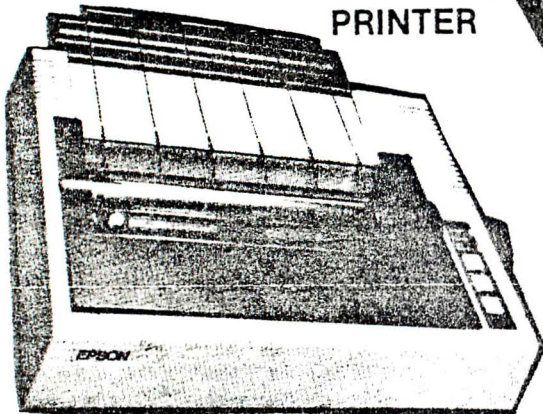(Add $20.00 for shipping)

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300 BPS-RS232 Modem for business or personal computers. Selected by IBM, $119.00
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PRINTER

The EPSON MX

      The MX-80, shown above, is an
80-column bidirectional printer featuring the
full 96-character ASCII set with descenders for
easier reading, and offers a user-defined choice
of 40, 66, 80 or 132 columns.
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the MX-80 is the world's first disposable print
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tancy, you simply buy a new one for under
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NATIONAL INTERACT COMPUTER CLUB

MAY 1982

CONTACT OTHER CLUB MEMBERS

TONY CASTANEDA   RE: Adapting for the TRS-80 plug-n-
4065 N. FRUIT #203   power controller.
FRESNO, CA   93705

DAVID A. CARTER   RE: Anything to do with model "R"
28 ALPINE DR.   "HAM" amateur radio, share/
SAVANNAH, GA   31405   exchange programs

CHARLES CANAMAR   RE: Would like a copy on tape of
948 WILLOW CT.   Microsoft 8K basic, send price
HAMMOND, IN   46320   with mailing costs and he'll
                             send a money order.
219-931-4306 Home of 219-980-6711 Work

TIPS FROM OTHER CLUB MEMBERS

FROM J. D. CALDWELL OF ARLINGTON, VIRGINIA

To make VOCABULARY QUIZ more interesting for a younger child or
for prepping an older "spelling bee" contestant, try the fol-
lowing modifications.

Substitute the following statements for lines 83-85

```
83   CLS
84   POKE 19215,25
85   PRINT W$(I):FOR C=1 TO 500:NEXT:CLS
86   POKE 4096,87
87   POKE 6144,33
88   FOR P=1 TO 1000:NEXT:COLOR 7,1,2,4:INPUT "     ";H$
```

(continued)

This change allows you to use the Interact built-in tape player to "pronounce" the word before the child receives the prompt to type it. Write the program with the changes above, load a data cassette, REWIND, CSAVE. When LEVEL II returns an OK, STOP the cassette deck remove the tape and place it on any cassette recorder (preferably one with on/off switch on mike) and record the words, clearly and distinctly with about a second between words. Timing of your voice and pause loop in 88 may have to be varied some however he hit it on the second try.

When the program is loaded, leave the READ button down. IF YOU MISSPELL A WORD, release the READ button before trying again and depress again before next word. Another POKE and pause loop could be put in 210 to rewind, but all the button pushing gets confusing and distracts the child.

FROM TOM HARRON OF OSHKOSH, WISCONSIN

Here's a correction for the CHECKERS GAME in the February 82 issue.

Add the following line:

```
        210 NEXT Y,X:GOSUB 550
```

For convenience of play add the following:

```
        45 PRINT "DO YOU WANT":PRINT "INSTRUCTIONS?":A$=
           INSTR$(1)
        47 IF A$<> "Y" GOTO 160
        48 CLS
       160 CLS:DIMR(4),S(7,7)
```


****

ITEMS FOR SALE

****

The attached two pages are a brochure published exactly as we received them. We believe there is a tape for sale, however you will need to contact the following individual for further information, ie. price. We hope that this will help further the knowledge of those interested in machine language.

WRITE TO: PAUL ANDERSON
           3214 CHALFIN AVE.
           NORFOLK, VA   23513

OR CALL 804-853-2627

ADD COMMANDS TO THE MICRO VIDEO MONITOR (V1.0)

The series of routines listed on the following pages accomplish the following:

1. Adds 3 new command utilities.
2. Places the new command addresses into the monitor command lookup table.
3. Modifies the monitor to display 17 characters across.
4. Modifies backspace to erase the 17th character when needed.
5. Includes fix for Monitor carry flag bug.

NEW COMMAND FORMAT

CLEAR SCREEN
>C (CR)...clears screen memory

CONVERT
>K (CR)
Interact responds with a CRLF and an asterisk.
*(Starting Base) (Data to be converted) (CR)

Valid starting bases:
 A-ASCII Character
Interact returns Bases 16 and 10 equivalents.
NOTE: Will not convert back space (08).

 Q-Octal Number
Octal number must be equal to or less than 377. Preceed Octal numbers
 less than 3 digits long with Zero/s (i.e. 077 or 007).
Interact returns Bases 16 and 10 equivalents.

 H-Hex Number
Hex number must be equal to or less than FFFFH.
No leading zeros required. Returns Base 10 equivalent.

 X (CR)...returns you to monitor

ASCII String
This Command reduces key strokes when entering ASCII strings.
 >A(Starting address)(CR)
Interact responds with a blank line.
(Enter an ASCII string...up to 17 characters long) (CR)
Interact stores ASCII data, starting at your specified address, places 00
 at end of string then returns next available address to TV display.
(Example)
>A5E00 (CR)
A QUICK BROWN FOX (CR)
5E12

MICRO VIDEO MONITOR PATCH

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
4C0				C3	6D	4C					F5	E1	22	F4	7F	E1
4C1	2B	2B	2B	22	FC	7F	E1	21	00	00	39	22	FE	7F	31	80
4C2	7F	EB	22	F8	7F	60	69	22	F6	7F						
4C6														21	A4	4D
4C7	22	9F	60	21	9D	4D	22	A3	60	21	A9	4C	22	B3	60	3E
4C8	69	32	3F	64	3E	65	32	C7	64	21	98	4C	22	4B	64	22
4C9	E2	64	C3	00	60	00	00	00	79	CD	3F	04	D0	3A	EA	5F
4CA	3C	82	FE	6D	57	D8	C3	69	05	CD	7C	63	3E	01	CD	2F
4CB	06	0E	2A	CD	37	64	3E	03	CD	2F	06	CD	93	64	CD	FC
4CC	64	FE	41	CA	E5	4C	FE	48	CA	3A	4D	00	00	00	00	00
4CD	FE	51	CA	0C	4D	FE	58	CA	5B	60	CD	7C	63	0E	3F	CD
4CE	37	64	C3	A9	4C	CD	F4	4C	CD	FC	64	6F	26	00	CD	EB
4CF	63	C3	41	4D	CD	7C	63	01	06	4D	11	42	05	CD	4F	05
4D0	EB	22	EB	7F	EB	C9	20	48	45	58	3D	00	CD	FC	64	FE
4D1	34	D2	DA	4C	21	00	03	C3	1D	4D	CD	FC	64	FE	30	DA
4D2	DA	4C	FE	38	D2	DA	4C	E6	07	47	7D	07	07	07	80	6F
4D3	25	C2	1A	4D	32	A8	65	C3	E5	4C	CD	7C	63	CD	D8	63
4D4	E1	11	91	4D	13	13	13	13	D5	0E	05	06	0A	CD	76	4D
4D5	C6	30	12	1B	0D	C2	4D	4D	E1	23	AF	77	01	97	4D	2A
4D6	EB	7F	EB	CD	4F	05	01	90	4D	03	0A	FE	30	CA	69	4D
4D7	CD	4F	05	C3	A9	4C	C5	AF	0E	11	C3	82	4D	90	F2	87
4D8	4D	80	29	17	C3	8A	4D	29	17	23	0D	C2	7D	4D	1F	C1
4D9	C9	00	00	00	00	00	00	20	44	45	43	3D	00	CD	73	05
4DA	C3	5B	60	1E	12	CD	D8	63	E1	CD	7C	63	CD	93	64	CD
4DB	CD	4D	FE	0D	CA	C0	4D	77	2C	1D	CA	67	63	C3	AF	4D
4DC	CD	7C	63	3E	00	77	2C	CD	DD	63	C3	5B	60	E5	D5	C5
4DD	2A	A2	65	7E	23	22	A2	65	C1	D1	E1	C9				

After you have typed in the data, use the RESET-R sequence to reinit-
ialize the monitor (you only do this on initial type in).

Write 4C03 to 4DDB to tape.

Use the RESET-L sequence to load the patch on top of the monitor.

Dissassembly of this patch will show how to use the following
 routines within the Monitor:

    6437   Print on screen
    637C   Carrage Return, Line Feed
    6367   Error
    6493   Key in ASCII value
    64FC   Get character from Key-in buffer
    63AC   Convert ASCII Hexadecimal value to Binary
    63EB   Convert Binary value to Hexadecimal ASCII
    605B   Executive routine

```
******************************************************************
```

MORE FOR SALE!!!!!!!!!!!!

```
******************************************************************
```

Write for a free catalog listing and discriptions of over 30
programs - GAMES - EDUCATIONAL - HAM RADIO - AND MUCH MORE ,
ALSO INCLUDES IDEAS FOR HARDWARE MODIFICATIONS, BOOKS, ETC.:

ALSO, from Interact Software, an introductory offer: Eight
robots in the city of ATLANTIS for the possession of data
centrys. Use laser guns to run through blockades of robots
or to free yourself from their magnetic clutches. Impressive
graphics and oustanding sound effects - A GENUINE ARCADE GAME.

SPECIAL INTRODUCTORY PRICE - $6.00

(Order from the above address.)

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THE

EDU-BASIC

OVERLAY

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New Orleans, LA 70126

For more information call
(504) 242-6961 between 6 and
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Now you can turn Edu-BASIC into a powerful
programming language. With the Edu-BASIC
Overlay, you can have such features as

  *A real, live cursor (like other computers
   have!)

  *Printing text anywhere on the screen,
   in any color

  *Built-in printer commands for Slagh
   Systems printer interface

  *PEEK, POKE, USR, and three new machine
   language commands

  *A greatly expanded vector

  *Simple adaption to memory expansions

  *Of course, 8K of program memory

The Edu-BASIC Overlay comes with 50 pages
of documentation (this alone is worth the
price!) which fully explain the 14 new
functions and commands, and include a
memory map, subroutine list, and other
information to help YOU customize YOUR
OWN version of Edu-BASIC.

C 1982 by R.P. Williams

****

PROGRAMS

****

BATTLESHIP II
...........contributed by Glenn Chamberlin

This program is similar to the one previously published, however
this only requires the keyboard, rather than the joysticks, we
felt it would enable some of you to compare the programming
techniques.

Thank you Mr. Chamberlin.


```
1 CLS:PRINT"    BATTLESHIP":PRINT:PRINT:PRINT:PRINT"WANT INSTRUCTIONS":PRINT"(Y/N
) ?":A$=INSTR$(1)
2 IFA$="Y"THENGOSUB450
4 PRINT:PRINT:PRINT"WHO'S THE LEFT":INPUT"PLAYER";L$
5 PRINT:PRINT:PRINT"WHO'S ON THE":INPUT"RIGHT";R$:PRINT:PRINT:PRINT
6 PRINT"OKAY, CAPTAIN":PRINTR$",":PRINT"COVER YOUR EYES":PRINT"WHILE CAPTAIN":PR
INTL$
8 PRINT"HIDES THE SHIPS.":PRINT:PRINT:PRINT"PRESS CR TO START":A$=INSTR$(1)
15 CLS:COLOR0,5,6,7:WINDOW18:C=2:S=0:J=0:DIMS$(384)
20 FORY=70TO22STEP-6:FORX=12TO108:PLOTX,Y,C:NEXT:NEXT
25 FORX=13TO109STEP8:FORY=22TO71:PLOTX,Y,C:NEXT:NEXT
30 Y=65:C=1:FORX=15TO103STEP8:OUTPUTCHR$(Y),X,76,C:Y=Y+1:NEXT
35 X=1:FORY=69TO27STEP-6:OUTPUTX,1,Y,C:X=X+1:NEXT
40 N=96:GOSUB200:PRINT"PRESS ANY KEY":PRINT"TO CLEAR BOARD";:A$=INSTR$(1)
45 GOSUB500:PRINTR$"'S TURN":PRINT"TO HIDE SHIPS";:FORX=0TO1000:NEXT:PRINT:PRINT
:PRINT
50 N=288:J=1:GOSUB200:PRINT"PRESS ANY KEY":PRINT"TO CLEAR BOARD";:A$=INSTR$(1):P
RINT
51 PRINT:S=1
55 IFJ=0THENJ=1:GOTO60
57 J=0
60 GOSUB500:ONJ+1GOTO65,70
65 N=192:PRINTL$"'S SHOT";:GOTO75
70 N=0:PRINTR$"'S SHOT";
75 GOSUB300:IFE=1THENGOSUB400:ONJ+1GOTO65,70
80 IFTL=20THENPRINTL$" WINS !":GOTO90
85 IFTR=20THENPRINTR$" WINS !":GOTO90
86 GOTO55
90 PRINT"ANOTHER GAME ?";:A$=INSTR$(1):IFA$<>"Y"THENEND
95 CLS:WINDOW77:RUN4
200 V$="B":FORW=1TO4
205 PRINT"BATTLESHIP";:GOSUB300:IFE=1THENGOSUB400:GOTO205
210 NEXT:PRINT:V$="C":FORW=1TO2:FORZ=0TO2
215 PRINT"CRUISER"W;:GOSUB300:IFE=1THENGOSUB400:GOTO215
220 NEXT:PRINT:NEXT:V$="D":FORW=1TO3:FORZ=0TO1
```

```
225 PRINT"DESTROYER"W;:GOSUB300:IFE=1THENGOSUB400:GOTO225
230 NEXT:PRINT:NEXT:PRINT:V$="S":FORW=1TO4
235 PRINT"SUBMARINE"W;:GOSUB300:IFE=1THENGOSUB400:GOTO235
240 PRINT:NEXT:RETURN
300 INPUTA$:IFLEN(A$)<>2THENE=1:RETURN
301 AX=ASC(LEFT$(A$,1))-64:AY=VAL(RIGHT$(A$,1))
302 IFAX<1ORAX>12ORAY<1ORAY>8THENE=1:RETURN
310 X=8*AX+7:Y=75-6*AY:GOSUB600:RETURN
400 E=0:PRINT"ERROR-INPUT AGAIN";:PRINTCHR$(7):FORX=0TO800:NEXT:RETURN
450 CLS:PRINT"EACH PLAYER HAS:":PRINT:PRINT"1 BATTLESHIP-BBBB":PRINT"2 CRUISERS
    -CCC"
455 PRINT"3 DESTROYERS-DD":PRINT"4 SUBMARINES-S":PRINT"TO PLOT ON A GRID"
460 PRINT"USING COORDINATES":PRINT"A1 THROUGH L8":PRINT:PRINT"PRESS CR TO CONT."
;
465 A$=INSTR$(1):CLS:PRINT"COORDINATES ARE":PRINT"TYPED ON THE":PRINT"KEYBOARD A
ND"
470 PRINT"ENTERED BY":PRINT"PRESSING CR.":PRINT:PRINT"THE BATTLESHIP":PRINT"AND
THE CRUISERS"
475 PRINT"MUST BE PLOTTED":PRINT"IN A STRAIGHT":PRINT"LINE."
480 PRINT"PRESS CR TO CONT.";:A$=INSTR$(1):CLS:RETURN
500 FORX=15TO103STEP8:FORY=69TO27STEP-6:OUTPUTCHR$(1),X,Y,0:NEXT:NEXT
501 C=3
505 PRINT:PRINT:IFJ=0THENCOLOR0,1,2,3:N=192:GOTO515
510 COLOR0,5,6,7:N=0
515 FORY=69TO27STEP-6:FORX=15TO103STEP8:N=N+1:OUTPUTLEFT$(S$(N),1),X,Y,C
520 NEXT:NEXT:RETURN
600 A=N+12*(AY-1)+AX
605 IFS$(A)="B"ORS$(A)="C"ORS$(A)="D"ORS$(A)="S"ORS$(A)="*"THENE=1:RETURN
610 IFS=0THENTONE50,100:S$(A)=V$:OUTPUTV$,X,Y,3:RETURN
615 FORE=50TO120:TONEE,10:NEXT
620 W=A+96:IFS$(W)="B"ORS$(W)="C"ORS$(W)="D"ORS$(W)="S"GOTO650
624 FORE=0TO10:TONE600,4:NEXT
625 S$(A)="*":OUTPUT"*",X,Y,3:PRINTTAB(2)A$" IS A MISS..":FORZ=0TO800:NEXT
626 RETURN
650 S$(A)=S$(W):V$=S$(W):IFV$="B"THENV$="BATTLESHIP"
655 IFV$="C"THENV$="CRUISER"
660 IFV$="D"THENV$="DESTROYER"
665 IFV$="S"THENV$="SUBMARINE"
666 SOUND1,550:E=0:SOUND1,551
670 FORZ=0TO6:OUTPUTS$(W),X,Y,0:TONE40,40:OUTPUTS$(W),X,Y,3:NEXT
675 PRINT"A HIT--"V$:IFJ=0THENTL=TL+1:RETURN
676 TR=TR+1:RETURN
```
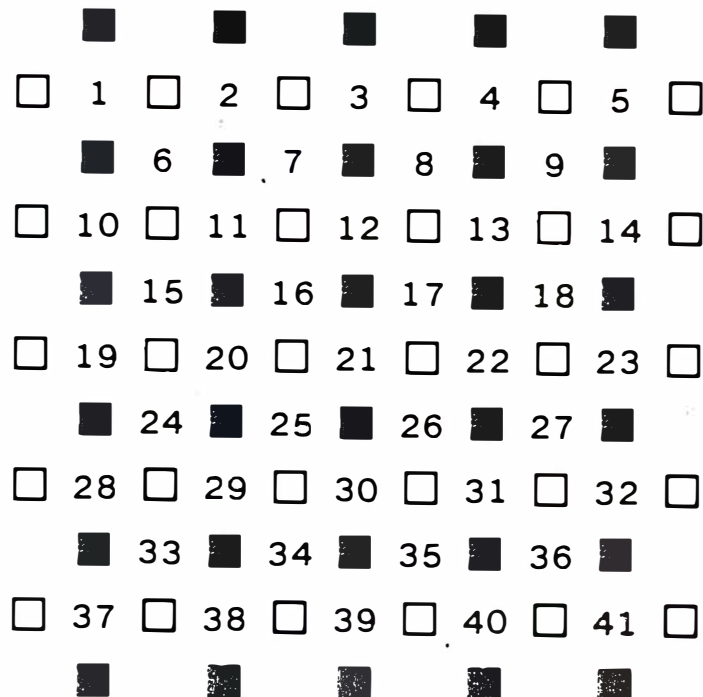
****

BRIDG-IT
...............contributed by DEAN ANSCHULTZ OF CANOGA PARK, CA

The following game has been sold as a board game by Hasbro under
the name "Bridg-It" since 1960, and prior was Gale. This
version pits you against the computer. Below is an illustration
of the board, the solid squares represent red islands and
yellow is the hollow squares. Each player places bridges at the
numbered locations, connecting their adjacent islands (the
computer is yellow, you are red). The bridges do not have to be
placed so that they connect with each other in order, you can
skip around. The first player to complete an unbroken path of
bridges from one side of this color to the opposite is the
winner. The computer connects from, left to right, you are top
to bottom. YOU are given the first move, if you wish to pass
only this one move, type "0", otherwise enter the number of the
desired position for your bridge. The computer takes about 30
seconds to chose its move. At the end, if you win the board is
emptied and another game startes; if the computer wins, the
final position (along with "YOU LOSE" is shown until any
character is keyed. (Let me tell you, I have this problem of
trying games without reading the instructions, boy did I lose
fast.)

The program is very stark and concise. A great deal of effort
has been expended to squeeze it in. Much of the memory is re-
quired by the arrays specified on line 3. Any modifications
which require more memory are discouraged, there are only a few
bytes left! Thank you Mr. Anschultz.

```
    ■     ■     ■     ■     ■
  □  1 □  2 □  3 □  4 □  5 □
    ■  6 ■  7 ■  8 ■  9 ■
  □ 10 □ 11 □ 12 □ 13 □ 14 □
    ■ 15 ■ 16 ■ 17 ■ 18 ■
  □ 19 □ 20 □ 21 □ 22 □ 23 □
    ■ 24 ■ 25 ■ 26 ■ 27 ■
  □ 28 □ 29 □ 30 □ 31 □ 32 □
    ■ 33 ■ 34 ■ 35 ■ 36 ■
  □ 37 □ 38 □ 39 □ 40 □ 41 □
    ■     ■     ■     ■     ■
```

```
1 REMBRIDG£IT 4MAR82
3 COLOR6,3,1,7:CLS:CLEAR2:DIMC(20,20),E(42),Z(42),A(21):WINDOW24
5 OUTPUT1,2,66,3:OUTPUT5,87,66,3
7 X=6:FORY=62TO38STEP-8:OUTPUTX,16,Y,3:OUTPUTX+4,2,Y-4,3
9 OUTPUTX+3,73,Y,3:OUTPUTX+8,87,Y-4,3:X=X+9:NEXT
11 FORI=1TO42:Z(I)=1:NEXT:PL=0:E(42)=0
13 Q=18928:POKE19215,25:POKE19473,239:POKE19474,73:POKEQ,1:POKEQ+1,251
15 POKEQ+2,73:POKEQ+3,205:POKEQ+4,162:PQKEQ+5,5:POKEQ+6,201:Q=Q+11
17 POKEQ,42:POKEQ+1,42:POKEQ+2,3:POKEQ+3,8:POKEQ+4,35:U=USR(0)
19 POKEQ,2:POKEQ+1,2:POKEQ+2,1:FORX=35TO75STEP8
21 FORY=12TO44STEP8:GOSUB51:NEXT:NEXT:POKEQ+2,2
23 FORY=8TO48STEP8:FORX=39TO71STEP8:GOSUB51:NEXT:NEXT:GOTO27
25 PRINT"ILLEGAL";
27 PRINTTAB(10);CHR$(8);:INPUT"YOU";I:IFI<0ORI>41THEN25
29 IFI=0ANDE(42)=0THENPL=1:B=21:GOSUB107:GOTO39
31 IFZ(I)<>1THEN25
33 GOSUB41:PL=1:Z(I)=1000
35 GOSUB53:TONE110,350:IFN=0THENPRINT"YOU WIN":GOTO11
37 IFN>.98THENPRINT"YOU LOSE":A$=INSTR$(1):GOTO11
39 PL=0:Z(I)=0:GOTO27
41 X=INT((I-1)/4.5):Y=4*X+12:POKEQ+2,2-PL:XE=X-2*INT(X/2)
43 X=8*((I-1)-9*INT(X/2)):IFX>36THENX=X-36
45 X=X+39:IFXE-PL=0GOTO49
47 POKEQ,2:POKEQ+1,6:X=X-2:GOTO51
49 POKEQ,6:POKEQ+1,2:Y=Y-2
51 POKEQ+3,Y:POKEQ+4,X:U=USR(0):RETURN
53 FORJ=0TO20:FORK=0TO20:C(J,K)=0:NEXTK,J
55 RESTORE:FORJ=0TO19:READK,L,O,N:C(J,J)=Z(K)+Z(L)+Z(O)+Z(N):NEXT
57 DATA1,6,10,0,2,6,7,11,3,7,8,12,4,8,9,13,5,9,14,0,10,15,19,0,11,15
59 DATA16,20,12,16,17,21,13,17,18,22,14,18,23,0,19,24,28,0,20,24,25
61 DATA29,21,25,26,30,22,26,27,31,23,27,32,0,28,33,37,0,29,33,34,38
63 DATA30,34,35,39,31,35,36,40,32,36,41,0
65 FORJ=1TO36:READK,L,O:C(K,L)=-Z(O):C(L,K)=-Z(O):NEXT
67 DATA0,1,6,0,5,10,1,2,7,1,6,11,2,3,8,2,7,12,3,4,9,3,8,13,4,9,14,5
69 DATA6,15,5,10,19,6,7,16,6,11,20,7,8,17,7,12,21,8,9,18,8,13,22,9
71 DATA14,23,10,11,24,10,15,28,11,12,25,11,16,29,12,13,26,12,17,30,13
73 DATA14,27,13,18,31,14,19,32,15,16,33,15,20,37,16,17,34,16,20,38,17
75 DATA18,35,17,20,39,18,19,36,18,20,40,19,20,41
77 C(20,20)=Z(37)+Z(38)+Z(39)+Z(40)+Z(41)+Z(42)
79 FORI=0TO19:X=I+1:IFI<15THENY=I+5:GOTO83
81 Y=20
83 FORK=XTOY:IFC(K,I)=0GOTO87
85 B=C(K,I)/C(I,I):IFC(K,I)<>0THENFORJ=XTOY:C(K,J)=C(K,J)-B*C(I,J):NEXT
87 NEXT:NEXT:IFC(20,20)>36THENRETURN
89 A(21)=21/C(20,20):FORI=19TO0STEP-1:N=0:FORJ=I+1TO20
91 N=N-C(I,J)*A(J+1):NEXT:A(I+1)=N/C(I,I):NEXT
93 FORJ=1TO42:READK,L:E(J)=Z(J)*(A(K)-A(L)):NEXT
95 DATA1,0,2,0,3,0,4,0,5,0,1,2,2,3,3,4,4,5,6,1,7,2,8,3,9,4,10,5,6,7,7,8
97 DATA8,9,9,10,11,6,12,7,13,8,14,9,15,10,11,12,12,13,13,14,14,15,16,11
99 DATA17,12,18,13,19,14,20,15,16,17,17,18,18,19,19,20,21,16,21,17,21
101 DATA18,21,19,21,20,21,0
103 N=-1:FORI=1TO41:IFZ(I)=1THENIFABS(E(I))>NTHENN=ABS(E(I)):B=I
105 NEXT:N=ABS(E(B)/(21-E(42)))
107 PRINT" ";CHR$(8);"I GO";B;:I=B:GOTO41
```

```
************************************************************
```

INTERACT PROGRAM FILES
...........contributed by W. J. MOORE OF PITTSBURG, CA

    This program lists all of the programs published in the Club
    letter. It can easily be updated or changed to fit your wants
    and desires. You add additional/new information as data state-
    ments as follows: "DATAPROGRAM NAME, AUTHORS NAME,?,MONTH YEAR"
    The last data item must be "end" which is at line 1000.
    Thank you Mr. Moore.

```
10 REM INTERACT PROGRAM FILES
20 REM BY W.J. MOORE
30 REM PRESS ANY KEY TO SEE NEXT FRAME
40 REM ADD TO LIST WITH DATA STMTS.
50 CLS:L=0
60 FORC=1TO10
70 READA$
75 IFA$="END"THENRESTORE:GOTO50
80 A$(C)=A$
90 READB$
100 B$(C)=B$
110 IFA$="?"THEN200
120 NEXT
200 CLS
210 OUTPUTB$,24,71,3
220 FORI=1TOC-1
230 OUTPUTA$(I),6,71-I*12-L,1
240 IFLEN(A$(I))>17THENL=L+6
250 OUTPUTB$(I),6,65-I*12-L,3
260 NEXT
270 A$=INSTR$(1)
280 GOTO50
300 DATAMERRY OLDSMOBILE,JOHN WORRALL,SIMON,M.LONG  R.PATTEN
310 DATAPLANETARY ORBITS,H. HOLLOWAY,?,DEC 1980,DAY OF THE WEEK,NO NAME
320 DATADAYS BETWEEN DATES,NO NAME,?,JAN 1981,TIC TAC TOE,TOM HARRIS
330 DATALUNAR EXCURSION  MODULE,M. MC CUISTON,?,FEB 1981
340 DATAAWARI,PRESTON D. BROWN,SLIDE TITLE       MAKER,RICHARD BANDELIER
350 DATA?,MAR 1981,CHECKERS,M. MC CUISTON,HXFK3,ALAN COREY
360 DATAEXPENSE PROGRAM,W.R. UPDEGRAFF,?,APR 1981,AMAZING MAZES,NO NAME
370 DATADICE ROLLER,TERRY EARHART,BASIC--69,TERRY EARHART,SKEET
380 DATAERNIE PIETTE,?,MAY-JUN 1981,INTERACT POWERS,RICHARD JONES
390 DATALOAN AMORTIZATION,RICHARD JONES,DECIMAL TO HEX,R.O. DAVIDSON
400 DATATHE CAMELS BACK,R.O. DAVIDSON,?,JUL 1981,DEMONS,ROY PERSON
410 DATACHECKERS,LEMUEL MIXON,?,AUG 1981
420 DATAMEMORY SEARCH FORHI-LO MONITOR,R.P. WILLIAMS
430 DATAINVENTORY,VINCE RISSE,THE DETECTIVES,CHARLES SCHWER,?,SEP 1981
440 DATAMUSIC AID,P. KLOPF,CHASE,DENNIS SUNDE,?,OCT 1981,TIC TAC TOE
450 DATAD. SUNDE,CAMEL,CHARLES SCHWER,?,NOV 1981,HAMURABI,C. SCHWER
460 DATAALPHABETIZE,R.E. JONES,?,DEC 1981,MYSTERY HOUSE,W.J. MOORE,?
470 DATAJAN 1982,CHECKERS,L. OLDAKER,BOMBS AWAY!,CULLEN O'DAY
480 DATACOLOR SEARCH,A.E. JACKSON,VOCABULARY QUIZ,ROYCE,?,FEB 1982
490 DATADRACULAS BLOOD,W.J. MOORE,MUSEUM,ROYCE,?,MAR 1982
1000 DATAEND
```

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     ↓                                    │
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WITH RS232 "R"                            │      DEC 10
PORT                    TELETYPE - - - - -      AMDAHL V7
                                          │
                                          │      INTERACT
                                          └─ --- COMPUTERS
```
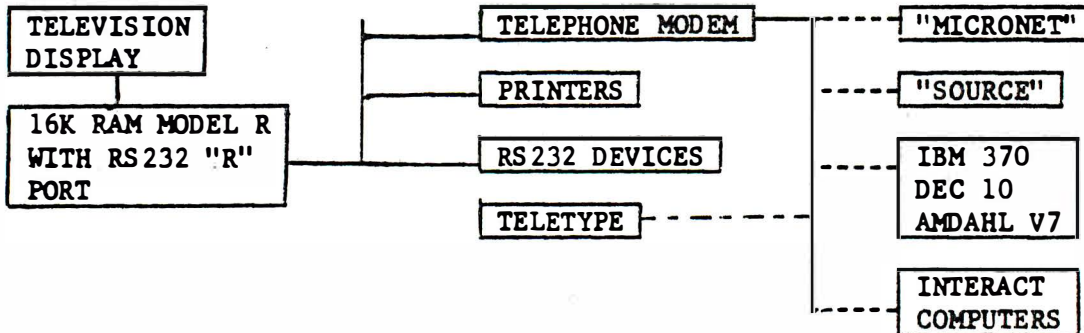
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NATIONAL INTERACT COMPUTER CLUB

JUNE 1982

CONTACT OTHER CLUB MEMBERS

STEVE KIM
98-51 65 AVE #5E
REGO PARK, NY   11374

MIKE GOINS   RE: Dabbles in machine language
P.O. BOX 3341   programming and to a samller
BRISTOL, TN   37625   extent works with hardware.

STEVE DAVISON
P.O. BOX 728
HELENA, MT   59601   406 442-8442 AFTER 6:30

TIPS FROM OTHER CLUB MEMBERS

FROM M. GOINS of Bristol, Tennessee

5FEE H = 24558D is the location which Interact print routines
use as a color reference. The Interact represents the color
of each pixel (point on the screen) in memory as 2 bits being
00,01,10,11 for colors 0-3. Storing FF in some location between
4000 and 49FFH (screen ram) will set four consecutive (horizon-
tally consecutive) to color 3. There is a ROM routine at 62E,
to store 0H, 55H, AAH, or FFH in 5FEEH to indicate colors 0, 1,
2, or 3 respectively. Note that 55H is 01 01 01 01 binary and
that if this were written into screen ram it would set those
pixels to color 1. By the same token, AA is 10 10 10 10, and
10 is binary 2 so AA is written for color 2. By writing some-
thing other than 00,55,AA, or FF into 5FEE (poking into 24558D)
it is possible to get multicolor (striped) characters. This
works with print routines, but not with the output command in
basic because it has the color specified and it changes 5FEE per
that color.

(continued)

Also, Mr. Goins had trouble with the head on his tape player, it
would get so loose that the play button couldn't be pressed. He
also had a problem with the alignment, it could be heard to be
drifting while loading programs and right before the head got
loose, he had to align it before loading every tape. He found
that there are two screws for the tape head. One that is the
outside accessible adjustment screw and the other to hold down
the other side of the tape head and should be screwed down
tightly. It is necessary to remove the cassette assembly, but
this is not too difficult and it is a good opportunity to clean
the cassette assembly.

SOUND GENERATOR EXPERIMENTATION ROUTINE

```
6100    DI
6101    MVIA   01            noise
6103    STA    3000
6106    LXIB   6150
6109    LXIH   2000
610C    CALL   6140
610F    LXIH   2800
6112    CALL   6140
6115    LDA    3801          keyboard "2"
6118    ANI    01
611A    JNZ    6115
611D    MVIA   40
611F    LXIB   C000
6125    DCXB
6126    MOVAB
6127    ORAC
6128    JNZ    6125
612B    RET
------------------------------------------------------------------
6140    LDAXB                SOUND REGISTER TABLE
6141    MOVMA
6142    INXH                 6150   00,00,00,40
6143    INXB                 6154   80,00,80,00
6144    LDAXB
6145    MOVMA
6146    INXH                 2000            6150
6147    INXB                 2001            6151
6148    LDAXB                2002            6152
6149    MOVMA                2003            6153
614A    INXH                 2800            6154
614B    INXB                 2801            6155
614C    LDAXB                2802            6156
614D    MOVMA                2803            6157
```

(STILL FROM MIKE GOINS)

Below is listed the addresses where the A/D converter results
are stored by the 60Hz interrupt routine. The interrupt routine
polls the keyboard, updates the clock (24559,24560), and
performs A/D conversion. The fire buttons are, curiously
enough, A/D conversion instead of reading a switch. All six
channels are brought out.


```
5FF7          FIRE(O)          PIN 6 LEFT
5FF8          POT (O)          PIN 5 LEFT
5FF9                           PIN 9 LEFT
5FFA          FIRE (1)         PIN 6 RIGHT
5FFB          POT (1)          PIN 5 RIGHT
5FFC                           PIN 9 RIGHT
```


Also, the joystick switches are read during the interrupt
routine and are stored in the following addresses.


```
5FF1          JOY (O)          BITS
5FF2          JOY (1)          0-3
```


Here are the equivalents between sound register bits and the
pins on the 76477 sound generator I.C. This makes it easier to
program sounds by using data published in the manufacturer's
spec sheets and magazine articles.


```
Address    3000    Bits 0-3 = Pins 25-27
           2800    Bit 7    = Pin 5
           2800    Bit 6    = Pin 22
           2801    Bit 7    = Pin 11
           2801    Bit 6    = Pin 23
           2802    Bit 7    = Pin 1
           2802    Bit 6    = Pin 9
           2803    Bit 7    = Pin 28
           2803    Bit 6    = Pin 16
           2000    Bit 7    = Pin 8
           2000    Bit 6    = Pin 10
           2001    Bit 7    = Pin 21
           2001    Bit 6    = Pin 20
           2002    Bit 7    = Pin 17
           2002    Bit 6    = Pin 18
           2003    Bit 7    = Pin 6
           2003    Bit 6    = Pin 7
```

His original experiments with the sound generator were by sub-
stituting into the sound registers in the HiLo monitor. This
doesn't work well with noise evidently due to the interrupt
routine. The little experimentation routine is set up for noise
and works ok. The delay is installed for experimenting with
oneshot sounds.

****

FROM DICK WALSH of Fresno, California

Mr. Walsh sent in some changes to his programs that were pre-
viously published.

MORTGAGE PROGRAM --

34 IF V<= 0 THEN F=V

CLOCK PROGRAM --


```
17 IF H = 11 AND A$ = "AM" THEN GOSUB 21:GOTO 19
18 IF H=11 AND A$="PM" THEN GOSUB 22
19 IF H=12 THEN H=0
20 H=H+1:M=-1:OUTPUT H,25,35,7:GOTO 14
21 IF A$="AM" THEN OUTPUT A$,46,45,7:RETURN
22 IF A$="PM" THEN OUTPUT A$,46,45,0:A$="AM":OUTPUT
   A$,46,45,7:RETURN
```


****

FROM R. A. WALSH of Fresno, California

Mr. Walsh could not get the "BATTLESHIP" program to run, he
offers the following changes (and additions for enhancement):

```
80  IF TL = 20 THEN PRINT L$" WINS!!":GOTO 90
85  IF TR = 20 THEN PRINT R$" WINS!!":GOTO 90
90  FOR K = 1 TO 30:SOUND 0,24844:FOR C=0 TO 7:COLOR C,4,1,0:
    NEXT:NEXT:SOUND 7,4096
95  CLS:CLEAR:WINDOW 77:COLOR 0,5,6,7:END
200 V$ = "B":FOR W = 1 TO 1
210 NEXT:PRINT:V$="C":FOR W = 1 TO 2
220 NEXT:PRINT:V$="D":FOR W = 1 TO 3
```

```
230 NEXT:PRINT:V$ = "S":FOR W=1 TO 4
450 CLS:PRINT "EACH PLAYER HAS:":PRINT:PRINT"1 BATTLESHIP.....
    2 CRUISERS"
455 PRINT "3 DESTROYERS.....4 SUBMARINES":PRINT" TO PLOT ON A
    GRID"
626 IF J = 0 THEN PRINT L$;TL:RETURN
670 OUTPUT S$(2),X,Y,0:TONE 40,40:OUTPUT S$(W),X,Y,3
675 IF J=0 THEN GOSUB 680:TL = TL+Z:PRINT L$;TL:RETURN
676 GOSUB 680:TR=TR+Z:PRINT R$;TR:RETURN


ADDITIONS

3   PRINT CHR$(8)
627 PRINT R$;TR:RETURN
674 PRINT "A HIT" V$:FOR Y = 1 TO 500:NEXT
680 IF V$ = "BATTLESHIP" THEN Z = 4:RETURN
681 IF V$ = "CRUISER" THEN Z=3:RETURN
682 IF V$ = "DESTROYER" THEN Z=2:RETURN
683 IF V$ = "SUBMARINE" THEN Z=1:RETURN
```

(Mr. Walsh states that the color and sound at finish is with
full credit to Mr. Mixon's CHECKERS)

****

FROM DAN DELONG of Snohomish, Washington

The following is a method to save a section of memory onto tape,
but reload it into another part of memory.

CHANGING THE TAPE LOAD LABEL

1.   ENTER "G 606E,635E"

2.   WAIT FOR THE PROMPT (>) TO BE DISPLAYED

3.   ENTER "W START ADDRESS, END ADDERSS"

4.   WHEN THE BREAK POINT IS REACHED:
     A.   ENTER "S 6545"
     B.   CHANGE 6545 AND 6546 TO THE ADDRESS THE FILE IS TO BE
          RELOADED WITH.

5.   ENTER "G 635E"

EXAMPLE.

I WANT TO SAVE A FILE FROM 7000 TO 7500 ON TAPE. WHEN I LOAD
THE TAPE, I WANT IT TO LOAD INTO MEMORY AT 4C00.

1.   G 606E,6353

2.   THE PROMPT IS DISPLAYED

3.   I ENTER "W 7000,7500"

4.   THE COMPUTER SHOWS THE BREAK POINT.
     A.   I ENTER "S 6545"
     B.   I NOW CHANGE 6545-6546 TO THE NEW LOAD ADDRESS, IN THIS
          CASE IT IS "004C" (LSB THEN MSB).

5.   G635E   .

WHEN THE TAPE IS FINISHED, I REWIND THE TAPE AND ENTER AN "L".
THE FILE SAVED FROM 7000-7500 WILL LOAD INTO MEMORY AT 4C00.

****

QUESTIONS AND ANSWERS

****

TO STEVE DAVISON of Helena, Montana

1. No, you cannot "feed" different computer languages into the
   Interact. The way the languages are mapped within each com-
   puter differs.

2. There are various places to communicate with through your
   modem. Some suggestions are:

   a)   Other clubmembers with modems
   b)   Source - write to 1616 Anderson Road, McLean, VA 22102
               or call 703 734-7500

        Compuserve or Micronet, the only thing we can recommend
        is to contact a computer shop near you.

FROM MARENS ESCOBASA

Mr. Escobasa would like help with the information that is contained within ROM.

****
ITEMS FOR SALE
****

A Machine Lanugage program which is called "BLASTOUT" is now
available. It has horizontal rows of many small bricks and six
skill levels. Also there will be a surprise program (also
machine language) on the back of the cassette.

The price is $6.00 and can be ordered from:

MIKE GOINS
P.O. BOX 3341
BRISTOL, TN   37625

****
****

EXPAND YOUR INTERACT FOR ONLY $55

You can get the RS232 expansion port sold by Protecto
Enterprises for only $55. This allows you to operate a printer
or a modem. This popular RS232 port (hundreds have been sold)
is available at less than half the price of the Micro Video
port. The Micro Video port is harder to install and requires
more operating tapes.

ORDER FROM PROTECTO WHILE THEY LAST!!!!!!!!!!!!

```
************************************************************

                      PROGRAMS

************************************************************

EXPANDO CHR$
...........contributed by Warren Moore


This program combines two CHR$ characters to form a new char-
acter.  You need left joy stick to control up or down count for
either CHR$ numbers.  Positions are NW (left side up) - SW
(left side down) NE (right side up) or SE (right side down).  Do
not make numbers negative or exceed 255 (limits for CHR$
function).  When mix CHR$ would like to be displayed expanded
then press fire button.  To get back to program press fire
button again.  If separation of pixel information is desired,
then change *5 to *6 in lines 190,. 210, and 220.


1 REM EXPANDO CHR$
10 CLS:GOTO80
20 IFJOY(0)=5THENL=19:X=X+1:GOTO80
30 IFJOY(0)=9THENL=19:X=X-1:GOTO80
40 IFJOY(0)=6THENL=43:Y=Y+1:GOTO80
50 IFJOY(0)=10THENL=43:Y=Y-1:GOTO80
60 IFFIRE(0)=0GOTO170:REM DRAW CHARACTER
70 GOTO20
80 CLS
85 TONE200,10
90 OUTPUT"(X)",13,65,1:OUTPUTX,13,59,1
100 OUTPUT"(Y)",37,65,1:OUTPUTY,37,59,1
110 OUTPUT"CHR$",67,65,1:OUTPUT"MIX",67,59,1
120 OUTPUTCHR$(X),19,53,1
130 OUTPUTCHR$(Y),43,53,1
140 OUTPUTCHR$(X),67,53,1
150 OUTPUTCHR$(Y),67,53,1
160 GOTO20
170 FORV=52TO54*5+L:-1
180 FORH=67TO71
185 TONE10,50
190 OUTPUT".",(H-67)*5+43,47,2
200 T=(V-54)*-1
210 OUTPUT".",37,(V-52)*5+37,2
220 IFPOINT(H,V)=1THENOUTPUTCHR$(1),(H-67)*5+43,(V-52)*5+35,1
230 NEXT:NEXT
240 IFFIRE(0)=0GOTO80
250 GOTO240
OK
```

```
5 REM--THE RACE (INITIALIZE)
10 COLOR 0,1,2,3:PRINT CHR$(8)
15 CLS:RESTORE
20 WINDOW 24
25 A$=CHR$(1):M=0
30 REM-SELECT ASCII HORSES
35 B$=CHR$(126)
40 C$=CHR$(126)
45 D$=CHR$(126)
50 E$=CHR$(126)
55 F$=CHR$(126)
60 G$=CHR$(126)
65 REM-DRAW TRACK
70 FORX=0TO105 STEP 5:FOR Y=70TO40 STEP -5
75 OUTPUT A$,X,Y,3:NEXT:NEXT
80 FOR X= 0 TO 135:PLOT X,71,3:PLOT X,35,3:NEXT
85 FOR Y=71 TO 35 STEP -1
90 PLOT 100,Y,0:PLOT 10,Y,0:NEXT
95 REM-GET SET
100 B=5:OUTPUT B$,B,70,1
105 C=5:OUTPUT C$,C,64,0
110 D=5:OUTPUT D$,D,58,2
115 E=5:OUTPUT E$,E,52,1
120 F=5:OUTPUT F$,F,46,0
125 G=5:OUTPUT G$,G,40,2
130 REM-SOUND THE CALL
135 GOSUB 345
140 PRINT"PRESS LEFT FIRE":PRINT"BUTTON TO START"
145 IF FIRE (0)=1 GOTO 145
150 REM-OPEN GATES
155 SOUND 6,168:PRINT:PRINT
160 FOR Y=71 TO 35 STEP -1:PLOT 10,Y,3:NEXT
165 REM-JUMP AND RUN
170 SOUND 5,956
175 GOSUB 385:OUTPUTB$,B,70,3:OUTPUTB$,B,71,1
180 OUTPUT B$,B,71,3:B=B+Q:OUTPUT B$,B,70,1
185 GOSUB 385:OUTPUT C$,C,64,3:OUTPUT C$,C,65,0
190 OUTPUT C$,C,65,3:C=C+Q:OUTPUT C$,C,64,0
195 GOSUB 385:OUTPUT D$,D,58,3:OUTPUT D$,D,59,2
200 OUTPUT D$,D,59,3:D=D+Q:OUTPUT D$,D,58,2
205 GOSUB 385:OUTPUT E$,E,52,3:OUTPUT E$,E,53,1
210 OUTPUT E$,E,53,3:E=E+Q:OUTPUT E$,E,52,1
215 GOSUB 385:OUTPUT F$,F,46,3:OUTPUT F$,F,47,0
220 OUTPUT F$,F,47,3:F=F+Q:OUTPUT F$,F,46,0
225 GOSUB 385:OUTPUT G$,G,40,3:OUTPUT G$,G,41,2
230 OUTPUT G$,G,41,3:G=G+Q:OUTPUT G$,G,40,2
235 SOUND 5,444:M=M+1:IF M<15 GOTO 170
```

```
240 REM-CHECK FOR WINNER
245 IFB>95ANDB>CANDB>DANDB>EANDB>FANDB>G GOTO 285
250 IFC>95ANDC>DANDC>EANDC>FANDC>G GOTO290
255 IFD>95ANDD>EANDD>FANDD>G GOTO 295
260 IFE>95ANDE>FANDE>G GOTO 300
265 IFF>95ANDF>G GOTO 305
270 IFG>95 GOTO 310
275 GOTO 170
280 REM-ANNOUNCE WINNER
285 SOUND 3,895:PRINT"WINNER IS NO.1":GOTO 320
290 SOUND 3,895:PRINT"WINNER IS NO.2":GOTO 320
295 SOUND 3,895:PRINT"WINNER IS NO.3":GOTO 320
300 SOUND 3,895:PRINT"WINNER IS NO.4":GOTO 320
305 SOUND 3,895:PRINT"WINNER IS NO.5":GOTO 320
310 SOUND 3,895:PRINT"WINNER IS NO.6":GOTO 320
315 REM-ANOTHER RACE?
320 FOR X=1TO2000:NEXT:PRINT:PRINT"ANOTHER RACE ?"
325 TONE 80,80
330 H$=INSTR$(1):IF H$="N" GOTO405
335 GOTO 15
340 REM-THE CALL
345 FOR T=1 TO 15
350 READ H,I
355 TONE H,I
360 NEXT:RETURN
365 DATA 168,100,124,100,97,100
370 DATA 80,75,80,50,80,50,80,75
375 DATA 97,75,97,50,97,50,97,75
380 DATA 124,100,97,100,124,100,168,100
385 SOUND 5,1020
390 REM-RANDOM MOVES
395 Q=INT(6*RND(1))+1:RETURN
400 REM-LETS DO SOMETHING ELSE
405 WINDOW 77:CLS:COLOR 4,3,0,7:END
```

NATIONAL INTERACT COMPUTER CLUB

SEPTEMBER 1982

Just a short message from us, remember, please when you are
corresponding with the club, please indicate on the envelope
Interact Club, NICC is not enough. We have received many items
for sale this month, all of them cannot be published since we
are under length constraints, so please bare with us. We have
received several hostile letters regarding listing items for
sale, we are trying to list as many each month as we can, again
please bare with us. (P.S. We do not appreciate Threats!!)

ITEMS FOR SALE

The following members are selling an Interact computer plus
tapes, please note to save space, programs have been abreviated
- they are: MC - MICROCHESS; BACK - BACKGAMMON; FB - FOOTBALL;
ST - STARTRACK; CM - COMPUTER MAZE; DF - DOG FIGHT; KD -
KNOCKDOWN; AU - ADD-EM-UP; TB - TRAIL BLAZERS; VM - VIDEO
MONITOR; AL - ALIGNMENT;SB - SPACE BASE;BI - BIORHYTHM;SB -
SUPER BOWL; PA - PACRAT; CA - CALCULATOR; EZ - EZEDIT; DI -
DIAGONSTIC; AI - ALIEN INVADERS;

JOHN FARROW	Computer -	$200
75 STATE ROAD	Level II	20
N. DARTMOUTH, MA 02747	EZEDIT	9
	Fast graphics overlay	5
	8080A Monitor	10
	Hi-Lo Monitor	15
	Diagnostics Tape	10
	Tape Head Alignment	5
	MC,BACK,FB or ST	9
	CM,DF,KD or AU	5-
	ATLANTIS	5
	or computer + tapes	300

ALVIN JOHNSON	Computer, LEVEL II,	
309 R. W. ELM ST.	fastload graphics	
J.C., MO 65101	cassettes	$150

```
D. G. BAILEY               Computer, 2 controllers, FIN I & II
3472 CARNELIAN WAY         Music Maestro, Fast Graphics;
CARSON CITY, NV. 89701     Basically speaking manual, Level II


SCOTT ORGAN                Computer                      $200
914 CEDAR LANE             ST,CO,CM,TB,VM,AL,SB,BR          10 EA
FT. SMITH, AR              BR,DF,SB,PA,CA,EZ,DI,LEVEL
                           II,AI
                           OR COMPUTER + TAPES           300


TOM HARRON                 COMPUTER
1126 ADAMS AVE.
OSHKOSH, WI  54901   OR CALL (414) 235-1804


DOUG GARRETT
BOX 6638 LINCOLN HWY       COMPUTER
CRESTLINE, OH  44827


EUGENE WILSON              COMPUTER  3 GAMES, JOYSTICKS
6735 FARICY LANE           SERVICE MANUAL,DI
PRIOR LAKE, MN  55372


ROBERT FLETT               COMPUTER
RR #1, BOX 71
LANDMARK, MANITOBA, CANADA ROA OXO    204-355-4402


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

OTHER ITEMS FOR SALE


COMPUTER ART - Computer art is a program that will draw up to
               15 drawings.  You must enter a number in the com-
               puter then the computer will draw one of 15
               drawings.  Requires use of the 8K graphics basic.
               $3.50
GOLD MINER     -Gold Miner is a program that you try to mine and
               sell as much gold as you can before the police
               find you.  If you can mine 500 lbs of gold before
               getting "caught" you win.  Comes with 3 skill
               levels, requires 8K basic or Level II, please in-
               dicate which version you need   -   $3.75
or both for $5.00.

ORDER FROM MGH SOFTWARE - BOX 645, BAYFIELD, WI   54814
```

STOCK MARKET - Plays up to 10 players at a time, each player
                invests his/her money one at a time, in one of
                the 10 stocks offered. The computer keeps track
                of the current price of each stock, and in a
                pattern, raises or lowers the price. The com-
                puter lets you know which stocks have gone up
                since the last round. It requires LEVEL II
                $7.35

THE CORPORATE WORLD - Plays up to 10 players at a time, each
                player starts with $10,000 and, through buying
                selling, quality control and hiring/firing, tries
                to be the first to reach $1 billion. Progress
                is marked through the game by a graph that shows
                the progress of the players. - $7.50

LASER COMMAND - Plays 1 or 2 players. It is a version of the
                arcade game Missle Command. Each player tries to
                shoot down the missles heading toward their towns
                with high-intensity laser. Requires Level II and
                and the 11K Leonardo graphics tape plus the left
                joystick - $7.50

PAC-ROBOT - Has three different mazes to go through and includes
                no energizers or galloping fruit, so it is harder to
                get a high score. It keeps track of the all-time
                high score and the highest score for the playing
                period. It requires LEVEL II and left joystick.
                $7.50

Or $25.00 for all of the above (4) programs

ORDER FROM DAVID BUSH, BOX 484, CREEDE, CO 81130

Small Characters - 25 characters (3x5) per line and in addition
                provides a new and more useful CHR$ set - $11

OHM Law - Solves for volts, OHMS, AMPS, watts, series and paral-
                lel resistance, and inductive and capacitive reactance
                $7

LIFE QUIZ - Life expectancy quiz used by doctors, lawyers and
                insurance companies to determine lenth of one's life
                $7

MOON LANDER - A real time lunar lander with graphics and control
                by left joystick. React in time or crash - $7

ORDER THE ABOVE (all require 8K graphics, small characters is a
        basic overlay) FROM ALVY ALBERT, 1704 CADILLAC CR. S.,
        MELBOURNE, FL 32935

ITEMS NEEDED

ED RAINSBERGER - 4715 KENTWOOD LANE - WOODBRIDGE, VA 22193

Is in need of the schematic and installation information for the
Interact 32K memory expansion. Will gladly pay postage and the
cost of reproduction.

P. SULLIVAN - 650 S. HARRISON, LAFAYETTE, CO 80026

Desparately needs a program to catalogue recipies, anyone with
such a program, please send it either to P. Sullivan or the
club and we will share it with others.

WILLIAM SCHANE - BOX -7 JUDITH'S FANCY, CHRISTIANSTED, ST. CROIX
                 US VERGIN ISLANDS   00820

Mr. Schane does not feel that Microchess is advanced enough, and
would greatly appreaciate hearing from someone who offers a
better chess game.

TIPS/ANSWERS

FROM R. THWING OF NORTH CAROLINA

A simple but colorful program in Level II Basic for the Interact

```
10 CLS
20 X=112*RND(1):Y=77*RND(1):C=7*RND(1)
30 PLOT X,Y,C
40 GOTO 20
```

FROM KENT CARROLL-11705 S. PAYSON CYN - PAYSON, UT 84651

Would like to be contacted by others & offers the following
You can connect a monitor to the point common to R-82, R-80
R79,R-79,R-81,R-78,R-56,R-83,L-6 for the signal and the shield
to common. (We do not understand this, maybe someone else will
and send us an explanation.)

FROM JAMES CALDWELL - 4826 S. 8TH ST.- ARLINGTON, VA 22204

If anyone is interested in adding a heavy duty arcade type
controller to their Interact, contact him at the above address.

Also, to answer his question (and many others who have written
in with this) - Is the Protecto RS232 Port compatible with the
Micro Video Memory upgrade of 32K basic - We do not believe it
is, if anyone has done so, please let us know.

PLEASE, SPECIAL NOTE A CHANGE OF NAME

In the May issue we published an advertisement for programs
from a Canadian Division of Software, please note that they
are now:
                    INTERSOFTWARE CANADA
                    P.O. BOX 67
                    FAUQUIER, B.C., CANADA VOG 1KO

Please address all requests for catalogs them rather than
the information published in May, 1982.

JIM PATTERSON - 334 MORNINGSIDE DR, - WAVERLY, OH 45690
                614-947-4758 (call anytime, evenings +
                weekends are best)

Offers for you to test out your modems and RS232 ports.
Also, a program exchange in his area:

                    N.I.S.E.
                    6050 CLINE CHAPEL RD.
                    WAVERLY, OH   45690

They request you send a self-addressed stamped envelope for
a reply.

A tip from us, you cannot use the name of INTERACT this is a
"registered" name. Please, check before using any name as
there can be legal repurcussions.

INTERACT COLORS
                ....BY W. J. MOORE - 571 S. BROADWAY -
                                 PITTSBURG, CA   94565

        The following programs can be used in Level II or 8K. It
        displays twenty-two colors. The main idea is to mix two
        different colors to produce a third color. This is accomplished
        by alternating the two colors in shortest loop possible. Better
        results should be accomplished with machine language.

```
10 DATA INTERACT COLORS,"","",""
20 DATA BY
30 DATA W.J. MOORE
40 DATA PITTSBURG
50 DATA CALIFORNIA
60 DATA THE INTERACT HAS
70 DATA MORE THAN EIGHT
80 DATA COLORS!!,""
90 DATA TO OBTAIN THESE
100 DATA OTHER COLORS
110 DATA SEE LINE-700,""
120 DATA TWO COLORS ARE
130 DATA MIXED IN A
140 DATA TIGHT LOOP.,""
150 DATA THIS CAUSES SOME
160 DATA BLINKING BUT
170 DATA MAY HELP NON-
180 DATA MOVING GRAPHICS
190 DATA FOLLOWING ARE
200 DATA EXAMPLES OF MIX
210 DATA TECHNIQUE.,""
220 DATA 3,5,1,1,1,0,1,3,3,3,1,2,3,6,3,2,2,0,2,2,2,6
230 DATA 6,6,6,0,4,6,4,2,4,0,4,4,5,6,4,5,5,5,4,1,5,1,9,9
240 CLS
250 COLOR7,7,7,0
260 WINDOW29
270 A=1:B=2:GOSUB510
280 A=1:B=0:GOSUB510
290 A=4:B=2:GOSUB510
300 A=3:B=5:GOSUB510
310 A=2:B=0:GOSUB510
320 A=1:B=3:GOSUB510
340 CLS
350 OUTPUT"INTERACT",24,47,1
360 OUTPUT"COLORS",30,41,1
370 RESTORE220
380 READA,B
390 IFA=9THEN440
400 OUTPUTA,20,29,2
```

```
410 OUTPUTB,60,29,3
420 GOSUB700
430 GOTO380
440 CLS
450 OUTPUT"SEE AGAIN?",18,47,3
460 IFINSTR$(1)="Y"THEN340
470 CLS
480 WINDOW77
490 COLOR0,3,4,7
500 LIST700
510 FORX=53TO35STEP-6
520 READA$
530 OUTPUTA$,6,X,1
540 NEXT
550 GOSUB700
560 CLS
570 RETURN
700 FORI=1TO200
710 COLOR7,A,A,B
720 COLOR7,B,A,B
730 NEXT
740 COLOR7,7,7,0
750 PRINT
760 RETURN
```

****

SLOT MACHINE
.........FROM C. HOGLIN - 3909 ORANGE LAKE DR.
ORLANDO, FL 32817

This program requires Microsoft 8K basic.

```
10 REM-SLOT MACHINE BY C. HOGLIN
20 CLS:COLOR 6,7,1,0
30 OUTPUT"SLOT MACHINE",21,47,3
40 PLOT 40,21,1,31,9:PLOT 49,21,0,2,9:PLOT 60,21,0,2,9
50 OUTPUT"*",42,27,2:OUTPUT"X",53,27,2:OUTPUT"0",64,27,2
60 FORQ=1TO1000:NEXT
70 CLS
80 PRINT"INSTRUCTIONS?":I$=INSTR$(1)
90 IFI$="Y"THEN410
100 CLS:GOTO540
110 A=RND(-PEEK(24559))
120 WINDOW 36
130 A$=CHR$(7)
140 FORX=1TO5:READ N$(X):NEXT
150 SOUND2,24
160 FORQ=1TO5
170 PLOT 40,47,1,31,9:PLOT 49,47,0,2,9:PLOT 60,47,0,2,9
```

```
180 OUTPUTN$(1),42,53,2:OUTPUTN$(2),53,53,2:OUTPUTN$(3),64,53,2
190 OUTPUTN$(1),42,53,1:OUTPUTN$(2),53,53,1:OUTPUTN$(3),64,53,1
200 OUTPUTN$(2),42,53,2:OUTPUTN$(3),53,53,2:OUTPUTN$(4),64,53,2
210 OUTPUTN$(2),42,53,1:OUTPUTN$(3),53,53,1:OUTPUTN$(4),64,53,1
220 OUTPUTN$(3),42,53,2:OUTPUTN$(4),53,53,2:OUTPUTN$(5),64,53,2
230 OUTPUTN$(3),42,53,1:OUTPUTN$(4),53,53,1:OUTPUTN$(5),64,53,1
240 OUTPUTN$(4),42,53,2:OUTPUTN$(5),53,53,2:OUTPUTN$(1),64,53,2
250 OUTPUTN$(4),42,53,1:OUTPUTN$(5),53,53,1:OUTPUTN$(1),64,53,1
260 OUTPUTN$(5),42,53,2:OUTPUTN$(1),53,53,2:OUTPUTN$(2),64,53,2
270 OUTPUTN$(5),42,53,1:OUTPUTN$(1),53,53,1:OUTPUTN$(2),64,53,1
280 NEXT
290 FORX=1TO3:A(X)=INT(5*RND(1))+1:NEXT
300 OUTPUTN$(A(1)),42,53,2:OUTPUTN$(A(2)),53,53,2:OUTPUTN$(A(3)),64,53,2
310 SOUND7,4096
320 T=T+1
330 IFA(1)<>A(2)THEN380
340 IFA(2)<>A(3)THEN370
350 IFA(1)=5THENPRINTA$;"BIG WINNER!   $ 20":M=M+20:GOTO560
360 PRINTA$;"3 IN A ROW.   $ 5":M=M+5:GOTO560
370 PRINTA$;"YOU WIN $ 2":M=M+2:GOTO560
380 IFA(1)=1THENPRINTA$;"YOU WIN $ 1":M=M+1:GOTO560
390 PRINT"NOTHING WON.":GOTO560
400 DATA*,0,X,8,I
410 CLS:PRINT"PRESS LEFT FIRE  BUTTON FOR NEW    SCREEN"
420 GOSUB610
430 OUTPUT"YOU HAVE TWENTY  SILVER DOLLARS TO",6,68,1
440 OUTPUT"PLAY THE SLOT MA-CHINE.",6,56,1
450 OUTPUT"HERE'S HOW YOU    CAN WIN:",6,38,1
460 GOSUB610
470 OUTPUT"IF SYMBOL 1 IS *,YOU WIN $1.00.",6,68,1
480 OUTPUT"IF SYMBOLS 1 AND 2 ARE THE SAME,   YOU WIN $2.00.",6,50,1
490 OUTPUT"IF SYMBOLS 1, 2, AND 3 ARE THE",6,26,1
500 OUTPUT"SAME, YOU WIN     $5.00.",6,14,1
510 GOSUB610
520 OUTPUT"IF SYMBOLS 1, 2, AND 3 ARE 'I',YOUWIN $20.00.",6,68,1
530 FORQ=1TO2000:NEXT
540 OUTPUT"PRESS LEFT FIRE  BUTTON TO START",6,29,3
550 GOSUB610:GOTO110
560 IFT=20THENFORQ=1TO600:NEXT:PRINT:PRINT:PRINT:PRINT
570 IFT=20THENPRINT"YOU HAVE SPENT    YOUR ORIGINAL $20"
580 IFT=20THENFORQ=1TO1000:NEXT:PRINT:PRINT:PRINT
590 IFT=20THENPRINT"   YOU HAVE WON":PRINTSPC(5);"$";M:GOTO630
600 GOSUB 610:GOTO150
610 IFFIRE(0)=0THENCLS:RETURN
620 GOTO610
630 FORQ=1TO1000:NEXT:PRINT:PRINT"   PLAY AGAIN?"
640 FORQ=1TO600:NEXT:OUTPUT"(PRESS BUTTON)",15,11,3
650 GOSUB610:RUN130
```

```
************************************************************************

      DECIMAL TO HEX
            ............ ORIGINALLY BE R. O. DAVIDSON
                         This version from R. G. YOUNG OF OREGON

      This is a version of Mr. Davidson's program previously published
      however, it is shorter and contains a couple of modifications.



5 REM-REVISED BY DICK YOUNG,JULY82
10 CLEAR:CLS:PRINT" CONVERT HEX-DEC"
20 PRINT
30 PRINT"DECIMAL TO HEX-1"
40 PRINT"HEX TO DECIMAL-2"
50 PRINT"---END---    - 3"
60 PRINT:PRINT
70 PRINT"ENTER 1, 2, OR 3"
80 A$=INSTR$(1)
90 IFA$="1"GOTO430
100 IFA$="2"GOTO130
110 IFA$="3"THENCLS:CLEAR:END
120 GOTO70
130 CLEAR:CLS
140 DIMX$(4)
150 DIMX(4)
160 PRINT"HEX TO DECIMAL"
170 PRINT
180 PRINT" PRESS CR TO"
190 PRINT"ENTER NUM. LIKE"
200 PRINT"THIS ? 7":PRINT"      ? F":PRINT"      ? F":PRINT"      ? F"
210 PRINT
220 FORI=1TO4
230 INPUT"NUM.-";X$(I)
240 IFX$(I)=""THENCLS:PRINT"----BAD NUM----":GOTO190
250 NEXT
260 FORI=1TO4
270 X(I)=ASC(X$(I))
280 IFX(I)=>71THENCLS:PRINT"----BAD NUM.----":GOTO190
290 IFX(I)>47ANDX(I)<58THENX(I)=X(I)-48:GOTO310
300 IFX(I)>64ANDX(I)<71THENX(I)=X(I)-55
310 NEXT
320 X(1)=X(1)*4096
330 X(2)=X(2)*256
340 X(3)=X(3)*16
350 PRINT:PRINT
360 S=X(1)+X(2)+X(3)+X(4)
370 PRINT"DECIMAL=";S
380 PRINT:PRINT
390 PRINT"   AGAIN, Y OR N"
400 A$=INSTR$(1)
```

```
410 IFA$="N"THENCLS:GOTO30
420 GOTO130
430 CLEAR:CLS
440 DIMP(3)
450 PRINT" DECIMAL TO HEX"
460 PRINT:PRINT
470 A=4096:B=256:C=16

480 INPUT"DECIMAL IS";X
490 IFX>65535GOTO480
500 PRINT:PRINT
510 IFX<4096THENT1=XANDP(1)=0:GOTO570
520 A1=X/A
530 P(1)=INT(A1)
540 S1=A1-P(1)
550 T1=A*S1
560 IFT1<256THENT2=T1ANDP(2)=0:GOTO620
570 A2=T1/B
580 P(2)=INT(A2)
590 S2=A2-P(2)
600 T2=B*S2
610 IFT2<16THENT3=T2ANDP(3)=0:GOTO660
620 A3=T2/C
630 P(3)=INT(A3)
640 S3=A3-P(3)
650 T3=C*S3
660 FORI=1TO3
670 IFP(I)<10THENP(I)=P(I)+48:GOTO690
680 IFP(I)>9THENP(I)=P(I)+55
690 NEXT
700 IFT3<10THENT3=T3+48:GOTO720
710 IFT3>9THENT3=T3+55
720 PRINT"    HEX=";CHR$(P(1));CHR$(P(2));CHR$(P(3));CHR$(T3)
730 PRINT:PRINT
740 PRINT"   AGAIN. Y OR N"
750 A$=INSTR$(1)
760 IFA$="N"THENCLS:GOTO30
770 GOTO430
```

NATIONAL INTERACT COMPUTER CLUB

---
* 515 W. Shadylane, Barrington,Illinois-60010:Joe Badger-Pres. *

OCTOBER 1982

Just a brief notice, watch for the 1983 club application in the
November and December issues. NOTE: The club will be under a
new president next year. More information in the November
issue.

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```
----------------------------------------------------------------

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


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


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----------------------------------------------------------------
```

```
--------------------------------------------------------------------
TIPS
--------------------------------------------------------------------
```
The following article was written by Harry Holloway

GRAPHICS-MX80
PRINTING THE INTERACT SCREEN

During the past year I have had many enquiries about the use of
the Epson MX80 graphics features. The result is these notes,
which describe two techniques for getting a printout of the
Interact's video display. The examples are set up for the MX80,
but they could be reworked for several other printers by
changing the control codes. The program examples are in BASIC.
This gives a rather slow printout. (About 8 minutes for the
first method and about 12 minutes for the second.) Machine code
would be faster, but less accessible to the average user.

I assume that the reader has a serial output port and a BASIC
with suitable printer drivers (i.e. Level II or 8K plus a
printer overlay or RS232 BASIC). The RS232 port should be set
up to transmit 8 data bits (the printer overlay should have doc-
umentation that describes how to do this either with an explicit
command or with a POKE) and the serial board in the MX80 should
be set to pass all 8 data bits. The method for this is
different for different serial boards and it should be described
in the documentation. My early 2K buffered serial board has an
8-fold dipswitch with switch 4 passing the high-order bit when
off and zeroing it when on. (CAUTION! The documentation that I
received from Epson had all of the switch positions reversed
from their actual values.) A later version of the same board
has two dipswitches and accurate documentation.

Suppose that BASIC and a suitable printer driver have been
loaded and that the serial port has been initialized. Now, set
the overlay program so that further PRINT statements go to the
printer, but not to the screen. (For RS232 BASIC replace the
following PRINT statement with LPRINT.) Generate a picture on
the screen, either by loading a banner from tape or by loading
and running a program. Now the picture may be dumped to the
printer by loading and running one of the following programs.

The first example is based on the TRS80-style block graphic
symbols that are available with the Epson MX80 with its original
ROM or with the early Graftrax ROM's but not with the later
Graftrax plus ROMs. The block graphic characters are formed by
making all permutations of filled squares in a 2 by 3 array that
occupies a single character position. Fortunately, the 64
possibilities are arranged in a convenient sequence. The base
value for the ASCII code that corresponds to all of the squares
blank is 160. To this we must add a value for each nonblank
square.

```
 -------------------------
 :           :           :
 :   2⁰=1    :   2¹=2     :
 :           :           :
 -------------------------
 :           :           :
 :   2²=4    :   2³=8     :
 :           :           :
 -------------------------
 :           :           :
 :   2⁴=16   :   2⁵=32    :
 :           :           :
 -------------------------
```

As shown in the diagram, the numbers to be added double as we
read across and down the block. This leads to a simple screen
dump in which we print out the screen 6 pixels at a time.


```
100 PRINT: REM  MAKE SURE AT LEFT MARGIN
110 D=2: REM 2 ASSIGNED TO VARIABLE FOR SPEED
120 CO=160: REM  BASE FOR CHARACTER SET
130 FOR Y=75 TO 3 STEP -3:REM SCAN DOWN IN 3-ROW BLOCKS
140 FOR X=2 TO 108 STEP 2:REM SCAN ACROSS IN 2-COLUMN BLOCKS
150 C=CO: F=1
160 FOR J=0 TO 2:REM SUM CONTRIBUTIONS FROM 6 PIXELS
170 FOR I=0 TO 1
180 C=C+F*SGN(POINT(X+I,Y-J))
190 F=D*F
200 NEXT I,J
210 PRINT CHR$(C);:REM PRINT THE 6-PIXEL BLOCK
220 NEXT: REM LOOP ACROSS THE TRIPLE ROW
230 PRINT:REM STEP DOWN FOR NEXT ROW
240 NEXT:REM LOOP FOR NEXT TRIPLE ROW.
```


The logic of this needs no comment. The screen gets transferred
but we lose the color information. The background comes out
white and everything else is black. This works out fine for
graphs, see example 1, but it isn't too attractive for pictures.

With either of the sets of Graftrax ROMs we can use bit-mapped
graphics to make a screen dump that distinguishes colors. A
program that does this is listed on the next page.

Example 1
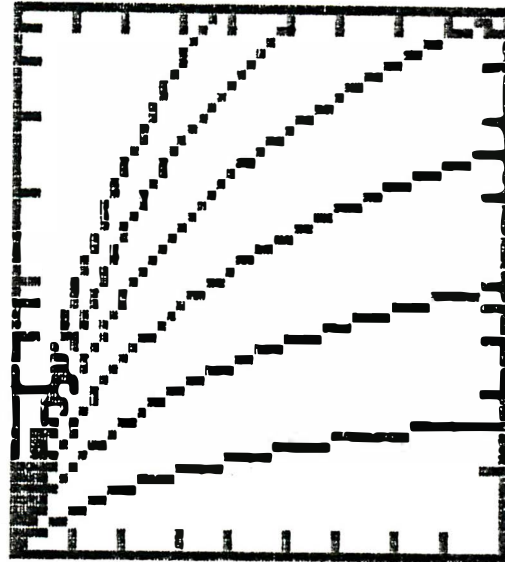

```
0 DIM C(3,5): REM ARRAY FOR DOTS IN COLORED PIXELS
5 POKE 19215,25: REM ENABLE PEEK AND POKE
10 FOR I=0 TO 3: REM READ VALUES FOR DOT POSITIONS IN PIXEL
20 FOR J=0 TO 5
30 READ C(I,J)
40 NEXT J,I
50 X1=2: X2=108: REM RANGE OF X TO DUMP
60 Y1=5: Y2=75: REM RANGE OF Y TO DUMP
70 NC=6*(X2-X1+1):REM NUMBER OF DOTS IN A ROW
80 LH=INT(NC/256): REM HIGH BYTE FOR NC
90 LL=NC-256*LH: REM LOW BYTE FOR NC
100 A=-16384: REM PORT OUTPUT ADDRESS FOR MV PORT
110 PRINT: REM GET TO LEFT MARGIN
120 PRINT CHR$(27);"3";CHR$(24);:REM SET 24/216" LINE SPACING
130 FOR Y=Y2 TO Y1 STEP -2: REM 2 PIXELS PER ROW
140 PRINT CHR$(27);"L";CHR$(LL);CHR$(LH);:REM SET UP FOR NC BYTES
150 FOR X=X1 TO X2: REM STEP ACROSS THE DOUBLE ROW OF PIXELS
160 CH=POINT(X,Y):REM COLOR OF TOP PIXEL
170 CL=POINT(X,Y-1):REM COLOR OF BOTTOM PIXEL
180 FOR I=0 TO 5:REM 6 BYTES ACROSS A PIXEL
190 CC=C(CL,I)+16*C(CH,I): REM 4 DOTS VERTICALLY FOR EACH PIXEL
200 POKE A,CC: REM SEND TO PORT
210 NEXT I,X: REM FINISH ROW
220 PRINT: REM STEP DOWN TO NEXT DOUBLE ROW
230 NEXT: REM LOOP THROUGH ROWS
240 PRINTCHR$(27);CHR$(64);:REM RESET PRINTER DEFAULT VALUES
500 DATA 0,0,0,0,0,0: REM VALUES FOR COLOR 0 = BACKGROUND
510 DATA 1,8,0,4,0,2: REM COLOR 1
520 DATA 5,9,10,6,3,12: REM COLOR 2
530 DATA 15,15,15,15,15,15: REM COLOR 3
```

Example 2
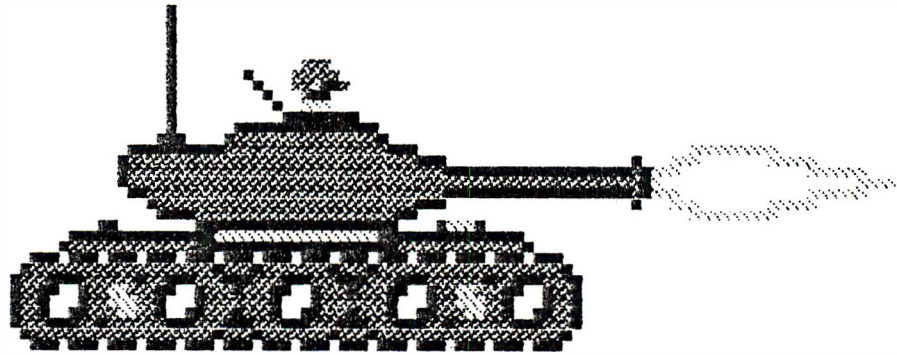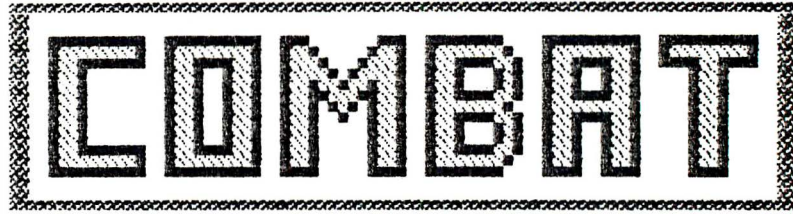
The example above is a banner that was stripped from a game tape (with Tapemaster).

The routine does require a little additional comment. Each poke puts out a column of 8 dot positions some of which may be blank. If the number poked is expressed in binary, the dot positions that are printed correspond to the one bits with the low-order bit corresponding to the lowest dot position. The top 4 dots are in one pixel and the other 4 dots are in the pixel immedi-tely beneath it. Six adjacent columns are used to print the pair of pixels.

At first glance it might seem that one could use a PRINT state-ment instead of a POKE to put out the column. Usually this will not work because we will need to put out a row of over 600 columns. Most PRINT routines will not allow such a long line of characters without interjecting unwanted carriage return/line feeds.

The address that is POKEd is the output register of the port. Here we have used in line 100
          A = -16384 for the Microvideo port.
The alternative is
          A = -9 for the Slagh (Protecto) port.
In principle, we should test that the port is ready before sending out each value. However, BASIC runs so slowly that we can get away without this complication. The BASIC equivalents of the tests that wold be needed in a machine language program are:

```
          193 IF PEEK(A+6) AND 16 = 0 GOTO 193
          196 IF PEEK(A+5) AND 32 = 0 GOTO 193
          for the MV port and
          193 IF PEEK(A-1) AND 10 <> 2 GOTO 193
          for the Slagh port.
```

The DATA statements 500-530 give the pixel maps that I chose for
the colors. For colors 0 through 3, the 6*4 block for a square
pixel contains 0,4,12, and 24 dots.

To adapt this program for the Sabre port the PRINT statements
must be replaced with calls to a machine-language subroutine via
the USR function. The resulting program will not need a printer
overlay to be present.

In the program above delete line 100 and replace or insert the
following lines:

```
7 GOSUB 300
110 B=USR(13):B=USR(10)
120 B=USR(27):B=USR(51):B=USR(24)
140 B=USR(27):B=USR(76):B=USR(LL):B=USR(LH)
200 B=USR(CC)
240 B=USR(27):B=USR(64)
300 POKE 19473,9:REM POKE IN USR ADDRESS
310 POKE 19474,74
320 FOR I=18953 TO 19028:REM POKE IN USR ROUTINE
330 READ J
340 POKE I,J
350 NEXT
360 RETURN
390 REM BYTES FOR USR ROUTINE
400 DATA 205,178,106,123,243
402 DATA 229,213,197,245,245
404 DATA 58,7,56,254,239
406 DATA 194,19,74,33,219
408 DATA 95,126,246,128,119
410 DATA 62,255,50,0,48
412 DATA 22,1,205,60,74
414 DATA 241,22,8,205,59
416 DATA 74,175,22,1,205
418 DATA 60,74,195,114,1
420 DATA 47,15,95,230,128
422 DATA 174,50,0,16,1
424 DATA 36,1,13,194,71
426 DATA 74,5,194,71,74
428 DATA 21,200,123,195,60
430 DATA 74
```

The USR routine is the standrd Sabre port driver prefixed with
the two instructions   CALL 6AB2   MOV A,E
that transfer the agrument of the USR function to the A register
for use by the Sabre routine.   Three of the data values above
are underlined.   These are user changeable.   The first, in line
412, specifies the number of stop bits.   The others, in line
424 are the low-order and high-order bytes of the baud rate
divisor (set here for 2400 baud).

I have put the USR routine at 4A09.   This will be out of the way
of everything except the CLOAD* and CSAVE* routines, which will
clobber the code if they are used.

****
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```
************************************************************
                                           PROGRAMS

************************************************************

PROGRAM TO PRODUCE SIMPLE LETTERS AND DOCUMENTS
               .................BY CHUCK SHADE OF LEETSDALE, PA 15056


10 REM --- PROGRAM TO PRODUCE SIMPLE LETTERS AND DOCUMENTS ---
15 REM -- BY CHUCK SHADE, LEETSDALE, PA 15056 --
20 CLS
30 PRINT"PROGRAM FOR":PRINT"SIMPLE DOCUMENTS"
40 PRINT:PRINT"TO ENTER TEXT":PRINT"TYPE CONTROL C"
50 PRINT:PRINT"ENTER TEXT WITH":PRINT"LINE NUMBERS"
60 PRINT"BEGINNING 1000":PRINT"END BEFORE"
70 PRINT"LINE 5000":PRINT:PRINT"THEN TYPE"
80 PRINT"'RUN 200'"
85 PRINT:PRINT"ALIGN PAPER"
90 FOR J = 1 TO 5000:NEXT J: CLS: GOTO 40
200 CLS:PRINT"REVIEW ON SCREEN": INPUT"Y/N";Q$
203 IF Q$="Y" GOTO 1000
206 PRINT:INPUT"NUMBER OF COPIES ==>";N:I=0
210 PRINT A$=PORTS(A$,14): REM -- TURNS ON PRINTER
215 PRINT CHR$(27)"1": REM -- SETS NARROW VERTICAL SPACING
220 PRINT:PRINT:PRINT
300 REM -- LINES 1000 TO 4999 FOR TEXT --
310 REM -- BEGIN EACH LINE WITH NUMBER AND "PRINT" OR "?"  --
320 REM -- ENCLOSE TEXT IN QUOTES --
1000 REM
4999 REM
5000 IF Q$="Y" THEN GOSUB 7000:Q$="N":GOTO 206
5005 I=I+1
5010 IF I=N GOTO 6000
5020 GOTO 220
6000 PRINTA$=PORTS(A$,0):REM TURNS OFF PRINTER
6005 CLS:PRINT"--";N;"--"
6010 PRINT:PRINT"DOCUMENTS":PRINT"PRINTED":PRINT
6020 PRINT"IF MORE COPIES":PRINT"WANTED - TYPE"
6030 PRINT"'RUN 200'":PRINT
6040 PRINT"HAVE A NICE DAY"
6050 END
7000 REM - SUBROUTINE FOR CHECKING TEXT
7010 INPUT"ERRORS? Y/N ==>";Q$
7013 IF Q$="N" GOTO 7050
7017 PRINT"IF SO, TYPE"
7020 PRINT"'CONTROL C'":PRINT"THEN 'LIST 1000' "
7030 PRINT"FOR LINE NUMBERS":PRINT"THEN CORRECT"
```

(continued)

```
7040 FOR J=1TO8000 :NEXT J:REM - 15 SECOND WAIT
7050 RETURN
8000 REM
8010 REM
8030 REM -- VARIABLE LIST
8040 PRINT
8050 REM -- J = TIMING LOOP INDEX
8060 REM -- Q$ = ANSWER TO YES/NO QUERIES
8070 REM -- N = NUMBER OF COPIES WANTED
8080 REM -- I = INDEX TO COUNT COPIES PRINTED
```

****

BYTE-CHECK
............................FROM E. C. VAN EVERY OF NEW YORK

```
10 CLS
20 WINDOW 11
30 POKE 19215,25
40 INPUT "INPUT OR OUTPUT";A$
50 OUTPUT A$,10,60,1
60 OUTPUT "CHECK",60,60,1
70 INPUT "LOCATION";N
80 OUTPUT "LOCATION",10,40,1
90 OUTPUT N,60,40,1
100 IF A$="INPUT" THEN 190
110 D=0
120 FOR X = 0 TO 7
130 PRINT "BIT";X;:INPUT B(X)
140 OUTPUT B(X),65-X*6,20,1
150 D=D+B(X)*2   X
160 NEXT
170 POKE N,D
180 END
190 D=PEEK(N)
200 IF DL=D THEN 190
210 DL=D
220 FOR X = 7 TO 0 STEP -1
230 B(X)=INT(D/2   X)
240 D=D-B(X)*2   X
250 L=65-X*6
260 OUTPUT CHR$(1),1,20,0
270 OUTPUT B(X),1-6,20,1
280 NEXT
290 GOTO 190
```

```
===============================
I M — 1    M I L L I O N
in a
===============================
```
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23K APF IM-1 COMPUTER FACTORY PACK. Everything you get for $239.00 plus "BASIC TUTOR program" on two tape cassettes with manual to teach you how to cut programming time, "PROGRAMMING AND TECHNICAL ASSISTANCE MANUAL" for Graphics, Machine Language-Memory maps, Schematics and Parts List. Also you get the popular "SPACE DESTROYERS Program."	698.00	289.00
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MX-80 EPSON LINE PRINTER. Deluxe quality: Impact dot matrix-bi-directional, 40-80-66 132 columns-uses regular paper. ~~WITH GRAPHICS~~ 2K BUFFER (20.00 shipping)	726.00	~~$239.00~~ $129.00 $212.00 114.00
TM-150 TELEPHONE MODEM. Best quality: Transmit receive full duplex, switches! Originate-off-answer. (4.00 shipping)	199.00	~~129.00~~ $49.50
FI-100 DISK INTERFACE. Plug into interface port - allows you to connect the floppy disk drive. ($3.00 shipping)	149.00	~~79.50~~ $299.00
D-100 MINI FLOPPY DISK DRIVE. Plugs into interface - has its own power supply and controller - uses no RAM memory, give you 72,000 Bytes of additional data storage, plus instant loading and accessing of data. (7.50 shipping)	599.00	~~399.00~~

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PROGRAMMING AND TECHNICAL ASSISTANCE MANUAL. 100 pages, graphics, memory maps, machine language, schematics, and parts list.	19.95	~~14.95~~ $9.45
6800 MACHINE LANGUAGE EDITOR AND ASSEMBLER. This disk program is used to create source code file - this file is then used as the assembler - simplifies entry or editing, adding, deleting, change in lines, etc.	59.95	~~29.95~~ $19.45
6800 MACHINE LANGUAGE DISASSEMBLER. This disk enhances creation, debugging, and recording of machine language.	19.95	~~14.95~~ $9.45
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NOVEMBER/DECEMBER 1982

*******ATTENTION*******

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JOIN 1983 NATIONAL INTERACT COMPUTER CLUB NOW - FOR MORE INFORM-
ATION SEE PAGES 11 AND 12.

REMEMBER - This is the last issue that will be published under
the current president. So, forward all future correspondence
to the address listed on pages 11 and 12.

QUESTIONS/ANSWERS

FROM MARK ROODVOETS

Q. What are the settings of all dip switches and jumpers for an
    MX-80 to run if off an RS232-C?

A. The settings of our dip switches are: 1-off; 2-on; 3-off,
    4-7 - on; 8-off. We purchased our RS232-R from Protecto
    about 2 1/2 years ago and at that time we even had to rewire
    the port plug. If this does not help you, maybe we can ask
    other clubmembers to help us out.

FROM GLEN JORDAN

Q. Where can I get a ROM chip for my Interact Level II?

A. The only place we can think to refer you is to call or write
    Micro Video - P.O. Box 7357, 204 E. Washington St., Ann
    Arbor, MI 48107 - 313-996-0626. Hope they can help.

QUESTIONS/ANSWERS (continued)

FROM DAVID MILLER

Q. We are not really to sure what your question was, we will
    put it out to other clubmembers, however, we would like
    you to clarify it for us.

    I would like to know how to gain access and use the
    routine in the ROM chip that generates the character size.

Mr. Miller also stated - for Mrs. Richard Ridinger - The
machine language program he is working on is much like Pac-Man.
The only problem he is having is the printing of the scores,etc.
otherwise, he's almost finished.

FROM MATT O'KEEFE

Q. 1. If I purchase your direct-connect modem, would I have to
      buy additional phone lines or anything.

A.   No, but if you use your home phone lines (that which
      you normally use) be advised that an incoming call to
      that line, while you are teleprocessing, will disconnect
      you.

Q. 2. Is the direct-connect modem identical to the Star Acoustic
      modem, except for the coupler?

A.   We are not sure what you mean, we have a direct connect
      that is just a box that has a line going into the computer
      (your RS232 port) and a line that plugs directly into the
      telephone jack.

Q. 3. How would I be able to send or receive Basic or Machine
      Language programs with other Interact owners?

A.   You will need special software to download programs
      (receive) as well as to upload (transmit) programs to
      your friends. Our Interact is not hooked up to a modem,
      maybe other clubmembers can offer assistance.

Q. 4. Where can I contact P. Klopp?

A.   You can write Mr. Klopp at the Interact Software -
      Canadian Division, see the Sale section of this
      newsletter.

```
********************************************************************

   FOR SALE

********************************************************************


   FROM LANCE PERRY
        P.O. BOX H
        DUXBURY, MA   02332

   RS232 PORT + 2 TAPES                          best offer

   Star Track        Mondom for RS232
   Ezedit            Message Center
   EDU-Basic         Biorythm
   Graphic subroutines   Music Maestro          tapes $10 each

   32K-Interact                                  no price stated

   -----------------------------------------------------------------
```

MORSE TERMINAL PROGRAM

Copyright 1982
J. A. Miller N4BE
P.O. Box 455
Melbourne, Fla 32901

THIS MACHINE LANGUAGE PROGRAM CONVERTS THE INTERACT INTO A MORSE COMMUNICATIONS TERMINAL WITH TRANSMIT AND RECEIVE CAPABILITY. SIMPLY LOAD THE CASSETTE AND THE TERMINAL INITIALIZES READY TO RECEIVE OR TRANSMIT. A FIXED STATUS PARTITION ON THE SCREEN CONTINUOUSLY DISPLAYS PROGRAM STATUS (CODE SPEED, BUFFER DEPTH, ETC.). A FAST SCROLL PARTITION DISPLAYS TRANSMITTED (TYPED) AND RECEIVED CHARACTERS. TWO CHARACTER SIZES (3X5 OR 5X5) CAN BE SELECTED BY KEYBOARD COMMAND. THE 3X5 SIZE PROVIDES FOR 28 CHARACTERS PER LINE.

START TYPING AND THE UNIT BEGINS SENDING WITH PRECISE DOT, DASH, CHARACTER AND WORD SPACING. A SIDETONE IS PROVIDED VIA THE TV MONITOR SPEAKER. TRANSMIT SPEEDS (4-60 WPM) AND OTHER FUNCTIONS MAY BE SELECTED AT ANY TIME WITH CTRL KEYS. A 256 CHARACTER CIRCULAR BUFFER ALLOWS TYPE-AHEAD AND BACKSPACE CORRECTIONS WHILE THE UNIT SENDS FROM THE BUFFER AT THE SELECTED SPEED. A SOFTWARE "KEYBOARD DEBOUNCE" FUNCTION VIRTUALLY ELIMINATES ANNOYING DOUBLE HITS THAT PLAGUE INTERACT KEYBOARDS.

WHEN NOT TRANSMITTING, THE UNIT GOES INTO RECEIVE MODE, WHERE AN ADAPTIVE ALGORITHM WITH NOISE REDUCTION AUTOMATICALLY ADJUSTS TO RECEIVE SPEEDS FROM 8 TO 50+ WPM, RECOGNIZES MORSE DOT/DASH PATTERNS, AND DISPLAYS THE RECEIVED CHARACTERS. AUTOMATIC WORD WRAP IMPROVES SCREEN READABILITY BY REDUCING THE OCCURRENCE OF FRAGMENTED WORDS AT THE SCREEN EDGES. SUPPORT OF EITHER THE U8OM OR MICROVIDEO RS-232 PORTS IS PROVIDED FOR HARDCOPY OUTPUT. (PLEASE SPECIFY TYPE.)

TRANSMITTER KEYING IS ACCOMPLISHED BY CONNECTING ONE OF THE TAPE HEAD WRITE LINES TO AN EXTERNAL KEYING TRANSISTOR AND/OR RELAY. MARK/SPACE LOGIC LEVELS FOR RECEPTION ARE INPUT TO THE LEFT JOYSTICK "HIT" BUTTON (A/D CONVERTER). A RELATIVELY SIMPLE OUTBOARD CIRCUIT IS REQUIRED TO FILTER AND DEMODULATE THE RECEIVED AUDIO TONES AND PRODUCE THE NECESSARY ON/OFF LEVELS FOR THIS INPUT (CIRCUIT DIAGRAM INCLUDED).

FOR CASSETTE, OPERATING INSTRUCTIONS AND INTERFACING PLANS, SEND $25.00
JAMES A. MILLER, P. O. BOX 455, MELBOURNE, FL 32901.

FOR SALE (continued)

ATLANTIS - A genuine arcade game for the INTERACT. Fight inde-
             pendently running and sensing robots in the City of
             Atlantis. Raid as may data centers as possible
             before running out of fuel. The more centers you
             have raided, the greater your reward, but also the
             farther the robots will sense your presence. They
             will try to prevent you from returning to home base.
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             Price $7.00 Ask for free catalog of over 25 programs.

             FROM: INTERACT SOFTWARE CANADIAN DIVISION
                     P.O. BOX 67, Fauguier, B.C., Canada V0E 1K0

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use of each program including their individual values and con-
straints. Cost post paid is $9.95. Order from:

                  JACK HARRIS
                  P.O. Box 2521
                  Gaithersburg, MD   20879

For sale and/or exchange -

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WRITE TO: WAYNE CHEN
              7485 Hillview Dr.
              Reno, NV   89506

PROGRAMS

LIFE
................BY THOMAS CLUNE

The basic idea of the game was proposed in "SCIENTIFIC AMERICAN"
in 1970. This program is a two-person game based on the pattern
generating algorithm. The rules are:

First each player puts in a pattern of three pieces (organisms)
without the other knowing where they are placed. If both
players try to place a piece on the same square at the same time
the screen will display a SAME COORD prompt and the square will
be left blank. No new move is allowed in place of a false move.
The computer then generates a pattern based on the position of
the pieces as follows : any existing piece surrounded by two or
three other pieces continues to live (adjacent squares are con-
sidered to be the eight bordering squares, including diagonals),
any piece surrounded by more than three or less than two pieces
dies, and any empty square that is bordered by exactly three
living pieces becomes occupied by a new piece of the majority
genus. Thus the square marked "." would gain a % piece. The
players enter one new piece in the same manner as before, and
the computer calculates the next generation. Births and deaths
happen simultaneously. The game continues until one player is
eliminated, or driven into extinction. This is a difficult game
of strategy, and must be played a few times before tactical
sense begins to develop.

```
1 CLS:PRINTTAB(6);"LIFE":PRINT:PRINT
2 PRINTTAB(7);"IF":PRINTTAB(7);"IF":PRINTTAB(7);"IF":PRINT:PRINT
3 PRINTTAB(7);"IF":PRINTTAB(6);"L  E":PRINTTAB(7);"IF":PRINT:PRINT:PRINT:PRINT:C
LS
5 CLS:PRINTTAB(6);"LIFE":PRINT:PRINT:PRINT:PRINT:PRINT:PRINT:PRINT:PRINT:PRINT:F
ORI=1TO300:NEXT
10 CLS:WINDOW18
20 FORX=20TO100STEP10:FORY=19TO67:PLOTX,Y,1:NEXTY,X
30 FORY=19TO67STEP6:FORX=20TO100:PLOTX,Y,1:NEXTX,Y
40 FORX=1TO8:OUTPUTX,X*10+6,75,1:OUTPUT9-X,5,X*6+18,1:NEXT
50 FORP=1TO2
60 PRINTCHR$(47-P*5);"PLAYER";P
65 FORI=1TO500:NEXTI
70 FORT=1TO3
80 PRINT"X":A$=INSTR$(1):A=ASC(A$)-48
```

```
85  IFA<10RA>8THENPRINT"INVALID COORD";FORI=1TO500;NEXT;GOTO80
90  PRINT"Y";B$=INSTR$(1);B=ASC(B$)-48
95  IFB<10RB>8THENPRINT"INVALID COORD";FORI=1TO500;NEXT;GOTO90
98  PRINT
100 IFC(A,B)=0THENC(A,B)=P;GOTO120
115 PRINT"SAME COORD";FORI=1TO500;NEXT;C(A,B)=0
118 PRINT
120 NEXTT,P
130 FORX=1TO8;FORY=1TO8
135 P=C(X,Y)
140 IFC(X,Y)>0THENOUTPUTCHR$(47-P*5),X*10+13,72-Y*6,2
150 NEXTY,X
160 FORX=1TO8;FORY=1TO8
170 IFC(X,Y)=1THENGOSUB1000
180 IFC(X,Y)=2THENGOSUB1500
190 NEXTY,X
200 FORX=1TO8;FORY=1TO8
210 IFC(X,Y)=0THEN260
220 IFS(X,Y)=300RS(X,Y)=210THEN280
230 IFS(X,Y)=200RS(X,Y)=120THEN280
240 IFS(X,Y)=1100RS(X,Y)=300RS(X,Y)=20THEN280
250 C(X,Y)=0;GOTO280
260 IFS(X,Y)=300RS(X,Y)=210THENC(X,Y)=2
270 IFS(X,Y)=1200RS(X,Y)=30THENC(X,Y)=1
280 NEXTY,X
290 FORX=1TO8;FORY=1TO8
300 IFC(X,Y)=0THENOUTPUTCHR$(1),X*10+13,72-Y*6,0
310 IFC(X,Y)=1THENOUTPUT"*",X*10+13,72-Y*6,2;C1=C1+1
320 IFC(X,Y)=2THENOUTPUT"%",X*10+13,72-Y*6,2;C2=C2+1
330 S(X,Y)=0;NEXTY,X
332 IFC1=0ANDC2=0THENPRINT"A DRAW";GOTO920
333 IFC1=0THEN900
334 IFC2=0THEN910
335 FORX=1TO8;FORY=1TO8;C(X,Y)=C(X,Y)*3;NEXTY,X
340 FORP=1TO2
350 PRINTCHR$(47-P*5);"PLAYER";P;FORI=1TO500;NEXT
360 PRINT"X";A$=INSTR$(1);A=ASC(A$)-48
370 IFA<10RA>8THENPRINT"INVALID COORD";FORI=1TO500;NEXT;GOTO360
380 PRINT"Y";B$=INSTR$(1);B=ASC(B$)-48
385 PRINT
390 IFB<10RB>8THENPRINT"INVALID COORD";FORI=1TO500;NEXT;GOTO380
400 IFC(A,B)>2THENPRINT"INVALID COORD";FORI=1TO500;NEXT;GOTO350
410 IFC(A,B)>0THENPRINT"SAME COORD";FORI=1TO500;NEXT;C(A,B)=0;GOTO430
420 C(A,B)=P
430 NEXTP
435 PRINT
440 FORX=1TO8;FORY=1TO8
450 IFC(X,Y)>2THENC(X,Y)=C(X,Y)/3
460 NEXTY,X
```

LIFE (continued)

```
470 C1=0:C2=0:GOTO130
900 PRINT"PLAYER 2 WON":GOTO920
910 PRINT"PLAYER 1 WON"
920 FORI=1TO500:NEXT:END
1000 FORA=X-1TOX+1:FORB=Y-1TOY+1
1010 IFA=XANDB=YTHEN1050
1020 S(A,B)=S(A,B)+10
1050 NEXTB,A
1060 RETURN
1500 FORA=X-1TOX+1:FORB=Y-1TOY+1
1510 IFA=XANDB=YTHEN1550
1520 S(A,B)=S(A,B)+100
1550 NEXTB,A
1560 RETURN
```

REMEMBER

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INTERACT NEWSLETTER

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****************************************************************************

HORSE RACE
...................FROM S. E. NOVOTNY, JR., OF HAZELTON, PA


1 REM HORSE RACE WRITTEN BY S.E.NOVOTNY, JR.
4 CLS:WINDOW 20:COLOR 7,3,2,7:OUTPUT "PLEASE WAIT",20,50,2
5 FOR X = 100 TO 255:PRINT CHR$(X):NEXT:CLS:COLOR 7,3,2,1
10 CLS:WINDOW 20:COLOR 7,3,2,1
20 OUTPUT "HORSERACE",22,50,3:FOR L = 1 TO 1000:NEXT L
25 CLS
30 FOR A = 20 TO 70:FOR B = 100 TO 102:PLOT B,A,1:NEXT:NEXT
40 OUTPUT "FINISH LINE>>>>",10,70,3
50 V=64:VA=58:VB=52:VC=46:VD=40:VE=34:VF=28:C=1:CA=2:CB=3:CC=1:CD=2:CE=3
60 CF=1:H=16:HA=16:HB=16:HC=16:HD=16:HE=16:HF=16:D=1:DA=1:DB=1:DC=1:DD=1
61 OUTPUT"1",10,V,C:OUTPUT "2",10,VA,CA:OUTPUT"3",10,VB,CB
62 OUTPUT "4",10,VC,CC:OUTPUT"5",10,VD,CD:OUTPUT"6",10,VE,CE
63 OUTPUT "7",10,VF,CF
64 BB$="THE WINNER IS ":CC$="HORSE NUMBER"
70 DE=1:DF=1:AA$=CHR$(236)
71 IF LEN (AA$)=0 GOTO4
80 OUTPUTAA$,H,V,C:D=D+1
81 IF D > 2 THEN GOSUB 500
82 IF H>100 GOTO 570
83 E=E+1
90 OUTPUT AA$,HA,VA,CA:DA=DA+1
91 IF DA>2 THEN GOSUB 510
92 IF HA>100 GOTO 580
93 E=E+1
100 OUTPUT AA$,HB,VB,CB:DB=DB+1
101 IF DB>2 THEN GOSUB 520
102 IF HB>100 GOTO 590
103 E=E+1
110 OUTPUT AA$,HC,VC,CC:DC=DC+1
111 IF DC>2 THEN GOSUB 530
112 IF HC>100 GOTO 600
113 E=E+1
120 OUTPUT AA$,HD,VD,CD:DD=DD+1
121 IF DD>2 THEN GOSUB 540
122 IF HD>100 GOTO 610
123 E=E+1
130 OUTPUT AA$,HE,VE,CE:DE=DE+1
131 IF DE>2 THEN GOSUB 550
132 IF HE > 100 GOTO 620
133 E=E+1
140 OUTPUT AA$,HF,VF,CF:DF=DF+1
141 IF DF>2 THEN GOSUB 560
142 IF HF>100 GOTO 630
143 E=E+1
```

```
144 IF E > 7 GOTO 80
150 OUTPUT"PRESS ANY KEY",22,60,2:OUTPUT"TO GO",42,50,2:A$=INSTR$(1)
151 OUTPUT "PRESS ANY KEY",22,60,4:OUTPUT"TO GO",42,50,4:GOTO 80
500 OUTPUT AA$,H,V,4:GOSUB 660
501 H=H+I:OUTPUT AA$,H,V,C:RETURN
510 OUTPUT AA$,HA,VA,4:GOSUB 660
511 HA=HA+I:OUTPUT AA$,HA,VA,CA:RETURN
520 OUTPUT AA$,HB,VB,4:GOSUB 660
521 HB=HB+I:OUTPUT AA$,HB,VB,CB:RETURN
530 OUTPUT AA$,HC,VC,4:GOSUB 660
531 HC=HC+I:OUTPUT AA$,HC,VC,CC:RETURN
540 OUTPUT AA$,HD,VD,4:GOSUB 660
541 HD=HD+I:OUTPUT AA$,HD,VD,CD:RETURN
550 OUTPUT AA$,HE,VE,4:GOSUB 660
551 HE=HE+I:OUTPUT AA$,HE,VE,CE:RETURN
560 OUTPUT AA$,HF,VF,4:GOSUB 660
561 HF=HF+I:OUTPUT AA$,HF,VF,CF:RETURN
570 CLS:GOSUB 650
571 OUTPUT"1",50,30,1:GOTO 655
580 CLS:GOSUB 650
581 OUTPUT "2",50,30,1:GOTO 655
590 CLS:GOSUB 650
591 OUTPUT "3",50,30,1:GOTO 655
600 CLS:GOSUB 650
609 OUTPUT "4",50,30,1:GOTO 655
610 CLS:GOSUB 650
611 OUTPUT "5",50,30,1:GOTO 655
620 CLS:GOSUB 650
621 OUTPUT "6",50,30,1:GOTO 655
630 CLS:GOSUB 650
631 OUTPUT "7",50,30,1:GOTO 655
640 CLS:PRINT "NEW GAME?(Y/N)":B$=INSTR$(1):IF B$="Y" GOTO 10
641 IF B$="N" THEN CLS:WINDOW 77:COLOR 7,3,2,1:END
650 FOR X = 1 TO 6:READ F:READ G:TONE F,G:NEXT X:RESTORE
651 DATA 77,100,60,117,49,128,35,142,43,134,35,426
652 OUTPUT BB$,20,50,3:OUTPUT CC$,20,40,2:RETURN
655 FOR L=1 TO 1000:NEXT L:GOTO 640
660 I=INT(RND(1)*6)+1:RETURN
```