



THE MSP 99 NEWSLETTER

**MONTHLY MEETING LOCATION AND NIGHT
CHANGED -- SEE YOU TUESDAY NIGHT AT
BROWN INSTITUTE**

The November 9th and December 21st meetings of the MSP 99 USERS GROUP will be held in the Computer Department Building of Brown Institute, a division of NEC Resident Schools, Inc. The Computer Department is located at 2716 East Lake Street in South Minneapolis. The building is between 27th and 28th Avenue South on East Lake Street. Parking is available in back of the building, enter from 27th Avenue South.

It is important that you note the change of Night. We will be meeting on TUESDAY NIGHT -9 NOV -21 DEC rather than Thursday night. We are experiencing a large growth in membership and need volunteers to assist in preparing the rooms at Brown prior to the meeting. Call Mike Larson at 738-7822 or Dean Sorenson at 425-7154 to volunteer to come early to assist. Meetings begin promptly at 7 PM.

The November meeting will feature PRINTERS and a Texnet Demonstration. The December meeting will feature Games with an Educational Flair and TI-LOGO early learning.

Our thanks to Kerm Steffenhagen and the Staff of Brown for providing us with this new meeting location. See you all there!

TI HOTLINE WILL TURN UP THE HEAT

The last word from TI is that they will add several more operators to their consumer hotline to handle the calls. If you have lost this number it is 1-800-858-4565. This number is for questions concerning module repair, peripheral and accessory information only. The number to call for technical questions about programming, specific application, etc. is (806) 741-2663. Note this is not a toll-free number.

Also, there is a Consumer Software line for direct purchase of software that you cannot find in the area. This number is 1-800-858-4075. TI boast that they have "a thousand" programs available. This line is for the 975 programs not available in this area!

A NOTE ABOUT THE TYPESETTING FOR THIS NEWSLETTER

by Dick Clemetson

In conjunction with the upcoming November meeting on printers, this issue of the MSP 99 newsletter has most of the typesetting done by Dick Irwin. He used his 99/4A computer, an Epson 100 printer and an inexpensive wordprocessing program. The wordprocessing program was developed by a third party company for the TI-99/4. It is called "Direct Writer".

The following EPSON MX-100 typefaces were used for this newsletter. Bold Expanded at 5 characters/inch, Bold Regular at 10 characters/inch and a few articles in Condensed with 16.5 characters per inch. This is SCM, a METRO PICA typeface at 10 char/inch.

IF YOU ARE INTERESTED IN COMPUTERS FOR THE HOME

The MSP 99 USER GROUP meets once a month for a general program. You will hear discussions and presentations that will enable you to be better informed, whether you own a home computer or are planning to buy one. A User Group is a group of people who freely share and exchange information for the good of all. You'll find our members are helpful and congenial. Some of our members have a broad range of computer expertise and experience which they are willing to share with others. Others are just beginning. We are not affiliated or sponsored by any other group or company. We are owners of the Texas Instruments TI-99/4 and TI-99/4A Home Computers. We share an enthusiasm for these fine machines. The nominal dues are twelve dollars a year for a family and ten dollars a year for an individual. You are welcome to visit a meeting before you join. For more information call or write to us.

MSP 99 USER GROUP

P.O. BOX 12351

SAINT PAUL, MINNESOTA, 55112, USA

President	Paul Weiblen	331-7755
Vice President	Dennis Berke	(715) 796-2700
Secretary	Dean Sorenson	425-7154
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The MSP 99 NEWSLETTER is published by the MSP 99 USERS GROUP to serve the needs of TI-99/4 and TI-99/4A Home Computer Users in the Minneapolis and Saint Paul Region. This publication is one of the regular benefits of your MSP 99 USER GROUP Membership. Members are encouraged to contribute articles for publication. Opinions expressed are those of the writer and are not necessarily those of the MSP 99 USER GROUP, its officers, editors or members.

ASSOCIATE EDITORS * MSP 99 NEWSLETTER

Richard Clemetson Marilyn McPartlin

The MSP 99 USERS GROUP MEETINGS are held at Brown Institute, Computer Building, 27th Avenue and East Lake Street, Mpls.

Members who have a special interest or an idea for future programs should submit their ideas to the Program Committee, Mike Larson, phone him at 738-7822 or see him at a meeting.

Members are needed to volunteer to help with one of the many committees necessary for the success of the Group. Committees are education, program, software, equipment, newsletter and recruitment. To volunteer or assist, contact one of the officers, today!

COMMERCIAL ADVERTISEMENT RATES

Business firms that desire to communicate with our members may do so by placing an ad in a forthcoming issue of this newsletter. Rates are: Full Page (7.5 X 10.5) \$30; Half Page (3.5 X 10.5) \$20; Quarter Page (3.5 X 5) \$12. Ads must be Copy-Ready in sizes indicated and paid in advance. Contact the Editor for more information.

USERS' GROUP COMMITTEES

by Marilyn McPartlin

As our first year comes to a close, we want all members to consider actively helping with the work of MSP 99. In addition to the work done by office holders, much is accomplished by our various committees. Volunteer to help on one of the following committees:

The Activities (Program) Committee plans programs for the regular meetings, finds a place to meet, and also has charge of any social functions of the group.

The Recruitment (Publicity) Committee works to get new members and sponsors.

The Software Committee maintains the software and runs the software exchange.

The Library Committee maintains our library of books, magazines and material pertaining to the TI 99/4.

The Equipment Committee handles the physical machinery (computers and peripherals) used at our group meetings.

The Education Committee plans educational activities for members. In the past, these activities have included offering courses in TI Basic and in Extended Basic.

The Newsletter Committee publishes and oversees the delivery of the newsletter and seeks advertisers to help support it.

We encourage all our members, and especially our new members, to consider volunteering to help with committee work. If you are interested in helping, please check the appropriate box at the bottom of the enclosed Nomination Form.

METRO AREA CLASSES

by Diane Kavanaugh-Education Committee

Looking for more computer education? The Education Committee is a resource center for the metro area courses offered on varied computer topics ranging from "Computing? What is It?" to "Fortran for Programmers" Call Diane Kavanaugh at 644-5940 with your specific needs to find a course being offered in your area.

FAMILY ACTIVITIES FOR DECEMBER MEETING

Family Computing Inc., a computer learning center in Northfield, will present an evening of computer activities for the whole family at the User's Group meeting on Tuesday, December 21st.

Tyson and Collin Wigley, ages 4 and 6, will help demonstrate and teach 3 to 6 year olds how to use the early LOGO programs from TI's LOGO curriculum guide.

Also, third party programs and games with an educational flavor are to be shown and these will be available for our members to try out. The emphasis will be on software that is not distributed by TI and is not intended for use in the schools but for use in the home--fun activities for all ages in which some valuable learning takes place.

If you have a program of this type that you think others might like to see, call Robbie or Griff Wigley and let them know. Their phone number is (507) 663-1341.

<< NOTICE >>

Enclosed with this issue of the MSP 99 newsletter, voting members will find a nomination form explaining the upcoming elections and requesting your nominations and suggestions for the offices of president, vice president, secretary, and treasurer.

The Nominating Committee (Marilyn McPartlin, Craig Wrunk, Dick Irwin, Jim Kavanaugh, Gerry Lockhart, and Mike Larson) hope all members will fill out the form and bring it to the November MSP 99 meeting or mail it to Jim Kavanaugh, 1368 Idaho Ave. W., St. Paul, MN 55108, by Nov. 15.

MSP 99 CALENDAR OF EVENTS

NOV 9 7:00 PM BROWN INST., 2716 E. LAKE ST., MINNEAPOLIS

PRINTERS AND TEXNET

NOV 17 7:00 PM U OF M, 2818 COMD AVE SE, MINNEAPOLIS (DINING ROOM) EXTENDED BASIC CLASS - CALL DIANE KAVANAUGH 644-5940

DEC 21 7:00 PM BROWN INST., 2716 E. LAKE ST., MINNEAPOLIS

FAMILY AFFAIR WITH YOUR COMPUTER



Texas Instruments is now offering Computer Awareness Class for Children and Adults

- I. *Beginning Computer Awareness Class for Children* aged 8-15 with little or no prior exposure to computers. This class meets for 10 hours, week nights for two weeks.
- II. *Programming Discovery in TI Logo for Children* aged 8-15. This program offers children 10 hours of "hands-on" exposure to Logo, the most advanced educational programming language available.
- III. *Introduction to Home Computers for Adults* meets for 3 hours and is an introduction to the exciting world of computing.
- IV. *Adult Computer Awareness Program* is a 10 hour "hands-on" computer experience designed to introduce adults to the power, applications, fun and excitement of the Home Computer.

St. Paul Site:

Derham Hall High School, 540 Warwick

Hopkins Site:

Eisenhower Community Center, 1001 Hwy 7

For information call toll free 1-800-858-4069

EDUCATION LIBRARY

by Diane Kavanaugh-Education Committee

Are you aware that the Education Committee has a library for your use which includes magazine articles, a scrapbook of newspaper articles, books, and Teach Yourself BASIC cassette. All of these items can be checked out at the monthly group meetings and returned the following month. Any donations of books, articles, etc. which you feel other members would enjoy will be appreciated in helping to build this library for group use. Look for the Education Committee table near the door at the monthly group meetings.

EXTENDED BASIC COURSE OFFERED

by Diane Kavanaugh-Education Committee

The Education Committee is pleased to announce a course on Extended BASIC programming which will be offered free to MSP 99 group members. This course will start at 7:00 p.m., Wednesday, November 17 and run for five consecutive Wednesdays with each session lasting 1 to 1 1/2 hrs. The classes will meet in the dining room at the U of Minn. Graphic Arts and Printing Building, 2818 Como Avenue S.E. (same location where we had our group meetings).

Jim Dew, a MSP 99 group member who is Manager of a Software Department at Sperry Univac with 14 years experience as a professional programmer, will be teaching this course in response to the many members who have requested education on this subject. Some of the topics which will be covered include Sprites, Subroutines and Subprograms, Screen Control, and the Merge and Protect features. A good working knowledge of BASIC is needed for this course.

If you are interested in attending this class and did not register at the October meeting, please call Diane Kavanaugh at 644-5940.

Another possible course to be offered in early 1983 is one dealing with the TI Memory Expansion unit. Watch this newsletter for further information regarding this course.

COMMERCIAL COMMUNICATIONS

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Full Page (7.5 X 10.5).....\$30.00

Half Page (3.5 X 10.5).....\$20.00

Quarter Page (3.5 X 5).....\$12.00

All Ads must be Copy-Ready in sizes indicated and be paid in advance of publication. Plan your insertions now and contact the Editor for more information.

4

BITS AND PIECES-II

by Dennis Berke-MSP 99 Vice President

The following is a short assembly language program that will place a sprite on the screen in the shape of a plane. The plane can be moved on the screen with joystick number one. As the plane moves from side to side it banks. The plane moves up if the joystick is pulled back, down if moved forward.

The beginning of the program is essentially the same as the arrow program in the 99'er magazine. I will therefore start my discussion with the line * GOSUB TO LOAD SPRITE TO DEFINITION TABLE. This is simply a comment statement and is ignored by the assembler. For human consumption only.

LI 15,PLSH5 - This is a load immediate command. It loads the plane shape #5 address into workspace register number 15.

BL @LDSPSH - This is the branch and link command. It is very much like the GOSUB command in BASIC. It stores the return address (address of the next statement) in workspace register number 11.

Now jump down the page as the computer would and find label LDSPSH this is the next command that would be executed.

LDSPSH MOV R15,R1 - This is the first command I have explained with a label. The label is used like a line number in BASIC. The MOV command is a full word wide operation. It moves 16 bits. In this case it moves the contents of register 15 into register 1.

LI 0,>400 - Loads hexadecimal 400 into register zero.

LI 2,32 - Loads decimal 32 into register two.

BLWP @VMBW - This command is branch and loads workspace pointer. It branches to the utility program VMBW and passes the workspace pointer to this program. VMBW will be discussed at another time.

B #11 - This is the branch command and is used like the BASIC return statement since the BL command put the return address in register 11.

That's enough for now. Try entering the program with the editor and assembling it. To run it the program name is START.

```

DEF START
REF KSCAN, VSBW, VWTR, VMBW
WS BSS >32
SPLC BYTE >70, >88, >80, >01 SPRITE LOCATION AND COLOR
      BYTE >D0
PLSH1 BYTE >00, >00, >00, >00, >00, >03, >07, >07 SPRITE SHAPES
      BYTE >07, >09, >9B, >60, >00, >00, >00, >00
      BYTE >20, >10, >10, >20, >60, >80, >80, >C0
      BYTE >C0, >C0, >00, >00, >00, >00, >00, >00
PLSH2 BYTE >00, >00, >00, >00, >00, >03, >03, >07
      BYTE >0F, >99, >7B, >00, >00, >00, >00, >00
      BYTE >00, >08, >04, >04, >08, >38, >C0, >80
      BYTE >C0, >C0, >80, >00, >00, >00, >00, >00
PLSH3 BYTE >00, >00, >00, >00, >00, >03, >03, >83
      BYTE >9F, >69, >00, >00, >00, >00, >00, >00
      BYTE >00, >00, >00, >04, >02, >0C, >98, >E0
      BYTE >C0, >C0, >C0, >00, >00, >00, >00, >00
PLSH4 BYTE >00, >00, >00, >00, >00, >01, >83, >8F
      BYTE >72, >13, >01, >00, >00, >00, >00, >00
      BYTE >00, >00, >00, >00, >01, >81, >9E, >EB
      BYTE >C0, >C0, >80, >00, >00, >00, >00, >00
PLSH5 BYTE >00, >00, >00, >00, >00, >81, >83, >7F
      BYTE >13, >03, >01, >C0, >00, >00, >00, >00
      BYTE >00, >00, >00, >00, >00, >81, >C1, >FE
      BYTE >CB, >C0, >80, >00, >00, >00, >00, >00
PLSH6 BYTE >00, >00, >00, >00, >80, >81, >79, >17
      BYTE >03, >03, >01, >00, >00, >00, >00, >00
      BYTE >00, >00, >00, >00, >00, >80, >C1, >F1
      BYTE >4E, >CB, >80, >00, >00, >00, >00, >00
PLSH7 BYTE >00, >00, >00, >20, >40, >30, >19, >07
      BYTE >03, >03, >03, >00, >00, >00, >00, >00
      BYTE >00, >00, >00, >00, >00, >C0, >C0, >C1
      BYTE >F9, >96, >00, >00, >00, >00, >00, >00
PLSH8 BYTE >00, >10, >20, >20, >10, >1C, >03, >01
      BYTE >03, >03, >01, >00, >00, >00, >00, >00
      BYTE >00, >00, >00, >00, >00, >C0, >C0, >E0
      BYTE >D0, >99, >06, >00, >00, >00, >00, >00
PLSH9 BYTE >04, >08, >08, >04, >06, >01, >01, >03
      BYTE >03, >03, >00, >00, >00, >00, >00, >00
      BYTE >00, >00, >00, >00, >00, >C0, >E0, >E0
      BYTE >E0, >90, >19, >06, >00, >00, >00, >00
SPSP BYTE >01, >00, >00, >00 SPRITE VELOCITY
H01  BYTE >01, >00
CONTRL BYTE >10
KEYADD EQU >8374
JOYY EQU >8376
JOYX EQU >8377
JOYPOS BYTE >04
UPLIM BYTE >25
DNLIM BYTE >E5
JOYNEG BYTE >FC
TEMP BYTE >00, >00
TEMPY BYTE >00
TEMPX BYTE >00
      BYTE >00, >00
DELAY BYTE >08
R1DAT BYTE >E2
R1ADD EQU >83D4
      EVEN
START LWPI WS LOAD WORKSPACE POINTER
      CLR 0 CLEAR SCREEN
      LI 1, >2000

```

INFOCHIPS

Here is a neat little routine for a border around the screen display. It comes from Chicago U.G. Times. The INPUT lines are so you can play with combinations of colours. CHITI the correction was included.

```

100 INPUT "BORDER COLOR: ":A
110 INPUT "SCREEN COLOR: ":B
120 CALL CLEAR
130 CALL SCREEN(A)
140 CALL CHAR(143,"Ø")
150 CALL VCHAR(1,1,143,48)
160 CALL VCHAR(1,31,143,48)
170 FOR C=1 TO 12
180 CALL COLOR(6,2,A)
190 NEXT C
200 INPUT "" :A$

```

The Null String in INPUT is a nice feature, it suppresses the ? mark.

Here are Translations of some of the expressions you may encounter in the task of moving language-language. TI BASIC uses one expression for many uses. (HUG Newsletter-Apr 1982)

```

LEFT$(A$,4) = SEG$(A$,1,4)
RIGHT$(A$,3) = SEG$(A$,LEN(A$)-3,3)
MID$(A$,4,4) = SEG$(A$,4,4)
MID$(A$,4) = SEG$(A$,4,LEN(A$)-4)

```

The purpose of these expressions are of course to return portions of a string.

LET A\$ = "JOHN DOE" (LENGTH 8)

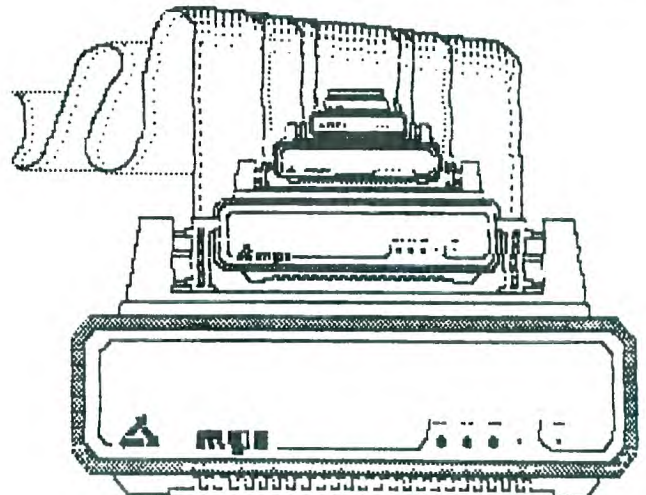
```

LEFT$(A$,4) = "JOHN"
RIGHT$(A$,3) = " DO"
MID$(A$,4,4) = "N DO"
MID$(A$,4) = "N DO"

```

Try this out, then use different val

We have included an example of the Bit Graphic capabilities of the MPI You of course must have appropriate software - routines available. Not all computers have these readily available, ahem. One of our MSP99ers has used the Assembler/Editor as way to define character positions, bits, within a full page which was then reduced to an area approximately an inch square or less, fascinating. It may well be that we can get him to explain the process and procedure in the near future.




```

BLNKIT BLWP @VSBW          WRITE BLANK
INC 0
CI 0,768                  DONE ?
JLT BLNKIT
LI 0,>01E2                LARGE SIZE SPRITE
BLWP @VWTR
MOVW @R1DAT,@R1ADD       PREVENTS R1 FROM BEING CHANGED
* SET UP SPRITE ATTRIBUTE BLOCK
DEFSP LI 1,SPLC          ATTRIBUTE LIST
LI 0,>300                 ADDRESS OF SAB
LI 2,5                   5 BYTES TO MOVE
BLWP @VMBW              WRITE TO VDP
* GOSUB TO LOAD SPRITE SHAPE TO DEFINITION TABLE
LI 15,PLSH5
BL @LDSPSH
* LOAD SPRITE MOTION TABLE
LI 0,>780                 MOTION TABLE ADDRESS
LI 1,SPPS                SPEED DATA
LI 2,4                   4 BYTES TO MOVE
BLWP @VMBW
* SET UP NUMBER OF MOVING SPRITES
MOVW @H01,@>837A
* SELECT JOYSTICK # ONE
MOVW @H01,@KEYADD
* CAN JOYSTICK
LOOP  LIM1 2
      LIM1 0
      BLWP @KSCAN
      CB @JOYY,@JOYPOS
      JEQ UP
      CB @JOYY,@JOYNeg
      JEQ DOWN
      JMP SIDE
UP     CB @TEMPY,@UPLIM
      JGT SIDE
      AB @CONTRL,@TEMPY
      JMP SIDE
DOWN  CB @TEMPY,@DNLIM
      JLT SIDE
      SB @CONTRL,@TEMPY
SIDE  CB @JOYX,@JOYPOS
      JEQ RIGHT
      CB @JOYX,@JOYNeg
      JEQ LEFT
      JMP KILL
RIGHT LI R1,PLSH9
      C R15,R1
      JEQ KILL
      AB @CONTRL,@TEMPX
      AI R15,>20
      BL @LDSPSH
      JMP KILL
LEFT  LI R1,PLSH1
      C R15,R1
      JEQ KILL
      SB @CONTRL,@TEMPX
      AI R15,>FFE0
      BL @LDSPSH
KILL  LI 0,>780
      LI 1,TEMPY
      LI 2,2
      BLWP @VMBW
      MOVW @DELAY,@TEMP
LOOP1 DEC @TEMP
      JNE LOOP1
      JMP LOOP
* LOAD SPRITE DEFINITION
LDSPSH MOV R15,R1        SPRITE SHAPE
LI 0,>400                ADDRESS OF SPRITE
LI 2,32
BLWP @VMBW
B *11
END

```

INFOCHIPS

The August issue of HUG, Houston Users Group Newsletter carries a review of the MXPLUS Board for the MX-80 Printer. This board allows you to set or reset commands during the printing. Commands according to Paul Kent, HUG Member, are:

- 1 Reset
- 2 Condensed Print
- 3 Double-width (non cancelling)
- 4 Emphasized print
- 5 Double-strike
- 6 Perforation skip-over
- 7 Italics (Grafrax only)
- 8 Indent (6 space margin)
- 9 8 lines/inch

Double-width works on 80 or 132 Char Mode. Perforation skip-over skips about 8 lines, printing 76 lines per page. With GRAFRAX option Double-width command can also be software controlled. Otherwise, all commands can be cancelled by software.

Other Options include form feed with automatic return to ON LINE and the resetting of the Top-of-Form without turning the power off.

The Board replaces the 1 Byte ROM in the printer. The MXPLUS board is inserted into the 1 Byte Socket and held with a spring hook. Paul Kent has found it a timesaver, allowing print of listings without having to open files for print format. Thanks to HUG for their Newsletter.

When you want to use a printer it is necessary to OPEN -- PRINT -- and CLOSE. Here is a program listing in the ROM newsletter U.G. of Orange CA. This program will read characters from the screen and print them. If resident in the printer.

```

10  REM SAVE A SCREEN
20  REM BY J. PROFITT 6-12-81
30  OPEN #30: "RS232/2.BA=9600",
      OUTPUT
40  FOR ROW = 1 TO 24
50  FOR COLUMN = 1 TO 32
60  CALL GCHAR(ROW,COLUMN,X)
70  PRINT #30: CHR$(X);
80  NEXT COLUMN
90  NEXT ROW
95  CLOSE #30

```

The CALL GCHAR(ROW,COLUMN,X) will read a Character at-a-time from the screen and return a value X. We find this a rather slow way to get info from screen to a printer. Though, you will however be able to copy the screen formatting in this way. You will also find a routine like this in TI-PROGRAMMING AIDS I.

A word about TE-1 and TE-2 comes from one of our MSP 99 members. It seems that TE-1 will allow you to save more pages of data than the TE-2 module. Suppose you are going on to TEXNET, SOURCE, etc. You can save more pages and then get off line with TE-1, thus saving charges. Of course, TE-2, does have the fine speech capabilities, which may be why those extra pages are not there.

DIRECT WRITER FROM DYNAMIC DATA & DEVICES by Dick Irwin

DIRECT WRITER is a truly "user friendly" word processing program. The program comes with a 36 page documentation manual and is on disk.

Required equipment is the 99/4 or 4A; Extended Basic (in version - 100 or 110); a monitor; Disk Drive Controller; at least one Disk Memory Drive; the 32K RAM Memory Expansion; RS232 Interface (unless you are using the thermal printer); and diskettes for file storage.

There are some excellent features for the bucks. Text is entered exactly as you want it printed. Only one command code is used. It is the exponentiation (^) for automatic centering of text. There is a variable left-hand margin for indented text and color coded tabulation indicators. The indicators are displayed on the screen. Text can also be centered in the tab fields. You may select up to 17 tab columns and a line length of 32 to 132 characters. There is "live" over-text editing as well as the ability to insert, delete or move lines of text. The program will allow you to search and change a word or string of words in a file or an entire disk of files.

The cursor operates at high speed do to synthesizing it in the Assembly Language sub-program. The high speed will save a lot of time during the editing of many pages of text. The cursor can also be moved up or down from anywhere on the screen without the need of returning to the left side of the screen.

There is the option of displaying "true" upper and lower-case alphabet or the TI "little" caps. Viewing of text can be done with either the wrap feature or in printed format using "windows". At print time you can "link" files together for the proper sequence and then printout an entire disk or even multiple disks. (You can link up to 207 files and a maximum of 99 disks.) Files can be stored or read from the cassette but cannot be linked together. There is also multiple options for form-feed during printing (not available with the thermal printer); you can place space between lines of text at print time; select the number of copies wanted; and whether or not to give a form feed after each file, at 60 lines, or none.

The Direct Writer also has an "intelligent" right-hand justification of text. You can also instruct the program to insert page numbers after each page if you like. The program is fully software-guarded to prevent the accidental loss of text. Printer software switches are entered at the start of your text and remain until you change them (even if you shut the computer off). These switches are preset for the Epson 100 printer but are very simple to change.

I ran this program through its "gears" using a 36 column, 60 line copy of text. From the time I called the file until had the final copy was 54 seconds. For the price (\$48) it is the best I've seen so far. The program can be purchased from Dynamic Data and Devices, P.O. Box 912, Stafford, TX 77477. Allow about ten days.

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THE C. ITOH "PROWRITER"

by Kerm Steffenhagen

Ever since I purchased my TI-99/4 computer about two years ago, I have been planning to attach a printer. Like most users, the accumulation of equipment was slow, with priorities, and for me the printer was last (or so I've told my wife). When at long last the "box" came and the RS232 card with it, I was ready to order one. My job has given me some experience with small dot matrix printers and I had pretty much decided on the one I wanted, when Dick Nelson (Calculator's Inc.) showed me some information that changed my mind. This was about the C. ITOH "PROWRITER". The printer looked good "on paper" so, with some assurance I could change my mind after I tried it out, I ordered it. The printer comes with parallel interface (the new RS232 card accepts this data transmission format). The advertisement specifications indicated to me that the printer had more features than I thought I really needed for less money than I had expected to have to spend.

After previously having some problems attaching (wiring) various pieces of equipment together, I started to check on possible sources for the "standard" CENTRONICS style printer cable. I soon found out that there is not just one CENTRONICS style of printer hookup but that there are many different versions of connections on the computer end (about one for each model). As it turned out, the connector on the TI RS232 card was a problem. It required a 16 pin cable header type of connector. After checking around I located some sources for a 20 pin connector but there were no "16 pin" versions available. My C. Itoh came and I still didn't have a way to hook it up. My patience ran out, so I purchased a 20 pin connector and fit it in by cutting the sides out of the TI RS232 plug connector. It took some guessing to match up the 16 TI connections to the 36 pins on the "standard" CENTRONICS printer connector. As it turned out I only needed 10 connectors to make it work. My first attempt was close and by switching one connection the hookup was complete, the printer worked.

The book supplied with the printer was well laid out and I proceeded to put the printer through some tests. It has many selectable formats, with most of them being controlled by codes sent from the computer program. A few hardware "DIP" switch options are accessible from the outside without the need of taking the case apart (one feature I really like). Once set, these are not often changed, but can be without any problem. All of the options selected by the DIP switches are also program selectable, but these switches select your most used options to be the default at power-up time.

After trying it out I found out the printer performs as well as they said it would, and had some classy features not mentioned in the advertisement. A summary of some of the capabilities I found it to have follows:

These features are found on most small matrix printers but not usually at this price:

Friction and pin feed options; Serial or parallel interface options. (Serial baud rates 110-9600); 3K internal buffer; Software selectable line spacing; Preprogrammed foreign character sets and graphic characters; Programmable bit image graphics; Software selectable tabs (horizontal and vertical); 120 Characters per second print speed; Regular, compressed, and enlarged character set; Bold print feature; Bidirectional logic seeking print control; and Forms out detection.

These features are not found on most small printers:

Pica AND elite pitch; Proportional character spacing; Underlined characters(not a separate pass); Greek characters software selectable; Control over the number of dots between characters; Up to 160 dots per inch horizontal spacing; Up to 144 dots per inch vertical spacing; Reverse line feed; Auto page skip over perf at end of page option; Relative dot addressing on a line; Character repeat code; Selection of unidirectional or bidirectional print mode; Selection of logic seeking or incremental print mode; Software controlled vertical channels (7 of them); Left margin set (other than column 1 for carriage return); Selected use of 1 line or 3K buffer; Selection of several codes that act like CR (carriage return) such as FF (form feed) or VT (vertical tab); Ability to use the upper 1/2 (128 characters) even on a 7 bit comm. line (if your computer can't handle 8 like the TI and the ability to mix the above formats unrestricted within one line.

I found all these features easy to use and consistent. Some printers I have used do not allow mixing of features within a line. Some cancel the option at the end of the line and continue others until you set them to "off". The C. Itoh continues ALL modes until reset. This makes programming much easier. The high density of dots and mass of the print head produces exceptional quality printing. Another little design feature I like is the ability to start high-up on a page and over-ride the page-end condition (one line at a time) to completely fill out the page. This is very important in single sheet printing or when there are breaks in forms (I've had to reprint the whole document when this has happened with other printers).

Like the TI-99 home computer, the C. Itoh PROWRITER is a lot of machine for the price!

Proportional	Elite Pitch	Pica Pitch
Proportional	Elite Pitch	Pica Pitch
Proportional	Elite Pitch	Pica Pitch

REGULAR	Compress	<u>Underlined</u>
REGULAR	Compress	<u>Underlined</u>
REGULAR	Compress	<u>Underlined</u>
REGULAR	Compress	<u>Underlined</u>
REGULAR	Compress	<u>Underlined</u>

FROM THERMAL TO DOT MATRIX TO DAISIES

by Richard Clemetson, MSP 99 Editor

When you begin to look for a printer you soon will discover that there are a variety of processes used for printing from a computer. There are printers which use special heat sensitive papers for character formation, then there are configurations of pins which strike through a ribbon onto the paper and then there are typewriter-like daisy wheels with characters arranged on a disc as petals.

You will encounter terms like "letter-quality" or "correspondence" quality. In such cases the typewriter is being used as a standard measure of image quality. In fact you will find that there are adaptations of the typewriter that some have used. I remember about four years ago seeing an interface to adapt a IBM SELECTRIC typewriter for use as a computer Output device. Then there were those devices comprised of ranks of solenoids to actually do the job of depressing the keys. Today, many typewriter manufacturers are beginning to provide for computer interfacing or are introducing models especially designed for use with the computer. Thus, as I recently asked one manufacturer, "are you going to continue making hammer-bar typewriters," I found a reluctance to answer. Thus, as the ball-typewriter has come to replace the hammer-bar, the daisy-wheel appears to be replacing the ball. One reason is that the daisy wheel is capable of higher throughput speeds than either the mechanical hammer bar or the ball. There are more exotic methods of character formation, ie: laser printing. These, for the present, lie out of the domain of the average home computer owners budget. If you look inside most current typewriters you will find a plethora of circuit boards that have replaced the conventional mechanical parts.

One of the most common printing devices used with computers has traditionally been the dot-matrix printer. Characters are formed as a configuration of dots. These characters tend to be not-fully-formed. Furthermore, they will vary in the "elegance" of their style. The best that could be said about these printers was that they were relatively fast. A typical dot matrix printer can attain throughput of characters at a rate of say 80-120 characters per second. By contrast one low-cost daisy wheel printer forms characters at a rate of 10-15 characters per second. Up until about six months ago you could not buy a Daisy Wheel Printer for much less than twelve hundred dollars, while a typical dot matrix printer could be secured for about five to eight hundred dollars. Thermal printers were in the range of one hundred fifty to four hundred dollars.

Daisy wheel printers produce fully-formed-characters and can be produced in a variety of "typical type faces." Dot matrix printers did not always have true descenders on letters like "y", "p" and "g". There is no question that the legibility of Dot Matrix printers has improved. Characters are even improving in style. There are now available programs which run on some computers which allow dot-matrix printout to approximate certain standard type faces.

Most typewriters produce copy at ten or twelve characters per inch and will print six lines to an inch. These are commonly termed Pica or Elite. The number of characters per inch is sometimes called the pitch. With a typewriter the characters are generally all formed within the same regular size space, ie: one-tenth inch, whether they need it or not. There is also available proportional pitch. Here, for example, an "i" will occupy less space than a "p" or an "m". Proportional spacing is what is common in typesetting such as is used in magazines, advertisements, brochures and the like. Some Daisy Wheel printers will produce this type of copy, indeed, some dot matrix printers will also.

One other thing you will probably want to know is what kind of paper does the printer use and how does it travel through the printer. Most daisy wheel printers use single sheet paper. Some use tractor feed paper but most are friction feed like your typewriter. Dot Matrix printers have traditionally been either roll paper or tractor feed paper. Basically, so they can run relatively unattended. Some allow either tractor or friction feed. Thus, if you want to use a letterhead you can hand feed the single sheet into the machine or you can use tractor feed paper when you just want a listing or to do some number crunching reports.

Some printers will allow you to do dot matrix graphics while others only have a fixed graphic character set. These are usually unique to a particular printer. They are usually not the same as the characters that you display on a screen. That is where dot matrix graphics can become important, as the "on"- "off" state of pixels can be emulated. These images are usually comprised of a series of dots which the pins of the dot matrix head can emulate.

Characteristically most printers will print a line approximately eight to thirteen inches long. Thus, with ten characters to the inch, eighty to one hundred and thirty-two characters per line. Now if you are going to do a lot of columnar work with numbers you probably want as many characters width as you can possibly secure. Thus, you would probably opt for a 132 column printer. A column is one character in width.

The type of printers we have described, daisies and dot matrix printers, will also require an accessory device to be attached to your computer. This device is either an RS-232C Accessory or an RS-232C Card in an Expansion Box. Thus, outfitting your computer with a printer will easily cost you more than the computer itself.

Some printers have built-in interfaces, such as Parallel or Serial. Generally, Parallel interface printers have sold for less money than the serial interface versions. Until the introduction of the expansion box with the RS-232 Card there was no parallel port available for the 99. Both are now available on the same card. Interestingly, I noted that the new Texas Instruments Printer is a serial machine. Surprisingly, it will only accommodate tractor feed paper in the version which one of our local dealers received recently. Other manufacturers and brands of printers include Epson, C. Itoh, Okidata, MPI-Micro Peripherals Inc., SCM-Smith Corona, and countless others.

Printers require service and supplies, you may want to consider well, before buying, the experiences of others in this regard. It is far easier to secure supplies and parts for some than it is for others. Many of the same printers appear with different names attached. Investigate possible savings in this manner. Some dealers are equipped to service your printer locally, a few dollars saved initially may mean inconvenience and delays later.

Decide what you really need before you go shopping for a printer. Consider your future needs or interests. For example, do you really need that extra graphic capability? How can the printer be expanded to do a variety of work? Can you print those couple hundred labels you need for a mailing list? Will most of your work be program listings or correspondence? Will someone be there when I need a question answered? Can I easily get supplies and service? How much do I really want to invest? Can I use the printer with a different computer? What other hardware and software do I need to make the printer a really useful tool? What do other user's think of their machines and how are they using them? Look around before you buy and happy computing.

FOR THE NOVICE

Computer "freaks" tend to enjoy a banter of esoteric talk. They banter about talk about how many K's of RAM their computer can address. They are given to deride the simplest of the simple systems. Yet, if someone can take a "simple" machine and make it do something very personal and very useful that person will have benefit beyond common measure.

Our home computers can be a point of departure. Our U.G. recently saw a demonstration of A.I. where very simple programs generated greater ideas. Today, the ideas he generated on his home computer are being used by him in his work. Thus, the home computer allows one to "experiment" in a no-risk environment. There are many things you can do with your computer. It takes time and patience to develop the skill and expertise to program well. That is, to write a program that will do what you want or need it to do.

There are several things which you must have in mind. 1) What you want to accomplish. ie: report, display, etc. 2) What procedure you would use to do such manually. ie: formulas, conversions, etc. 3) Determine what INPUT will be. ie: numbers, words etc. There are "algorithms" for solving almost any problem you may have. Search out these procedures that already exist and use them.

3D PLOTTING FROM ACROSS THE ATLANTIC

by Richard Clementson, MSP 99 Editor

I really couldn't wait to begin to digest the full impact of a program which appears in the August issue of TIHOME Tidings. It is quite apparent that our English and Dutch User Groups are doing some interesting things with their computers. Anyone who has an interest in graphic plotting will find much to learn from this program.

After entering the program and getting rid of the "bugs" inadvertently entered from the "grainy" listing I could hardly wait to see what would appear. Now it takes about twelve minutes and 48 seconds for the entire image to appear on the screen. Bill van Kerkoerle, a two year veteran 99 owner, only recently joined the Netherlands User Group, according to Peter Brooks of TIHOME. He apparently devised a method to reduce the plot time for the Banthorpe 3D plot. Here stateside we haven't seen much of this kind of graphic work. The closest we have come to seeing such demonstrated was the Assembly Language program "lines" which was shown when the MINIMEMORY MODULE was demonstrated. But this program is not written in Assembly language--it's just good ol' console TI-BASIC.

When those first dashes-dots began to appear it was truly a new revelation. The image which subsequently develops has some of the qualities of an etching, that is, the 3 dimensional image is made up of small linear segments that contribute to the formation of the image. The final image is "symmetrical" therefore the second half of the image utilizes a mirror-image reversal string. You will notice that the second-half plot takes considerably less time to complete using this method of image formation.

Now I've seen this image on other computers and as Peter Brooks points out in his "Babbling Brooks" the algorithm used is slightly flawed. This he contributes to the use of hexadecimal adding rather than substitution. There are 64 characters allotted, as a maximum, for forming the first half of the image. The second half of the image is formed by using GCHAR to check the screen and then storing strings for the left-right reversal or mirror-image.

You will also notice that they place subroutines at the beginning of the program. There are a number of features that they have incorporated in the program that "speeds" up the execution time for the TI-BASIC. One example is using $X*X$ rather than X^2 for squaring a number. We will share more about that with you in a forthcoming issue.

We are very pleased that Paul Dicks reciprocated on an exchange of Newsletters, hopefully, in the future the MSP 99 will provide information that will be of use to the members of TIHOME in England. In the meantime we send them all our very best Tidings for their Tidings.

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Some guy called the airline and asked for reservations from San Diego to Mishawaka, Ind. When the receptionist asked him to spell Mishawaka there was a short pause. Then he said, "Well, I guess South Bend will be close enough."

90 REM SPEEDY 3D PLOTTING

PETER BROOKS AFTER

BILL VAN KERKOEER

LE

92 REM TI HOME TIDINGS

VOL.2 NO.4

AUGUST 1982

94 REM MORDEN SURREY

ENGLAND

96 REM

100 DIM C\$(128)

110 GOTO 330

120 Y=INT(R/8+.875)

130 X=INT(C/8+.875)

140 CALL GCHAR(Y,X,H)

150 IF H>31 THEN 220

160 IF S=95 THEN 320

170 S=S+1

180 C\$(S-31)=Z\$&CHR\$(Y)&CHR\$(X)

190 CALL CHAR(S,Z\$)

200 CALL HCHAR(Y,X,S)

210 H=S

220 H=H-31

230 B=C-X*B+B

240 F=2*R-16*Y+16+(B<5)

250 IF B<5 THEN 270

260 B=B-4

270 I\$=SEG\$(B\$,POS(H\$,SEG\$(C\$(H),P,1),1),4)

280 I\$=SEG\$(I\$,1,B-1)&"1"&SEG\$(I\$,B+1,4-B)

290 I=POS(B\$,I\$,1)

300 C\$(H)=SEG\$(C\$(H),1,P-1)&SEG\$(H\$,I,1)&SEG\$(C\$(H),P+1,18-P)

310 CALL CHAR(H+31,C\$(H))

320 RETURN

330 CALL SCREEN(8)

340 S=31

350 CALL HCHAR(1,1,S,768)

360 B\$="0000.0001.0010.0011.0100.0101.0110.0111.1000.1001.1010.1011.1100.1101.1110.1111"

370 H\$="0....1....2....3....4....5....6....7....8....9....A....B....C....D....E....F"

380 HR\$="0....8....4....C....2....A....6....E....1....9....5....D....3....B....7....F"

390 Z\$="0000000000000000"

400 H1=192

410 V=104

420 X1=H1/2

430 X2=X1*X1

440 Y1=V/2

450 Y2=V/4

460 FOR X5=0 TO X1 STEP 2

470 X4=X5*X5

480 M=-Y1

490 A=SQR(X2-X4)

500 FOR I1=-A TO A STEP V/10

510 R1=SQR(X4+I1*I1)/X1

520 F=(R1-1)*SIN(R1*12)

530 R=INT(I1/5+F*Y2)

540 IF R<M THEN 590

550 M=R

560 R=Y1-R

570 C=X1-X5+32

580 GOSUB 120

590 NEXT I1

600 NEXT X5

610 H=S-31

620 FOR K=1 TO H

630 O\$=C\$(K)

640 Y=ASC(SEG\$(O\$,17,1))

650 X=33-ASC(SEG\$(O\$,18,1))

660 FOR L=2 TO 16 STEP 2

670 I\$=SEG\$(O\$,L,1)

680 J\$=SEG\$(O\$,L-1,1)

690 I\$=SEG\$(HR\$,POS(H\$,I\$,1),1)

700 J\$=SEG\$(HR\$,POS(H\$,J\$,1),1)

710 C\$(K+H)=C\$(K+H)&I\$&J\$

720 NEXT L

730 CALL CHAR(K+S,C\$(K+H))

740 CALL HCHAR(Y,X,K+S)

750 NEXT K

760 GOTO 760

LOGO DEMONSTRATED

by Marilyn McPartlin

At last month's meeting, TI representative Kermit Grenz showed members what the LOGO module can do. Grenz described LOGO as simple to learn because it used common words and does not require program lines.

Use of the LOGO module requires a memory expansion unit and a disk or cassette system. The module cost is \$100-\$130. Grenz said a new brand of LOGO is coming out in December and will offer the additional features of music and speech.

LOGO, which children as young as three can learn to use, has two modes: Turtle and Sprite. Grenz described the Turtle mode as a kind of "electronic Etch-A-Sketch," and in this mode children learn about angles and orientation while having fun.

In the Sprite mode, animation can take place. Thirty-two sprites are available and can be given color, shape, location, and movement.

Grenz ended his demonstration by showing MSP 99 members his "Air Show," which he designed in TI LOGO. Hot air balloons, planes, pac men, and rain storms filled the screen in brilliant colors. Our thanks to Kermit Grenz for the talk and demonstration.

MSP 99 USERS GROUP
P.O. BOX 12351
SAINT PAUL, MINNESOTA 55112

A HOME COMPUTER USERS GROUP

MEMBER UNCLASSIFIED ADS

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WILL THE PERSON who picked up the 1st and 2nd edition of the "99'er Magazine" please call Bill Lovegren at 784-5918. The 2 magazines are personal property of a member. Thank you.
.....

GET PUBLISHED - Write an article for the MSP group about a program you find useful, game strategy, how you use your computer or module. Call Dick Clemetson 926-8083 or Marilyn McPartlin at 636-5663 to volunteer or for more information.
.....

DISCS FOR SALE - Top Quality Blank Discs for your Data or Program Storage at User Group Rates on a special purchase by group. Box of ten in plastic storage box \$26; Regular box of ten are \$24. Single disk for \$3. Call Bill Lovegren at 784-5918 eve or sat for more information.
.....

WANTED - TI Emulator-I. Call Dean Sorenson at 425-7154.
.....

WANTED - RF Modulator; RS232; and other TI hardware. Contact Jim Jacobson at 888-5253.
.....

FOR SALE - Extended Basic (old version) \$55. WANTED - 32K Memory Expansion accessory (not the card). Call Mike Larson at 738-7822.
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Everyone wants you to tell it like it is, until you do.

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I was talking to a young man the other day and he told me, "I'm in grade three." After a few minutes he said, "That's where most everybody is this year."

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The same kids who are eating you out of house and home are never there.