TI99/4A Home Computer

MANNERS NEWSLETTER

NEWSLETTER OF THE MID ATLANTIC NINETY NINE'ERS

SEPTEMBER - OCTOBER 1987

Frank Jordan, President

Bill Whitmore, Editor

TI CLUB MEETINGS

THE WASHINGTON DC AREA TI HOME COMPUTER USERS GROUP

The Washington DC Area TI Home Computer Users Group meets monthly. The regular meeting night is the second Thursday of each month. The NOVEMBER MEETING will be held on THURSDAY, NOVEMBER 14. at the FAIRFAX HIGH SCHOOL. Also please note that all meetings thru MAY 1988 have been scheduled for the same location, FAIRFAX HIGH SCHOOL. For directions or other info Call Frank Jordan at (301) 899-3707 or Jim Horn at (301) 340 - 9617. DUES: $16.00/year Membership chairman = Bill Howard, 15204 Louis Mill Dr, Chantilly, Va. 22021, (703) 378-1090

TIBUG - THE BALTIMORE USERS GROUP

The Baltimore Users Group meets monthly for location and time - Call George Single at (301) 866-3343. DUES: $15.00 - Mail to TI-BUG, P. O. Box 2, Chase, Md 21027.

HAGERSTOWN - WILLAIMSPORT TI USERS GROUP

Meetings are held at the WILLIAMSPORT MEMORIAL LIBRARY on the LAST FRIDAY of each month, at 7:00 PM .

For more info call Sam Williams at (301) 223-8014., or Phil Shew at (301) 739-7091.

MONTGOMERY COUNTY TI USERS GROUP

The Group meets at The SLIGO INTERMEDIATE SCHOOL, in the Library at 7:30PM. The regular meeting night is the 4th THURSDAY of each month. information call ALLEN MINTON at (301) 493-4502.

CHUGCON - 87

The Capitol Heath Users Group has once again planned a two day computer fair, and this year the Manners - TI99/4A group has been allowed to participate. This is the highlight of the year Don't miss it - admission at the door only $3.00, see page 5 for more details.

MINUTES
TIBUG GENERAL MEETING

DATE: SEPTEMBER 1, 1987
PLACE: Rosedale Library

BUSINESS CONDUCTED

1) a)The meeting was called to order by President George Single at 6:50 P.M. b) Guests were welcomed, and everyone was requested to sign in. c) The Minutes of the August meeting were not available.

2) COMMITTEE REPORTS:
 a)The Treasurer's report, given by Dennis Leonard, was accepted as read.
 b)The membership report,given by Ernest Reinmuth, shows that we have 65 members.
 c) For the Library report, Kevin Hirshbuehlr, said we now have an Omega Terminal, and an Emulator for RLE. Copy Sessions were to be held at Rosedale on Sept.5th, and Fallston on Oct.10th.
 d) Education Chairman Chris Lang had nothing new to report, but is always ready to give asistance.
 e) There was no Equipment Report.
 f) Program. Charles Moore volunteered to be Program Chairman.

3) OLD BUSINESS
 The following change in the by-laws, having been read at the previous meeting, was voted on and passed as read. This change in the by-laws comes in two parts.
 1)"The office of President-Elect will be changed to the title of Vice-President".
 2)The Section stating that "President-Elect will be automatically Elected to President", will be replaced with,"Vice-president will be automatically nominated for The President's Office during elections if there are no other nominations for the office".

4) There was no new business.

5) ANNOUNCEMENTS:
 1) Copy sessions, Sept. 5th at Rosedale.
 2) Next Meeting, Thursday Oct.8th at Rosedale, Sept.28th at Fallston.
 3) Other-Hamfest at Gaithersburg, Sept.13th.-York Sept 27th.
 4) We have 1500 disks available.
 5) We are raffling off a program "SPAD 13" at $1 per ticket or 3 for $2
 6) Bill Chavanne is rewriting his 1040 tax program for the 1987 tax year.

6) Q.&A. There was a request about [illegible]. And a question about changing a program with several [illegible] ables to one variable or tape. Also a question about a 30- [illegible] board [illegible] the [illegible], made of [illegible] board and [illegible].

7) Meeting adjourned at 7:15, followed by a demonstration of "SPAD 13" by Kevin Hirshbuehlr.

Respectfully submitted,
[illegible]

AC LINE PROBLEMS AFFECTING ELECTRONIC EQUIPMENT

Electronic equipment can have problems ranging from mild to catastrophic because of abberations on the AC power lines. Generally, though, the problems are not with the power station. The power coming out of there is normally the correct voltage with no troublesome additions or subtractions. Most of the problems originate in the distribution system, which is sometimes quite remote from the electronic equipment that ends up with a problem. Some of the things that can happen are:

1. Voltage instability, high or low.
2. Power interruptions and start-up surge.
3. Voltage transients.
4. RFI/EMI.

We'll look at these problems one at a time.

Voltage Instability: Electronic equipment made for use in the USA is designed to run with a minimum line voltage of 108 volts and a maximum line voltage of 132 volts. Nominal line voltage is 120 volts. The power companies try very hard to work within these specifications, but sometimes they don't succeed.

A. Low Voltage: These are called "brownouts" because they are short of a complete power loss (blackout). Brownouts can be caused by such things as everyone turning on air conditioners on a hot day. In analog-type electronic equipment, brownouts are not a threat until oscillators stop oscillating - usually at under 100 volts line.

In digital equipment, there is usually no hardware damage. However, memory loss and loss of program resident in the computer are prevalent problems. One of the more common solutions is a low-voltage alarm which allows data to be saved before the line voltage drops to a damaging level.

B. High Voltage: This can occur when a load goes off the line unexpectedly. Equipment can sit cooking at line voltages of well over 132 volts, sometimes for hours. This is not considered a transient.

The extra heat generated by the over-voltage can destroy both digital and analog equipment, but this does not usually occur immediately. Luckily, this condition is comparatively rare. The only protection against high voltage is a line voltage regulator, which is expensive. Most electronic equipment owners do not use them.

Power Interruptions and Restoration: Power interruptions have always been with us, but it is only with the advent of solid state devices and digital electronics that we have had to worry about electronic equipment:

A. Power Down: Except for the annoying inconvenience of not having the use of the equipment, power down conditions do no harm to analog equipment. Power down conditions do not harm digital hardware either, but can cause loss of data and program. The only available solution for this is the installations of an uninterruptable power supply. It should be noted that the interruption need only occur for a few cycles, i.e. not long enough to notice the lights flickering or to hear anything on a system with audio. These also are very expensive.

B. Power Restoration: After a power outage, the power company restores power, but not all loads necessarily come on line at once. When this happens, the line voltage can reach great heights for several cycles to several seconds. A common result is the brightening of incandescent bulbs beyond their normal limits for a very brief period, after which they settle down to normal (unless they have burned out). Electronic equipment of all kinds may be damaged extensively.

Because of the long duration of these surges, they cannot really be considered as transient spikes, and voltage transient surge suppressors are not very effective against them. The surge suppressor may clamp normally as it is supposed to, but the length of the surge cooks the equipment and the surge protector as well.

The only protection is a voltage regulator in the line. Since damaging power-restoration surges are fairly rare, most electronic equipment users trust to chance that they will not be among the unfortunate few who get hit with one.

Voltage transients: The voltage transients we are talking about in this section are usually less than one AC cycle in duration, have levels

(continued on pg. 4)

(Line Problems, cont'd from pg. 3)
of several hundred to several thousand volts, and usually occur as single events. They are caused by lightning or inductive load switching.

For testing purposes on equipment or components, two standardized transient wave shapes are typically used. For voltage, there is one wave shape which rises from zero to peak in 8 microseconds and is down to half the value in 20 microseconds. The other is used in testing for component energy capability and is a 10-microsecond by 10,000-microsecond pulse (a 60-cycle sine wave has a single cycle duration of 16,666 microseconds).

Old tubed and solid state equipment made with discrete components could withstand these kinds of transients without lasting damage. Newer equipment with large scale or very large scale integrated circuits can be damaged. CMOS is even more vulnerable.

Most electronic equipment made today can handle transients up to 600 volts for a few microseconds without permanent damage. Between 600 and 1200 volts, harm is done to the components of the equipment, but the surge may not result in immediate destruction. Above 1200 volts, sudden destruction is usually the first symptom with unprotected equipment. Even though the surge lasts only a few millionths of a second, it has enough energy to cause arcing within an IC chip.

While these kinds of transient voltages cause most of the failures due to power line problems, they are easily and inexpensively prevented. Any of the Philips EMF devices will harmlessly shunt the energy from the transient through protective MOVs. These EMF devices are the easiest thing to use since it is only necessary to plug in the equipment to be protected.

However, if the line voltage is something other than 120 VAC, you can still get protection by using MOVs. The rules for selection are:

1. Use the largest MOV that will fit into the equipment.

2. Use an MOV with a voltage rating of about 125 percent of the nominal rms AC or DC voltage of the line.

Most surges come via the transverse mode, i.e. between the hot side of the line to neutral, so the MOV should be soldered across those two leads. For greatest protection, two additional MOVs should be added to protect in both common modes. One should be from hot to ground; the other should should be from neutral to ground. On a three-phase line, six MOVs should be used - three between phases and three from each phase to ground.

It must be realized that voltage transients can also get into equipment via data lines, phone lines or antennas. For phone lines, the EMF-232 is effective protection. For data lines and antennas, surge clamping diodes on are useful because of their small size and low capacitance.

EMR/RFI: For purposes of this discussion, electromagnetic interference and radio frequency interference can be considered as one and the same. In fact, this is true of most situations. EMF/RFI will not cause equipment damage. It does result in performance that can be considered anywhere from degraded to disastrous.

In analog equipment, performance can be terrible. Common results of EMI/RFI are streaking and break-up of TV pictures, static on radios and tuners, or hash on other types of instrument outputs.

Digital equipment can have unusual or no outputs because the EMI/RFI can add or subtract bits from the data stream or the instructions. This could result in a misspelled word on a word processor, or a misplaced decimal point in an accounting or payroll program. The misplaced decimal point can cause a great deal of ill will if, for instance, you issue a bill to a customer for ten times that which he really owes.

EFM/RFI can be caused by arcing or by the escape of RF from poorly shielded or poorly by-passed radio frequency generators such as transmitters or induction heaters. Arcing can also be created by welders and almost any kind of motor with worn armature/brush contacts. The equipment may be remote from the location where it is creating problems, and the owner may not even be aware that there is anything wrong. Locating and correcting the offending equipment may be almost impossible.

However, there is something that can be done and that is to use one of the EMF transient voltage suppressors that also has an RF filter. There are two of them at this writing: The EMF-315 and the EMF-615RF. Each of these has an RF filter that will attenuate EMI/RFI up to 50 db in the critical frequency range of 100 KHz to 30 MHz. Both will attenuate up to 100 MHz, but frequencies above 30 MHz do not normally appear as power line problems.

(continued on pg. 8)

CHUGCON - TI FAIR

TELECOMMUNICATIONS ROUNDTABLE

Do all the networks support all communications software? (no) Do they offer the same baud rates at similar prices? (no) Do they use the same binary transfer protocols? (no), the same protocols for ASCII text? (almost) How much faster is ASCII than XMODEM and TE2?

Bring your questions to the Saturday morning roundtable. Join us for a discussion of telecommunications using the TI family of computers, the TI99/4A and the Geneve -- with:

Jeff Guide -- Sysop of the TI Information Network on DELPHI,

Jim Horn -- Sysop of the TI Forum on COMPUSERVE,

Walt Howe -- Asst. Sysop of the TI SIG on The SOURCE,

Barry Traver -- Co-sysop of the TI Roundtable on GEnie,

Al Beard -- Sysop of the TI Sig on BIX from BYTE.

representing the four commercial networks supporting the TI family;

Bob Boone -- Ottawa User Group, with a Canadian perspective,

Sysops of local BBS's invited to weigh in as well.

Find out how the major systems work, the services they provide, the terminal software they support, how they respond to users, and how you as user can make best use of them and keep your costs under control.

TI MUSICALE

The TI994/A doesn't have a Musical Instrument Digital Interface (MIDI), but can be a remarkable musical instrument itself in the hands of a good musician and programmer. On Saturday afternoon, you can hear MANNERS' own Alan Minton explain techniques for programming the TI to make music, capped by a performance with TI99/4A accompaniment. Don't miss this tour de force.

BASIC AND PASCAL COMPILERS FROM AEI

On Sunday, October 25, Richard Roseen of AEI will demonstrate the new Language Executive and two functional prototype compilers that produce 9900/9995 machine language from Basic and Pascal source code. Both languages support structured programming and are full modern implementations that will accept source code written for other machines with little modification. The Basic is similar to the much- heralded "True Basic", while the Pascal is the full Jensen/Wirth language using a compiler design first developed by Per Brinch Hansen.

These programs are part of a software development system for the Myarc 9640 that can produce binary image machine code for either the 9640 or the 99/4A. The Pascal compiler also generates intermediate pseudocode like that used in the UCSD P-system. With a few additional utilities, this system could compile P-code to native TI code, generate p-code modules for the UCSD system, and compile public domain Basic programs written for a variety of machines. Come see the speed advantage of compiled over interpreted languages, and quiz Richard about the possibilities of this new system.

EXTENDING EXTENDED BASIC

Enhancements and extensions to TI's Extended Basic have been a eye-opening topic in Barry Traver's Genial Traveler Diskazine. TI gave us two of the best implementations of Basic on any microcomputer. Barry has thought a great deal about the kind of user-supported enhancements that have allowed our orphan computer to survive and flourish. He will tell us about the ideas, the work by many talented programmers (Barry not the least of them), and the philosophy that led to the library of utilities sponsored and distributed by the Genial Traveler.

Those of us interested in file compression and archiving techniques can probably engage him in some discussion of this topic as well, since he is the author of the original ARCHIVER that has become the standard in the TI community.

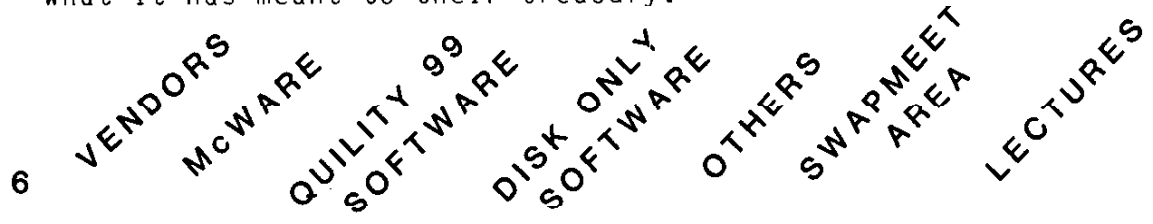
(MULTI)PLAN YOUR TAXES

Our own Bill Chavanne is the author of one of the best tax template packages available for any microcomputer. Bill will tell us how he does it, offering a very practical lesson in the uses of the MultiPlan spreadsheet software available for the TI. We will also have the fast 80-column version of MultiPlan running on the Geneve and may prevail on Bill for a hands-on demonstration after his talk.

UNIQUE PROJECTS FROM UNIQUE USER GROUPS

Two years ago, the Ottawa User Group purchased the rights to a major piece of software for the TI99/4A, Bruce Caron's Disk Manager 1000. Bob Boone of Ottawa will tell us how they have developed, upgraded, and distributed this popular program -- and adapted it to new hardware as it has come along.

The Boston Computer Society has gone public with its software library. Walt Howe of the BCS will tell us how they did it and what it has meant to their treasury.



TUTORIAL AND DISCUSSION GROUP SCHEDULE

SATURDAY, 24 OCTOBER 1987

TIME	ROOM	SUBJECT	SPEAKER
09:00	Amphitheater	Aldus's PAGE MAKER (Tutorial and Slide Show)	John Roach, Research Chemist & Author
	Conference Room #1	Preparation and Use of Batch Files (Tutorial)	Mike Frieders, Res. SM, Inst. for Defense Anal.
	Conference Room #2	Writing 'Terminate-and-Stay-Resident' Programs (Tutorial)	Pat Swayne, Programmer Heath Users' Group
10:30	Amphitheater	Ashton-Tate BYLINE (Desktop Publishing) et al New Product Line (Tutorial)	Jeanne Marshall Regional Manager, Ashton-Tate
	Conference Room #1	Use of DEBUG Made Easy (Tutorial)	Dr. William 'Bill' Parke Physics Dept, GW Uni.
	Conference Room #2	New Heath Products: Computers, Monitors, Disk Drives, Ham Radios, Test Equipment, Kits	Denton Bramwell Product Line Manager, Heath Company
12:00	Amphitheater	CLIPPER as Stand-alone Data-base and Compiler for dBASE III PLUS (Tutorial)	Paul Fisher Executive, Nantucket Corporation
	Conference Room #1	Graphics on the Microcomputer (Tutorial)	Dr. Quentin Dolecek Applied Physics Lab., Johns Hopkins Uni.
	Conference Room #2	Computers for Beginners (Tutorial)	Ron Hackney Heath Company
1:30	Amphitheater	WORD PERFECT (Tutorial and Discussion of Things to Come from Alan Ashton and the Word Perfect Corporation.	John Bartholomew Regional Manager, Word Perfect Corp.
	Conference Room #1	Computers in Elementary School Curriculum (Tutorial)	Twyler Minor, Teacher Prince Georges School System
	Conference Room #2	Hi-Res Graphics Using Showoff on the H-100 (Tutorial)	Janet Hirsch Hogware Company

SATURDAY, 24 OCTOBER, cont'd.

TIME	ROOM	SUBJECT	SPEAKER
3:00	Amphitheater	MS-DOS 3.x, OS2, and 80386 Operating Systems	John Stetson, Sr. Systems Engineer, GE Corp.
	Conference Room #1	Z-Scan Optical Scanner--H/Z-100 (Tutorial and Demonstration)	Tim Weil, Sr. Programmer, Bitech SW, Inc.
	Conference Room #2	*ENABLE* on the H/Z-100 (Tutorial and Demonstration)	Paul Weise, Manager, The Software Group

SUNDAY, 25 OCTOBER 1987

TIME	ROOM	SUBJECT	SPEAKER
9:00	Amphitheater	MS-DOS for Beginners (Tutorial and Discussion)	Colin C. McGowan Signa Computing Svc.
	Conference Room #1	MS-DOS 3.x, OS2, and 80386 Operating Systems	John Stetson, Sr. Systems Engineer, GE Corp.
	Conference Room #2	Writing 'Terminate-And-Stay-Resident Programs (Tutorial)	Pat Swayne, Programmer Heath Users' Group
10:30	Amphitheater	Aldus's *PAGE MAKER* (Tutorial and Slide Show)	John Roach, Research Chemist & Author
	Conference Room #1	Computers in Elementary School Curriculum (Tutorial)	Twiler Minor, Teacher Prince Georges School System
	Conference Room #2	Hi-Res Graphics Using *Showoff* on the H/Z-100	Janet Hirsch Hogware Company
12:00	Amphitheater	Preparation and Use of Batch Files (Tutorial)	Mike Frieders, Res. SM, Inst. for Defense Anal.
	Conference Room #1	Use of DEBUG Made Easy (Tutorial)	Dr. William 'Bill' Parke Physics Dept, GW Uni.
	Conference Room #2	Graphics on the Microcomputer (Tutorial)	Dr. Quentin Dolecek Applied Physics Lab., John Hopkins Uni.

HARDWARE DEMONSTRATIONS

Throughout the weekend, we will have demonstrations of interesting hardware -- from the latest "prototype board" from Scott Coleman and John Willforth, to the Mechatronics Eprom programmer and the now "classic" Gram Kracker demonstrated by our own members. Take a look at the pieces you have heard about and may be considering for your system.

Scott Coleman will show the very flexible prototype board that has stirred the imagination of hardware hackers all over the country. Scott will describe the layout and features of the board and provide the documentation needed for projects such as installing the speech synthesizer in your PE box or building a four channel sound board (similar to the "FORTIi" synthesizer). Scott has promised to bring a dozen bare boards for those at the show who wish to try these projects and many others being developed right now.

Mark Forrester will show some of the things that can be done with a Gram Kracker using Danny Michaels' GK Utilities and Peter Hoddie's Gram Packer. These programs permit GK owners to tailor their systems in ways TI never imagined.

Several different types of ramdisks will be available along with software written to take advantage of these devices. Members familiar with each device will put them through their paces.

Finally, we will have two examples of Mechatronics hardware -- their mouse for the TI99/4A and their very fast, efficient eprom programmer.

FORTRAN 99

Al Beard arthor of the Fortran 99 Complier for the TI99/4A will demo the power and speed of the latest complier available for the TI99/4A and the Geneve computers. He will also have available some of the programs that he has released to the public domain.

(Line Problems, cont'd from pg. 4)

One use for such units as the EMF-315 and EMF-615RF is to prevent the EMI/RFI generated by small hand tools (such as refrigerators, air conditioners, drills, circular saws, sabersaws and vibratools so frequently used by maintenance people: all arc-producing) from getting into the power lines. when used on normally clean lines, these tools can cause all of the EMI/RFI problems previously discussed.

To summarize, ECG offers EMF devices to minimize the most prevalent power line problems - the transient voltage spike and EMI/RFI. Proper selection and application of these EMF devices will go a long way towards easing line problems that have been occurring and preventing future damage to or loss of data and hardware.

To help eliminate some problems with computer equipment try to:
1. Use an UL Approved EMF Surge Suppression device.
2. Keep the System away from any arc producing devices.
3. Try to keep the system off the same circuit as that may have an arc producing device.

SETTING YOUR PRINTER

by Tom Freeman, LA 99ers
from an idea by Ed Machonis, QB-99ers

My article this month is going to go "back to basics" - literally! It began with a "BASIC Tinygram," as he called it, sent to us by Ed Machonis of Floral Park, NY, to show what could be done with just 10 lines of Basic code. It follows this paragraph in exactly the form that Ed sent it to us, with two exceptions: for some reason I typed an extra space before the ? in line 5, and I have provided the XBasic Checksums for all the programs in this article. Although this is a program that can be run in Basic as well as XB, I advise you to do your typing in XBasic and use the Checksum program, so as to ensure accuracy.

```
1 DIM P$(15)!155
2 READ P$(1),P$(2),P$(3),P$(
5),P$(6),P$(7),P$(8),P$(9),P
$(10),P$(11),P$(12),P$(13),P
$(14),P$(15)!254
3 OPEN #1:"PIO" !253
4 PRINT :"1 PICA/RESET","9 T
EST","2 ELITE","10 EXIT","3
EXPANDED","11 SUPERSCRIPT","
4 COMPRESSED","12 SUBSCRIPT"
 !004
5 INPUT "5 EMPHASIZED  13 1/
2 LINE SP6 ITALIC      14 L
MARGIN 137 D'BLE STRIK 15 R
MARGIN 678 UNDERLINE     ?":
I !221
6 PRINT #1:CHR$(27)&P$(I)!16
0
7 IF I<>4 THEN 9 !203
8 PRINT #1:CHR$(27)&CHR$(15)
!233
9 IF I<>10 THEN 4 !244
10 DATA @,M,W1,E,4,6,-1," QU
ICK BROWN FOX JUMPS OVER THE
 LAZY RED DOG 1234567890 TIM
ES",,S0,S1,1,1,QC !012
```

Ed's notes for this program included a warning that the next to last data item is the lower case letter l, not the number 1, and that the space following the quotation mark in line 10 is important (because each string sent to the printer is preceded by Esc - ASCII 27 - and Esc Q has an affect on the printer, whereas Esc space does not). Naturally you will need to check the specific codes for your printer - these are for an Epson RX-80 but most modern printers are compatible with it. The program is used by combining succesive entries.

After I typed in the program and ran it, I found that there were a few minor problems: 1) because the printer was opened as PIO, each time a code was sent to it, a line feed ensued, which you may not want, 2) for some strange reason my printer (Citizen MSP-10) would not turn off underline with the Esc @ code, 3) there were no options to pick the left and right margins or the line feed- the C following the Q in the data for P$(15) defined a right margin of 67 and the carriage return that automatically followed the 1 defined a left margin of 13, and 4) typing line 2 was a pain! Therefore I revised the program slightly to fix these problems. The first was solved by opening the printer file as PIO.CR so there would be no line feeds (but note that I then had to add a carriage return and line feed to the test line), the second by putting in a specific option to turn off underline. For the third I put in a second input request to pick the actualy number desired, and for the fourth I read the data statements in a loop. What follows is my first revision of the program.

```
100 DIM P$(16)!156
110 FOR X=1 TO 16 !126
120 READ P$(X)!208
130 NEXT X !238
140 OPEN #1:"PIO.CR" !175
150 PRINT :"1 PICA/RESET  9
 NO UNDRLINE2 ELITE","10 TES
T","3 EXPANDED","11 EXIT","4
 COMPRESSED  12 SUPERSCRIPT"
 !156
160 PRINT "5 EMPHASIZED  13
SUBSCRIPT  6 ITALIC      14
X/72 IN.LF 7 D'BLE STRIK 15
L MARGIN X" !026
170 INPUT "8 UNDERLINE   16
R MARGIN X ":I !032
180 IF I>16 THEN 150 !205
190 IF I<14 THEN 210 !006
200 INPUT "X?":M !244
210 IF I<>10 THEN 240 !224
220 PRINT #1:P$(10)&CHR$(13)
&CHR$(10)!163
230 GOTO 150 !229
240 PRINT #1:CHR$(27)&P$(I)!
160
250 IF I<14 THEN 270 !047
260 PRINT #1:CHR$(M)!216
270 IF I<>11 THEN 150 !135
280 DATA @,M,W1," ",E,4,6,-1
,-0," QUICK BROWN FOX JUMPS
OVER THE LAZY RED DOG 123456
7890 TIMES",,S0,S1,1,1,Q !17
2
290 CLOSE #1 !151
```

Some things to note about this version. It is still a Basic program, although again I have provided checksums so you can type it with accuracy in XBasic. Also, the fourth data item did not have to be separately defined. Where you see a space on this page you should type CTRL O. Although you will still see a blank on the screen what is actually there is ASCII 143, which is an acceptable printer code for compressed mode. By the way, I believe I made a mistake in this version - the third to last data item which is presently a 1 should be an A. Type it the "wrong" way first, to get the correct checksum, then make the substitution.

My next version (which follows the 2nd below) merely put the above program into true XBasic format, with multiple statement lines. It actually takes up one bite MORE of code, despite being 11 program lines shorter, but it should be easier to type in. Note that the mistake mentioned above is corrected here, and that the 4th data item is still CTRL O.

```
100 DIM P$(16):: FOR X=1 TO 16 :: READ P$(X):: NEXT X :: OPEN #1:"PIO.CR" !163
110 DISPLAY AT(3,1)ERASE ALL:"1 PICA/RESET 9 NO UNDRLINE2 ELITE","10 TEST","3 EXPANDED","11 EXIT","4 COMPRESSED 12 SUPERSCRIPT" !131
120 DISPLAY AT(7,1):"5 EMPHASIZED 13 SUBSCRIPT 6 ITALIC 14 X/72 IN.LF 7 D'BLE STRIK 15 L MARGIN X 8 UNDERLINE 16 R MARGIN X" !168
130 ACCEPT AT(11,1)VALIDATE(DIGIT)BEEP:I !926
140 IF I>16 THEN 110 ELSE IF I>=14 THEN DISPLAY AT(12,1):"X?" :: ACCEPT AT(12,3)VALIDATE(DIGIT)BEEP:M !225
150 IF I=10 THEN PRINT #1:P$(10)&CHR$(13)&CHR$(10):: GOTO 110 !072
160 PRINT #1:CHR$(27)&P$(I): IF I>=14 THEN PRINT #1:CHR$(M)!036
170 IF I<>11 THEN 110 ELSE CLOSE #1 !119
180 DATA @,M,W1," ",E,4,6,-1,-0," QUICK BROWN FOX JUMPS OVER THE LAZY RED DOG 123456 7890 TIMES",,S0,S1,A,1,Q !188
```

For the last version I decided to take a completely different approach. I noted that many current printers have a "master" print control code, usually Esc ! n. Seven of the eight bits in the number n each control a print mode. For the Citizen MSP-10, starting with the rightmost bit, they are elite/pica, no effect, compressed, emphasized, double strike, expanded, italics, and underline. The advantage of this method is that each mode can be toggled on and off separately by toggling the appropriate bit on and off. All bits "off" (ASCII 0) is the equivalent of resetting to defaults, except that I continued to have the problem that even when I did this the underline was not turned off - must be some quirk in my printer! I decided that I would also like to be able to toggle near letter quality on and off, and that I wished to display on the screen what the current "settings" are.

To understand how I did this, you need to know how XBasic handles "logical operators." This will also be applicable to assembly language programming. There are four such expressions: AND, OR, XOR, and NOT. When used on numbers, they operate on full 16 bit numbers (which because the highest bit must be reserved for the sign of the number range from -32768 to 32767). NOT operates on a single number and reverses each bit in it. The other three work on two numbers and produce a third. In the case of AND, corresponding bits are compared in the original two numbers, and a 1 put in that "place" if both bits were 1, otherwise a 0. For OR, the result is a 1 if either number contained a 1 - only if both were 0 is the result a 0. And finally XOR will place a 1 in the proper position in the result only if one of the numbers had a 1 there. If both were 1 or both were 0 then the result is a 0. For you assembly language programmers exactly the same procedures apply, but see your manual for addressing modes.

Now we can combine these operators with the ASCII codes that must follow Esc ! to the printer. Since we want to treat each bit independently, the logical operators make it easy to reverse them or test them. Note that the first seven data items are numbers each of which have only one bit on, namely bit 1 and 3 to 8 (2 is not used). By using AND on this value and the current value of Q all the bits of Q except the one of current interest are turned off, and this particular bit is also off if it was off in Q (remember that AND insists that the bit be on in both numbers). The resultant number will still be a power of 2 however. By using the SGN function it becomes either a 1 or a 0 and this is listed on the screen to indicate the current state of the particular print mode. This is all done in line 130.

The rest of the lines through 170 complete the setup of the menu. Note that I have also read some of the menu lines into an array with data statements - this was done so that I could use the SIZE command in line 150 and not erase to the end of the lines on the screen. Line 180 accepts the input number, and also sets M=0 (used in menu items 10 to 13) because CHR$(M) will always be sent to the printer, but we want it to have meaning only for

10-13 - CHR$(0) has no effect on the printer, unless it is needed by a previous code. Line 190 now sends the program to the appropriate line number. Line 200 is for NLQ mode. The logical operator XOR is used here. Since it requires that only one of the two numbers operated on have a 1 in the bit position under consideration, we can reverse the state of the bit by doing an XOR with 1. Similarly line 230 does an appropriate bit reversal for each of the first 7 menu items by using XOR on Q and the current data item, which has only 1 bit turned on.

The rest of the program follows closely those that appear above. However please note the quoted string in line 290. What looks like two spaces following the numbers is NOT - you should type CTRL J and CTRL M !! Also, type line 300 carefully, or the screen setup will not be correct. The program is presented in 28 columns here, so "what you see is what you get" and the checksum should also help.

I might add that with careful attention to these operators you can use one variable to represent 16, if they are to be only 1 or 0. Each variable that you are interested in can be one bit in the program variable, and you can use the logical operators to manipulate them.

This program was written more out of my interest in programming techniques and in teaching them to our readers. Hopefully it may also be of some use to you. Just remember not to turn off your printer after sending the codes to it!

```
100 DIM P$(16)!156
110 FOR X=1 TO 16 :: READ P$
(X):: NEXT X :: FOR X=1 TO 4
 :: READ T$(X):: NEXT X :: N
LQ$(1)="ON" :: NLQ$(0)="OFF"
 :: OPEN #1:"PIO.CR" !141
120 DISPLAY AT(3,1)ERASE ALL
:"MODE","1=ON,0=OFF","1 ELIT
E/PICA":"2 COMPRESSED":"3 EM
PHASIZED":"4 DOUBLE STRIKE":
"5 EXPANDED":"6 ITALICS":"7
UNDERLINE" !109
130 DISPLAY AT(13,19):"12" :
: FOR X=14 TO 16 :: DISPLAY
AT(X,19):"0" :: NEXT X !007
140 FOR X=1 TO 7 :: DISPLAY
AT(X+3,14):SGN(Q AND VAL(P$(
X))):: NEXT X !180
150 DISPLAY AT(11,1):"8 SUPE
RSCRIPT":"9 SUBSCRIPT" :: FO
R X=1 TO 4 :: DISPLAY AT(X+1
2,1)SIZE(18):T$(X):: NEXT X
!233
160 DISPLAY AT(17,1)SIZE(23)
:"14 NEAR LETTER QUALITY" !2
19
170 DISPLAY AT(18,1):"15 TES
T":"16 RESET":"17 EXIT" !251
180 ACCEPT AT(21,1)VALIDATE(
DIGIT," ")SIZE(-2)BEEP:I ::
M=0 !081
190 IF I>17 THEN 100 ELSE ON
 I GOTO 230,230,230,230,230,
230,230,250,250,240,240,240,
240,200,260,220,200 !032
200 P=P XOR 1 :: IF P THEN P
$(14)="x1" ELSE P$(14)="x0"
!026
210 GOTO 250 !073
220 Q,P=0 :: GOTO 250 !214
230 Q=Q XOR VAL(P$(I)):: GOT
O 270 !109
240 ACCEPT AT(I+3,19)VALIDAT
E(DIGIT," ")SIZE(-2)BEEP:M !
226
250 PRINT #1:CHR$(27):: DISP
LAY AT(17,24):NLQ$(P)!213
260 PRINT #1:P$(I)&CHR$(M)::
 IF I=16 THEN 130 ELSE 140 !
201
270 PRINT #1:CHR$(27)&"!"&CH
R$(Q):: GOTO 140 !008
280 CLOSE #1 !151
290 DATA 1,4,8,16,32,64,128,
50,51,A,1,Q,N,x1,"QUICK BROW
N FOX JUMPS OVER THE LAZY RE
D DOG 1234567890  ",@ !095
300 DATA 10 X/72 IN. LF  X=,
11 L MARGIN     X=,12 R MARG
IN     X=,13 SKIP X LINES X=
!061
```


X-10 POWER HOUSE 99

by George Steffen, LA 99ers

Among the items I saw at the Las Vegas Consumer Electronics Show in January, 1985, was the X-10 Powerhouse, a device to allow a computer to control lights and appliances in the home. I talked to one of the personnel at the X-10 booth who indicated that there was no interface for the TI 99/4A but that CORCOMP was working on one. He also indicated that no programming information was available. I knew I wanted one of the devices, but decided to wait and see what interfaces came out.

When CORCOMP released their 99 Home Sentry, the price of $79.80 for the Powerhouse and 99 Home Sentry discouraged me from purchasing anything. Recently, DAK, a discount electronics retailer, opened a branch in Torrance and I noticed that they had the Powerhouse, with interface, for various computers (not including TI), for only $19.99. I finally broke down and bought a 99 Home Sentry and then purchased a Powerhouse with a Macintosh interface from DAK. I should have purchased the Powerhouse first, because the package included programming information. Unfortunately, the interface cable was not right for the 99/4A. One of the interfaces may contain a proper RS232 connecter cable.

While still working out the best program for my Powerhouse, I ran across two articles in newsletters from other clubs which mentioned another interface between the Powerhouse and the TI 99/4A. The first article I saw was by Thomas LeMay in the West Jax 99ers News and the other was by John Johnson in the Greater Omaha TI User Group Newsletter. Both gave credit to Ken Gladyszewski of the Northcoast 99ers for the original article. What follows is a combination of both articles with contributions of my own regarding 99 Home Sentry and Powerhouse. I do not yet have Home Control 99, but nothing in the Powerhouse programming book contradicts anything said about that program.

Have you ever wanted to control your lights, TV, coffee maker? Do your kids leave the lights on all night long? Did something go bump outside at night and you wanted to turn on the lights outside, or even the whole house, without getting out of bed?

Is the cost too prohibitive? Well, how about this? The X-10 Powerhouse can now be interfaced with the TI-99/4A at a very reasonable cost.

The X-10 POWERHOUSE Model CP290 Computer Interface is part of a complete energy management and security system for residential and small business applications distributed by X-10(USA), INC. The unit works by sending pre-programmed signals over normal existing house wiring to remote modules into which lamps, appliances, etc are plugged.

X-10(USA), INC. is marketing the device in this country with disk based programming software for Apple IIe/IIc, Commodore 64, and IBM PC's. TENEX and TEXCOMP list the X-10 Powerhouse for $39.95 and the 99 Home Sentry module and cable for $39.95. Tenex also has lamp and wall switch modules for $13.95 and appliance modules for $19.95.

The cheapest source of modules is DAK: Lamp Module, Order # 9779, $9.90 + $1.00 P&H; Appliance Moduce, Order # 9781, $10.90 + $1.00 P&H; Wall Switch Module, Order # $12.90 + $1.00 P&H. Other X-10 equipment is priced proportionally.

Eagle Software is now marketing a program by Paul Wheeler of Eastlake, OH, called Home Control 99. This disk based program which retails for $10.00 eliminates the need for the Home Sentry Interface. It is provided on a SSSD disk with documentation, including instructions on how to rewire the IBM RS-232 cable to work with the TI RS-232 card.

The Home Control 99 program definitely is superior if you have a fully expanded system (Disk drive, Memory expansion, RS 232). It is indeed a nifty bit of Extended Basic programming! It uses text exclusively instead of the "crude" icon picture system used by the CORCOMP Home Sentry. In fact, it emulates the IBM version's capabilities very closely. The user types in any amount of locations and device descriptions up to the controller's limit of 256 devices. In comparison, the cartridge allows only 14 choices of rooms and 9 choices of device locations for a total of 126 (still quite a few though).

Using the Home Control 99 Software, the controller can be programmed for up to 128 timer events. Each timer event consists of an on, off, or dim command for up to 16 devices within a single house code. The best feature of the program though, is the ability to save collections of timer events to disk as a file. This allows one to have a file for vacation, summer, winter, etc. The files can be edited, sent to a printer for a hard copy, and downloaded to the controller.

Since I have observed the Home Sentry 99 in operation although I have not studied the program, I believe that the 128 events which may be programmed from this module consist of only 128 individual switching events. Two items with different module numbers, even on the same house code, can not be controlled by one control sequence. On the other hand, Home Control 99 takes full advantage of the capabilities of the X-10 Powerhouse.

Of course, every device you want to control, ie: lamp, radio, coffee pot, etc., must have a module to accept the signal from the controller to turn the device on or off. These can be purchased locally at Radio Shack, Heathkit, or Sears stores. There may be other places I am not aware of too. Or they may be mail ordered from X-10(USA) directly, also from DAK Industries, TRITON, and TENEX catalogs. The following addresses are listed for your convenience.

DAK Industries, Inc.
8200 Remmet Ave.
Canoga Park, CA 91304
1-800-DAK-0800

X-10(USA), Inc.
185A Le Grand Ave.
Northvale, NJ 07647
1-201-784-9700

EAGLE SOFTWARE
1269 E. 348th St.
Eastlake, OH 44094

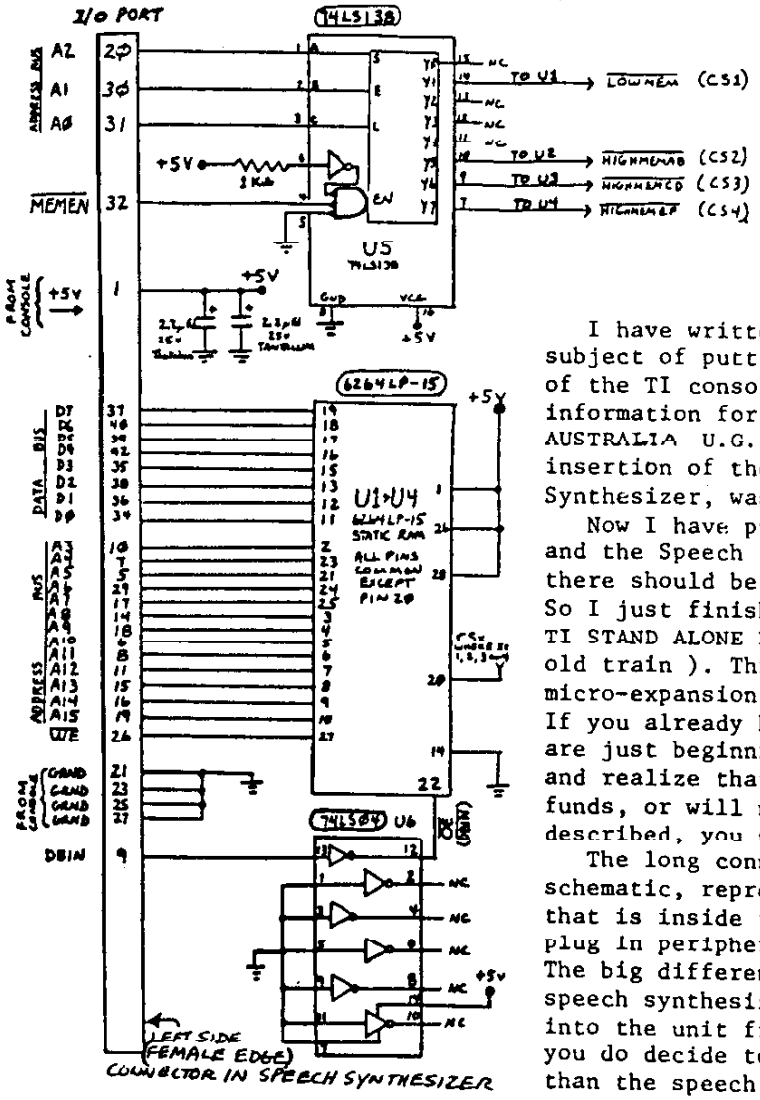
9640, Enlightenment

by J. Peter Hoddie, Boston Computer Society

I would like to set the story straight on hardware compatibility with the 9640. First of all, the TI, Cor-comp, and Myarc disk controllers will all work. It doesn't matter which eprom you have in the card. The TI controller can handle 80 track drives (just not in double density), the Cor-comp controller and the Myarc controller can handle 80 track and 16 or 18 sectors per track. The new reason for this is that the EPROM or ROM in the disk controller is not used by the 9640, but is replaced with code in the operating system. This allows the TI and Cor-comp controllers to run as fast as the Myarc currently does. The speed of disk access is really impressive - you may not recognize your disk drives. Any RS232 card from TI, Myarc or Cor-comp will work. Print spooling is built into the system for all cards, and the size of the spooler can now be set by the user. The print spooler is accessed just like a normal drive, such as PIO, rather than SPPIO as on the Myarc 512 card. The Horizon Ram disk will work, however, at this time in order to boot to system from it, it must use the HORIZON EPROM from Genial Computerware. This is not a ploy for me to make lots of money, but a decision made because of several unfortunate characteristics of the ROS distributed with the Horizon card. Currently there is support for only one Horizon Ram Disk, although this could change in the future. The Myarc 512 card can not be used as it is. However, for $15.00 Myarc will convert it so that it can be used as additional memory for the 9640. Once this change is made, the 512 card can not be used with the /4A, so carefully consider having this modification made. The speech synthesizer is supported but you have to buy a special card to put it into the expansion box. Such a card is available from Rave 99 for about $40.00. Your TI 32k or other memory cards such as Foundation will not work. Since the 9640 has over 600K of memory in its minimal configuration, this should not prove any grat hardship. At this time, the Megatronics GRAM card is not supported. The Cor-comp triple tech card will work, except that because of a somewhat faulty hardware decision (works on the /4A but not the 9640) the triple tech card will eat up about 1/8 of your available memory. The 9640 also supports an internal RAM disk which can be set to any size by the user, within the constraints of available memory. The current Myarc Winchester Personality card is supported, and of course the new Myarc hard drive/floppy controller will be supported when it becomes available. I hope this paragraph has cleared up any misunderstandings you may have had about the 9640 and your present hardware setup. Please let me know if you have any further questions.

The documentation of the 9640 doesn't currently mention some of the more interesting features that are in the computer. For example, all disk files are available and date stamped at creation and at any update. This information is available on disk catalogs, and even from Basic using an extension of the current method of cataloging a disk. The RAM disk support is done similarly to the Myarc MPES (midi-peripheral expansion system), in that if you assign the internal RAM disk to drive 1, you can then make your physical drive 1 respond as drive 2. This means that all drives can be made always available, which is not always possible on the /4A. This is done independent of CRU base, thanks to the single master DSR (devise service routine) created for the 9640. For the assembly programmer there is a wealth of system utilities for graphics available through XOPs, written by Chris Faherty. The operating system also supports a new powerful set of disk access commands designed by Paul Charlton, and implemented by both of us. These allow for easy file and disk access from assembly for disk and file copying and comparing. The operating system also supports multi-tasking when not in /4A mode. This means you could be editing a file with your word processor, while down loading a file from a bulletin board, while a graphic image of a Frog dances on the corner of your screen. Multi-tasking allows you to run several programs at once - and this should open up some exciting possibilities in the future.

Until the operating system is released for the 9640, I would recommend taking anything you read from outside Myarc sources with a grain of salt. That is to say, without naming names, that I have read numerous articles on the 9640 which contain information that is just plain wrong. The articles claim that the machine can't do certain things, or that it will eventually do somethings better than it does now - and they are just completely wrong. While articles on the 9640 by people who have them at this stage are rather popular because people are crying out for any information they can get, many of those writing are very badly informed. This proble is as much a fault of Myarc as anyone. To release the hardware with incomplete software to anyone but developers was a serious mistake in my estimation. It has calmed many people down, but it has started a new furor over "where is the operating system" which is just as bad as the old "when will it be released". Lou Phillips has a habit of saying things to calm people down. If someone asks him when a product will be ready he tends to give the absolute best case answer. Unfortunately in this business, that tends to be way off base.



32 KiloByte MEMORY EXPANSION FOR INSIDE THE SPEECH SYNTHESIZER (OR ANY PLACE YOU WANT TO PUT IT).

by JOHN WILLFORTH (based on ideas from the WESTRAILIA. and the CEDAR VALLEY USERS GROUPS)

I have written up several articles on the subject of putting 32K of static RAM inside of the TI console. I believe that most of the information for this came from the WESTERN AUSTRALIA U.G., and the work leading to the insertion of the same memory into the Speech Synthesizer, was done by the CEDAR VALLEY U.G.

Now I have put memory into both the console and the Speech Synthesizer. I thought that there should be no place you couldn't stick it. So I just finished putting it into the OLDE TI STAND ALONE DISK CONTROLLER (part of the old train). This made a nice quiet, sort of micro-expansion system (without RS232/PIO). If you already have a full blown system, or are just beginning to get int a disk system, and realize that you either don't have the funds, or will not need anymore than that just described, you should read on.

The long connector on the left of the schematic, represents the large 44-pin conn. that is inside the speech synth., or any other plug in peripheral ie: Stand-alone Disk Cont.. The big difference, however, is that ONLY the speech synthesizer carries pins 1,2,43, and 44 into the unit from the console. Therefore if you do decide to put memory into any other unit than the speech synthesizer, I would recommend that you wire across that unit, in other words you should run a wire from pin 1 on the console connector to pin 1 on the output end of that unit, where the 2nd unit from the console might be plugged in, and do the same for pins 2, 43, and 44. This will enable you to put the very small speech synthesizer out on the end, instead of between the 2 much larger units (console and Disk Controller). There is only one lead that is involved here that is a must, and that is the pin 1, since I have stayed with using the +5 VDC from the console, rather than tapping it from the +5 Volt source in the unit where this is installed.

If you have the documentation on the RAM chip, you may be confused by the reverse order of the address lines. DON'T WORRY, just wire the chip up as I have indicated, and if you do your part correctly, it will work. I've done nearly 20 of these installations in the console and the speech synthesizer, and in a stand alone disk controller, and as far as I know, they are all working. If you want the more simple instructions, on how to install this same memory into your console, (which is what I prefer) just contact me, by sending a stamped , self-addressed envelop, and I will send the instructions. Have fun! JOHN WILLFORTH RD#1 BOX 73A JEANNETTE, PA 15644 , or call after 9:00 PM, (412) 527-6656

EXTEND THE USE OF TI-WRITER

By Allen Burt - England

TI-WRITER can be used for much more than just producing letters---a substitute for a typewriter. In the last article I described how to make use of the CONTROL "U" function in the Text Editor mode. This function can be used to extend the application of the system and to produce integrated documents of words and diagrams. For example, it is easy to show a Histogram (Bar Chart) like this:

This uses the CHR(124) obtained by using 'FUNCTION'(F and KEY 'A' for the verticles and the underline character CHR(95) (-IF and KEY 'U').

A useful tip when doing this type of exercise is that if you place the CHR(124)'s in the appropriate locations and wish to continue them downwards from the point indicated by the asterisk - just move the cursor down to the next line and press CONTROL [C and KEY '5' - this copies the line above onto that line. When you draw diagrams like this, it is better to insert a number of lines in order to have room to move around.

If you want to include a simple graph within your script, try doing this as shown in Figure 2 below:

A more sophisticated graph can be achieved using the above techniques. In the example I found the 'COPY' command very useful because having once obtained the required width - I only had to 'copy' down the required number of lines using (Control & KEY '5'. Remember that when you place a special set of codes at the start of the line, the space they occupy will not be recognized by the printer. That is the printed line will commence at the location of the first special code. This can place the numbers used in the graph in the wrong place. You have to enter your special codes at the point you wish the following characters to print. Thus what you see on the screen is not necessarily what you will get on the printout.

TI-WRITER can be used to draw graphs as Figure 3 above illustrates. The horizontal lines are achieved by setting the printer into an underline mode [CHR$(27);CHR$(45);CHR$(1)]. The line spacing is set to 7/72" [CHR$(27);"A";CHR$(7)] - this approximates to 1/10". If a CARRIAGE RETURN is placed at the point where the line should finish, the printer will draw a line to that point. The verticle lines are drawn by using CHR(124) - Function "A". As the printer normally prints at 10 characters to the inch, this will produce a grid of roughly 1/10" squares.

There are two points to watch using this procedure:

(1) If you do not want the underlining to start at the beginning of the printer line, the underline code must be placed at the the start of each line and cancelled at the end of each line before the carriage return. There is another means of achieving this and that is to set the left hand margin to the required position (on GEMINI printers this is CHR(27);"N";CHR(n) - n being the column to start printing . THIS CAN ONLY BE DONE USING THE PRINTER CODES, NOT BY SETTING TI-WRITER's TABS.

(2) The second point is that many printers do not align the characters in a bidirectional mode. YOU ARE ADVISED IN THE TI-WRITER MANUAL THAT FOR TABULATION IT IS ADVISABLE TO SET THE PRINTER TO A UNI-DIRECTIONAL PRINTING MODE.

Figure 4 below illustrates how a line will appear on the 40 screen.

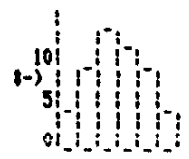


Figure 1

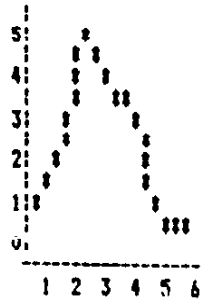


Figure 2

Figure 4

USING TI-WRITER TO DRAW A GRAPH

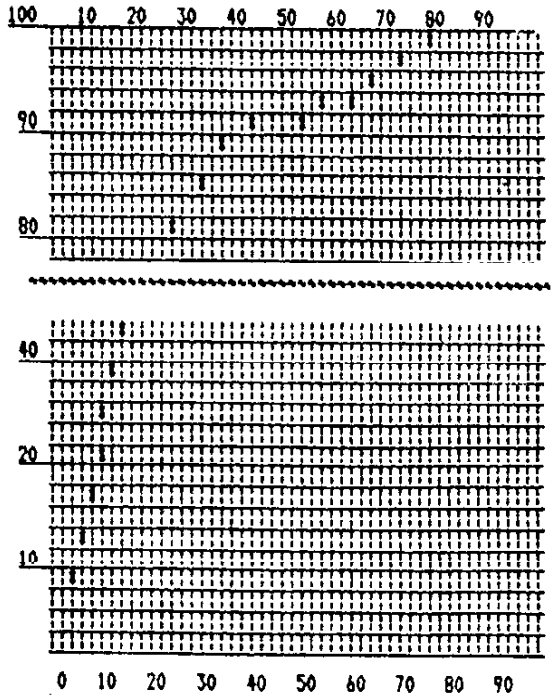


Figure 3

99 FORTRAN from LGMA Products

A Review of First Impressions
by Ralph Landrum, HUG member

Courtesy Smaug Memorial

I recently bought the LGMA 99 FORTRAN package that is advertised in the new TENEX catalog. So far I've studied the manual and compiled and linked the example programs that come with the package. It is well planned for the user. The manual is well written. It will be clear to anyone the least bit familiar with FORTRAN at any level. It is clearly meant for people who use the TI99 in XBASIC, but who want compiled versions of their programs. Assembly language programmers can also use internal TI99 subroutines and their own assembled code within the structure.

WHY FORTRAN?

FORTRAN has a conversational syntax like BASIC, and is therefore easier to use for me than A/L or C. In fact, the LGMA package is actually a combination of BASIC and FORTRAN II, being a subset of FORTRAN 77, rather than FORTRAN IV as advertised. I am familiar with (though not a trained programmer in) several forms of BASIC, FORTRAN II, and IV.

FORTRAN uses true subroutines, which I need in what I want to do with a computer. XBASIC uses true subroutines also.

FORTRAN is a compileable language. I want to be able to compile to machine language for speed. BASIC is compileable in some versions (for example IBM PC), but noone has brought out a good compiler, using true subroutines, for the TI99.

SO, FORTRAN could let me have a more familiar language, using true subroutines, but compiled for operating speed.

THE LGMA 99 FORTRAN Package

LGMA Products, Box 210, RD4, Apple-Butter Hill Road, Coopersburg, PA, 18036, is a company unknown to me. Alan L. Beard signs letters for them. Their 99 FORTRAN package was advertised in the latest TENEX catalog for $49.95. The package comprises two disks of ver. 2.1.3, and an excellent manual.

One disk has the boot (in E/A, M/M, BASIC, or TIW); the Full-screen Editor, Optimized Compiler, Linker, Debug, and example programs. The second disk has an excellent object module library with /B functions and subroutines, including math functions (both single and double precision), and all the graphics and sound functions of TI BASIC. Included are: CHAR, CHARPA, COLOR, DELAY, DELETE, DELSPRITE, FILES, GCHAR, HCHAR, JOYST, KEY, MAGNI, MOTION,POSITI, SCREEN, SET32, SET40, SOUND, VCHAR, WAIT.

I find the manual to be VERY well written and organized. It explains things very simply for average programmers like me, but it also goes into detail for those excellent systems programs who will want to use internal subroutines of the TI99 roms, or want to add their own assembled routines to the library. Of course, you can write FORTRAN functions and subroutines, compile them, and add them to the library. Whoever did the manual must be an expert programmer AND user.

Your system requires 32K, at least one SSSD disk drive, and E/A, TIW, XBASIC, or MM.

Remember that this FORTRAN is a SUBSET of FORTRAN 77, with a few extra features. For example, it does not support the ENTRY statement of FORTRAN 77, but it does support the DOWHILE statement form PASCAL-- NOT FORTRAN 77. It is a subset in other ways, of course, being shoehorned into a small computer. Its program limit it 2 segments of 8K each. Integer constants take 2 Bytes as do logical constants. Single-precision constants occupy 4 Bytes, while Double-precision ones occupy 8 Bytes. The author includes a section of the manual explaining various tricks of the system to save space.

IS THE PROGRAM WORTH THE MONEY?

If you are comparing the too cheap cost of the programs from Clint Pulley, and the FREE and from the heart contributions of Warren Agee, Ron Albright, and many others who gave and taught us our c99 language, then you will look at $50 as a lot.However, because of the quality of work, the completeness, and comparison with the cost of other commercial programs, I find it reasonable.

I have not tried to program and run benchmarks against other programs, nor have I yet tested the optimizer by comparing routines like double- nested DO LOOPS compiled from source and written in assembler, but my elation in finding the system to be 77 instead of IV, the first programs I've compiled, the obvious effort of the author to make the system comparable to the XBASIC system we know with graphics and sound, and the excellent manual make me vote overwhelmingly YES, the program is more than I expected, and worth the money.

In the little time I've had to exercise the program, I find only two things I hope can be improved in future. One is to have a scale on the screen to tell me where I am on the eighty-column line. The second is to allow the LINKER program to automatically scan through more than one library disk just as it automatically iterates to let you load more than one OBJECT file. Those are not big objections ... they could just be made more convenient.

(Did You Know ... cont.)

CALL WAITING AND MODEMS
from SNUGLETer U.G.

(Depending on which telephone Co. you have)

USING A MODEM ON A PHONE LINE THAT HAS CALL WAITING CAN CAUSE AN INTERRUPTION IN CARRIER TONE IF ONE RECEIVES AN INCOMING CALL. IF ONE ALSO HAS CALL FORWARDING AND WISHES TO USE A MODEM FOR OUTGOING CALLS, DO AS FOLLOWS.

STEP 1: PICK UP RECEIVER AND DIAL 72
STEP 2: WAIT FOR SECOND DIAL TONE
STEP 3: DIAL YOUR OWN NUMBER
STEP 4: YOU SHOULD GET A BUSY SIGNAL
STEP 5: HANG UP
STEP 6: LIFT RECEIVER WHEN YOUR PHONE RINGS
STEP 7: HANG UP
STEP 8: WITHIN TWO MINUTES REPEAT STEPS 1, 2, AND 3
STEP 9: LISTEN FOR TWO SHORT TONES
STEP 10: HANG UP

YOU CAN NOW MAKE OUTGOING CALLS WITHOUT BEING NOTIFIED OF AN INCOMING CALL, (CALL WAITING), AND THUS HAVE NO INTERRUPTION IN CARRIER TONE.

WARNING:::::::::SINCE NO ONE CAN NOW CALL YOU, YOU SHOULD CANCEL THIS FEATURE BY DIALING 73 AFTER USING YOUR MODEM FOR OUTGOING CALLS.

<*><*><*><*><*><*><*>

TI SOUNDS
by P. Bruce

(Reprinted from MSP 99er...who reprinted it from Tasmanian TI U.G.)

The noises -4 and -8 vary the tone of the third tone specified in a sound statement. I have noticed that by use of -4 and -8, any noise can be created. Where -4 can create noises -1,-2, and -3 and where -8 can create noises -5,-6, and -7. The following program demonstrates this by using 129 different noises created by -4 to form the sound of an aeroplane taking off.

```
100 FOR T=110 TO 4000 STEP 30
110 CALL SOUND(-100,110,30,1
10,30,T,30,-4,0)
120 NEXT T
130 CALL SOUND(-100,110,30,1
```

Hence 89246 noises (not tones) are available on the TI, and you can hear them all. None are out of range of hearing. 44623 of the noises are generated by -4 and another 44623 are generated by -8.

<*><*><*><*><*><*><*>

Here are some interesting codes that I ran across this month:

IF N/2=INT(N/2) THEN PRINT...

This code has been around a long time. It let's you know if N is even or not. But try this one. It accomplishes same thing, but runs faster.

IF NOT N AND 1 THEN PRINT...

(*) (*) (*) (*) (*)

The code IF X THEN really means:

IF X<>0 THEN

With this logic we can come up with a neat flag toggle.

IF X THEN X=0 ELSE X=1

<*><*><*><*><*><*><*>

NOTE TO NEWSLETTER EDITORS

Most of us include an invitation in our newsletter that goes something like this: "Feel free to recopy any article...etc," and this we all do frequently. But please while a yellow newsletter may look fine, it is difficult to photocopy without getting a grey background. Chick

<*><*><*><*><*><*><*><*>

If you have a synthesizer try this:

```
CALL SAY("R+U+#+")
```

Well, I'm out of coffee. See you next month
Chick

Did you know that...?

by Chick De Marti

GEMS FROM KEN HAMAI
of the Riverside U.G.

No sound on your T.V.? Simply attach a Radio Shack "ARCHER MINI AMPLIFIER #3A6" to the white lead of your TI-Vidio/sound cable.

Instead of having 6 to 8 Fctn strips taped to your console, put two (2) of them, back to back (taped with clear plastic tape)and keep your two favorites in the channel TI made for them.

(Thanx again Ken...)

<*><*><*><*><*><*><*>

WHEN WAS THE LAST TIME YOU USED ONE OF THESE

CALL PEEK

A random number 0 to 99 (intergers only)

```
100 RANDOMIZE :: CALL PEEK(-31880,A)
```

NOTE--> A+1= 1 TO 100

Or how about:

-31879 increments itself every 1/16 of a Sec. Used...

```
100 CALL PEEK(-31879,A):: IF
A<60 THEN DISPLAY AT(5,20):A
 :: GOTO 100
110 FOR I=1 TO 5 :: DISPLAY
AT(10,10):"" :: DISPLAY AT(1
0,10):"TIME IS UP":: NEXT I
```

and instead of "END" have you tried...

```
800 CALL INIT :: CALL PEEK(2
,A,B):: CALL LOAD(-31804,A,B)
```

Your program will END by automatically returning to MASTER TITLE SCREEN.

NOTE--> The above ideas require XBasix and memory expansion.

TI-WRITER Comment

Thanx to JANE LAFLAMME of the OTTAWA U.G.

> When using TI-WRITER, we've all become accustomed to .CO as a line of comment, however, ... "the formatter disregards all text after a (leading) period. The .CO is optional!"

(You programmers could use your distinctive astrisks to label a comment line.
ie. .***** COMMENTARY ***** Chick)

<*><*><*><*><*><*><*>

PROGRAMMING HINTS
From BUG-BYTES of the Brisbane U.G.

If coloured graphics on a black screen look pale or colourless, try this:

```
100 CALL CLEAR
110 CALL COLOR(1,2,2)
120 CALL SCREEN(16)
130 CALL VCHAR(1,31,1,96)
140 FOR D=1 TO 900 :: NEXT D
```

The same trick will give you a professianal looking bordered screen for your text:

```
100 CALL CLEAR
110 CALL SCREEN(5)
120 CALL VCHAR(1,31,1,96)
130 FOR SET=1 TO 12
140 CALL COLOR(SET,2,16)
150 NEXT SET
```

Now put your text on the screen with a blank on the 1st and 28th column of each line. The border is not effected by scrolling, but is erased with CALL CLEAR, so use CALL VCHAR(1, 3,32,672) instead.
NOTE--> To get the computer to hold 24 lines of text on the screen, put a semi-colon at the end of the 24th line.

<*><*><*><*><*><*><*>

Open Letter to All TI-99ers

(Downloaded from GEnie BBS, 7/31/87)

Someone had to be crucified!
Someone had to burn Watts!
Someone had to get shot at Kent!

The TI community will not be satisfied until someone sets themselves on fire in the middle of Times Square with a TI computer clutched in their arms! Who shall it be? Barry Boon, Peter Hoddie, Chris Bobbit? How about Stu Olson or Barry Traver? Maybe Ron Albright would do this for us. It sure as hell won't be me because nobody knows me, and besides, sombody has to remain as curator.

I am sick and tired of the whimpering and whining that is echoing from the halls of this community.

Many times in the last few weeks of this summer I have been subjected to rumors of TI groups across the country converting to multi-computer groups. It is my belief that the people suggesting this are nothing more than lemmings going to sea. And the people that are listening are going to lead the pack.

I want to make it very clear to everyone that I do not believe that computer is spelled "TEXAS INSTRUMENTS". I have, over the last seven or eight years, been associated with Atari, Color Computer, IBM and clones. Also, I have had nodding acquaintances with Commodore and Apple. During that period of time I have compared my computer to every one of them, and have often been envious of graphics, sounds and massive amounts of memory. But at the same time, I have left the keyboards of these machines with the attitude that "I (my TI) can do that, too." Every time I have been proven correct. Axel-F, TI-Artist, and the Horizon ram disk have done the job, and there's more to come.

It's a proven fact that in any group, no matter what they gather for, five percent of the people will always do ninty-five percent of the work. There is no getting around it. Many of the most dedicated of group members will sit back and let the "knowledgeable" take the lead. That doesn't mean they are not interested, it just means that they have stupid priorities like families, work and a bowling league. These are not the people that are coming under fire here. I am bringing to task the leaders of those people. The "knowledgeable ones" that are not saying "Kiss off IBM, I'm a TIer and proud of it!"

Quit worrying about the size of your groups. The people that are leaving you are USERS or MONEYMAKERS. The users are the people that in the last seven years have never bothered to learn to program the simplest code. The money makers come in two catagories. There are the "I-have-an-IBM-at-work'ers" and the "I-can't-make-any-money-from-TIer's" gang. Neither of these two groups can do you any more good. The first group added nothing more than volume to the ranks, the second group, for the most part, I have a tiny bit of sympathy for. We TI'ers are a cheap lot. I don't really know why. I guess we are just birds of a feather, but I didn't join this community so many years ago because I was cheap. I joined for the value of the TI and what it could do based on my investment. I have NEVER regretted my decision, but I do realize that I'm not making anyone rich, least of all Craig Miller, a fine example of what I'm talking about.

I know of people that have left the community and have come back to us with sheepish grins. Allow me to quote a former member of the Front Ranger Ninety-niners of Colorado Springs.

"I sold my TI and bought an AT clone. I used to walk up to my TI, press a couple of keys, wait a minute and pound out a perfectly formatted letter. I was in control. Now I have to walk up, bow twice and BEG my computer to PLEASE allow me to do the same thing I used to do on my TI.... I WANT MY TI BACK!!"

I will quote one other.

"I purchased a PC and an AT for my business, where-upon I put my TI on a desk in the corner. That was six months ago. I bought some user friendly programs for the clones and went to work answering all their questions. I'm still

(Continued on Page 20)

(Continued from Page 19
answering questions and my TI is doing all the work."

I have been the president of the Western NY 99'ers for three years. The group used to consist of about 125 members. Today there are 60. Out of that 60 people, 45 show up at every meeting because the staff has a monthly meeting and plans a program for them. Of that 60, 28 have Horizon rams, and I feel safe in saying that ALL of the rest are looking forward to one or at least something like it. The group fully supports our BBS with purchases of public domain disks every month. The GROUP requested that we continue meetings all summer, no breaks. We have many people that drive over a hundred miles round trip to every meeting. We have one of the best looking newspapers in the community, supported by the dues and printed every month without fail.

Why are we successful? Because six people, (10%), meet every month and PLAN. We INFORM the people. We have published the prices for IBM software in our newsletter and compared the abilities of Procom to Mass-Transfer... and questioned why it takes 125000 bytes to accomplish what we do in 18432 bytes. Is it possible to use Genie or Delphi with a TI terminal program? If that question weren't so serious I would be rolling around the floor hysterically.

When I am asked why I continue with TI, my answer is simple. "Because I have not fully explored the possibilities of the TI. I still have at least four languages to learn and uncounted memory locations to attack. I have programmed the TI to handle all of my business records, and I know how to manipulate my files to get all the information I will ever need, and it's all so easy.

If the person that asks the question says he is going to buy a clone, then I say "Byebye, make sure the person you sell your TI to knows we're here."

And that brings up my final point. I have yet to find a TI in a trash can, and believe me I've looked! How can the community be going down hill when all of the equipment is STILL IN CIRCULATION?? You guys aren't trying! We have people in my group that are mainframe programmers by day and TI hobbyists under the cover of night. It's positively inspirational!

This fall will bring two new P-boxes to the nine out of ten consoles that do not have them. If the people are made aware of this, many of the dust collectors will get pulled out the closets and brought to life.

QUIT WHINING, FIND YOURSELVES A SMALLER PLACE TO MEET AND KISS THE USERS GOODBYE. Combine the groups in a given area and have a general meeting every three months as well as the regular local meetings. Form a statewide group and take out ads in Popular Science so that the new TIers know we exist. Look and SEE where your new members are coming from. Concentrate on that area. You are going to find out that the community is better off today than it's ever been. If you wind up at the waters edge, call me for help.

Respectfully Submitted,

Harry T. Brashear
President;
Western NY 99er's
1-716-778-9104

THE NEWSLETTER OF TI USER GROUPS
IN VIRGINIA - DC - MARYLAND

THANKS TO:
LA99"ers
NORTHWEST OHIO 99"ers
TACOMA 99"ers
NEW ENGLAND TI-PC GROUP

For some of the articles appearing in this issure.

DATA BASE PROGRAMS REVIEWED

Data Base Managers
For the TI-99-4A
By Bill Goskill

Some owners/authors of the applications I have covered in this article will no doubt be angered by the apparent brutality of it. I choose to view it as honesty rather than brutality. Too many reviewers white-wash the weakness of TI software they critically review. I will not. I think sometimes that we are afraid that the software market will dry up and blow away unless we give favorable reports on the software products that do appear for our computer. I prefer to think of it in another way: if we promote junk software in a favorable light those that do publish product reviews will lose credibility, and those that buy software based upon those reviews will simply be that much more reluctant to get burned a second time.

In the process of searching for the perfect data base manager I have purchased several programs and spent over $300. All of the programs that I own have positive points and all have negative points. What I have discovered to date is that the "perfect" data base manager does not exist yet (not even in the business world). What I am going to share with you are my impressions of the programs I own, and in doing so, will perhaps save you a little time and money if you too are looking for that "perfect" application.

The programs I own are:
ACORN 99 from Oak Tree Systems
DBMS from Navarone Industries
DATA BASE 1 from SPC Software
DATA BASE 99 from Quality 99 Software
DATA BASE 300 from the Int'l Users Group
DATA BASE X from Western Ware
PRBASE V1.2 and V2.0 from William Warren
TURBO DATAMAN from Easy Ware

I have used these programs enough to feel comfortable with each and could probably write several pages about each one. Unfortunately, publication space is limited and such a voluminous article would never see print because of it.

Thus I have tried to be brief, but to the point, in my comments on each program. Also, please keep in mind that my comments are subjective, based upon how each product meets MY needs and expectations. Yours may be different.

For ease of reference I have included some of the information in a comparison table that allow analysis at a glance. In the paragraphs that follow I will try to provide a little detail to each issue and cover special features, lack of what I view as standard features and product performance of each program. I apologize in advance for the cryptic style you will read, however, I needed to be brief. The DATABASE 300 program will not be looked at since it is not available.

ACORN 99:

Among the top three DBM's available to the TI community. The only relational data base available. Also, the only one with a programming language interface for custom applications. EXTREMELY powerful and well designed. Can support three active files at one time, allows existing data file formats to be edited, copied to another file, resequenced and can reformat a file structure into another file format. Does not have the ability to show number of records in a file. Can hold more than 1500 records per file on a SS/SD disk (depending on file size). Sorts alpha characters and strings better than numbers. Indexes record location for subfile creation and main file is then concatenated to create the subfile as another database. Possesses ability to search, using "equal to, unequal, greater than, less than, ignore" logical operators. Supports relational operators in search routines through the use of a true/false convention that allows selection of records where all parameters are set, or any parameters are met. CAN print a single record from a display screen. EXTREMELY slow in operation. Uses 40 column text mode. Allows duplicate key field data entries. Allows printer control codes to be encripted in set up file. Provides input checking for "numeric, integer, money, string, flag and date" entries. Overall, a fabulous program, with almost limitless potential. The best documentation of the group, giving many examples along with explanations. SUPERB application.

DBMS (Navarone)

Allows 32,000 records per file, but only 350 per SS/SD diskette. Limits you to half that amount if you wish to sort the file since it creates a second sorted file that demands equal space on your data disk. Most interesting report generator I have ever seen, a cut and paste type affair that is really neat, but poorly documented. Excellent custom screen design module which includes help screens that you design. FAST, FAST, FAST. Requires unique key field entries only, which I find inconvenient. Documentation is better than originally written, but still confusing at times, and incomplete. Dotes on mundane things and skips over, or entirely omits important things. Does totaling in reports, but no other computational work. Does not support single record printing, but can use the report module to scroll data on screen, write it to disk or send it to your printer. Can

append new data fields to the end of an existing record, but cannot reformat the record in another way. Can create subfiles, but you have to figure out how to do it for yourself because the documentation does not tell you how. It doesn't even mention subfiles. Allows printer control codes to be encrypted in Report Generator file. Does not perform input checking of any type. All data is considered to be a string entry. Best suited for a hard disk environment. Not difficult to use once you have "played" with it, but can be intimidating at first.

DATA BASE 1:

Best suited for mailing list or other LIST type data files. Cumbersome design setup requiring records to be accessed by their relative position in the file (record number). You must first list the records by a specified field if you don't know the record number. Time consuming. Provides three pre-set mailing label report formats and one custom format for your own design. Will NOT do reports that have heading information. Includes several nice utilities, such as a formletter generator, disk file data base which creates a DB1 data base file out of the information on your library of disks. Does not provide for input checking, nor length of field entries. Only looks at the length of overall record. Does searches by "equal to" operator only, only one data field at a time. Requires that you first create an index file and then search. To search by another field, you must create another index file. Searches by a maximum of 5 characters in any field. Sorts are limited to 1000 records, no matter how many exist in the file, but both alpha and numeric sorts are offered. Subfiles can be created to a printer in the main program or to disk by using the Utilities options. Selection is by "equal to" or "between two values", which can be either alpha or numeric type.

DATA BASE 99:

More emphasis put on copy protection than on performance. Allows custom screen design and claims 28 fields of up to 28 characters each. Would be a neat trick to do since four of the 245 rows on screen are used by program prompts. Fast assembly language interface for report generation. Can not generate reports with headings and does not permit printer control codes to be inserted in report data. Does not save a format after design, so you will have to re-create it each time you want a report. Data is printed in continuous format without regard to page breaks or anything else. Design of layout is cumbersome, requiring you to conceptualize how many colons and/or semi-colons are needed to push the data across the page. Number of colons/semi-colons is limited to 127 characters allowed in a LINPUT command. A terrible system. Disk catalog accessed from main menu will crash program if you enter an alpha character instead of a number when it prompts for the disk drive number to be cataloged. Color is lost after a crash since it was CALLed from the LOAD program. Does not permit single record screen print (unless you buy the DB 99 utilities), must use EDIT option to search sequentially. Can not go directly to a record by its relative position in the file. Will create subfiles to disk, allowing the search by "less than, equal to or greater than" operators. Search is limited to one field for all practical purposes. Sorts can be performed in ascending order, by any one field. Sort is an actual re-write of the file. All data is considered string information. No number crunching (again, unless you buy the DB 99 Utilities), no input checking. Documentation consists of two 8 1/2 X 11" sheets of paper printed on both sides. Program is slow, inflexible, inconvenient in many ways and cumbersome to use. It might have been an advanced application two years ago. Today it is a dinosaur, even with the DB 99 Utilities. MUCH TOO EXPENSIVE.

DATA BASE X:

Very modular, meaning that each function (adding, editing, printing, deleting etc.) is a separate program that must be loaded each time you want to use that function. Does statistical analysis of data. Record counter is inaccurate, code of program is jumbled and entirely unstructured. Does not sort data, even though documentation uses the term "sort". What it means is "select". When DATA BASE X "sorts" by a particular parameter it is really selecting records for dumping to a printer that need that parameter. Does allow selection between ranges. Can not create subfiles, does not index existing records. Access of a record is done sequentially, unless you know the record number. No way to tell the record number, you must guess. Supports 1 or 2 disk drives. Excruciatingly slow. Requires that you name the data disk DBXDATA, for no good reason that I can see, otherwise program errors out. Does not save report definition, but does allow it to be printed in normal or compressed mode. Definition process is fairly simple, but time consuming. Documentation is the "shabbiest" I have ever seen. It is photocopied and put into booklet form with the pages not even cut straight, so that some information is missing off of some pages. Overall, this program is JUNK! As with the IUG's DATA BASE 300/500, it never really belonged on the market in the state that it is in. Unfortunately, I didn't know that and paid out over $30 to find out.

PRBASE:

Totally assembly language coded. THE BEST all-around application in my opinion. FAST, flexible, does virtually anything a user would want in the way of data handling, except number crunching. It will not do

anything in that area. Treats all data as part of a big string just as DBMS and DATA BASE 99 do. As long as you own the PRB Utilities written by John Johnson, you can create subfiles, otherwise you can't. Has on-line help for commands, creates an index by any input field you choose and then accesses any record in about 1 second. Also has a FIND feature to look at data sequentially in any single field and a GLOBAL option that searches for a single data entry anywhere in the record. Saves up to five report formats, V2.0 allows you to format data disk. Custom screen layout with terrific graphics options for borders/windows etc. is available. A TREMENDOUS PROGRAM, well thought out, well designed, artistically executed. FAIRWARE!!!! PRB Utilities are free for the asking as long as you provide the disk and mailer. Report design is cumbersome and confusing. Prints single record from screen display in either 40 or 80 column mode. Program is very sensitive about I/O device names. My copies (V1.2 and V2.0) both require PIO. to work rather than just PIO or PIO/1, etc. With number crunching abilities this program would be a perfect "flat-file data manager" for most TI users. As it is, the value and performance for a FAIRWARE application, or a commercial application too for that matter, is unsurpassed. If you don't have PR BASE then you are missing out on one of the premier productivity tools available to the TI Community.

TURBO DATAMAN:

This is the second most powerful and useful data manager, taking a backseat only to PR BASE. It runs slightly ahead of ACORN because it performs number crunching and is faster in operation. Like ACORN, TURBO DATAMAN allows you to create a dictionary of data items (fields) and then lets you choose from that library of fields to put a record together. Up to 30 fields are allowed per record. Twenty pre-defined records (file formats) can exist on one disk. Allows custom screen layout design, complete with graphics for borders/windows etc. Does input checking, allows secondary screen access, like ACORN's Detail Records. Allows formulas to be created and saved that perform the four basic math functions. Report definitions can be saved. Allows wildcard type operators in searches, will print single record from screen display. Provides "less than, greater than, equal to, not equal to, greater than or equal to, less than or equal to" operators in screen display and report generation modules. Permits sub-totals in reports that can be formatted like TI Extended BASIC does with IMAGE statement. Subfiles can be created through the report generator by sending the output selected to a disk file rather than a printer. The results must be converted back to INTERNAL, FIXED from DISPLAY FIXED before you can use it in the program however. TURBO DATAMAN does not provide you with that utility. The documentation instructs you to "write a program" to do it. Names used for different modules in the program are confusing. Ex: ETCH, SKETCH, SKETCHR, FETCH. Should change names to more accurately reflect function of module. Documentation acceptable, but lacks adequate coverage in some areas. Utilities are provided to perform some mundane operations, such as counting the amount of records in a database. Reformatting or restructuring of an existing file is not permitted, unless the input field is appended to the end of a record format. This program needs some "fine tuning" in some areas, but is still an exciting productivity tool with immense possibilities. Its speed of operation is not fast, but acceptable. It is faster than ACORN. One can set up the SKETCH program to auto-load if desired, but the whole application should be centered around a menu in my opinion. As it is now, you must RUN each module from the READY) prompt when you need to use it, because every module exists with an END statement. If you don't own this program, you should. Whenever you want to manage a mailing list or do accounting, TURBO DATAMAN is for you.

	DATA BASE NAME						
FEATURES	ACORN99	DBMS	DBI	0899	DBI	PRBASE	TURBO DM
RECORDS/FILE	LIMITED BY DISK	32,000	LIMITED BY DISK	350-1400	LIMITED BY DISK	350/710	LIMITED BY DISK
FIELDS/REC.	54	25	10	28	10	32	30
MAX. RECORD LENGTH	255	255	245	246	246	246	255
MAX. FIELD LENGTH	40	40	28	28	28	246	28
MEMORY REQ'D	32K	32K	32K	32K	16K	32K	32K
LANGUAGE	IB/ASSM	ASSM	IB/ASSM	IB/ASSM	IB/ASSM	ASSM	IB/ASSM
CUSTOM DESIGN SCREEN LAYOUT	NO	YES	NO	YES	NO	YES	YES
SCRN GRAPHICS CAPABILITY	NO	NO	NO	NO	NO	YES	YES
ALTERED CHAR SET USED	NO	YES	YES	NO	NO	YES	NO
CUSTOM REPORT DEFINITION	YES	YES	YES	YES	YES	YES	YES
SAVES REPORT DEFINITION	NO	YES	YES	NO	NO	YES	YES

JOYSTICK

By using this short routine, you don't need to worry about which joystick you are using.

```
100 PRINT "PRESS FIRE BUTTON TO
CONTINUE."
110 CALL KEY(1,K1,S)
120 CALL KEY(2,K2,S)
130 IF K1+K2<>17 THEN 110
140 JS=INT(K1/18+K2/9+1)
```

ADVANCED TECHNIQUES

(by Walt Todd)

Here's a few more tips that may be helpful when using MULTIPLAN.

1. Keep the worksheet compact. Keep the amount of blank space within the worksheet to a minimum. Also, avoid extending the worksheet size unnecessarily.

Using the external copy command to split the worksheet at logical places will help keep them smaller and faster to work with. In other words dividing large worksheets into one or more smaller worksheets and linking them together using the EXTERNAL COPY command will enable the computer to work faster.

When possible keep the number of formula's to a minimum. This also enables the computer to work faster while saving valuable memory and disk storage space. Another neat trick is to invoke the OPTIONS CALCULATE command and selecting the NO option. This is only good when inputing data or text that requires no calculation. When this option is selected it tells the computer not to calculate ever formula every time a new input is executed. It can save valuable time when working with a large worksheet.

Placing any number outside the general work area, even formatting a cell unintentionally, can use more memory and disk storage than necessary.

If you suspect that too much memory is being used (check the "% Free" indicator at the bottom of the screen ;if it's at 20% or less you're heading for trouble). Press the "CONTROL-LOWER RIGHT" key. if the cursor goes beyond the last working cell, try deleting all columns to the right and all rows below your work area on the sheet. This ensures the minimum size for your worksheet. It's important to remember that the "% Free" indicator only refers to the amount of memory remaining on the "worksheet". Don't confuse WORKSHEET memory with available storage on a floppy disk.

2. Remember to save your worksheet often and periodically delete "old" files. On MULTIPLAN a new complete file is created each time you save an existing file. Old files are automatically renamed with the title "-old" immediately after the file name. For example, an existing spreadsheet titled "FebExpenses" that is loaded from storage, modified and saved will retain the file name 'FebExpenses". To avoid loss of the original file MULTIPLAN automatically renames it "FebExpenses-old". To delete old files invoke the "Transfer - Delete" command and press an arrow key to display the directory files. Select a file ending with the word '-old' by moving the cursor to the file name. Press [ENTER] twice to delete the file.

3. To create headings that cross many columns and are centered, follow this procedure: invoke the Format-Cell command: position the cursor in the first cell of the row of cells to receive the text and type a colon. Next position the cursor in the last cell of the row of cells and tab over to the next field and select "C" for center. Again

tab over to the next field and select "C" for continuous and press [ENTER]. Text should now be continuous and centered in the desired row of cells.

4. The "PRINT-FILE command has several good uses. The resulting printable file can be processed by other programs, such as Ti-Writer. You can use a word processor to add more text to the file or to insert it as a table into another document. In addition, you can print this file several times without having to reenter MULTIPLAN to do so. To print a file for use in the WordProcessor, for example, invoke the Print File command. The prompt reads "enter a filename." Suppose you name the file "FebExpenses". Type the filename. Press [Enter] to execute the command. Now, Transfer Save the file, if necessary, and then invoke the Quit command to exit MULTIPLAN. Enter the Word Processor and open the document "FebExpenses" . You can now include this document in a longer document , or edit the sheet as necessary.

BOARD MEETING, SATURDAY FEBRUARY 21, 1987, AT FRANK JORDANS HOME; by D.Shie

Attending were charter president and newsletter editor Bill Whitmore, membership chairman Bill Howard, secretary Duane Shie, Jerry Coffey, and president Frank Jordan.

We are down to 186 membership after a record low January renewal ... losing about 100 members. There is approximately $3500 now in the treasury. With newsletter printing and mailing costs running about $300/issue which might lower to $150/issue with fewer copies and pages, we can easily continue through this year and back another TI-fest of sorts again in October. We planned monthly meetings at least through this year ... with no June nor August meetings, and the October meeting being a saturday TI-fest/flea market. Our Hagerstown group is down to ten members and the Baltimore group has been reimbursing us for 100 copies of the newsletter each issue. For the July renewal group, we may offer six month renewals. Essentially the same handful of people have been doing most of the work for the last four years, and if our support vanishes and no one agrees to become officers, we could disband by next January by raffling off all group holdings and donating any left over treasury monies to charities.

We agreed our essentials for a continuing user group are: meeting for programs and place for sell/trade/buy, newsletter, membership, and software library. Increasingly our membership has been purchasing other types of computers as we have learned so much with our long aquaintance with the TI99/4A systems and need or want increased capibilities. However, many have sold their complete systems and turned around and bought equivalent pieces with their new systems ... eg. sell a printer for $50 and buy another for $250 that works the same as if they had just hooked up their old one. Bill Whitmore has long been asking for page sized articals for the newsletter on our members experiences pro and con with other systems from OUR viewpoint, and what peripherials we have been able to adapt to our new systems ... and in many cases WHY we have kept our TI99/4A systems along with our new. So Jerry Coffee will show his souped up TI system and several others, and Duane Shie will show his Atari 1040ST, both in terms of compatibility, adaptibilities, and differences that are neccessarily encountered and how data can be transfered back and forth. And several other members that get more TI compatible machines such as the Myarc Geneve and Tenex PC hopefully will also report. So it should still be an interesting and informative year!

Back to BASIC

This is the first of several BASIC programming Tutorials I have planned, as time permits, to assist the begining BASIC programmer.

LESSION #1:

INTRODUCTION TO BASIC

One reason that BASIC(Beginner's All-Purpose Symbolic Instruction Code) is so popular is its conversational nature. A BASIC program is very similar to the instructions you would write for a person. BASIC makes communicating with a computer natural,simple and straightforward.

Another advantage of BASIC is its many built-in conveniences. Handling a large table of numbers can be very difficult in other programming languages. In BASIC you can command the computer to print a table of numbers or names with a couple of simple instructions. In addition,BASIC has excellent file-handling capabilities, although sometimes painfully slow in execution.

To get you started, here are some BASIC computer programs. Do not try to understand the details yet. Just relax and try to get the flavor of programming.

PROGRAM 1-1

BASIC can be used like a hand calculator. If you want to find the circumference of a circle with the diameter of four inches, you multiply 4 times 3.14159. The following BASIC program will make this calculation:

```
10 LET C=4&3.14159
20 PRINT C
30 END
```

Type RUN and press ENTER

The program will print:

```
12.5664
```

PROGRAM 1-2

You can also instruct the computer to read data and make computations before the results are printed. Here is a program that will calculate a 15 percent commission C, on sales, S:

```
10 READ S
20 LET C=.15*S
30 PRINT C
40 DATA 400
50 END
```

Type RUN and press ENTER

The program will print:

```
60
```

This program reads the sales amount 400 from the DATA statement, calculates the commission in line 20, and prints the commission in line 30.

PROGRAM 1-3

How could you modify the above program to calculate the commission for each sale during the month? Assume you make the following sales in dollars: 400,100,2,000,500, 1,062.47 and 342.61. Of course, you could write the above program six times to calculate the commission on the six sales, but there is a much easier way. The only change is a GOTO 10 statement is added as line 35 that instructs the computer to read the next sales value from the DATA statement, after which the program continues as usual.

```
10 READ S
20 LET C=.15*S
30 PRINT C
35 GOTO 10
40 DATA 400,100,2000,500,10
62.47,342.61
50 END
```

The program will print:

```
60
15
300
75
159.371
51.3915
DATA ERROR IN 10
```

The GOTO statement in line 35 creates a loop that cycles once for each value in the DATA statement. If we had 100 sales amounts in several DATA statements,this program would loop 100 times ,calculating and printing the commission for each sale. After all the data is read and the resuls printed, there will be an 'out of data' error message. You will see how to avoid this condition later on.

PROGRAM 1-4

Assume that the sales manager decided to offer a $100 dollar bonus above the normal 15 percent commission for any sale that is $1000 or more. This new bonus offer can be incorporated into the above program as shown in the following program. All we have done is add two new lines to get PROGRAM 1-4. Here is how the program works. The first sales value to be processed is 400. This value is read in line 10 and the commission is calculated in line 20 as usual. Since 400 is less than 1,000, line 24 directs the computer to go directly to line 30. The commission is printed, and then line 35 sends us back to line 10 for the second loop, which is processed the same as the first loop. The third loop, where S is set to equal 2,000 in line 10,is different. When we get to line 24, since 2,000 is not less than 1,000, the computer drops down to line 26 and adds 100 to the commission. Thus, whenever S is 1,000 or greater, 100 is added to C.

```
10 READ S
20 LET C=.15*S
24 IF S<1000 THEN 30
26 LET C=C+100
30 PRINT C
35 GOTO 10
40 DATA 400,100,2000,500,10
62.47,342.61
50 END
```

The program will print:

```
60
15
400
75
259.371
51.3915
DATA ERROR IN 10
```

Learning BASIC is like learning a foreign language except it is infinitely easier to learn. The average pocket dictionary contains about 50,000 words but there are fewer than 50 commands in BASIC. As with any language, knowing only the grammar of the language is not enough. You must also know how to construct the commands into a functional program. The challange can be fun but also frustrating. The key to success is to learn from your mistakes and don't give up.

Until next time,

HAPPY COMPUTING,Ron Prewitt

TIPS & MANNERS MINUTES FEBRUARY 12, 1987 AT FAIRFAX HS...D.L.SHIE

Frank Jordan opened the meeting with our plans for future meetings: March: Karen blood on using the computer for home business. April: volunteer demonstrations by ourselves of our FAVORITE Manners library programs ... homework assignment: bring them in in March and April! We may make a special disk of favorite Basic programs and lists of others...a lot of us have all or almost all our library disks, but who has even LOOKED at all the programs...I haven't...and it takes even more time to get past preliminaries and enjoy some of them...and to fix bugs or make improvements.

Short announcements: Larry Hughes passed out his Quality 99 brochures in person. Ed Hall is trying to put together a portable battery powered TI99 system ... anyone have or know of an RS232 add on that just needs a 12V input, or has anyone else succeeded in developing such power supplies that run our whole system off 12 volt sources? Chris Bobbit introduced Tom Wieble, a member of our group, who has written "High Gravity", a physics/orbit principles game maybe riveling the old lunar lander to which I have devoted many hours, and another Asgard Software Game to be sold in the Tenex catalog: it is written in C and with the latest C compiler update runs even faster. One member tried to gather 10 people in need of DSDD disk drives to pool for a group purchase of Toshiba drives for around $65 each. HELP ... WHERE can one purchase grom port connector for $4.95??? Jim Horn reported the availabity of the ORPHAN SURVIVAL HANDBOOK and the existence of a new TI99/4A materials stocking store: the Central Newstand between 14th and 15th on L Street in downtown DC; open 9 to 6 M thru F! The newest Triton catalog which many of us won't get since we never ordered anything, introduces a TRITON XT Machine, which uses the TI99/4A as a keyboard ... anyway, member Ken Hubbard ordered one right away and hopefully will demonstrate it at one of our meetings.

Librarian Rob Goff announced availability of 2 new D-series disks: D78 with banner freeware, new version of a track copier, and a weather forcaster; and D79 with Mass Transfer 4.1 revision. He also warned he would probably miss the March meeting and to call him to pick up disks before the April meeting.

Alan Minton of the Montgomery County Group presented the program for the evening: a super demonstration of the TI99/4A controlling a Radio Shack 215 Plotter ... a one pen plotter that was introduced at $1000 and closed out at $200 when the multi-pen plotters replaced it ... many such deals are available on similar plotters through various liquidators. Since the printer must rest level horizontally while operating for gravity aid, Alan had a video camera positioned above the plotter and its view displayed on the High School's large TV set for wide angle viewing from all close seats ... and alternated hooking the TI99 to the TV so we could see how the plotting programs were run as well as the results.

This plotter has its own processor (so is "smart") and takes codes sent it by the TI99 over the RS232 port. It has a resolution of 0.1 mm on its large paper, 10 times as great in each direction we get with the cheapest plotters. Alan's purpose was to explore the artistic potentials of these machines. He demonstrated his string art program. It is mostly time bound with floating point real number calculations so it plots almost as fast with easier to write XBASIC as with Forth or C99 programming. He showed live plotting of some nice geometrical designs calculated by the TI99 from a few inputed parameters. To Alan his system is an enjoyable toy, but he admitted graphics can also be serious business!

TIPS & MANNERS MINUTES MARCH 12, 1987 AT FAIRFAX HS, BY D.L.SHIE

We met in one of the conference rooms. We had two new visitors. Librarian Rob Goff was out of town. Frank announced the board had planned meetings for at least the rest of this year. He polled the audience for those who had a phone and for those who had at least one good finger, then took such volunteers to call old members that have dropped membership ... by those with same zip codes, and membership chairman Bill Howard passed out zip-code order lists of expired members. So a phone survey and membership drive is on.

No members remembered to bring in favorite programs for the April 9 meeting demonstrations/discussions, so we have just April 9 to remember. For the May programs, Shie & Coffey plan to discuss and demonstrate some compatibilities and file transfers between TI99/4A and Atari 1040ST and other systems. June there will be no meeting (graduation ceremonies at Fairfax HS deny us a room), July we will have one summer meeting featuring uses of printers, August we will not meet (traditionally our poorest turnout month with vacations), September we will reconvene, and October we will hold our meeting on Saturday the 24th as a Swap meet/Fest. One member offered his 1978 vintage TI990 64K system with two 8" drives for $50 ... it sold immediately! Larry Hughes announced a 90 day extension on his Quality99 software super sale and a meeting special on Flight Simulator. Jerry Coffey gave up on the Mygen 1200 baud modem group buy for $70, switching to another 1200 baud modem now on liquidation sale for under $60 and took several more reservations. A Geneve was to be set up after the speaker tonight for a demonstration. A computer flea market/fair is at the Baltimore Fair Grounds March 28 & 29 at which the TIBUG group will have a table at which we can temporally store stuff we buy ... or we can WORK for TIBUG and get in two hours early! The New Jersey Fun Fest is the same weekend.

Ms. Karen Blood, the president and owner of Scorpion Systems Inc. of Frederick, MD was our guest speaker on How to Run a Business, and how to Start a Business using Personal Computers. If you decide to use your present personal/home computer, you may have to expand it, but then you can write some of that off your taxes. Your present boss may come to depend on your working at home with your computer; then its harder to fire you! Possible advantages of working at home are that you can be with your family and can get them involved with helping you and you may be more likely to get work DONE at home where you don't have to leave at a certain time to beat rush hour. What sort of software is most useful? Word Processing, Marketing (Membership/customer lists, advertising history), and Accounting (though a common mistake is to try to computerize it ALL at once).

If you decide to help a friend computerize, have them go SLOW! Work on the easiest first; too fast tends to produce nightmares! If you work for someone else, DOCUMENT what you do so you can leave in peace! But don't share your computer knowledge for free all the time, one can charge for helping set up new systems. That is worth $50 to 150 per hour commercially so you can easily charge $20 per hour as a bargin for both you and your beneficary.

How does one start a computer related business? You need to find a niche. One of our members started his tax template business this way. A few people make money on game writing; some on evaluating hard/software like Jerry Pournelle. And some can write -- for local papers, newspapers, and organization newsletters -- reviewing computer stuff or movies or anything of possible interest. One can write software from scratch or lately it has been more fun and productive to develop TEMPLATES that others can use --

especially Lotus 123 templates: many users still expect to just press a button and have the computer do it all under someoneelse's program. Once good software or templates are written, it is nice to port to other uses or machines with little changes. Computers help non-profit endevors too: e.g. for gymnastics meets scoring, Karen used dBase on a TRS-80-III to reduce the time from 3 hours to a half hour to finish the scoring and it prints the numbers for the contestants. Karen's mother does Data Entry at home and gets paid when she turns it in. If you have a non-compatible system at home, one can make and ASCII file and upload it by modem ... there are programs that add the " " around items so the files may then be loaded into even spreadsheet programs. Many small businesses keep mailing lists and run labels on demand.

How does one reach ones first customers? Computer Stores, especially the one you hear charges too much ... it is in their best interest to have help available and some allow SMALL signs to be posted on bulletin boards in their store listing 2 or 3 things you want to do. The local Chamber of Commerce: volunteer to keep lists for them, then YOU have access to the lists. Introduce yourself to members and they might then remember and refer to you people they meet who need help. Bulletin boards where you work. Take out classified ads (stay out of User Group newsletters, local papers best). Talk to people!

FROM 31

Manners Membership Listing

Date: 10/07/87

Page: 5

<----------Name---------->	<--------- Address--------->	<-----City----->	State:	Zip:	Phone:	Date:	GP Classes:
BENEDIK 8801 THOMAS	351 HENDERSON COURT	MARCO ISLAND	FL	33937	813 394-7399	JAN 88	N
KIEL 8707 JAMES E	3200 WOODFORD WAY	BIRMINGHAM	AL	35243	205 991-8495	JUL 87	R
BEREZOV 8801 GEORGE	123 HICKS ROAD	NASHVILLE	TN	37221	615 646-3553	JAN 88	R
PETERSON ---- JIM	156 COLLINGWOOD AVENUE	COLUMBUS	OH	43213	614 235-3545	COMP	R
BOWE 8801 JAMES J	334 EASTBURY NE	NORTH CANTON	OH	44720	xxx 494-4333	JAN 88	R
99'ERS ---- BUCKEYE	2424 MANSFIELD-LUCAS	MANSFIELD	OH	44903		COMP	
POST 8707 WILLIAM R	11995 MARWOOD LANE	CINCINNATI	OH	45246	513 671-8128	JUL 87	R
JAMISON 8801 KEITH R	709 SOUTH 4TH STREET	KNOXVILLE	IA	50138	515 842-4645	JAN 88	N
STOTT 8801 WYNTON A	2621 CERRITAS VIA	HARVEY	LA	70058	504 367-3180	JAN 88	R
SUTHERLAND 8801 G	121 IROQUOIS DRIVE	CHEROKEE VILLAGE	AR	72525		JAN 88	R
MORRISON 8805 THOMAS J	919 KIRKLAND AVENUE	VALLEJO	CA	94592	717 557-3585	MAY 88	N
SHARP 8707 JACK A	HHC, EUSA OFFICE OF SPECIAL ADVISOR	APO SANFRANCISCO	CA	96301		JUL 87	R

Record Count: 224

Name	Address	City	State:	Zip:	Phone:	Date:	GP Classes:
BRIGGS 8808 THEODORE	199 WINTER STREET	E BRIDGEWATER	MA	02333		AUG 88	N
VEPRAUSKAS 8707 MICHAEL	TEMPLE RD RD #1 BOX 556	NEW IPSWICH	NH	03071	603 878-3764	JUL 87	R
NAZARIAN 880 KAHNEY R	RFD 1 BOX 305						
	JOHNSON BARN ROAD	LACONIA	NH	03246	603 524-7148	JAN 88	R
MANUS 8807 CDL ROBERT G	OFFICE OF DEFENSE COOPERATIN						
	AMERICAN EMBASSY	APO NEW YORK	NY	09159		JUL 88	R
JOHNSON 8707 LTC WAYNE R	HHB, 32D AADCOM	APO NEW YORK	NY	09175		JUL 87	R
GOLDBERG 880: BERNARD	39-31 FRANCIS LEWIS BLVD	BAYSIDE	NY	1361	718 631-4175	JAN 88	N
VELLELLA JR 8707 FRANK P	225 SALT SPRING STREET	FAYETTEVILLE	NY	13066	315 637-3744	JUL 87	R
SASS 8707 ROSE J	RD 1 BOX 18	ROCK STREAM	NY	14878		JUL 87	WH
WOLCOTT 8808 RONALD C	P O BOX 655						
	221 IRVINEDALE ROAD	WARREN	PA	16365		AUG 88	R
REJICIAN 8801 JOHN	141 4th STREET	SLATINGTON	PA	18080	215 767-9679	JAN 88	N
PRIDE ---- PILGRIMS'	5 WILLIAMS LANE	HATBORO	PA	19040	215 441-4262	COM	
SAAVEDRA 8801 J A	49 D STREET SE	WASHINGTON	DC	20003	202 546-1162	JAN 88	R
WISE 8807 KENNETH	507 D STREET SE	WASHINGTON	DC	20003	202 543-3535	JUL 88	R
FRIEDMAN 8801 HERBERT J	3701 CONN AVE NW #241	WASHINGTON	DC	20008	202 362-8147	JAN 88	R
SVENCONIS 8707 DANIEL J	1956 BILTMORE STREET NW	WASHINGTON	DC	20009	202 162-1176	JUL 87	R
HUGHES 8801 LARRY D	1884 COLUMBIA ROAD NW #508	WASHINGTON	DC	20009	202 667-3574	JAN 88	R
FAINA 8707 SISTER MARIA	510 WEBSTER STREET NW	WASHINGTON	DC	20011	202 726-9212	JUL 87	R
YOUNG 8807 DR WILLIAM C	5937 16TH STREET NW	WASHINGTON	DC	20011	202 291-7395	JUL 88	R
HILL 8804 MELVIN J	1151 44TH PLACE SE	WASHINGTON	DC	20019		APR 88	N
NASH 8707 WARREN J	3818A W STREET SE	WASHINGTON	DC	20020	202 581-3352	JUL 87	R
GOTTUSO 8703 ISGT DON	5126A BONG COURT	ANDREWS AFB	MD	20335	301 899-1546	MAR 87	N
HALL 8807 MSGT EDWIN C	34948 SCOTT CIRCLE	BOLLING AFB	DC	20336-3664	202 574-0525	JUL 88	R
GEORGES 8807 CAPT MARK D	2057 BAINBRIDGE COURT	WALDORF	MD	20601	301 645-4177	JUL 88	R
DAVIS 8807 MICHAEL	328 THOMPSON LANE	WALDORF	MD	20601	301 843-9553	JUL 88	R
DILLMAN JR 8807 KERMIT	13 QUADE COURT	WALDORF	MD	20601	301 843-8642	JUL 88	R
HANES 8801 THOMAS G	34 MORAN DRIVE	WALDORF	MD	20601	301 843-6971	JAN 88	R
WARN 8705 JAMES D	P O BOX 64	LEONARDTOWN	MD	20650	301 475-5377	MAY 87	N
WRIGHT 8807 JOHN F	408 SAINT LO PLACE	LEXINGTON PARK	MD	20653	301 863-0441	JUL 88	R
ADAMS JR 8807 JESSE B	3758 EVANS TRAIL WAY	BELTSVILLE	MD	20705-3046	301 937-6817	JUL 88	R
NORRIS 8801 KARL	11204 MONTGOMERY ROAD	BELTSVILLE	MD	20705	301 937-7547	JAN 88	R
KOCH 8707 REV KEITH G	6402 MARTINS LANE	LANHAM	MD	20706	301 459-6826	JUL 87	R
SWINNEN 8707 MAURICE E T	9213 LANHAM SEVERN ROAD	LANHAM	MD	20706	301 427-5125	JUL 87	R
TAYLOR 8807 CARL L	5305 LANHAM STATION ROAD	LANHAM	MD	20706	301 459-5549	JUL 88	R
PEEPLES 8807 ROY A	335 VALE SUMMIT SOUTH	LAUREL	MD	20707	301 725-4208	JUL 88	R
STICKLE 8707 RICHARD W	13006 GOLDEN OAK DRIVE	LAUREL	MD	20708	301 725-6979	JUL 87	R
SMITH 8707 PAUL W	12348 SHADETREE LANE	LAUREL	MD	20708	301 776-3959	JUL 87	R
FINGERHUT 8801 SOL	12325 KEMBRIDGE DRIVE	BOWIE	MD	20715	301 262-0922	JAN 88	R
COLLIER 8801 SCOTT	13512 YOUNGWOOD TURN	BOWIE	MD	20715	301 262-9472	JAN 88	R
EYCLESHEIMER 8707 PETER H	13109 OVALSTONE LANE	BOWIE	MD	20715	301 262-1078	JUL 87	R
REHWINKEL JR 8707 JENNINGS	12304 TILBURY LANE	BOWIE	MD	20715	301 262-7893	JUL 87	R
STRACKA 8707 JOHN	3720 IDOLSTONE LANE	BOWIE	MD	20715	301 262-9107	JUL 87	R
WHITSON 8801 WILLIAM F	1313 PENNINGTON LANE	BOWIE	MD	20716	301 219-1869	JAN 88	R
MC KEE 8707 KEVIN	5405 56TH PLACE #202	RIVERDALE	MD	20737	301 699-3346	JUL 87	N
WORTHINGTON 8801 JOHN T	4600 DREXEL RD	COLLEGE PARK	MD	20740	301 927-5058	JAN 88	R
PEYTON 8807 KEV	6100 WESTCHESTER PK DR #605	COLLEGE PARK	MD	20740	301 474-9291	JUL 88	R
SIMMONS 8807 HAROLD E	9818 49TH AVENUE	COLLEGE PARK	MD	20740-1432	301 441-2786	JUL 88	R
GREENE 8707 MICHAEL L	13103 VENANGO ROAD	FT WASHINGTON	MD	20744	301 292-5035	JUL 87	R
KULP 8801 JAMES G	13418 QUEENS LANE	FORT WASHINGTON	MD	20744	301 292-1626	JAN 88	N
TUCKER 8801 B	1602 DAUTHIN DRIVE	FT WASHINGTON	MD	20744		JAN 88	R
WRAY 8801 ROBERT	13204 CHALFONT AVENUE	FT WASHINGTON	MD	20744	301 292-4067	JAN 88	R
WASHINGTON JR 8801 EDWIN B	5810 GALLOWAY DRIVE	OXON HILL	MD	20745	301 839-1624	JAN 88	R

Name	Address	City	State:	Zip:	Phone:	Date:	GP Class:
MINOR 8801 TWILA	4205 OXFORD DRIVE	SUITLAND	MD	20746	301 899-1486	JAN 88	R
PERRY 8801 DUDLEY	3514C TERRACE DRIVE	SUITLAND	MD	20746	301 423-2895	JAN 88	R
JORDAN 8807 BRET	4100 CANTERBURY WAY	TEMPLE HILLS	MD	20748	301 899-3707	JUL 88	R
JORDAN 8807 CDL FRANK	4100 CANTERBURY WAY	TEMPLE HILLS	MD	20748	301 899-3882	JUL 88	R
MEYERS 8807 HENRY B	5976 6th STREET	DEALE BEACH	MD	20751	301 261-5051	JUL 88	R
WORRELL 8801 J	3575 FERRY LANDING ROAD	DUNKIRK	MD	20754	301 257-3267	JAN 88	R
LYBARGER 8801 MICHAEL T	2692-F MAPES ROAD	FORT MEADE	MD	20755	301 621-9277	JAN 88	R
CHAVANNE 8807 BILL	4549 ENGLISH AVENUE	FT MEADE	MD	20755	301 672-1980	JUL 88	R
DOVE 8707 JUNE E	11990 BROADMOOR COURT	UPPER MARLBORO	MD	20772	301 868-4391	JUL 87	R
HANNA 8707 CHARLES C	11205 BENNINGTON DRIVE	UPPER MARLBORO	MD	20772	301 336-6280	JUL 87	R
LOWENTHAL 8807 LARRY R	6558 RIVER CLYDE DRIVE	HIGHLAND	MD	20777	301 531-3758	JUL 88	N
SIMERLY 8707 ROBERT	4000 CRITTENDEN STREET	HYATTSVILLE	MD	20781	301 927-7079	JUL 87	R
FERGUSON 8707 JOHN D	904 CHILLUM MANOR COURT	CHILLUM HEIGHTS	MD	20783	301 559-1740	JUL 87	R
ACKLIN 8801 PAUL L	4806 WOODLAWN DRIVE	LANDOVER HILLS	MD	20784	301 772-2226	JAN 88	R
MIDKIFF JR 8814 CHARLES R	7303 LONGBRANCH DRIVE	NEW CARROLLTON	MD	20784		APR 88	N
SCHOPPET 8801 CHARLES	7218 ANNAPOLIS ROAD	LANDOVER HILLS	MD	20784	301 459-4653	JAN 88	N
MINTON 8707 AILEN P	9205 BARRON ROAD	BETHESDA	MD	20814	301 493-4502	JUL 87	R
WOODALL 8805 LYNDON	4960 ALLAN ROAD	BETHESDA	MD	20816	301 229-5256	MAY 88	R
LINKER 8801 M E	8604 CARLYNN DRIVE	BETHESDA	MD	20817	301 229-0826	JAN 88	R
KREVER 8801 N L	4219 CHARLET FOREST STREET	OLNEY	MD	20832	301 774-7783	JAN 88	R
GIBSON 8801 JAMES L	17637 COLLIER CIRCLE	POOLESVILLE	MD	20837	301 972-8240	JAN 88	R
HORN 8801 JAMES	1841 CARNATION DRIVE	ROCKVILLE	MD	20850	301 340-9617	JAN 88	R
BAILES 8707 KEN	13107 ELSDALE COURT #204	ROCKVILLE	MD	20851	301 770-2631	JUL 87	R
CHALEF 8707 JEROME	11310 GAINSBOROUGH ROAD	POTOMAC	MD	20854	301 983-1081	JUL 87	R
SHARE 8801 STUART	8409 VICTORY LANE	POTOMAC	MD	20854	301 774-4670	JAN 88	R
TERLINSKY 8801 ALAN S	11345 BERGER TERRACE	POTOMAC	MD	20854	301 983-9233	JAN 88	R
COURAGE 8801 RAYMOND L	11623 GREENLANE DRIVE	POTOMAC	MD	20854	301 983-1082	JAN 88	N
EVERSTINE 8707 GORDON C	12020 GOLDEN TWIG COURT	GAITHERSBURG	MD	20878	301 977-0936	JUL 87	R
KRAWIEC 8801 EDWARD W	15709 WHITE ROCK ROAD	GAITHERSBURG	MD	20878	301 977-2135	JAN 88	R
RAMSEY 8807 DAVID L	18808 WALKERS CHOICE ROAD #2	GAITHERSBURG	MD	20879	301 977-8752	JUL 88	N
ROSE 8707 HOWARD J	3902 SPRUELL DRIVE	KENSINGTON	MD	20895	301 946-6483	JUL 87	R
WOLFF 8801 ED	1021 CRESTHAVEN DRIVE	SILVER SPRING	MD	20903		JAN 88	R
HUBBARD 8807 KENT L	10413 KINLOCH ROAD	SILVER SPRING	MD	20903	301 439-2323	JUL 88	R
MAC COLL 8801 ELIZABETH	212 PAULA LYNN DRIVE	SILVER SPRING	MD	20904		JAN 88	R
SHAPIRO 8807 GUSTAVE	3704 MUNSEY STREET	SILVER SPRING	MD	20906	301 933-3387	JUL 88	R
STANTON 8707 JOE	12436 LITTLETON STREET	WHEATON	MD	20906		JUL 87	N
GARVIN 8807 FRANK L	3710 RALPH ROAD	SILVER SPRING	MD	20906	301 949-5079	JUL 88	R
MC PHIE 8807 PETER	4405 MAHAN COURT	WHEATON	MD	20906	301 946-3968	JUL 88	R
DE MATTIA SR 8807 COL ANTHON	2801 VILLAGE LANE	SILVER SPRING	MD	20906-2336	301 871-8484	JUL 88	R
GELLER 8707 RONALD G	14109 BLAZER LANE	SILVER SPRING	MD	20906	301 871-7559	JUL 87	N
FAIGIN 8707 MARTIN A	1314 DALE DRIVE	SILVER SPRING	MD	20910		JUL 87	N
VANTA 8707 MICHAEL C	8312 GARLAND AVENUE	TAKOMA PARK	MD	20912	301 589-2344	JUL 87	N
KESSLER 8807 RICHARD E	132 LOUISE TERRACE	GLEN BURNIE	MD	21061	301 768-9515	JUL 88	R
BACHMAN 8807 CHARLES W	1514 FARLOW AVENUE	CROFTON	MD	21114-1516	301 858-1013	JUL 88	R
THORNTON 8801 FRANK J	17772 SANDY COURT	CROFTON	MD	21114	301 721-2310	JAN 88	R
KAEDING 8801 D A	1553 FARLOW AVENUE	CROFTON	MD	21114		JAN 88	R
GORRELL JR 8801 KENNETH A	14017 JARRETTSVILLE PIKE	PHOENIX	MD	21131		MAY 88	R
MACHONIS 8707 MICHAEL A	290 MARLINS PIKE DRIVE	SEVERNA PARK	MD	21146	301 544-2503	JUL 87	N
JOHNSON 8802 STEVEN E	1043 MADISON STREET	ANNAPOLIS	MD	21403		FEB 88	R
ROUZER 8707 R FRANKLIN	216 MANSE ROAD	HAGERSTOWN	MD	21740	301 733-2054	JUL 87	R
MASON 8901 JANET L	1391 JEFFERSON BLVD	HAGERSTOWN	MD	21740	301 739-5269	JAN 89	R
SHEW 8807 PHILIP W	321 DELLWYN DRIVE	HAGERSTOWN	MD	21740	301 739-7091	JUL 88	R
LAMBRIGHT 8801 H C	10016 OLD NATIONAL PIKE	IJAMSVILLE	MD	21754	301 865-5572	JUL 88	R
WEISS 8801 SANDY	10903 LOWELL COURT	IJAMSVILLE	MD	21754		JAN 88	R

(----------Name----------)	(---------Address---------)	(-----City-----)	State:	Zip:	Phone:	Date:	GP Classes:
OLPIN 8808 JAY L	2504 POFFENBERGER ROAD	MIDDLETOWN	MD	21769	301 473-4570	AUG 88	R
LYONS 8801 JOHN B	1498 LONG CORNER ROAD	MT AIRY	MD	21771	301 829-8327	JAN 88	R
KASNIA 8801 MICHAEL	7539 NORWOOD AVENUE	SYKESVILLE	MD	21784	301 261-2949	JAN 88	N
WILLIAMS 8801 SAMUEL	P O BOX 376	WILLIAMSPORT	MD	21795	301 223-8814	JAN 88	R
MC NEILL III 8804 JUSTIN	6986 NORTHFIELD DRIVE	ANNANDALE	VA	22003	703 750-0354	APR 88	R
VELLELLA 8807 FRANK P	3904 ARNHEIM STREET	ANNANDALE	VA	22003	703 354-5776	JUL 88	R
TINICK 8807 HAROLD	6721 TERRACE PLACE	ANNANDALE	VA	22003	703 256-2476	JUL 88	N
HALKYARD 8801 TERRY	3803 RIDGE ROAD	ANNANDALE	VA	22003	703 941-7565	JAN 88	R
WALTON 8801 THEODORE R	8919 MORELAND LANE	ANNANDALE	VA	22003	703 323-1941	JAN 88	R
SCOTT 8801 KEN	4914 WAKEFIELD CHAPEL ROAD	ANNANDALE	VA	22003	703 323-0327	JAN 88	R
LESTO 8801 CARL P	6211 CAPELLA AVENUE	BURKE	VA	22015	703 455-9764	JAN 88	R
RINNARD 8807 LLOYD	9106 VELILLA ROAD	BURKE	VA	22015	703 455-7358	JUL 88	R
DUFFIN 8801 LESTER	11913 CARTERS OAK WAY	BURKE	VA	22015	703 250-5851	JAN 88	R
GILLIS 8807 DONALD E	11708 SAINT GERMAIN DRIVE	CENTREVILLE	VA	22020	703 266-1548	JUL 88	R
HWARD 8801 WILLIAM H	15204 LOUIS MILL DRIVE	CHANTILLY	VA	22021	703 378-1090	JAN 88	R
WEED JR 8801 ALFRED	3401 COLONY ROAD	FAIRFAX	VA	22030	703 591-8479	JAN 88	R
WHITE 8707 WILLIAM F	4311 SAN JUAN DRIVE	FAIRFAX	VA	22030	703 352-8213	JUL 87	R
WHEELER 8801 ALAN A	4106 COLLIER ROAD	FAIRFAX	VA	22030	703 273-8619	JAN 88	R
MC WARE 8808	P.O. BOX 2784	FAIRFAX	VA	22031	703 323-1212	AUG 88	N
WHITE 8801 WELLS B	9101 SOUTHWICK STREET	FAIRFAX	VA	22031	703 280-1398	JAN 88	R
CHLE 8801 RICHARD M	5549 WINFORD COURT	FAIRFAX	VA	22032	703 978-6375	JAN 88	N
O'GRADY 8801 RUSSELL A	4152 LUXBERRY DRIVE	FAIRFAX	VA	22032	703 323-0351	JAN 88	R
O'RAN 8807 EDWARD J	4110 BIRCH POND LANE	FAIRFAX	VA	22033	703 378-5998	JUL 88	R
LAMBERT 8801 DENNIS C	1 845 CLARA WAY						
	P O BOX 72	FAIRFAX STATION	VA	22039	703 250-6386	JAN 88	R
GRUMMT 8807 OTTO C	11104 FLORA LEE DRIVE	FAIRFAX STATION	VA	22039	703 250-4413	JUL 88	R
ALBERS 8801 RALPH H	5597 SEMINARY ROAD #2013-S	FALLS CHURCH	VA	22041	703 379-8831	JAN 88	R
FIELD 8801 DONALD E	6224 EDGEWATER DRIVE	FALLS CHURCH	VA	22041	703 820-1781	JAN 88	R
KYLE 8807 ARTHUR J	7428 BRAD STREET	FALLS CHURCH	VA	22042	703 573-5739	JUL 88	R
STEVENS 8801 NORMA O	2835 ANNANDALE ROAD	FALLS CHURCH	VA	22042	703 241-8765	JAN 88	R
OLSEN 8807 JOYCE G	2633 CHERRY STREET	FALLS CHURCH	VA	22042	703 237-5928	JUL 88	R
DISENBURY 8707 DON	2003 MIRACLE LANE	FALLS CHURCH	VA	22043	703 821-0764	JUL 87	R
MC LAUGHLIN 8801 WILLIAM L	208 EAST JEFFERSON STREET	FALLS CHURCH	VA	22046	703 241-5817	JAN 88	R
RICK 8707 JOHN L	4:7-B ROSSELL LOOP	FORT BELVOIR	VA	22060	703 781-0380	JUL 87	R
ENDY 8808 WILLIAM B	8 BURKE CIRCLE	HAMILTON	VA	22068	703 338-4716	AUG 88	N
CHAPMAN 8801 J	2937 FOX MILL ROAD	HERNDON	VA	22071		JAN 88	R
ELLER 8801 JACK	13001 NEW ARDEN CT	HERNDON	VA	22071	703 471-6232	JAN 88	R
FLYNN 8801 CHRISTOPHER J	2401 CLAXTON DRIVE	HERNDON	VA	22071	703 860-3326	JAN 88	N
KELLER 8801 HAROLD	2712 FOX MILL ROAD	HERNDON	VA	22071	703 860-5310	JAN 88	N
SLOAN 8707 JOHN E	13013 NEW AUSTIN COURT	HERNDON	VA	22071	703 435-8192	JUL 87	N
WHITMORE ---- WILLIAM C	P O BOX 267	LEESBURG	VA	22075	703 777-2017	COMP	R
GUIDE 8804 JEFFREY	7455 OAKRIDGE WOODS CT #0-1	LORTON	VA	22079	703 339-7093	APR 88	N
DNDYE' 8801 D	1436 GREENMONT COURT	RESTON	VA	22091	703 437-5056	JAN 88	R
MORE 8708 HAL	2131 COLTS NECK ROAD #914	RESTON	VA	22091	703 476-9426	JUL 87	R
LINGWILL 8801 STANLEY M	11010 TROTTER LANE	RESTON	VA	22091	703 860-1200	JAN 88	R
YNNG 8707 KENNETH E	11624 IVYSTONE COURT	RESTON	VA	22091	703 620-3850	JUL 87	R
S PE JR 8807 HARRY C	6310 SHOOT DRIVE	MC LEAN	VA	22101	703 356-2385	JUL 88	R
GIFF 8801 ROBERT L	1449 ANDERSON ROAD #5	MCLEAN	VA	22102	703 821-2284	JAN 88	R
NUAL 8805 RICKY R	9302 ARLINGTON AVENUE	MANASSAS	VA	22110	703 335-1511	MAY 88	N
TRASHER 8707 JOEL J	8105 JACKSON AVENUE	MANASSAS	VA	22110	703 368-9556	JUL 87	R
V'AL 8801 ROBERT	7507 PR COLE COURT #9	MANASSAS	VA	22111	703 361-4660	JAN 88	R
MC CONVILLE 8707 PATRICK F	104 DENVER DRIVE	MANASSAS PARK	VA	22111	703 368-6573	JUL 87	R
SUIFFLETT 8707 DONALD G	109 MARTIN DRIVE	MANASSAS PARK	VA	22111	703 361-1213	JUL 87	R
HAMMONDS 8801 HARRY C	5013 MONTGOMERY STREET	SPRINGFIELD	VA	22151	703 941-8038	JAN 88	R

(----------Name----------)	(---------Address---------)	(-----City-----)	State:	Zip:	Phone:	Date:	GP Classes:
PRESSER 3707 SMSGT JOSEPH M	8103 GLOVER COURT	SPRINGFIELD	VA	22152	703 569-8451	JUL 87	R
MC CAUGHEY 8801 DR DENNIS G	9205 SHOTGUN COURT	SPRINGFIELD	VA	22153	703 644-0924	JAN 88	N
SCHOENECKER 8801 JOHN	7917 CLIFF ROCK COURT	SPRINGFIELD	VA	22153	703 455-9238	JAN 88	R
SMITH 8804 JAY C	626 WEST BEECH ROAD	STERLING	VA	22170	703 430-6429	APR 88	R
SCOTT 8805 MERVIN	113 ELM TREE LANE	STERLING	VA	22170	703 438-2675	MAY 88	R
SNIE 8801 DUANE L	1050-B BIXTON COURT	STERLING	VA	22170	703 430-9693	JAN 88	R
KELLY 8801 EDWARD	2315 RIVIERA DRIVE	VIENNA	VA	22180	703 938-3452	JAN 88	R
BALLINGER 8807 CRAIG A	314 AYITI ROAD	VIENNA	VA	22180	703 241-8869	JUL 88	R
HEAD 8807 HERBERT W	1635 MONTMORENCY DRIVE	VIENNA	VA	22180	703 281-5667	JUL 88	R
COFFEY 8807 JERRY	9119 TETTERTON AVENUE	VIENNA	VA	22180	703 938-1217	JUL 88	R
BOYD 8807 BRUCE L	8324 SYRACUSE CIRCLE	VIENNA	VA	22180	703 560-8409	JUL 88	R
STANIS 8707 TOM	326 SHERWOOD DRIVE NE	VIENNA	VA	22180	703 281-4951	JUL 87	N
MELGAARD 8807 EUGENE M	103 MASHIE DRIVE SE	VIENNA	VA	22180	703 938-8868	JUL 88	R
BRENTLINGER 8707 JOHN W	2335 CEDAR LANE	VIENNA	VA	22180	703 698-9518	JUL 87	R
EVANS 8811 CW2 GERALD A	52 HILLY LANE	WARRENTON	VA	22186	703 349-9064	JAN 88	R
ZAGROBELNY 8707 TED	1908 MARINER LANE	WOODBRIDGE	VA	22192	703 491-2724	JUL 87	R
LEWIS 8717 PHILIP A	3757 DEL MAR DRIVE	WOODBRIDGE	VA	22193	703 670-5459	JUL 87	N
PEDERSEN 8801 A C	4609 KERRYDALE PLACE	WOODBRIDGE	VA	22193	703 590-2552	JAN 88	R
KOCHERHANS 8807 CHRIS R	15227 CRESCENT STREET	WOODBRIDGE	VA	22193	703 670-4455	JUL 88	R
ROSEEN 8801 RICHARD	618 SOUTH 18TH STREET 13	ARLINGTON	VA	22202	703 979-2758	JAN 88	N
BUCKLEY 8801 JANET	1104 SOUTH 16TH STREET	ARLINGTON	VA	22202	703 979-6513	JAN 88	N
CUNNINGHAM 8801 JIM	5038 5TH STREET NORTH	ARLINGTON	VA	22203	703 524-4108	JAN 88	R
BYRD 8707 C ALAN	5625 SOUTH 8TH STREET	ARLINGTON	VA	22204	703 820-2973	JUL 87	N
JONES 8801 WILLIAM R	803 NORTH KENTUCKY STREET	ARLINGTON	VA	22205	703 527-7963	JAN 88	R
SPENCER 1707 E THOMAS	2716 S VITICH ST #2	ARLINGTON	VA	22206	703 920-1486	JUL 87	R
JONES 8717 JOHN G	10 WEST NELLEFONTE AVENUE	ALEXANDRIA	VA	22301	703 549-3708	JUL 87	R
HEINEMAN 8801 CARL R	5300 HOLIES RUN PKWY 8403	ALEXANDRIA	VA	22304	703 370-8977	JAN 88	R
OSZKO 8811 LANCE	6176 EDSALL ROAD 873	ALEXANDRIA	VA	22304	703 823-0514	JAN 88	R
HAGERTY 1707 MSGT ERIC J	3201 LANDOVER STREET 8403	ALEXANDRIA	VA	22305-1923	703 739-8165	JUL 87	R
NESTELL JR 8707 JAMES E	408 UNDERHILL PLACE	ALEXANDRIA	VA	22305	703 549-8711	JUL 87	R
SHEBETICH 8801 STEVEN J	7102 TOLLIVER STREET	ALEXANDRIA	VA	22306	703 379-9525	JAN 88	R
LEONARD 8801 GEORGE	6207 TALLY HO LANE	ALEXANDRIA	VA	22307	703 329-1833	JAN 88	N
GREEN 8717 GERALD E	1808 STIMP LANE	ALEXANDRIA	VA	22308	703 360-9392	JUL 87	R
MINUC 8807 MAJ GEORGE A	1117 CAMERON ROAD	ALEXANDRIA	VA	22308	703 765-1847	JUL 88	R
GULINO 8707 ANDREW	4316 ADRIANNE DRIVE	ALEXANDRIA	VA	22309	703 360-0542	JUL 87	N
CASE 8707 RICHARD	5929 WESTRIDGE COURT	ALEXANDRIA	VA	22310	703 971-6217	JUL 87	R
SMITH 8717 RAYMOND	4402 HADRIAN COURT	ALEXANDRIA	VA	22310	703 971-5734	JUL 87	R
HALKYARD 8801 THEODORE J	6919 E VICTORIA DRIVE	ALEXANDRIA	VA	22310	703 370-3638	JAN 88	R
MIRSKY 8707 RICHARD	5334 HARBOR COURT DRIVE	ALEXANDRIA	VA	22310	703 922-5768	JUL 87	R
QUINN 8717 JOHN J	6439 EDSALL ROAD APT#201	ALEXANDRIA	VA	22312	703 256-6467	JUL 87	R
HOEHN 8801 ANNA	940 NORTH ASHTON STREET	ALEXANDRIA	VA	22312	703 354-5965	JAN 88	R
ZAPPACOSTA 8801 FRANK M	4109 MESA WAY	ALEXANDRIA	VA	22312		JAN 88	R
ALEXANDER JR 8707 EDWARD E	27 ROSEWOOD STREET	FREDERICKSBURG	VA	22405	703 373-5087	JUL 87	R
ROMIG 8717 TOM	7805 LEYTE AVENUE	NORFOLK	VA	22511	804 423-8167	JUL 87	N
SIFERS 8707 GILMORE F	405 OAKRIDGE DRIVE	STAFFORD	VA	22554	703 659-1195	JUL 87	N
RAWLINGS 8703 TONI A	ROUTE 3 BOX 415-G	STAFFORD	VA	22554	703 659-3054	MAR 87	N
TERRY 8811 MICHAEL P	ROUTE 1 BOX 407	LINDEN	VA	22642	703 636-3003	JAN 88	N
KIMBRELL 8801 DONALD L	288 FREDERICKTOWN DRIVE	STEVENS CITY	VA	22655		JAN 88	R
WAYNER 8804 CARROLL	RT 1 BOX 335G	SOMERSET	VA	22972	703 672-5601	JUN 88	N
JORDAN 8801 MORRIS	6 WILDWOOD AVENUE	HONEA PATH	SC	29654	ixx 369-2355	JAN 88	R
HARPRING 8707 LARRY J	918 PLAZA PLACE	NORTH AUGUSTA	SC	29841		JUL 87	R
WILLIAMSON 8801 CHARLES E	1830 NW 46 STREET	GAINESVILLE	FL	32605	904 378-7923	JAN 88	N
SAFRO 8811 AL	8781 HOLLY COURT	TAMARAC	FL	33321	ixx 722-1234	JAN 88	N
MYERS 8811 STEPHEN A	106 RAVENWAY DRIVE	SEFFNER	FL	33584	813 685-2039	JAN 88	N

CONT Page 29

CHUGCON 87 CONFERENCE/BANQUET REGISTRATION FORM

(Please use 1 form per person attending)

NAME: _____ Amount Enclosed: _____

COMPANY: _____ Attending the Banquet? _____

ADDRESS: _____

CITY: _____ ST: ____ ZIP: _____

ALL PREREGISTERED ADMISSION TICKETS WILL BE HELD AT THE REGISTRATION DESK, LOCATED ON THE MAIN HOTEL LOBBY LEVEL.

FEES: Conference and Banquet $25.00. (Must be received by October 1, 1987)
Conference only $3.00 (Children 16 and under are admitted free)

Use this form to register by mail and receive a $1.00 discount.

Mail: the completed registration form to :

MAKE CHECKS PAYABLE TO: CHUGCON 87

KEN SCOTT
4914 Wakefield Ch Rd
Annandale, Va 22003

TI

CAPITAL HEATH/ZENITH USER'S GROUP

AND THE WASHINGTON AREA TI99/4A USERS GROUP

PRESENTS

CHUGCON 87

OCTOBER 24 & 25, 1987

SHERATON TYSONS CORNER HOTEL, TYSONS CORNER, VA

- HEATH/ZENITH COMPUTERS
- NEWEST SOFTWARE
- TI99 COMPUTERS AND COMPATIBLES
- LATEST IN TECHNOLOGY
- WIDE VARIETY OF VENDORS
- TUTORIALS

Conference Schedule: Saturday 9 am - 5 pm Sunday 9 am - 3 pm

Time Sensitive Material

TI News Box 267 Leesburg VA 22075

DALLAS TI HOME COMPUTER GROUP
P O BOX 29863
DALLAS
TX 75229

BULK RATE
U. S. POSTAGE
PAID
LEESBURG, VA
Permit No. 68