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New Hampshire 99'ers

FEBRUARY 1987

Newsletter

VOL.5 No.2

NH99UG NEWSLETTER - POB 5991 - MANCHESTER, NH 03108

>OLD

The last meeting opened with some tough news about our meeting place - Bonanza. In the past, we have been given use of the facilities and utilities at no cost. In return, we were asked to support Bonanza with a minimum purchase of meals. The minimum was ten, but no one really kept track (we have had at least ten purchases since I can remember). Recently, Bonanza has seen an increase of activity on Monday nights. In order to best utilize their rooms, we have been asked to 1) meet earlier **and end earlier!** and 2) purchase a minimum of eighteen meals.

Meeting early was something I wanted to propose anyway. A show of hands voted to change the meeting hours to 6:30 PM - 9:00 PM; meaning we are out the door by 9:00!

The eighteen meal requirement will be tougher to swallow (I couldn't resist). This is how it works: the club has to pay Bonanza the price of a meal ($4.50) to make up the difference between what club members bought and the eighteen minimum. This is certainly reasonable from a room rental perspective. However, $20 to $30 a month will tap our account very heavily.

REQUEST:

Since the meeting is starting at 6:30 and you will pay for room rental either through meals or increased club dues: I request that you dine at Bonanza the night of the meetings. I realize everyone can't do this every night (I haven' been a regular diner in the past) and completely understand. Please make an effort, though, to dine there when you can on meeting nights.

Thanks from the bottom of the club's treasury.

The main demonstration was INFOCOM's ZORK I text adventure. Scott Adams' Return to Pirate Isle (text and graphics) was also demo'd.

Another demonstration was given: how to take apart a dot-matrix printer. Hopefully we can have a good demo in the future on how to put it back together (and have it work). Seriously, there was some surgery performed and the patients finally recovered by the end of the meeting.

>NEW

Next month I will disassemble one of my consoles and show you what the various parts are and what they do. I hope I will also show you how to get it back together so it works.

I will also give the first in a series of lessons on BASIC (and Extended BASIC). As was pointed out during February's meeting, there are many people who are struggling with the finer points of the BASIC's. Since the purpose of the club is to support you - and the need is very strong for support in BASIC - I will be more than happy to oblige.

Watch for articles on BASIC topics not only in this newsletter, but also MICROpendium. We will also cover other languages as people ask for them.

CORRECTION:

Later in this newsletter, Helene mentions that I couldn'l get on the Progressive Connection. That is now longer true. It seems that there are some phone line problems which require that I make several attempts before a successful connection. Anyway, the board is up and running, and the TI section is coming back to life. Note that the only number currently available is 644-3507.

There is also Gary Blydenburgh's PRO 99'er BBS at (617) 664-8668. Gary not only runs a good board, he is also a dealer of MYARC hardware and software. If you are thinking about a purchase of equipment or software, please give him a call. His prices are very competitive and his service to you is incredible! I purchased a MYARC memory card through him that was missing an optional chip (which I paid for). I notified Gary and had the chip in my hands the next morning! Try to get TENEX or TRITON to respond like that!

The annual FAYUH is this April 4th at the Waltham High School. Admission is $3 for adults, $1 for kids 5 to 12. Children under 5 aren't allowed (actually you can bring them for free - just don't come around my booth). FAYUH times are 10:00 AM to 6:00 PM. An announcement from the Boston Computer Society (TI-99/4A User Group) newsletter is printed herewith.

>BYE

Fayuh Time

And on a more serious note, the Second Annual New England TI Fayuh will be held on Waltham High School, on April 4, 1987 from 10 AM to 6 PM. Admission is $3 for adults, $1 for kids over 5 to 12 and free for kids under 5. There is a fair(e) chance that the price of admission will be slightly higher, but nothing serious. Despite serious attempts to the contrary, it will be a decent event, well worth your time to attend. Even if you have to drive down from Maine, or up from New Jersey. The point here is that this show will be on a par with other major national shows.

People/companies who are scheduled to attend include Tom Freeman, Terrie Masters, George Steffan, Clint Pulley, Asgard Software, Rave 99, Disk Only Software, Texaments, Delphi, Compuserve, Video Electronics Market Place, Jonathan Zittrain, Genial Computerware, Lou Phillips of MYARC, Paul Charlton, Jim Horn, J. Peter Hoddie (gasp), Barry Traver, Howie Rosenberg, Cheryl REGENA Whitelaw, Franz Waggenbach of T.A.P.E., Bruce Ryan of Ryte Data, and many more. Local lumenaries include Joyce Corker, Curtis Provance, Walt Howe, Bruce Willard, and so many more that we just don't have room to list them <grin>. There will also be user groups present from around the New England area including Boston (that means us), Rhode Island, Connecticut, Worcester, Andover (MAGNETIC), Maine, New Hampshire, and other groups from around the area. Is this gonna be fun? Did TI lose millions on this machine? You bet!

Sorry, all those articles you wrote must still be in the mail.

Don't worry about it - we can save paper and postage expense if we reduce the size of the newsletter.

Besides, no one is <u>really</u> interested in C, FORTH, LOGO, MULTIPLAN, PILOT, Extended BASIC, RAM disks, hard drives, events, books, ...

Right?

Because of our reputation in the TI community, a MAJOR SOFT/HARDWARE WAREHOUSE contacted us to help them liquidate their remaining TI inventory. The items on this page are top quality, and all, but the individual cartridge software is TI factory-sealed! Since we are "kitchen table entrepreneurs" we do not accept credit cards, and must insists on payment by Money Order, Certified Check, or United Parcel Service C.O.D. If you have any questions, please call Helene (1-603/472-3369) from 7pm to 10pm (Eastern) any day except Saturday.

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RANDOM RAMBLINGS

Helene M. LaBonville (c)
New Hampshire 99'ers User Group

OK... Blame me this time... yes, it's my fault that the newsletter is late! I'm writing this on the 2/26, the same day that I bought an IBM clone, which is sitting in the living room unopened so that I can get this column to Curtis!!

$PRINTERS$ I know I have been on a soapbox regarding the purchase of printers, but I am ususally the first one consulted when there is a problem... even with those that I had no part in selling! There is a fantastic lure in purchasing the least expensive units possible, but PLEASE realize that you usually pay a a far higher price in the end. The keys to look for (my opinion) are ribbon replacement, adjustable tractor feed, Epson compatibility. If any one of these elements are missing... forget it!!! I have spent countless hours in 1987 alone to obtain obscure ribbons for some of my clients.

You have no doubt noticed that my column has, in the last six months, been somewhat geared to promoting HAC LAB wares. Well, there is good reason for this, as I am HAC LABS. I sell products which I find interesting, have tested, and find a superior buy. Having fielded your inquiries I feel that I have a pulse on your computing needs and have attempted to stock my business with the products which hopefully address them. I do not sell any item which conflicts with the sale of NH99U6 MARKETPLACE items... just wanted you to know!

I also, just today, bought 11 STAR MICRONICS LV1210's whose cartons were damaged in transit. I got a great deal on them and will pass the savings on to YOU! Because of the damages these are not warrantied, however, cursory inspection shows little damage to the printers themselves. I can't tell you how much I can sell them for, as yet, because I haven't had the opportunity to test each one. I can tell you that I have used this model at my second system, where my niece has produced excellent school reports. The printer speed is 120 characters in draft and features NLQ (really nice), sub/superscript, ultra hi resolution bit image graphics, vertical and horizontal tabs. Paper feed is friction and tractor, plus, the unit comes with a roll paper shaft. Ribbon used is the standard 2" two-spool underwood type. If you are interested please give me a call.

By the way, the best time to get in touch with me is from 7pm to 10pm most evenings (except Saturday). Please, because of the extremely low markup on the items that I sell.... I can not return your toll calls! Please respect this, as I cannot afford to keep the prices at this level and still provide you with the services which you have been accustomed to. Some of the items which I sell have come as a direct result of other computer retailers going-out-of-business liquidations. We have been biting the hands that feed us!

The LV1210 is no longer being produced by Star Micronics and it has been replaced by the NP-10 which is the younger brother to the NX-10. The NP-10 is the low end of the Star totem pole... but just a year ago, it would have been touted as an innovation! At just $189 (+S/H) this unit has more features than the SG-10! such as reverse top-of-form, forward and reverse micro feed and NLQ selection front top panel, and Epson FX85 compatibility! Nice, nice printer!!!

One of the latest editions of the San Antonio TI Newsletter features a list of printer commands for various printers. I had hoped to have an addendum prepared for this this edition of the NH99U6 Newsletter, but... . Look for it next month.

$BULLETIN BOARDS$ Just after we reprinted the sampler logon session to the Progressive Connection it went down twice. The first time the hard drive crashed and destroyed most user info and much of the last years bulletins. Unfortunately, the info was backed-upped on high density floppies. Our experience has proven that this was a costly error. High density media is required by AT systems and is not downwardly compatible to the TI, COCO, or in Fritz' case, the Model4. The info was essentially vaporized! The board was again downed in January and since that time has been in the process reconstruction. The only active line at present is the 644-3507 number. Curtis has not been able to logon through this number (from either Merrimack or Nashua) . I haven't had any diffilculty from Bedford. Unfortunately, the Texas Instruments SIG Forum now sports bulletins on Muscial Instruments! So much for bells and whistles!

I kinda think that I am the jinx in this case because the crash followed the sampler... just last month I prepared a similar sampler for a local Commodore board and after it was published one of its drives crashed!

$MONITORS$ If you plan on purchasing the Myarc 9640 (Geneve) be on the lookout for ANALOG RGB monitors to get the full impact of the new colors. The Magnavox models 8CM8505 and 8CM8515 are great choices because they also have RGB I input as well as composite video. Other RGB A monitors include the Tandy CM-8, Sony 11 CR series, and the Teknika MJ305. More should surface soon as several other computer manufacturers are going the analog route.

$SUPPLIES$ Remember that the club sells only top quality NASHUA diskettes at a SUPER PRICE of only $7.75 for a box of 10 MD DSDD. Contact Treasurer Richard Quimby at the meetings.

SEARS (Nationwide) is selling a decent secretarial chair for $30. I bought four! They have them on display... check them out.

REVIEW OF TI99/4A INTERN

BY CURTIS ALAN PROVANCE
NEW HAMPSHIRE 99'ERS USERS GROUP

About one year ago, I disassembled the console ROM to see how it works. Naturally, I found the task to be somewhat difficult, having never printed the listing - I worked on individual files through the TI-WRITER editor. When I read that TI 99/4A INTERN by Heiner Martin not only listed ROM, but GROM as well, **and** the code was documented, **and** GPL was explained - for about $18 - I thought I had died and gone to Heaven!

I'm here to say that it was a short trip.

The book itself is softcover and 208 pages long. As to the quality, I have three or four pages which didn't print very well, making the text difficult to read in spots. The text itself was translated from the German original and for the most part was done rather well. There are numerous spelling and grammatical mistakes, but nothing that you can't figure out. I don't think anyone would have a problem there.

The book is divided into sections of short descriptions and ROM or GROM listings. The short discussions mention such things as the GPL interpretor, the interrupt routine, sub routines, etc. The ROM and GROM listings are for only one version of the console, since there are only subtle changes from one console to the next.

I found the ROM and GROM listings very disappointing. While major portions of code are generally highlighted (such as the interrupt routine), individual lines are not. For the most part, this is not too much trouble; I can figure out that a SWPB between MOVB's gets a byte into the MSB position. However, there are portions of code where a command doesn't seem to do much of anything or else does so much that I have to add my own documentation. If I wanted to do that, I would have finished my own disassembly.

GPL, which is a byte oriented language, is described somewhat in the latter part of the book. The various GPL commands (all bytes) are listed, as well as what arguments they require (if any). This is certainly something that was previously not available to me. Unfortunately, the GROM listings suffer from the same malady as the ROM listings though to a much lesser degree. Actually, the GROM listings are documented almost line by line - though I question the value of many of the comments. For example, the mnemonics Mr. Martin uses for increment are INC (for a byte increment) and DINC (for a data increment). At one point in the code, address >832A, which points to the end of a line (in input) is incremented; the description follows:

DINC @>832A End plus 1

Thank you for that revelation; I couldn't have figured that out by myself.

TI99/4A INTERN is available from catalog firms for ~$17.95 (plus shipping, usually). If you really want to know **something** about GPL, it may be the only resource available for some time. Is it worth the $$$$? In my opinion, it isn't worth more than $10, and that is clearer than any statement you'll find in the book.

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```
1510 FOR X=1 TO 5
1520 PRINT #1:"    !";TAB$;"!
"
1530 NEXT X
1540 FLIP=1
1550 DISPLAY "IF THIS IS A '
FLIPPY', THEN TURN THE DISK
OVER AND ENTER'Y' ELSE ENTER
 'N'.": :
1560 CALL KEY(3,K,S)
1570 INPUT "(Y/N)? ":D$
1580 ON POS("'Y'N'",D$,1)+1
GOTO 1560,610,610,1590,1590
1590 FOR X=1 TO 32
1600 PRINT #1:"    !";TAB$;"!
"
1610 NEXT X
1620 PRINT #1:"    !";
1630 FOR X=5 TO 59
1640 PRINT #1:"_";
1650 NEXT X
1660 PRINT #1:"!"
1670 PRINT #1: : : :"CUT ALO
NG DASHED LINES; FOLD ALONG
DOTTED LINES.";LINESPERINCH_
6$;FORM_FEED$
1680 CLOSE #1
1690 CALL CLEAR
1700 DISPLAY "  WOULD YOU LI
KE TO PRINT    ANOTHER DISK
JACKET? (Y/N)"
1710 CALL KEY(3,K,S)
1720 ON POS("ZO",CHR$(K+1),1
)+1 GOTO 1710,570,1730
1730 CALL CLEAR
```

BASIC has oftened been maligned as a serious language. Advocates of FORTRAN, PASCAL, and other 'structured' languages, complain that a program written in BASIC is difficult to read and understand because the program control jumps from section to section. The term 'spagetti code' was coined to represent a typical BASIC program with dozens of GOTO's, GOSUB's, and IF THEN ELSE's.

Admittedly, many of the programs written in BASIC are poorly done and can't easily be read by the author, not to mention anyone else. This is a fault not of the language, but of the programmer. If BASIC has a fault, it is only that its simplicity **allows** sloppy code - it doesn't encourage it!

I claim that BASIC - and extensions thereof - are powerful languages which may provide clear, understandable code.

We will explore programming in BASIC and the guidelines I use when I program. If you disagree, please write; I will be happy to print opposing viewpoints.

RULE #1:

Do not develop programs at the keyboard. Your program should be written on paper and debugged before you turn on the computer. This provides a hardcopy right from the beginning, and allows you to make corrections without potentially disturbing the rest of the program. You will also find that pencils don't heat up after several hours like TI's do.

RULE #2:

Never write the same code twice unless it is very short (one or two lines). You are wasting typing time and adding unnecessary bytes to your program. A routine that is used twice or more (such as a key scan routine) should be placed in GOSUB. **COROLLARY:** if a routine is used only once, do not use a GOSUB for it; that just wastes time and space and makes the program more difficult to read.

RULE #3:

Use meaningful variable (and constant) names. Unless you are really strapped for memory, your names can be spelled out. I realize this uses extra bytes (flies in the face of #'s 1 and 2), but it will make the program much easier to read a year from now.

RULE #4:

Assume the person running the program knows nothing! If you have ever run an 'unfriendly' program written by someone else, you know what I mean. If the user is restricted to input one of three values, display what the allowable values are. Then don't accept poor values which will cause an error later. Remember, you may be your own 'stupid' user a year after the program is written.

RULE #5:

Expect the user to totally screw up. Yes, you should write in error recovery (or traps) as much as possible. We will examine some techniques in this area.

Printed this month is the disk jacket program I wrote almost two years ago. I can still pick it up today and understand how it flows. Although I am leaving you with the program this month, we will reference it in the following months as part of a BASIC tutorial. A sample of the output is on the last page of the newsletter.

SEE COMMENTS AT END OF LISTING

```
100 REM ********************
110 REM *                    *
120 REM *    DISK JACKET     *
130 REM *                    *
140 REM * VERSION TIB.2.4  *
150 REM *                    *
160 REM *. CURTIS PROVANCE   *
170 REM * 17 CONSTANCE ST  *
180 REM * MERRIMACK, NH     *
190 REM * USA         03054 *
200 REM *                    *
210 REM ********************
220 REM
230 REM
240 REM     ENTER PRINTER
250 REM    PARAMETERS HERE
260 REM      ! ! ! ! ! ! !
270 REM      v v v v v v v
280 REM
290 PRINTER$="PIO."
300 FORM_FEED$=CHR$(12)
310 ENLARGED_ON$=CHR$(14)
320 ENLARGED_OFF$=CHR$(20)
330 LINESPERINCH_8$=CHR$(27)
&"0"
340 LINESPERINCH_6$=CHR$(27)
&"2"
350 EMPHASIZED_ON$=CHR$(27)&
"G"
360 EMPHASIZED_OFF$=CHR$(27)
&"H"
370 CONDENSED_OFF$=CHR$(18)
380 REM
390 REM
400 REM      ^ ^ ^ ^ ^ ^ ^
410 REM      ! ! ! ! ! ! !
420 REM
430 REM
440 DEF BOLD$(WORD$)=EMPHASI
ZED_ON$&WORD$&EMPHASIZED_OFF
$
450 DEF BIG$(WORD$)=ENLARGED
_ON$&WORD$&ENLARGED_OFF$
460 DEF SPACE$(COUNT)=SEG$("


       ",1,COUNT)
470 TAB$=SPACE$(55)
480 DIM NAME$(50),RECORD$(50
),SECTOR$(50),TYPES(50),TYPE
$(5)
490 DATA D/F,"   /.",.\,D/V,"
 / .",. \,I/F,!   .,.   !,I/V,
" \ .",. /,"PROGRAM "," \."
,./
500 FOR X=1 TO 5
510 READ TYPE$(X),EDGE$(X,0,
0),EDGE$(X,0,1)
520 EDGE$(X,1,0)="    !"
530 EDGE$(X,1,1)="!"
540 NEXT X
550 BOTTOM$(0)="."
560 BOTTOM$(1)="_"
570 CALL CLEAR
580 INPUT "PLACE DISK TO BE
CATALOGUED IN ANY DRIVE AND
ENTER THE  DRIVE NUMBER. (DE
FAULT IS 1)DRIVE #":DISK$
590 IF POS("1 2 3 4",DISK$,1
)THEN 600 ELSE 570
600 FLIP=0
610 OPEN #2:"DSK"&DISK$&".",
INTERNAL,INPUT ,RELATIVE
620 TOTAL=0
630 DISPLAY "LOADING..."
640 FOR X=0 TO 50
650 INPUT #2:NAME$(X),TYPES(
X),TEMP2,TEMP3
660 SECTOR$(X)=STR$(TEMP2)
670 RECORD$(X)=STR$(TEMP3)
680 IF NAME$(X)="" THEN 710
690 TOTAL=TOTAL+TEMP2
700 NEXT X
710 CLOSE #2
720 FILES=X-1
730 TOTAL=TOTAL-VAL(SECTOR$(
0))
740 BAD_SECTORS=VAL(SECTOR$(
0))-VAL(RECORD$(0))-TOTAL
750 CALL CLEAR
760 DISPLAY "DSK";DISK$;" -
DISKNAME = ";NAME$(0);"AVAIL
ABLE = ";RECORD$(0);" USED =
";TOTAL
770 IF BAD_SECTORS THEN 780
ELSE 790
780 DISPLAY : :"***** BAD SE
CTORS =";BAD_SECTORS;SEG$("*
*****",LEN(STR$(BAD_SECTORS)
),7): :
790 DISPLAY "   NAME     SIZE
  TYPE      P ---------------
-------------";
800 FOR X=1 TO FILES
810 DISPLAY :NAME$(X);TAB(15
-LEN(SECTOR$(X)));SECTOR$(X)
;TAB(16);TYPE$(ABS(TYPES(X))
);
820 IF ABS(TYPES(X))=5 THEN
840
830 DISPLAY TAB(23-LEN(RECOR
D$(X)));RECORD$(X);" ";
840 IF TYPES(X)>0 THEN 860
850 DISPLAY TAB(27);"Y";
860 NEXT X
870 PRINT : :
880 CALL KEY(5,K,S)
890 INPUT "OPTIONAL HEADER?
```

(line continued on next page)

```
            <------ 28 CHARAC
TERS ----->
            ":HEADER$
900 HEADER$=SEG$(HEADER$,1,2
8)
910 HEADER$=EDGE$(1,FLIP,0)&
"    "&BIG$(BOLD$(NAME$(0)))&
SPACE$(49-2*LEN(NAME$(0))-LE
N(HEADER$))&HEADER$
920 HEADER$=HEADER$&SPACE$(6
5-LEN(NAME$(0))-LEN(HEADER$)
)&EDGE$(1,FLIP,1)
930 IF DEFAULT_FORMAT THEN 9
80
940 PRINT : : :"PLEASE ENTER
 A FORMAT CODE:": :"1) COLUM
N - REST OF SESSION": :"2) R
OW    - REST OF SESSION": :"
3) COLUMN - THIS DISK": :"4)
 ROW    - THIS DISK": :
950 INPUT "YOUR CHOICE? ":FO
RMAT$
960 IF FORMAT$="" THEN 940
970 DEFAULT_FORMAT=POS("1 2"
,FORMAT$,1)
980 ON 1+POS(" 1 2 3 4",FORM
AT$,1)/2 GOTO 940,990,1010,9
90,1010
990 RESTORE 1030
1000 GOTO 1040
1010 RESTORE 1020
1020 DATA 45,2,1,1
1030 DATA 23,1,23,23
1040 READ XTO,XSTEP,YTO,YSTE
P
1050 CALL CLEAR
1060 IF PRINTER_IS_ON THEN 1
090
1070 INPUT "MAKE SURE THE PR
INTER IS ON AND THEN PRESS '
ENTER'.      ":D$
1080 PRINTER_IS_ON=1
1090 IF FLIP THEN 1170
1100 OPEN #1:PRINTER$,VARIAB
LE 120
1110 PRINT #1:CONDENSED_OFF$
;
1120 PRINT #1:"     ";
1130 FOR X=5 TO 59
1140 PRINT #1:"-";
1150 NEXT X
1160 PRINT #1:LINESPERINCH_8
$
1170 PRINT #1:HEADER$:EDGE$(
2,FLIP,0);TAB$;EDGE$(2,FLIP,
1):EDGE$(3,FLIP,0);"    ";
1180 PRINT #1:"AVAILABLE=";R
ECORD$(0);TAB(24);"USED=";ST
R$(TOTAL);
1190 IF BAD_SECTORS THEN 120
0 ELSE 1210
1200 PRINT #1:TAB(35);"** BA
D SECTORS=";STR$(BAD_SECTORS
);"**";
1210 PRINT #1:TAB(60);EDGE$(
3,FLIP,1):EDGE$(3,FLIP,0);TA
B$;EDGE$(3,FLIP,1):EDGE$(3,F
LIP,0);"    ";
1220 FOR X=8 TO 56
1230 PRINT #1:"*";
1240 NEXT X
1250 PRINT #1:"    ";EDGE$(3,
FLIP,1):EDGE$(3,FLIP,0);TAB$
;EDGE$(3,FLIP,1):EDGE$(3,FLI
P,0);"       NAME    SIZE  TY
PE  P    NAME    SIZE  TYPE
 P   ";
1260 PRINT #1:EDGE$(3,FLIP,1
):EDGE$(3,FLIP,0);TAB$;EDGE$
(3,FLIP,1)
1270 FOR X=1 TO XTO STEP XST
EP
1280 PRINT #1:EDGE$(3,FLIP,0
);"    ";
1290 FOR Y=0 TO YTO STEP YST
EP
1300 IF X+Y>FILES THEN 1310
ELSE 1330
1310 PRINT #1:SPACE$(25);
1320 GOTO 1410
1330 PRINT #1:BOLD$(NAME$(X+
Y));SPACE$(14-LEN(NAME$(X+Y)
)-LEN(SECTOR$(X+Y)));SECTOR$
(X+Y);" ";
1340 PRINT #1:TYPE$(ABS(TYPE
S(X+Y)));
1350 IF ABS(TYPES(X+Y))=5 TH
EN 1370
1360 PRINT #1:SPACE$(4-LEN(R
ECORD$(X+Y)));RECORD$(X+Y);"
 ";
1370 IF TYPES(X+Y)>0 THEN 14
00
1380 PRINT #1:"Y ";
1390 GOTO 1410
1400 PRINT #1:"  ";
1410 NEXT Y
1420 PRINT #1:"  ";EDGE$(3,F
LIP,1)
1430 NEXT X
1440 PRINT #1:EDGE$(4,FLIP,0
);TAB$;EDGE$(4,FLIP,1)
1450 PRINT #1:EDGE$(5,FLIP,0
);
1460 FOR X=5 TO 59
1470 PRINT #1:BOTTOM$(FLIP);
1480 NEXT X
1490 PRINT #1:EDGE$(5,FLIP,1
)
1500 IF FLIP THEN 1670
```

UTILITY_1 This is column format.....

AVAILABLE=1 USED=357

NAME	SIZE	TYPE	P	NAME	SIZE	TYPE	P
ARCHIVER	32	PROGRAM					
CLOCK	5	D/F 80					
CLOCKLOAD	3	PROGRAM					
DEBUG	24	PROGRAM	Y				
DEBUGAOOO	66	D/F 80	Y				
DETECTIVE	51	I/V 254	Y				
DISKJACKET	22	PROGRAM					
EDP	24	PROGRAM					
LISTER	3	PROGRAM					
LOAD	22	PROGRAM					
LOGO	5	D/V 80	Y				
OVERLAY_TI	31	PROGRAM	Y				
SBUG	28	PROGRAM	Y				
SUPPORT	6	D/V 80					
TRACK	18	D/F 80					
TRACKC	17	D/F 80					

Your 28 character (max) comment goes here.

Handles 'floppies'!

BAD_DISK This is row format.....

AVAILABLE=125 USED=210 ** BAD SECTORS=23**

NAME	SIZE	TYPE	P	NAME	SIZE	TYPE	P
CASH	21	PROGRAM		CON-RECORD	16	PROGRAM	
DAYS	10	PROGRAM		DEP	26	PROGRAM	
ELECTRICAL	40	PROGRAM		FIL-DESIGN	26	PROGRAM	
FILTER	26	PROGRAM		GENINVNTRY	18	PROGRAM	
GROUP	23	PROGRAM		HEXCONVERT	4	PROGRAM	

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