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GETTING ON LINE:
AN INTRODUCTION TO TELECOMMUNICATIONS

by Fred and Amy Mackey

How do you get started in telecommunications? What kind of software and hardware do you need? What is telecommunications anyhow? The following is the first part of a continuing informational series on how to begin your journey into the world of telecommunications.

The whole purpose of telecommunications is to use your computer to locate and retrieve information stored on someone else's computer. This electronic collection of information is called a database. The storing of this information and making it accessible to a computer is really just a variation of the library concept, but instead of information being stored in printed form on rows of shelves, the information is stored in electronic form on rows of disks. Telecommunications is a tremendous asset for anyone; it is a library at your fingertips.

The information available in this electronic library includes news, sports, stock market reports, programs, all of which are available on news and informational services, generally for a subscription fee. Information can also be accessed on bulletin board systems, of which there are thousands across the country, and usually a free service. A bulletin board, or better known as a BBS, is designed to bring together those with common interests, those owning specific computers who want to share programs and help each other solve problems, and in some cases bulletin boards have served as electronic matchmakers. The personal business possibilities of telecommunications also include making airline and hotel reservations, electronic banking, and bill paying. And you can do all this from your TI-99/4A!

The information being sent from one computer to another is carried over telephone lines in the form of modulated data. (The tones you get when you punch numbers on your pushbutton phone represent modulated data.) But telephones and computers are based on different signals. The modem serves as a translator between the two. At one end of the phone line the modem MODulates the computer's digital signals into analog signals to be carried over the phone lines, only to be DEModulated back into digital signals at the other end.

Modems come in different shapes, sizes and prices. Some modems are directly connected to the telephone line through the telephone jacks. Other modems are the acoustic type where the telephone headset is coupled into the suctioned modem cups, one cup containing a speaker which generates audio tones, the other containing a microphone, which receives tones from other modems.

Telecommunications could not exist without software. This is the program which connects the computer to the outside world and gives it the instructions on what to do with the information it accesses.

In summary, to enter the world of telecommunications, in addition to your console and monitor, you will need a modem and a telecommunications software package.

FORMATTING—this is option 2 on the main menu and this is where the computer does work to give shape and size to a document (format). The process is done using certain codes that are "inbedded" in the text and "dot commands". Lets discuss the "inbedded" codes first.

The inbedded commands are the ampersand(&), the caret(^) and the "at" symbol (@).

If one wants to underline a word or words in a document just type the document up normally and for each word you want underlined type a & symbol in front of it. For example &help will underline help if this document was run through the Formatter. (Which it wasn't.)

If you want a word in bold face (darker print) just type @ in front of the word. For example @help would be printed out darker when printed through the Formatter. Lastly, if one types the caret (^) between words the formatter treats those two words as one. This is called the "required space" symbol. For example if we type &help^me^out the entire phrase "help me out" would be underlined. The same procedure would work for bold face.

Now how is the formatter used? Very simple, compose your document as normal, set margins, indents, tabs etc. Now enter your ampersands and ats where-ever you want a word underlined or bold faced. Now save this document to disk as a file. (Remember this from the past.) Leave the Editor and go to the Formatter (if you have one disk drive you will have to do some disk switching).

In the Formatter the first thing you will see will be the statement "ENTER INPUT FILENAME:" at this point have your file diskette in drive 1 and type DSK1."filename". Then it will say "ENTER PRINT DEVICENAME:" for my system I enter PIO.LF. (You will enter either PIO.LF or PIO.CR try one and see how the printer overstrikes and underlines, if it doesn't work one way try the other. Start with PIO.LF. I am assuming a parallel printer not a serial printer.) Then the screen says "USE MAILING LIST? N" press enter. Then it says "WHAT PAGE(S)? A". (More about this later.) Press enter. Then "NUMBER OF COPIES: 1" press enter. Then "PAUSE AT END OF PAGE? N" if you are using tractor fed paper press enter else press Y and then enter. At this point one sees "WORKING... PRESS CLEAR TO STOP" and your document will now be printed out on paper with the margins you set and everything boldfaced and underlined. When the formatter is finished you will be returned to the main menu screen.

If you remember at the very first part I said that the printer should be Epson compatible, this is so because if your printer is not Epson compatible it might not recognize the codes sent by T. I. Writer for underlining and boldfacing. To wrap-up 1) enter your document in the editor 2) made a disk copy and 3) then use the formatter.

More next time.

GETTING THE MOST FROM YOUR CASSETTE SYSTEM
 BY MICKLEY SCHMITT
 NUMBER 10
 UNDERSTANDING CASSETTE ERROR CODES AND MESSAGES
 PART II

UNDERSTANDING CASSETTE ERROR CODES AND MESSAGES IS NOT QUITE AS DIFFICULT AS IT MAY SEEM. UNFORTUNATELY, TRYING TO FIND A LIST OF THE ERROR CODES AND MESSAGES THAT DEAL SPECIFICALLY WITH THE CASSETTE RECORDER HAS BEEN A DIFFICULT TASK! IN DOING MY RESEARCH FOR THIS PARTICULAR ARTICLE, I HAVE HAD TO COMBINE MANY DIFFERENT SOURCES OF INFORMATION - IN ORDER TO BE AS INFORMATIVE AND AS COMPLETE AS POSSIBLE.

BASICALLY, CASSETTE ERROR CODES AND MESSAGES CAN OCCUR DURING ONE OF TWO DIFFERENT TYPES OF COMMANDS. MORE SPECIFICALLY, I AM REFERRING TO THE "LOADING" (OLD CS1) PROCEDURE AND THE "SAVING" (SAVE CS1) PROCEDURE.

THIS MONTH I WILL BE EXAMINING THE ERROR CODES AND MESSAGES THAT CAN OCCUR DURING THE "SAVING" (SAVE CS1) PROCEDURE.

WHEN THE CASSETTE RECORDER FINISHES SAVING YOUR PROGRAM - THE COMPUTER WILL TELL YOU WHETHER OR NOT THE PROGRAM WAS RECORDED SUCCESSFULLY. IF THE PROGRAM WAS RECORDED SUCCESSFULLY, YOU WOULD SEE THE FOLLOWING MESSAGE APPEAR ON YOUR MONITOR OR TV SCREEN - AFTER YOU COMPLETED THE NECESSARY STEPS IN THE "CHECKING" PROCEDURE:

```
* DATA OK
* PRESS CASSETTE STOP      CS1
  THEN PRESS ENTER
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IF, HOWEVER, THE CASSETTE RECORDER DID NOT SUCCESSFULLY RECORD YOUR PROGRAM ONTO THE CASSETTE TAPE, AN ERROR OCCURS AND THE COMPUTER PRINTS ONE OF THE FOLLOWING MESSAGES:

```
* ERROR - NO DATA FOUND          * ERROR IN DATA DETECTED
  PRESS R TO RECORD              CS1  PRESS R TO RECORD              CS1
  PRESS C TO CHECK                PRESS C TO CHECK
  PRESS E TO EXIT                  PRESS E TO EXIT
```

WHEN THIS OCCURS - YOU HAVE A CHOICE OF USING ONE OF THE FOLLOWING THREE OPTIONS: NOTE, HOWEVER, THAT THE SINGLE-LETTER RESPONSES (R - C - E) THAT YOU TYPE IN AT THIS TIME MUST BE IN UPPER-CASE CHARACTERS!

1. PRESS R TO REPEAT THE RECORDING PROCEDURE. HOWEVER, BEFORE REPEATING THIS PROCEDURE, CHECK TO MAKE SURE THAT YOU HAVE PUT THE CASSETTE TAPE IN CORRECTLY - AND THAT THERE IS ENOUGH BLANK TAPE LEFT ON THE CASSETTE TAPE IN WHICH TO RECORD THE PROGRAM ON. THEN FOLLOW THE DIRECTIONS AS THEY APPEAR ON YOUR MONITOR OR TV SCREEN.
2. PRESS C TO CHECK THE DATA YOU HAVE READ INTO MEMORY. AT THIS POINT YOU MAY WISH TO ADJUST YOUR CASSETTE RECORDER'S VOLUME CONTROL AND TONE SETTING. THEN FOLLOW THE DIRECTIONS AS THEY APPEAR ON YOUR MONITOR OR TV SCREEN.
3. PRESS E TO EXIT FROM THE SAVING PROCEDURE. AT THIS TIME ANOTHER ERROR MESSAGE IS DISPLAYED, INDICATING THAT THE CASSETTE RECORDER DID NOT PROPERLY SAVE YOUR PROGRAM ONTO THE CASSETTE TAPE.

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* WARNING:
  CHECK PROGRAM IN MEMORY
* I/O ERROR 66
```

IF I/O ERROR 66 APPEARS, SOMETHING DEFINITELY WENT WRONG. BUT DON'T PANIC! GENERALLY SPEAKING, WHEN THE ERROR MESSAGE "ERROR - NO DATA FOUND" OCCURS - THE COMPUTER DID NOT RECOGNIZE THE CASSETTE RECORDER AT ALL DURING THE "SAVE CS1" ROUTINE. ON THE OTHER HAND - WHEN THE ERROR MESSAGE "ERROR IN DATA DETECTED" OCCURS - THE COMPUTER RECOGNIZED ONLY PART OF THE DATA THAT THE CASSETTE RECORDER WAS SENDING TO THE COMPUTER. WHEN THIS HAPPENS, RECHECK YOUR CASSETTE RECORDER'S VOLUME CONTROL AND TONE SETTING. THEN RECHECK YOUR CASSETTE CABLE. MAKE SURE THAT BOTH ENDS OF THE CABLE ARE ATTACHED TO THE COMPUTER AND TO THE CASSETTE RECORDER. WHILE YOU ARE AT IT - MAKE SURE THAT THE COLOR-CODED WIRES LEADING TO THE CASSETTE RECORDER ARE CONNECTED CORRECTLY. THE CASSETTE RECORDER WILL NOT OPERATE PROPERLY IF THE COLOR-CODED WIRES ARE REVERSED!

NEXT MONTH I WILL CONTINUE WITH THE TOPIC OF UNDERSTANDING CASSETTE ERROR CODES AND MESSAGES. MORE SPECIFICALLY I WILL BE GIVING YOU A GENERAL LIST OF AREAS THAT SHOULD BE CHECKED WHEN CASSETTE ERROR CODES AND MESSAGES APPEAR.

IF YOU NEED ANY HELP UNDERSTANDING THE CASSETTE ERROR CODES AND MESSAGES OR ARE EXPERIENCING CASSETTE ERRORS - JUST GIVE ME A CALL (412-335-0163) AND I'LL TRY TO HELP.

CONTINUOUS DISK OPERATION FOR CLEANING.....

```
10 CALL CLEAR
20 CALL SCREEN(13):: FOR C=1 TO 12 :: CALL COLOR(C,16,13):: NEXT C
30 DISPLAY AT(12,10):"CLEANING....." :: DISPLAY AT(23,2):"(HOLD
  FCTN CLEAR TO STOP)"
40 ON ERROR 60
50 GOSUB 70
60 GOTO 40
70 RUN"DSK1.B"
80 RETURN
```

DESIGN YOUR OWN CURSOR.....

I can't give proper credit to whoever originated this program to create a TEXAS cursor, but my goal is not for you to be the proud user of a TEXAS type cursor, but rather you know how to create your own CUSTOM CURSOR!

Whatever program that you use, assembly, or extended basic, you will have to encode the design for your CUSTOM CURSOR. The program will be the vehicle for your own cursor.

- 1 !TEXAS CURSOR from GOTO Newsletter of Columbus, GA. Users Group; unattributed, but JIM PETERSONS and DR. RON ALBRIGHT'S names came up.
- 2 CALL CLEAR :: CALL INIT
- 3 CALL LOAD(8196,63,248) ! REF table pointer at >2004 (3F,F8)
- 4 CALL LOAD(16376,67,85,82,83,79,82,48,8) ! Indicates that a program named "CURSOR" begins at >3008
- 5 CALL LOAD(12288,48,48,63,255,254,124,24,12) ! THIS IS WHERE WE START THE CUSTOM CURSOR DESIGN
- 6 CALL LOAD(12296,2,0,3,240,2,1,48,0,2,2,0,8,4,32,32,36,4,91)
- 7 CALL LINK("CURSOR") ! Links to the cursor program.

If you are interested in creating your own cursor, please read the rest of this page, and I'll show you how to chart out this TEXAS CURSOR, and how to create your very own, let's say one with your initials, or a square box. The creation is very much the same as charting a sprite in extended basic, but instead of using HEX, you will be using straight BINARY.

BINARY WEIGHT	128	64	32	16	8	4	2	1	
ROW # 1			X	X					= 48
ROW # 2			X	X					= 48
ROW # 3			X	X	X	X	X	X	= 63
ROW # 4	X	X	X	X	X	X	X	X	= 255
ROW # 5	X	X	X	X	X	X	X		= 254
ROW # 6		X	X	X	X	X			= 124
ROW # 7				X	X				= 24
ROW # 8					X	X			= 12

LOOK AT LINE "5" IN THE ABOVE PROGRAM.

If you look at the above chart, you will see the TEXAS CURSOR defined. Now all you will have to do is make a blank chart similar to the one above, and instead of putting the "X"'s in for TEXAS, put in the "X"'s to match the shape of your custom letters, or logo. Add up the numbers (binary weights) across the top of the chart above the place you inserted an "X". Do this for each row, and put the total at the end of each row.

Enter these totals in line 5, AFTER the address in the CALL LOAD(12288,xxx,xxx,xxx,xxx,xxx,xxx,xxx). Now save this program to disk! RUN the program, and you are all set.

The program should stay in the machine until you either:

- * Write over it with another program, not likely with xbasic.
- * Shut the system down.

HAVE FUN!

From J. F. Willforth of the WEST PENN 99'ERS March, 1987

Since the beginning of the organization of our club, August 1985, we have received questions on what would be done with the assets of the club, if it became apparent that there was no more interest or support.

As with many things, the resolution was put on the back burner because of more pressing items. Now that the club is really rolling, we can take the time to settle this issue.

Ken Farr has volunteered to study the issue, and has presented the new ARTICLE 8, sections 1 through 3, shown below. The article, by our current by-laws, must be published at least 30 days prior to the final vote. This is the official pronouncement of the ammendment to the membership. There will be no vote at the March meeting (30 day period could not be observed by the 17th of March), so the vote will be at the APRIL 21st meeting.

Addition to WP99'ers By-Laws

(Proposed February 1987)

ARTICLE 8 - DISSOLUTION

Section 1

The West Penn 99'ers group shall not dissolve as long as there are ten members in good standing who desire the organization to continue. If dissolution occurs the assets of the organization shall be disposed of in accordance with Sections 2 and 3 of this article.

Section 2

All tangible property of the group including but not limited to computer consoles, printers, blank and programmed disks, etc. shall be disposed of by holding an auction. This auction shall be announced in the group's newsletter in at least two issues preceding the auction. The auction shall be open to members and non-members alike.

Section 3

The proceeds of the tangible property auction along with all other cash assets of the group shall be distributed in equal share to all members in good standing at the time of dissolution.

File: WP99ART-B

Prepared and submitted by Ken Farr

PROGRAM TO LIST FILES FROM DISK TO PRINTER.....

```

100 REM LISTING FILE:      DISK TO PRINTER      : THE PROGRAM TO THE
110 INPUT "LISTING FILENAME : ":IN$           : LEFT WAS TAKEN FROM
120 INPUT "PRINTER PARAMETERS: ":OUT$         : THE TI MANUAL FOR THE
130 OPEN #1:IN$              : DISK CONTROLLER.
140 OPEN #3:OUT$
150 IF EOF(1) THEN 190
160 INPUT #1:A$
170 PRINT #3:A$
180 GOTO 150
190 CLOSE #1
200 CLOSE #3
210 STOP

```

A Little Louder Please •



Last month I listed those members who PAID their 1987 DUES. We are all very happy to have you and those who are listed below as members of the WEST PENN 99'ERS for 1987.

COLEMAN	FRABOTTA	GHRIST	HURLEY	KEPES
KOZLESKY	MACKEY	McCRACKEN	SADUSKY	WERKMAN
WOODSUM	FRIES			TOTAL----- 51

This list is current to FEB. 24,1984. We are sending out this MARCH issue to ALL members and past members, but there will not be a APRIL issue, unless you are a member, a user group, or receiving a complimentary issue.

The club has had 83% of our members continue their membership to 1987.

We are now in the third month of renewal and I cannot continue to mention this to you. There will be a FINAL ISSUE label on your newsletter this month.

FROM THE EDITOR

I received a reply from RAVE 99 Co. on Feb. 15, concerning my request to offer just keyboard interfaces to the membership at a special bulk purchase price. Their response was that they are now offering the interface in either a fully assembeled form, or as a KIT (needing about \$10. of additional parts).

The Model 99/101 model is no longer available, but is now replaced with the new Model 99/105. The Model 99/84 will be phased out by April 1.

PRICES (individually)---Model 99/105 Keyboard Enhancement-----\$184.95
 (interface and keyboard)
 ---Keyboard Interface Card (only)----- 134.95
 ---Custom Cover Kit (cover opening)----- 11.95
 ---Load/Reset Cable (load int./system reset)-- 6.95
 ---Kit (circuit card,manual, custom chips)---- 92.00

NOTE: If you order cover, the load/reset sw. is free.

We can, in answer to my original question to John, get quantity pricing, but this requires a \$1,000.00 purchase. If a sufficient number of people get to me about an interest in a bulk purchase of the RAVE 99 Keyboard or Kit, maybe we can work out the details.

Contact me either by writing, or calling: John F. Willforth
 412 527-6656 R.D. #1 BOX 73A
 JEANNETTE, PA 15644

If you can't wait, order your own directly from: RAVE 99 CO.
 203 242-4012 23 FLORENCE RD.
 add 5% for shipping and handling BLOOMFIELD, CT 06002
 add 3% for MASTER CARD or VISA orders

This keyboard was demonstrated by Willis Richardson at the last meeting, and from what I saw of it you almost can't live without it.

- * 105 key keyboard with 24 function keys.
- * Easily installed with just a phillips screwdriver.
- * Single key entry of ALL TI-WRITER, MULTIPLAN, and E/A commands.
- * Attractive low profile keyboard w/adjustable tilt angle and 5' cord.
- * Dedicated numeric keypad with numeric operations.
- * Dedicated cursor control keys.
- * Enlarged RETURN, SHIFT, and CONTROL keys.
- * Optional user installed RESET and LOAD INTERRUPT capability from kybd.
- * Detailed installation and operating instructions.

THE PHONE NUMBERS OF THE OFFICERS:			REC.SECTY:	ED BITTNER	412 864-4924
PRES:	SCOTT COLEMAN	412 271-6283	LIBRARIAN:	CLYDE COLLEDGE	412 828-3042
V.PRES:	MICKEY SCHMITT	412 335-0163	TREASURER:	JAN TRAYERS	412 863-1575
C.SECTY:	GENE KELLY	412 829-0469	EDITOR:	JOHN WILLFORTH	412 527-6656

OFFICIAL QUESTIONNAIRE RESULTS

THE FOLLOWING INFORMATION IS A RESULT OF OUR "OFFICIAL QUESTIONNAIRE" WHICH WAS PASSED OUT TO ALL WHO ATTENDED THE MAIN MEETING ON JANUARY 20 1987. FOR THOSE OF YOU WHO DID NOT HAVE THE OPPORTUNITY TO COMPLETE ONE OF OUR "OFFICIAL QUESTIONNAIRES", AND WOULD LIKE TO DO SO - THEY WILL BE AVAILABLE - BACK ON THE LIBRARY TABLE, DURING ANY OF OUR MEETINGS. PLEASE FEEL FREE TO PICK ONE UP IF YOU HAVE NOT ALREADY FILLED ONE OUT. REMEMBER - IT'S NEVER TOO LATE TO BE COUNTED - OR TO VOICE YOUR OPINION AT THE WEST PENN 99'ERS! THE CLUB OFFICERS TRY THEIR BEST TO SERVE YOU AND YOUR COMPUTER NEEDS - AND WE APPRECIATE YOUR ENCOURAGEMENT AND CONTINUED SUPPORT OF OUR CLUB, AS WE CONTINUE TO GROW!

1. WHAT HARDWARE EQUIPMENT DO YOU OWN:

100% TI-99/4A	75% RS-232
95% CASSETTE RECORDER	55% MODEM
95% PRINTER	15% GRAM KRACKER
90% DISK SYSTEM	15% P-CODE CARD
90% JOYSTICKS	10% RAM DISK
90% 32 K MEMORY	10% OTHER
85% SPEECH SYNTHESIZER	5% CLOCK CARD
75% PERIPHERAL EXPANSION BOX	5% TRIPLE-TECH CARD

2. WHAT SOFTWARE EQUIPMENT DO YOU OWN:

95% TI-WRITER	50% MICROSOFT MULTIPLAN
90% EXTENDED BASIC	50% SCOTT ADAMS ADVENTURE MODULE
85% EDITOR / ASSEMBLER	45% HOUSEHOLD BUDGET MANAGEMENT
85% TERMINAL EMULATOR II	40% TI-LOGO
75% PERSONAL RECORD KEEPING	35% MINI-MEMORY
50% HOME FINANCIAL DECISIONS	30% PERSONAL REPORT GENERATOR

3. WHAT LANGUAGES DO YOU KNOW:

100% BASIC	5% LOGO
80% EXTENDED BASIC	5% PASCAL
25% FORTH	5% PILOT
20% ASSEMBLY	0% ASPIC
10% A.P.L. ADVENTURE	0% C

4. WHAT FUTURE CLASSES AND POSSIBLE ONE-TIME WORKSHOPS WOULD YOU BE INTERESTED IN:

60% TI-WRITER	30% C
55% ASSEMBLY	30% CLYDE'S HIGH-SPEED CASSETTE LOADER
50% MICROSOFT MULTIPLAN	30% CREATING AND USING MUSIC
45% ADVANCES IN HARDWARE	30% CREATING AND USING SPEECH
45% DEBUGGING YOUR PROGRAMS	30% DEMOS OF FLORIDA'S LIBRARY
45% MAINTENANCE AND CARE	30% GRAPHICS AND SPRITES
45% QUESTIONS AND ANSWERS	30% MINI-MEMORY
40% DEMOS OF T.I. MODULES	30% PERSONAL REPORT GENERATOR
40% EDITOR / ASSEMBLER	30% PILOT
40% EXTENDED BASIC	30% PRIMER / INTRO TO COMPUTERS
40% FORTH	25% AEFIC
40% PASCAL	25% HOME FINANCIAL DECISIONS
35% ADVANCED EXTENDED BASIC	25% HOUSEHOLD BUDGET MANAGEMENT
35% BASIC	25% LOGO
35% DEMOS OF LIBRARY PROGRAMS	20% OTHER
35% PERSONAL RECORD KEEPING	10% FILE MANAGEMENT / DISK FILES
35% TELECOMMUNICATIONS	10% SCOTT'S CHECKBOOK MANAGER
30% A.P.L. ADVENTURE	

5. WHEN ASKED IF YOU WOULD BE WILLING TO TEACH A CLASS / ONE-TIME WORKSHOP / OR DEMO A PROGRAM...

45% OF THE MEMBERS SAID THAT THEY WOULD BE WILLING - IF ASKED TO DO SO

6. WHEN ASKED IF THERE WERE ANY ADDITIONAL COMMENTS AND / OR CRITICISMS THAT YOU MIGHT HAVE...

30% OF THE MEMBERS HAD ADDITIONAL COMMENTS IN WAYS TO IMPROVE THE CLUB

 * We, the members of the WEST PENN 99'ERS would like to thank STAN KATZMAN *
 * for donating over 30 of his own personal cassette tapes to the club. *
 * ***** THANK YOU STAN FOR YOUR GENEROSITY! ***** *

"TIPS FOR BEGINNERS"

HERE WE GO TOGETHER--NO.3 (1) WHEN TURNING ON YOUR SYSTEM, TURN ON THE EXPANSION SYSTEM(P-BOX) FIRST, THE MONITOR NEXT AND THEN THE CONSOLE. THIS PROCEDURE WILL MINIMIZE ELECTRICAL SURGES FROM ENTERING YOUR MORE CRITICAL CHIPS IN THE CONSOLE. OF COURSE WHEN POWERING DOWN REVERSE THE PROCEDURE BY SHUTTING OFF THE CONSOLE FIRST, THE MONITOR NEXT AND FINALLY THE P-BOX. IT IS ALWAYS A GOOD IDEA TO PLACE A SURGE PROTECTION UNIT AT THE WALL RECEPTICAL FOR GENERAL PROTECTION WHEN FURNACES, REFRIGERATORS AND OTHER APPLIANCES KICK ON OR SHUT DOWN. THEY CAN CAUSE MOMENTARY ELECTRICAL SURGES FOUR TO SIX TIMES THE NORMAL SYSTEM VOLTAGE.

(2) YOU HAVE PROBABLY HEARD THAT YOUR DISKS MUST BE KEPT AWAY FROM MAGNETS OR MAGNETIC FIELDS. THIS IS CERTAINLY TRUE BUT YOU CAN ALSO USE THIS PRINCIPLE TO YOUR ADVANTAGE. IF YOU HAVE REMOVED THE INFORMATION ON ONE SIDE OF YOUR DISK AND ARE HAVING A PROBLEM ATTEMPTING TO REWRITE NEW PROGRAMS ON THIS SAME SIDE, THE PROGRAMS MAY NOT COPY DUE TO A BYTE OR TWO OF MISCELLANEOUS INFORMATION LEFT ON THE DISK. THE THING YOU SHOULD DO FIRST IS MAKE A COPY OF THE REVERSE SIDE(THE GOOD SIDE) OF THE DISK. THEN APPLY A LARGE HORSESHOE MAGNET OR A "BULK TAPE ERASER" TO THE DISK YOU WANT TO CLEAN. REMEMBER THAT APPLYING THE MAGNET ERASES MATERIAL FROM BOTH SIDES OF THE DISK. THAT'S WHY WE FIRST MADE A COPY. RUN THE MAGNET ALL OVER THE DISK ON BOTH SIDES(REMEMBER NOT TO TOUCH THE DISK WITH YOUR FINGERS AT THE LARGE OBLONG HOLE). RADIO SHACK CARRIES TWO(2) BULK TAPE ERASERS. THE LARGE ONE IS CAT. NO.44-233 AND NORMALLY COSTS \$29.95. THE SMALLER ERASER IS CAT. NO.44-232 AND COSTS \$15.95. WATCH FOR A SALE PRICE SINCE THIS IS NOT A MUST PURCHASE. BY THE WAY I RECOMMEND THE LARGE UNIT BECAUSE IT IS STRONG ENOUGH TO ALSO CLEAN VHS TAPES.

(3) ALWAYS KEEP YOUR DISKS IN IT'S PROTECTIVE SLEEVE WHEN NOT IN USE. IT IS ALSO A GOOD PRACTICE TO NOT PLACE YOUR DISKS ON ANY OF YOUR ENERGIZED COMPONENTS. WHILE THEY ARE SHIELDED, THERE MAY BE SOME LEAKAGE--SO WHY TAKE A CHANCE WITH YOUR GOOD PROGRAMS. I KEEP A SMALL POCKET DICTIONARY OVER THE FIRE HOSE CONNECTOR FOR ADDED PROTECTION. ALSO DON'T KEEP YOUR DISKS LAYING ON THE CONSOLE OR DISK DRIVE ETC.

(4) WHEN ADDING NEW PROGRAMS TO A DISK THAT ALREADY HAS SOME DATA ON IT, MAKE SURE TO PLACE ONLY ONE(1) LOAD PROGRAM TO A SIDE. THIS KEEPS YOUR AUTO-LOAD FEATURE FUNCTIONING. ANOTHER GOOD IDEA IS TO RUN A STRIP OF SCOTCH "MAGIC TRANSPARENT TAPE"(IT'S EASY TO WRITE ON) DOWN ALONG THE PROGRAM LISTING ON THE ENVELOPE. REMOVE THE DISK FROM THE ENVELOPE, AND WITH A BALL POINT PEN PLACE A MARK OPPOSITE EACH PROGRAM YOU KNOW IS ON EITHER THE ORIGINAL OR THE NEW PROGRAMS, THUS KEEPING THEM IDENTIFIED AS A GROUP. THIS SAME TECHNIQUE CAN BE USED TO MARK THE LOADING INSTRUCTIONS ON ANY DISK THAT HAS PROGRAMS LISTED THAT DO NOT LOAD BY THE SAME METHOD, SUCH AS BASIC, EXTENDED BASIC, EDITOR ASSEMBLER ETC. THIS MARKING SHOULD ONLY BE TEMPORARY SINCE I HOPE YOU WILL SOON SORT THESE PROGRAMS TO DISKS THAT HAVE THE SAME LOADING INSTRUCTIONS AS THE MATERIAL YOU ARE ADDING. UNTIL NEXT MONTH GOOD 4'S.

-BY FRANK N. ZIC

Thanks Frank, for your article this month, and now that I've found another bit of space, I would like to wish all the IRISH a happy St. Patric's Day....

There was some response on the article we carried last month from the AACC (Joe Spiegel authored) on building a 32K/8k module for the PEB. The questions dealt with where to get the board. Joe used a JUMBO COMPONENT PERF. BOARD you can get from Radio Shack (276-147), and attached the Lead Edge Connector (TI part #; L2111121-30) 30/60 contact, to the side of it, with the board shifted to the front guide slot for the card. He did have to "adjust the board".

