Radio Shack

# TRS-80 Microcomputer NEWS

September, 1981

P.O. Box 2910, Fort Worth, Texas 76101

THE MICROCOMPUTER NEWSLETTER PUBLISHED FOR TRS-80 OWNERS

Volume 3, Issue 9

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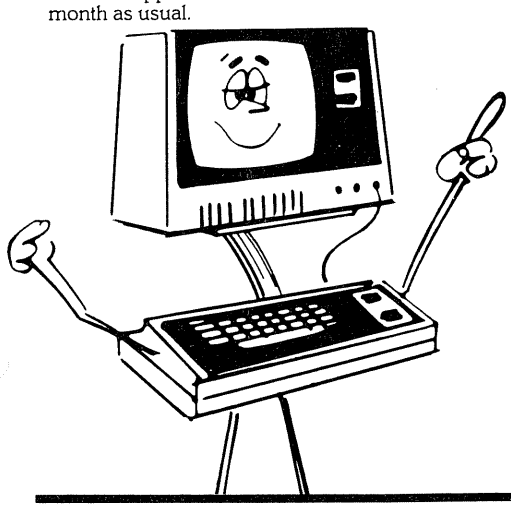
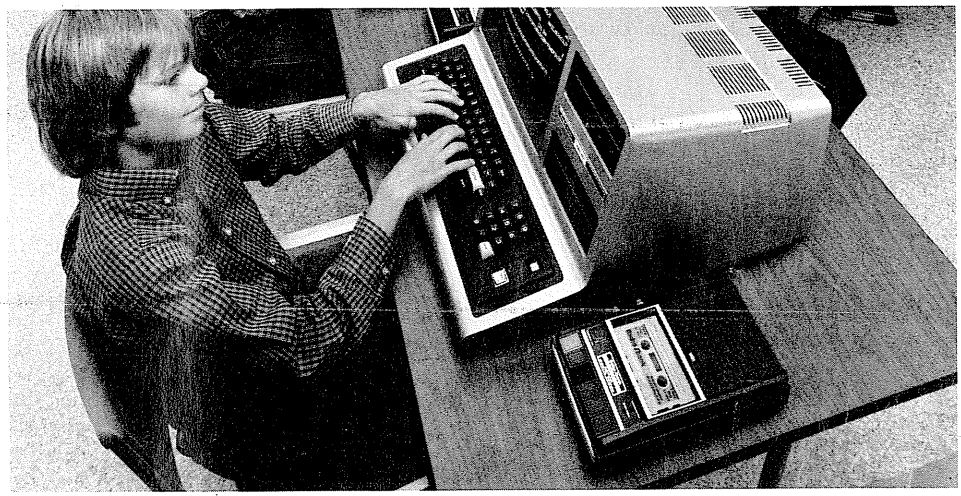
*Does not appear this month. Will return next month as usual.





**Tests prove Radio Shack's K-8 Math Program helps kids score better.**

Radio Shack, a division of Tandy Corporation, now knows from field test results that students who learn math with the assistance of the company's **K-8 Math Program** and TRS-80™ computer score better on proficiency exams than those who don't.

This conclusion is the result of a study conducted by the Asherton Independent School District [P.O. Box 398, Asherton, TX 78827, (512) 468-3323], according to Asherton School Superintendent Dr. A. K. Jaini, Assistant Superintendent Y. J. Jaini and Radio Shack Education Director William Gattis.

Before the introduction of this computer-assisted instruction, Asherton students were averaging below 50% mastery scores on a state test of basic math skills. But that was before students began spending twenty minutes a day on the TRS-80 computers in intense instruction, drill and testing administered by the Radio Shack K-8 Math Program.

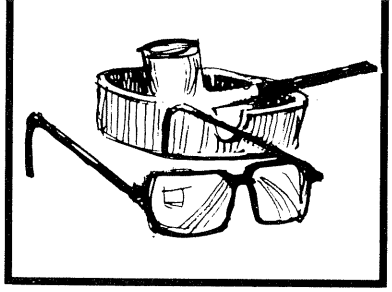
"In the fifth grade," reports Assistant Superintendent Jaini, "after less than a month of daily computer work, we scored as high as 97% mastery in addition, as measured by state-mandated criterion-referenced tests. For comparison, the state-wide average on the same tests was 86% mastery in addition. We scored 87% mastery in subtraction versus 76% statewide, and 85% mastery in multiplication versus 71% statewide.

"These results are significantly higher than we expected, and I attribute this to the Radio Shack K-8 Math Program. I also think the computer helped tremendously in the time-related aspect of testing and scoring, which increased our actual teaching time."

"What Dr. and Mrs. Jaini have accomplished is really remarkable," said Gattis, "especially in light of the hard work they had to put in to secure the outside funding they needed. This small district only has an enrollment of between 200 and 250 students, and there's no way they could afford to buy computers themselves with their limited budget. But they were eventually able to get the money they needed through grants, and in February of 1980, they put twenty of our TRS-80 microcomputers to work in their math program. These results of their work since, of course, is something we find very gratifying."

Dr. Jaini was slightly surprised to find that the teachers responded "very positively" to the idea of having computers in their schools. "Traditionally, teachers feel threatened by computers. But our teachers didn't — they all wanted to be trained and were disappointed that we limited access to the math resource labs."

The K-8 Math Program used by the Asherton students features interactive skill-building exercises in numeration and arithmetic operations, a testing mode, highly motivating reinforcement messages keyed to answers and a thorough progress report. It is just one of a growing library of courseware from Radio Shack designed for the continuing support of the use of TRS-80 computers in education.



# View From the 7th Floor

by Jon Shirley, Vice President Computer Merchandising

It's September, and that means it's new computer catalog month. Our all new 48 page RSC-6 catalog is now available at your local Radio Shack, Computer Center or dealer. It's full of new goodies like the Color Computer disk system, the Model II hard disk, the $799 Line Printer VIII, our 6 color plotter, and a digitizer. There is also a lot of new software for all our computers. Stop by and get yours soon!

As I write this in July, we are now up to 161 Computer Centers, and as you read this we will be around 180. The Centers will be offering some new instruction courses soon so if you want to expand your knowledge, check at the one nearest you.

CAVEAT EMPTOR. In case you did not take Latin this means "buyer beware." In a recent ad in 80 MICROCOMPUTING the publisher claimed that he could save you $986 on the purchase of a Model III disk system with a printer. The basis for this price, as best as I can tell, consists of buying a 16K Model III then buying, by mail order, a brand X build-in disk drive kit and memory. Sounds really neat but who installs that drive kit? You do. And what do you end up with? Well, first of all, a non-U.L. listed Model III that also is no longer FCC certified. And who fixes that Model III? Not us. To repeat from a past column — Radio Shack will not even attempt repair of Model III's with non-Radio Shack disk drive kits installed. Why? The Model III disk drive kit includes a power supply, disk controller, shielding, plastic support structure and disk drives. Any or all of these can cause a Model III to malfunction and needless to say, we do not have repair information or parts to fix these brand X devices. Not only that but we have found that field installation of our kits is no simple matter; it requires trained techs, special test software and an under-test burn-in. Do you really feel up to that?

Let's face it, mail order houses do not have local service if they have any at all. They offer a warranty, but to take advantage of it you must ship what you bought back to them. With a Model III disk drive kit what do you send, the kits you just installed or the entire Model III? It's this lack of convenient service and retail store space that gives them the low overhead and low prices. Or in other words, you get about what you paid for. So caveat emptor.

The Newsletter staff has been after me for some time to increase their budget and the size of the Newsletter. So I did a little begging and over the next few months you can expect to see the Newsletter grow in pages and features. I won't steal their headlines, so watch for developments which I think will make you agree that the Newsletter is a great deal at only $1 an issue.

After my March column on our Model II TRSDOS problems I got a few letters and Customer Services got a lot of calls about Model II CP/M users getting BDOS errors. Some letters even asked why we did not inform the users of CP/M on the Model II about the disk controller code. The answer to that is obvious. We have no idea which owners are running CP/M. I asked our Tech Support people to do a survey of their known Model II owners who had major problems and were using CP/M and it was obvious that they were having a lot of problems although TRSDOS only exhibited its problem on one applications software package.

Since we were convinced that the CP/M BDOS error was the same problem we had encountered, and that a patch to CP/M would fix the problem, we tried to solve the problem from this end. First we called Digital Research who wrote CP/M but their response was no interest. They said they do not write the code that ties CP/M into any given computer, their dealers do. They did provide a list of the 4 major USA dealers. We then called each dealer and gave them detailed technical instructions on exactly what to do. I might add that the disk controller chip that was the cause of the problem is used in other systems and most of them use CP/M so I still wonder why it was up to us to decode and solve this problem. Anyway, all the dealers were receptive and promised new releases, and I personally know that the two largest did re-issue their CP/M for the Model II around May. If you are a Model II owner and you are using CP/M and have not gotten a new release GET ONE NOW. My point to this tale is that we will go all out to support our hardware even if it means helping our "competitors." Actually I do not view them as competition, but as additional sources of software for our products, and it's not an accident that the Model II was configured so that CP/M would run without any hardware modification.

By the way, I write this column on a Model II with Scripsit and we now write all our manuals and all our advertising copy on Scripsit. Our documentation staff even has an RS-232C link directly to a typesetter which saves us a lot of time and money. And we are not alone in doing this, as I recently received a letter from a New York company that sells a Model III with special software that interfaces the system to a major electronic typesetter. Not only that but it can interface by phone for the small user of typesetting. If you are interested in contacting this company for an application of yours, drop me a line and I will furnish the company name and address. Until next month.

**Note:** The Model II Product Line Manager's Page does not appear this month due to vacation schedules.

## More Computer Clubs


Jackson Amateur Computer Society
C.B.C.C. Inc.
2355 Camp Baker Rd.
Medford, Oregon 97501

Alpha A Mint, Inc.
P.O. Box 15361
Asheville, North Carolina 28813
704-252-0388

North Country TRS-80 Model II Users Club
24 Woodland Terrace
Lake Placid, New York 12946
518-523-2320

Kings Byte
The Kings County TRS-80 Users Group
c/o Morty Libowitz
1063 East 84 Street
Brooklyn, New York 11236
217-763-4233

Micro-Calc Business Users Group
P.O. Box 12039
Salem, Oregon 97309
CIS 70655,124
503-581-2687

# Customer Service

## Computer Hints, Help and Tips

This month we will discuss single disk General Ledger 26-4501 for Model II (Note: the latest version of this program is version 1.2). I will illustrate the setup cycle and outline the normal monthly working cycle of GL.

Before you start using GL, the manual for the General Ledger program is required reading. You should also make plans to have a supply of blank diskettes on hand so that you can make a proper set of BACKUPs as you work with your data. You will also need to make some decisions, before you start operating with the GL program, about your categories and your account numbers. This information would be found on the BALANCE SHEET and Chart of Accounts currently used by your company.

You are allowed 4 digits for each account number, there may be up to 504 different accounts, and 7 expense categories. You can have up to 3072 documents each month with up to 50 entries per document (you are limited to a maximum of 11,420 entries in a single month).

General Ledger produces several reports and financial statements:

Chart of Accounts
Trial Balance
Document List
Posting Summaries
Ledger Detail Report
Income Statement
Balance Sheet

The program uses a double entry accounting system (debit & credit) and automatic document balancing is available. The General Ledger program may be updated once a month from the Accounts Receivable (26-4504), Payroll (26-4503), and Accounts Payable (26-4505) programs.

The manual has a suggested account structure guideline showing the account range for different types of accounts (or you can use your own structure). Under the suggested structure, accounts would be set up as follows:

| Account Numbers | Account Type |
|---|---|
| 1000-1499 | Current Assets |
| 1500-1999 | Fixed Assets |
| 2000-2499 | Current Liabilities |
| 2500-2999 | Long-term Liabilities |
| 3000-3997 | Capital Accounts |
| 3998 | Year-To-Date Profit & Loss |
| 3999 | Retained Earnings |
| 4000-4499 | Sales and Sources of Income |
| 4500-4999 | Sales Returns & Allowances |
| 5000-5999 | Cost of Sales |
| 6000-9999 | Expenses |

We expect Year-To-Date Profit & Loss to be account number 3998 and Retained Earnings to be account number 3999. If you do not use 3998 and 3999 as suggested, you must specifically inform the computer during your system setup of your choice of account numbers for these required accounts.

### General Ledger Setup

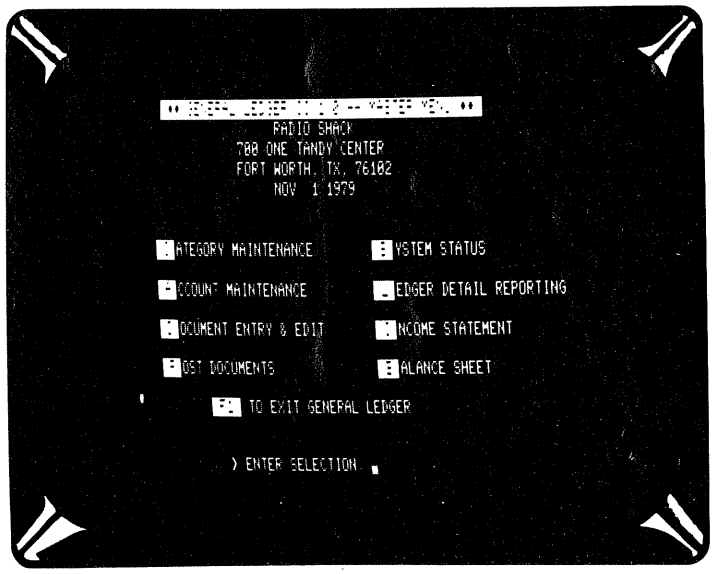
Turn on the video unit of your Model II then your expansion bay and your printer (Please note that the GL program will assume that a printer is in the system, and ready for use. For this reason, it is necessary that the printer be turned on as part of the "power-up" sequence.). If you do not have an expansion bay be sure to have the terminator plug in place.

Begin your practice session by making a BACKUP of the General Ledger program diskette. Appendix 2 of the GL manual explains how to create a BACKUP.

At TRSDOS ready type in GLSETUP (ENTER). This program will ask you for system setup information. You use GLSETUP ONLY ONCE. Once your system is set up you begin the program by typing in GL (ENTER) to begin the program. The explanation for the questions asked during system setup are:

| | |
|---|---|
| COMPANY NAME ..... | Enter your Company's name |
| ADDRESS ..... | and address |
| CITY/STATE/ZIP ..... | |
| YEAR START DATE (MM/DD/YY) | Enter the start date of the beginning of your fiscal year |
| YEAR-TO-DATE P & L ACCT. # | Enter your P & L and |
| RETAINED EARNINGS ACCT. # | Retained Earnings account numbers |
| DEBIT/CREDIT AMOUNTS (Y/N) | Y if you want to use DB/CR |
| | N if you want to use + / − by the numbers on your Balance Sheet. |

After you have made any needed corrections, the setup procedure will take you to the Master Menu of the GL program. This is the point where you will normally enter GL on a day-to-day basis.




The next setup step is to assign your income and expense categories through Category Maintenance. The General Ledger program allows only one profit center although you may have many different ledger codes for various sources of income. The equation used to calculate Gross Profit and Net Sales for the Income Statement requires you to follow our guidelines for the assignment of your categories as follows:

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category 0 is for your sources of income

category 1 is for returns & allowances

category 2 is for the cost of goods sold

categories 3-9 allow you to group your expenses (selling, payroll, research, overhead, misc., etc.) as you wish.

After you have set up your account categories, use Account Maintenance to add your individual general ledger account numbers. You will need to:

Assign a four digit number following the guidelines of your account structure

Add the name of the account

Add the type of an account (current asset — CA, sales & income — I, etc.)

Assign a category (note: categories are assigned only for income and expense accounts as you defined them in category maintenance.

Enter the previous month's balances for the preceding month's activities.

Enter any Year-To-Date balances for the current fiscal year.

Notes:

1. Current transactions are entered using document entry under the Document Entry & Edit selection at the Master Menu.
2. When you are finished adding your accounts you should produce a trial balance to check yourself. If you improperly added a dollar value or you generate your trail balance and it is out of balance you will have to use the Document Entry & Edit feature at the Master Menu to delete the accounts which contain numerical errors. You can then reenter the accounts with correct amounts using the Account Maintenance function.
3. If you have finished GL set-up, and have begun making document entries before you discover an error in setting up an account, you may not delete the account while the month is in progress. You will have to close the month and make deletions before any transaction has been entered for the new period.

You may choose to enter your previous balances during Account Maintenance or you may choose to enter the accounts with zero balances and add the balance amounts with Document Entry & Edit. You may prefer the second choice since it will show how to develop your audit trail. Start with the first fiscal period and add a couple of dummy documents which contain the accumulated activity for that period. Completing a full month will demonstrate how the program functions and you can compare these results with the data generated by your current system.

After you have entered all of the accounts, and made all of the balances current for the end of the previous period, your set-up of GL is complete.

Here is an outline of the setup cycle and the normal monthly cycle.

| Setup cycle | Monthly working cycle |
|---|---|
| 1. System setup | 1. Enter documents |
| 2. Category maintenance | 2. Print documents |
| 3. Account maintenance | 3. Post documents |
| 4. Make BACKUP | 4. Make BACKUP |
| | 5. Print Detail Reports |
| | 6. Income statement |
| | 7. Balance Sheet |

If you plan to use the same setup information for a second profit center, make an extra BACKUP after the setup cycle, and go to Category Maintenance in the Master Menu to change the company name or address as needed.

Make a BACKUP of GL anytime you have entered so much information that you don't want to repeat the process of entering it again. Your BACKUP method should include keeping a separate BACKUP diskette each week (made at the end of the week). These diskettes should not be used again until AFTER you have SUCCESSFULLY completed a month. By keeping these weekly diskettes, you are assured that if something goes wrong and you are unable to close the month successfully, as much of your detail information as possible will still be available. For more information on BACKUP procedures, see the July, 1981 issue of Microcomputer News, page 22.

Your TRSDOS date (the date you enter as you power-up the computer) should correspond with the date of the activity which you are entering into the program.

Document Entry & Edit allows you to enter your transactions. Each document may contain 50 entries, this could be one debit and one credit or forty nine debits and one credit or any combination between these ranges. When you add a document the program automatically assigns a session number and a document number. You may have several documents in one session. For each document you will need the following information:

Document Name — usually a description of what this document contains (Sporting goods cash sales 01/12/81, checks for utilities, adjustments to inventory for damages).

Issue Date (MM/DD/YY) — This is used mainly for checks, invoices and cash receipts. Press (ENTER) to use the current TRSDOS date.

Check Number — Enter the number, or just press enter for a blank if no check was involved.

Entries Used: n of 50 — On the right hand side of the display. This tells you how many entries you have used for the current document. Under this entry are the dollar value of the debits and credits you have entered for this document. These two figures must be equal to exit from this function.

Origin — The origin tells us the source of this document, whether created by the general ledger program itself or transferred to the general ledger from accounts receivable, payroll or accounts payable.

Detail Lines — The manual reminds you that when you add to Income or to Liabilities you MUST enter the amounts as NEGATIVE or CREDIT (CR) values. The detail line is numbered 1 to 50 as you add to your document. You enter the general ledger code and the computer displays the name of the account. Then you enter the dollar amount (Don't forget the minus sign or CR to indicate a credit to an account). If you press the (?) after the first detail line is complete and you have entered the balancing account number, the computer will calculate the value needed to balance the document.

When you have completed a document, press (F1) to exit. You will be asked if you want to post the document. You may want to enter all of your documents and make a BACKUP before you post any of the documents. This can save you time and work if you accidentally post one or more documents that you did not want posted.

Posting the document is the next required step. You are allowed to choose the range of documents to post. If you wish, you may print a Documents List before you post. You may find this report to be helpful first, in checking for document errors and correcting them before posting and second, in determining which documents you want to post at a given time. One of the features of this printout is the Batch Total which gives you a total of the Debits entered for the session. This total can be used as a check

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## Customer Service (From Page 4)

against a calculator generated total to verify the accuracy of the entries.

System status is a quick reference informing you of the number of accounts, documents and entries used and what is the next session, document and first unposted document.

Inquire and Edit allows you to make changes or void a document BEFORE POSTING. If you find an error after posting you can create a document to adjust the accounts to the correct dollar amount or you may reverse the document.

Reversing a document simply adds what was subtracted and subtracts what was added. Then you must then create a new document for the correct amount.

When you complete the end of the period processing by running Income Statement, all detail information is erased for the current period. You need some reports telling you and the IRS what occurred during the month. There are three reports which supply you with this information. Print documents (under Document Entry & Edit) gives you a printout of all the documents according to document number. Ledger Detail (from the Master Menu) gives you a printout of your transactions according to general ledger codes. The Trial Balance (under Account Maintenance) prints a report showing the balances of your accounts.

Make an extra BACKUP before producing an Income Statement if you want a diskette which contains the detail data for this period. When you answer the question End Of Month (Yes/No) with yes, all of your detail information for the current month is erased. The effects of the detail information will still be reflected in the totals of the appropriate accounts, just the actual detail information is removed. The Income statement produces a report which groups your income and expense accounts according to the categories which you defined during setup. The Income Statement shows the current month's dollar amount and the percentage of income or expense and the year-to-date dollar amount and percentages for each account. Each Income Statement item is expressed as a percent of net sales to help point out efficiencies and inefficiencies as a valuable management tool. The program calculates the net profit (or loss) for this period and adds to (or subtracts from) your P & L account (3998).

The Balance Sheet produces a report of your assets, liabilities and capital accounts. Your P & L account and your Retained Earnings account are part of your capital accounts. Your total assets should equal your combined total of liabilities and capital. After twelve months you should end your year when you produce the Income Statement. This erases the year-to-date totals but leaves the previous month's information in the previous month's column.

### Most asked questions and problems with General Ledger

Question 1. How to change my mailing address?

Answer—At the Category Maintenance option.

Question 2. How to keep the details from previous periods?

Answer — Make a backup before closing the month or copy the data files (Control/DAT, Glmaster/DAT, Detail/DAT), with an extension for the month involved (such as Control/JAN) to a storage diskette containing the operating system (TRSDOS).

Question 3. What is wrong if I get an I/O Error in line 20010 in LEDGER?

Answer—Check the write enable tab on the diskette. The diskette must have the tab, or an I/O error will occur.

Question 4. I accidentally hit the (BREAK) key instead of backspace. What do I do now?

Answer — Type in CONT (ENTER), this tells the computer to continue, that you really did not mean to break normal operation. Your video will look a little odd until you exit to a previous menu, but it will work.

Question 5. Why do I get an IE error on a line that tries to OPEN a data file?

Answer — Most likely the reset switch was hit while a file was left open. The computer did not have a chance to close it properly. Return to TRSDOS and LIST the data files e.g. LIST Control/DAT. You will probably get an Error 6, but try to LIST the file again, then RUN the program again. If the error still occurs, go to your most recent BACKUP data.

Question 6. I get an FC error in 4040 when producing an Income Statement?

Answer — Check the manual instructions for Category Maintenance. The most common reason for this error is failure to follow the proper procedures.

Question 7. How do I set up my accounts if my business is a Partnership or a Sole Proprietorship?

Answer — The Retained Earnings Account would serve as the Owner's or Partner's capital account. For a Partnership, you would have to keep separate records for the division of this capital account between the partners.

**COMPUTER CUSTOMER SERVICES ADDRESS AND PHONE NUMBERS**

8AM to 5PM Central Time

Computer Customer Services
400 Atrium, One Tandy Center
Fort Worth, Texas 76102

Model I/III Business Software
Outside Texas 1-800-433-5641 In Texas 1-800-772-5973

Model II Business Software
Outside Texas 1-800-433-5640 In Texas 1-800-772-5972

All Other Calls Regarding Computers
Outside Texas 1-800-433-1679 In Texas 1-800-772-5914

Switchboard— 1-817-390-3583

# Model II Bugs, Errors, and Fixes

### TRSDOS Version 1.2 and 2.0 Manual Errors

The technical information section of the Model II manual contains the SVC called Parser. The function code is shown to be 48, which is incorrect. The correct function code to use Parser is 46. This correction should be made on pages 4/69 and 4/70 in the earlier manuals, and pages 272 and 273 in the newer manuals.

# WESTLAW Interface (26-4560)

Effective September 7, 1981, the West Publishing Company made a change to the WESTLAW Data Base System. The change consists of the addition of a copyright notice to each screen of information, and requires a PATCH to all existing versions of the WESTLAW Interface Software. This is necessary to prevent a problem with the screen scrolling up one too many lines in some cases.

The PATCH is as follows:

PATCH WEST A=311D F=16ØØ3EØBCFC5 C=Ø6173EØ8CFC9

This PATCH does not affect operation with the WESTLAW data base, and should be applied immediately.

# CompuServe

## CompuServe Information Service

Editor's Note: The CompuServe Information Service is one of the largest information and entertainment services available to owners of personal computers and computer terminals. With each issue of TRS-80 Microcomputer News, various features of the CompuServe Information Service will be discussed.

### CompuServe CB Simulator: America On-Line

As the messages stream across your screen, the dialogues may remind you of a secret coded message. But the talk is sincere, and it's taking place over one of the most interesting communications media in the country. It's called the CompuServe CB Simulator.

The CB Simulator is patterned after the popular citizen band radio with its instantaneous, multi-channel communcations capability. It also makes use of characteristics which have been the subject of many a country song—handles.

CB users are identified by handles, much as truckers and persons with CBs in their cars are.

CompuServe CB enthusiasts usually choose handles which say something about themselves. Some of the better known handles include Tootsie Roll, Rubber Duck, Frog, Cookie Monster, Lady Frog, Robot, Beeper, $$Tax Man$$ and Captain Video.

Like the citizen band radio, CB offers 40 channels for communications and users of CB are automatically "logged on" channel 19 on first access.

Your terminal or personal computer keyboard becomes your microphone, and everything you type, when followed by a carriage return or "enter," is seen by other CBers on the same channel.

Many people across the country can use CB at the same time, so that you can talk to many people and follow the different conversations.

The CB phenomenon has grown into more than just a way to communicate. CompuServe customers who use CB have become part of one of the most unique clubs in the country and have developed a comradery that contributes to the fun of using CB.

Being a "CB regular" can introduce you to a lot of other personal computer enthusiasts in all parts of the country.

CB users find many commands helpful. For example, the /TUNE command changes the channel to which you are tuned. Your messages will appear on the channel you specified, and you will be able to read the messages being sent by others using that channel.

The /STATUS command will tell you the number of people using channels at the time you issue the command. You can monitor the heavy traffic areas using this command.

The /MONITOR command allows you to follow the conversations on one or more channels, and /ROLL allows you to play a game of chance with fellow CBers.

In case you wish a private conversation, you can issue a /SCRAMBLE command which will scramble your messages. A special code that you and the other person decide upon will unscramble the message. Other people on the channel will see the scrambled message, while you and the person with whom you are communicating will read the unscrambled message.

CompuServe Information Service customers will find the CB Simulator under main menu item 3, Entertainment.

Try CB, and let your personal computer become a good buddy.

### Special Interest Groups

CompuServe has set aside part of the information service for use by Special Interst Groups (SIGs).

A SIG is usually comprised of people who wish to communicate about a particular subject and form a type of electronic club, using the CompuServe Information Service as the communications medium.

The following SIGs are currently on the CompuServe Information Service:

**MNET80** is a TRS-80 Users Group that provides information and software for the TRS-80 line of microcomputers. Its membership includes software authors, many of whom have made their programs available to the membership at large.

**HUG** is the Heath Users Group, which is a group of owners of Heath microcomputers. Members trade software and tips on the use of their equipment.

**VTOS** is a group comprised of VTOS and ST80 users. The group has a wide range of software interests, particularly in the software for the TRS-80 microcomputers.

**MUSUS** focuses on the uses and applications of the PASCAL programming language.

The Microconnection Users, called **MCCONN**, are interested in the uses of connections and peripherals to microcomputers.

**LDOS**, comprised of LDOS users, have interests in the uses and applications of the advanced LDOS operating system for the TRS-80.

**HAMNET** is a group of Ham radio operators who discuss their interests in Ham radios using CompuServe.

**NETWITS** are a general interest group which deals the personal computing industry and focus on themes with each issue of their on-line newsletter.

**CP-MIG**, the CP/M™ users follow that particular operating system.

Many of the SIGs make use of bulletin boards within their SIG area. The bulletin boards allow them to leave messages for each other and to respond to messages.

The SIG area is structured much differently than the rest of the CompuServe Information Service. The information service is generally menu driven, comprised of screens of selections which you make to arrive at the information for which you are looking.

The SIG areas are, for the most part, not structured in menu format but make extensive use of the bulletin board program.

You can find the SIGs on the CompuServe Information Service by entering the Personal Computing section, main menu item 9, and typing R SIGS.

### The Tandy Newsletter

TRS-80 product availability, hints and tips on equipment use, product descriptions and more are available from the Tandy Newsletter offered on the CompuServe Information Service. The Tandy Newsletter is located under main menu item 6, Special Services.

A heavily-used part of the Tandy Newsletter on CompuServe is the feedback section where CompuServe customers can send questions or comments directly to Tandy headquartes and receive a reply.

In addition to the current issue of the newsletter, CompuServe also keeps back issues on-line for reference.

The Tandy Newsletter provides helpful, up-to-date information and is a must for information service customers who use TRS-80 equipment.

(Continued on Page 7)

# CompuServe (From Page 6)

## Information On 40,000 Securities Using the MicroQuote Database

For TRS-80 users who actively follow the stock market or who may still be learning the mystical world of high finance, CompuServe's MicroQuote securities database is for you.

Easy to use and updated each day, MicroQuote provides fast access to a variety of information on securities traded on exchanges and over-the-counter.

Historical information goes back to Dec. 31, 1973 on dividends, prices and volumes.

Information on bonds includes yields, maturity dates and Moody's ratings. Options information includes exercise prices, expiration dates and underlying stock prices.

MicroQuote allows a user to search for securities information by using CUSIP (Committee on Uniform Security Identification Procedures) numbers, "ticker" symbols or by issuer name.

Depending on the information you request from MicroQuote, a small charge above the $5 per hour CompuServe charge is issued.

If you are interested in becoming a subscriber to the CompuServe Information Service, visit your nearest Radio Shack Computer Center and see a live demonstration of the service. CompuServe is also sold in all Radio Shack Stores across the country.

CompuServe is available through a local telephone call in 260 U.S. cities. Non-prime time connect rates are $5 per hour, billed at the rate of about 8⅓ cents a minute. From Tymnet cities, the hourly rate is $7 per hour.

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List as of 07/16/1981 by State and city

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| ATLANTA | GA | 404 | 659-2910T |
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| SAVANNAH | GA | 912 | 352-7259T |
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| PRINCETON | NJ | 609 | 452-8970T |
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| LONG ISLAND | NY | 516 | 681-7240C |
| NEW YORK | NY | 212 | 532-0437T |
| NEW YORK | NY | 212 | 685-4414T |
| NEW YORK | NY | 212 | 344-3392T |
| NEW YORK | NY | 212 | 683-0131T |
| NEW YORK | NY | 212 | 354-1522C |
| NEW YORK | NY | 212 | 344-7445T |
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| AKRON | OH | 216 | 867-4063C |
| CANTON | OH | 216 | 452-6877C |
| CINCINNATI | OH | 513 | 891-7211T |
| CINCINNATI | OH | 513 | 579-0908C |
| CLEVELAND | OH | 216 | 566-0657C |
| CLEVELAND | OH | 216 | 781-7050T |
| COLUMBUS | OH | 614 | 457-2105C |
| COLUMBUS | OH | 614 | 421-7270T |
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| DAYTON | OH | 513 | 461-1064C |
| GRANVILLE | OH | 614 | 587-0932C |
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| TOLEDO | OH | 419 | 243-3144T |
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| PHILADELPHIA | PA | 215 | 563-0814C |
| PHILADELPHIA | PA | 215 | 561-6120T |
| PITTSBURGH | PA | 412 | 232-3480C |
| PITTSBURGH | PA | 412 | 765-1320T |
| VALLEYFORGE | PA | 215 | 666-9190T |
| PROVIDENCE | RI | 401 | 273-0200T |
| PROVIDENCE | RI | 401 | 521-6220C |
| COLUMBIA | SC | 803 | 252-0840T |
| GREENVILLE | SC | 803 | 271-2418T |
| CHATTANOOGA | TN | 615 | 756-5856T |
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| KNOXVILLE | TN | 615 | 637-2140C |
| MEMPHIS | TN | 901 | 529-0170T |
| MEMPHIS | TN | 901 | 454-7021C |
| NASHVILLE | TN | 615 | 367-9382T |
| AUSTIN | TX | 512 | 444-3280T |
| BAYTOWN | TX | 713 | 427-5856T |
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| CORPUS CHRISTI | TX | 512 | 882-3641T |
| DALLAS | TX | 214 | 638-8888T |
| DALLAS | TX | 214 | 761-9040C |
| EL PASO | TX | 915 | 544-9590T |
| FORT WORTH | TX | 817 | 870-2461C |
| FORT WORTH | TX | 214 | 263-4581T |
| HOUSTON | TX | 713 | 224-3835C |
| HOUSTON | TX | 713 | 785-4411T |
| HOUSTON | TX | 713 | 977-4080T |
| HOUSTON | TX | 713 | 780-7390T |
| LONGVIEW | TX | 214 | 758-1756T |
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| TACOMA | WA | 206 | 952-6800T |
| APPLETON | WI | 414 | 734-9940T |
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| WATS (OHIO) | WT | 800 | 282-8974W |
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# Menu Subroutine for Model II

**Ron Verni Westwood, Mass.**

This menu subroutine "makes for virtually goof-proof entry with a little visual magic to boot." It uses features which are unique to the Model II — PRINT@(X,Y), INPUT$(number), SPACE$(number). An arrow points in turn to each choice on the menu. Mr. Verni uses this subroutine extensively with his Model II programs and wanted to share it with other Model II users.

Instructions: Type 'Q' when the arrow appears beside the option number of your choice. Any other key will move the arrow.

```
1Ø CLS
     : X=4
     : Y=2Ø
2Ø PRINT@(X-1,Y),"DO YOU WISH TO:";
3Ø PRINT@(X,Y),"1. GO FISHING";
4Ø PRINT@(X+1,Y),"2. RIDE A BIKE";
5Ø PRINT@(X+2,Y),"3. EAT ICE CREAM";
6Ø PRINT@(X+3,Y),"4. MAKE MONEY";
7Ø PRINT@(X+4,Y),"5. GO HOME";
8Ø PRINT CHR$(Ø2)
9Ø F=1
     : X=4
     : Y=13
1ØØ FOR I=1 TO 5
11Ø PRINT@(X,Y),"---->";CHR$(26); I;CHR$(25);
     : F$=INPUT$(1)
12Ø PRINT@(X,Y),SPACE$(6); STR$(I) ". ";
13Ø IF F$= "Q" OR F$="q" THEN GOTO 19Ø
14Ø F=F+1
     : X=X+1
15Ø NEXT I
16Ø IF F$ >< "Q" OR F$ ><"q" THEN GOTO 9Ø
18Ø PRINT CHR$(Ø1)
19Ø ON F GOTO 21Ø, 22Ø, 23Ø, 24Ø, 25Ø
21Ø CLS
     : PRINT@(X,Y),"HOPE YOU CATCH SOME"
     : END
22Ø CLS
     : PRINT@(X,Y),"WATCH OUT FOR CARS!!"
     : END
23Ø CLS
     : PRINT@(X,Y),"I LIKE CHOCOLATE, WHAT'S YOUR FAVORITE?"
     : END
24Ø CLS
     : PRINT@(X,Y), "HOPE YOU MAKE A MILLION !!"
     : END
25Ø CLS
     : PRINT@(X,Y),"GOOD IDEA -- AND GET SOME REST, TOO"
     : END
```

Line 10 clears the screen and assigns initial values to variables X and Y which are the screen coordinates for the PRINT@ statements.

Lines 20 thru 70 set up the menu display.

Line 80 turns off the blinking cursor.

Line 90 initializes variable F which corresponds to option numbers 1-5 on the menu. Variables X and Y are reassigned values in order to print the arrow to the left of the menu options. Note that the Y value for the arrow equals the Y value of the menu items minus 7. Also, the variable F is not VAL(F$), F is a counting variable.

Line 100 and 150 set loop I.

Line 110 — PRINT@(X,Y),"---->"; prints the arrow at the position indicated by the X,Y coordinates. CHR$(26) sets the black-on-white mode so that the value currently stored in I is printed as a black on white character. CHR$(25) resets to the white-on-black mode. F$ = INPUT$(1) asks for keyboard input one character in length. INPUT$ does not wait for the enter key to be pressed before resuming program execution.

Line 120 prints at the position pointed by the X,Y coordinates six spaces, a number from 1-5 depending on the value of I and a space.

Line 130 — The value of F$ is tested to see if it equals "Q" or "q." If it does then execution goes to 190. Otherwise execution goes to 140.

Line 140 — Variables F (menu option number) and X (row number) are incremented by one.

Line 150 — See line 100.

Line 160 — If F$ <> "Q" or "q" then program execution goes back to line 90 where F and X are reset, and the menu options are repeated.

Line 180 — CHR$(01) turns the blinking cursor back on.

Line 190 — If F = 1 then execution goes to 210; if F = 2 it goes to 220, etc.

Lines 210-250 — Each of these lines clears the screen, prints a message, and ends the program.

# Model I Cassette Merge

**David Lemley Savannah, Georgia**

Ever since I have owned my computer I have found a need for a utility that allows me to add to my program subroutines that I have previously saved on tape. Unfortunately, the BASIC command CLOAD was not sufficient. The problem was that if I had some program already in the memory, or if I needed more than subroutine that were taped separately, all of the program data would be lost during the loading of the subroutine. But at last I think I have found what I was looking for.

I decided that I needed a new type of CLOAD. Of course I could not make it into a one word command, like CLOAD, but I could make it almost as good. Thus I set off writing a new routine for loading taped data. As a result of my work I came up with MERGE. MERGE is one of my most useful programs. It allows me to combine a program already in the memory, and then add to it some programs or subroutines that are on tape. (Assuming that the second program has higher line numbers.)

To use this program, simply turn on the computer and enter 32594 for MEM SIZE?, and press enter. Then load merge from tape, or type it in. It is a good idea to save this program on tape. After loading, type A = USR(0) to activate. Or, if you wish, type in your main program, and then later position the tape to the subroutine and activate the MERGE.

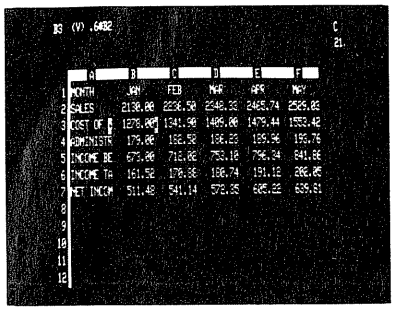
I would greatly appreciate it if you printed this program in your NEWSLETTER. I believe that some of your readers could use this program in their programming experiences since it has helped me so much in mine.

## Listing I

This listing is the BASIC version of the MERGE utility. It (the program) will poke itself into high memory, then erase itself. If you are to use this subroutine, it is advisable to enter this program first before any other, as it erases all BASIC programs using the NEW statement at the end.

```
1  'BASIC MERGE PROGRAM
2  'ENTER 32594 FOR MEM SIZE ON POWERUP
1Ø FOR X=32595 TO 32712
2Ø READ Y
     : POKE X,Y
3Ø NEXT
4Ø DATA 221, 42, 249, 64, 221, 43, 221, 43, 221, 43, 221,
     43, 175, 2Ø5, 18, 2, 2Ø5, 15Ø, 2, 6, 4, 2Ø5, 53, 2,
     16, 251, 2Ø5, 53, 2, 221, 119, 2, 183, 32
5Ø DATA 8, 58, 63, 6Ø, 238, 1Ø, 5Ø, 63, 6Ø, 175, 221,
     182, Ø, 221, 182, 1, 221, 182, 2, 221, 35, 32, 225,
     2Ø5, 248, 1, 42, 249, 64, 229, 221, 225, 17, 235, 66
```

(Continued on Page 12)



# VISICALC™

## Personal Software, Inc.

### VisiCalc—

The Product Which Made Desktop Computers Popular

VisiCalc® software is a versatile product which makes the three TRS-80 desktop computers exceptionally useful for all sorts of numerical tasks in business, management, science, or engineering.

VisiCalc makes laborious recalculation of business projections unnecessary. The program stores numerical relationships and lets you recalculate involved business models with the touch of a key.

In operation, VisiCalc transforms the TRS-80 into an electronic worksheet of 254 "rows" by 63 ledger-like "columns." This electronic worksheet allows the user to create, edit, store, format, and print-out a multitude of number-based reports. Income statements, cost estimates, sales projections, budgets—all can be created simply and accurately with ease and flexibility, much the way in which a word processing system allows you to create many different letters.

Businessmen have called VisiCalc "a program which can—by itself—justify the purchase of a TRS-80."

### VisiCalc Genesis

Like other "perceptive" advances which went before it—movable type, Jaquard Looms, steam power, gliding flight—VisiCalc's contribution to the popular use of computing power (for many people it was "the program" to define the true utility of the personal computer) was the result not so much of totally new invention as a perceptive and fresh recombination of ideas.

Simple at first glance (what could be more natural than an electronic work sheet, once you had a keyboard and display screen?), VisiCalc's initial development required about 10 man-years of effort. It's difficult to write software which stuffs so much program power into small computers.

The idea for an interactive worksheet first occurred to Dan Bricklin, then a second-year student at Harvard Business School. Bricklin had seen that every time a factor changed in his business projections, he had to redo ALL the calculations for the projection. He wondered why he couldn't simply change what needed to be changed, and have everything else fall into place automatically.

Bricklin applied his word processing experience for a major computer manufacturer to the problem of his "Visible Calculator." He teamed up with a longtime friend and expert programmer, Bob Frankston. The two, with advice from software marketing expert Dan Flystra, created the VisiCalc program which is today rated as the "most important planning tool a manager can use."

### A Tour of the VisiCalc Screen

What makes VisiCalc such a powerful program on your TRS-80? Part of the reason is that your electronic sheet is on screen for you to see and manipulate.

Another reason is that VisiCalc is easy to learn and simple to operate. No programming knowledge is required. Your computer becomes a tool you can use almost immediately.

Let's take a look at how VisiCalc and a TRS-80 Model III can help you.

VisiCalc presents its information in a row and column format. Rows are numbered from 1 to 254; on screen, you can see 12 rows of information at any one time. The TRS-80 permits 64 characters of text (numbers, letters, symbols) on screen at any one time. VisiCalc reserves the leftmost 4 character spaces for its row numbers, and divides the rest up into six 9-digit "columns." The width of these columns is able to be changed, from 3 characters to 59 characters. Alterable column widths, along with decimal point formatting, flush left and right text, and numerals make for very flexible report layout.

Above the row-and-column window are VisiCalc's command and edit lines. This is where text or numbers are entered into your report or financial model, and where VisiCalc prompts you for your commands. Here VisiCalc also keeps track of where you are on your sheet, and how much memory is left available in your TRS-80 for your work.

### A Simple Business Model

To illustrate VisiCalc's principles, let's go through an oversimplified business projection. Let's forecast the gross margin produced by sales of a given product.

We need to know two things for our projection: total revenues and costs as a percentage of revenues. Then, gross margin is calculated by subtracting costs of selling from total sales revenues.

The "brackets" on the VisiCalc screen are the "cursor" position—where the information we're currently typing appears on screen. At position A1 (column A, row 1) we type the word "SALES," the title of our sales revenue row. To its right, we'll enter the number 100, to signify our first month's sales. The cursor is moved around the VisiCalc sheet by using the four arrow keys on the TRS-80 keyboard.

Back in column A, row 2, we enter the label "COST" for costs of goods sold; and beneath it the label "NET" for net profit. See photo 1 for the way the screen should look.

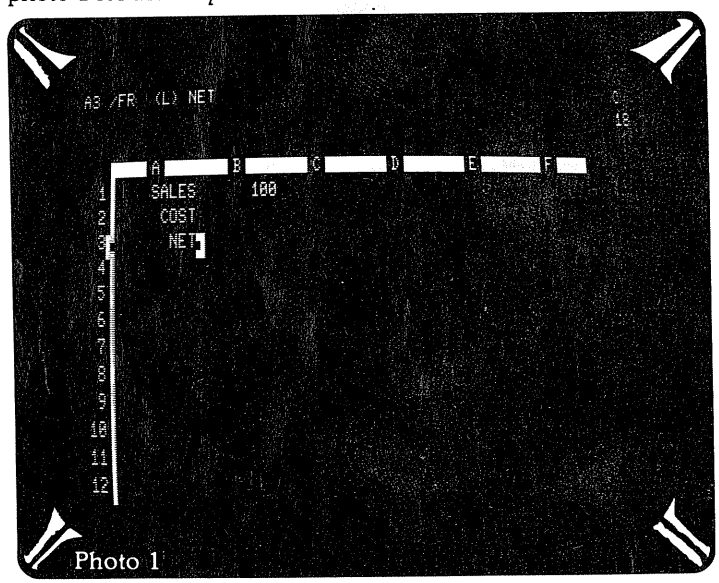


Photo 1

In column B, row 2, we must decide on what percentage of our sales revenue constitutes the costs of sales. Let's say 40% is a reasonable figure. At position B2 we enter the formula .4*B1. This means that whatever number is located in position B1 will be multiplied by .4 and the result displayed in position B2. Once entered, we do not see a formula in B2, but the number 40.

Remember that the 40 in B2 is the result of a formula which remains in memory. If we wish to change it, we need only retype a new formula at B2, and the results are instantly and automatically recalculated.

(Continued on Page 10)

# VisiCalc (From Page 9)

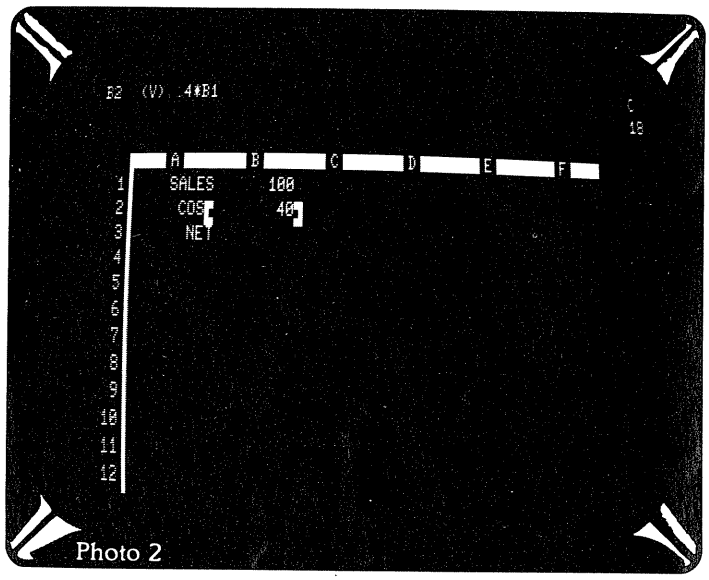


Photo 2

To obtain the net revenue figure, we move the cursor to position B3, and type in the formula +B1 – B2 (the subtraction of costs from revenues). That initial + is there to tell VisiCalc that it's dealing with values, not labels. The result in B3 is 60. Photo 3 shows how the screen appears here.

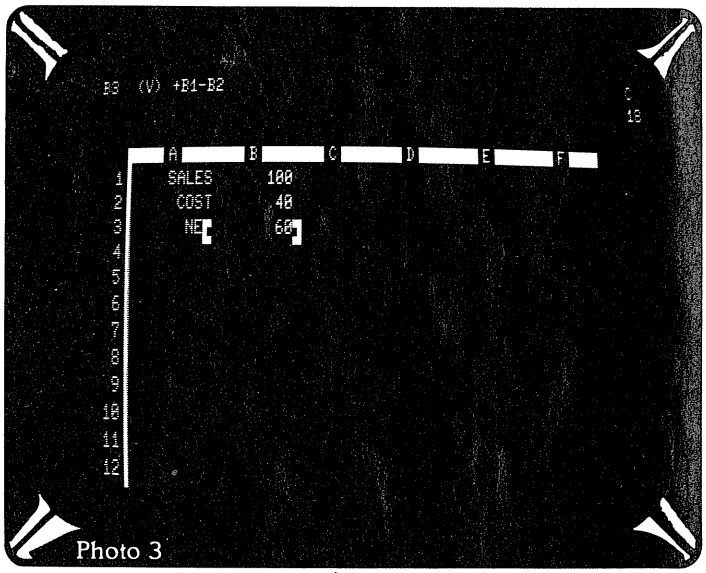


Photo 3

We move the cursor to position B1 again. What if our initial sales figure were 130 instead of 100? No need to do any more calculating, we simply type 130 into the B1 position.

VisiCalc recalculates for us — automatically.

This same automatic recalculation feature becomes invaluable as the size of your financial model grows. Imagine a five-year sales projection, with revenues, costs, expenses, and share of market broken down by sales territory. Now change a commission rate by .1 percent. VisiCalc redoes your entire report.

Plus, VisiCalc has commands which can split your screen in two, so you can see the "bottom line" while altering the top. You can store different models and load them as you need them for different business applications.

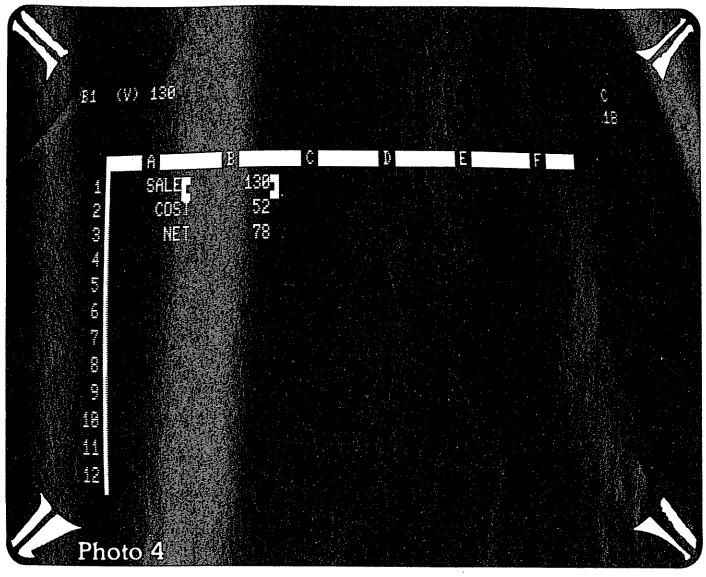


Photo 4

## Ways to Use the Power of VisiCalc and TRS-80

The instant recalculation power of VisiCalc allows you to prepare models which contain only formulas, load them into your computer and put specific information in them. We call such models "templates."

For example, a general contractor creates a template to help him estimate jobs: cost per worker, number of workers, size of job, number of days, etc. He fills in the blanks, and a precise estimate comes out of his printer in moments.

A real estate agent could keep on hand the first five years' financial details on mortgages, tax rates, and house prices. Five minutes of conversation, and the agent shows the client costs, tax impact, appreciation, and equity for a given property — for five years. Is the client interested in a different property? Payments too high? Adjust a figure or two, and VisiCalc does it all again, in moments.

## Even More Ways to Use VisiCalc

We know of thousands of ways people are using the power of VisiCalc software. In agriculture, in investments, in banking, in business and manufacturing, in large corporations and small — people are using the power of VisiCalc and TRS-80 computers.

Anywhere people work with numbers, VisiCalc can help.

We'd like to know how you're using VisiCalc. We'll publish some of the most interesting uses here, to help give others ideas on getting more from their own TRS-80 and VisiCalc.

Send your comments to:
Newsletter Editor
VisiCalc
Personal Software Inc.
1330 Bordeaux Dr.
Sunnyvale, CA 94086

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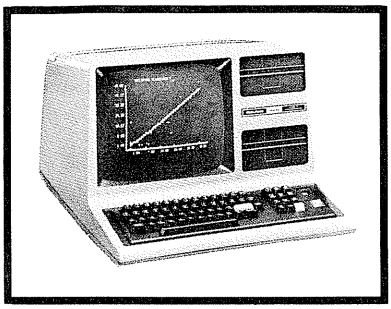

# Model I/III

## Product Line Manager's News

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Working in conjunction with Trendex Research Corporation, a firm which for over 30 years has provided specialized investment services to professional speculators, institutional investors and sophisticated individual investors, we have just introduced a unique product. It is bound to be exciting for any stockmarket investor. So, if you are interested in larger successes in your market activities or are still smarting from your last trade, put your crystal ball away and take a look at another approach to forecasting trends in the market.

Trendex, a stock market trend analysis package (26-1509 $49.95) for 16K Level II, 16K Model III BASIC or 32K one disk Model I or III systems, contains four unique programs designed for the TRS-80 computer. It is assumed that users of the programs have some knowledge of stock market investment and speculation.

The formulas on which the programs are based have been used by professionals for many years. Licensing of Tandy/Radio Shack to use the formulas was made possible by the personal friendship between the late founder of Tandy (Dave Tandy) and the founder of Trendex (E.S.C. Coppock).

It must be understood that the programs are not counsel to buy or sell securities. They are merely statistical procedures for analysis of trends and probabilities.

### Black Magic?

Trend recognition methods are not generaly known to novice investors, but they have been used by statisticians for hundreds of years. There are, of course, no certainties about trends. They may change unexpectedly. Therefore, statisticians strive to develop formulas that produce a satisfactorily high degree of success in projecting probabilities. Trendex created special modifications that permit standard procedures to be used in recognizing probabilities for the time periods associated with stock market investing: short term, intermediate term, and long term.

All investors realize that many variables exist at all times to influence buyers and sellers. Commonly watched variables are: earnings, sales, etc. But there may be many more variables to influence buyers and sellers, such as: estate settlement, property division, new orders, war, strikes, rumor, etc. It is impossible for anyone to know all the variables, but there is a simple solution to the problem.

That simple solution is the fact that TREND IS THE SUM OF ALL VARIABLES AT PERIODIC TIME INTERVALS.

Thus, the essence of trend recognition is nothing more than the application of a proper mathematical formula to a sequence of prices.

The programs employ multiple exponential smoothings of the four-place common logarithm of price. The smoothings are inter-related in a way which leads to a special treatment of the first and second derivatives of the resultant curve. Change in the derivatives becomes a key to probabilities. There are no simple moving averages in any of the programs.

Don't let that technical explanation trouble you. It was presented simply to assure you that the formulas are legitimate statistical methods and not some form of black magic!

No known trend recognition procedure calls absolute tops and bottoms consistently. Trend reversal indications given by the programs do not coincide with exact tops and bottoms, but the time lag is considered minimal.

Stock market speculators have two major concerns: the trend of the general market and the trend of individual stocks. Three of the four programs apply to the status of general market trends: short term (several weeks), intermediate term (several months), and long term (more than one year). The fourth program performs intermediate trend analysis of nine individual stocks. There is no limit to the number of stocks you may analyze, but they should be assembled in groups of nine stocks per group.

What index of the general market is used? The New York Stock Exchange composite index of all common stocks listed on that exchange, rather than the Dow Jones Industrial Average which is composed of 30 high-grade stocks. Most newspapers and all brokerage offices list data for that composite index.

### How to get started

Securing input data for each of the four programs has two solutions: Acquire past history of weekly or daily stock prices (along with other indices) in a public library and enter the data via the keyboard. The display asks the user whether historic data is to be entered in a long sequence of days, weeks or months, or whether special Trendex START-UP data is to be used.

Use of the START-UP data eliminates the need for entering of price history. START-UP data will be supplied direct to the user by TRENDEX at a small token charge of $1.00 for postage and handling. After such data has been entered, future updating is done from newspaper reports.

Short Term general market data is not price data. It is called "Breadth Of Market" data and consists of the number of New York Stock Exchange stocks that advanced in price for the day, the number that declined, the number unchanged from the previous day, and the total number of issues traded.

Three stock portfolios, of nine stocks each, have been selected by the Trendex staff to help you get started with trend analysis. All the portfolios use listed stocks that are popular and active. Portfolio "A" is volatile; "B" is typical of a businessman's portfolio; "C" is made up of high-grade stocks representing several major industries.

**"A"**

| | |
|---|---|
| Atlantic Richfield | (ARC) |
| Delta Air Lines | (DAL) |
| Dome Mines | (DM) |
| Gen. Dynamics | (GD) |
| Joy Manufacturing | (JOY) |
| Polaroid | (PRD) |
| Revlon | (REV) |
| Tandy Corporation | (TAN) |
| Xerox | (XRX) |

**"B"**

| | |
|---|---|
| Aluminum Co. of Am. | (AA) |
| Boeing | (BA) |
| Burroughs | (BGH) |
| CBS Inc. | (CBS) |
| Halliburton | (HAL) |
| Hewlett-Packard | (HWP) |
| Honeywell | (HON) |
| Tiger Internat. | (TGR) |
| Upjohn Co. | (UPJ) |

(Continued on Page 12)

## Model I/III (From Page 11)

"C"

| | |
|---|---|
| Coca Cola | (KO) |
| duPont | (DD) |
| Eastman Kodak | (EK) |
| Ford | (F) |
| Merck | (MRK) |
| Minnesota Mining & Mfg. | (MMM) |
| Texas Instruments | (TXN) |
| UAL Inc. | (UAL) |
| Union Oil of Cal. | (UCL) |

Listed options are traded for most of these stocks.

Portfolio price input to your TRS-80 is done only once a week, using the Tuesday closing price for each stock. If Tuesday is a stock market holiday, use the Monday closing price.

Trendex will send, along with the portfolio data, a sheet showing START-UP data for each of the three general market trend programs, at no extra charge.

***

Get in the habit of entering weekly portfolio stock prices every Tuesday evening or Wednesday morning from data in your newspaper or phoned to you by your broker.

Once Again: the Portfolio is updated with Tuesday's data. The Short Term market program is updated with daily breadth of market data. The Intermediate Term market program is updated once a week using the Wednesday N.Y.S.E. composite index closing price. The Long Term program is updated once a month using the N.Y.S.E composite index closing price the first Wednesday of every month.

It may seem strange that the ONLY input for these programs is either price or price-related data. Strangeness disappears the moment you realize that changes in price are actually a total revelation of the net sum of all the many factors that influence people to buy or sell. It is reasonable to assume that, at any time, there will exist both favorable and unfavorable influences on prices of stocks. When those influences are preponderantly favorable, stock prices rise.

Professional investors know that the act of investing on the basis of only a few variable factors is a foolhardy form of gambling. Formulas in these programs were developed many years ago at the request of successful professionals.

The Radio Shack/Trendex Stock Market Trend Analysis programs conform to the fundamental thought behind every Radio Shack program: an efficient time saving way of performing an intellectual chore. There is no mystique and no magic in the programs. Every operation done by your TRS-80 with the stock market trend programs could be done by hand. It is not investment counsel. Radio Shack is not an investment advisor. These particular programs are nothing more than aids for the performance of a routine chore in the field of statistics or econometrics. In that respect, they are simply a tool.

There are several graphs in the Trendex program manual. One or more of the graphs reveal barely acceptable forecasts and were chosen to show that the methodology is not perfect. Other graphs show a forecast record that is almost astounding. Audits indicate that a total score of the merit of the forecasts is definitely rewarding. That fact, however, is no assurance that future forecasts may be as good. Neither Radio Shack nor Trendex makes any guarantee or promise in connection with use of the programs in the Stock Market Trends package.

# Model I/III Bugs, Errors, and Fixes

### Model I TRSDOS 2.3B (26-310)

Version 2.3B of Model I TRSDOS has been released for certain applications, primarily languages. The following stock numbers:

26-2013 Series I Disk Editor/Assembler
26-2203 COBOL Program/Runtime
26-2204 Compiler BASIC Program/Runtime
26-2206 COBOL Runtime
26-2208 Compiler BASIC Runtime

were shipped with TRSDOS 2.3B. This diskette contains two copies of "SYS5/SYS." The second copy of SYS5/SYS is in the "SYS7/SYS" position. Since SYS7/SYS is a system file used by our regular Disk BASIC, and since this BASIC is not provided on these disks, the duplication of SYS5/SYS will have no effect on the operation of the programs.

### Model III TRSDOS 1.3 (26-312)

If the LOAD command on version 1.3 of Model III TRSDOS (dated either May 1, 1981 or May 2, 1981) is used to load a program file which uses any address between 6280 and 62B1 hexadecimal, then one of three error conditions may occur:

1. Not all of the program file will be loaded.
2. The LOAD command may terminate abnormally.
3. The LOAD command may never terminate.

The following patches will correct this problem:

```
PATCH *6 (ADD=585Ø, FIND=3A62, CHG=BF5F) (ENTER)
PATCH *6 (ADD=5FBE, FIND=2Ø697326Ø616374,
                    CHG=ØD116544C31C44) (ENTER)
```

NOTE: The patch area used at address 5FBE hex is part of the text:

"Can't CLEAR while DO is active"

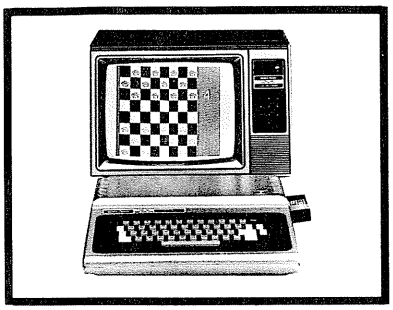
After the patches have been made, this message will be displayed as:

"Can't CLEAR while DO"


## Model I Cassette Merge (From Page 8)

```
6Ø DATA 237, 82, 229, 2Ø9, 221, 43, 221, 43, 221, 11Ø,
     Ø, 221, 1Ø2, 1, 174, 124, 181, 4Ø, 13, 175, 25, 229,
     221, 117, Ø, 221, 116, 1, 221, 225, 24, 232, 221
7Ø DATA 229, 225, 35, 35, 34, 249, 64, 34, 251, 64, 34,
     253, 64, 195, 25, 26
8Ø POKE 16526, 83
     : POKE 16527, 127
9Ø NEW
```

Editor's Note: This routine appears to be fully relocatable (I ran it in high memory in both 16K and 32K machines) and works in Level II or Model III BASIC. With appropriate changes to the USR call it should work in Disk BASIC systems also.



# Color Computer

## Product Line Manager's News

Off and on for the last few months, we've been talking about the various commands available with Extended BASIC in the Color Computer. These instructions are nice, except "What can I do with them?." Well, since Radio Shack is promoting the Color Computer as the ideal "home computer," I thought we could develop some ideas which might make practical use of the features available in Extended BASIC.

Flex those fingers and get ready for some typing, because we're going to generate some visual chemical formulas.

Let's start by setting up our graphics screen capabilities as we have in the past:

```
1Ø PCLEAR 4
2Ø PMODE 4,1
3Ø PCLS
4Ø SCREEN 1,Ø
```

(Briefly, we have PCLEARED 4 pages of memory for graphics, selected the highest resolution PMODE 4, starting on page 1; cleared the graphics screen, and chosen graphics and color set with SCREEN.)

Now, we're going to add a subroutine, (another buzz word) — we're going to do something over again later in the program, so instead of using up the space to do it twice, or more, we'll use a routine stored in a certain location and execute it whenever we want it done.

```
5Ø GOSUB 1ØØØ
```

Now the subroutine:

```
1ØØØ CIRCLE(56,56),8
     : CIRCLE(8Ø,8Ø),8
     : CIRCLE(8Ø,1Ø4),8
     : CIRCLE(56,128),8
     : CIRCLE(32,1Ø4),8
     : CIRCLE(32,8Ø),8
1Ø1Ø DRAW "BM62,62; F12 BF6 BD8 D8 BD8 BG6 G12 BG6 BH6 H12
     BH6 BU8 U8 BU8 BE6 E12"
1Ø2Ø CIRCLE(56,32),8
     : CIRCLE(36,32),4
     : CIRCLE(56,12),4
     : CIRCLE(76,32),4
     : CIRCLE(16,64),4
     : CIRCLE(16,12Ø),4
1Ø3Ø DRAW "BM4Ø,32; R8 BR8 BU16 D8 BD8 BR8 R8 BM18,66; F8
     BM18,118; E8 BM56,4Ø; D8"
1Ø4Ø DRAW "BM39,77; E14 BM77,87; D1Ø BM54,121; H14"
11ØØ RETURN
```

Now we can continue writing our program. We have entered a major portion of our program as a subroutine to be called for later in the execution of the program. When you finish entering and running the program, you will see what it is you have been drawing.

Now for some more of the program:

```
6Ø CIRCLE(1ØØ,6Ø),8
    : CIRCLE(1ØØ,4Ø),4
    : CIRCLE(12Ø,6Ø),4
    : CIRCLE(8Ø,6Ø),4
    : CIRCLE(96,12Ø),4
    : CIRCLE(56,148),4
7Ø DRAW "BM84,6Ø; R8 BR8 BU16 D8 BD8 BR8 R8 BM86,74; E8
    BM86,11Ø; F8 BM56,136; D8"
8Ø DRAW "BM137,44; R2 F1 D2 G1 L2 H1 U2 E1 BR3 BD2 BR4 R4"
```

Now, we're going to add some more GOSUB routines. They're called by:

```
9Ø GOSUB 12ØØ
    : GOSUB 14ØØ
    : GOSUB 16ØØ
```

The subroutines are as follows:

```
12ØØ DRAW "BM14Ø,5; H1 L6 G1 D2 F1 R6 F1 D2 G1 L6 H1 BM144,4;
    R4 ND8 R4 BM156,4; ND8 R6 F1 D2 G1 L3 NL3 F4 BM168,4; D7 F1
    R6 E1 U7 BM188,5; H1 L6 G1 D6 F1 R6 E1 BM192,4; R4 ND8 R4"
121Ø DRAW "BM2Ø4,4; D7 F1 R6 E1 U7 BM216,4; ND8 R6 F1 D2 G1 L3
    NL3 F4 BM228,12; U7 E1 R6 F1 D3 NL8 D4 BM24Ø,4; D8 R8
    BM148,16; NR8 D4 NR4 D4 BM161,16; R6 F1 D6 G1 L6 H1 U6 E1"
122Ø DRAW "BM172,16; ND8 R6 F1 D2 G1 L3 NL3 F4 BM184,16; ND8 F4
    E4 D8 BM196,16; D7 F1 R6 E1 U7 BM2Ø8,16; D8 R8 BM22Ø,24; U7
    E1 R6 F1 D3 NL8 D4 BM172,28; NR8 D4 NR4 D4 BM185,28; R6 F1 D6
    G1 L6 H1 U6 E1"
123Ø DRAW "BM196,28; ND8 R6 F1 D2 G1 L3 NL3 F4 BM16Ø,44; NE4
    NF4 NG4 NH4 BM172,44; NE4 ND4 NH4 BM18Ø,4Ø; D8 R8
    BM192,4Ø; NR8 D4 NR4 D4 R8 BM2Ø4,48; U8 F8 U8 BM216,4Ø;
    NR8 D4 NR4 D4 R8"
13ØØ RETURN

14ØØ DRAW "BM92,165; H1 L6 G1 D6 F1 R6 E1 BM1ØØ,169; H1 L2 G1
    D6 F1 R2 E1 U2 H1 L2 G1 BM1Ø4,164; D4 ND4 R8 NU4 D4
    BM12Ø,176; U8 G4 R4 BM14Ø,165; H1 L6 G1 D6 F1 R6 E1
    BM144,164; D4 ND4 R8 NU4 D4 BM156,168; R4 G4 R3 F1 D2 G1 L2
    H1 BM176,169; E1 R2 F1 D2 G1 L2 G1 D3 R4"
141Ø CIRCLE(132,168),8,,1,.25,.75:
    CIRCLE(164,168),8,,1,.75,.25
15ØØ RETURN

16ØØ DRAW "BM119,77; E1 D8 BR4 NG2 BR16 BU4 R4 BR4 BU4 R3 F1 D6
    G1 L3 U8 BM156,77; D1 BD2 D4 BR4 U4 NU1 R3 ND4 R3 ND4
    BM169,82; R3 E1 H1 L2 G1 D2 F1 R2 E1"
161Ø DRAW "BM177,78; D2 NR2 NL2 D3 F1 E1 BM181,76; D5 ND3 E1 R2
    F1 D3 BM189,8Ø; D3 F1 R2 E1 NU3 D4 G1 L2 H1 BM196,76; D8 BR4
    U4 NU4 R3 F1 D2 G1 L3 BM2Ø8,82; R3 E1 H1 L2 G1 D2 F1 R2 E1"
162Ø DRAW "BM216,84; U4 R3 F1 D3 BM224,8Ø; R4 G4 R4 BM232,82;
    R2 E1 H1 L2 G1 D2 F1 R2 E1 BM24Ø,84; U4 R3 F1 D3 BM248,82;
    R3 E1 H1 L2 G1 D2 F1 R2 E1"
17ØØ RETURN
```

Now let's finish our program and find out what it's going to do:

```
 95 DRAW "BM128,77; E1 R6 F1 D2 G1 L6 G1 D3 R8"
 1ØØ FOR X=1 TO 15ØØ
     : NEXT X
     : PCLS
     : GOSUB 1ØØØ
 11Ø CIRCLE(96,64),4
     : CIRCLE(56,148),4
     : CIRCLE(1ØØ,124),8
     : CIRCLE(12Ø,124),4
     : CIRCLE(1ØØ,1Ø4),4
     : CIRCLE(1ØØ,144),4
 12Ø DRAW "BM86,74; E8 BM56,136; D8 BM86,11Ø; F8 BM1ØØ,116;
     BU8 D8 BD24 U8 BU8 BR8 R8"
 13Ø GOSUB 12ØØ
     : DRAW "BM136,48; U4 NU1 R3 ND4 R3 D2 ND2 BR4 R4"
 14Ø GOSUB 14ØØ
     : GOSUB 16ØØ
 145 DRAW "BM128,76; R8 G4 R3 F1 D2 G1 L6 H1"
 15Ø FOR X=1 TO 15ØØ
     : NEXT X
     : PCLS
     : GOSUB 1ØØØ
 16Ø CIRCLE(96,64),4
     : CIRCLE(96,12Ø),4
     : CIRCLE(56,152),8
     : CIRCLE(76,152),4
     : CIRCLE(36,152),4
     : CIRCLE(56,172),4
 17Ø DRAW "BM86,74; E8 BM86,11Ø; F8 BM56,136; D8 BD24 U8 BU8
     BR16 L8 BL16 L8"
 18Ø GOSUB 12ØØ
     : DRAW "BM136,44; ND8 R3 F1 D2 G1 L3"
     : DRAW "BU2 BR8 R4"
     : GOSUB 14ØØ
 19Ø GOSUB 16ØØ
     : DRAW "BM132,76; ND8 G4 R8"
```

(Continued on Page 14)

## Color Computer (From Page 13)

```
200 FOR X=1 TO 1500
    : NEXT X
    : PCLS
    : GOTO 50
```

And just so we don't accidentally go crashing into our subroutines, add this line to the program:

```
999 GOTO 999
```

Run the program and see what you get. It should be a drawing of the structural formula for the Monocyclic Aromatic Hydrocarbon called "Xylene." The program is designed to rotate between 1,2; 1,3; and 1,4 Dimethylbenzene. As you chemistry buffs know, the chemical formula for these hydrocarbons does not change. Only the location of the second CH 3 molecule changes to create the various forms of Xylene.

This should give you an idea of the "practical" uses for high resolution graphics. Various chemical formulas could be saved on tape and loaded in to the machine during a presentation. Anyway, that's another article for another month.

Hope you enjoy this program and happy computing.

# PCLEAR 0

### Roger Geer State College, Pennsylvania

In regard to the Color Computer Product Line Manager's News, June 1981, it might be of interest to your readers that the first graphics page of the Extended BASIC machine can indeed be used for a BASIC program, variables, etc. without resorting to PEEK and POKE.

When the Extended BASIC machine is initialized, four pages of graphics memory are reserved. This can be reduced by a PCLEAR 1, but that still keeps one page (1.5k) reserved. For large programs requiring more than the 13095 bytes normally available, and assuming graphics are NOT required, the 1536 bytes of RAM can be recaptured by setting BASIC's pointers to tell it the start of available memory. This is accomplished by POKEing a 6 into memory locations 17 and 27, then doing a CLEAR.

Of course, this goes around BASIC's built-in safeguards and can cause some trouble. Specifically, anything in the machine prior to this operation is now unreliable (if not lost) and should be reloaded. The graphics commands should not be attempted unless you are willing to lose the resident BASIC program.

Graphics memory is restored by performing a PCLEAR n.

I received my new version of "Getting Started . . ." the other day. It makes up for almost all of the deficiencies in the original version, and it is fun to read to boot! I thank you, my wife thanks you for a happier husband, and our toddler thanks you for the dancing man. When does the upgraded version of "Going Ahead with . . ." come out? (Some people are never satisfied. Ed. Note: At this time there are no plans for an upgrade to the "Going Ahead . . ." manual.)

I should mention two gripes. I've been happy with my Extended Color BASIC Computer since I received it in February, but these two items keep frustrating me. First, there are no integer variables. Integer variables would save variable space (particularly with the graphics GET and PUT commands), and speed up operations such as loops, PEEK, POKE, etc. The speed isn't currently all that bad (the BYTE prime number benchmark runs faster on my Color Computer than on a Model I), but the six bytes per array cell on a GET/PUT really hurts. (Ed. — Roger, see the first part of Tomas Rokicki's article.)

The second gripe deals with the original subject of this letter: a PCLEAR 0 would really be appreciated. Everything to implement it has to be in the ROM's, the additions would consist of locking out graphics when they cannot operate. Why make us resort to tricks like the one above to get at that little bit of extra memory?

All in all, I appreciate your continued interest and support of those of us who bought your low-end computer. (Ed. — Hey, what about the Pocket Computer?) Keep it up.

# GET, PUT, and other mysteries

### Tomas Rokicki Wolfe City, Texas

I have recently purchased a Color Computer, and I have discovered or empirically derived some information concerning the computer which I believe you should be aware of. I take no responsibility for damage, consequential or otherwise, arising from this information or the use thereof.

Now that we have that taken care of, on to the fun part:

### GET, PUT, and Arrays

In the "Going Ahead With Extended Color BASIC" manual, it is stated (page 69) that the dimensions of an array reserved for graphics storage must equal the dimensions of the graphics rectangle contained therein. I found a way to use a smaller array and stop the fantastic waste of RAM. Through trial and error, I have come up with a formula for determining the actual size of the minimum array needed to contain graphics. The formula is:

$$\text{array size} = \frac{(\text{horizontal length} \times \text{vertical length}) - 1}{N}$$

where N = 40 for PMODEs 3 and 4
N = 80 for PMODEs 1 and 2
N = 160 for PMODE 0.

The horizontal length is the maximum (largest) X coordinate minus the minimum (smallest) X coordinate plus one. The vertical length is computed in a similar manner — it is the maximum vertical coordinate minus the minimum vertical coordinate plus one.

For example, let's say that you are in PMODE 3 and are saving your spaceship in array A and the spaceship is drawn from (23,24) to 54,78). You would then compute:

((54 − 23 + 1) * (78 − 34 + 1) − 1)/40

This gives you a result of 35.975. Therefore, at the beginning of the program, you would need to DIM A(35). That is sufficient memory — try it! (IMPORTANT NOTE: This method only works with graphic option G; I always use that option anyway for safety.)

If you want to see how this works, here is the GET/PUT sample program from the Extended BASIC manual, page 68:

```
5 PCLEAR 4
10 PMODE 3,1
15 PCLS
20 SCREEN 1,1
25 DIM V(20,20)
30 CIRCLE (20,20),10
35 GET (10,10)-(30,30),V
40 PCLS
42 FOR DLAY = 1 TO 300: NEXT DLAY
45 PUT (110,110)-(130,130),V
50 FOR DLAY=1 TO 300: NEXT DLAY
60 GOTO 60
```

Run the program as is. You will find that it works quite well.

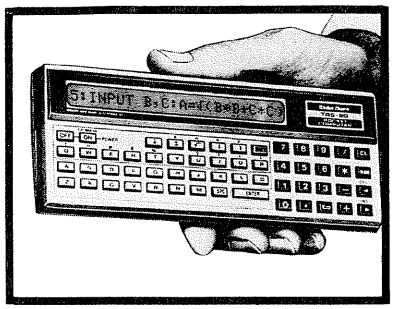
Notice that the array V in line 25 is dimensioned to 20, 20. If you do not use the G option, this is the way you have to dimension the array. However, if you use the G option you can use my formula and use less memory. Here is what the calculation would look like for the rectangle around the circle:

Maximum X value = 30 Minimum X value = 10

Maximum Y value = 30 Minimum Y value = 10

N = 40 since we are in PMODE 3

(Continued on Page 21)



# Pocket Computer

## Product Line Manager's News

The Pocket Computer contains two separate CPUs, each with its own responsibilities and internal ROM.

CPU I functions to read keyed-in data or to read instructions which are to be executed from RAM. CPU I also decides what is to be done for control of arithmetic operations (e.g. control of arithmetic sequence, storing data, and data readout). CPU I interprets the syntax of BASIC instructions, deciding what is to be executed, and selecting and preparing data for display. However, CPU I does not perform any execution itself. It only arranges the data and information in proper sequence and acts to provide instruction codes to CPU II via the buffer.

CPU I

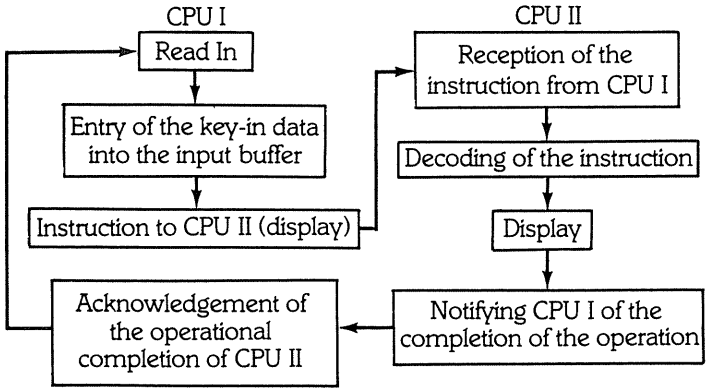
Key input routine
Acknowledgement of the remaining program
One instruction to one program step
additional incorporation
Interpreter:
Program execute statement
Cassette control statement
Command statement
Printer Control
Execution of Manual operations
Power Shut-off control
Clock Stop control

CPU II constantly receives execution instructions from CPU I via the transfer buffer and executes operations per each instruction or exchanges data, depending on the situation. Although CPU II shares execution functions and performs some auxiliary CPU roles, it does not perform any decision by itself.

CPU II

Display processing routine
Input Buffer
Computational Results
Errors
Arithmetic routines
Character Generator
Cassette routine
Print routine
Buzzer
Printer recognition
Power off
Clock Stop

Example: Actions of CPU I and CPU II at the time of keyboard data entry




For manual operation of the Pocket Computer, the instruction code (key code) is written into the RAM in the display chip (input buffer) after the information is put through the keyboard and converted into the instruction code by CPU I. This instruction code (display) is transferred to CPU II via the transfer buffer. As CPU II receives the instruction, CPU II decodes the instruction (display) and executes display processing. Upon completion of this processing, CPU II notifies CPU I. CPU I confirms the completion of the task by CPU II before terminating their functions.

# Spheres and Cylinders

A. Henry Stewart Kodiak, Alaska

The following programs were developed to assist our local Radio Shack dealer demonstrate the capabilities of the somewhat astonishing TRS-80 POCKET COMPUTER. I thought you might find them interesting.

The Sphere Measurements program (DEF "A") was developed to support a student's presentation of a Science Fair project concerning the size of the Solar System. (Did you know the Earth's surface approximates 200 million square miles?? or: It would require about 5.3 x 10 E 21 barrels of beverage to fill a tank the size of the Earth???—Hmm!) Really not such earthshakingly useful info — but only a few seconds are needed to boggleate this tidbit and likely waggle the weary eyebrows of Science Fair Judges! (EGAD! This kid IS smart, Hmm.)

The Cylindrical Tank programs (DEF "B" and "C") suggest use of the PC to simplify routine tasks. The program sheet provides entree to discussions of Math formula, logic statements, BASIC Computer language, Computer programming, other uses for the PC, other computers, price, etc.

Most people in our community identify with the cylindrical tank routines since fuel tanks supporting home heating systems in this area are of such configuration. Therefore the Symbolic drawings do invite comment, (ERGO/ATTENTION) and with a little urging, hands on Calculation of the home fuel tank!! (GADZOOKS—The wife should have one of these, etc., etc.)

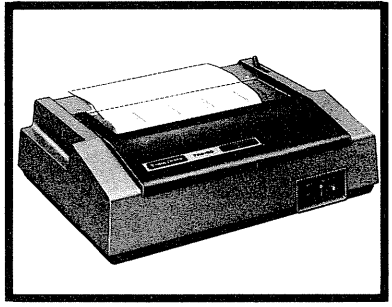
P.S.—Some difficulty was encountered in using program "C" (see appendix 1—Horz. Tank) while calculating the contents of a certain beverage can. The hole being in the side presented some inbibational (sometimes I make up words) and level measuring problems. The inherent instability of the container on the measurement platform and certain difficulties involving kibitzers, attracted an emissary of the establishment who, being a Neatness and Sanitation freak confiscated the voluminous data and materials.

P.P.S. — Should documentation of this area of investigation be attempted by separate study, the following observations may be useful:

A. Pencils and ball point pens are unsatisfactory measuring sticks. The mechanical parts become very distressed and covering materials dissolved by the liquid being measured, which makes "stick depth" readings difficult. Plasticizing materials and ball point ink are not additives benefiting taste.

B. Some liquids are not conducive to computer accuracy and some tests may require duplication. Also, such liquids cause the PC Screen to be dim and blurry.

(Continued on Page 21)



# Peripherals

## Product Line Manager's News

I have the privilege this month of revealing for the first time some detailed information about the newest printer in the line, Line Printer VIII. (I hope that by the time we get past Ten we'll be able to come up with a new way to name these beasts. I refuse to talk about Line Printer XIV!) You will probably remember the May printer article: The one that nearly devoured the entire issue. One of the major concerns of that piece was to describe a standard which allowed for a multi-mode response in a printer. What I couldn't say then I can reveal now. Line Printer VIII is indeed our first (note that word!) multi-mode printer.

Word processing has been historically done using a fully formed character printer best exemplified by our Daisy Wheel II (26-1158). While it does in fact give superior looking copy, its slow speed and lack of flexibility does leave something to be desired. In addition, its code response is not compatible with many of its dot-matrix brothers. Data processing, traditionally done by matrix printers does not run efficiently on the Daisy; and Word Processing software quite often simply will not run on a matrix. Most matrix printers will not backspace, overstrike, and super- or sub-script.

We discovered that many users chose the Daisy Wheel as their single printer because the matrix character was hard to read: They simply put up with the slow speed of the printer as the lesser of two evils. The capabilities of the matrix machines have been improving over the years. By using smaller print wires and by laying down dots closer together the newer dot matrix printers can produce very nice looking copy. Not good enough to satisfy the chairman of the board or the attorney maybe, but certainly good enough to save the eyes of editors of drafts, readers of intercompany memos and the like.

Line Printer IV was our first attempt to achieve a matrix printer with improved print quality. Its low price (in relation to the Daisy) made it an attractive, cost effective alternative choice for many users. Well, time marches on and we think we have come up with a better product in L.P. VIII.

In keeping with the spirit of the dual-mode concept outlined last May, L.P. VIII IS code compatible with our Dot Matrix printers as well as the D.W. II. In addition, we threw in graphics as well, dot for dot compatible with L.P. VII (the little $399 wonder). Upon power-up L.P. VIII responds just like our L.P. V and VI (26-1165 and 26-1166). Well, yes there are still a few incongruities but Rome wasn't built in a day! By placing the unit in W.P. mode with "CHR$(20)" the printer takes on the characteristics of L.P. IV and D.W. II.

I will not be able to describe all details of the features and enhancements of the L.P. VIII here. The manual which accompanies the machine is the longest and most detailed we have produced yet. The specification page and control code summary each occupy two pages! I hope I can squeeze enough room out of the editor to give you a good idea of its capabilities here.

To begin, the L.P. VIII character set contains, in addition to the now standard 96 ASCII alphanumeric set, the R.S. standard international and block graphic characters present in L.P. V and VI. This special international set has been expanded to include the special characters present on the 124 character wheel of D.W. II which are missing on the other matrix printers. (More about this later.)

The machine also has an attractive, high density, proportionally spaced character set for "correspondence" use similar to L.P. IV but with a difference: In the high density mode the IV lays down about 1160 dots in an eight inch line. L.P. VIII prints 1600 dots in the same space! Even in normal 10 c.p.i. there are eight horizontal dots instead of the usual seven. The end result is a marked improvement in print quality. And that, my friends, is the name of the game these days!

The new printer retains the paper handling flexibility provided by its predecessor: fixed pin feed for standard fan-fold paper and friction feed for handling roll or cut sheet plain paper. In the D.P. mode, line feed commands are handled like any normal matrix printer including the V and VI. In the W.P. mode, however, line feed codes are handled like the Daisy, allowing for super-, sub-scripts, backspace, overstrikes, etc.

Here is some really good news. Remember the earlier (May) description of the "switchable code response options" which were available only by a trip to the service center (or by a voided warranty)? Now these options are completely user accessible. These switch options have been expanded to include serial or parallel interface and a 600 or 1200 baud rate in the serial mode.

Note to Color Computer users: The TRS-80 Color Computer normally sends data to a printer at 600 baud. By POKEing a single value you can increase this output rate to 1200 baud. The command to increase the baud rate is:

POKE 150, 41

Here is an updated chart describing the response standards now present in the current printer line.

Data Processing Control Code Standard - Explanations and Responses

| HEX | DEC | SYMBOL | Explanation | IV | V | VI | VII | VIII | DWII |
|---|---|---|---|---|---|---|---|---|---|
| 0A | 10 | LF | Execute CR/LF | + | + | + | + | + | + |
| 0D | 13 | CR | Execute CR/LF | + | + | + | + | + | + |
| 1B 36 | 27 54 | ESC 6 | Select 6 LPI | | + | + | | + | |
| 1B 38 | 27 56 | ESC 8 | Select 8 LPI | | + | + | | + | |
| 1B 1C | 27 28 | ESC FS | Select 12 LPI | + | + | + | | + | + |
| 1B 0E | 27 14 | ESC SO | Start Condensed | * | + | + | | * | |
| 1B 0F | 27 15 | ESC SI | End Condensed | * | + | + | | * | |
| 1F | 31 | | Start Elongated | @ | + | + | + | @ | |
| 1E | 30 | RS | End Elongated | @ | + | + | + | @ | |
| 12 | 18 | DC2 | Select Graphics | | | | + | + | |
| 13 | 19 | DC3 | Not Expected | | | | | (+) | |
| 14 | 20 | DC4 | Select Word Proc. | | | | | + | |

* ESC DC4 to select condensed, ESC DC3 to select ordinary characters
@ ESC SO to select elongated , ESC SI to end elongated

Graphics Control Code Standard - Explanations and Responses

| HEX | DEC | SYMBOL | Explanation LP | VII | VIII |
|---|---|---|---|---|---|
| 0A | 10 | LF | Forward LF | + | + |
| 0D | 13 | CR | Execute CR/LF | + | + |
| 1E | 30 | RS | End Graphics | + | + |
| 1B 0E | 27 14 | ESC SO | Start Elongation | + | + |
| 1B 0F | 27 15 | ESC SI | End Elongation | + | + |
| 1B 10 | 27 16 | ESC POS | Positioning | + | + |
| 1C | 28 | FS | Repeat Data | + | + |

(Continued on Page 17)

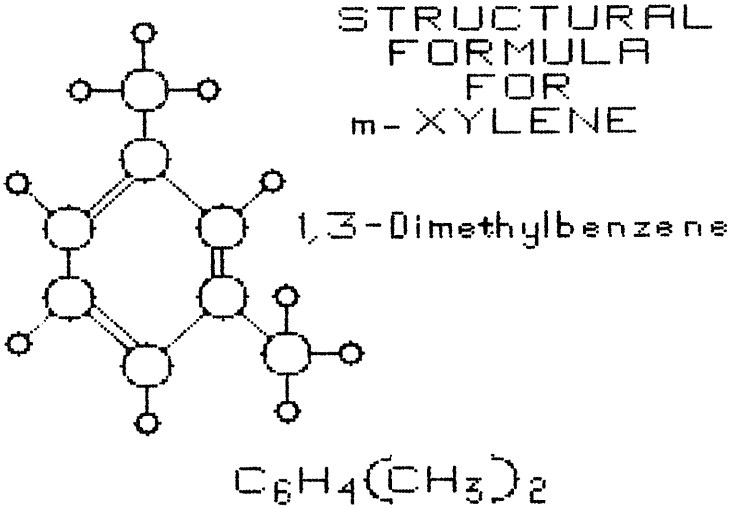
# Peripherals (From Page 16)

Word Processing Control Code Standard - Explanations and Responses

| HEX | DEC | SYMBOL | Explanation LP | IV | V | VI | VII | VIII | DWII |
|---|---|---|---|---|---|---|---|---|---|
| 0A | 10 | LF | 1/6" For. LF | + | + | + | + | + | + |
| 1B 0A | 27 10 | ESC LF | 1/6" Rev. LF | + | | | | + | + |
| 1B 38 | 27 56 | ESC 8 | 1/8" For. LF | | SEL | SEL | | + | |
| 1B 1C | 27 28 | ESC FS | 1/12" For. LF | + | SEL | SEL | | + | + |
| 1B 1E | 27 30 | ESC RS | 1/12" Rev. LF | + | | | | | + |
| 0D | 13 | CR | Execute CR/LF | + | + | + | + | + | + |
| 08 n | 08 n | BS n | Backspace | + | | | | + | + |
| 1B n | 27 n | ESC n | Incremental space | + | | | | + | + |
| 0F | 15 | SI | Start Underline | + | + | | | + | + |
| 0E | 14 | SO | End Underline | + | + | | | + | + |
| 1F | 31 | US | Start Elongated | @ | + | + | + | @ | |
| 1E | 30 | RS | End Elongated | @ | + | + | + | @ | |
| 1B 11 | 27 17 | ESC DC1 | Sel Prop. Char. | + | | | | + | + |
| 1B 13 | 27 19 | ESC DC3 | Sel Ordinary | + | | | | + | |
| 1B 14 | 27 20 | ESC DC4 | Sel Condensed | + | | | | + | |
| 12 | 18 | DC2 | Select Graphics | | | | + | + | |
| 13 | 19 | DC3 | Select DP Mode | | | | | + | |
| 14 | 20 | DC4 | Not Expected | | | | | (+) | |
| 1B 15 | 27 21 | | RESERVED | | | | | | |
| 1B 16 | 27 22 | | RESERVED | | | | | | |
| 1B 17 | 27 23 | | RESERVED | | | | | | |
| 1B 18 | 27 24 | | RESERVED | | | | | | |
| 1B 19 | 27 25 | | RESERVED | | | | | | |
| 1B 1A | 27 26 | | RESERVED | | | | | | |

SEL - Line feed response is selected but not executed until printer receives 0A Hex LF.
@ ESC SO to select elongated , ESC SI to end elongated

As I mentioned before, the graphics mode is completely compatible with L.P. VII. There is one exception. You will note that L.P. VII has the character column addressing command (POS) which is not present in the VIII. Please be aware, however, that this code is also missing in the R.S. "standard graphic code" described in MAY. You don't need it (you can address anything by dot column number); avoid it and any code written for the VII will work in the VIII. The screen print utility for the color computer (26-3021 — $4.95) is an excellent example of this. You WILL notice a difference however! The VIII lays down a double "half-dot" for every single dot of L.P. VII. The resulting copy is much cleaner and crisper. Here (full size) is an example of a typical color computer "screen dump":




I'm running out of room, but I must address one more point. We have achieved a great deal of compatibility in all our printers, but that's with one special consideration. By nature of mechanical and font design considerations, each machine possessing proportional spacing uses different values for the actual character widths: D.W. II has one set, L.P. IV another and L.P. VIII (with its more dense dot density) yet another. You will also note that the code values for some of the special characters on the D.W. II are different in L.P. VIII. This actually poses no problem: the values for the character spacing and for the special character codes should be stored in a "look-up table" in any software which uses these special characters. Then you simply insert the proper values for the printer in use at the time of output. More about this in a later article.

Line Printer VIII should be available in limited quantities by the time you read this. I have included here as much of the detailed "spec" as room will allow. The best feature of L.P. VIII is its price — $799.00!!

See you next month . . . There's lots more to talk about.

Line Printer VIII Specifications:

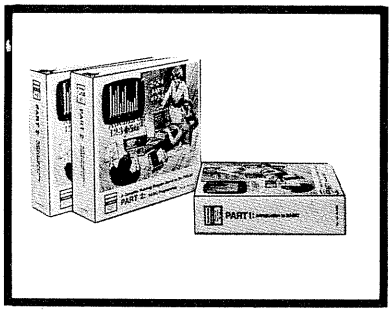
```
Printing Speeds:
     Ordinary (10 cpi) .... 80 Characters per Second (CPS)
                            55 Lines Per Minute (LPM)
                               (20 Character line)
                            23 LPM (80 Character line)
     Condensed ............ 100 CPS (18 LPM 132 Char/line)
     Elongated Ordinary ... 40 CPS
     Elongated Condensed .. 50 CPS
     Graphic .............. 480 dots per second
Characters Per Line:
     Ordinary (10 cpi)..... 80 Characters Per Line (CPL)
     Elongated Ordinary ... 40 CPL
     Proportional ......... 69 - 177 CPL
     Elong. Proportional .. 34 - 88 CPL
     Condensed ............ 133 CPL
     Elongated Condensed .. 66 CPL
Dots Per Character:
     Proportional ......... 9 - 23 horizontal dots
     Ordinary or Condensed  12 horizontal dots
Vertical Spacing:
     6, 8, or 12 Lines per inch (program selectable -
     Bi-directional paper feed available when 6 or 12 lines
     per inch is selected)
Dots Per Line:
     Ordinary ............. 960 dots
     Elongated Ordinary ... 960 dots
     Proportional ......... 1600 dots
     Elong. Proportional .. 1500 dots
     Condensed ............ 1600 dots
     Elongated Condensed .. 1600 dots
     Graphic .............. 960 dots

Character Sets:
     Ordinary or Condensed  ASCII or modified ASCII 94
                            International Symbol 26 or
                            Japanese Kana 64
                            Block Graphics 30
     Proportional ........  ASCII or modified ASCII 94
                            International Symbol 32


Interface:
     Parallel ............. 8-bit DATA and 4-bit Status
     Serial ............... 7-bit Unit or
                            8-bit Unit (Switch Selectable)
                            600 Baud or
                            1200 Baud (Switch Selectable)

Paper:
     Fan Fold Paper ....... Continuous business paper
                            (9 1/2" wide) with feed holes
     Copies ............... 1 Original and 2 Copies
                            (34 Kg (75 lb) non-carbon paper)
     Single Sheet Paper ... 40 - 60 Kg (88 - 132 lbs)
     Roll Paper ........... 8 1/2" wide, 1" core and up to
                            5" in diameter

Print Head Life ........... 1000 Hours typical
Ribbon .................... Radio Shack Cat. No. 26-1418
Size ...................... 15.4" x 4.7" x 11.0"
Weight .................... 16.5 lbs.
Power Requirement ......... 120V AC, 60 Hz (USA/Canada)
```



# Education

## Educational Products News

### RADIO SHACK'S K-8 MATH PROGRAM

Julie Olson's fifth grade class in Rosemount, Minnesota, uses the K-8 Math Program. Each of her students spends about thirty minutes a week practicing their math skills with the help of a TRS-80.

Leo Christopherson's eighth grade special math class near Tacoma, Washington, uses the K-8 Math Program for practice: half of the class works at the TRS-80s and the other half works on their textbook assignments.

Betty Crawford of Fort Worth, Texas, has used the K-8 Math Program in her Resource Room. She grouped her students according to ability and each group spent about fifteen minutes every day working at a TRS-80.

These are three examples of the K-8 Math Program at work helping to meet the needs of students and teachers in public school classrooms. A closer look at the program will show how it meets these needs.

The K-8 Math Program consists of a teacher's manual and ten separate computer programs on both cassette and diskette for a 16K TRS-80 Model I or Model III. All ten programs contain activities for one or more of the following areas: number concepts, addition, subtraction, multiplication, and division. Six of the programs are designed for specific grade levels (one program each for kindergarten and first grade, and two programs each for second grade and third grade), while one program each is devoted to addition, subtraction, multiplication, and division. Designed to supplement classroom instruction, K-8 Math is an effective means of giving students practice in elementary mathematics concepts.

Each individual program contains from eleven lessons (Kindergarten) to seventy lessons (Addition and Subtraction). The lessons become progressively more difficult, ranging from beginning to more advanced activities within each program.

Let's look at the Addition program as an example. When the Addition program is loaded and running, the first screen to appear is the following:

```
RADIO SHACK
COMPUTER ASSISTED INSTRUCTION
ADDITION
PROBLEMS PER SESSION (0 = NO LIMIT)? __
```

The computer is asking for the number of problems you want each student to work. To choose 10 problems, you would type 1 0 and press ENTER. Then the Operational Modes screen appears:

```
RADIO SHACK
COMPUTER ASSISTED INSTRUCTION
ADDITION

OPERATIONAL MODES

(A) STUDENT PLACEMENT
(B) SKILL BUILDING LESSONS
(C) TEST
(D) CHANGE PROBLEMS PER SESSION

ENTER SELECTION ?
```

You have the choice of determining a student's placement level, starting your students on skill building lessons, testing your students, or changing the number of problems you chose earlier.

### THE PLACEMENT MODE

To choose option A, Student Placement, you would type A and press ENTER. When the computer asks for the name of the student you want to place, you would type the name and press ENTER.

Next you would choose a lesson level that you think may be appropriate for this student. (An appendix in the teacher's manual contains descriptions of all the lessons.) To start with Lesson 3, you would type 3 and press ENTER.

An addition problem like the following then appears on the screen:

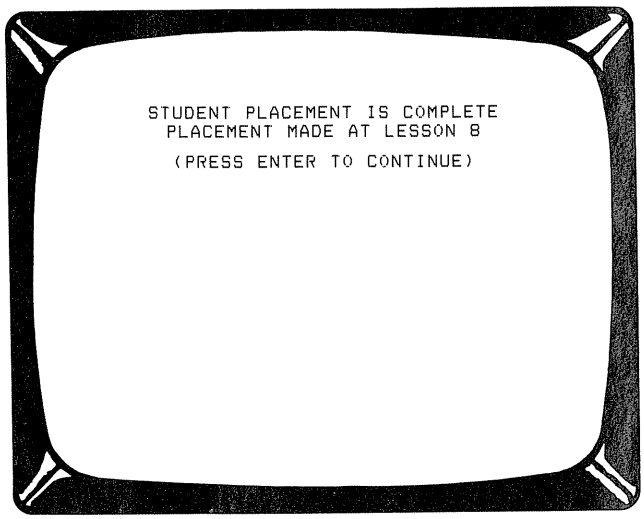
```
9 + 7 = __
```

The student types in the number that he/she thinks is the correct answer. If the student answers correctly, a "Happy Face" appears and a new problem is presented. If the answer is incorrect, a second chance is allowed. When two wrong answers are typed in, the correct answer is shown and a new problem appears.

(Continued on Page 19)

# Education (From Page 18)

The program keeps track of how many problems have been answered correctly and incorrectly in each lesson and gives the student progressively easier or more difficult problems according to the student's responses. After the student works enough problems for the computer to determine the appropriate placement level, a screen like this one will appear:

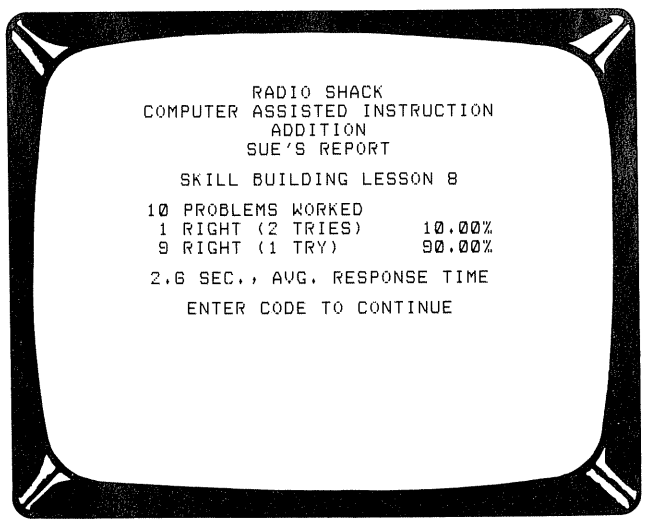



The student has been placed in Lesson 8. This placement information can be recorded on a copy of the Student Record Sheet included in the manual. Then you can press (ENTER) and the student can begin working problems in Lesson 8, or you can type the two letter code (R)(T) to begin placement for another student.

## THE SKILL BUILDING MODE

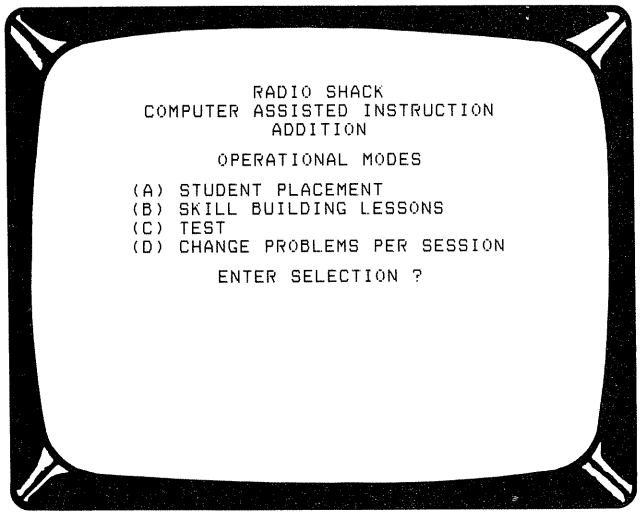
If you choose to press (ENTER) when the placement report is on the screen, the computer will present as many problems as you selected when you began the program (in this case, 10 problems).

After the student has finished the 10 problems, a skill building report similar to the following will appear on the screen.




This information can also be recorded on the Student Record Sheet for that student. Then you can press either (R)(X) to end the program, or (R)(T) to return to the Operational Modes screen.

If you press (R)(T), you'll see:




## THE TEST MODE

If you wanted to test your students on a particular lesson, you would choose option C, Test, by typing (C) (ENTER). As the program requests it, you can enter the student's name, the number of the lesson on which you want to test, and the number of problems.

In the Test Mode, the student gets only one chance to answer. The program gives no indication of whether the answer is correct or incorrect.

When the student has answered all the problems, another report screen appears. Again, you would write the information from the report screen on the student's Record Sheet.

## TEACHERS WHO HAVE USED THE K-8 MATH PROGRAM

Julie Olson found the K-8 Math Program very useful. It motivated many of her students to improve their work habits. Some students who had worked slowly wanted to move ahead in the program more quickly, so they tried hard to work more rapidly. Other students who had sloppy work habits soon realized that they couldn't progress through the lessons if they missed many of the problems on the first try. Julie reports that after her students got used to working harder in the K-8 Math Program, they worked harder in other subjects, too.

Julie considers the program well-structured, and the progression of activities a natural one. She likes the way examples are given at the beginning of the lessons to show the student how to do the problems. Individualization in math instruction is important to Julie, and the K-8 Math Program helped her achieve it with her students. "I just think it is a really neat program," she says. "I wish I could let my kids spend more time with it."

Leo Christopherson's Title I eighth grade students in Keithley Junior High School were amazed that the computer addressed them by name in responses such as "Right, John!" Leo found that the K-8 Math Program allowed his students to progress at their own rates, providing more individualization than would have otherwise been possible. He says, "As far as I've seen, this is the most useful classroom math practice program."

Betty Crawford taught in a Resource Room in Atwood McDonald Elementary School, and she helped pilot the K-8 Math Program. Her students liked the happy face or encouraging message that came on the screen when they got the problems right. Using the program with the TRS-80s gave her students the motivation needed to practice their math skills. "They never would have practiced enough orally or with pencil and paper to learn the skills as well as they did," she says. Betty especially liked the Division program. "The little blinking cursor showing where the number was going to be was great!" she commented.

(Continued on Page 20)

## Education (From Page 19)

Her remedial children advanced an average of one year in math skills, and some of them advanced as much as two years. "It's remarkable for remedial children to grow this much," Betty says.

Here are more of Betty's comments:

"The teacher's manual was very good. It tells you everything to do."

"I had no discipline problems in teaching math when I worked with the computer."

"I like the structure of the Addition, Subtraction, Multiplication, and Division programs with the flashing line to show when to carry or regroup. The math process is easy to understand with the flashing cursor."

"I thoroughly enjoyed it."

### HOW YOU CAN USE THE K- MATH PROGRAM

The K-8 Math Program is available through any Radio Shack store or Computer Center. Also, Radio Shack Educational Coordinators work in each area of the country to show how Radio Shack computers and programs can meet the instructional and management needs of students, teachers, and administrators. The Program costs $199.00, and the computers needed to use it start at $999.00.

The Radio Shack K-8 Math Cross-Reference coordinates individual K-8 Math lessons with specific pages in each of six math basals, so the teacher can reinforce material being taught in class. It provides a quick means of finding additional drill-and-practice, remedial, or enrichment activities appropriate for students learning a specific skill or further developing a learned skill. The Cross-Reference is included in with each K-8 Math Program.

K-8 Math is an ideal program for use with a Radio Shack Network 2 Controller. Using the Controller, a teacher can load the programs into a central disk-based TRS-80 and then send the programs to up to sixteen cassette-based TRS-80s through the Network. This gives the classroom the added reliability and efficiency of the disk system at a low cost.

If you want to apply for outside funds from governmental or private sources, Radio Shack's Federal Funding Guide and Proposal Development Handbook for Educators can help. Available for $2.50 through Radio Shack stores, this guide outlines essential items which must be included in a proposal and gives hints for making your proposal a successful one. (Its catalog number is 26-2108.)

The Education Division of Radio Shack is working hard to help you in your school.

# Introduction to TRS-80 Level II BASIC and Computer Programming

### A textbook by Michael P. Zabinski, PhD. Review by Linda Miller

This exceptionally well-done book is designed to be used by anyone who wants to learn BASIC on his/her own or to be used as a textbook for a one semester introductory BASIC course. Dr. Zabinski, an experienced educator, assumes no previous experience with computers and only the basic arithmetic skills on the part of the reader.

Dr. Zabinski takes the reader, figuratively, by the hand and leads him/her through Level II BASIC one simple step at a time. Each definition of a BASIC concept is followed by examples and exercises designed to increase comprehension. Since Dr. Zabinski believes that the way to learn a new computer language is to use it, he offers ample opportunity to use each BASIC statement as it is introduced. The format is such that anything that would be displayed on the computer and all program lines are shown with a character set that simulates characters as they would be displayed on the video.

A few learning activities taken from "Introduction to TRS-80 Level II BASIC and Computer Programming" are included in this review to demonstrate the interactive nature of the text. For the first example, we look at INKEY$, a BASIC instruction which is often considered difficult to understand.

> The INKEY$ function is used to receive information, one character at a time, from the keyboard. The ENTER key need not be pressed to complete the data entry. This is in contrast to entering data with the INPUT statement. With INKEY$ the single character is automatically processed once the key is pressed. It is, however, not displayed on the screen. When the INKEY$ is encountered, the keyboard is examined to determine if a key has been pressed. If no key has been pressed, the null character is assumed. The following short program places a single character at the top corner of the screen.
>
> ```
> 10 CLS
> 20 PRINT@0, INKEY$: GO TO 20
> ```
>
> We now execute the program and notice that the character corresponding to whichever key we press appears on the screen. To stop execution, press BREAK to escape from the infinite loop in line 20.
>
> We now edit line 20 and take out the GO TO 20.
>
> ```
> 10 CLS
> 20 PRINT@0, INKEY$
> ```
>
> When RUN is entered, the READY appears immediately, indicating completion of execution. The INKEY$ needs to be placed within a loop so that the keyboard is repeatedly scanned for an entry. If it is not placed within a loop as in the above edited version of the program the keyboard is scanned only once. If by that time no entry has been made, INKEY$ is a null string.
>
> REMEMBER: The INKEY$ function makes it possible to enter data without pressing the ENTER key.

The above information is then followed by four short programs which use INKEY$. Each program is explained and additional exercises at the end of the section include problems using INKEY$ which require the reader to further try his understanding.

A second example shows a format frequently used throughout the manual.

```
Instruction          Anticipated Display        Display

PRINT (-C)[A         ____________________       ____________________
A%=32768             ____________________       ____________________
PRINT A%             ____________________       ____________________
PRINT A/3#           ____________________       ____________________
PRINT 1/3!+1/3#      ____________________       ____________________
```

The BASIC statements shown on the left vary depending on the material covered in the section preceding the exercise. Under "Anticipated Display" the student would write what he/she thinks would appear on the video when the statement is executed on the computer. Then the statement is entered into the computer to see what the actual "Display" or result is. If the execution of the statement agrees with the anticipated display, learning is immediately reinforced. If misconceptions have occurred, they are identified on execution, and the concept can be restudied.

Many of the example programs are accompanied by COMMENTS which further explain the BASIC program lines. The third and final example is taken from the chapter on FOR/NEXT loops. Here we see both the program and the results of the executed program accompanied by additional explanative comments.

(Continued on Page 21)

# Book Review (From Page 20)

```
                          COMMENTS

10 FOR M=32 TO 34         STEP 1 is assumed.
20 PRINT M; M*M;M[3       M*M is computed faster than M[2.
30 NEXT                   The M is optional in NEXT.

RUN

 32   1024   32768
 33   1089   35937        Upon completion of the loop,the
 34   1156   39304        counter has the incremented value
PRINT M                  that just exceeds the final
 35                       value."
```

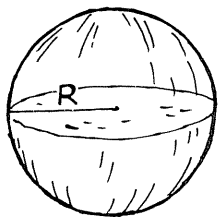
"Introduction to TRS-80 Level II BASIC and Computer Programming" is not for the complacent. A book of action, full of BASIC information and learning activities, it is concise, intelligent, and easily understood. If you're a beginner or simply want to clarify your understanding of BASIC, this may be the book for you.

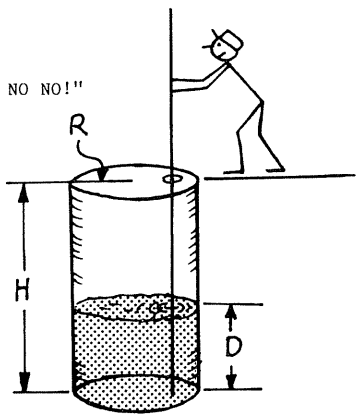
# Spheres (From Page 15)

P.P.P.S. — Computer Joke — Remember? A PC reduces the miseries of the common cold! (A. Henry)

APPENDIX 1: TRS-80 POCKET COMPUTER—DEMO

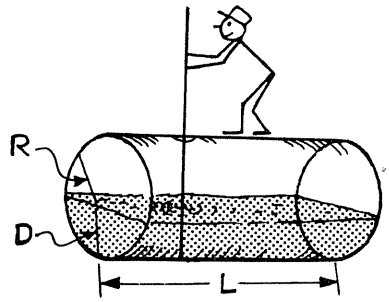
```
100 "A" PRINT "SPHERE MEASUREMENTS"
110 INPUT "RADIUS= "; R
120 S=4 PI R*R
    : PRINT "SURFACE= "; S; " SQ--"
130 V=S*R/3
    : PRINT "VOLUME= "; V; " CU--"
140 END
150 "B" PRINT "CYLINDRICAL TANK (VERT)"
155 PRINT "VOLUME IN GALLONS"
160 INPUT "RADIUS (INS)= "; R
170 INPUT "HEIGHT (INS)= "; H
180 INPUT "STICK (INS)= "; D
190 V= INT(PI R^2 * D * 1000/231)/1000
195 IF D>H THEN 285
200 IF D=H THEN 250
210 IF D=0 THEN 280
220 IF D<(H/8) THEN 270
230 IF D<(H/4) THEN 260
240 PRINT "VOL= "; V; " GAL"
    : GOTO 180
250 PRINT "FULL TANK "; V; " GAL"
    : GOTO 180
260 PRINT "VOL= "; V; "GAL. REORDER"
    : GOTO 180
270 BEEP 3
    : PRINT "WARNING! "; V; "GAL"
    : GOTO 180
280 BEEP 10
    : PRINT "EMPTY TANK"
    : GOTO 290
285 BEEP 5
    : PRINT "U GOOFED! D>H IS A NO NO!"
290 END
```




```
300 "C" PRINT "CYLINDRICAL TANK (HORZ)"
310 INPUT "RADIUS (INS) "; R,
    "LENGTH (INS)= "; L
320 INPUT "STICK (INS)= "; D
330 IF D=R THEN 410
340 IF D>2R THEN 450
350 IF D>R THEN 420
360 B=ACS((R-D)/R)
370 A=(PI R^2 * 2B/360)-((R-D)*R*SIN B)
380 V=INT(A*L*1000/231)/1000
390 PRINT "VOL= "; V; " GAL"
    : GOTO 320
410 A=PI R^2/2
    : GOTO 380
420 B=ACS((D-R)/R)
430 A=PI R^2+ ((D-R)*R*(SIN B)-(PI R^2*2B/360)
440 GOTO 380
450 PRINT "SPILL OVER!"
460 END
```

NOTE: In lines 120, 190, 370, 410, and 430 (twice); change PI to the PI symbol (SHFT up arrow on the top row of keys).




# GET, PUT (From Page 14)

$$\begin{aligned}\text{Array size} &= ((30 - 10 + 1) * (30 - 10 + 1) - 1) / 40 \\ &= ((21) * (21) - 1) / 40 \\ &= (441 - 1) / 40 \\ &= 440 / 40 \\ &= 11\end{aligned}$$

This means we can change line 25 of the program to read:

```
25 DIM V(11)
```

Change line 25 and RUN the program again. You will get an FC Error in 35. Remember, you must use the G option with GET command and one of the options listed in the manual with the PUT command. Change lines 35 and 45 to read:

```
35 GET (10,10)-(30,30),V,G
45 PUT (110,110)-(130,130),V,PSET
```

Now run the program. You should find that it works the same as the original version.

This method has been tried on several small programs, and SEEMS to work alright. If you are using GET and PUT, test this method in your programs. If it works alright, and you don't get any unexpected outputs, you will save a lot of memory. Just remember to use the G option with GET and PSET, PRESET, OR, AND, or NOT with PUT.

So much for GET and PUT. Now on to:

## HOW TO USE THAT 1.5k RAM RESERVED FOR GRAPHICS

Having received and devoured the June issue of the Newsletter, I thought that I would share a method I have discovered (again, empirically) of using that graphics page that is always reserved, no matter how hard you try to PCLEAR 0. Quite simply, all you do is, before you enter your program, type POKE 25, 6: NEW (ENTER). If you do a PRINT MEM you will be greeted by a memory size of 14631. Of course, you cannot use the graphics commands anymore, but you do have more space for those long number theory programs and arrays.

Editor's note: We received similar information from Roger Geer. CAUTION: while these methods appear to work in the LIMITED testing we did, you should be aware this information is undocumented, and may not work under all circumstances. Use the information if you wish, but test your programs thoroughly!

Mr. Geer's information is provided in another article in this newsletter.

# Multiplexer

Radio Shack's Communications Multiplexer, allows the TRS-80 Model II computer to respond to information requests from as many as sixteen telephone lines at once. This capability makes the Model II suitable for use as a host computer in private Videotex information retrieval networks, allowing communications with a number of Videotex-type text terminals simultaneously for easy access to virtually any data base.

With the introduction of the TRS-80 Communications Multiplexer, Radio Shack can now supply complete, low cost Videotex information dissemination systems. Used with the inexpensive TRS-80 Videotex terminal introduced by Radio Shack last year this Communications Multiplexer makes possible private information networks for such special interest closed user groups as farmers, publishers, newspapers, professional organizations and large individual corporations.

The cost-effectiveness of the Communications Multiplexer, combined with the low cost TRS-80 Videotex terminal (or available Radio Shack software that permits the TRS-80 Model I, Model II, Model III or Color Computer to be used as Videotex terminals) now makes it economical for groups of only a few hundred users to take advantage of private information networks; formerly, practical implementation of such networks required thousands of users.

In an operating Videotex system, a calling terminal first sees a listing (or "menu") of the categories of information which can be retrieved from the memory of the Model II host computer. Once the caller has communicated a specific selection by "typing it out" on the Videotex terminal keyboard, the selected information is transferred from the Model II, over the telephone line, and almost instantly appears on the caller's Videotex terminal TV screen.

The TRS-80 Communications Multiplexer is available in two versions, either with eight-line capability for $6000, or expanded to sixteen-line capability for $8000.

The Communications Multiplexer is available by special order only from Radio Shack Special Marketing, 1600 One Tandy Center, Fort Worth, Texas 76102.


# Litigation Support

New Litigation Support software package for Radio Shack's TRS-80 Model II computer works like a paralegal secretary—and then some.

Radio Shack now offers a software package for the TRS-80 Model II computer of direct interest to law firms, legal offices and attorneys. This package of Litigation Support software (26-4545) is designed to assist the attorney in implementing an accurate extremely flexible storage and retrieval filing system.

Litigation Support actually creates two complete files, a client file and a forms file, both of which provide complete report generation.

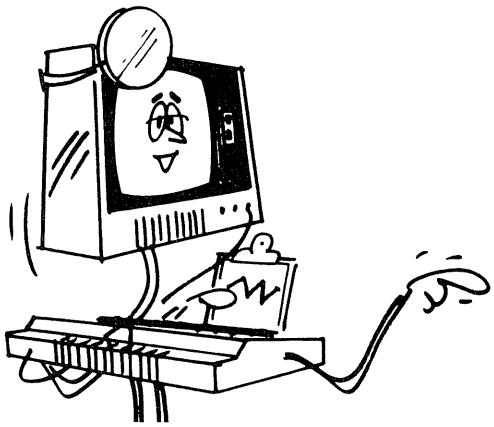
The client file holds information on personal background, case history, correspondence and other pertinent data. It has room for up to 350 client records, with up to 12 pleas and up to 10 memos per file. And it generates two mailing labels—one for an individual and one for a client company with a contact.

The forms file works like a paralegal secretary. Upon typing in a subject, topic, case number or keyword, the computer begins reviewing and displaying all matching records, with the user selecting those most pertinent. The forms file provides room for up to 575 records, with up to 144 characters for sources and up to 255 characters for description.

In addition, the Litigation Support package may be used in conjunction with SCRIPSIT word processing software and extra disk drive systems for composing letters, documents and reports.

Like all Radio Shack software packages, Litigation Support includes complete documentation and no previous computer training or expertise is required for its use.

Running this Litigation Support software requires a 64K TRS-80 Model II computer and a 15-inch wide tractor feed line printer like the Radio Shack Line Printer V or Line Printer VI.



# Medical Office System

Radio Shack is now providing a software package, for TRS-80 Model I and Model III computer systems equipped with a printer and disk drives, that permits complete patient and office record maintenance for medical offices. The package is Medical Office System (26-1568) and is available now.

The Medical Office System (MOS) software is capable of storing up to 3960 patient accounts using the TRS-80 Model I, or up to 4200 accounts using the Model III. MOS can record and store up to 3685 transactions per month using the Model I or 7700 records using the Model III. Insurance forms can be printed while the patient is being seen, or at a later time, as needed.

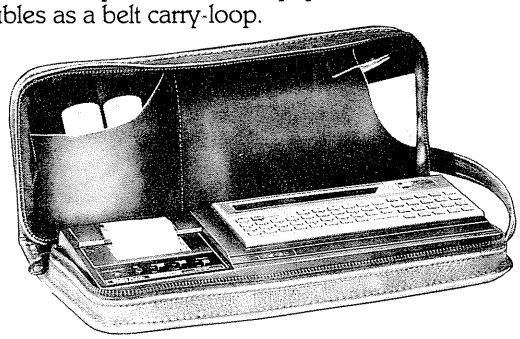
This software also provides space to accommodate 200 different procedures, and 200 diagnoses. Monthly procedural and diagnostic statistics are available from the system.

Entry of transactions is quick, including all procedures performed and payments received, with fully detailed billing statements printed at the end of each month. Accounts receivable can be aged up to 120 days. An optional password may be used to maintain the confidentiality of all records.

The Medical Office System package includes complete step-by-step instructions on the use of this software, and no previous computer experience or training is necessary.

# Pocket Computer Carrying Case

A plush-lined soft case (26-3508) is being offered as an optional accessory for the TRS-80 Pocket Computer. This handy padded case features two inside pockets for storing pens, pencils, reference cards, spare ribbon and paper; and a convenient handle that doubles as a belt carry-loop.



The case has been designed to accommodate either the TRS-80 Pocket Computer nested in its printer/cassette interface, and a few accessories; or, alternately, the Radio Shack Minisette-9 cassette recorder and several cassettes and accessories. Thus, a complete TRS-80 Pocket Computer system can be readily contained and carried using just two of these handsome and convenient cases.

# Line Printer VII

### Jim Lester Montgomery, AL

I purchased the Line Printer VII, mostly for the graphics function, and of course, the price. It works well with my TRS-80 Model III.

Along with this letter is a program listing that can be useful to owners of the new Line Printer VII. This program is relative to the graphics function of the line printer. The program converts the decimal control codes to binary and displays the dot matrix pattern for that code. By looking at the 7 least significant (rightmost) digits you can determine the dot pattern which will be printed. A dot will be printed if a one is in the position, nothing will be printed if there is a zero. The 8th digit (leftmost) tells the printer to print graphics if the digit is a one.

Editor's Note: Mr. Lester used the graphics capabilities of the LP VII to "sign" his name. Very impressive!

```
10 CLEAR 2000
   :X=0
20 FOR T=128 TO 255
   :N=T
   :Q=0
30 IF N=0 THEN 100
40 A=N/2
   :IF A=INT(N/2) THEN 60
50 GOTO 80
60 A$(Q)="0"
   :Q=Q+1
70 N=A
   :GOTO 30
80 A$(Q)="1"
   :Q=Q+1
90 N=INT(A)
   :GOTO 30
100 W=Q
   :FOR Q=W TO 0 STEP -1
110 LPRINT A$(Q);
   :NEXT Q
120 X=X+1
   :IF X=4 THEN 140
130 LPRINT ""; T; ""; CHR$(18); CHR$(T); CHR$(30); "   ";
   :NEXT T
140 LPRINT ""; T; ""; CHR$(18); CHR$(T); CHR$(30)
   :X=0
   :NEXT T
150 END
```

# NOTES ON PREVIOUS NEWSLETTERS

## MAY, 1981

I am ten years old and own a TRS-80 Microcomputer. I am interested in joining a computer club for 10 year olds. If you know of any let me know.

Incidentally, I found an error in the May, 1981 issue of Microcomputer News. On page 24, in the "Burma Shave" program, in line 60 you have:

60 PRINT @ 978,"BURMA SHAVE": A = 7: GOSBU 100

You spelled GOSUB wrong!!!

Very Truly Yours,
Chip Winkler
Fort Lee, New Jersey

## JULY, 1981

### LISTER/BAS

Part of line 60 was inadvertently left out of the program listing for LISTER/BAS. Line 60 should read:

```
60 ON ERROR GOTO 4000
   : OPEN"I", 1, F$
```

### Haunted House

Apparently our explanation of how to load HAUNTED HOUSE into a Model III in the July newsletter was a little too brief. The method of loading Haunted House in a Model III is:

1. Adjust the volume on your tape recorder to a higher than normal setting (we used 8 here).
2. Turn on your Model III. If you have a disk system, hold the (BREAK) key during power-up.
3. When the CASS? prompt appears on power-up, press (L) for low speed.
4. Press (ENTER) for Memory Size?
5. Make sure the Haunted House tape has been rewound to the beginning. Depress the PLAY button on the recorder.
6. When the Ready prompt and cursor appear on your Model III, type SYSTEM (ENTER).
7. When the *? prompt appears, type HAUNT (ENTER)
8. When the *? prompt reappears, type / (ENTER)
9. The following message should appear on the video:
   CHECKSUM
   READY CASSETTE

(Note: the word CHECKSUM is not to be confused with the C* — checksum error message — which can appear while the cassette is loading. If you get a C* error message while loading Haunted House, adjust your tape recorder to a higher volume setting and repeat the entire load process.)

10. At this point, rewind the Haunted House tape, depress the PLAY button on the recorder.
11. Press (ENTER) on the computer.
12. The recorder will turn on again, and shortly the words HAUNTED HOUSE will appear on the video. Press any key to begin the game.

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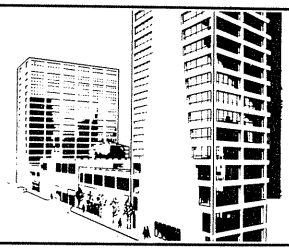
Please detach address label and mail to address shown above.

# Fort Worth Scene



We are very happy to be able to provide you with a monthly column written by Personal Software for VisiCalc and the TRS-80. We would like to thank Personal Software for this contribution.

If you have information, programs, articles, or comments of general interest; continue to send these to:

Microcomputer NEWS
P.O. Box 2910
Fort Worth, Texas 76101

If you have specific questions or problems that you would like a reply to, send your letter to (or call) Computer Customer Services:

Computer Customer Services
400 Atrium—One Tandy Center
Fort Worth, Texas 76102

You may have noticed that the Computer Customer Service address has changed. They recently moved into their new facilities in the central Atrium of Tandy Center. The new facilities give them some additional room for customer service representatives, and they get to ride to work in fancy glass elevators.

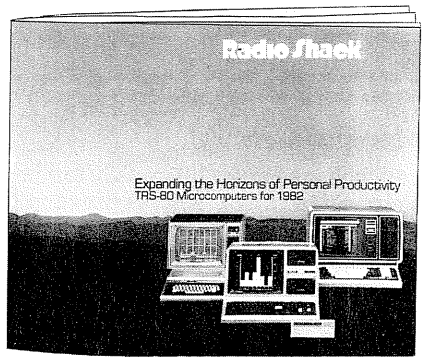
If you happen to be a CompuServe user you can now submit information and ideas directly to the newsletter. Our CompuServe number is 70000, 535. If you are submitting more material than you can leave in E-Mail, tell us the name of your disk file, and lower the password protection level so that we can read the file. Note—this number is only for submitting material to the Microcomputer News for publication. If you have problems, comments that you would like a reply to, or if you are responding to an item in Tandy's CompuServe newsletter, please use the feedback feature which is provided with the CompuServe newsletter.

We are slowly changing some of the methods we use to produce the newsletter. I am very happy with our latest "innovation." I can now upload material directly from a Color Computer, Model I, or Model III into my Model II, as an ASCII file, by using the Model II TERMINAL utility. Model II's Scripsit 2.0 (which should be coming available in the stores about now) gives me the ability to read the ASCII file into Scripsit. So we can write and test programs on the proper machine, and then load them "directly" into Model II Scripsit! This should help eliminate transcription errors.

Since Model II Scripsit 2.0 can read ASCII files, both the CompuServe and VisiCalc articles were transmitted to us by electronic means. The CompuServe article we picked up from a CompuServe disk file, and the VisiCalc article we received over our WATS lines from Sunnyvale, California.

We have a major article in the works on the new Scripsit 2.0 (a LOT of new features) and its companion program Scripsit Dictionary. I am looking forward to using the dictionary; our spelling always needs checking.

Editor—Bruce W. Elliott
Writer—Linda Miller
Production Art—Richard Conner




**Free 1982 Computer Catalog.** Full-color! 48 pages, packed with detailed information on our full line of computers, software and accessories. Come in for Catalog RSC-6. (Available Sept. 1981.)



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Back issues of Microcomputer News are not available.

The TRS-80 Newsletter welcomes the receipt of computer programs, or other material which you would like to make available to users of TRS-80 Microcomputer systems. In order for us to reprint your submission, you must specifically request that your material be considered for reprinting in the newsletter and provide no notice that you retain copyrights or other exclusive rights in the material. This assures that our readers may be permitted to recopy and use your material without creating any legal hassles.