MSP 99 USER GROUP

Merry Christmas

Vol. 9 No. 9
December 1986

# THE MSP 99 NEWSLETTER

## PLEASE READ THIS

by Curtis Alan Provanc###
N#w Hampshir# Us#r Group
Jun# 86

I hav# had my comput#r almost four y#ars now, and it works v#ry w#ll #xc#pt for on# k#y. I suppos# i shouldn't complain; th#r# ar# 47 oth#r k#ys I can us#. B#sid#s, what diff#r#nc# can on# k#y mak#?

Aft#r giving it som# thought, I r#aliz#d that th# k#yboard on my trusty TI is similar to our club. Th#r# ar# num#rous m#mb#rs in th# club; som# ar# mor# 'visibl#' than oth#rs. Som# m#mb#rs particip#t# to a gr#at #xt#nt; som# won't particip#t# (or can't) at all. I c#rtainly und#rstand thos# individuals, who du# to oth#r commitm#nts, can't particip#t# mor# fully. I also und#rstand thos# individuals who do not particip#t# b#caus# th#y f##l th#y can't mak# a diff#r#nce.

L#t m# assur# you, your participation do#s mak# a diff#r#nce! You could b# th# on# 'k#y' who would r#ally mak# this club #xc#ll. P#rhaps you could r#vi#w a pi#c# of hardwar# or softwar# at a m##ting? W# can always us# an articl# - if it's important to you, it's important to at l#ast half our r#ad#rs! How about donating a modul# or book to th# club so #v#ryon# can us# it? Th# possibiliti#s ar# not #ndl#ss, but th#y c#rtainly ar# many and div#rs#.

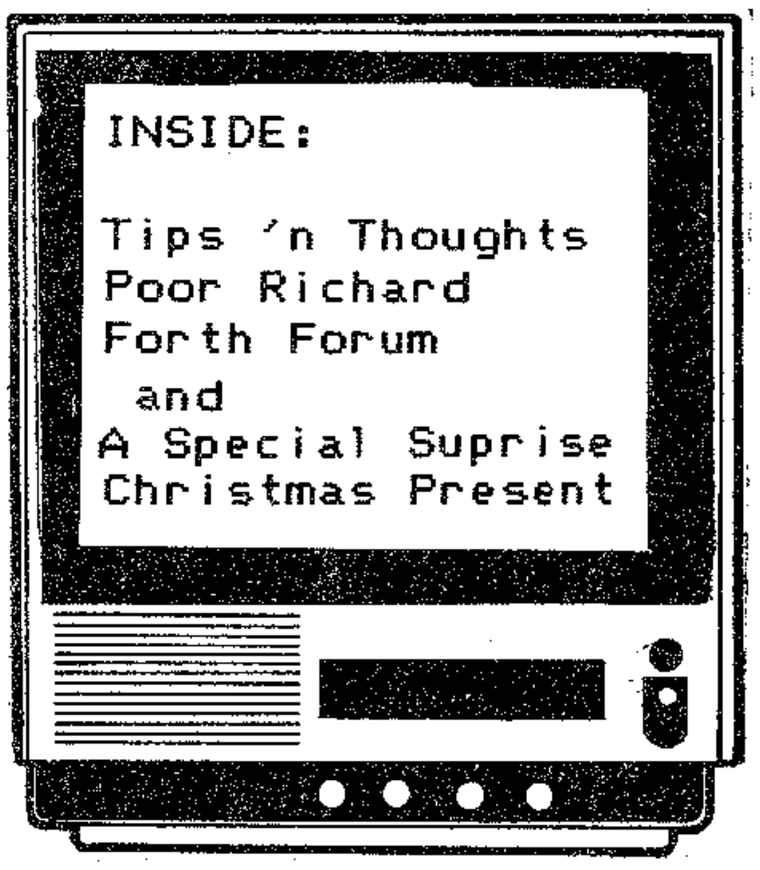
If th#r# is a moral to this story, l#t it b# that all m#mb#rs ar# 'k#y' m#mb#rs.

## MONTHLY RAFFLE WINNER

That's right. Once again Don Johnson did not win the monthly raffle. His son Ed did. If I had these guys luck I'd pack up and head for Las Vegas. Ed went home that night with a 15 inch color TV tucked under his arm (or in his trunk), and it only cost him $1.00. What a deal! You'll never find a deal like that in any store.

Next month we'll be raffling off a hanging disk holder for a file cabinet so be sure to attend the meeting. Raffle tickets are only $1.00 each but they can only be purchased at the meetings.

By the way, don't forget to have your turkey raffle tickets and monies turned in by the Dec 16th meeting. The raffle will be held sometime during the meeting.




NEW PHONE NUMBER
TECHIE BBS - 446-1419

The MSP 99 USERS GROUP meets each month for discussions and presentations that enable its members to be better informed about their computers. Users group members share and exchange information. Some members have a broad range of computer expertise. others are just beginning. We are not affiliated with or sponsored by any other group or company. Membership dues are $18 a year for a family or individual, and $50 for a sponsor member. You're welcome to visit a meeting as a guest before you join. Call or write for more information.

---

USERS GROUP MEETINGS are held the third tuesday of each month at Dunwoody Industrial Institute, 818 Wayzata Blvd., Minneapolis, MN 55403. Meetings start at 7:00 PM.

---

MSP 99 USERS GROUP
P.O. BOX 12351
ST.PAUL, MN 55112, U.S.A.

---



---

The MSP 99 NEWSLETTER is published eleven times per year on a monthly basis, except during July, by the MSP 99 Users Group. Members are encouraged to contribute articles for publication. Opinions expressed are those of the writers and not necessarily those of the MSP 99 Users Group, its officers, editors, of mermbers. Materials accepted by the editors for publication in the MSP 99 Newsletter, including software listings, are believed to be in the public domain. Newsletter articles may be reproduced by other users groups if appropriate credit is given to the author (if one is listed), and to the Minneapolis, St. Paul 99 Users Group.

---

NEWSLETTER EDITOR

Gary Gese 529-3989

---

Articles intended for the next newsletter should be submitted NO LATER than the users group meeting on the month prior to publication. Articles submitted after this deadline are likely to appear in the following month's newsletter.

---

COMMITTEE VOLUNTEERS are sought for all of our committees. (Education, Equipment, Program, Publicity, Software, Newsletter)
If you would like to join one of these committees or have an idea for a monthly program, please contact one of the officers.

---

COMMERCIAL ADVERTISEMENT RATES:
Business firms that wish to communicate with our members may do so by placing an advertisement in the newsletter. Rates are:
Full page $40; Half page $30; Quarter page $22.

Each ad must be camera ready in one of the sizes indicated and paid in advance. Inserts (printed by the advertiser on 8 1/2 X 11 or 8 X 10) may be inserted in the newsletter at $20 per sheet. Contact the editor for more information.

---

CHANGE OF ADDRESS: Before you move, please mail a change of address to the Users Group. DO NOT rely on the standard Post Office change of address card since the P.O. will not forward this Newsletter.

---

Scattered throughout the newsletter are a few Extended Basic programs rather than my column. Be sure to save them before you run them. MERRY CHRISTMAS *SG*

```
1 ! WEE BOMBER BY J. PIERRE PELLETIER
100 CALL CLEAR :: DISPLAY AT(8,12):"THE": :TAB(6);"(* WEE BOMBER *)"
110 N=0 :: FOR I=1 TO 600 :: NEXT I
120 DISPLAY AT(20,2):"PRESS SPACE BAR TO FIRE";"'Q' WHEN TARGETS ARE GONE"
130 DISPLAY AT(24,1):"PRESS (ENTER) WHEN READY"
140 CALL KEY(0,K,S):: IF S=0 THEN 140
150 CALL CLEAR :: CALL HCHAR(22,2,30,30)
160 CALL COLOR(9,4,4):: CALL HCHAR(23,1,96,32)
170 CALL SPRITE(#1,43,2,35,256,0,-10)
180 CALL KEY(0,K,S):: CALL SOUND(-2000,-3,3,200,10)
190 IF S=0 THEN 180
200 IF K=81 THEN 320
210 CALL POSITION(#1,XX,YY):: AA=XX
220 CALL SPRITE(#2,46,2,XX,YY,20,0)
230 N=N+1 :: DISPLAY AT(24,2):"BOMBS:";N
240 AA=AA+4 :: CALL LOCATE(#2,AA,YY)
250 IF AA>=21*8 THEN CALL SOUND(100,-7,0)
260 CALL POSITION(#2,R,S)
270 FOR I=1 TO 375 :: NEXT I
280 CALL HCHAR(22,S/8+1,32):: AA=AA+S/8+1 :: CALL SOUND(-600,110,3,-7,0)
290 CALL DELSPRITE(#2):: GOTO 180
300 CALL SOUND(-100,-3,0,2000-(AA*4),10)
310 CALL DELSPRITE(#2):: GOTO 240
320 CALL DELSPRITE(ALL):: DISPLAY AT(24,1):" "
330 DISPLAY AT(11,7):"YOU USED";N;"BOMBS"
340 IF N=30 THEN 360
350 IF N>35 THEN 380 ELSE 390
360 DISPLAY AT(12,7):"YOUR AIM WAS PERFECT"
370 GOTO 410
380 DISPLAY AT(12,7):"YOUR AIM WAS FAIR"
390 GOTO 410
400 DISPLAY AT(12,7):"YOUR AIM WAS VERY GOOD"
410 FOR I=1 TO 600 :: NEXT I
420 GOTO 100
```

# MSP 99 Calendar of Events

DEC 16: Christmas Party -- Once again this year we will spend a cheery evening around the monitor screen to share our bounty of graphic programs. Christmas cookies for all and the cider will flow like wine. A good night to bring the entire family. We will be announcing this years Software Contest and turkey raffle winners and have a demonstration of Paint 'n Print.

JAN 20: Variety Night -- Tonight we'll look at some more NEW products for the TI Home Computer featuring ??????? We'll also hold a discussion about our groups future during the coming year.

## Subgroup Meetings

ASSEMBLY GROUP -- 1st Tuesday of month, 7:00 p.m.
Bryant Community Center
Bryant Ave and 31st St.

BUSINESS and APPLICATION SIG
Call Dick Clemetson (926-8083)

EDUCATION -- At monthly meetings

YOUTH GROUP - At monthly meetings

## Committee Chairs

EQUIPMENT -- George Madline (784-2395)

NEWSLETTER -- Gary Gese (529-3989)

PUBLICITY -- Dave Wunderlin (544-8266)

SOFTWARE -- Steve Gonnella (533-8494)
6281 Winnetka Ave
Brooklyn Park, MN 55428

YOUTH GROUP --
Ed Johnson (690-3442)
Gordy Myers (377-6713)

MERRY CHRISTMAS 99'ers

Just when you'd thought you'd worked off that Thanksgiving turkey, it's time to hit you with the Christmas ham. Time for mistletoe and egg nog and lots of presents under the tree. Well we're not going to be outdone. Inside this special Christmas issue of the MSP 99 Newsletter is a special present for all you hackers out there. It's installment 2 in our slowly coming Programmers Aids series.

You'll want to keep this sheet handy because it's just full of good things to know. On one side is a collection of error codes (those nasty little things), while the other has a list of TI-Writer/Funlwriter functions. (Just the thing for those of you without a manual.)

So enjoy yourselves and have a happy holiday season.

Please Drive Carefully

** NEW NUMBER **
** TECHIE BBS **
** 446-1419 **

## MEMBERSHIP RATES GOING UP

A very serious debate was held at the November MSP 99 meeting concerning the financial status of the group. It is an already well established fact that the groups pocketbook has definitely seen better days and that something has to be done about it. Certainly such things as our monthly meeting raffles, annual turkey raffle, and annual auction help to generate funds, but the real problem is our diminishing memberships.

Our monthly newsletter is usually sent through the bulk mail. However, the Post Office has a minimum of 200 items for a bulk mailing and at this time we can not even come near this figure including the issues we exchange with other groups. I have to wonder what has happened to all those TIs. Are so many of them really tucked away in closets and attics someplace collecting dust. Where are they? Are people actually using them without (horrors) belonging to their local users group.

The ideal thing to do therefore, would be to raise the number of members, but since one cannot force people to join an alternative solution must be found. Those attending the November meeting took it upon themselves to do something about it. They motioned that the group raise the price of the annual membership to $18.00 a year effective January 1, 1987. The vote was unanimous. Anyone wishing may still renew their membership for one or two years at the current rate of $15.00 a year until December 31, 1986.

Among the other items discussed was the idea of rearranging the current method of membership renewal. This would entail making all memberships due in January of each year rather than in the month of initial joining as is now the case. We have heard of several groups that do this and it seems to work out fine. We would like to hear some more input (both pro and con) from the rest of the group on this before taking any steps.

The idea was also brought up to start a series of classes or seminars of such things as beginning BASIC and XB programming, Assembly programming, etc. However we would need to know what sort of attendance could be expected prior to arranging such an event. I believe that finding suitable instructors would not be difficult since there are so many excellent and knowledgeable programmers within our group. Again, please let us know.

Remember this is a group. If you don't like the way things are being done you have every right to say so and to be heard. Too often we have heard someone grumble, or worse leave the group because they didn't like the way something was being done. That's terrible. We, the officers, value your opinions. We are not dictators, we can only do what we think the group wants. If we make an error in judgement it is only because we are ignorant of your thoughts. We have such very little input from the majority of the group it's almost pathetic.

We "orphan" owners must stick together. We need your ideas, your thoughts, your gripes, your support. Why did you join a users group in the first place? Get involved. Recruit a new member. Sell those raffle tickets. Wait until January to renew your membership. Remember, now is the time for all good men and women to come to the aid of their computer group.

Gary

## TIPS 'N' THOUGHTS

by Tom Fairbairn

In the ideal world of our data processing dreams, everything runs smoothly and never requires any attention other than our normal use of the equipment. In the real world of ugly dirt and clumsy fingers, we are not so fortunate and we find the need to do some of the nastywork called maintenance.

Included in this maintenance is the heart of our long term storage, the disk drive or drives. On our systems, these faithful servants go around and around thousands of times, even millions of times, flawlessly saving our most precious information and reading back in when we need to reuse it.

Of course, just about the time we take our drives for granted is the time they decide to remind us that even faithful servants need to be attended to and pampered. Suddenly the file you have read 88 thousand times ends with a grind, a clunk, a "BOOOOP" from the monitor, and some sort of a nastygram at the bottom of the screen that amounts to, "You just ran out of luck, Bunkie."

Inside your drive, the disk stops whirling and the drive becomes deafeningly silent. You can just hear old Mr. Dust laughing, laughing over your dismayed look.

Now, there are several things we can and should do to insure this scenario does not get played out any more often than is absolutely necessary.

First off, take care not to handle your diskettes in a manner that exposes them to any more contamination than is unavoidable. Smoking around them is one of the biggest offenders for causing contaminant buildup on the disks and drive heads. Other things include touching the recording surfaces through the "windows" in the diskette housing, laying the diskettes down on desktops or atop the computer without their envelopes, working in areas such as the kitchen where oily contaminants may be present in the air that can settle into the drives, and other such actions that invite unsightly dirt.

Notice in the things I have said above, I am stressing PREVENTION of contamination, rather than the REMOVAL of contamination. The reason is that with disk drives, prevention is way in front of any other action where preservation of your valuable drives and media are concerned. Every speck of dust and molecule of oily residue you can keep out of your drives and disks goes that far towards insuring the safekeeping of irreplaceable data and program files (be honest... how many of us back everything up 100%??).

Cleaning a drive is something that should never be undertaken lightly or without some forethought. In most cases, diskette drives should be basically self-cleaning. In the computer world I normally live in, the world of the CDCs, IBMs, DECs, and DATA GENERALs, diskettes are never cleaned and in the present world, neither are drives. Indeed, in many IBM devices there is a diskette drive that turns so long as device power is on. The heads are always loaded, and can ride the diskette for months at a time without rest. This device is used to record any error conditions sensed within the rest of the machine and to provide reloading of the device control microcode if it is necessary to do so. Add to this that all maintenance microprograms for the device are on this same disk, and I think you can see why any failure of the diskette or drive could be catastrophic.

True, the fact that the drive runs at all times does avoid some build-up of contaminants, whereas our TI drives start and stop (most five inch drives are not built for continuous duty). But think about the fact that for months at a time the drives, and diskettes, run nonstop with no cleaning and no problems.

Usually, these machines are used in filtered air, non-smoking rules are in effect, and the diskettes are seldom handled except by the maintenance personnel.

In our home systems, we tend to ignore such niceties, since we can not usually have the luxury of the conditioned air. As a result, the philosophy of scrubbing the drives on a regular (weekly or monthly) basis has become very common.

Disk head cleaner kits usually include some sort of a special disk that you install in your drive, and a solvent that is either put onto the special disk with an applicator or is embedded in the cleaner disk material when it is manufactured. The disk is usually made of a material that appears to be fiberglass or some similar material. The solvent mostly seems to be some type of alcohol or alcohol-based compound.

These doggone things are abrasive! If you would like a demonstration, take the disk of a used cleaner and rub it briskly on a shiney hunk of plastic. You will soon see a fogging effect on the plastic surface. Think, now: the head in your drive (or heads in double side machines) are made up of minute metal head assemblies embedded in plastic. Also, certain types of plastic react to certain types of alcohol or alcohol-bearing compounds. They tend to soften the plastic or "craze" the surfaces.

Assuming your drives are better quality units and you are using a well-known brand of cleaning kit, you can generally assume that the solvent problem won't arise UNLESS YOU USE IT TOO OFTEN OR FOR TOO LONG AT A SESSION!! But the abrasion from the cleaning disk (pad) should not be ignored.

I have seen several drives that I think have been damaged by over-exhuberant use of cleaners. The heads appear cloudy rather than smooth and shiney, and there are minute scratches that seem to attract and hold contaminants. I am moved to think that these drives were either cleaned too often, or too long at each session.

Each cleaner manufacturer includes very specific instructions about how long to run the cleaner pack, how much solvent to use, how often to use the kit, and so on. But I tend to prefer to go by what the manufacturer of the disk drive has to say in his service manual. It is unfortunate that most computer vendors do not include this data sheet in their system documents. I have found that most makers of the 5.25-inch drives we use either say that cleaning is not normally required in their drives, or may go so far as to specifically speak against it in a couple of cases I have encountered. Rarely do I see any company recommend regular cleaning. I guess I would prefer to go by the word of the drive makers than take the word of the folks who make the cleaner kits who are, after all, trying to sell a product.

This is not to say the cleaner kits are never to be used. If a drive has not been used for a long time, or has become so contaminated it simply won't work, we do not have much choice in the matter but to use the cleaner. But it is to be used, I feel, for the least amount of time needed to get the cleaning job done and the drive working properly, and never more than one minute maximum at a cleaning session. Also, to avoid damage to your equipment, use the very least solvent the maker of the kit suggests. The VERBATIM brand kits have the pads presoaked with solvent so that only the proper amount can be used, and you throw away the pad after one use. While expensive, this is really the best way to assure the proper quantity of solvent is always used and minimize tracking of dirt from one drive to another. I prefer this type arrangement. However, the other brands of kits will work very well if used properly.

I guess I sometimes sound like a broken record when I get on this topic, and I'm sure there are those among us who clean their drives on a scheduled basis who can honestly say they have never had problems from it. I prefer to go the other way and do so only as an almost last resort.

One thing that is absolute. DO NOT TRY TO CLEAN A DISKETTE SURFACE!! Just about any type of solvent will affect the adhesive that is used for bonding the oxide material to the mylar that goes into a diskette. It can also affect the magnetic oxide itself. If you have a diskette that is so contaminated that it must be cleaned to read it, you should copy it immediately and toss out the cleaned diskette. Your expensive drives and valuable data or program files are worth too much to be taking any chances with a damaged diskette.

The best insurance against dirt problems in your diskette system is to avoid bad use habits and take every step you can to avoid contaminating them to start with. If they do become contaminated, clean the drives as quickly as will put them back into service and use as little solvent as possible. Don't attempt to clean the diskettes; replace them. These simple rules will help prolong the life of your drives and your media and will provide you with the best possible service.

One other thing -- some of the so-called "quiet drives" do not use a solenoid to lift the heads when the drives are not reading or writing. These drives (TANDON 100 series drives are an example) leave the heads loaded on the disk whenever the door is closed. On single side drives, closing the doors with no disk in the drive can, over the long term, deform the pressure pad that presses the diskette against the head. On the double side versions, closing the door with no disk in place will allow the heads

(Continued on Page 16)

## RANDOM ACCESS

by Dick Lauhead

In the June Newsletter, I had some rather harsh words to say about Superbug II v1.0 from Edgar L. Dohmann. I recently received a nice letter from Mr. Dohmann along with a copy of v2.0. He sent me v2.0, unsolicited, after reading of my dissatisfaction with v1.0. I learned a lesson along the way. If you are unhappy with a product, especially fairware, write to the author! Most are very fair, honest people and no doubt will make right any wrong you think you have suffered.

Superbugll v.2.0 did indeed fix the bugs that had irritated me most. Some of the improvements in Superbug II v2.0 are: You can now disassemble to disk. Registers are now disassembled properly. (Superbug would disassemble R0-R9 as R00-R09. When reassembling, these symbols would cause assembly errors.) Screen colors can be changed. Programs can be loaded and saved directly by Superbug II. There are many other added features and enhancements over the old TI Debugger, and the old Superbug.

Superbug II v2.0 is a fairware program. The disk can be obtained from the MSP99 library. However, the manual is copyrighted, and can be obtained only from the author, for $5. It is 52 pages and is well written. You can also obtain the whole package from the author for $10. Order from Edgar L. Dohmann, Rt. 5 Box 84, Alvin, TX 77511. Note if you send $5 for the manual, that is considered fairware payment, and you receive a nicely printed manual to boot. How's that for a deal!

I recently purchased Super 4th from DataBioTics, Inc. This was co-written by Edgar Dohmann. It is basically TI FORTH that uses a super cartridge (required) to hold part of the FORTH system. This has the effect of giving you an added 8K of memory for your programs.

There are also some new words added to support speech, sound, hard disks, decompiling, and some other goodies. I may review this product in a future issue, but at present, I would not recommend you buy it, unless you need hard disk support or are unable to write your own TI FORTH improvements. Perhaps I am spoiled by fairware and other inexpensive software, but at $19.95, I think it is somewhat expensive even if it meets all the promises made in its advertising. (Mr. Dohmann says I got a bargain as it is supposed to be sold at $29.95.)

Unfortunately, I have already found 4 bugs in it, and I have barely used it. One word called ?SPEECH is supposed to return a false flag if the speech synthesizer is not attached and a true flag if it is attached. It always returns false, and also leaves garbage on the stack--a no-no. The other 3 bugs are in words used by the GRAPHICS word. GRAPHICS sets up VDP to BASIC mode so that you can do VCHAR, HCHAR, etc. on a 32 by 24 character screen. When I tried a very simple program using VCHAR, it did not work correctly because of these bugs. Fortunately, I was able to correct the bugs (one of the nice features of FORTH). The bugs have been pointed out to Mr. Dohmann for correction.

I hope I am wrong, but I am afraid Super 4th may turn out to be another TI FORTH--with bugs that the user has to correct himself. While it is rare for any software to be bug free, we've already been down that road with TI FORTH, so why should we want to do it again? Since this product is marketed by a reliable company, however, we CAN look forward to support for Super 4th.

Due to the overwhelming response to my article on file I/O (one person commented on it, indeed an overwhelming response to a Newsletter article), I want to discuss some things further.

I received some questions about buffers in VDP. As I stated, you must tell the DSR where you want to put the data you are reading or writing. You do this by setting bytes 2 and 3 of your PAB to the VDP buffer address. This buffer is where each RECORD is put. It only needs to be long enough to hold the longest record you are using, e.g. 80 bytes for a DIS/VAR 80 file (The DSR uses what it needs--you specify only the beginning address, not the length.) This buffer can be between PABs, before or after PABs, shared by more than one PAB, etc.

However, there are areas of VDP that the disk controller DSR uses for sector buffers, file info, etc. (Incidentally, after more research, I found that THIS is the area that is freed up by a CALL FILES command). There are also many other areas of VDP used for screen images, color tables, sprite attributes, etc. You must be careful not to use any of these areas as PABs or buffers, or you run the risk of trashing the display and/or crashing the system.

The area used by the disk controller for sector buffers, file information, etc. is pointed to by CPU address>8370 (last free VDP address). For the default of 3 files, this address contains >37D7. That means that the VDP address >37D8 through the end of memory (>3FFF) are being used by the disk controller and should not be used for anything else. Don't put PABs or buffers in that area!

For 1 file or 7 files, for example, the address in >8370 will change, but unless you do the equivalent of a CALL FILES, it will always be >37D7. If you have some reason to use the upper part of VDP therefore, you should read CPU address >8370, and not put anything in VDP above whatever it contains. It puzzles me why the disk controller doesn't contain its own RAM for buffering, but it doesn't--it wastes VDP memory instead.

While the description of VDP usage for the many graphics modes is beyond the scope of this article, I will mention that in bit map mode, the lower >3800 bytes of VDP are required for all the descriptive tables! Obviously, you cannot have 3 disk files in memory at the same time you are doing bit map graphics. However, the restriction of not using VDP above the address in CPU >8370 only applies if your program manipulates disk files. It does not apply if you are not using disk files, or are using other files, such as RS232 or PIO.

In my previous article, I stated that byte 8 in the PAB was used only by the cassette interface. There is one other interesting use for byte 8. There is an op code called STATUS (op code 9) which can be used to return status on a file. It returns the status to byte 8 of your PAB. This op code will return everything you ever wanted to know about an open file.

If bit 0 is set, the file does not exist. If bit 1 is set, the file is protected and cannot be modified. Bit 2 is not used. Bit 3 is set for INTERNAL type files, or reset for DISPLAY or PROGRAM files. Bit 4 is set for a PROGRAM file. If bit 5 is set, the record length is VARIABLE, otherwise it is FIXED. If bit 6 is set, the file is at physical end of file, and no more data can be written. This means the disk is full. Bit 7 being set indicates that the file is at end of file. You can write more data to the file (assuming it is open in OUTPUT, APPEND, or UPDATE mode), but cannot read from it. By the way, TI numbers bits from left to right. For example, >80 has bit 0 set, and >01 has bit 7 set.

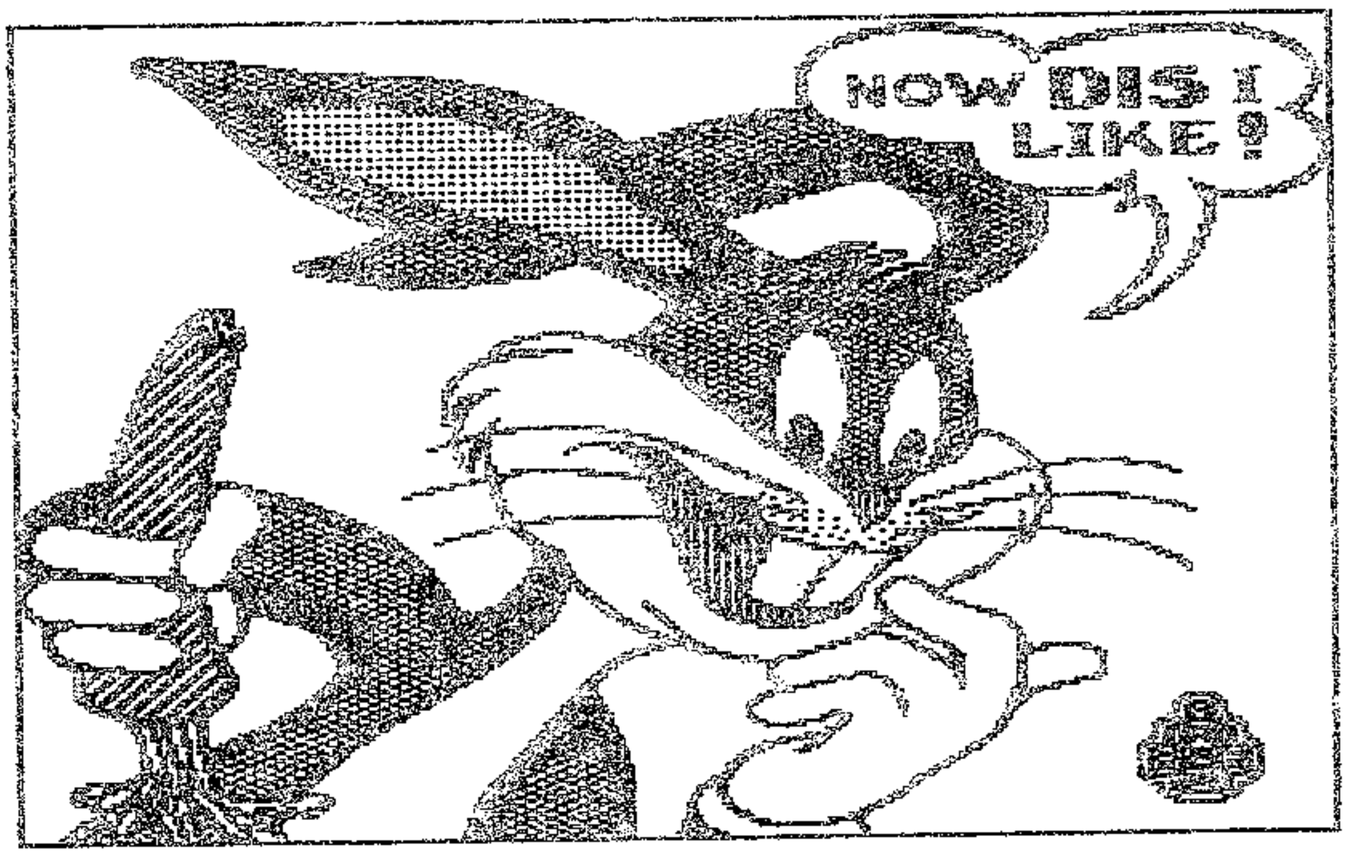
I realize most of this is way over the heads of most users, but as a dyed-in-the-wool hacker, I get carried away sometimes! Next month, I promise you something much less technical--my belated Christmas gift to those of you who wish I'd start speaking English!

ODDS AND ENDS--I hope you all read Tom Fairbairn's excellent article last month. I would like to mention that instead of cleaning the connector, you may wish to replace it. The connector is available from TI for about $5. Contact Steve Gonnella for details. Don't disassemble the console before you get the connector as TI takes 4-6 weeks to ship parts. By then you would have stepped on, crushed and vacuumed up the switch lever you dropped on the floor!

There has been mention of RLE graphics several times in the Newsletter. Each person seems to call the program something different. I believe all the names (RLE3, TI-RLE, etc.) are actually the same program, which the author calls MAX-RLE.

I would like to add a comment on Poor Richard's article. If software companies would spend 1/10 the time writing manuals for programs as they do copy protecting them, then maybe some of the programs we think are really bad would become useful. I guess we all have our pet peeves. My pet peeve is lousy software manuals. Some of the ones I have encountered are most useful when filed in the nearest waste basket.

I wish you all a Merry Christmas, and a Happy and Prosperous New Year!



TIdbits.....

Jon Gould of the Captain's Wheel is offering a 3 slot expansion system kit for just $35.00. The kit includes every part required to build your own mini expansion system with just a few hours of work. There is room on the completed board for 3 of the TI or 3rd party cards such as the 32K card, disk controller, RS232, etc. The unit comes without a case, however instructions are included to construct your own. Also, if you desire to power a disk drive from the same power source, you must order it with that option.

Also from Jon Gould comes a neat little 32K memory expansion unit that plugs into the side of the console and is actually smaller than a speech synthesizer. Several extra options are also available in the unit which include switchable 8K blocks of memory and special loader software that allows the user to load and run any E/A type software available for the TI99/4A. The software in addition supports disk-to-cassette and Cassette-to-disk "program" memory image object code files, and allows users to save memory blocks to either disk or cassette in "program" format.

The basic 32K unit sells for $49.00 with each of the options only $10.00 extra. To order, or for more information, contact:

Captain's Wheel
17295 Chippendale Ave
Farmington, MN 55024
(612) 460-6348

From the Johnson Space Center group comes this note:

John Lessesne (Austin TX User's group) has built a Voice Command interface for the 99/4A. It is up and working. If you are interested, call John at (415) 863-8021, or write to him at 4411 s. IH35, Austin, TX 78626. He uses standard components and plans to put the KNOW HOW in public domain. He has also built an EPROM programmer that works off the PIO port that can be built for less than $30.

From yet another John (Wilforth), comes a series of goodies for the orphan. John wants to know what the interest level is in (a) 32K memory kit ($35-40). 156K RAM disk in your console. (b) 16K Mini-Memory that would dump most non-GROM modules. (c) Internal speech for less than $35. (d) RS232 and disk controllers that fit inside the console.

Some of these items are in prototype and have been demonstrated. If you want to encourage John to produce these kits, please send a SASE to:

John Wilforth
RD #1, Box 73A
Jeannette, PA 15644

It costs about $500 for an order of 100 boards so he needs a show of interest from at least 100 to 200 people. Your vote for these projects will only cost you 22 cents. Let John know of your interest.

From the Delaware Valley U.G. comes this:

While maintaining a 1-year inventory of parts for its current TI Pro users, TI is ending its independent TI-DOS configuration to go strictly IBM-compatible, orphaning current TI Pro users. Completing the picture, Pro software will no longer carry TI's label, but will be identified as a 3rd party product. TI needed to join the Big Blue clones to continue to have a competitive marketable product...

Regena, (aka Cheryl Whitelaw) is offering a collection of her software programs for only $3.00 each if you provide the tape or disk. A catalog listing is

available for only $1.00 from:

REGENA
PO Box 1502
Cedar City, UT 84720

Also, for those of you that loved Regenas' column in Compute! take heart. She will now be covering TI BASIC regularly in Micropendium. That ought to make more than a few of you happy, but it will mean you'll have to subscribe to the magazine. (Plug, Plug)

99/4A IBM style Keyboards (numeric Keypad, seperate Control and Function Keys, etc.) have been produced by members of the Nutmeg TI 99ers, and are available from RAVE 99 Co., 23 Florence St., Bloomfield, CT 06002. Call (203) 242-4012, or 872-9272 after 6 pm for descriptive brochure. 84-keys are $124.95; 101-keys are $149.95; custom keys $15 extra plus shipping. NO P-BOX NEEDED!

---

## THE THEORY OF DARK SUCKERS

by Paul Holgren
Condensed by Rick Alston

(Reprinted from MADHUG Newsletter, Sept. 1986)

For years it was believed that light was emitted from an electric bulb, recent information has proven otherwise - dark is sucked into the bulb therefore, the bulb is a dark sucker. This theory also proves dark is heavier than light, and dark is faster than light. A few examples follow.

ELECTRIC BULBS: There is less dark near an electric bulb than at a distance of 100 feet when it is operating, therefore, it is sucking dark. The larger the electric bulb the more dark it is able to suck, this is easily proven. Also note that when an electric bulb becomes full of dark it ceases to suck dark and is itself dark, indicating it is full of dark. This phenomena can also be observed in flourescent bulbs, the end of these bulbs indicate when they are becoming full of dark.

CANDLES: These are primitive dark suckers, the center core is a dark sucker protected by a soft insulator to extend its life expectancy and maintain rigidity. Proof of its dark sucking ability is relatively simple. Examine a new, unused candle. Notice that the center core is not dark. Ignite the center core and allow it to burn for 5 minutes. Notice the lack of dark around the candle! Now extinguish the candle and observe the center core. It is now dark, proving the candle has sucked dark. Moving a pencil through the flame further illustrates the dark sucking capacity of the candle. When this is done, the pencil blocks the flow of dark and dark is deposited on the pencil.

DARK IS HEAVIER THAN LIGHT: Dark always settles to the bottom of lakes and rivers. This can be proven by descending into a lake or river, the deeper you go the more dark there is! This phenomena can be observed when looking into deep holes where dark has fallen, proving dark is heavier than light.

DARK IS FASTER THAN LIGHT: If you were to open a drawer very slowly, you would notice light going into the drawer. (You can see this happen.) You cannot see the dark leave the drawer. Go into a closet, close the door and turn off the dark sucker. Now have a friend open the door about 1 inch, neither you or your friend will see any dark leave the closet. Now open the door until the closet is half dark. Since 2 objects cannot occupy the same space at the same time, you will not feel any change in pressure by compressing the dark. So it is logical to assume that dark is faster than light.

# Poor Richard's Peripheral Roundup

By Dick Dunbar

FRESH FROM THE FACTORY: The latest word is that Myarc has finally received the gate arrays for the Gen'eve/9640 computer-on-a-card, and that they are testing out OK so far. The source of this welcome information was a message left on the Compuserve TI-FORUM. The message was left by a person who had talked to another person who had talked to Lou Phillips of MYARC. Yes, I realize that's not quite like getting it from the horse's mouth, but it DOES serve to buoy up my spirits as I write this on the day after Thanksgiving.

As this long-awaited beastie progresses to availability, I hear more and more people saying that they may indeed decide to buy one of them. I know I plan to do so - I am right now in the process of trying to locate a second Peripheral Expansion Box in which to install it, as I do not intend to dismantle my current system.

GRAM/RAM CARD REVIEW: Last month, I mentioned that I had purchased one of the Mechatronic GRAM/RAM Cards. The rest of this column is devoted to a review of that device, which I have referred to in the past as a GRAM KARTE, which is what they call it in German. I have switched my terminology to GRAM/RAM Card for a couple of reasons, but primarily because I can abbreviate the name to GRC, rather than GK. GK has come to mean GRAM KRACKER to most folks in the TI99/4A world, hence to avoid confusion the abbreviation GRC is born.

The name GRAM/RAM Card is appropriate, first because it is a card that installs in your Peripheral Expansion Box instead of plugging into the module port, and second because this card has a lot more RAM available than even a full-blown Gram Kracker. In its LEAST expanded version, the GRC has 128K bytes of GRAM and/or RAM, compared to 80K in the fully expanded Gram Kracker. The GRC also comes in a 512K version. And you can install more than one GRC in your P.E.Box - two of the 512K version or (logically at least, and according the the GRC manual) up to eight of the 128K variety. Of course the P.E.Box only has seven available slots - even fewer if you want to do something with all this memory besides just look at it.

How does it work? It works great! The primary function of this device is to let you save module software to disk and execute it from there, dispensing with the need to change modules. One warning - as with the GK, the GRC can not handle the Milton Bradley MBX cartridges, and some other third party cartridges due to the different methods they use to do memory bank switching.

However, I was able to place all the module software that I use on disk. The one I use the most is Extended Basic, a module that I'm sure most users will agree is the one most likely to provoke system hangups due to problems with the module port contacts, etc. I am happy to report that I have had not a SINGLE occurrance of that type of problem since I put all my modules on disk. The reason for that, of course, is that I no longer use the module port. The GRC is safely snuggled away in the P.E.Box and the modules are on disk. The module port has been eliminated from everyday use altogether. The only time it is needed is when a module is first put on disk.

The fact that the module software is now resident on disk brings up a possibility that I have not yet taken advantage of, which is the ability to modify that software to your own specifications. This is something that lots of people have do... for things that range from changing the colors of the Extended Basic screen to altering modules

which don't allow PIO as a printer designation not only to allow it, but to use it as default. The GRC has a memory editor as part of the ROM softwaRe, allowing the user to modify the contents of GRAM and RAM memory for simple changes of this type. Some of the more ambitious programmers have put new CALLs in Extended Basic, commands of the form "CALL xxx(yyy,zzz)", where "xxx" is the command name and "yyy,zzz" are it's parameters.

Saving cartridges to disk and calling them back is a simple task, which is fortunate, since the documentation for this device is incomplete and assumes technical knowledge the user may not have. Saving a module to disk is not as simple for the GRC user as it is for the GK user, however. To save a module to disk using GRC, you must first insert the module into the module port, enter BASIC and call up a ROM program called the Loader, which is done by issuing a "CALL GRAM" command in immediate mode. The Loader screen will appear, offering these options:

1. LOAD (G)RAM WITH PROGRAM
2. LOAD GRAM WITH ASM-FILE
3. LOAD RAM WITH ASM-FILE
4. LOAD GROM 0-2
5. SAVE GROM
6. SAVE ROM
7. LOAD-FILE

Using options 5 and/or 6, you must then individually SAVE each GROM and ROM used by the module to a separate disk file. This implies that you must know which ROM/GROMs the module being saved uses. A long but incomplete list of modules showing which ROM/GROMs they use is included in the documentation, but if the module you want to save is not listed, you may have to experiment a bit.

Using an editor such as TI-Writer or Editor/Assembler, or by means of a simple BASIC program, you must then prepare a DISPLAY, VARIABLE 80 disk file containing the name of each of these files on a separate line. For example:

```
DSK.GRC.ROM1
DSK.GRC.ROM2
DSK.GRC.GROM3
DSK.GRC.GROM4
DSK.GRC.GROM5
DSK.GRC.GROM6
```

This file containing the names of the files to which the module ROMs and GROMs were dumped is called a LOAD-FILE. When no module is plugged into the module port, a LOAD-FILE can be called using option 7 of the Loader menu to load the GRC memory with the contents of the files it references.

If no module is present and the GRC memory is not loaded, the initial menu screen after power-up or reset contains the following options:

1. FOR TI BASIC
2. FOR GRAM >9800
3. FOR REVIEW MODULE LIBRARY

Option 3 is useful when more than one GRC is present in the system, but with only one GRC, pressing 2 will bring up a menu displaying the following options:

1. LOADER
2. DSK1.XB
3. DSK1.EA
4. DSK1.DM
5. DSK1.MP
6. DSK1.WR
7. DSK1.TE
8. DSK1.LG
9. DSK1.MM

Pressing FCTN-7 will toggle back and forth between this menu and a similar one containing file names DSK1.AA through DSK1.HH. Pressing 1 will bring up the Loader menu discussed before. Pressing any of the numbers 2 through 9 will cause the designated file to be selected as a LOAD-FILE. GRC memory will then be loaded according to the contents of that file, providing a handy set of LOAD-FILE names to use for convenient power-up selection of popular module software.

Once the GRC memory is loaded, the initial menu looks the same as if th actual module was plugged into the module port.

You can also customize your module files, using a program such as J. Peter Hoddie's Gram Packer, which will pack a number of programs into the GRAMs, allowing your programs to be displayed and selected from the initial menu.

The additional RAM memory available on this card is usable by assembly programs which can switch banks of memory into the module RAM area, >6000 - >7FFF. I understand that there is software on the way which will make use of it as a RAMdisk, although I suspect this may be most useful with a 512K GRC (or two).

In summary, the GRC is a device which I use all the time to my great satisfaction. The price was higher than I would have liked ($249.95), more expensive than the Gram Kracker, with less capability in some areas, but more in others. The additional memory and the fact that it does not use the module port were deciding factors for me, as was the fact that functions are software selected - no switches.

The Mechatronic GRAM/RAM Card, as well as a variety of other unique hardware made by Mechatronic and others, is sold by:

Ryte Data
210 Mountain St.
Haliburton, Ontario K0M 1S0
Canada

T.A.P.E. Ltd.
1439 Solano Place
Ontario, CA 91764

OUT OF TIME AND SPACE: Our Editor informs me that he can't wait any longer, so keep those orphan 99/4As humming while I cook up something new for next month. MSP99

# FORTH FORUM

"More Forth Fixes"

By Glenn Davis

TI made a series of mistakes in the source code for TI Forth. One of the last errors to be uncovered is in the word @>F which pushes a floating point value on the stack at run-time. TI's version of the word @>F originally compiled the actual ASCII digit-string into the dictionary and did a conversion to binary at run-time (bad move, especially when contained in a loop). I did some tinkering and improved run-time speed over 80%.

My version converts this string at compile-time. If the code is being interpreted, the number is left on the stack, otherwise it is compiled into the dictionary with code to push the value onto the stack at run-time. This process is completely transparent to the programmer, so @>F will act just like the old version of the word, only run-time speed is much faster. The only disadvantage is that the compiled number always takes 16 bytes, while a string may take only 6. Replace your screen #48 with this one.

The second error I uncovered was MUCH more serious. In the -FILE words @RD and @WRT will crash everytime a count of zero is returned or used, respectively. Several TI'ers have noticed this effect (which is characterized by your screen flickering madly and losing control of the computer). I discovered this was caused by improper use of VMBW and VMBR. These routines will always crash the video with a count of zero [for hackers: the count byte is pre-decremented in the VMBx routines causing a 64K loop, which clobbers the entire VDP space].

So... if the count is zero, the "data" must NOT be moved with VMBx. The replacement for SCR#71 is shown below. The code for @WRT and @RD have been modified to take this problem into consideration.

The last error uncovered is in the TI Forth manual. On page 7 of Appendix C, the definition of PLUS has big problems. The definition given is:

```
: PLUS  32 WORD DROP  NUMBER
  + ." =" . ;
```

The correct definition is:

```
    : PLUS   BL WORD HERE   NUMBER
DROP  + ." =" .  ;
```

Pencil the change in your TI Forth manual.

While I'm still discussing Forth, do you know about the TI Forth International Information Center (4122 Glenway St., Wauwatosa, WI 53222)? It is run by the Milwaukee 99/4 Users Group and has various materials for Forth programmers. Send them a SASE and you'll get a page describing the materials they distribute, which include photo-copies of Forth articles from various user groups around the country and disks with utilities, programs, and "stuff" on them. Prices are reasonable copying/ mailing charges, so give these people a shot!

---

SCR#48:

```
( FLOATING POINT - COMPILE NO TO STACK 12JUL82 LCT) BASE->R HEX

: F$   PAD 1+ SWAP >R R CMOVE R> PAD C! VAL FAC> ;
( Compile No to stack at compile time  12MARS6 GED )
: >F   BL WORD HERE COUNT  F$
    STATE @   IF  >R >R [COMPILE] DLITERAL
                  R> R> [COMPILE] DLITERAL
              ENDIF ; IMMEDIATE

( FLOATING POINT OUTPUT ROUTINES )
: JST   PAD C@ - SPACES PAD COUNT TYPE ;
: F.R   >R >FAC STR R> JST ;
: F.    0 F.R ;
: FF.R  >R >R >R >FAC R> 0 R> STR. R> JST ;
: FF.   0 FF.R ;
R->BASE -->
```

SCR#71:

```
( FILE I/O ROUTINES 12JUL82 LCT)
BASE->R HEX
: DOI/O CLR-STAT PAB-ADDR @ VSBW PAB-ADDR @ 9 + 8356 !
  0 837C C!  DSRLNK CHK-STAT ;
: OPN 0 DOI/O ;
: CLSE 1 DOI/O ;
: RD   2 DOI/O CHAR-CNT@ DUP -DUP IF PAB-VBUF @ PAB-BUF @ ROT
       VMBR  ENDIF ;            ( 05May85 GED )
: WRT  DUP -DUP  IF PAB-BUF @ PAB-VBUF @ ROT VMBW ENDIF
       CHAR-CNT!  3 DOI/O ;   ( 05May85 GED )
: RSTR REC-NO 4 DOI/O ;
: LD REC-NO 5 DOI/O ;
: SV REC-NO 6 DOI/O ;
: DLT 7 DOI/O ;
: SCRTCH REC-NO 8 DOI/O ;
: STAT 9 DOI/O PAB-ADDR @ 8 + VSBR ;   R->BASE
```

Tips.....Continued from Page 7

to rest together, and can cause damage to both head assemblies. I strongly suggest you leave the doors on your drives open as a matter of habit, and keep the protective slides in them when they are not in use.

If you are concerned about dust with the doors left open, consider that the doors on most drives don't run the full height of the slot to begin with, and that all kinds of openings in the normal enclosure will allow dust into the drive since these are usually not sealed devices. If you are terribly concerned about this, put dust covers over them when not in use.

---

There are 20 holiday related words hidden in the puzzle at the right. See if you can find them all.

Have a MERRY CHRISTMAS and
a HAPPY NEW YEAR.

## HOLIDAY HAPPENINGS

```
**************************
*AROKRWZBETHLEHEMRLWAQYXMQ*
*ENKWKKKWKEJMCYANUWZZEBKTR*
*XHPCZOFGVTYAQFANGELAOGRNB*
*WDEANXWHWLWWBSASDJCDJQGIH*
*ZAVPLPBOUKRHNSEMWJBUNNAZQ*
*XDABTPSDRACOWNFAIXTGJGYEI*
*ZLQIHUODTXWMARTPLLGZQBQSF*
*UUUTOVOBVDWCSUEMANYTEEPZZ*
*OCHRISTMASYIDTMGARUAEUMYN*
*CAPFYNECEDZJNQMVNPTQMZITJ*
*XPPKHOTINNWLEDXYDAAYRIIZH*
*FYVYLCWATDBWISLMJNMOSNDPS*
*CHHRNCCTAACQRTUGQTPUSAXAU*
*BOKSHJYMBMMCFUSMTBGEQVUVQ*
*XSJEDJAYUEKEVNOTPILPNCKEM*
*NHTSAAJLYSNGNTXWNJWPAQFOV*
*QPWHXELYUMGAFSECKELYKVSTR*
*EBPTSFIPVVMSUETKAXSPLYSEA*
*ZPKURQGMDMBHBHORXYVEAVMLJ*
*UMSHJLHFCMTVGCAYGWDXKRPATR*
*EENHCNTKWCCEGCETREERAPESB*
*ZHWGLDSPMYLLOHINMMTPKITIO*
*TTXLQIJHZZHOOPZOEGDPWRVMH*
*NWBWPEDJGSAWSUKAWEUKBATRF*
*IUWOCBICZOMAVPILFEDZRXIHL*
**************************
```

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

TIME SENSITIVE MATERIAL
POSTMASTER - PLEASE DELIVER PROMPTLY