TI CLUB MEETINGS

THE WASHINGTON DC AREA TI HOME COMPUTER USERS GROUP

The Washington DC Area TI Home Computer Users Group meets monthly. The regular meeting night is the second Thursday of each month. The MEETING for JUNE will be held on the regular THURSDAY SCHEDULE at 7:00 PM, JUNE 14th. This meeting will be held at the FAIRFAX HIGH SCHODL. For directions or other info Call Frank Jordan at (301) 899-3882 or Jim Horn at (301) 340 - 9617.

TIBUG - THE BALTIMDRE USERS GROUP

The Baltimore Group meets the FIRST TUESDAY of each month at the PINEGRDVE ELEMENTARY SCHOOL in Parkville, Md. at 7:00PM.

HAGERSTOWN - WILLAIMSPORT TI USERS GROUP

Meetings are held at the WILLIAMSPORT MEMORIAL LIBRARY on the 4th FRIDAY of each month. Also a free INSTRUCTIONAL MEETING is held on the 2nd FRIDAY each month. Meetings start at 7:00PM. For more info call Sam Williams at (301) 223-8014., or Phil Shew at (301) 739-7091.

MONTGOMERY COUNTY TI USERS GRDUP

The Group meets at The SLIGO INTERMEDIATE SCHOOL, in the Library at 7:30PM. The regular meeting night is the 4th THURSDAY of each month. For more information call ALLEN MINTDN at (301) 493-4502 or DAVE HILL at (703) 941-6876. Either number may be called without toll from Washington DC area. Next meeting THURSDAY, JUNE 28th.

BOWIE - CROFTON TI USERS GROUP

The BOWIE - CROFTON Group meets on the THIRD WEDNESDAY of each month. The meetings will be held at the Help Others Help Social Hall in the Bowie Plaza Shopping Center on Rt 197 in Bowie, Md. The meetings start at 7:00PM. For info or directions call Chris Goodman at 262-5570

SEVERNA PARK TI USERS GROUP

The Severna Park TI Users Group's next meeting will be held at the SEVERNA PARK LIBRARY on McMinsey Rd. near Md. Rt. 2, across from the Severna Park Shopping Center at 7:00PM on FRIDAY, JULY 6, 1984. For more info call Randall Rainey at 841-5375.

TEXAS INSTRUMENTS PROFESSIONAL COMPUTER USERS GROUP

The next meeting in the Washington DC Area of the TI-PC Users Group will be held on WEDNESDAY, JUNE 6,1984 at THE SLIGO INTERMEDIATE SCHOOL, on Dennis Ave., in Silver Spring , Md. For more information call David Harris at (202) 244-7477. The meeting starts at 7:30PM. If you have a PC this will be the don't miss this meeting. This months demo will be on LOTUS 1-2-3.

I. INTRODUCTION TO JOYSTICKS
    A. TI presently supports two Joysticks (four are possible)
    B. Normally, Joysticks can return 10 variables
        1. Eight directions
        2. Center position
        3. Fire button
    C. Joysticks are basically used as an input device so the user can interact with
        running programs: ie.: game inputs

II. SIX TI LANGUAGES SUPPORT JOYSTICKS (possibly seven since I don't know Pascal)
    A. BASIC and EXTENDED BASIC use joysticks the same way
        1. CALL JOYST(unit #, x-variable, y-variable)
           a. Unit # = 1 or 2 (although 3 and 4 are possible)
           b. X-variable returns a 4, -4, or 0
           c. Y-variable returns a 4, -4, or 0

BASIC/XBASIC JOYST

LOGO I/LOGO II JOY
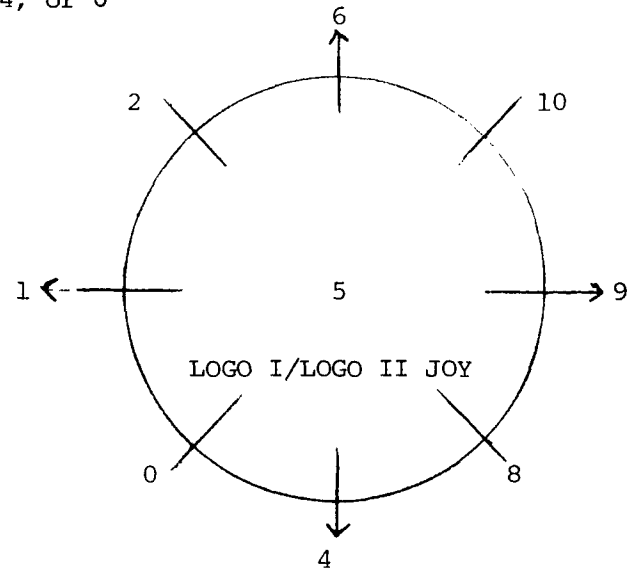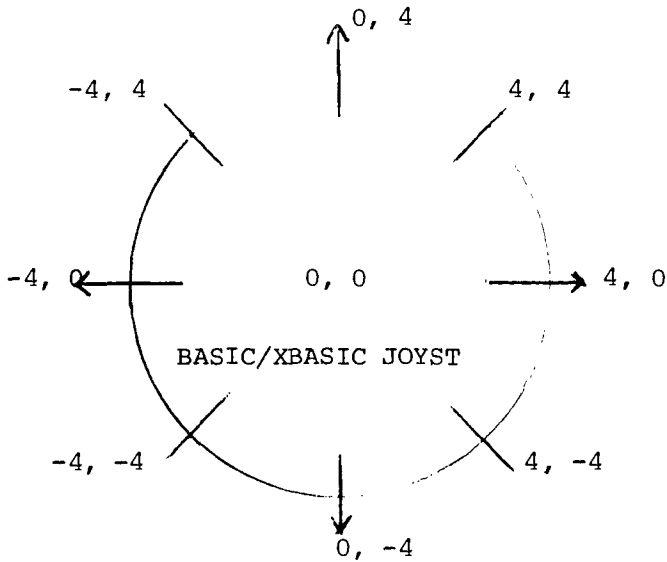
        2. CALL KEY(unit #, Key, Status) for fire button
           a. Key = 18 if fire button is pressed; 0 if not pressed
           b. Status = 0 if not pressed; +1 if pressed; -1 if pressed and still
               pressed since the last CALL KEY.
        3. A simple BASIC program to test the Joystick
           100 REM * Joy Test *
           110 CALL JOYST(1,A,B)   or CALL JOYST(2,A,B)
           120 PRINT A;B
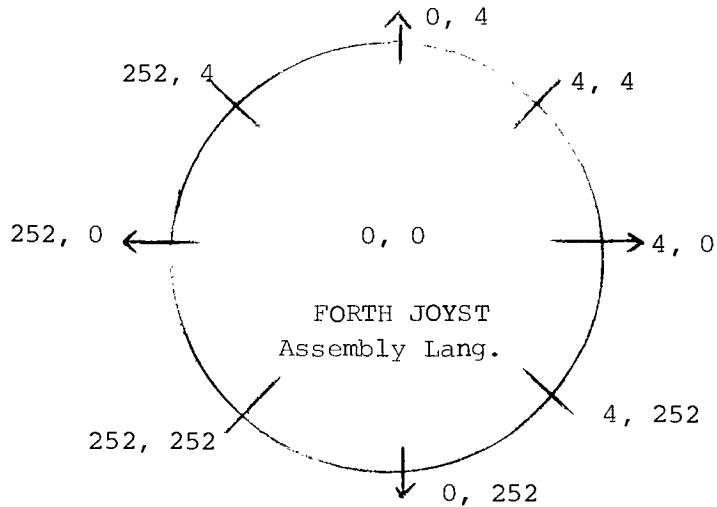   130 GOTO 110
    B. LOGO I and LOGO II
        1. JOY 1 or JOY 2   (undocumented in LOGO I)
        2. Returns the following numbers: 0, 1, 2, 4, 5, 6, 8, 9, 10
        3. LOGO I does not support the Fire Button
        4. LOGO II adds 16 to the output numbers when the Fire Button is pushed
        5. Simple LOGO program to test Joystick
           TO J
           PRINT JOY 1 or PRINT JOY 2
           J
           END
        6. Method in LOGO's returned number madness

2= 0010	6= 0110	10= 1010
1= 0001	5= 0101	9= 1001
0= 0000	4= 0100	8= 1000

C. TI FORTH (located in -GRAPH section vocabulary)
   1. JOYST (nl --- ch n2 n3)
   2. Returns ASCII value of Key pressed (ch); X-status (n2); and Y-status (n3)
   3. If no Key is pressed 255 is returned
   4. Fire Button returns 18,0,0
   5. Crude Joystick test for FORTH (load -GRAPH, -TRACE, and -SYNONYMS)
      DECIMAL TRACE : TEST JOYST 1 MYSELF ; TRON TEST

```
                        ^ 0, 4
         252, 4  \       |      / 4, 4
                  X      |     X
                   \     |    /
                    \    |   /
   252, 0  <----- --     0, 0    ------> 4, 0
                    /    |    \
                   /     |     \
                  /  FORTH JOYST \
                 X   Assembly Lang. X
         252, 252 /     |      \  4, 252
                        |
                        v
                      0, 252
```

D. ASSEMBLY LANGUAGE (similar to FORTH)
   1. Byte value of 01 at -31884 = JOY #1 (Hex 8374)
   2. Byte value of 02 at -31884 = JOY #2 (Hex 8374)
   3. Address -31882 has the Y value (Hex 8376)
   4. Address -31881 has the X value (Hex 8377)
   5. Values returned are 4 (up or right); 00 (center); and 252 (down or left)
   6. Assembly test for Joystick: Select keyboard device (01 or 02)
      BLWP @KSCAN check STATUS byte at -31876 (Hex 837C)

III. SOME TECHNICAL INFORMATION
  A. Keyboard and Joysticks are scanned approx. every 1/3 sec. for interrupt
  B. Keyboard and Joystick are in a 8x8 matrix
    1. Two active low-lines driven by an 8 output open collector decoder
    2. Six lines select the keyboard SCAN
    3. Two lines buffered and brought to Joyport (select #1, #2)
    4. Decoder controlled by 3 lines of the I/O TMS 9901 chip
  C. NOTE: TI's silence on Joyport being used for BOTH IN/ and OUTput!!!
    1. Since Joyport is connected to a Programmable I/O TMS 9901 processor,
      Joyport can be used as INPUT as well as OUTPUT under Software control.
    2. 99'er Magazine (June 83) tells how to make a "Joytalk" device making
      the Joyport act like a RS232 port to control a printer. This device
      was marketed under the tradename of "JOYPRINT".
      NOTE: all ASCII codes are available as output on the same wires we
      normally use only as input.
    3. NOTICE also MB's defunct MBX Expansion System which contained: Voice
      Recognition, Speech Synthesis, Active Keypad, Full Analogue Joystick
      (including full 360° rotation and proportional control)
      ALL of this plugged into and was I/O accessable to the normal Joyport.
    4. CONCLUSION: There is much more available here than just zapping
      Invaders up & down, right & left, etc.

IV. "THAT's ALL FOLKS"
  A. This paper is not the end, but the beginning of your search for Joystick use.
  B. I had fun gathering this info. Hope you will also tell me what you have
    learned about the Joyport that is available to us.
  C. Other page includes: Schematic of Joyport (99/4 and 99/4A); also three
    quickie programs using Joysticks.

Rev. Keith G. Koch

```
100 REM * JOY LINE DEMO * Extended BASIC
101 REM see JUNE '83 99'er HOME COMPUTER MAG. p.8 Richard Gibson's Letter
110 GOSUB 150
120 CALL CLEAR :: CALL CHAR(33,"C0C0"):: CALL SPRITE(#1,33,16,100,100)
130 CALL JOYST(1,XR,YR)
140 CALL MOTION(#1,-YR*2,XR*2):: CALL MOTION(#1,0,0):: CALL POSITION(#1,DOTR,DOT
C):: GOSUB 200 :: GOTO 130
150 OPTION BASE 1 :: RESTORE :: DIM H$(16,4)
160 DATA 8,4,2,1,9,5,3,1,A,6,2,3,B,7,3,3,C,4,6,5,D,5,7,5
170 DATA E,6,6,7,F,7,7,7,8,C,A,9,9,D,B,9,A,E,A,B,B,F,B,B
180 DATA C,C,E,D,D,D,F,D,E,E,E,F,F,F,F,F
190 FOR I=1 TO 16 :: FOR J=1 TO 4 :: READ H$(I,J):: NEXT J :: NEXT I :: HEX$="01
23456789ABCDEF" :: NN=33 :: RETURN
200 IF NN>142 OR DOTR>192 THEN RETURN
210 R=INT(DOTR/8)+1+(INT(DOTR/8)=DOTR/8):: C=INT(DOTC/8)+1+(INT(DOTC/8)=DOTC/8):
: Y=DOTR-R*8+8 :: X=DOTC-C*8+8
220 CALL GCHAR(R,C,M):: CALL CHARPAT(M,M$):: L=2*Y+(X<5):: NN=NN-(M=32):: N=M+(M
=32)*(M-NN)
230 CALL CHAR(N,SEG$(M$,1,L-1)&H$(POS(HEX$,SEG$(M$,L,1),1),X+4*(X>4))&SEG$(M$,L+
1,16)):: CALL HCHAR(R,C,N):: RETURN
```

4

```
100 REM * JOY-DESIGN DEMO * BASIC
101 REM from TI's WIRED REMOTE CONTROLLER
110 A=1                               Instructions
120 X=15
130 Y=13
140 CALL CLEAR
150 CALL COLOR(1,11,11)
160 CALL COLOR(2,5,5)
170 CALL JOYST(1,DX,DY)
180 CALL KEY(1,K,S)
190 IF K<>18 THEN 240
200 A=A*-1
210 CALL COLOR(2,9,9)
220 IF A=-1 THEN 240
230 CALL COLOR(2,2,5)
240 X=X+DX/4
250 Y=Y-DY/4
260 X=INT(32*((X-1)/32-INT((X-1)/32)))+1
270 Y=INT(24*((Y-1)/24-INT((Y-1)/24)))+1
280 CALL HCHAR(Y,X,42)
290 GOTO 170
```

```
100 REM * JOY MUSIC DEMO * BASIC
101 REM from TI's WIRED REMOTE CONTROLLER Instructions
110 A$="CDEFGABC"
120 DIM N(9),M(8,8)
130 FOR I=1 TO 9
140 READ N(I)
150 NEXT I
160 DATA 262,294,330,349,392,440,494,524,40000
170 FOR I=1 TO 9
180 READ X,Y,B
190 M(X,Y)=B
200 NEXT I
210 DATA 8,4,1,8,8,2,4,8,3
220 DATA 0,8,4,0,4,5,0,0,6
230 DATA 4,0,7,8,0,8,4,4,9
240 CALL JOYST(1,X1,Y1)
250 CALL JOYST(2,X2,Y2)
260 X1=X1+4
270 Y1=Y1+4
280 X2=X2+4
290 Y2=Y2+4
300 CALL SOUND(-1000,N(M(X1,Y1)),0,N(M(X2,Y2)),0)
310 PRINT SEG$(A$,M(X1,Y1),1);SEG$(A$,M(X2,Y2),1)
320 GOTO 240
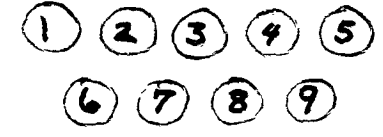```
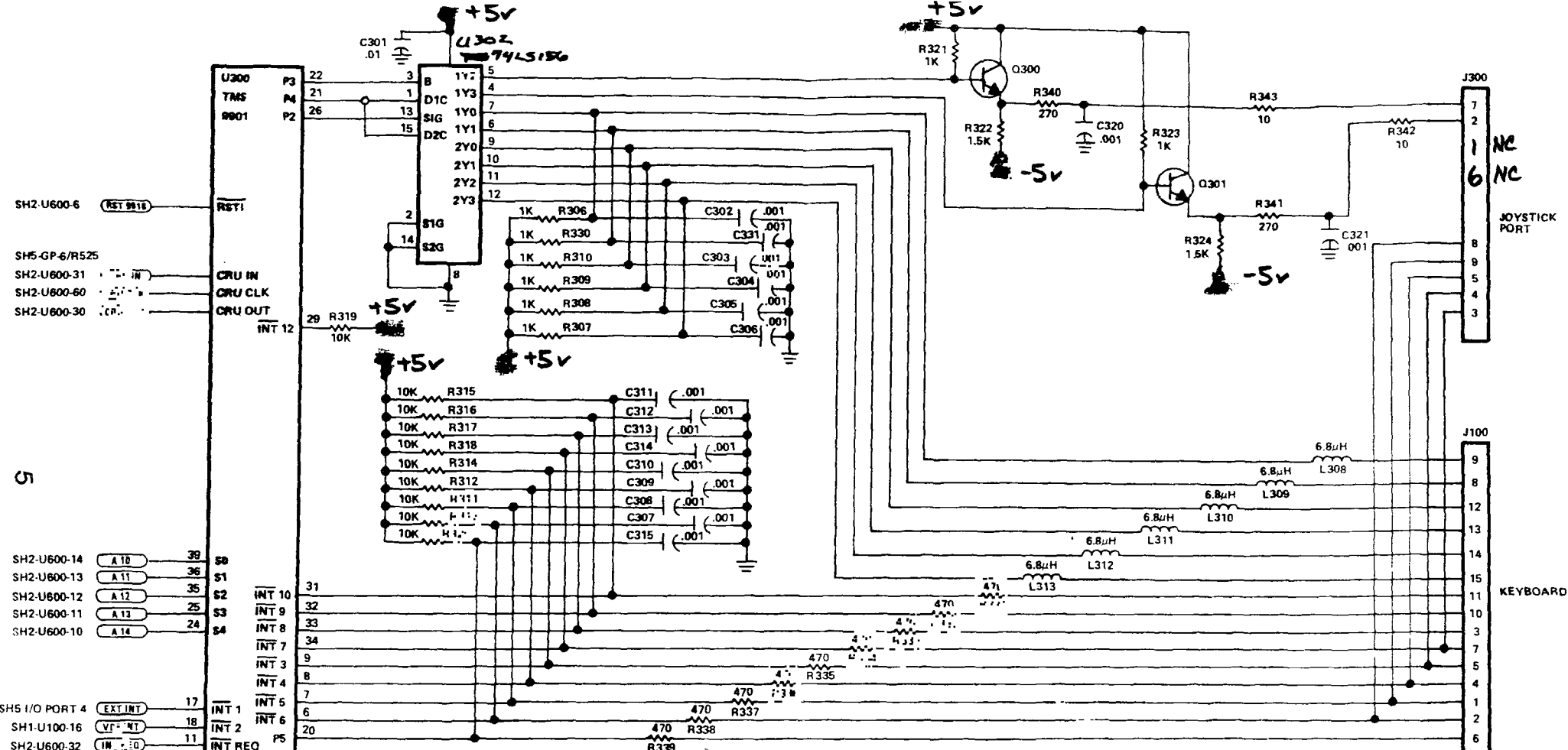
Schematic for:
TI 99/4A Joystick Port

(99/4 somewhat similar: used diodes instead of
Q300,301; tapped 1Y2,1Y1 on U302; Keyboard
different on 99/4, but basic operation is
the same for Joystick circuit.)

*1. Joystick #3
2. Joystick #2
3. Up
4. Fire Button
5. Left
*6. Joystick #4
7. Joystick #1
8. Down
9. Right
* NOTE: pins 1 & 6 not connected

① ② ③ ④ ⑤
⑥ ⑦ ⑧ ⑨

TIGERCUB SOFTWARE
156 COLLINGWOOD AVE.
COLUMBUS, OHIO 43213
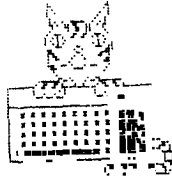
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TIGERCUB SOFTWARE IS A KITCHEN-TABLE ENTERPRISE SPECIALIZING IN ORIGINAL LOW-COST QUALITY SOFTWARE FOR THE TI-99/4A COMPUTER. I HAVE OVER 130 PROGRAMS AVAILABLE ON CASETTE OR DISK AT ONLY $3.00 EACH. MY DESCRIPTIVE CATALOG WILL BE SENT TO YOU FOR $1.00 WHICH IS DEDUCTABLE FROM YOUR FIRST ORDER.

LAST MONTH'S CHALLENGE WAS TO UNFURL THE U.S. FLAG (WITH 49 STARS), FROM THE MAST OUT, IN 2 LINES OF EXTENDED BASIC.

```
100 CALL CLEAR :: CALL COLOR
(2,16,5,3,16,16,4,7,7):: A$(
1)="*******080808" :: A$(2)=
RPT$("80",7):: CALL CHAR(33,
RPT$("01",8)):: CALL VCHAR(4
,4,33,20)
110 FOR C=5 TO 22 :: X=1+ABS
(C>11):: FOR T=1 TO 13 :: CA
LL VCHAR(5+T,C,ASC(SEG$(A$(X
),T,1))):: NEXT T :: NEXT C
:: GOTO 110
```

ONE OF THE PREVIOUS CHALLENGES WAS TO WRITE THE EXTENDED BASIC STATEMENT IF X=1 THEN Y=7 ELSE IF X=2 THEN Y=33 ELSE IF X=3 THEN Y=19 ELSE IF X=4 THEN Y=21. MY SOLUTION WAS Y=VAL(SEG$("07 331921",X*2-1,2)). JIM JOHNSTON IN THE K*3 USER'S GROUP NEWSLETTER CAME UP WITH A METHOD WHICH IS BETTER BECAUSE IT DOES NOT REQUIRE THAT THE VALUES OF X BE IN A SEQUENCE:
Y=ABS((7*(X=1))+(33*(X=2))+(19*(X=3))
+(21*(X=4)))

PROVING ONCE AGAIN THAT THERE IS MORE THAN ONE WAY TO SKIN THE CAT, AND OFTEN A BETTER WAY — ALTHOUGH THE CAT MIGHT NOT AGREE.

ADVICE TO DISK-DRIVERS — KEEP AN EYE ON THOSE LITTLE TABS OF SILVER TAPE THAT YOU USE TO COVER THE WRITE-PROTECT NOTCH ON YOUR DISKS. THEY TEND TO BECOME DOG-EARED FROM BUMPING AGAINST THE SLOT OF THE DRIVE. I RECENTLY HEARD A HORROR STORY ABOUT ONE OF THOSE TABS THAT CAME LOOSE AND GOT INTO THE DRIVE!

THE FOLLOWING MENU-LOADER OR AUTO-BOOTER WAS ORIGINALLY PUBLISHED BY A. KLUDGE IN THE 99'ER VOL. 1 #4. MARSHAL GORDON AND THOMAS BOISSEAU GREATLY IMPROVED IT AND PUBLISHED IT IN THE ATLANTA 99/4 UG NEWSLETTER VOL. 2 #1. I HAVE NO IDEA HOW IT WORKS, BUT HAVE MANAGED TO MODIFY IT SO THAT IT WILL CATALOG UP TO 99 PROGRAMS ON A DISK, STOPPING FOR INPUT AFTER EACH 19 ARE LISTED, OR STOPPING WHENEVER ANY KEY IS PRESSED; I ALSO ADDED A DELETE OPTION, REQUIRING A REPEATED INPUT TO PREVENT ERROR. IT TAKES UP ONLY 8 SECTORS. IF YOU HAVE EXTENDED BASIC AND DISK DRIVE, LOAD THIS PROGRAM UNDER THE FILE NAME LOAD. IT WILL THEN AUTOMATICALLY RUN WHENEVER YOU SELECT EXTENDED BASIC, WILL LIST ALL THE PROGRAMS ON THE DISK, AND WILL RUN WHICHEVER PROGRAM YOU SELECT.

```
100 OPTION BASE 1 :: DIM PG$
(99),T$(5):: CALL CLEAR
110 T$(1)="DIS/FIX" :: T$(2)
="DIS/VAR" :: T$(3)="INT/FIX
" :: T$(4)="INT/VAR" :: T$(5
)="PROGRAM"
120 IMAGE ##
130 DISPLAY AT(1,9)ERASE ALL
:"DISKETTE MENU"
140 ! IF YOU HAVE MORE THAN
ONE DISK DRIVE, DELETE THE !
IN LINE 150
150 ! DISPLAY AT(12,6):"DISK
? (1-3):" :: ACCEPT AT(12,19
)SIZE(-1)VALIDATE("123"):D$
:: D$="DSK"&D$&"."
160 D$="DSK1." :: OPEN #1:D$
,INPUT ,RELATIVE,INTERNAL ::
INPUT #1:N$,A,J,K :: DISPLA
Y AT(1,1)ERASE ALL:SEG$(D$,1
,4)&" - DISKNAME= "&N$;
170 DISPLAY AT(2,1):"AVAILAB
LE=";K;"USED=";J-K;"PROG  FI
LENAME  SIZE    TYPE";"----
--------------------------" ::
I=0
180 FOR X=1 TO 80 :: IF X/20
<>INT(X/20)THEN 210
190 DISPLAY AT(24,1);"TYPE C
HOICE OR 99 FOR MORE" :: ACC
EPT AT(24,27)VALIDATE(DIGIT)
:K :: IF K=99 THEN 200 :: IF
K>0 AND K<X+1 THEN 360 ELSE
190
200 X=X+1 :: CALL VCHAR(1,2,
32,48)
```

```
210 I=I+1 :: IF I>127 THEN K
=X :: GOTO 300
220 INPUT #1:P$,A,J,B
230 IF LEN(P$)=0 THEN 270
240 DISPLAY AT(X+4,2):USING
120:X :: DISPLAY AT(X+4,6):P
$ :: PG$(X)=P$ :: DISPLAY AT
(X+4,18):USING 120:J :: DISP
LAY AT(X+4,22):T$(ABS(A))
250 CALL KEY(0,KK,ST):: IF S
T=0 THEN 260 :: FLAG=1 :: GO
TO 280
260 NEXT X
270 DISPLAY AT(X+4,1):" " ::
 DISPLAY AT(X+4,2):USING 120
:X :: DISPLAY AT(X+4,6):"TER
MINATE" :: DISPLAY AT(X+5,2)
:STR$(X+1)&" DELETE?"
280 DISPLAY AT(X+6,1):"     C
HOICE"
290 ACCEPT AT(X+6,16)SIZE(2)
VALIDATE(DIGIT):K :: IF K<>X
 AND K<>X+1 OR FLAG=1 THEN 3
50
300 IF K=X THEN CALL CLEAR :
: CLOSE #1 :: END
310 DISPLAY AT(X+5,11)SIZE(1
8):" #?" :: ACCEPT AT(X+5,15
)SIZE(2)VALIDATE(DIGIT):KD :
: IF KD<1 OR KD>X-1 THEN 310
320 DISPLAY AT(X+6,1)SIZE(28
)BEEP:"VERIFY - REPEAT DELET
E #" :: ACCEPT AT(X+6,27)SIZ
E(2)VALIDATE(DIGIT):KD2 :: I
F KD2<>KD THEN 340
330 DELETE "DSK1."&PG$(KD)
340 CLOSE #1 :: GOTO 130
350 IF K<1 OR K>99 OR LEN(PG
$(K))=0 THEN 270
360 CLOSE #1
370 CALL INIT :: CALL PEEK(-
31952,A,B):: CALL PEEK(A*256
+B-65534,A,B):: C=A*256+B-65
534 :: A$=D$&PG$(K):: CALL L
OAD(C,LEN(A$))
380 FOR I=1 TO LEN(A$):: CAL
L LOAD(C+H,ASC(SEG$(A$,I,1))
):: NEXT I :: CALL LOAD(C+H,
0)
390 RUN "DSKX.1234567890"
```

COME TO THINK OF IT, IF YOU HAVE MORE THAN ONE DISK DRIVE YOU WILL ALSO HAVE TO DELETE THE FIRST STATEMENT IN LINE 160, AND MODIFY LINE 330.

HERE'S A MEMORY-SAVER FOR YOU - PUT YOUR DATA IN STRINGS INSTEAD OF DATA STATEMENTS. MY "HANGMAN PLUS" PROGRAM WAS ONLY 7764 BYTES LONG BUT IT CONTAINED A VOCABULARY OF 315 WORDS IN DATA STATEMENTS. AFTER

READING THESE INTO AN ARRAY, IT HAD TOO LITTLE WORKING MEMORY LEFT, AND PAUSED TOO OFTEN FOR GARBAGE COLLECTION. AFTER CHANGING ALL THE DATA STATEMENTS TO STRINGS, IT RUNS WITHOUT STALLING EVEN THOUGH THE NUMBER OF WORDS WAS INCREASED AND AN ARRAY OF 50 IS STILL DIMENSIONED FOR USER INPUT OF WORDS. WHEN I LOADED THE ORIGINAL VERSION IN EXTENDED BASIC WITH THE MEMORY EXPANSION AND ASKED FOR SIZE AFTER THE DATA HAD BEEN READ IN, I FOUND THAT I HAD 14756 BYTES OF PROGRAM AND 7669 BYTES OF STACK FREE. IN THE VERSION WITH DATA IN STRINGS, AT THE SAME STAGE IN THE PROGRAM I HAD 14874 BYTES OF PROGRAM AND 11310 BYTES OF STACK FREE - A SAVING OF 3730 BYTES! AND ANOTHER ADVANTAGE IS THAT THERE IS NO DELAY WAITING FOR ALL THOSE WORDS TO BE READ INTO THE ARRAY. HOWEVER, PULLING DATA OUT OF A STRING IS UNDOUBTEDLY A BIT SLOWER, SO THIS METHOD SHOULD NOT BE USED WHEN SPEED IS OF PRIMARY IMPORTANCE.

IN THE "HANGMAN PLUS" PROGRAM, I USED LOWER CASE LETTERS AS DIVIDERS BETWEEN THE UPPER CASE WORDS. TO PULL WORDS AT RANDOM, I RANDOMLY SELECTED A STRING AND A POSITION WITHIN THE STRING, USING THE POS OF THE LOWER CASE LETTER TO FIND THE WORD. THE FOLLOWING IS A MUCH ABBREVIATED EXAMPLE:

```
100 M$(1)="AJOHNbJOEcCHARLIE
dMIKEeLARRYf"
110 M$(2)="AGEORGEbPETEcCHRI
SdDONeRALPHf"
120 X=INT(2*RND+1)
130 Y=INT(5*RND+97)
140 X$=SEG$(M$(X),POS(M$(X),
CHR$(Y),1)+1,POS(M$(X),CHR$(
Y+1),1)-POS(M$(X),CHR$(Y),1)
-1)
```

IT IS OF COURSE ESSENTIAL THAT ALL THE STRINGS CONTAIN THE SAME NUMBER OF ELEMENTS OF DATA. IF LOWER CASE LETTERS ARE NEEDED, THE SEPARATORS CAN BE ASCII CODES 129 THRU 154, OBTAINED BY HOLDING DOWN THE CTRL KEY WHILE TYPING THE ALPHABET - IT'S A BIT HARD TO KEEP TRACK OF THOSE, BECAUSE THEY'RE INVISIBLE! NUMERIC DATA CAN ALSO BE STORED, USING THE VAL FUNCTION TO CONVERT IT TO NUMERIC AFTER IT IS PULLED FROM THE STRING.

YOU PROBABLY ALREADY KNOW THIS, BUT YOU DON'T HAVE TO TYPE IN THE BLANK SPACES BEFORE AND AFTER THE :: IN MULTIPLE STATEMENTS IN EXTENDED BASIC. JUST RUN EVERYTHING TOGETHER 100 CALL CLEAR::RANDOMIZE::FOR D= 1 TO 100::NEXT D AND THE COMPUTER WILL SEPARATE IT FOR YOU, SHOVING STATEMENTS INTO ADDITIONAL LINES IF NECESSARY.

OUT OF MEMORY

HAPPY HACKIN'

JIM PETERSON

UNDER THE HOOD

Dave Ramsey

Well, I'm back again this month with another assembly language article. This month I'm going to get into some of the more advanced areas of assembler. Specifically, I am going to show a little peice of code designed to do sector by sector access of your disks. I have to thank Mike Lambert for giving it to me. Mike downloaded it from CompuServe, a service to which I do not yet subscribe.

Before we get to the program, there are some addresses you should be familiar with when using this disk routine. The first of these is hex 8356. This address holds the VDP address for a dummy PAB. The Pab itself must be one word long and contain hex 0110. Next is the word at hex address 8350; it will contain the number of the sector that you wish to access (in hex format of course). You also need a VDP input buffer. This VDP address should be placed at hex 834E. Two more bytes of significance are at hex 834C and 834D. The byte at 834C contains the drive number you wish to access. The byte at 834D contains a flag with hex 01 for read and hex 00 for write. These parameters must be set before you BLWP @DSRLNK with a following parameter of DATA 10. That is basically all there is to the mysterious sector I/O routine. Below is a routine worked up by Dick Vandenberg which reads sector zero which is the beginning of the disk directory.

```
        DEF   SECACC
        REF   DSRLNK,VMBW,VMBR,VSBW
BUFFER  BSS   256
STATUS  EQU   $837C
PABADD  EQU   $8356
BUFADD  EQU   $834E
SECTOR  EQU   $8350
DRVFLG  EQU   $834C
X0000   DATA  $0000
X1000   DATA  $1000   VDP BUFFER ACCESS
X0470   DATA  $0470   VDP PAB ADDRESS
X0101   DATA  $0101   DRIVE #    READ FLAG
X0110   DATA  $0110   CONSTANT FOR SECTOR ACCESS
        LI    R0,$0470
        LI    R1,X0110
        LI    R2,2
        BLWP  @VMBW
        MOV   @X0101,@DRVFLG
        MOV   @X0000,@SECTOR
        MOV   @X1000,@BUFADD
        MOV   @X0470,@PABADD
        BLWP  @DSRLNK
        DATA  10
        MOV   @BUFADD,R0
        LI    R1,BUFFER
        LI    R2,256
        BLWP  @VMBR
```

CLEAN UP AND RETURN

This could easily be used as a core around which to build a number of disk utility programs. One other code that can be placed in the dummy PAB which the DSR recognizes is $0111. This will cause the disk to be initialized. With a small utility routine such as this residing in low memory you need never fear running out of disk space. You also wouldn't need to initialize all of your disks before

using them. If you needed a new initialized disk, you would only CALL LINK to
the appropriate assembly subroutine. Other possible utilities include
fixing bad directories, changing file specifications or even modifying files
from XBASIC or BASIC. Such a "mini-DOS" might be a good project for an intermediate
or advanced programmer.

Next month, I will have (hopefully) a source code listing for a dumb terminal
program. I'll also discuss file transfer procedures and how you might go about
implementing them on our TI99's.

One last word before I sign off. I noticed the remark in the TI-99/4A
INNER SECRETS column about not being able to list, edit or change the programs
in Command Modules. The answer given was in error; you can list and subsequently
edit a program stored in ROM. However, you cannot modify the original program.
Any modifications must be done to copies that have been dumped to disk. This same
procedure has been used by the editors of The Smart Programmer to find new tips
and tricks about the TI99. Basically, all that needs to be done is to cut or
otherwise disconnect the RESET line on the cartridge port, load and enter a good
disassembler from the Editor Assembler module, replace the E/A module with the
module to be examined and begin looking at ROM from hex addresses 6000 to 7FFF.

Many interesting tips and tricks can be gleaned from such a method. A word
of warning is appropriate however. The hardware modifications necessary to do this
will void any warranty that you have on your computer and copying modules for
resale or other use is expressly forbidden by the copyright laws in the US.

At recent meetings, a number of questions have been raised
about sources of information and programs for the TI. One
source frequently mentioned is COMPUTE magazine which, for
about the past year, has included a considerable amount of TI
material. One of their best features is that many of their
programs are presented as versions for several different
computer systems and the differences in program design, string
handling, graphics, etc. required by the differing processors or
language are explained. This information can serve as a source
of ideas or routines for conversion of programs written for
another system into either TI BASIC or Extended BASIC.

I have compiled a reference data base on TI information
for all the issues of COMPUTE which I have. The data is
organized by: 1) Category or program type 2) Brief
description or program name with the vendor name for commercial
programs in parentheses 3) Source (CO for COMPUTE), date
and page, and 4) Informational notes and equipment requirements
where known.

I plan to expand the data base to include sources of TI
information other than COMPUTE such as the User's Group
Newsletter, the 99er, etc. and would welcome any contributions
from the group members.

Charles R. Midkiff
7303 Longbranch Drive
New Carrollton, MD   20784

SOUND	GRAPHICS AND MUSIC	CO 12/83-252	CB/X
SOUND	PLAYING MUSIC	CO 10/83-224	
TUTORIAL	CHARACTER SET & USER-DEFINED	CO 11/83-273	
TUTORIAL	COMMON QUESTONS ABOUT THE TI	CO 11/83-228	
TUTORIAL	DATA STORAGE ON TAPE & DISK	CO 03/83-52	
TUTORIAL	DEFINED FUNCTIONS	CO 05/83-250	
TUTORIAL	EASY EDITING	CO 03/83-201	
TUTORIAL	ESTIMATING MEMORY	CO 04/83-215	CB
TUTORIAL	PLANNING COLOR SETS	CO 07/83-196	
TUTORIAL	PLANNING COLOR SETS	CO 08/83-263	BUG
TUTORIAL	STRUCTURED BASIC PROGRAMS	CO 06/83-204	
TUTORIAL	SUBSCRIPTED VARIABLES	CO 09/83-221	
TUTORIAL	SYSTEM & PERIPHERALS FOR TI	CO 01/83-183	
TUTORIAL	TRANSLATING PROGRAMS	CO 06/83-182	
TUTORIAL	USING A PRINTER	CO 06/83-61	RS, P
TUTORIAL	USING DATA, READ & RESTORE	CO 08/83-192	
TUTORIAL	WRITING GAME PROGRAMS	CO 02/83-138	

-- Explanation of Notes --

BUG	- Error and/or Correction	NEW	- Product Announcement
CB	- Console BASIC	P	- Lineprinter Used
CS	- Cassette	REVIEW	- Evaluation & Comment
D	- Diskette	RS	- RS-232 Card Required
INFO	- Informational Note	X	- Extended BASIC
MOD	- Modification or Change		

Category	Description	Reference	Notes
BUSINESS	SPREADSHEET IV (WESTERN PROP)	CO 10/83-322	NEW, X
DATA BASE	COUPON FILE	CO 10/83-52	CS/D
DATA BASE	COUPON FILE	CO 12/83-351	MOD, CB
DATA BASE	FILE BOOK III (WESTERN PROP)	CO 10/83-322	NEW, X
DATA BASE	GENERAL PURPOSE DATA BASE I	CO 03/83-168	CS
DATA BASE	GENERAL PURPOSE DATA BASE II	CO 05/83-226	CS
DATA BASE	GENERAL PURPOSE DATA BASE II	CO 08/83-263	BUG
DATA BASE	TELEPHONE DIRECTORY/DIALER	CO 11/83-212	
DATA BASE	TI MAILING LIST	CO 07/83-242	CS/D, P
EDUCATION	ALPHA BLAST LETTER GAME	CO 11/83-94	X
EDUCATION	CLUES QUIZ GAME	CO 08/83-110	
EDUCATION	COORDINATE GEOMETRY	CO 02/83-87	
EDUCATION	FIRST MATH FOR PRESCHOOLERS	CO 08/83-94	
EDUCATION	FRACTION FACTORY (COUNTRPOINT)	CO 12/83-376	NEW, CS
EDUCATION	MATCHMAKER (COUNTERPOINT)	CO 12/83-378	NEW, CS
EDUCATION	MATH ACTION GAMES FOR K-8 (TI)	CO 03/83-108	REVIEW
EDUCATION	MEMORY TRAINER	CO 06/83-112	
EDUCATION	MEMORY TRAINER	CO 08/83-263	MOD, CB
EDUCATION	MYSTERY SPELL GAME	CO 11/83-326	MOD, CS
EDUCATION	MYSTERY SPELL GAME	CO 09/83-112	X
EDUCATION	PIECE OF CAKE (COUNTERPOINT)	CO 12/83-376	NEW, CS
EDUCATION	SECONDARY LEVEL MATH	CO 04/83-180	
EDUCATION	TYPING TEACHER	CO 04/83-76	
EDUCATION	WIZWARE SOFTWARE (SCHOLASTIC)	CO 10/83-330	NEW,CS/D
FINANCE	PAYCHECK ANALYSIS	CO 12/83-66	
FINANCE	RETIREMENT INCOME NEEDS	CO 04/83-71	
FINANCE	UTILITY BILL AUDITOR	CO 12/83-72	
GRAPHICS	CHILDREN'S DRAWING PROGRAM	CO 09/83-236	
GRAPHICS	GRAPHICS MADE EASY	CO 03/83-205	
GRAPHICS	GRAPHICS PROGRAMMING	CO 05/83-218	
GRAPHICS	SCREEN DESIGN FORMS (TENEX)	CO 07/83-255	NEW
GRAPHICS	SPANISH LANGUAGE CHARACTERS	CO 02/84-168	
GRAPHICS	SPRITE EDITOR	CO 09/83-258	X
GRAPHICS	SPRITE EDITOR	CO 12/83-351	BUG
GRAPHICS	USING SPRITES W/ GAME EXAMPLE	CO 10/83-208	X
HARDWARE	32K MEMORY EXPANDER (DORYT)	CO 08/83-251	NEW
HARDWARE	64K CP/M CARD (MORNING STAR)	CO 12/83-364	NEW
HARDWARE	BOSS JOYSTICK (WICO)	CO 12/83-364	NEW
HARDWARE	GAME PORT MODULE (ROMOX)	CO 10/83-326	NEW
HARDWARE	JOYSTICK (WESTERN CONTROLS)	CO 10/83-326	NEW
HARDWARE	PARALLEL CABLE (TENEX)	CO 06/83-282	NEW
HARDWARE	PARALLEL INTERFACE (DORYT)	CO 08/83-251	NEW
HARDWARE	TI PRICE CHANGES	CO 11/83-314	INFO
PERSONAL	CALORIES EXPENDED/ACTIVITY	CO 12/83-52	
PERSONAL	MODEL ROCKET PERFORM (VAUGHN)	CO 08/83-261	NEW, CS
PERSONAL	STATISTICS (TI)	CO 12/83-196	REVIEW
PERSONAL	WORD PROCESSOR	CO 12/83-314	X, D, P
PERSONAL	WORD PROCESSOR (WESTERN PROP)	CO 10/83-322	NEW, X

Category	Description	Reference	Notes
GAME	AIR DEFENSE	CO 04/83-32	
GAME	AIR DEFENSE	CO 06/83-274	BUG
GAME	AMBULANCE (FUNWARE)	CO 11/83-322	NEW
GAME	ANT EATER (ROMOX)	CO 07/83-255	NEW
GAME	ASTROSTORM	CO 06/83-72	
GAME	ASTROSTORM	CO 09/83-284	BUG
GAME	BOGGLER	CO 03/83-78	
GAME	BUILD A SNOWMAN (KIDWARE)	CO 12/83-372	NEW, CS
GAME	CHARADES	CO 09/82-64	
GAME	CHOPPER FIREMAN (VAUGHN)	CO 08/83-261	NEW, CS
GAME	CHROMIUM SHUTTLE (VAUGHN)	CO 08/83-261	NEW, CS
GAME	CIRCUS CLOWNS POP BALLOONS	CO 02/84-62	
GAME	COMPUTER WAR (THORN E.M.I.)	CO 02/84-134	REVIEW
GAME	CRAZY CLIMBER	CO 11/83-83	X
GAME	CROSSWORD PUZZLE MAKER	CO 05/83-76	
GAME	DIAMOND DROP	CO 09/83-76	X
GAME	DIGGER DUCK (VAUGHN)	CO 08/83-261	NEW, CS
GAME	DRIVING DEMON (FUNWARE)	CO 11/83-322	NEW
GAME	FACEMAKER (SPINNAKER)	CO 03/83-109	REVIEW
GAME	GET THE GOLD	CO 02/84-181	MOD
GAME	GET THE GOLD IN THE DUNGEON	CO 12/83-132	
GAME	GOBLIN MAZE CHASE	CO 07/83-64	
GAME	GOBLIN	CO 10/83-315	BUG
GAME	GOLD MINER	CO 08/83-113	CB
GAME	HENHOUSE (FUNWARE)	CO 09/83-181	REVIEW
GAME	JUMPING JACK	CO 05/83-34	
GAME	MARINER (VAUGHN)	CO 08/83-260	NEW, CS
GAME	MATCH-EM	CO 06/83-274	BUG
GAME	MATCH-EM FOR CHILDREN	CO 04/83-123	
GAME	MOSAIC PUZZLE	CO 10/83-80	X
GAME	PRINCESS & THE FROG (ROMOX)	CO 07/83-255	NEW
GAME	QUATRAINMENT	CO 02/84-76	
GAME	RABBIT TRAIL (FUNWARE)	CO 09/83-181	REVIEW
GAME	RED DREAD (VAUGHN)	CO 08/83-261	NEW, CS
GAME	SANTA'S REINDEER (KIDWARE)	CO 12/83-372	NEW, CS
GAME	SCHNOZ-OLA (FUNWARE)	CO 11/83-320	NEW
GAME	SPACE STATION I (DATA FORCE)	CO 08/83-132	REVIEW
GAME	ST NICK (FUNWARE)	CO 11/83-320	NEW
GAME	STORY MACHINE (SPINNAKER)	CO 03/83-110	REVIEW
GAME	THIRD PARTY GAMES FROM TI	CO 11/83-314	INFO
GAME	TI TRAPSHOOT	CO 03/83-144	
GAME	TOWERS OF HANOI	CO 09/83-142	
GAME	TOWERS OF HANOI	CO 11/83-326	INFO
GAME	TYPO (ROMOX)	CO 07/83-255	NEW
GAME	VIDEO VEGAS (FUNWARE)	CO 09/83-181	REVIEW

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LIBRARY NOTES
By Rob Goff

Those of you who attended the April meeting at Tysons Corner know that, after a long tenure as Program Librarian, Larry Hughes had to relinquish his position as Club Librarian. I, and I think I speak for the general membership, want to thank Larry for his very significant contribution to the Club.

As the new Librarian I do not plan any major changes in the way the preparation and distribution of programs is handled. Those wishing to acquire cassette versions of programs will continue to submit their requests as before (see previous editions of the Newsletter for details). For those wishing disk copies - I will personally be handling requests. Also, I will now be able to accommodate those wishing to receive their copies in the dual sided disk format (with the exception of TIFORTH, which will only be available as an individual disk).

You may give me your pre-initialized disks with a list of the disks you want copied. Please make sure your disks include your name so I can keep track of them. There is fifty cent charge for each disk copied and I would appreciate payment when your disk requests are submitted to cut down on bookkeeping. You may give me your disks at any of the Fairfax meetings and pick the up at the next meeting or, if you are in a hurry, you may call me at home to drop off and pick up your disks. Those of you who are not located in the Washington area may mail your disks directly to me, along with a self-addressed return mailer (with sufficient postage) plus a check for the duplicating costs and I will mail your disks to you. Finally, for those of you who do not wish to bother with this, I will accept mail orders, accompanied by proof of Club membership, and a check for five dollars ($5.00) for each disk (sigle-sided only) you wish. I will provide the disk and pay shipping charges. Take your pick.

Now for an update as to what is in the library, a new listing will appear in this, or a future issue of the Newsletter, of new programs available. FYI, there are now 32 tapes/disks of general interest programs. Additionally, there are 8 "disk only" disks available. These include TIFORTH, LOGO programs plus numerous programs that can be run from disk only. You can determine which offerings suit you system configuration by looking at the listing, the B series are available on both disk and tape. Those beginning with D are for disk only.

For those of you who wish to submit programs for inclusion in the Club library, please follow the instructions contained in the May Newsletter, and include a copy of the program form with each submission. I will do my best to continue the level of support that Larry has provided in the past and look forward to receiving your new programs and suggestions on how we can make the library more responsive to your wishes.

I had not given much thought to home control. At best, I recall pontificating that you might use your computer as did a friend of mine who bought a defunct TI99/4A computer in lieu of a $125 Westinghouse washing machine controller.

Thanks to a lecture by Allen Minton, I have been educated to the exciting possibilites of home control. Allen, the president of the Montgomery Country Users Group, started off by letting me know that I even had the name of the thing wrong.

ITS PROCESS CONTROL, THANK YOU

Home control is but one aspect of this growing area. In fact, many of the processes can be directly used in the laboratory, such as running pumps, moters, timing operations, and the like. Allen was careful to point out that you are unable to achieve full precision in timing while just using the 99/4 and 4a, because there is no clock. Both he and Reverend Koch, an electrical engineering buff, indicated that there are relatively simple solutions to this problem if you are so oriented.

THE PROCESS CONTROL MACHINE

The heart of the matter was that the Montgomery County group was treated to the display of an invention of Allen and Ira Tice which, among other things, allows you to program turning power on and off to four circuits at once, based on time, a signal received by the computer, or a combination of events. That may not sound like much, just laying it out there, but actually, the control of processes, rather than programs, is the beginnings of a new era of luxury if we can keep the Russians from blowing us off the map in sheer jealousy. The rest of this is a flight of fancy for which Allen cannot be blamed. I could call it high level design, I suppose.

THE HOUSE OF THE FUTURE (today)

Americans (and others) have all of the things we are about to discuss. No one has ever put them together. First, there are burglar detection devices. At Radio Shack, or at least some security company, you can buy switches that signal either the interruption of a circuit or the closure of a circuit. Others detect vibration while yet others signal when pressure has been exerted. Still others will send a signal (not necesarily an alarm) when a light beam is broken or opened. Beyond current burglar and fire detection devices, there is voice recognition and synthesis, demonstrated on both the 99/4a and the TIPC. Further, there is an array of telephone devices which are just beginning to surface with rather high prices because of their novelty. Finally, we will just touch on digital FM broadcasting to intelligent receivers, a cheap, viable use of home computers.

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WAKE UP HOUSE

Let's start at work, rather than in the morning. We all know
the computer could make your coffee. Suppose your boss gets
promoted for cracking the whip and unexpectedly lets you have
the rest of the afternoon off. Not to worry. Simply dial
home and wake up the house. You will want your food ready
when you get home rather than seven, as you had arranged.
That way you can pop over to see the friend's new computer
and spend the evening trying to outwit the FBI (you don't
have to be smart to own this gear). Ever frugal, you have
had the house down to 50 degrees during the day, so you will
wish to turn up the heat.

Your computer may be available in your office, seeing you
have an enlightened boss. If not, you may want to use a
small device you can place over the mouthpiece of your phone.
It can be programmed not only to dial the phone for you, but
to transmit signals when your machine answers. With a series
of codes, you inform your computer to have the food ready by
your arrival time, warm up the house, and, should other
members of the family show up early, wake up the monitor and
display your new anticipated arrival time. In fact, since
you are a "wired in" family, your computer could dial up your
family at work and school and update each family member's
computer.

YOUR COMPUTER SPRINGS INTO
ACTION

Right off, your computer resets the thermostat, or at least
sets a time for this change to occur based on a quick check
of the outside temperature compared with other factors, such
as your arrival time. Since your culinary program had
already set up the cooking times, the computer merely needs
to reset the startup times for the various dishes. recipe
programs are getting as expensive as computer games!
Lucky for you. The meal can still be ready when you get
home. The computer makes a mental note to bring the house
down from a high security alert to a "waiting" state a few
minutes before your arrival, since you are now to be the
first one home for a change. Thus, the computer will not
dial the police automatically if movement in your house is
detected after that time. In the event of probable
intrusion, you could, of course, have the computer dial you
at work, allow you to listen to the sounds of entry and then
let you decide if the computer should be instructed to call
the police. During "wait" or lowered security state, you
might, on movement detection, have the computer ask an
innocuous question looking for a coded voice response in your
or your family's voice pattern. For a softer security test,
you might have a series of questions, a correct answer to one
being sufficient for your system (good for New Year's!)

Other family members can call home and get the latest
information, of course. Your son Ralf has been checking
every so often for the download of his grades from high
school. You make a note to ask him about being late to his
math class today.

HELLO HOUSE, THIS IS CAR!

There are several ways to announce your arrival. With cellular telephone, you could even call your computer on the phone. I would tend to prefer for the house to initiate the call, broadcasting a query to the car in a "time window" around your expected arrival. This would trigger a response from your car, with further handshaking to assure that you are indeed you. I would hope that this would all be automatic.

Once your garage door is shut behind you, and your electric locks are shut off long enough for you to walk in, things really begin to happen. Your computer greets you, just to make sure you are you. You could make this message just as humorous as you wish, but the real purpose would be to acquire preprogrmmed answers, answers which would prevent the system from calling for help.

THE TWO THOUSAND DOLLAR COFFEE

Of course, your computer has a hot, just brewed cup of coffee (if you ordered it). As you move from room to room, the lights and heat move with you. If you would like to adjust the brightness, just ask. If the computer is not sure, it will ask your preference, or, in certain rooms, will ask before dousing the lights.

You check your electronic (and yes, your paper) mail. You asked for a rollup of stories on IBM, as you are thinking about dumping their stock. Your car is acting funny, so you have asked for all the Fords for sale below $8,000 and no more than two years old. There are a couple, so you set the computer to dial the sellers up after you finish eating, giving you a ring if they answer. The computer will keep them on the line with a message that you may want to buy their car. While you are at it, you reset some queries for your next download of selected information from the digital FM broadcaster who has been giving the cable TV stations fits in the last few months. The entire newspaper plus the price list of everthing in stock at most of the stores in town are broadcast in a serial fashion four times every 24 hours. The service is cheap because the FCC requires the TV stations two have two extra FM channels anyway. An FM receiver and your computer and you are in business.

CAN COMPUTER AIDED HOUSES BE BUILT?

In the past the computer cost more than the device to be replaced. A clock timer can turn on your coffee. Almost all things one can imagine can be done now using a special purpose device. What seems most needed is a little **SYSTEMS** work. Many have **TALKED** about looking at the home, or leasure environment as a single system, with related, modular supporting systems. In effect, the description sketched in above should be fleshed out into a compresensive Design for Living, to coin a phrase.

IS THERE A MARKET FOR TRIVIA?

You bet your darn tooten there is a market for comfortable living. It is only a popular assumption that most of the people who can initially afford the computer supported home have the money for servants. Many wish total privacy. Another group would want total security that having other people around would place at risk. Still others would be for anything that smacked of the newest and latest gadget. Many gageteers would have a more useful purpose than you might imagine. Many would use the gadgets to impress clients or to generate an antiterrorist mistique, making attackers fear the unknown. The size of each of these worldwide groups, plus others that quickly come to mind, is more of a marketing exercise than I care to undertake. Likewise, how to reach each of these groups goes somewhat beyond simple speculation. Nevertheless, process control, as expounded here for the home, is a viable subject of study, perhaps a profitable one for **YOU**!

Today, at some expense, you can accomplish individual chores. The seventy two thousand dollar executive takes his turn at the household task, an enormous waste of talent from a systems point of view (and usually from the executive's point of view as well). Americans have shown themselves to be avid consumers of time saving gadgets, packages, and ideas, sometimes even at a cost of ten times the product which they can make "from scratch." Whoever takes a system approach to the home who also has the good sense to tie in with good business management will be made enormously wealthy. There is no question that there is a need and justification. We spend most of our time at home. Since the thirties, science fiction writers have projected that man's ultimate servant will be a robot, so much so that a fledgling industry is beginning to take off. Unfortunately, the successful robot industry focuses on manufacturing with limited and fixed devices rather than the mobile, intelligent devices so loved by the writers. A human servant is a stand alone device, a complex support system, frightfully expensive in a free society (Russians can still afford slaves, it seems).

WHY NOT MAKE YOUR HOUSE A ROBOT?

Your house has already become a wonderful support system. i used to propound that the American Army could not stay in the field for longer than 90 days, at least in Vietnam. After that, it built a garrison around itself! We have done similar things with our homes. How do we get to where we want to go?

THE SYSTEMS APPROACH

This is the paragraph for those of you wishing to become millionaires. Alas, those wishing to become DOUBLE millionaires also read these pages, so please hurry. A Fundimental requirement for the improvement of the home as a support system is communications. The "house" must be able to communicate easily with you, and vice versa. Voice

synthysis and recognition would do nicely, augmented with
other, more subtle signals which need not be elaborated here.
Next, the house must be able to detect and identify presence.
We are in fairly good shape as to fundimentals. Thank Bob
MacNamara, the sponsor of the "MacNamara Line" along with
your everyday brand of common criminal. In fact, it appears
that we may well get a spinoff from the Viet Cong and your
more common, garden variety types of thugs. We have a wide
variety of detection devices, many of which are now quite
cheap, as they should be, since many of them were developed
using DoD (taxpayer) funding. Finally there is operations.
As always, power is the source of all good things.
Therefore, each and every power outlet in a house should be
able to communicate with the "house" and therefore you, on a
planned, organized, and interactive basis.
Until such control happens, you will not control your house.
Also there will be a fruitful demand for "help around the
house." In my mind, it is far better (and easier) to create a
robot house than a house robot. Care to have a go at it?
Good Luck!

By Jim Horn

SPECIALPHP 4000-Disk Memory System: includes PHP1200 (Peripheral
Expansion System), PHP1240 (Disk Controller Card), PHP 1260
(32k Memory Expansion Card), PHP1250 (Single Sided Disk Drive)
SALE PRICE $455.00   (List Price if purchased separately $800.00)
==

Model	Description	List Price	Sale Price
TEXAS INSTRUMENTS PERIPHERALS			
PHP 1200	Peripheral Expansion System	249.95	150.00
WCC 1220	RS232 CARD (now in stock)	119.00	95.00
PHP 1240	Disk Controller Card (w/dual disk manager)	150.00	116.00
PHP 1250	Expansion System Disk Drive	250.00	170.00
PHP 1260	Memory Expansion Card (32k RAM) . . .	150.00	120.00
WCC 200ss	External S S Disk Drive, Cable,Power/Sup.	350.00	235.00
WCC 200ds	External DualSided Disk Drive,Cable,P/S .	430.00	300.00
DOT MATRIX PRINTERS			
RX 80	Epson 80 Column, 100 cps, Tractor Feed .	399.00	290.00
RX 80 FT	Epson 80 Column, w/Friction/Tractor Feed	499.00	340.00
RX 100	Epson 133 Column, 100 cps with F/T Feed	699.00	540.00
FX 80	Epson 80 Column, 160 cps, 2K Buffer, FP	699.00	459.00
FX 100	Epson 133 Column, 160 cps, 2K Buffer, FT	895.00	675.00
LQ 1500	Epson 24 pin, 200 cps (call for specs) .	1495.00	1150.00
SPIRIT	Mannesmann Tally 80 cps, Friction/Tractor	399.00	310.00
ML-82A	Okidata 80 Column,120cps,Frict./Platen Pin	399.00	320.00
WCC 70p	Parallel Printer Cable (w/printer purch)	36.95	25.00
8145	Epson Serial IFB w/2K Buffer, (MX,RX,FX)	139.00	109.00
DAISY WHEEL LETTER QUALITY PRINTERS			
CR-I-C	Comrex Comriter I Parallel,16.5" Carriage	499.00	430.00
CR-II-C	Comrex Comriter II Parallel,13.5" Carriage	599.00	490.00
CR-III-C	Comrex Comriter III Parallel	995.00	795.00
ACCESSORIES			
PHA 2620	TI Serial RS232 Y Cable (2 serial ports).	34.95	28.95
WCC 70	Parallel Printer Cable w/TI Interface. .	36.95	32.00
WCC DSDD	5.25" Disks Dual Sided DD Box of 10 . .	60.00	29.00
WCC SSSD	5.25" Disks Single Sided SD Pack of 3 .	9.95	6.50
EPSON 8750	Casette Ribbon Epson MX80,RX80: TI PHP2500	14.00	8.50
HAYES 300	Smartmodem 300 Baud (Cable optional $20)	289.00	220.00
HAYES 1200	Smartmodem 1200 Baud (Cable optional $20)	699.00	530.00
HAYES 1200b	Smartmodem 1200 Baud,w/Smartcom II(IBM PC)	599.00	450.00
HAYES IIe	Micromodem IIe 300 Baud,Smartcom I(Apple)	329.00	250.00
AMDEK MONITORS			
V 300 Green	12"(IBM, Apple, other), Composite Input	179.00	140.00
V 300A Amber	12"(IBM, Apple, other), Composite Input	199.00	155.00
COLOR I	13"(IBM, TI, Apple) 260h x 300v Composite	379.00	310.00
COLOR II	13"(IBM, Apple) 560h x 260v RGB TTL Input	529.00	440.00
PANASONIC MONITOR			
DTD-1300D	13"(IBM, TI 99/4A) RGB Color 80 Column .	539.95	380.00
ET-100C	IBM PC MONITOR CABLE--RGB.	40.00	35.00
INTEREX-5	TI/994A MONITOR CABLE	8.95	7.15
TANDON DISK DRIVES			
TM100-2	Dual Sided DD for TI 99/4A and IBM PC	340.00	220.00
WCC 80/90	External Case,Power Supply,Cable for Drives	99.00	80.00
TEXAS INSTRUMENTS SOFTWARE			
PHM 3111	TI WRITER Word Processor	100.00	75.00
PHM 3113	MICROSOFT MULTIPLAN	100.00	75.00
PHM 3109	LOGO II	100.00	75.00
PHM 3026	Extended Basic	100.00	72.00
PHM 3035	Terminal Emulator II	29.00	24.00
PHM 3092	Multiplication	26.00	20.00
PHM 3093	Division	26.00	20.00
PHM 3095	Decimals	26.00	20.00

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POWERLINE PROBLEMS AND PROTECTION
By Bill Whitmore

Several days ago I received a call from a TI-FC user with an inquiry. "What should I do to protect my computer from power line problems ?" and my first answer, and I might add is the best - "Unplug it from the power line." This is not always practical so the next best thing is to buy a power line protector.

Most all of the computer magazines carry pages of ads for power line conditioners, uninterruptible power supplys, and surge filters. Back to that question again "Which do I need, or do I need all of them" well lets try and answer these questions.

A blackout is the total interruption of the power line and may last only a second or longer, either one may cause lost data if you are useing your computer at the time the blackout occurs. This is where the uninterruptible power is required if the the computer is in use at the time of interruption. The power supply turns on the instant that it senses a decline in power line voltage.

The same type of power supply shall be used in the event that the power company reduces the nominal 120V AC in order to force a reduction in peak load during a time of heavy loads as in the summer when all air conditioners are turned on in the evening plus the normal heavy load for cooking. During this time your system will be much more susceptible to transients or spikes on the power line.

Heavy loads ie: air conditioners, electric motors, refrigerator, etc. are capable of induceing transient spikes or sags in the power line. One of the worse causes of power line transients is a lighting strike at or near your house. The only protection is a well grounded house. A good well grounded lighting rod plus lighting arresters on any external TV antenna. also protection on any other line that enters your house.

High frequency or radio frequency interference can also cause problems in your computer. For a good example of RFI turn on a TV set located close to your computer a switch channels - you will most likely see interference to the TV set that is caused by the computer. The trouble can in turn be introduced into your computer in the same manner that the TV was troubled. If you live near a powerful radio transmitter you may find that your computer has problems. Many of these plus other power line induced noise can be suppressed with protection devices.

Commerical units on the market start at around $20 for the simplest of filtration (usally only the hot line of the AC line), to $50 for a unit that filters both AC lines plus spike protection and RFI filtration to $1000 or more for the uninterruptible supply with battery backup that would provide power to the computer until a power down sequence can be performed.

With the many transistor operated devices now located inside the home the best protection should start with an arrestor located in

the circuit breaker box for your house, this device will provide good protection however a lighting strike at or near the house could still cause some damage. And don't forget an arrestor on the TV antenna. Also one of the electronic protection devices that are advertised in computer magazines should be placed at the AC socket that is used for the computer.

However in the event of a severe electrical storm or if you are to be away from home for an extended period of time the best protection would be to unplug the computer and other electronic devices too. I have seen houses that had a lighting strike nearby - and most all of the light blubs (even ones that were not turned on) were burnt out. The TV set had over half the tubes burnt out plus the input circuit in the tuner. In the basement the door on the fuse box was open and two cartridge type fuses were blown when found on the basement floor.

EDITORIAL: "Poor Ole TI"

From: SUMMIT 99'er USERS GROUP NEWSLETER

Ever wonder whatever happened to all that manufacturing space and capacity TI had dedicated to the TI 99/4A that just suddenly went idle. And consider the employees . . . massive layoffs?

Have no fear my dear. In fact maybe we have a chicken and egg situation here. A news announcement in the April 3, 1984 PC WEEK, a weekly newspaper on IBM miro/computers said in part. . .

"A Texas Instruments manufacturing plant in Johnson City, TN, heavily contributes to the manufacture of IBM PCs. A TI employee who said he works at the plant claims that TI has been under contract to produce central processing units (CFUs) for IBM PCs since December 1983 under "Operation Moses". "The source said that the TI plant operates 24 hours a day, six days a week to produce FC CPUs." "TI laid off 800 workers when they discontinued the 99/4A, the source said, "but they hired them right back to work on the IBM project." "The TI Johnson City plant, with its advanced robotics and other assembly-line machinery already installed, was the simplest answer to IBM's PC production problems, the source said. However, the plant was used to make subassemblies for the defunct TI 99/4A home computer. TI also said it makes process control units at the huge facility. "The labor costs may be lower overseas, but TI's assembly lines just sitting there in Tennessee with nothing to do, IBM couldn't pass that up,"he said. "The [TI] warehouse has stacks and stacks of IBM boxes," the TI employee said. "The CPUs are dropped into the IBM boxes and shipped to Boca Raton. Everything is included except the keyboard and CRT," he added."

The question is "Do you think in October when TI stopped they knew by December they would be producing the popular and profitable IBM?" Profit wise-"How many low priced TI's equal one IBM?" Now don't get me wrong, TI has the right to make a profit. That's why they are in business. But looking back over the grief, trama and indecision we users suffered, couldn't it have been handled better?   Paul Hayden

Program	Dsk	Program	Dsk	Program	Dsk	Program	Dsk
FORTH		TIFORTHSTOCK	D2	A_CABLE	L2	A_ACTION	L4
FORTHSAVE		TIFORTHSUFFIXES	D2	A_CARDINAL	L2	A_BIRDFLAP	L4
SYS-SCRNS		TIFORTHA_ENGINE	L1	A_EARLYCON	L2	A_CHOMP	L4
BSCSUP	D1	A_FISHBOWL	L1	A_HANOI	L2	A_COLLIDE	L4
DMEM	D1	A_LINE	L1	A_PREOP/1	L2	A_COLUMBIA	L4
HF02	D1	A_LINES	L1	A_PREOP/2	L2	A_DALLAS	L4
HF33	D1	A_LOGO4048	L1	A_PREOP/3	L2	A_FISHING	L4
HF44	D1	A_LOGOTO40	L1	A_ROOSTER	L2	A_LANDING	L4
JREAD2-0	D1	A_LUNLAND	L1	A_SOLDIERS	L2	A_MISSOULA	L4
KRUSEB	D1	A_SHOW	L1	A_STORK	L2	A_ORBIT	L4
LIB_FILE	D1	A_SPACEFLT	L1	A_TI_BUG	L2	A_SEPARATE	L4
LOADER	D1	A_TARGET	L1	A_USA_FLAG	L2	A_SKATER	L4
MMPLOT	D1	A_WALLS	L1	A_WORM	L2	A_STORM	L4
MORSECODE	D1	P_BASECIRC	L1	A_WRECK	L2	A_SUBURBS	L4
OBJ	D1	P_BOXREV	L1	P_ELLIPSE	L2	P_MATHQUIZ	L4
OREGON	D1	P_CIRCLEN	L1	P_PADDLE	L2	P_SENTENCE	L4
PLOT	D1	P_COILGROW	L1	P_PIGMATH	L2	P_TRAIN	L4
XAIRDEFNSE	D1	P_EXPLODE	L1	A_BIRDS	L3	A_DYNATURT	L5
XCREATE	D1	P_FLIGHT	L1	A_COLORS	L3	A_FLYAWAY	L5
XHANG	D1	P_HIT	L1	A_DESIGN	L3	A_ORBITER	L5
XLIBRARY	D1	P_LAZYB	L1	A_ELEPHANT	L3	A_SHUTTLE	L5
XMULT	D1	P_MYSTERY	L1	A_FISH	L3	A_WHITECHR	L5
XOREGONINS	D1	P_POLY	L1	A_FROG	L3	P_CALCULAT	L5
XPLOTDEMO	D1	P_POLYSPI	L1	A_GAME	L3	P_EXPLAZYB	L5
#STKRECPGM	D2	P_POSITRII	L1	A_HORSE	L3	P_EXPONENT	L5
ED1	D2	P_RECIP	L1	A_KICK	L3	P_FLORAPM1	L5
ED2	D2	P_SHOW	L1	A_MUNCHIE	L3	P_FLORAPM2	L5
ED3	D2	P_SPIRALL	L1	A_PEOPLE	L3	P_FLORAPMT	L5
IMPORTANT	D2	P_SPIROS	L1	A_SPINOUT	L3	P_INITINVT	L5
ING	D2	P_SQUAREN	L1	A_SPIROS	L3	P_INVOLUT2	L5
LOAD	D2	P_SQUIRAL	L1	A_SPRING	L3	P_INVOLUTE	L5
MENU	D2	P_STAR	L1	A_TRAIN	L3	P_MATH1281	L5
S1	D2	P_TARGET	L1	A_V_DAY	L3	P_PUT	L5
S2	D2	P_VANISH	L1	P_CIRCLES	L3	P_STENCEII	L5
S3	D2	S_10	L1	P_EDSAMP	L3		
SAMPLE	D2	A_BANNER	L2	P_FUNSAMP	L3		
STK/SAMPLE	D2	A_BOUNCE	L2	P_KINETICS	L3		

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Program	Dsk	Program	Dsk	Program	Dsk	Program	Dsk
BARGRAPH	B30	HIWAYX	B31	PRFACEX	B32	HANGOVER	B34
CHRSMSCARD	B30	JINGLEX	B31	RANDCHARB	B32	HUNTWUMPUS	B34
DECKHALLS	B30	KALB	B31	SHENBX	B32	JUMPINJACK	B34
ELIZA	B30	KEYBBX	B31	STLOUISBX	B32	MATCH'EM	B34
HANGMAN	B30	KIDSB	B31	SYMCHARBX	B32	MATHCOMP2	B34
HORSEPICTR	B30	LOAD	B31	TCDEMOB	B32	MISSMUFFET	B34
MATH-COMP1	B30	MARKB	B31	TCENLX	B32	MOZART	B34
MATH-COMP2	B30	MINIBX	B31	TCSPRDEMOX	B32	QUATRAIN	B34
MERRYXMAS	B30	ONEBX	B31	TCXMASORNB	B32	SLUGS	B34
MSTRMINDNS	B30	SHIPSX	B31	TREMOLOBX	B32	SPEEDMATH	B34
MSTRMINDSP	B30	SLIMEB	B31	TUNES2BX	B32	XAIRDEFNSE	B34
POETRY	B30	SNAKEX	B31	TUNESBX	B32	XCRAZYCLIM	B34
SORT-DEMO	B30	STOPBX	B31	WHAT?X	B32	XMATHCOMP1	B34
STD-DEVN	B30	ZOMBIESBX	B31	BBBASH	B33	BBB	B35
SUM-MEAN	B30	3DSPRITEX	B32	CHECKERS	B33	BLOCKADE	B35
XBASICDEMO	B30	AREYOUBX	B32	DEC-ANYBAS	B33	PROPREDINS	B35
XGROCERIES	B30	BASSBX	B32	LOTTO	B33	TEETH	B35
XPHONOCOLL	B30	BATTLEBX	B32	PACHCANON	B33	XADD-ED	B35
XSPRITEMKR	B30	BUBBLESX	B32	REDSKINS	B33	XALPHA	B35
XSTAMPCOLL	B30	CHAMB	B32	ROBOTS	B33	XDICE	B35
ABBABX	B31	CHMAGX	B32	WUMPUSII	B33	XHANG/MAN	B35
ALPHABX	B31	COLBX	B32	XAARDVARK	B33	XMATH	B35
AULDX	B31	COLWIFEBX	B32	XJUNKET	B33	XMATH-1	B35
BLDAMX	B31	DIXIEBX	B32	XMETEOR	B33	XMAZES	B35
BUGSX	B31	F&J2BX	B32	XPRINTTEST	B33	XPEPTHPLC	B35
CANNONB	B31	F&JBX	B32	XWORDWORLD	B33	XPROPREDIC	B35
CAVEBX	B31	GREENSLBX	B32	ADVENTURE	B34	XROMAN	B35
ESCHERB	B31	JEWELDANCX	B32	ASTROSTORM	B34	XSCRAM	B35
EXPLX	B31	LOAD	B32	BOA_ALLEY	B34	XSPELL	B35
FALLOUTBX	B31	MINDRBX	B32	CAMELOT	B34	XSPRITEDEM	B35
FLYX	B31	MOZARTB	B32	EARTHINV	B34	XSYLLABLES	B35

124 Programs

Tapes No.31 and 32 are now ready for distribution. Orders
for these two tapes/disks will be accepted in JUNE. The other
disks will be released at a later date, watch next months
newsletter for more information.

Date: 05/22/84

<----------Name---------->	<---------Address--------->	<-----City----->	State:	Zip:	Phone:	Date:
ALPER ALAN	701 E ST NW # 54	WASHINGTON	DC	20436		JUL 84
AMAR ED	509 11TH ST	UNION CITY	NJ	07087		JUL 85
AMATO JOHN	135 78TH ST	NORTH BERGEN	NJ	07047	201 868 0913	JAN 85
BAILEY REV R E	11044 E 200 N	MARION	IN	46952	317 934 3609	JAN 85
BENNETT LT COL KELLEY	BOX 2619	APO	NY	09403		JUL 85
BESSEY A L	BOX 117	DUNLAP	TN	37327	615 949 2875	JAN 85
BLAKESLEE LUCINDA	2800 WISCONSIN AVE NW	WASHINGTON	DC	20007	202 244 5944	JAN 85
BOBBITT CHRISTOPHER	72 BULLARD ST	HOLLISTON	MA	01746	617 249 7583	AUG 84
BODDIE MIKE	4339 BARKER ST SE	WASHINGTON	DC	20019	202 635 3395	JAN 85
BONIFACE E I	15 BROWNS CT SE	WASHINGTON	DC	20003	202 546 1199	JUL 85
BOOSE CAROLYN	915 9TH ST NE	WASHINGTON	DC	20002	202 396 6562	SEPT 84
BOWE JAMES	334 EASTBURY NE	NORTH CANTON	OH	44720		JAN 85
BOWEN L	6605 SANDERS RD	LOCKPORT	NY	14094	XXX 434 2595	JAN 85
BRANLEY B R	910 MASS AVE NE	WASHINGTON	DC	20002	202 540 1623	JAN 85
BROCKMAN A N	106 BOXWOOD LN	GREER	SC	29651	803 877 3723	JAN 85
BRUCKER P R	BOX 86	INDUSTRY	PA	15052		JAN 85
BUCKEYE 99'ERS	2424 MANSFIELD-LUCAS RD	MANSFIELD	OH	44903		JUL 84
BYRNE T A	BOX 76213	WASHINGTON	DC	20013		JAN 85
CHANGE AGENT	100 MIDDLETON RD #38	BOHEMIA	NY	11716		MAY 84
COAN R H	7710 WEST CALEY DR	LITTLETON	CO	80123	303 978 9122	JAN 85
COOPER DANIEL J	74 COXE ST	HAZLETON	PA	18201	717 454 0323	MAY
CORKER JOYCE	30 MIDDLESEX CIR	WALTHAM	MA	02154		JUL 85
CORUJO E L	230 S 16TH ST	QUINCY	IL	62301		JAN 85
CREMEANS CLAYTON	RT 1 BOX 44B	SALT ROCK	WV	25559	304 736 3157	JUL 84
ELLIOTT R W	1534 32ND ST NW	WASHINGTON	DC	20007		JAN 85
FAINO SISTER MARIA	519 VARNUM ST NW	WASHINGTON	DC	20011	202 829 8671	JUL 85
FAWCETT MARGIE	700 19TH ST NW	WASHINGTON	DC	20431	202 473 7068	JUL 84
FOLEY MARVIN W	450 HARVARD AVE	PALMERTON	PA	18071	215 826 3545	JAN 85
FOSTER C D	4603 SOUTHALL DR	GREENSBORO	NC	27406	919 679 0579	JAN 85
FRANKS DANLEY	3206 S MANN AVE #6K	TUCSON	AZ	85730	602 790 8991	AUG 84
FRANK R H	BOX 568	MONTGOMERYVILLE	PA	18936		JAN 85
FRIEDMAN HERBERT J	3701 CONN AVE NW #241	WASHINGTON	DC	20008	202 362 8147	JAN 85 Y
GLICK WARREN	510 21 ST #212	WASHINGTON	DC	20006	202 338 7598	JAN 85
GOLDSTEIN ALAN	BOX 91	BELLMORE	NY	11710		JAN 85
GOTRELL BOB	515 MARKET ST RT 1 BOX 454A	PIKETON	OH	45661	614 289 4197	JUL 85
GREENWALD MARTIN	211 CANTIAGUE ROCK RD	WESTBURY LI	NY	11590		AUG 84
GREGORY LONZO	1301 DELAWARE AVE SW #217	WASHINGTON	DC	20024	202 488 4290	JAN 85
GROW DENNIS	8306 WILSHIRE BLVD #559	BEVERLY HILLS	CA	90211	213 931 6639	SEP 84
GULLO R	BOX 310 RD 8 RAINBOW TRAIL	BRIDGETON	NJ	08302		MAY
HAMIS G	371 POMPEY AVE	STATEN ISLAND	NY	10312		JAN 85
HUGHES LARRY D	1884 COLUMBIA RD NW #500	WASHINGTON	DC	20009	202 667 3574	JAN 85
IRVINE DR J	3557 SPRINGSIDE DR	DECATUR	GA	30032	404 288 2904	JAN 85
JAMISON KEITH	709 S 4TH ST	KNOXVILLE	IA	50138	515 842 4645	JAN 85
JENKINS ALZONA	4648 A ST SE	WASHINGTON	DC	20019	202 575 8817	SEP 84
JOHNSTON MAJ WAYNE R	323-7 POPE AVE	FT LEAVENWORTH	KS	66027		JUL 84
JONES D D	331 N 7TH	VANDALIA	IL	62471	618 283 0134	JUL 85
JORDAN MORRIS	6 WILDWOOD AVE	HONEA PATH	SC	29654		JAN 85
KLINGER PETER	3113 38TH ST NW	WASHINGTON	DC	20016	202 362 2660	SEPT 84
KUOK PETER	SINGAPORE EMBASSY					
	1824 R NW	WASHINGTON	DC	20009	301 652 0957	JAN 85
LAVIE STEPHEN F	P O BOX 167	SHIPPINGPORT	PA	15077	412 456 6000	MAY 84
LEWIS J E	3020 O ST SE	WASHINGTON	DC	20020	202 581 7758	JAN 85
LIMEHOUSE JR W	300 ARIZONA AVE NE	ATLANTA	GA	30307		JUL 85
LION ROBERT	44645 12TH ST E	LANCASTER	CA	93535	XXX 948 3532	JAN 85

Date: 05/22/84

<----------Name---------->	<---------Address--------->	<-----City----->	State:	Zip:	Phone:	Date:	
MACKINNON JANICE	22 7TH ST NE	WASHINGTON	DC	20002	202 544 0875	JULY	
MILLER CRAIG	1475 W CYPRESS AVE	SAN DIMAS	CA	91773	714 599 1431	OCT 84	
MILLER ROBERT	720 CORONADO LN	FOSTER CITY	CA	94404	415 341 5145	JAN 85	
MILLER BERNIE	30 JAR BROOK RD	HOLLISTON	MA	01746		JUL 85	
MINEO GARRETT	829 E CRYSTAL CT	WESTWEGO	LA	70094	XXX 340 4264	JAN 85	Y
MIRANDA TOM	AM NUCLEAR ENG COUNCIL						
	410 FIRST ST SE	WASHINGTON	DC	20003	202 554 2870	JAN 85	
MULDROW LEONARD	1772 LYMANN PL NE	WASHINGTON	DC	20002	202 399 3848	SEPT 84	
NAZARIAN K R	RFD 1 BOX 279E TRUE RD	LACONIA	NH	03246		JAN 85	
NEIHENGEN R M	446 CHATHAM CR	BUFFALO GROVE	IL	60090	312 541 5667	JAN 85	
NORTHWOOD J	215 CONSTITUTION AVE NE	WASHINGTON	DC	20002	202 543 5494	JAN 85	
O'GUIN M R	2115 PENNSYLVANIA AVE NW	NEWASHINGTON	DC	20037	202 861 0529	JAN 85	
O'NEILL TERRY	829 15TH AVE SW	LARGO	FL	33540	813 581 0891	JAN 85	
PAESANI JOE	2650 BELLOWS DR	WILMINGTON	DE	19810		JAN 85	
PARKS J B	3347 BANGOR ST SE	WASHINGTON	DC	20020		JAN 85	
PARMER CLEVE	1301 LAMONT ST NW	WASHINGTON	DC	20010	202 462 8359	JAN 85	
PASDEN T A	BOX 896	TAMPA	FL	33601		JAN 85	
PERZAN W J	2007 WILSON ST	HOLLYWOOD	FL	33020		JAN 85	
PETERSON JIM	156 COLLINGWOOD AVE	COLUMBUS	OH	43213	614 235 3545	COMP	
POIRIER VIC	BOX 4631	LANCASTER	PA	17604	717 569 4967	JAN 85	
POLLACK JOHN	131 N LAKE DR	COLDWATER	MI	49036		JUL 85	
PRICE W G	1024 LYNNWOOD DR	DURANT	OK	74701	405 924 5020	JAN 85	
RAY G E	256 MAPLE AVE	NEWPORT	RI	02840		JUL 85	
RAYFOR JOHN	P O BOX 8008	WASHINGTON	DC	20024		JUL 84	
REINHARD PAUL	9023 SCOTT ST	BELLFLOWER	CA	90706	213 634 4361	JUL 85	
RICHIE SHIRLEY	3720 24TH ST NE	WASHINGTON	DC	20018	202 635 9263	JAN 85	
RIEFFEL ALEXIS	1709 Q ST NW	WASHINGTON	DC	20009	202 387 2311	JUN	
RIEFFEL MARC	1709 Q ST NW	WASHINGTON	DC	20009		JULY	
ROBINSON RAYMOND	918 QUINCY ST NW	WASHINGTON	DC	20011	202 882 0707	MAY	
ROBINSON R	231 14TH ST NE	WASHINGTON	DC	20002	202 546 7506	JAN 85	
ROSENBAUM HARVEY	4301 MASSACHUSETTS AVE NW	WASHINGTON	DC	20016	202 244 9071	OCT 84	
SAAVEDRA J A	49 D ST SE	WASHINGTON	DC	20003	202 546 1162	JAN 85	
SAVULA MARTIN J	1111 INDEPENDENCE AVE #2410	AKRON	OH	44310	XXX 633 6528	JUL 85	
SHEA D	2145 ARCHER RD # 2	CLIFTON SPR	NY	14432	315 462 9644	JAN 85	
SHEERES R	5499A LANGLEY WAY	WASHINGTON	DC	20336	202 767 5266	JAN 85	
SHEFFIELD JIM	143 WOODSTOCK AVE	CLARENDON HILLS	IL	60514	312 654 8134	JAN 85	
SHOALS 99'ERS	BOX 2928	MUSCLE SHOALS	AL	35662		JUL 84	
SIMOES FERNANDO	1733 19TH ST NW #4	WASHINGTON	DC	20009	202 332 2377	JUL 84	
SNOW JAMES S	BOX 746	DARIEN	GA	31305	912 638 6425	JAN 85	
SOUTH NEVADA USERS GROUP	PO BOX 4920	LAS VEGAS	NV	89127		JAN 85	
SPACEK J A	5407 SALEM HILL	AUSTIN	TX	78745	XXX 447 1757	JAN 85	
STARK LOREN	10202 CROSSTOWN CIR	EDER PRAIRIE	MN	55344	612 944 5700	JUL 84	
STOTT M H	2621 CERRITA VIA	HARVEY	LA	70058	504 367 3180	JAN 85	
STRAUSS ALAN	347 HENLEY AVE	NEW MILFORD	NJ	07646		JAN 85	
STRIEBER G A	657 SAGRAMORE	N SALT LAKE	UT	84054	801 292 6057	JAN 85	
STUART MAI	700 19TH ST NW	WASHINGTON	DC	20431	202 931 5658	SEP 84	
SUTLIFFE TOM	11 MADISON LN	MERRIMACK	NH	03054		JAN 85	
THIBODEAUX MRS J M	RT 1 BOX 292	SHINER	TX	77984	512 596 4553	JUL 85	
TRACZYNSKI AL	39650 DURAND DR	STERLING HEIGHTS	MI	48078		JUL 85	
TRACZYNSKI AL	39650 DURAND DR	STERLING HGTS	MI	48078		JUL 85	
TRAVER BARRY	552 SEVILLE ST	PHILADELPHIA	PA	19128	215 438 1379	JULY	
TRI-STATE USERS GROUP	RT 1 BOX 44B	SALT ROCK	WV	25559		JUL 84	
VANHORN GRACE	TWIN - TI'ERS UG						
	610 MORELAND AVE	ELMIRA	NY	14901		JUL 85	

WILLIAMSPORT-HAGERSTOWN LIST

Name	Address	City	State:	Zip:	Phone:
ALLEN J G	RT 1 BOX 64	FAIRPLAY	MD	21733	
BOYD TOM	113 LARCH AVE	HAGERSTOWN	MD	21740	733 0477
BROWN RON	313 EDGEMONT	MARTINSBURG	WV	25401	304 267 4018
BULPITT ED	223 PETMAR CR	HAGERSTOWN	MD	21740	790 0068
CHURGOTT JOHN	208 WESTSIDE AVE	FUNKSTOWN	MD	21734	
CRIDER FRED	1408 HAMILTON BLVD	HAGERSTOWN	MD	21740	733 0424
CURRY JAMES	138 S PROSPECT ST	HAGERSTOWN	MD	21740	739 8886
EVANS FURMAN	RT 1 BOX 868	BUNKER HILL	WV	25413	
FIKE GILES	RT 1 BOX 340A	HAGERSTOWN	MD	21740	797 6671
FIREY T	RT 1 BOX 323	CLEAR SPRING	MD	21722	
GROVES PHIL	711 MARION ST	HAGERSTOWN	MD	21740	797 4986
HAMEL KARL	RT 2 BOX 454	SMITHSBURG	MD	21783	
HAMILTON JOANNE	20 HAMPTON RD E	WILLIAMSPORT	MD	21795	
HANSEN RON	1089 MARSHALL ST	HAGERSTOWN	MD	21740	797 8360
HARMAN GARY	3427 WESTVIEW CR	GREENCASTLE	PA	17225	
HAUGH NORRIS	825 ANTHONY AVE	WAYNESBORO	PA	17268	
HILTON WM	325 DELLWYN DR	HAGERSTOWN	MD	21740	797 3613
HUGHES EDWARD	428 RHODE ISLAND AVE	HAGERSTOWN	MD	21740	797 3796
KAMINSKY JAMES	19 W 3RD ST	WAYNESBORO	PA	17268	
LAKE JACK	1029 PENNA AVE	HAGERSTOWN	MD	21740	791 4985
MADI KHALID	EDGEWOOD HILL #1743 - 102	HAGERSTOWN	MD	21740	739 0088
MANN DAVID	104 LINCOLN TERR	FAYETTEVILLE	PA	172--	
MASON JANET	1391 JEFFERSON BLVD	HAGERSTOWN	MD	21740	739 5289
METGER CLIFFORD	673 HIGHLAND WAY	HAGERSTOWN	MD	21740	791 2134
MYERS MILDRED	239 DEVONSHIRE RD	HAGERSTOWN	MD	21740	739 1475
NEEDY JAMES	213 CHURCH ST	WAYNESBORO	PA	17268	
OCKER GERALD	6 CHAPELWOOD LA RT 3	HAGERSTOWN	MD	21740	733 1958
ROUZER FRANK	216 MANSE RD	HAGERSTOWN	MD	21740	
SALGADO MARIE	RT 3 BOX 45	CLEARSPRING	MD	21722	
SANDERS RONALD	409 PEACOCK TR	HAGERSTOWN	MD	21740	733 7478
SHEW PHIL	321 DELLWYN DR	HAGERSTOWN	MD	21740	739 7091
SHEW PHIL	321 DELLWYN DR	HAGERSTOWN	MD	21740	739 7091
STANSBERRY JOHN	BOX 31	CHEWSVILLE	MD	21721	797 3328
STEADMAN CLEVE	RT 3 BOX 516	BOONSBORO	MD	21713	432 5743
TITLOW EILEEN	528 SALEM AVE	HAGERSTOWN	MD	21740	733 2524
WHITTINGTON MARTY	101 WILLIAMS CR	WILLIAMSPORT	MD	21795	
WILLIAMS SAM	BOX 376	WILLIAMSPORT	MD	21795	223 8014
ZUBE ALAN	BOX 566	FUNKSTOWN	MD	21734	

Date: 05/22/84

MIXED STATES & WASH DC LIST

Name	Address	City	State:	Zip:	Phone:	Date:
VILA RAMON	BOX 20347	RIO PIEDRAS	PR	00928		JUL 85
VON DER MENDEN R H	BOX 463	MOUNT HERMON	CA	95041	XXX 335 5969	JAN 85
WALSH BILL	1115 SO CAROLINA SE	WASHINGTON	DC	20003	202 546 0990	JUL 85
WEILER ERIC	2839 ELDERSVILLE RD	FOLLANSBEE	WV	26037		SEPT 84
WHEELER HOWARD	NAVY YARD ANNEX					
	BLDG 159E RM 950	WASHINGTON	DC	20374		MAY
WIEST EDWARD	12484 ABRAMS RD #2407	DALLAS	TX	75423		JAN 85
WILLIS KAYE	3701 WOODCREST DR	CLAREMORE	OK	74017	918 341 8869	JUL 85
WOLFF DAVID	18231 SW 90TH CT	MIAMI	FL	33157		JUL 85
WOODEN R	920 E 1161 SOUTH					
	MINICOMPUTER APPLICATIONS	OGDEN	UT	84404	XXX 399 1077	JAN 85
WORKMAN H M	RT 2 BOX 41C	MAYSEL	WV	25133		JAN 85
YORKE PAUL	1200 STARFISH LN	STUART	FL	33494		JAN 85

Record Count: 116

Date: 05/22/84

<----------Name---------->	<---------Address-------->	<-----City----->	State:	Zip:	Phone:
ALVEREZ BARBARA	8655 HOERNER AVE	BALTIMORE	MD	21234	668 0515
AMOS WM	2621 FREDERICK AVE	BALTIMORE	MD	21223	233 2892
ARLEN MARC	5668-114 STEVENS FOREST RD	COLUMBIA	MD	21045	964 1797
AYERS DENNIS	1815 WALNUT AVE	DUNDALK	MD	21222	288 6898
BEAUCHAMP JEFFERY	10 PINECONE CT	BALTIMORE	MD	21234	882 2261
BECKER ANDREW	9380 PARSLEY DR	ELLICOTT CITY	MD	21043	
BELL FRED	4443 EBENEZER RD	BALTIMORE	MD	21236	256 6445
BOYLE ROBERT	7215 ROCKRIDGE RD	BALTIMORE	MD	21207	486 7661
BOYLE MICK	1707 GLADMAR CT	FINKSBURG	MD	21048	876 1494
BROWN SCOTT	9059 DUNLOGGIN RD	ELLICOTT CITY	MD	21043	
BURCK JAMES	2819 HOFFMAN AVE	BALTIMORE	MD	21727	789 2932
CANTER PHILIP	2812 COLLIER RD	RANDALLSTOWNE	MD	21133	922 5730
CAPIZZI TONY	7901 TILMONT AVE	BALTIMORE	MD	21234	882 5594
CASSIDY MAURICE	4601 HAMPNET AVE	BALTIMORE	MD	21214	
CAULSON SISTER BEATRICE	2907 DUNLEER RD	BALTIMORE	MD	21222	284 3580
CLEMENTS JAMES L	6233 TRAMORE RD	BALTIMORE	MD	21214	
COLLINS JOHN	505 BATHURST AVE	CATONSVILLE	MD	21228	
CORMENY GEO F	9023 DEVIARION RD	BALTIMORE	MD	21236	256 7742
COWAN CONRAD	5802 LOCH RAVEN BLVD	BALTIMORE	MD	21239	
DEY SUSAN	1017 JAMIESON RD	LUTHERVILLE	MD	21093	
DIEPOLD JAMES	7431 GUMSPRING RD	BALTIMORE	MD	21237	665 7825
DISNEY RICHARD	2429 BRUNSWICK RD	BALTIMORE	MD	21227	242 7136
DURANDETTO GARY	2 DUNCROFT PL # 2B	BALTIMORE	MD	21236	
FOWBLE WM	14907 FALLS RD	BUTLER	MD	21023	771 4709
FRUMKIN MIKE	9220 THROGMORTON RD	BALTIMORE	MD	21234	
GAEDE DOUGLAS	11805 BERANS RD	LUTHERVILLE	MD	21093	252 6595
GAIBROIS JAMES	BOX 92	JOPPA	MD	21085	391 4303
GARRISON EVERETT	513 N WOODWARD DR	BALTIMORE	MD	21221	686 3290
GEERTSEN WM	36 NORTHWOOD DR	TIMONIUM	MD	21093	561 0973
GIEGER JIM	515 PINEY RUN CT	SYKESVILLE	MD	21784	795 5373
GILBERT JEFFREY	RT 1 BOX 310B	OAKLAND	MD	21550	387 9036
GILBERT JAMES	5553 WHITBY RD	BALTIMORE	MD	21206	488 6307
GILLO ROBERT	315 ROXBURY CT	JOPPA	MD	21085	
GOODENOUGH GARY	21201 HEATHCOTE RD	FREELAND	MD	21053	
GOODMAN HAROLD	3131 RYERSON CR	LANSDOWNE	MD	21227	247 2573
GORRELL KEN	14017 JARRETSVILLE PK	PHOENIX	MD	21131	628 0789
GOTTSHALL EARL	116 W HEATHER RD	BEL AIR	MD	21014	
GRABAREK EDWARD	8031 STRATMAN RD	DUNDALK	MD	21222	
GREY RON	7511 C TOMAHAWK CT	BALTIMORE	MD	21237	665 5196
GRONAU KAREN	347 LEEANNE RD	BALTIMORE	MD	21221	
HAGAN EARL	8820 FLAGSTONE DR	RANDALLSTOWNE	MD	21133	655 1766
HARDESTY JOHN	5 SHAWNEE CT # 103	BALTIMORE	MD	21234	
HARGADON JOSEPH	1741 GLEN RIDGE RD	BALTIMORE	MD	21234	668 1741
HARTNETT CHAS	3102 YORKWAY	BALTIMORE	MD	21222	
HASLBECK KEN	903 TOBIAS WAY	KINGSVILLE	MD	21087	
HERRMANN DAVID	2501 FOX RD	FALLSTON	MD	21047	557 7088
HIRSCHBUSHLER KEVIN	503 E BROADWAY	BEL AIR	MD	21014	879 3029
JANKIEWICZ JEFF	1808 WEDSWORTH WAY	BALTIMORE	MD	21239	444 9106
KABAKOW STEVE	4303 ROLAND SPRING DR	BALTIMORE	MD	21210	
KENNEDY STAN	18 BELCLAIRE CR	SPARKS	MD	21152	472 9118
KESTER LINDA	1130 OAKLAND RD	FREELAND	MD	21053	
KROMM MARK	1900 SUFFOLK RD	FINKSBURG	MD	21048	876 2495
KUNKEL BARBARA	224 N MONTFORD AVE	BALTIMORE	MD	21224	665 7355
LANG CHRIS	1906 JAKSON RD	BALTIMORE	MD	21222	284 5640

Date: 05/22/84

<----------Name---------->	<----------Address--------->	<-----City----->	State:	Zip:	Phone:
LANG CHRIS	1906 JACKSON RD	BALTIMORE	MD	21222	284 5648
LANGE RICHARD	1909 LYDONLEA WAY	BALTIMORE	MD	21239	444 8648
LEUBA SEAN	14240 CUBA RD	COCKEYSVILLE	MD	21030	667 9240
LEVINE RONALD	32 WIMBLEDON LA	BALTIMORE	MD	21117	
LIBBER MICHAEL	702 S EATON ST	BALTIMORE	MD	21224	
LINDER ARNOLD	BOX 103	FORK	MD	21051	592 5775
LULL THOMAS	7943 ST CLAIR LA	BALTIMORE	MD	21222	
LUMPKIN WM	114 S CLINTON ST	BALTIMORE	MD	21224	327 6124
MARSHALL ROBERT	46 E FORD CT	BALTIMORE	MD	21234	665 9291
MATTERN JOHN	702 HILTON AVE	BALTIMORE	MD	21228	
MATTHEWS DAVID	703 CEDARCROFT RD	BALTIMORE	MD	21212	435 6523
MAZURKIEWICZ FRANK	2914 DUNMURRAY RD	DUNDALK	MD	21222	285 5897
MC CORMICK D R	12 CARTWRIGHT C	BALTIMORE	MD	21237	
MC DANIEL ERVIN	5202 ST GEORGES AVE	BALTIMORE	MD	21212	
MEALY DALE	319 OSBORNE AVE	BALTIMORE	MD	21228	
MELHUISH ALVAH	5648 CALYN RD	CATONSVILLE	MD	21228	788 0498
MELHUISH ALVAH	5648 CALYN RD	CATONSVILLE	MD	21228	788 0498
MILLER VIRGIL	5519 DAYBREAK TERR	BALTIMORE	MD	21206	866 5441
MOORE GILBERT	4107 ST CLAIR BRIDGE RD	JARRITTSVILLE	MD	21084	692 5261
MORASKI JOHN	3224 ACTON RD	PARKVILLE	MD	21234	661 7886
NEWCOMER DIANE	8000 RIDGELY OAK RD	BALTIMORE	MD	21234	665 4248
OLIVER TOM	1248 PLAZA CR	JOPPA	MD	21085	
QUEEN ELFRIEDA	3707 EASTMAN RD	RANDALLSTOWN	MD	21133	655 6922
REXROAD RALPH	7005 RUXFORD DR	KINGSVILLE	MD	21087	592 7980
RIEFFER ALFRED	8052 BANK ST	BALTIMORE	MD	21224	285 7768
RIGGS KIRK	337 IDA AVE	BALTIMORE	MD	21221	657 0574
ROCKWELL JIM	9725 HARFORD RD	BALTIMORE	MD	21234	665 3760
ROGERS DALE	217 EASTERN AVE	ESSEX	MD	21221	
SAUTER DON	2803 EMERALD RD	BALTIMORE	MD	21234	661 2280
SCHEERER PAUL	4424 RASPE AVE	BALTIMORE	MD	21206	
SCHUILING BUD	1065 CHURCH ST	BALTIMORE	MD	21225	
SHANAHAN RICK	6 PINEWALL PL #2C	BALTIMORE	MD	21236	822 2959
SIMMONS BILL	5504 FORGE RD	WHITE MARSH	MD	21162	256 1720
SIMMONS HAROLD	9818 49th AVE	COLLEGE PARK	MD	20740	
SIMPSON WALTER	3421 DUNHAVEN RD	BALTIMORE	MD	21222	
SMILOW SAUL	5 APPLE GROVE CT	BALTIMORE	MD	21228	265 8563
SMITH M J	9122 WALTHAM WOODS RD	PARKVILLE	MD	21234	
SNYDER LESTER	1008 BOSLEY RD	COCKEYSVILLE	MD	21030	
SNYDER RICHARD	10 BANTRY CT	BALTIMORE	MD	21237	547 5529
SOULE RON	2418 UNIONTOWNE RD	WESTMINISTER	MD	21157	
SPACEK EMRICK	8236 PHILADELPHIA RD	BALTIMORE	MD	21237	
STAHL CRAIG	535 WAMPLER RD	BALTIMORE	MD	21220	682 2040
T I B U G	P O BOX 3	PERRY HALL	MD	21128	
TI USER	412 WOLF ST	ESSEX	MD	21221	
TILLMAN ULDER	7942 B BELRIDGE RD	BALTIMORE	MD	21236	668 2540
TRAGESER ROBERT	42 STRABANE CT	BALTIMORE	MD	21234	
TRAGESER JOHN	11524 W 15TH ST	BAYONNE	NJ	07002	
TREADWILL ALVIN	200 ROTHWELL DR	LUTHWSERVILLE	MD	21093	828 5568
TURNER TED	114 MELVIN AVE	CATONSVILLE	MD	21228	747 4653
WEAS ED	205 MURGATE LA	OWINGS MILLS	MD	21117	356 9690
WILSON GREGORY	110 BUTLER RD	RIESTERTOWN	MD	21136	526 6873
WOOD DON	8 EVONS AVE	TIMONIUM	MD	21093	252 5295
WOOLBERT MARILYN	300 PINEWOOD RD	BALTIMORE	MD	21222	

NOTICE TO MEMBERS OF THE WASHINGTON DC AREA TI HOME COMPUTER GROUP. Please check your mail label for the renewal date of your Membership. If your date is JUN, JUL or LATER in 1984 the date will be circled in RED. We are now trying to group the expiration dates so that the mail list will be easier to maintain. Your dues will be prorated. Thank you for your cooperation. If your date is circled in red please remit JUN $13.00, JUL $12.00, to extend your membership until JULY 1985, for the labels marked later please remit amount marked in RED, to renew until JULY 1985. Remember the DUES ARE TO BE INCREASED on JULY 1, to $16.00 so please SAVE at TODAYS RENEWAL RATE.

MEMBERSHIPS: Memberships are available to the general public. Cost for dues depend on the group you join. Membership information for each group is: WASHINGTON D. C. AREA TI USER'S GROUP--Contact Frank Jordan at (301) 899-3707 or mail your dues to Frank at 4100 Canterbury Way, Temple Hills, Md. 20748; TI BALTIMORE USER'S GROUP (TIBUG)--Send $15 to Membership Chairman TIBUG PO BOX 3, Perry Hall, MD. 21128; HAGERSTOWN-WILLIAMSPORT TI USER'S GROUP--Write Sam Williams at PO BOX 376, Williamsport, MD 21795 or call (301) 223-8014; MONTGOMERY COUNTY TI USER'S GROUP--Call Allen Minton at (301) 949-4085.

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