

NEW HAMPSHIRE 99'ers



NOVEMBER 1987 NEWSLETTER VOL 5 NO. 11 POB 5991 MANCHESTER, NH 03108

MLB

October's meeting centered around Richard Bailey and two programs which he brought. The first was Picasso Publisher which showed excellent potential. There were several references to it in the last newsletter. There is still some doubt as to its status, i.e. fairware, or commercial. Richard is holding on to it just in case. When the status becomes known for sure, you will be advised. In the meantime, you can order a copy directly from the source. See the ad for muffin fans later in this issue for Richard's phone number - he can give you the address.

The second program was definately commercial and quite attractive. I am refering to Certificate 99 which produces (guess what?) certificates using a dot matrix printer. Richard demonstrated its ease of use and produced a certificate in a manner of minutes. Hopefully there will be a full review in the next issue.

Other items included checking into the purchase and construction of more Horizon RAM disks. That is still going on — and be advised that the prices from the source have been lowered. See the ad later in this issue.

HEW

Next meeting will consist mainly of a TI flea market. You are encouraged to bring all those items that you no longer use or don't use enough to justify their existence. Another good idea is to notify all those people you know who own TI systems - but aren't in the club - that this is going on. I think that the next meeting will be an excellent opportunity for people to expand their basic system. Perhaps we could get a few new members? Please ask some of your friends to attend.

We will also have assorted programs running for your review. Get that Christmas gift for yourself at the mext meeting!

NDOS IS HERE!!!

Yes, version 1.0 is here and loaded on my RAM disk. I will bring my Geneve to the next meeting for people to play with. I haven't had the time to exercise each and every command, but it appears to be true to its word (for the most part). There are some items which do not follow the manual, but that is to be expected when you write the program after the manual. Manuals are easy to change - programs are not.

MEN WRITERS

I would like to welcome and thank Dave Miller and Edward Trzesniowski for contrbuting articles this month. Dave supplied his impressions of SPAD XIII, a downloaded article on LOGO, and a file on the status of the GENEVE (which wasn't printed because it is no longer accurate). Edward wrote to warn us concerning the video 'enhancement' reported in this and several other newsletters. I thank them again and invite anyone and everyone to write about what you feel is important.

OLD ARTICLES

Until Dave's and Edwards's articles appeared in the

policy: any articles submitted by members will receive top priority. If those articles aren't sufficiently large to fill ten pages, then I will glean material from other newsletters. I really hate to do that, because we used to pride ourselves on publishing original material only (with few exceptions). I do not want to see us become another club that reprints three year old articles, or version 82 of how to do FOR-NEXT loops in BASIC.

Are you listening? Get those articles in the mail! Please send them directly to me:

Curtis Alan Provance 17 Constance Street Merrimack, New Hampshire #3054

MYARC BASHING

Frankly, I've had enough. I am so tired of hearing from whiners and cry babies about MYARC being late on their software that I put together some clippings from recent issues of INFOWORLD. For those of you following the introduction of the PS/2 line of IBM's, I need explain no more. For those of you not versed in this saga, please glance at the articles on the following page. These were not found with a fine toothed comb - they all appeared on the front pages of the weekly mentioned above. I am sure that if I had opened the magazine, I would have found more tidbits - but then I couldn't get them all on one page....

I could have done the same thing for many other machines. What am I driving at? Imagine this scenario: you have invested (tens or hundreds of) thousands of dollars designing a computer that is a dream come true. However, you don't have it working quite right, so you don't tell anyone. Then after the hardware is working flawlessly, you continue to work on the software — again spending lots of money. The software is extremely powerful — and therefore complex. It takes months of programming by a team of dedicated and very talented people. Finally, after years of labor, your dream machine is ready to be unveiled — ta dah! Unfortunately, there is no one left to buy it because they thought their old machine had no future. They have all purchased something else that is totally incompatible to their previous system.

If you think that the method described above makes good business sense, then I have a bridge I would like to sell you. If you think that the lack of a full blown DOS has made the GENEVE worthless, then you obviously don't have the imagination, fortitude, chutzpah, or whatever it's called to be computer user. Peter Hoddie managed to write a magnificent word processor without using a DOS. There are third part companies developing their own multi-user DOS, compilers etc. without a DOS.

mail, this month's newsletter didn't exist. I was tempted to send out postcards stating that the newsletter was canceled due to lack of interest. However, the Christmas season must be upon me, so I decided instead to adopt the following

IBM Promotes Its Extended Edition Of OS/2 Over the Standard Version

First Extended **Edition to Ship** In July 1988

By Alice La Plante

LAS VEGAS - IBM will release two versions of its proprietary OS/2 Extended Edition, one of which will ship a full two months prior to the release of the complete version of the Standard Edition.

IBM stressed that it will promote the Extended Edition - not the Standard Edition as the platform for the next generation of PC applications.

"We will be porting a significant portion of our applications to OS/2, and most of them will require Extended Edition," said

Richard Hanrahan, vice president of programming for IBM's Entry Systems Division. "We strongly believe that a large number of third-party applications will also be built on top of the Extended Edition."

This means users will have to buy the \$795 Extended Edition in addition to the applications software, Hanrahan said.

Borland, Computer Associates. Lotus. Microrim, and other major industry players all told InfoWorld they intend to build applications on top of the Extended Edition.

Version 1.0 of the Extended Edition will ship in July 1988 without Presentation Manager, the windowing graphical interface being developed by IBM and Microsoft. The complete Extended Edition - Version

See OS/2, Page 109

IBM Details More on OS/2

urther details of IBM's OS/2 plans discussed at PC Expolast week by Michael Maples, IBM's director of software strategy and business evaluation, included development of IBM applications that will require the Extended Edition version of the operating system.

Fig. 1BM is already developing applications that will run only under Extended Edition, Maples said. All applications software is being developed under the new applications division established by IBM earlier this summer, he added. IBM has not yet announced a shipping date for OS/2 Extended Edition, which will be revealed by the end of the

year.

But Version 1.0 of OS/2, the operating system jointly developed by IBM and Microsoft, is in its final stages, said Maples. Under an 'early ship' program, which was implemented last month, IBM is sending out OS/2 code to See Details, Page 113

SOFTWARE INDUSTRY

Introducing 'Dribbleware': The Son of Vaporware

By Rachel Parker

everywhere you look in the software industry, companies that used to pride themselves on keeping future product information under wraps until the program was just about ready to ship are leaking, spilling, and outright announcing products months before they will ship.

Since the beginning of the year, well-known publishers who would blush to be found on Stewart Alsop's Vaporware list have been releasing information in dribs and drabs on new

products - code names, production names, strategic direction, and development plans.

For example, in February Borland leaked information about its new word processor, which was then code-named Raspberry, Just one week after leaking the news, Borland sent out press releases confirming the program was under development. In the spring, the firm officially announced Sprint, and since then, the

See Dribble, Page 50

After Six Months, Some Still Hedging on PS/2s

By Sharon Fisher and Alice LaPlante

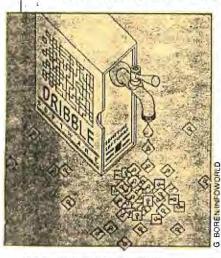
Six months after the introduction of the PS/2, several companies have bought large quantities of members of IBM's new microcomputer family, but not all corporate PC managers are convinced that they need the IBM systems.

Most managers interviewed by InfoWorld agreed with David R. Schulman, manager of the information center of Bendix Aerospace, in Arlington, Virginia, who said he is waiting for OS/ 2 and applications that support it, such as the Presentation Manager. Even then he isn't interested in multitasking for networked PCs but only for stand-alone ones.

"It's an excellent product line, but I wouldn't buy one yet," said Jerry Schneider prestdent of the Capitol Pt User Group. The hardware and software required to support the Micro Channel aren't there vet.

However, a number of organizations have gone for the PS/2 in a big way. Delta Airlines, for example, has committed to 30,000 PS/2s, and United Airlines is going completely Big Blue with its airlines reservations system. Large firms such as General Electric and The Travelers Co. have also announced their intention of buy-

See PS/2s, Page 8



SPAD XIII FLIGHT SIMULATOR by David C. Miller NH99er USER GROUP

Spad XIII, by Not-Polyoptics, a flight simulator of a WWI biplane, runs on XBasic, with 32K card, and a disk drive. This program uses all 48K of memory.

This program is set in wartime France, uses line graphics in a 3-D effect. You can take off and go for a leisurely run around the countryside or get involved in dogfights with enemy planes and even (if you choose) fight the RED BARON !!!

The manual that comes with SPAD XIII is exceptional. For those of us who don't know much about flying there is a historical background, some flight theory, and step-by-step instructions on flying.

When you have a few flights under your belt you might want to try out the game and scenarios listed that are not only fun but will make you more and more proficient as a pilot.

Sitting in the cockpit looking forward you'll see gauges representing fuel, altimeter, compass, and air speed. There is also a throttle handle and indicator. You can also see six different views from your plane by pressing the keys 1-6.

When I first saw the ad for SPAD XIII I went for it right away. I had Dow-4 Gazelle but felt it was too complicated and involved for me. As it is, I'd rather look at where I'm going than to look at a bunch of instruments.

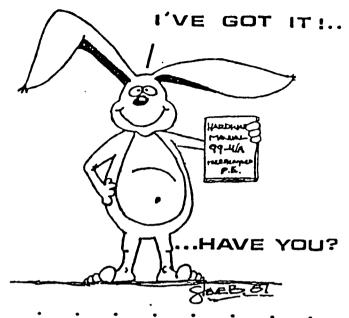
By the way, I ordered from Quality 99 Software in D.C. for around \$20.00 and I called direct, used my VISA, and I had it in a couple of days. Everytime I've dealt with Q99 they've always been top-rate!!

The ad said that I'd see the Eiffel Tower, enemy planes, weather balloons, etc., etc., etc. Boy, was I psyched !!! But when I used it I found it to be tedious and slow. I never found the Eiffel Tower and after at least a dozen tries the disk ended up in my storage case.

Lo, and behold a few months later, I received notice of an upgrade. The new and improved SPAD XIII, Mark 2; and now it really lives up to all the claims—it's really a lot of fun; graphics, speed and responsiveness is much improved.

The new Spad has the Red Baron which you can decide at the beginning if you want to see or not. Also there is the Move (M) key which transports you to the Eifel Tower, enemy airfield, trenches and your airfield at the touch of a key. You can also use the Eye (I) key which gives you a removed view of your biplane (important in dogfights); and also the P key to pan all six views over and over again to also help when being attacked.

This is the best flight simulator for the TI yet and with the improvements it has made a good thing better. This is also my first chance to contibute to our newsletter and I hope it won't be my last. I enjoy trying out new software and I'm gonna' try to get a review out each month. I hope to review with the laymen's point of view. I've been with the NHUG for the last year. I've learned a lot and have had several puzzling questions answered. I hope that my contributions will help get others involved.



HARDWARE MANUAL FOR THE TI 99 / 4A

IT DESCRIBES:

- · CONSOLE DESIGN
- · CUSTOM CHIP OPERATION
- TMS 9900 H/W ORGANIZATION
- TMS 9900 INSTRUCTION SET
- INTERFACING PITFALLS
- CONSOLE SCHEMATICS
- PEB CARD DESCRIPTION
- GROM SIMULATOR DESIGN
- EXTENDED BASIC MODULE DESCRIPTION & SCHEMATICS

WEEKEND HARDWARE SEMINAR (INFORMATION AVAILABLE ON REQUEST)

Send \$19.95 Check or Money Order To: TCANADA & FOREIGN SEND \$21.50 U.S. FUNDS! ('VOLUME RATES AVAILABLE... ON REGUEST!

THE BUNYARD GROUP PO BDX 53171, LUBBOCK,TX79453 LOGO TIMES by Larry Spohn

Over the course of the next year, I'm going to try to write a monthly column on TI Logo. Why bother you might reasonably ask? Isn't it true, that our user group virtually never talks about LOGO? There are no LOGO programs in our library! And other user groups seem equally content to ignore the language, with little if any discussion about it in their heady newsletters.

Indeed, you might ask, whatever happened to what Texas Instruments described as "a limitless learning environment." Noting in early promotional literature that the TI-99/4A was one of only two home computers to offer LOGO, the company also described it as "a very special child-appropriate computer language." All of which probably made many of us parents wise enough (or intimidated enough) to buy LOGO for our kids, but not secure enough to venture beyond booting up the canned procedures on the sampler disk. Why? Perhaps because like Trix, LOGO is for kids. Right? Wrong, I'd like to arque. It may not generate gee-whiz utilities or spreadsheets four arms long, but LOGO is being used outside the elementary classroom, for instance, by college mathematics, physics and computer science students. Indeed, TI LOGO Guru Harold Abelson says as a basis for exploring mathematics, LOGO's turtle geometry is useful in presenting "mathematical topics ranging from elementary geometry through (Einstein's theory of) General Relativity." To say the least, LOGO is a mind stretcher. And we could all use a lil' bit of that. If there is one thing that has been painfully obvious at our club meetings, it is that most of us are not programmers or have only self-taught rudimentary programming skills. There are several notable exceptions, of course . and for their expertise we should all be grateful. Still, admit it: most of us couldn't pass a basic test in BASIC. We know enough to function, tinker and be astonished by the programming wizardry of others. If you aren't smiling, just try to recall the last time you tried to do anything really imaginative or original with any computer language.

Enter LOGO. Why again? Maybe cause its there. We ought to try to conquer it, or at least experience it. But don't be intimidated by Abelson's high-minded opportunities. General Relativity ain't everybody's cup of tea. For the less adventurous, how about because its much easier to learn LOGO than probably any other language and it seems to me to be the best foundation language for beginners. It appears likewise to be the most easily mastered, though LOGO has a way of bending back on you, taking you through turns you never knew were there. Incidentally, let me make REAL clear right now that like you, I am very far from being a master and very much the beginner. Short of reading the manual, experiencing the sampler programs and about two hours worth of tinkering during the last month, I don't know diddly about LOGO. Hardly know a turtle from a sprite. So, anybody out there with LOGO blackbelt, feel free to jump

into the fray. Otherwise let's see if we can't learn together from little LOGO.

Actually, I think that's one of LOGO's greatest assets. It lends itself very well to team programming. And as such, is an ideal family challenge. It goes hand in hand with LOGO's interactive nature. My very first LOGO session was exhilirating because I was quickly doing things I thought would take weeks and endless sorting through the manual. Ableson is correct when he says LOGO gives control of the computer in a personal, "self-directed" way. In this sense LOGO is not just a computer language, but a "philosophy of education" and a powerful one at that. He says it gives people the power to "establish intimate contact with profound ideas from science, from mathematics, and from the art of intellectual model building." In a way that even the most sophisticated computer adventure game can't match, LOGO turns you into an explorer. And let's face it. Exploring can be a riot.

That brings us to Micheal Crichton's (author of the "Terminal Man," "The Great Train Robbery," and "The Andromeda Strain") famous seven maxims about computers, all of which apply to LOGO and how we see it:

"People are more important than computers. Much of what we believe about computers is wrong. It is easy to use a computer. This is fortunate, because everybody's going to have to learn. It is not so easy to use a computer wisely. This is unfortunate, because everybody's going to have to learn. Computers can actually be a lot of fun. There are people who want to put a stop to that."

Believe me, LOGO can be a lot of fun. (This arcticle was written for the March issue of the newsletter of the Guilford 99er Users Group, Greensboro, NC. Author grants permission to non-profit TI UG's to reproduce this article)

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\$15.00 postage paid

Richard Bailey 68A Church Street Gonic, New Hampshire 03867

(603) 332-7855

THE TIGERCUB NUTS & BOLTS DISKS

What are they? The Nuts & Bolts disks are collections of 100 or more subprograms in merge format, ready to merge into your own programs.

And what does that mean? Well, TI-99/4A Extended Basic allows the use of user-written subprograms. And what are subprograms? You know them well. CALL COLOR, CALL SOUND, CALL HCHAR - those are all subprograms which are built into the Basic language. You can write your own subprograms, to do anything that Extended Basic is capable of, and tack them onto the end of your program to be CALLed whenever you need them.

To put it in another way, using a subprogram is almost like running one program from another — except that you can access it much faster, you can pass along any values that you want to, and you can return to where you left the first program.

Also, with a disk drive you can save programs in MERGE format and then MERGE them into a program in memory. Providing that the line numbers are different, the program which you MERGE in will be added to the existing program.

The variables used in a subprogram are entirely separate from those used in the main program, therefore libraries of utility subprograms can be developed in MERGE format, and MERGEd into any program without conflict.

The Nuts & Bolts disks are libraries of such subprograms. The first disk contains 100 such subprograms, plus a tutorial on using them. Disk No.2 contains 108, and No.3 contains 140 of them in 114 files. Nothing like them has ever been offered by anyone else for the TI-99/4A computer.

These 348 subprograms have been consecutively line-numbered with high line numbers so that they will not overwrite your program line numbers, and so that any number of them may be MERGEd into a program without overwriting each other.

Advanced programming techniques have been used to make these routines as compact as possible, averaging hardly more than 3 sectors each, so that a hundred or more could be crammed onto a disk and so that they would add very little to the length of a program. If you are learning to program, you might learn a great deal by studying these subprograms.

Each disk is accompanied by several pages of printed documenation, explaining the use of each subprogram and giving a short demo routine which you can key in, run, and experiment with.

Many of these subprograms can be used by persons with almost no programming knowledge, to modify existing programs. For instance, a program written in Basic, which crashes with BAD VALUE when run in XBasic, will run with a simple CALL BXB, and CALL KILLQUIT will disable the infernal QUIT key. Many different screen character styles are available, as well as colorful wipes to replace CALL CLEAR.

However, it is the programmer who will find these disks truly invaluable. Even if you have the skill and ingenuity to develop these routines for yourself, wouldn't you rather just pay fifteen cents apiece for them?

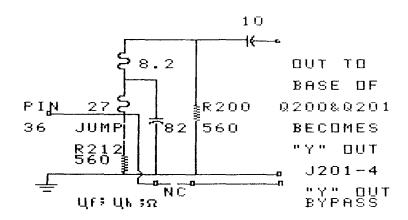
The three Nuts & Bolts disks are available for \$15 each, postpaid, from Tigercub Software, 156 Collingwood Ave., Columbus OH 43213.

Edward A Trzesniowski 7 Heritage Dr #423 Claremont, Nh 03743

NH99R'S

Dear Curtis,

THIS IS THE CIRCUIT OF THE LOCATION OF THE FAMOUS "560 OHM" resistor. As you can see there are two 560 Ohm resistors her in the TI DRAWING that i happened to have for the 9918 & 9928 aplication sheets for utilizing an RGB/AND-DR/NTSC board. There is no doubt that a strait B/W signal is a lot clearer using the 9928, and I am shure the RGB signal would be colosul.



HOWEVER I must refer you to the article in both the NH99R and MicroPendium credited to Bob Lawson, improved video, because, while it may get rid of the white fringing, it also broadens the colors accross 3 to 4 pixels depending on the type of monitor you have and, mainly, on its band width. If you had the band width you would not need to change this resistor. On my II COLOR MONITOR it did get rid of the white, but it also splatered the color. The best I could do was to turn the color knob to no color! BUI II WAS SHARP!

Now follow his instructions and see for yourself and keep in mind that there were revisions as the holes in the PC BDARD SHOWS.

Follow Pin 36 from the VDP Chip, thru two devices called inductors. AND you arrive at R200. R212 GOES TO GROUND VIA A WIRE JUMPER W206. BOTH RESISTORS ARE 560 DAMS.

THE Big Question in my mind is "what type and whose monitor is involved here. The Small Question is "can this guy read a schematic, did he do an analisis of this circuit. First: lowering k2l2 would load the vdp-36 "Y" signal out. The result of R-Y and B-Y would give more R, more B with a lot less G the saturation color. G=(y-(b+g))/constant.

In the case of R200, the effect of lowering the resisor would be non linear broadening of the input to the amplifier. R200 picks off a portion of the 8.2 mH and 10uF signal acting as an integrator. level.

R212 will mainly introduce a fixed phase shift and broaden the 27uH&82uF tank. Either way I don't see how this change could help a HEALIHY MONITOR that does not need any help. I could be that it was just overdriven.

I would not recommend anyone trying this untill Bob Lawson becomes shure which resistor he is talking about, and this network frequency response is checked for at least a 0-6 MH band width to see just what the level and phase shifts are. I wasted My Time taking the console apart 4 times, loading graphX to verify/fringe and splatter. How about a grain of salt, Im from Misouri as far as any II stuff is concerned.

Sincerely, Edward

C.COLUMN

by Donald L.Mahler

This month we are not going to discuss anything really new, but rather show how code can be compresed in c programming. This certainly makes the files shorter, even though it may be a bit more difficult for a beginner to follow. For example, instead of:

c=getchar();
while(c <= n)

```
c=getchar();
  while(c <= n)
we can write:
    while((c=getchar()) <=n)
thus eliminating one line.We have
previouly used such expressions as:
    while(n)
to mean:
    while(n != 0)</pre>
```

In one of the examples this month, we use:
 *(ptr = gets(string))

that is, we are picking up a value from the input stream, using a pointer, and can use the above phrase to indicate "the value at address ptr". Similarly, "*ptr++" increments the address of the pointer, NOT the value stored there! ("*(ptr++)") The two short programs will show further examples of this compression.

```
/* FAHRENHEIT->CELSIUS #1*/
extern printf(); 《研究》
#include dsk2.floati
#define x 8 /* for integer */
int i=32; int j=5; wint k=9;
/* global values */r
main()
\{float w[x], y[x], a[x];
float b[x],d[x];
float f[x],ce[x];char op[2];
/* declare floating pt numbers*/
char *c,s[x];
c=itof(i,a); c=itof(j,b);
c=itof(k,d);
/* integer to floating point */
printf("Enter a temperature in \n");
printf("Fahrenheit \n");
fpget(s,f);
fexp(f,"-",a,w); /* F minus 32 */
fexp(b,"/",d,y); /* 9/5 */
fexp(w,"*",y,ce);/*9/5 of remainder*/
locate(10,1);
fpput(f,s); /* print answer */
printf(" in Fahrenheit is equal to
");
fpput (ce,s);
printf(" in Celsius");
```

Compressed:

```
/* FAHRENHEIT->CELSIUS #2*/
extern printf();
#include dsk2.floati
#define x 8
int i=32; int j=5; int k=9;
main()
{float w[x],y[x],a[x];
float b[x],d[x]; ;
float f[x],ce[x];char op[2];
char *c,s[x];
c=itof(i,a); c=itof(j,b);
c=itof(k,d);
fexp(b,"/",d,y);
printf("Enter a temperature in ");
printf("Fahrenheit \n");
fexp(fexp(fpget(s,f),"-
",a,w),"*",y,ce);
locate(10,1);
fpput(f,s);
printf(" degrees Fahrenheit is equal
to ");
fpput (ce,s);
printf(" degrees Celsius\n\n");
```

Notice how we have combined most of the calculations into the single line!

```
/* get string and display counts */
extern printf();
main()
{char string[80], *strptr;
/* "string pointer" */
int cnt, sp; cnt=sp=0;
printf("Enter a sentence:\n\n");
while(*(strptr = gets(string)))
/*while there IS an entry not ""*/
{while(*strptr != '\0')
/* not reached end of string */
(if(*strptr !=32)/*not space char*/
  ++cnt;
else if (*strptr = 32)
  ++sp; /*increment space count*/
++strptr;}/*pointer to next address*/
locate (15, 1);
printf("There are %d letters", cnt);
printf(" and %d words\n", sp+1);
printf("in that sentence");}}
```

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The Gramulator for the TI-99/4A

At last! A direct equivalent for the popular but out-of production Gram Kracker has been designed by an engineer in Massachusetts. It's called the Gramulator.

A wire-wrapped prototype was demonstrated to the Magnetic User Group in Andover, MA at their September meeting and it performed flawlessly. The Gramulator offers virtually all of the features of the Gram Kracker, but is targeted to cost less.

No production Gramulators have been built yet. To go from a prototype to a production model requires an investment of about \$1,000. As with anything else, the more that can be made in one batch, the cheaper they will be.

You are invited to respond to this offer if you would consider purchasing this product. Technical questions are welcome. Please write to:

Mark Van Coppenolle 52 Audubon Road Haverhill, MA 01830 (617) 372-0336

or sign the register at the booth where you picked up this brochure. Actual production of the Gramulator depends on the amount of feedback received – no feedback, no product.

Features:

The Gramulator simulates 64k of GRAM and 16k of RAM (in two 8k banks at >6000->7FFF).

- 1) You can customize the built-in TI operating system in GROM 0 and TI Basic in GROMs 1 and 2.
- 2) You can backup your GROM and ROM cartridges to disk to protect your investment and reduce wear on the cartridge port. All TI, Atarisoft and Parker Brothers cartridges can be backed up. (Does not work with MBX).
- 3) Acts as a "Super Space" cartridge allowing you to run programs requiring RAM at >6000->7FFF (including Myarc's XBII).
- 4) Allows you to use a customized GROM 0, or 1 and 2, while a cartridge is in the slot. One application is that you can use your own character set with a cartridge like TI-Writer.
- 5) Capable of loading user written GPL code.
- 6) A total of 80k of memory with lithium battery backup.

The software needed to load and save GRAM and GROM will be built-in for instant access. A memory editor, which will be supplied on disk, will allow you to alter and save any program loaded into the built-in GRAM or RAM. User documentation and technical information will be included.

Memory expansion and a disk drive are required to take full advantage of the Gramulator.

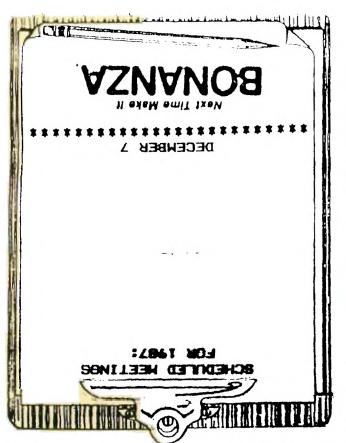
Atarisoft is a trademark of Atari Inc.

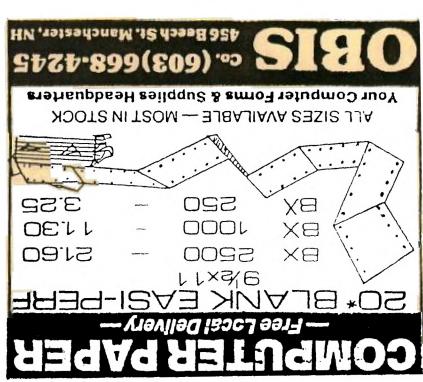
Gram Kracker is a trademark of Millers Graphics. MG has no connection with the design or production of the Gramulator.

MBX is a trademark of Milton Bradley Co.

Myare XBII is a trademark of Myare Inc.

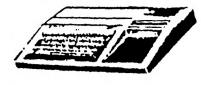
GROM, Graphics Programming Language and 99/4A are trademarks of Texas Instruments.





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