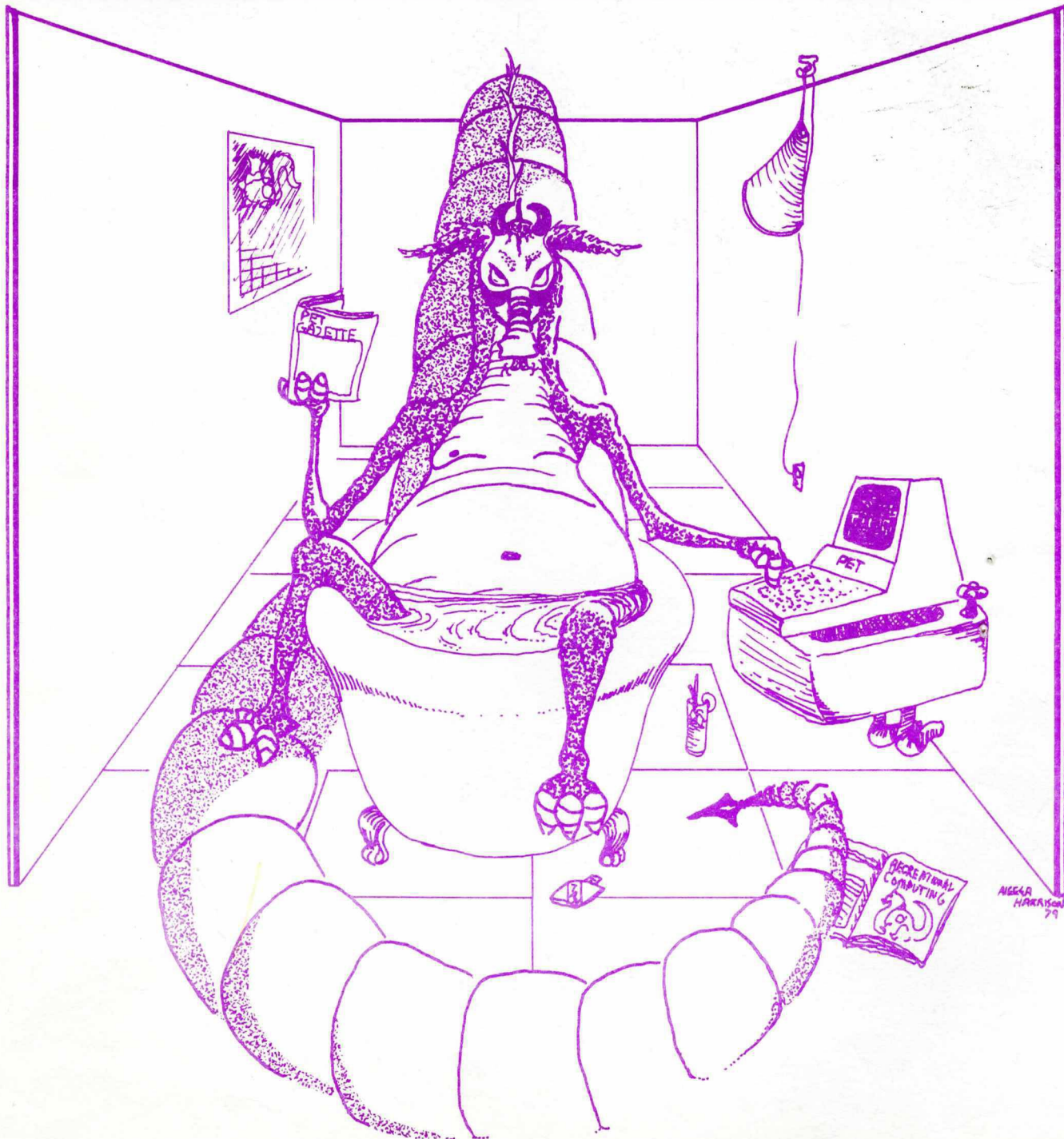


PET<sup>®</sup>

# GAZETTE

SUMMER 1979



INTERVIEW WITH THE DRAGON—page 32



Introducing

# The Basic Switch™

## Attention "Old" Pet™ Owners:

Not sure about the ROM Retrofit Kit from Commodore?  
Now you can use **both** sets of Commodore ROMs and others as well.

**The Basic Switch** allows switch selection of **either** ROM set (your original set or your retrofit set) from Commodore. Plus, Model 15-A includes an additional zero insertion force socket allowing easy use of ROMs like the BASIC Programmer's Toolkit ... concurrently.

**Model 14-E** The economy model of **The Basic Switch**. Stand alone board and harness without case and case hardware. The free standing unit is ready to accept your ROMs.

**Model 14-D** Same as Model 14-E but includes attractive protective case and mounted **Basic Switch** board.

Note that Model 14 Series does not allow for expansion ROMs like the BASIC Programmer's Toolkit.

**Model 15-A** **The Basic Switch** plus ... includes expanded cable assembly and zero insertion force socket. Your 15th ROM simply plugs in ... enabled while either ROM set is selected. Socket 15 may be readdressed by the user for additional flexibility.

**The Basic Switch** is sold in assembled form only. All models are designed for easy attachment to your Pet with a convenient cable assembly. No soldering or drilling is required. **The Basic Switch** mates with a cable assembly at your primary board, and **does not use** the physical connectors of any Pet ports.

Model 15-A allows you to use the BASIC Programmer's Toolkit without the need for the additional \$25.00 board or tying up your ports. And since we've designed the 15th socket to be readdressable, watch for more ROM pacs later in the Fall.

**The Basic Switch™** is a product of Small System Services, Inc. of Greensboro, North Carolina. Pricing, ordering, and warranty information on reverse side.

Pet™ is a trademark of Commodore Business Machines, Inc. of Santa Clara, Calif. The BASIC Programmer's Toolkit is a product of Palo Alto IC's, A Division of Nestar Systems, Inc.

Delivery times may vary subject to availability of various ROMs, etc. Prices and specifications subject to change without notice.



This issue spent almost 2 months at the printers so I feel that some updates should be included. I am looking for a PUBLISHER for the PET GAZETTE so that I won't have to do all the publishing chores myself. Anyone interested contact me right away. Please note: I do NOT receive any monetary gain from any company. My recommendations are for good products, not because I get "paid" by a company for a good word.

## COMMODORE NEWS

Well, good news at last. Things are looking up at Commodore, and good things seem to be on the horizon. In my last PET POURRI I was a bit hard on Commodore. This was due to a lot of negative comments from other users as well as lack of information. Commodore is now trying to remedy all that. Many new people are being hired. Training programs for PET dealers have now been started. This may be a significant point. Hopefully users buy their PET and accessories from their dealer. With a good training course PET dealers will now be able to help PET users locally with info and specific help. Final versions of the PET Printer and Dual Floppy manuals are now being polished and should be available soon. I've seen preliminary copies of these and they are a vast improvement over the preliminary manuals.

Commodore has products that I believe are far superior to the others in its field. The problem is learning how to unleash the hidden power in the PET, Printer, and Floppy. Full potential of the PET is now beginning to be realized. Both the PET Printer and Floppy include microprocessors as controllers. The final manuals will help each user use the power inherent in PET products. A complete PET system (PET Computer, Printer, and Floppy) can handle very sophisticated uses. In the very near future we should see some comprehensive serious software available.

Some of this serious software is already being finalized. Commodore has just signed a contract with the author of a FANTASTIC wordprocessor. I saw a preliminary version and was simply AMAZED. It seems very easy to use and has features I thought were only available on dedicated wordprocessing systems. I should have a copy of it within the week so next month I should be able to relate more about it.

It appears that there is a lot of potential inside Commodore's 2040 Dual Disk unit. It seems that the reliability problems with the earliest units has been remedied and the Disk Operating System has been improved. The trick is in learning to use the system. The preliminary manual which comes with the Disks is not too helpful. The final manual is being completed now and should help a lot. The 2040 Disk utilizes the PET's IEEE port and comes set up as device #8. The manual shows how to change this if you need to. Presently the 2040 Disk works only with the NEW PETs. Soon Commodore will begin shipping NEW ROMs for the OLD PETs and then the 2040 Disk will work with the UPGRADED OLD PETs. One can only write on the front side of each diskette which holds about 170K. (You can use the reverse side of the diskette if you carefully cut out a notch on the left side similar to the notch on the right. But beware, if even the smallest particle gets inside, the diskette may be ruined.)

A significant improvement has been made with the Commodore Disk Operating System. DOS 3.1 is now included with every system. It takes all the drudgery out of operating the Floppy. For example: ERRORS. In the program mode, your program can have a subroutine to check for errors. Their final manual has routines listed that do this. In the direct mode you only need to hit one key, the ">" and the error message is displayed on the PET screen. The new DOS also takes away the need to type in OPEN and PRINT# commands for accessing the disks in direct mode. Now you simply type in the character ">" followed by whatever you normally would have had to enclose in quotes in a PRINT# statement. LOADING a program from disk is now very simple. Just type in the character "/" (slash) followed by the program name. DOS takes over and does all the work for you including deciding which disk has the program. If you begin with the character "^" (up arrow) instead of "/" (slash) the program automatically will RUN once LOADED. And remember, the PET can use pattern matching for finding the program. The program BACKGAMMON 3.4 can be LOADED and RUN with the following direct command:

↑B\*

The \* (asterisk) tells the PET to LOAD the first program that begins with the characters preceding the asterisk. In this case PET would LOAD the first

program beginning with B. If another program precedes BACKGAMMON 3.4 on the disk (such as BASEBALL 2.5) you could use:

↑BAC\*

Once LOADED the program will automatically RUN.

## WHICH DISK FOR YOUR PET

First, do you own several PETs? Or do you also have an Apple and a TRS-80? If you answered NO then the Nestar dual drive full size floppy disk system is not for you. The Nestar CLUSTER ONE is ideal for schools. Up to 15 PETs, TRS-80s, and Apples can hook up to one CLUSTER ONE. Contact Nestar (810 Garland Dr, Palo Alto, CA 94303) for the name, address and phone number of your nearest Nestar dealers.

## COMPUTHINK DISK

Most readers probably only have one PET. There are two disk systems available that I have seen work that you should consider. One, of course, is the Commodore Disk mentioned earlier. The other is from CompuThink (3260 Alpine Rd, Menlo Park, CA 94025) who has had their disk system out for over a year already. Readers in the East and Midwest should contact New England Electronics (NEECO, 679 Highland Ave, Needham, MA 02194) who is the CompuThink distributor for that section of the USA. They now have a new Disk Operating System as well as a Dual Density option. Both sides of each diskette may be written on. If the disk protect notch is covered the diskette can not be written on. With dual density, each diskette can hold about 200K. Presently, the CompuThink disk will only work with the OLD PETs. Soon, it should be available for the NEW PET as well.

The CompuThink disk system is designed to be plugged into CompuThinks ExpandaMem. It utilizes the PET memory expansion port rather than the IEEE port. The system comes with a diskette containing Utilities on one side and helpful examples of disk programming on the other. The Utilities include: Monitor, Datafile, Diskcopy (to copy a complete diskette from one drive to the other), I've also discovered a very easy Random-Format (sets up a direct access file), DensityCopy (allows a dual density drive to read a single density diskette and create a dual density copy of it), and two memory tests, SOFTWARE (5115 Menefee Dr, PageTest and BlockTest. The examples on the other side are very helpful indeed. They show how to use the commands explained in the manual

CompuThink (3260 Alpine Rd, Menlo Park, CA 94025) presently is shipping dual density, dual minifloppy drive systems for the PET. By early fall 1979 they should be shipping this configuration with the added bonus of being able to read both sides of each diskette without having to take it out and flip it over. You then would have 4 sides of dual density diskette on line - or 800K ON-LINE.

CompuThink offers more than hardware. They also have a PL/M compiler available for their disk system. A BASIC and FORTRAN compiler will be available soon. Also available now is a comprehensive DATA BASE. Contact CompuThink for details on these.

## DISK SOFTWARE

Business Software is available for the CompuThink Disk from both Dr. Daley (425 Grove Ave, Berrien Springs, MI 49103) and Sawyer Software (201 Worley Rd, Dexter, MO 63841). Business Software for the Commodore Disk is available from both NEECO (679 Highland Ave, Needham, MA 02194) and CMS SOFTWARE (5115 Menefee Dr, Dallas, TX 75227). Next time I hope to have more info on these. It appears that both Dr. Daley and Programma International (3400 Wilshire Blvd, Los Angeles, CA 90010) are offering programs on CompuThink diskette as well as on cassette. (A software announcement for Programma in MICRO mentioned this, and Dr Daley includes this option noted in his brochures.) TIS (PO Box 921, Los Alamos, NM 87544) has just announced that their text editing program, MEDII, is now available for use with Commodore Disk and Printer. It is priced at \$12.95 and includes an over 40 page manual. It will be interesting to see which disk system will be supported by each of the many PET companies.

## PROGRAM PROTECTION REVISITED

Many software companies I've talked with are very concerned about the illegal copying of their programs. Many are now attempting to protect their programs from being copied. CompuThink (3260 Alpine Rd, Menlo Park, CA 94025) has a method to protect programs on disk with their disk system. I've also discovered a very easy method with their system. Of course I won't tell you how it's done. But any software marketer is welcome to contact me and I can send an example. CMS (5115 Menefee Dr, Dallas, TX 75227) has developed a method of protection using the Highland Ave, Needham, MA 02194) also has worked on protection



## NEW PET TO PRINTER UPDATE

It appears that the NEW PET is indeed a big improvement over the OLD PET. I haven't yet used a PET PRINTER but I'm told that it can print upper and lower case letters as they the screen. I don't know why Commodore didn't do this in their 2040 Floppy manual. The good news on the manual is that it is only temporary and a final improved version is now being completed. As to printing to a printer such as the Teletype 43 via RS-232 there is a problem. It appears that the OLD PET did not use TRUE ASCII code and the RS-232 interfaces corrected for this. The NEW PET now is sending TRUE ASCII code, which is indeed a good thing and an improvement. But either the interface made for the OLD PET will have to be modified or a program written to convert upper/ lower case. If any one has the answers please contact me.

## HARDWARE RESET

International Technical Systems (Box 264, Woodbridge, VA 22194) is selling a little device consisting of a pushbutton that mounts on the side of your PET and two alligator clips which "hook" onto two locations inside the PET. It installs easily and one push of the button and you are back into your "BYTES FREE" message on the screen. This is useful if you are doing machine language programming and you get "locked out". With this button you won't have to turn your PET off and back on, which is hard on your monitor. A touch of the button resets the PET and clears all memory, except it seems that the cassette buffers are left intact, a good side benefit.

## PET TAPE DUPLICATION

Dr. Daley (425 Grove Ave, Berrien Springs, MI 49103) now provides a good PET tape duplication service. Most tape duplicators do not do a good job with PET programs and data. Dr. Daley has come up with a method that seems to work very well. Software companies might do well to contact him. He made several copies of tapes for me and they read in the first time on several PETs. His prices for C30 tapes are:

- \$2.59 for up to 24 copies
- \$2.18 for 25 - 99
- \$1.80 for 100 - 249
- \$1.60 for 250 - 999
- \$1.55 for over 1000

Both sides are duplicated and prices include the tape, which is excellent AGFA tape.

Programma International (3400 Wilshire Blvd, Los Angeles, CA 90010) is on the move. I told you to watch them a few months ago. They now are distributor for PETSOF software. PETSOF is a major software house in England. They now will have more good programs to add to their already large offerings including PETFORTH, a high level language compiler for the PET. The BEST news is that Programma will now be distributing the final version of Mike Richters sophisticated software package - HUNT!!!. Hunt remains on my list of BEST PET programs. I'm glad that Mike has a good company (Programma) distributing his final polished version. Preliminary versions that I offered via the PET GAZETTE and also via Computer Way are now replaced by the final version. All orders and inquiries should be made to Programma. Orders for the preliminary versions will now be forwarded to Programma. Other Programma programs include: HOME ACCOUNTING, MATH PACK, PERSONAL ACCOUNTING SYSTEM, and WORD PROCESSOR.

## CMS SOFTWARE

CMS Software (5115 Menefee Dr, Dallas, TX 75227) is now offering several comprehensive business software packages for the PET with Commodore dual disk drives. They also are looking for specialized programs to use with their accounting package. CMS will supply all the subroutines and pay royalties up to 60%. I was fortunate to receive a preliminary version of the CMS GENERAL LEDGER. The diskette with documentation has an announced price of \$295. The PET now is getting some serious software support. I was very impressed by the package. It seems very user oriented with error checking. Also announced at \$295 each are PAYROLL with COST ACCOUNTING and ACCOUNTS PAYABLE / ACCOUNTS RECEIVABLE. Contact CMS Software for the name of your nearest dealer.

## CASSETTE TAPE SOURCES

I've received good comments on the following companies cassettes. Please write with your notes on both good and bad cassettes for use with the PET.

DR DALEY, 425 Grove Ave, Berrien Springs, MI 49103  
 AB COMPUTERS, PO Box 104, Montgomeryville, PA 18944  
 COMPUTER APPLICATIONS, Box 203, 446 Newbridge Ave, East Meadow, NY 11554  
 FULL COMPASS, 55 North Dickinson St, Madison, WI 53703  
 Also DAK INDUSTRIES and LONG ELECTRONICS have been mentioned but I have no address to list.

OLD PET owners now may buy a set of NEW ROMs for their OLD PET. There are two types of ROMs, both a set of 7 ROMs, either priced at \$89.95 per set from Commodore (3330 Scott Rd, Santa Clara, CA 95050). To upgrade your OLD PET you simply remove the OLD ROM set and replace it with the NEW ROM set. Once upgraded your OLD PET will then use the same memory locations as a NEW PET. Thus most PEEK or POKES used in OLD PET programs will not function properly and may even lock out your PET. You can modify your programs using my conversion chart as published on pg 72 of July Kilobaud MICROCOMPUTING. But programs using Machine Language subroutines probably won't work with the NEW ROM upgrade. And what becomes of your OLD ROM set? Is it thrown away? Small System Services Inc (900 Spring Garden St, Greensboro, NC 27403) phone: 919-272-4867, has what seems to be an excellent answer to this situation. They have a small board that plugs into your ROM sockets. It comes completely assembled for \$64.95 and is very easy to hook up. Both your OLD and NEW ROMs plug into their board. Now with a flip of a switch you can use either the OLD ROM set OR the NEW ROM set. This board is called the BASIC SWITCH(tm). For \$149.95 they will send it to you with the NEW ROMs already in the correct sockets, making it even easier for you, plus saving you \$5 over purchasing the NEW ROMs from Commodore direct. A deluxe model is to be available with an extra socket or two. One could plug in the PROGRAMMERS TOOL KIT or other software on ROM in these sockets. For more details contact Small System Services. SPECIAL NOTE: there are two different types of OLD ROMs. The NEW upgrade for the OLD 6540 set is available now. The NEW upgrade for the OLD 6316 set should be available by the time you read this, or early August. If ordering the BASIC SWITCH make sure to tell them your PET serial number and the type of OLD ROM in your PET so they can send you the correct version of their board. It also is good to know that their BASIC SWITCH board doesn't connect to any of the PET expansion ports, which might have been a problem for those with things already attached. Anyone upgrading their OLD PET direct with ROMs and not using this BASIC SWITCH should save their OLD ROM set. Who knows, maybe someone will put out a board for the NEW PET allowing it to use the OLD ROMs.

Skyles Electric Works (10301 Stonydale Dr, Cupertino, CA 95014) has a ROM set that both OLD and NEW PET owners should be interested in. It adds these 11 commands to your PET BASIC:

AUTO - provides auto line numbering  
 HELP - This command will list the line in your BASIC program that an error occurred on AND the erroneous portion in indicated in reverse video.  
 TRACE, STEP, OFF - Lets you see the sequence in which your program executes in the upper right corner of your screen.  
 FIND - will print lines that include the string you specify  
 RENUMBER - Now you can renumber any BASIC program in your PET without having to LOAD in a renumber program.  
 APPEND - merge program segments together  
 UNLIST  
 DELETE - delete groups of lines  
 DUMP - lists all variables with their contents

These are all available as soon as you turn on your PET. You never have to worry about loading in the programs from tape. To order this ROM chip make sure to specify how you wish to use it. To use with the NEW PET or Skyles MacroTea is costs \$50. To use with the OLD PET, ExpandaMem, or Skyles Memory Expansion it costs \$75. Since these are customized, please include your PET serial number with your request.

## STOP KEY DISABLE

To disable the STOP key on the OLD PET you POKE 537,136 while on the NEW PET you POKE 144,49. Micro Software Systems (PO Box 1442, Woodbridge, VA 22193) was kind enough to supply the following modification of my 1 line STOP DISABLE. My version (in JULY issue) could cause loss of control if executed more than once. Their version is:

```
1 PT=PEEK(50003):SL=537-393*PT:
DL=136-87*PT:POKE SL,DL
To RE-ENABLE the STOP key use:
9 PT=PEEK(50003):SL=537-393*PT:
DL=133-87*PT:POKE SL,DL
```

Note: if you previously assigned PT and SL you need not repeat the first section of the RE-ENABLE line. You could then simply use:

```
900 DL=133-87*PT:POKE SL,DL
```

These lines will operate on either OLD or NEW PETs without modifications since the lines are "smart" and "know" which PET they are RUNNING on. There are possible side effects with this method however. I believe it messes up the PET Jiffy counter. If your program uses it you may have to either change that section of your program or use another method of STOP disable.



# The Basic Switch™

**Price Schedule:** Effective July 1, 1979

<b>The Basic Switch:</b>		With <b>installed</b> ROM Retrofit Kit from Commodore:	With BASIC Programmer's Toolkit *
<b>Model 14-E-24</b>	\$64.95	\$149.95	—
<b>Model 14-D-24</b>	\$77.95	\$162.95	—
<b>Model 14-E-28</b>	\$64.95	\$149.95	—
<b>Model 14-D-28</b>	\$77.95	\$162.95	—
<b>Model 15-A-24</b>	\$99.95	\$184.95	\$149.95
<b>Model 15-A-28</b>	\$99.95	\$184.95	\$149.95

**Model 15-A-24 or 28** with installed ROM Retrofit and Basic Programmer's Toolkit: \$229.95

**Model 15-A-24 or 28** with installed ROM Retrofit and both BASIC Programmer's Toolkits: \$274.95

1. "Old" Pets were shipped with 24 or 28 pin ROMs. You must check which you have, and specify at time of order.
2. \* The BASIC Programmer's Toolkit is available in versions for "Old" Pets and retrofitted Pets. Order both from us with **The Basic Switch** and save the \$25.00 Board cost plus an additional \$10.00. At the "package" price, you end up with both versions of the BASIC Programmer's Toolkit for \$90.00.
3. **The Basic Switch** line carries a one-year repair/replacement warranty, F.O.B. Greensboro, N.C. This warranty does not cover any ROMs, but does cover all materials and workmanship in **The Basic Switch** and harness assembly.
4. New Pet Owners: If you're interested in **The Basic Switch** to allow you to access the "Old" ROM set, let us know ... we're working on it.
5. Ordering Information: We do not ship C.O.D. Please include payment with order, or wait for your local dealer to carry **The Basic Switch** line. Visa/Master Charge accepted. For mail order enclose address, name, account number, and expiration date. Dealer inquiries invited.

**Small System Services, Inc.**  
900 Spring Garden Street  
Greensboro, North Carolina 27403  
Telephone 919-272-4867

North Carolina residents add 4% sales tax. All orders add \$2.50 shipping.  
Warning: Removal and insertion of ROMs is a precise task. We encourage users to seek professional assistance for installation.  
We assume no responsibility for damage caused during insertion or removal.



PAK 1 SERIES TAPES

For \$10 you get 6 programs on each PAK 1 tape. They are arranged by category as follows:

**EDUCATIONAL PAK - MORSE CODE** with sound. It will help you learn morse code, or it can send code for you from your keyboard input. **MATH DRILL** - addition, subtraction, or multiplication. **STORY PROBLEMS** - word problems chosen at random for different ones every time. **CAPITOLS** - Drill in US state capitols. **SPELLING TEST** - data tape option too. **SPEED READING** - test your recognition speed.

**GAMES PAK 1 - MASTERMIND** - This appears to be the very best version of Mastermind available. **ACEY DEUCY** - card game of in between with graphics. **PET PONG** - An unusual version of the classic video game. **BATTLESHIP** - another classic. **DOMINOES** - You vs the PET, you must know the rules. **BASEBALL** - a light game.

**USEFUL PAK 1 - FILE MANAGER** - create, save, read, and edit data files. **EASY READER** - a short program to read data tapes. **WORD PROCESSOR** - with edit and print options. **BIORHYTHM** - a horizontal chart. **CASE CONVERTER** - converts UPPER case to lower. **DIGITAL CLOCK** - large easy to read digits.

**UTILITY PAK 1 - TRACE** - see article in SPRING 79 issue. **RENUMBER** - rennumbers your BASIC program including all branches. **AUTO LINE NUMBERER** - puts the next line number on the screen for you. **LINE DELETER** - have your program delete lines while running. **TAPE TEST** - test your head alignment. **MACHINE LANGUAGE TO BASIC** - writes a BASIC program with DATA lines to POKE in a ML routine.

**MUSIC PAK** - song  
**DEMO PAK** - demos

**BEST OF PAK 1 - 5** of the BEST from above plus **NO LIST** which shows you how you can prevent your BASIC lines from listing.

All PAKs are \$10 each and available from your dealer or direct from: **PET GAZETTE**, 1929 Northport Dr, Room 6, Madison, WI 53704

BOOKS

When we cut our pages from 64 back to 48 our **BOOK REVIEW SECTION** had to go. So here is a list of the books we have. You can be sure they exist, if you are considering ordering by mail.

**ARTIFICIAL INTELLIGENCE** - Tab  
**THE BASIC COOKBOOK** - Tab  
**A BEGINNERS GUIDE TO COMPUTERS & MICROPROCESSORS** - Tab  
**BEST OF THE COMPUTER FAIRES Vol 1-4** - ComputerFaire  
**CMS DATABOOK** - Tab  
**THE COMPLETE HANDBOOK OF ROBOTICS** - Tab  
**COMPUTERISTS HANDY MANUAL** - Tab  
**DIGITAL INTERFACING WITH AN ANALOG WORLD** - Tab  
**DIRECT CURRENT MOTORS** - Tab  
**57 PRACTICAL PROGRAMS & GAMES IN BASIC** - Tab  
**HANDBOOK OF REMOTE CONTROL & AUTOMATION TECHNIQUES** - Tab  
**HOW TO BUILD & USE LOW-COST HYDROPHONES** - Tab  
**HOW TO CUT YOUR ELECTRIC BILL AND INSTALL YOUR OWN EMERGENCY POWER SYSTEM** - Tab  
**HOW TO DESIGN & BUILD ELECTRONIC INSTRUMENTATION** - Tab  
**HOW TO INSTALL YOUR OWN HOME OR MOBILE ELECTRIC POWER PLANT** - Tab  
**HOW TO REPAIR VIDEO GAMES** - Tab  
**HOW TO SELECT & INSTALL YOUR OWN SPEAKERS** - Tab  
**ILLUSTRATED DICTIONARY OF MICROCOMPUTER TECHNOLOGY** - Tab  
**INSTRUMENTATION & CONTROL SYSTEMS ENGINEERING HANDBOOK** - Tab  
**MAKING & USING ELECTRICITY FROM THE SUN** - Tab  
**MASTER HANDBOOK OF 1001 MORE PRACTICAL ELECTRONIC CIRCUITS** - Tab  
**MASTER OP-AMP APPLICATIONS HANDBOOK** - Tab  
**MINIPROCESSORS: FROM CALCULATORS TO COMPUTERS** - Tab  
**POWER SUPPLY HANDBOOK** - Tab  
**PROGRAMS IN BASIC FOR ELECTRONIC ENGINEERS, TECHNICIANS & EXPERIMENTERS** - Tab  
**SOME COMMON BASIC PROGRAMS** - Osborne  
**303 DYNAMIC ELECTRONIC CIRCUITS** - Tab  
**24 TESTED, READY TO RUN GAME PROGRAMS ON BASIC** - Tab

**AIDS FOR TRANSFER OF INSTRUCTIONAL COMPUTING** - Conduit  
**AUTHOR'S GUIDE** - Conduit  
**BASIC COMPUTER GAMES** - Creative Computing  
**BASIC FOR HOME COMPUTERS** - Wiley  
**BASIC GUIDE** - Conduit  
**THE BASIC HANDBOOK** - CompuSoft  
**BASIC PROGRAMMING** - Wiley  
**BEST OF BYTE**  
**BEST OF CREATIVE COMPUTING Vol 1**  
**BEST OF CREATIVE COMPUTING Vol 2**  
**BEST OF THE PET GAZETTE** - PET Gazette  
**COLOR TV TROUBLE FACTBOOK** - Tab  
**DR DOBBS JOURNAL OF CPMUTER CALISTHENICS & ORTHEDONTIA VOL 1** - Peoples Computer Company  
**THE FIRST BOOK OF KIM** - Hayden  
**FIRST CLASS COMMERCIAL FCC LICENSE STUDY GUIDE** - Tab  
**GENERAL LEDGER** - Osborne & Assoc.  
**THE GIANT BOOK OF AMATEUR RADIO ANTENNAS** - Tab  
**HANDBOOK OF REMOTE CONTROL & AUTOMATION TECHNIQUES** - Tab  
**HOME COMPUTERS: A BEGINNERS GLOSSARY AND GUIDE** - Dilithium  
**HOME COMPUTERS: 210 QUESTIONS & ANSWERS VOL 2: SOFTWARE** - Dilithium  
**HOW TO DESIGN & BUILD YOUR OWN CUSTOM TV GAMES** - Tab  
**HOW TO DESIGN, BUILD & PROGRAM YOUR OWN WORKING COMPUTER SYSTEM** - Tab  
**HOW TO PROFIT FROM YOUR PERSONAL COMPUTER** - Hayden  
**LASERS, THE LIGHT FANTASTIC** - Tab  
**MICROCOMPUTER PRIMER** - Sams  
**MODERN AMATEUR RADIO LICENSE STUDY GUIDE FOR NOVICE, TECHNICIAN & GENERAL CLASS** - Tab  
**PCC'S REFERENCE BOOK OF PERSONAL AND HOME COMPUTERS** - Peoples Computer Company  
**REAL TIME PROGRAMMING WITH MICROCOMPUTERS** - Lexington  
**RADIO CONTROL MANUAL** - Tab  
**A STEP BY STEP INTRODUCTION TO 8080 MICROPROCESSOR SYSTEMS** - Dilithium  
**TV FIELD & BENCH SERVICER'S HANDBOOK** - Tab  
**THE UNDERGROUND BUYING GUIDE** - King  
**UNDERSTANDING ELECTRONICS** - Tab

We probably missed some due to their being loaned out.

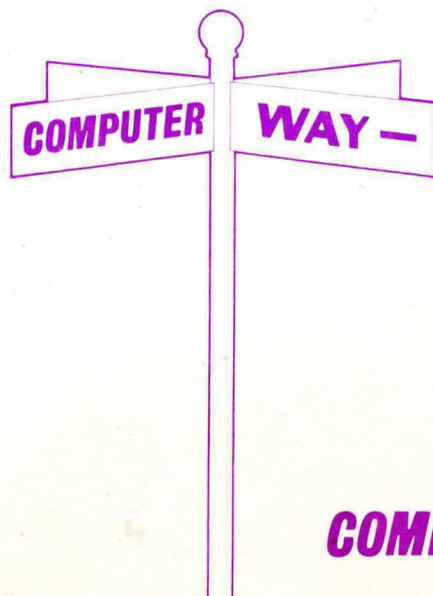
# COMPUTER WAY

## SELLS MORE BLANK CASSETTES

- COMPUTER WAY IS**
- \* PROMPT
  - \* GUARANTEED
  - \* HIGHEST QUALITY
  - \* LOW PRICES
  - \* PROFESSIONAL

(see our inside back cover ad)

**COMPUTER WAY** P.O. BOX 7006, MADISON, WI 53707





This issue has shaped up quite well and should provide most PET users with more information and things to try or think about. Some users sent me data tapes using CURSOR's editor. These are printed using CURSOR's PRINT program. Right now I am using Mike Richter's Word Processor Program (available on USEFUL PAK 1 for \$10 from the PET GAZETTE). Most other parts of this issue were composed on Connecticut Microcomputer's Word Processor Program. Several mods to that program are listed in this issue also (mod for NEW PETs, mod for DISK files, mod for AUTO return, mod for sound). I use SKYLES Big Keyboard and NEECOs full size keyboard with my old PET. My new PET is 32K and is hooked up with Commodores Dual Floppy Unit (which doesn't work quite right). Soon I will have COMPU-THINKS Dual Disk Unit plugged into my OLD PET. Most everything is printed on our Teletype 43 using the Printer Adapter from Connecticut Microcomputer. We also used the AXIOM Printer/Plotter for some of the prints of what was on the screen.

My dealings with Commodore are the same as usual. I rarely hear from them. They promised to send me an information pack on the differences between the OLD and NEW PETs. That was a couple months ago. I never got it. All info on the differences was aquired the HARD way as usual. They asked me to write something for their newsletter. I wrote and said fine, send me the info on what you need and further details. I never heard back again on that. Commodore also said they would TRY to send me demo units of the new PRINTER and FLOPPY. I never received them, nor heard again about that. I still think the PET is the BEST computer for personal use, IF you don't mind no support from Commodore. I recommend getting all peripherals and software from other independent companies. Commodores doesn't quite cut it.

#### LOTS OF EXCITEMENT

PET users have many exciting things waiting for them. Some of this excitement they could without however. Commodore created quite a stir when they brought out the NEW PETs. (Soon to be called CBMs) These NEW PETs have NEW ROMs which are NOT compatible with the old ones. They do however correct most of the BUGS in PET BASIC. (ie ARRAYS are no longer limited to 255 elements) They do however introduce their own problems. (In addition to the SERIOUS problem of incompatibility from OLD to NEW) The NEW PETs function differently in LOWER CASE MODE. Unshifted characters are lower case as on a typewriter. You shift for UPPER case. That's great, if they'd do it right. Now if you use lower case (we are literate, aren't we?) your program is limited to only one of the two versions of PETs. Beautiful lower case instructions on the OLD PET look horrible on the NEW PET. Everything is UPPER case except the letters which are supposed to be UPPER case. Those are shown as lower case. To remain compatible, one MUST use all UPPER case in the graphics mode. This is a MAJOR step backwards.

To top it off, Commodore didn't even do the change right anyway. Print something in lower case on the NEW PET. Fine! Now have it printed on your printer via the IEEE port. WHAT!?!? All the lower case letters are printed as UPPER case, and the UPPER case are printed as lower case. Why on earth would Commodore do that. The NEW PET isn't even compatible with itself. A cunning reader will probably come up with this reason:

A normal printer will not print UPPER/lower case correctly. Therefore you're forced to buy Commodores printer which corrects for this. Well that would be a good reason, if it were true. But Commodores printer doesn't correct for this. And they have the nerve to include program listings for their Dual Disk system printed on their printer with the UPPER/lower cases reversed. Worse yet, they don't print the lower as lower case, rather it is printed as graphic symbols (ie graphics mode). This is in their Manual no less. It sure looks funny. For example: "Should a failure..." is listed as: "♥HOULD A FAILURE..." Yes, there is a little heart printed instead of the lower case "s" which should have been an UPPER case "S" anyway. The line above that reads:

570 PRINT "DIGITAL BOARD. "  
WHAT?!?! So I look on my Keyboard caps to find those two symbols and discover they really mean "digital PC board."

Oh, well! Look forward to another NEW IMPROVED PET. Of course it will not be compatible with either of the two previous versions. That's my prediction. A year from now we'll see if I'm right.

If all that excitement isn't enough to give a serious PET user heart failure Commodore finally is shipping their DUAL FLOPPY DISK units. I have one, or what's left of one. I was wise and bought it through a DEALER. I thought it was funny that it was so unreliable. (Would you believe less than 25% reliable.) I rushed it back to the store and explained how I could save a program on DISK 1, but when I try to LOAD that same program from DISK 1 it wouldn't even find it. The store had an extra unit, but it also was bad. So they tinkered with mine. I got it back in a couple days. It now is a single drive with a hole where the 2nd drive should be. I'm not yet sure if the 1 drive I'm left with will work.

See, I told you there was excitement in store for PET users. I'll tell you a little bit about the DUAL DISK DRIVE from Commodore as I promised last time. CURSOR (Box 550, Goleta, CA 93017) printed some comments on the new DISK units in their issue#9. Their first unit didn't work. They are on their second unit now and are NOT impressed with it. According to an engineer friend of theirs, the Shugart drives that Commodore is using have been stripped of several components (to save money?).

POINT A) There is no head-load solenoid, thus when the disk door is closed the head is always loaded. A fair amount of friction must be overcome by the motor each time the disk is activated.

POINT B) they do not have a microswitch that senses when the head is retracted to track 0. Instead you hear a nice grinding sound each time you initialize the disk. This is because they run the stepper motor as far as it will go, then time out.

POINT C) They don't have a LED to sense the index hole in the diskette. How this will affect reliability remains to be seen.

The Disk Operating System leaves alot to be desired too. For example, the Disk unit is smart and knows when an error has been encountered. However, all it does is stop and light up a small LED on the front of the DISK unit. No error message is printed on your screen. As a matter of fact, nothing is printed on the screen. To find out what the error was you have to type in the following program. (NO, it can NOT be done as direct commands)

```
10 OPEN 15,8,15
20 INPUT#15,A$,B$,C$,D$
30 PRINT A$,B$,C$,D$
```

This has to be typed in. You can't load it in from disk, for that load would cancel whatever message was there. You can LOAD it in from cassette, but if your PET is locked out you will not be able to do that.

That isn't the only exciting things about the Commodore DUAL DISK unit. Whenever you insert a diskette into a drive you have to "initialize" it. Thus if you wish to see what is on your diskette you MUST type in the following series of commands (yes, these are direct commands):

```
OPEN 1,8,15
PRINT#1,"I0"
LOAD"$0",8
LIST
```

Isn't that fun! But when working correctly, programs only take a couple seconds to LOAD or SAVE. But RANDOM ACCESS programming with the unit is another story. I typed in their sample program to get RANDOM ACCESS. It was 57 lines. (including some REMark lines) All that for RANDOM ACCESS? And then it didn't work. More on the DISK SYSTEM next installment. (Special thanks to Ron Jeffries, Publisher of CURSOR for his permission to use some of his comments)





# RESOURCES

The following OLD/NEW conversion article will also appear as an article in the August issue of KILDBAUD MICROCOMPUTING. (printed here with their permission) Greg Yob's article on the PET won as BEST article in the March 79 issue. Let the world know that PET users are a very enthusiastic united group. Make sure to send in your card to vote on BEST article for the August issue. My PET POURRI in that issue supplements my article.



**ABACUS SOFTWARE**  
PO Box 721  
Grand Rapids, MI 49510

**AB COMPUTERS**  
PO Box 104  
Perkasie, PA 18944

**ACADIANA SOFTWARE**  
Rt 3 - Box 778  
St Martinville, LA 70582

**ACP INC**  
1310 E Edinger  
Santa Ana, CA 92705

**ADDISON WESLEY PUBLISHING**  
Reading, MA 01867

**ADP SYSTEMS**  
95 West 100 South  
Logan, UT 84321

**ALADIN AUTOMATION**  
3420 Kenyon St #131  
San Diego, CA 92110

**ALCORN DATA SERVICES**  
PO Box 1535  
Corinth, MS 38834

**ALPHA OMEGA SOFTWARE**  
1015 Saturn Springs Dr  
Garland, TX 75041

**AMPTEC**  
5975 Broadway  
Denver, CO 80216

**APPARAT**  
Box 10324  
Denver, CO 80210

**APPLICATIONS RESEARCH**  
13460 Robleda Rd  
Los Altos Hills, CA 94022

**ARESCO**  
PO Box 1142  
Columbia, MD 21044

**AUTOMATED SIMULATIONS**  
PO Box 4232  
Mountain View, CA 94040

**AXECO INDUSTRIES**  
13304 87 NE  
Kirkland, WA 98033

**AXIOM CORP**  
5932 San Fernando Rd  
Glendale, CA 91202



**BC COMPUTING**  
2124 Colorado Ave  
Sun Prairie, WI 53590

**BIOSYSTEMS RESEARCH**  
PO Box 160272  
Miami, FL 33116

**C BLACK STOCK**  
22312 80th Ave West  
Edmonds, WA 98020

## NEW - OLD PET CHARTS

As you probably already know the NEW PET computers are incompatible with the OLD PETs. Memory locations are used for different things in the NEW PETs. Since most decent PET programs took full advantage of the PET and used it's memory locations they now will NOT function correctly if at all on the NEW PET.

To convert OLD PET programs to function on the NEW PET, one needs a chart of the OLD memory location followed by the NEW memory location. Another chart would be needed to convert from the NEW locations into the OLD, so that OLD PET users would be able to use programs coming out for the NEW PETs. Realizing that Commodore will probably NOT care to help PET users by publishing an official conversion chart, I decided to compile an unofficial conversion chart memory map combination. Please note: Extreme care was taken to compile these charts, but NO guarantee can be made as to their accuracy.

Rather than just list address changes I decided to also briefly summarize what each address is used for by the PET. This is referred to as a MEMORY MAP.

My sources for information included the following.

- 1) Commodore PET USER MANUAL
- 2) Barry Miles & Commodore Systems (in London, England) memory map
- 3) PET GAZETTE, Spring 79 issue, memory map by Jim Butterfield
- 4) BEST OF THE PET GAZETTE memory map compiled by Roy Busdieker
- 5) BEST OF THE PET GAZETTE memory map compiled by Commodore Systems in ENGLAND
- 6) SPHINX PET Newsletter Vol 0 NO 4 memory map

0	OLDPET:NEW PET	- POKE LOCATION CHANGE
1 -2	:1-2	USER FUNCTION ADDRESS LO, HI
3 .	:14	ACTIVE I/O CHANNEL (FOR PROMPT-SUPPRESS)[CURRENT INPUT DEV#]
4 .	:?"	MULLS TO PRINT FOR CARRIAGE RETURN LINE FEED (UNUSED)
5 .	:?"	CURSOR COLUMN FOR NEXT INPUT OR PRINT
6 .	:15	TERMINAL WIDTH (UNUSED)
7 .	:16	LIMIT FOR SCANNING SOURCE COLUMNS (UNUSED)
8 -9	:17-18	LINE NUMBER BEFORE STORAGE (INTEGER ADDRESS FROM BASIC)
10 -89	:512-591	BASIC INPUT BUFFER (80 BYTES) [NUMBER OF ARRAY SUBSCRIPTS]
90 .	:3	GENERAL COUNTER FOR BASIC [SEARCH CHAR- USUALLY ':' OR ENDLIN
91 .	:4	OO USED AS DELIMITER [SCAN BETWEEN QUOTES FLAG]
92 .	:5	GENERAL COUNTER FOR BASIC [INPUT BUFFER PNTR][#OF SUBSCRIPTS]
93 .	:6	FLAG TO REMEMBER DIMENSIONED VARIABLES[1ST CHAR OF ARRAY NAME
94 .	:7	FLAG FOR VARIABLE TYPE 0= NUMERIC; 1= STRING [FF=STRING]
95 .	:8	FLAG FOR INTEGER TAPE [80=INTEGER; 00=FLOATING POINT]
96 .	:9	FLAG TO CRUNCH RESERVED WORDS [DATA SCAN FLAG\LIST QUOTE FLAG
97 .	:10	FLAG WHICH ALLOWS SUBSCRIPTS IN SYNTAX [FN X FLAG]
98 .	:11	FLAGS INPUT OR READ [0=INPUT; 64=GET; 152=READ]
99 .	:12	FLAG SIGN OF TAN [FLAG FOR TRIG SIGNS\COMPARSN EVALUATN FLAG
100 .	:13	FLAG TO SUPPRESS OUTPUT [+ =NORMAL; - =SUPPRESSED]
101 .	:19	INDEX TO NEXT AVAILABLE DESCRIPTOR [VARBL DESCRPTR STACK PNTR
102 -103:20-21		POINTER TO LAST STRING TEMPORARY LO;HI [SECOND DESCRIPT PONTR
104 -111:22-29		TABLE OF DOUBLE BYTE DESCRIPTORS WHICH POINT TO VARIABLES
105 .....		[DESCRIPTOR STACK FOR TEMPORARY STRINGS]
112 -113:30-31		INDIRECT ADDRESS #1 LO;HI [POINTER FOR NUMBER TRANSFER]
114 -115:32-33		INDIRECT INDEX #2 LO;HI [NUMBER POINTER]
116 -121:34-39		PSEUDO REGISTER FOR FUNCTION OPERANDS
117 -120:?"		[PRODUCT STAGING AREA FOR MULTIPLICATION]
122 -123:40-41		POINTER TO START OF BASIC TEXT AREA LO;HI
124 -125:42-43		POINTER TO START OF VARIABLES LO;HI [END BASIC\START VARBL
126 -127:44-45		POINTER TO ARRAY TABLE LO;HI [END VARIABLES\START ARRAYS]
128 -129:46-47		POINTER TO END OF VARIABLES LO;HI [START OF AVAILBL SPACE PTR
130 -131:48-49		START OF STRINGS POINTER LO;HI [BOTTOM OF STRINGS(MOVING DOWN
132 -133:50-51		TOP OF STRING SPACE POINTER LO;HI [MOVING DOWN]
134 -135:52-53		HIGHEST RAM ADDRESS LO;HI [TOP OF BASIC MEMORY]
136 -137:54-55		CURRENT LINE BEING EXECUTED [136=0 MEANS DIRECT][CURRENT LIN#
138 -139:56-57		LINE NUMBER FOR CONTINUE COMMAND LO;HI [LINE# SAVED BY END]
140 -141:58-59		NEXT STATEMENT TO EXECUTE POINTER LO;HI [PREV LINE# FOR CONT]
142 -143:60-61		DATA LINE# FOR ERRORS LO;HI[LN# OF DATA LINE\CUR LN# READ PTR
144 -145:62-63		DATA STATEMENT POINTER LO;HI [READ POINTER]
145 .....		[MEMORY ADDRESS OF DATA LINE
146 -147:64-65		SOURCE OF INPUT LO;HI [INPUT VECTOR[DATA ETC]][DATA STMT PNTR
148 -149:66-67		CURRENT VARIABLE NAME [CURRENT VARIABLE SYMBOLS]
150 -151:68-69		POINTER TO VARIABLE IN MEMORY LO;HI [CURRENT VARBLE START ADR
152 -153:70-71		POINTER TO VARIABLE REFERRED TO IN CURRENT FOR-NEXT
153 .....		[152 EOR OPERAND FOR WAIT\153 AND OPERAND FOR WAIT]
154 -155:72-73		POINTER TO CURRENT OPERATOR IN TABLE LO;HI
155 .....		[154 Y SAVE REGISTER\ NEW OPERATOR SAVE]
156 .	:74	SPECIAL MASK FR CURRENT OPERATOR[COMPRSN SMBL ACMLTR <1 =2 >4
157 -158:75-76		FUNCTION DEFINITION POINTER LO;HI [NUMBER WORK AREA FOR SQR
159 -160:77-78		POINTER TO A STRING DESCRIPTION LO;HI [NMNR WRK AREA 157-161]
161 .	:79	LENGTH OF ABOVE STRING
162 .	:80	CONSTANT USED BY GARBAGE COLLECT ROUTINE[3 OR 7 FOR GRBG CLCT
163 .	:81	\$4C CONSTANT-6502 JMP INSTRUCTION [JUMP VECTOR FOR FUNCTIONS]
164 -165:82-83		VECTOR FOR FUNCTION DISPATCH LO;HI
166 -171:84-89		FLOATING ACCUMULATOR #3 [NUMERIC STORE AREA]
172 -173:90-91		BLOCK TRANSFER POINTER#1 LO;HI [NUMERIC STORE AREA]
174 -175:92-93		BLOCK TRANSFER POINTER#2 LO;HI [NUMERIC STORE AREA]
176 -181:94-99		FLOATING ACCUMULATOR#1 (USER FUNCTION EVALUATED HERE)
177 .....		[PRIMARY ACCUMULATR E,M,M,M,S][MSB PARAMETERS 181=FLPT SIGN
182 .	:100	DUPLICATE COPY OF MANTISSA OF FAC#1[TAYLOR SERIES CNST COUNTR
183 .	:101	COUNTER OF NUMBER OF BITS TO SHIFT TO NORMALIZE FAC#1[SEE 185
184 -189:102-107		FLOATING ACCUMULATOR#2 [SECONDRY ACUMULTR][DIADIC HLDNG AREA
185 .....		[183 ACCUMULATOR HIGH ORDER PROPOGATION WORD]
190 .	:108	OVERFLOW BYTE FOR FLOATING ARGUMENT [SIGN COMPARSN PRIM/SECND
191 .	:109	DUPLICATE COPY MANTISSA SIGN[CLOW ORDER ROUNDING BYTE-PRMY ACML
192 -193:110-111		POINTER TO ASCII REP OF FAC IN CONVERSION ROUTINE LO;HI
193 .....		[CASSETTE BUFFER LENGTH\ TAYLOR CONSTANT POINTER]
194 -199:112-117		CHRGRT RAM CODE GETS NEXT CHARACTER FROM BASIC TEXT
200 .	:118	CHRGRT RAM CODE REGETS CURRENT CHARACTERS
201 -202:119-120		POINTER TO SOURCE TEXT LO;HI
203 -223:121-140		NEXT RANDOM NUMBER IN STORAGE
224 -225:196-197		POINTER TO CURSOR LINE [SCREEN POSITION ON LINE]
226 .	:198	COLUMN POSITION OF CURSOR [POSITION OF CURSOR ON LINE][0-79]
227 -228:199-200		GENERAL PURPOSE START ADDRESS INDIRECT LO;HI [UTILITY POINTER]
228 .....		[TAPE BUFFER COUNTER, SCROLLING][INVERSE VIDEO CURSOR=1]





# Skyles Electric Works

# PAL™



- Interfaced to PET
- Works with all peripherals
- 40 character per second rate
- Low cost thermal paper
- 96 character set
- Microprocessor controlled
- Bidirectional look-ahead printing
- Quiet operation
- No external power supplies
- Only two driven parts
- High reliability
- Clear 5 x 7 characters
- Attractive metal and plastic case

**T**he Skyles PAL™ is a high-performance serial printer featuring 40 character-per-second printing with a full 96 character set. Despite its low cost, the unit is a true intelligent printer with full line buffering and bidirectional look-ahead printing. After one line has been printed left to right, the internal microprocessor examines the next line. It then moves the print head to the last character of the line to be printed and prints right to left.

Large, legible characters are printed in a ten character-per-inch format. The 5 x 7 dot-matrix provides clear readable copy on white paper; no

hard to find, hard to read aluminized paper.

High reliability is designed in. Two DC stepping motors provide positive control of the print head and the paper roller, the printer's only driven parts.

The Skyles PAL™ operates directly from a 115v 60Hz line (230V 50Hz available). No external power supplies are required.

It comes complete with an interface for the PET: a two and a half foot cable plugs into the IEEE interface at the back of your PET. Works with all PET models and PET or Skyles peripherals.

Please send me \_\_\_\_\_ Skyles PAL™ printer(s) complete with 2½ foot interface cable to attach to my PET at \$450.00 each.\* (Plus \$10.00 shipping and handling.) I also will receive a test and demonstration tape at no additional charge, and over 200 feet of thermal paper.

\$ \_\_\_\_\_

\*California residents add 6-6½% sales tax where applicable.  
VISA, Mastercharge orders call (800) 227-8398  
(except California residents).

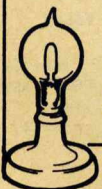
I would also like to order these double rolls of thermal paper, each 4-7/8" wide by 80 feet long (minimum order, three two-packs; almost 500 ft.):

\_\_\_\_\_ two-packs(s) (blue ink) at \$5.00.\* \$ \_\_\_\_\_

\_\_\_\_\_ two-pack(s) (black ink) at \$6.00.\* \$ \_\_\_\_\_

\_\_\_\_\_ carton(s) of 8 two-packs (blue) at \$36.00.\* \$ \_\_\_\_\_

\_\_\_\_\_ carton(s) of 8 two-packs (black) at \$43.00.\* \$ \_\_\_\_\_



# Skyles Electric Works

10301 Stonydale Drive  
Cupertino, CA 95014  
(408) 735-7891

TM PAL . . . Printer on A Leash, a trademark of Skyles Electric Works Inc.



# RESOURCES

-Continued-



ROGER BRACHT  
803 11th St  
Rapid City, SD 57701

BREITENBACH SIMULATIONS  
2905 Brandywine Dr  
Ann Arbor, MI 48104

BYTE SHOP  
6019 W Layton Ave  
Greenfield, WI 53220



CAP ELECTRONICS  
1884 Shulman Ave  
San Jose, CA 95124

CATALYST COMPUTER CENTER  
Lakeland HS-1630 Bogie Lak  
Milford, MI 48042

CENTURY RESEARCH & MFG  
4815 W 77th St  
Minneapolis, MN 55435

CHANNEL DATA  
5960 Mandarin Ave  
Goleta, CA 93017

CGRS MICROTECH  
PO Box 368  
Southampton, PA 18966

CMS SOFTWARE  
5115 Menefee  
Dallas, TX 75227

COMMODORE - USA  
901 California Ave  
Palo Alto, CA 94304

COMMODORE - CANADA  
3370 Pharmacy Ave  
Agincourt, Ontario  
CANADA

COMMODORE - ENGLAND  
360 Euston Rd  
London, ENGLAND  
NW1 3BL

COMPETITIVE SOFTWARE  
21650 Maple Glen Dr  
Edwardsburg, MI 49112

COMPUQUOTE  
6914 Berquist Ave  
Canoga Park, CA 91307

COMPUSCAN  
Box 861-A  
LValley Forge, PA 19481

COMPUTER BUS  
PO Box 397A  
Grand River, OH 44045

COMPUTER COMPLEMENTS  
147 Jericho Turnpike  
Floral Park, NY 11001

COMPUTER FACTORY  
790 Madison Ave  
New York, NY 10021

COMPUTER FORUM  
14052 E Firestone Blvd  
Santa Fe Springs, CA 90670

If there was an official Commodore location discription it is listed first. Discriptions from other sources are printed inside square brackets. To fit the discriptions into one line many words were abbreviated by dropping vowels and other letters. If two lines were needed to fully list the discriptions the second of the two begins with a row of dots .....

## USES OF THE CHARTS

\* If you have an OLD PET program that doesn't function correctly on your new PET you may be able to modify it using the OLD:NEW chart. LOAD the program into your NEW PET. Carefully scan the LISTING of the program. Check every PEEK and POKE used.

See my PEEK/POKE find and list program listing following these charts.

Change the location being PEEKed or POKEd to the location listed on the chart. (Find the OLD location on the charts first column. The NEW location is listed in the second column to its right.) In most cases this will allow the OLD program to function on the NEW PET. SAVE your corrected version on tape before you try a RUN.

\* If you have a NEW PET program that doesn't function correctly on your OLD PET use the NEW:OLD chart. Follow the procedure listed above.

\* If you are writing a PET program you can make a version for each PET by using the charts. Or you can make a program that works on BOTH PETs. This takes a bit more effort and more memory. Your program can find out which type of PET it is running in. Simply start your program with this line:  
1 PT=PEEK(50003)

An OLD PET will set PT=0. A NEW PET will set PT=1.

more

OLD	NEW	
229	-233:201-204	GENERAL PURPOSE AND ADDRESS DIRECT LO;HI (ALSO 180 IN NEW)
230	.....	[END OF CURRENT PROGRAM\ TAPE END ADDRESS]
231	-232.....	[TAPE TIMING CONSTANTS]
233	.....	[TAPE BUFFER CHARACTER]
234	:205	FLAG FOR QUOTE MODE ON/OFF [DIRECT/PROGRAMMED CURSOR\0=DIRECT
235	:?"	[TIMER 1 INTERRUPT STATUS \ 0=DISABLED]
236	:?"	[EOT CHARACTER RECEIVED]
237	:?"	[CHARACTER ERROR RECEIVED]
238	:209	CURRENT FILE NAME LENGTH [NUMBER OF CHARACTERS IN FILE NAME]
239	:210	CURRENT LOGICAL FILE NUMBER [GP1B FILE #]
240	:211	CURRENT PRIMARY ADDRESS [FILE COMMAND(FROM OPEN)][GP1B COMMAND
241	-242:212-213	CURRENT SECONDARY ADDRESS [241 DEV#][242 MAX LINE LNTH40/80
243	-244:214-215	START OF CURRENT TAPE BUFFER POINTER LO;HI
245	:216	CURRENT SCREEN LINE# [LINE WHERE CURSOR LIVES]
246	:217	DATA TEMPORARY FOR I/O [LAST KEY HIT(ASCII)\BUFFER CHECKSUM]
247	-248:251-252	POINTER TO START LOC FOR O.S. LO;HI [TAPE START ADDR\TAPE FMT
248	.....	[POINTER TO PROGRAM DURING VERIFY, LOAD, SAVE]
249	-250:218-219	POINTER TO CURRENT FILE NAME LO;HI [FILE NAME POINTER]
251	-254:?"	UNUSED [251 REMAINING COUNT FOR INSERT MODE]
252	.....	[252 SERIAL WORD]
253	.....	[253 NUMBER OF BLOCKS REMAINING TO WRITE]
254	.....	[254 SERIAL WORD BUFFER]
255	:?"	OVERFLOW BYTE THAT BASIC USES WHEN DOING FAC TO ASCII CONVRSN
256	-511:?"	62 BYTE ON BOTTOM ARE USED FOR ERROR CORRECTION IN TAPE READS
257	.....	ALSO BUFFER FOR ASCII WHEN BASIC IS EXPANDING THE FAC INTO A
258	.....	PRINTABLE NUMBER. THE REST OF PAGE 1 IS USED FOR STORAGE OF
259	.....	BASIC GOSUB AND FOR NEXT CONTEXT AND HARDWARE STACK FOR THE
260	.....	MACHINE.
261	.....	[256-266 IS BINARY TO ASCII CONVERSION AREA]
267	.....	[267-511 IS STACK AREA]
512	-514:141-143	24 HOUR CLOCK IN 1/60 SEC. [CLOCK THAT INCREMENTS 60 PER SEC
515	:151	KEYSTROKE VALUE [WHICH KEY DEPRSSD\255=NO KEY][MATRIX ROW-COL
516	:152	SHIFT FLAG (0=NO SHIFT\ 1=SHIFT) [SHIFT KEY 1 IF DEPRESSED]
517	-518:153-154	CORRECTION FACTOR FOR CLOCK LSB; MSB [CLOCK INCREMENTS 30/SEC
519	-520:249-250	INTERRUPT DRIVER FLAG FOR CASSETTE#1 SWITCHES; #2 SWITCHES
520	.....	[519 FOR CASSETTE #1 ON][520 FOR CASSETTE #2 ON]
521	:155	DUPLICATE OF 59410, BOTTOM ROW KEYS [KEYSWITCH PIA FLAGS]
522	:?"	[TIMING CONSTANT BUFFER]
523	:157	FLAG <> MEANS VERIFY NOT LOAD INTO MEMORY [LOAD=0\ VERIFY=1]
524	:150	I/O STATUS BYTE [STATUS (ST)]
525	:158	INDEX INTO KEYSTROKE BUFFER [# OF CHARACTERS IN KEYSTRK BUFFR
526	:159	FLAG TO INDICATE REVERSE FIELD ON
527	-536:623-632	INTERRUPT DRIVEN KEYSTROKE BUFFER
537	-538:144-145	IRQ RAM VECTOR LO;HI [HARDWARE INTERRUPT VECTOR]
539	-540:146-147	BRK INSTRUCTION RAM VECTOR LO;HI [BREAK INTERRUPT VECTOR]
541	:?"	[IEEE MODE]
542	:?"	[END OF LINE FOR INPUT POINTRJ# OF CHARACTERS ON SCREEN LINE
543	:?"	?
544	-545:?"	[CURSOR LOG (ROW,COLUMN)][USED IN INPUT ROUTINE]
546	:?"	[PBD IMAGE FOR TAPE I/O]
547	:?"	[KEY IMAGE]
548	:?"	[0=FLASHING CURSOR; ELSE NO CURSOR SHOWS][CURSR ENABLE\POKE=0
549	:168	COUNTDOWN TO FLIP CURSOR [CURSOR TIMING COUNTDOWN][POKE=1]
550	:169	SCREEN VALUE OF CHARACTER UNDER CURSOR
551	:170	FLAG FOR CURSOR ON/OFF[CURSR BLINK FLAG\1=BLNK STARTED\POKE=0
552	:?"	[EOT BIT RECEIVED][TAPE WRITE]
553	-577:224-248	TABLE OF LSB OF START ADDRESSES OF VIDED DISPLAY LINES(25)
554	.....	[SCREEN LINE WRAP TABLE]
578	-587:593-602	TABLE OF LOGIC ADDRESSES [LOGICAL NUMBERS OF OPEN FILES]
588	-597:603-612	TABLE OF PRIMARY ADDRESSES [DEVICE #S OF OPEN FILES]
598	-609:613-622	TABLE OF SECONDARY ADDRESSES [COMMAND/SECONDARY ADRS OPEN FILS
608	.....	[608 INPUT FROM: 0=KEYBOARD; 1=SCREEN]
610	:174	INDEX INTO LA, FA, SA TABLES [NUMBER OF OPEN FILES]
611	:175	DEFAULT INPUT DEVICE # [NORMALLY=0 FOR KEYBOARD]
612	:176	DEFAULT OUTPUT DEVICE#[OUTPUT TO CMD DEVCE, NORMALLY=3 SCREEN
613	:177	COMPUTATION OF PARITY ON CASSETTE WRITE[TAPE CHARACTER PARITY
614	:?"	[BYTE RECEIVED FLAG
615	:?"	?
616	:181	TAPE BUFFER ITEM COUNTER [POINTER IN FILE NAME TRANSFER]
617	:?"	?
618	:?"	UNUSED
619	:?"	?
620	:?"	SERIAL BIT COUNT
621	:184	[COUNT OF REDUNDANT TAPE BLOCKS]
622	:?"	?
623	:?"	[CYCLE COUNTER][FLIP FOR EVERY BIT COMING OFF OF TAPE]
624	:186	COUNTDOWN SYNCHRONIZATION ON CASSETTE WRITE
625	-626:187-188	INDEX NEXT CHARACTER IN/OUT TAPE BUFFER#1;#2 [625 FOR#1#626=#2
627	:189	COUNTDOWN SYNCHRONIZATION ON CASSETTE READ[LEADR CNTR\PASS1/2
628	:190	FLAG TO INDICATE BIT/BYTE TAPE ERROR [WRITE NEW BYTE]
629	:191	FLAG TO INDICATE TAPE ROUTINE READING SHORTS [WRITE START BIT



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DR. DALEY's software continues to expand offerings. Listed below are our most popular programs. No PET owner should be without these. Dealers, you should stock them as well.

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**COMPUTER PROJECT**  
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**COMPUTERS ONE/#306 Kahala**  
4211 Waialae Ave  
Honolulu, HI 96816

**COMPUTER SYSTEMS**  
PO Box 1846  
Ames, IA 50010

**COMPUTER TUTOR**  
317 Elm St  
Helena, ARK 72342

**COMPUTER WAY**  
PO Box 7006  
Madison, WI 53707

**COMPUTHINK**  
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Menlo Park, CA 94025

**COMPUTING TEACHER/Comp Cnt**  
Eastern Oregon State Coll  
LaGrande, OR 97850

**CONCORDIA DESIGNS**  
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CANADA M1R 5B7

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Kensington, CA 94708

**CONNECTICUT MICROCOMPUTER**  
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Brookfield, Ct 06804

**CONTEMPORARY MARKETING**  
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**CONTRACTORS' MANAGEMENT SY**  
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Chantilly, VA 22021

**COMPUTRONIX**  
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Midland, MI 48640

**COOPER COMPUTING**  
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**COYTE ENTERPRISES**  
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Charlestown, M  
ma

**CREATIVE COMPUTING**  
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Morristown, NJ 07960

**CREATIVE SOFTWARE**  
PO Box 4030  
Mountain View, CA 94040

Now, for example, if you wish to clear the keyboard buffer you could code this:  
250 IF PT THEN POKE 158,0 : GOTO 270  
260 POKE 525,0  
270 program continues

This utilizes the variable PT we set in the first line of our program. There are two lines, one for each PET along with a conditional IF THEN which allows your PET to execute only the correct POKE. This works fine, but I prefer the following method which I have used to convert many of my programs already. It uses only one POKE or PEEK, but has a computed location, utilizing the variable PT as set in the first line of our program. I hope this method can become a "standard" method to allow programs to be used on either PET.

This is a bit more complex:

250 POKE 525-PT\*367,0  
  
In this example, an OLD PET would POKE 525-0\*367 or POKE 525. A NEW PET would POKE 525-1\*367 or POKE 158.

To use this computed location method simply use the POKE location for the OLD PET. Then if the NEW PET location is higher, add PT times the difference. If the NEW PET location is lower, subtract PT times the difference. Could someone compile a chart with the OLD PET location followed by the difference to the NEW PET location.

### A SMART PROGRAM

Using the method just described a program can decide for itself which version of PET it is running on. Just make sure you start your program with:

1 PT=PEEK(50003)

Why does this work? On the OLD PET PT=0. Anything times 0 equals 0 so the POKE location is not affected by the amount added or subtracted since it is multiplied by PT first. Since PT=1 on the NEW PET the addition or

OLD	NEW	
630	-631:192-193	INDEX TO ADDRESSES TO CORRECT ON TAPE READ PASS 1; PASS 2
631	.....	[631 TAPE DROPOUT CNTR] [630 PASS1 ERR PNTR] [631 PASS2 ERR PNTR
632	:194	FLAG FOR CASSETTE READ-TELLS CURRENT FUNCTN-COUNTDOWN, READ [635
633	:195	COUNT OF SECONDS OF SHORTS TO WRITE BEFORE DATA [CHECKSUM]
634	-825:634-825	BUFFER FOR CASSETTE #1 (192 BYTES)
635	(CONTINUED 632)	[632 READ MODE: 0=SCAN 1-15=COUNTDOWN \$40=LOAD \$80=END]
636	.....	[632 TAPE CORRECTION COUNT]
826	-1017:826-1017	BUFFER FOR CASSETTE #2 (192 BYTES)

## CHART #2 NEW to OLD

OLD	NEW	
0	NEWPET/OLDPET-	POKE LOCATION CHANGE
1	-2	:1-2 USER FUNCTION ADDRESS LO;HI
3	:	:90 GENERAL COUNTER FOR BASIC [SEARCH CHRTR-USUALLY ': ' OR ENDLIN
4	:	:91 ;00 USED AS DELIMITER [SCAN BETWEEN QUOTES FLAG]
5	:	:92 GENERAL COUNTER FOR BASIC [INPUT BUFFER PNTR] [NOF SUBSCRIPTS]
6	:	:93 FLAG TO REMEMBER DIMENSIONED VARIABLES [1ST CHAR OF ARRAY NAM
7	:	:94 FLAG FOR VARIABLE TYPE 0= NUMERIC; 1= STRING [FF=STRING]
8	:	:95 FLAG FOR INTEGER TAPE [80=INTEGER; 00=FLOATING POINT]
9	:	:96 FLAG TO CRUNCH RESERVED WORDS [DATA SCAN FLAG] [LIST QUOTE FLAG
10	:	:97 FLAG WHICH ALLOWS SUBSCRIPTS IN SYNTAX [FN X FLAG]
11	:	:98 FLAGS INPUT OR READ [0=INPUT; 64=GET; 152=READ]
12	:	:99 FLAG SIGN OF TAN [FLAG FOR TRIG SIGNS\COMPARN EVALUATN FLAG
13	:	:100 FLAG TO SUPPRESS OUTPUT [+ =NORMAL; - =SUPPRESSED]
14	:	:3 ACTIVE I/O CHANNEL (FOR PROMPT-SUPPRESS)
15	:	:6 TERMINAL WIDTH (UNUSED)
16	:	:7 LIMIT FOR SCANNING SOURCE COLUMNS (UNUSED)
17	-18	:8-9 LINE NUMBER BEFORE STORAGE (INTEGER ADDRESS FROM BASIC)
19	:	:101 INDEX TO NEXT AVAILABLE DESCRIPTOR [VARIBL DESCRPTR STACK PNTR
20	-21	:102-103 POINTER TO LAST STRING TEMPORARY LO;HI [SECOND DESCRIPT POINTER
22	-29	:104-111 TABLE OF DOUBLE BYTE DESCRIPTORS WHICH POINT TO VARIABLES
23	.....	[DESCRIPTOR STACK FOR TEMPORARY STRINGS]
30	-31	:112-113 INDIRECT ADDRESS #1 LO;HI [POINTER FOR NUMBER TRANSFER]
32	-33	:114-115 INDIRECT INDEX #2 LO;HI [NUMBER POINTER]
34	-39	:116-121 PSEUDO REGISTER FOR FUNCTION OPERANDS
40	-41	:122-123 POINTER TO START OF BASIC TEXT AREA LO;HI
42	-43	:124-125 POINTER TO START OF VARIABLES LO;HI [END OF BASIC\START VARBL
44	-45	:126-127 POINTER TO ARRAY TABLE LO;HI [END VARIABLES\START ARRAYS]
46	-47	:128-129 POINTER TO END OF VARIABLES LO;HI [START OF AVAILBL SPACE PTR
48	-49	:130-131 START OF STRINGS POINTER LO;HI [BOTTOM OF STRINGS\MOVING DOWN
50	-51	:132-133 TOP OF STRING SPACE POINTER LO;HI [MOVING DOWN]
52	-53	:134-135 HIGHEST RAM ADDRESS LO;HI [TOP OF BASIC MEMORY]
54	-55	:136-137 CURRENT LINE BEING EXECUTED (54=2 MEANS DIRECT) [CURRENT LN#
56	-57	:138-139 LINE NUMBER FOR CONTINUE COMMAND LO;HI [LINE# SAVED BY END]
58	-59	:140-141 NEXT STATEMENT TO EXECUTE POINTER LO;HI [PREV LINE# FOR CONT]
60	-61	:142-143 DATA LINE# FOR ERRORS LO;HI [LINE# OF DATA LINE]
62	-63	:144-145 DATA STATEMENT POINTER LO;HI [READ POINTER]
63	.....	[MEMORY ADDRESS OF DATA LINE
64	-65	:146-147 SOURCE OF INPUT LO;HI [INPUT VECTOR (DATA ETC)] [DATA STMT PTR
66	-67	:148-149 CURRENT VARIABLE NAME [CURRENT VARIABLE SYMBOLS]
68	-69	:150-151 POINTER TO VARIABLE IN MEMORY LO;HI [CURRENT VARBLE START ADR
70	-71	:152-153 POINTER TO VARIABLE REFERRED TO IN CURRENT FOR-NEXT
72	-73	:154-155 POINTER TO CURRENT OPERATOR IN TABLE LO;HI
73	.....	[154 Y SAVE REGISTER\ NEW OPERATOR SAVE]
74	:	:156 SPECIAL MASK FOR CURRENT OPERATOR [CMPR SYMBL ACMLTR <1 =2 >4
75	-76	:157-158 FUNCTION DEFINITION POINTER LO;HI [NUMBER WORK AREA FOR SGR..
77	-78	:159-160 POINTER TO A STRING DESCRIPTION LO;HI [NMNR WRK AREA 157-161]
79	:	:161 LENGTH OF ABOVE STRING
80	:	:162 CONSTANT USED BY GARBAGE COLLECT ROUTINE [3 OR 7 FOR GRBG CLT
81	:	:163 \$4C CONSTANT-6502 JMP INSTRUCTION [JUMP VECTOR FOR FUNCTIONS]
82	-83	:164-165 VECTOR FOR FUNCTION DISPATCH LO;HI
84	-89	:166-171 FLOATING ACCUMULATOR #3 [NUMERIC STORE AREA]
90	-91	:172-173 BLOCK TRANSFER POINTER#1 LO;HI [NUMERIC STORE AREA]
92	-93	:174-175 BLOCK TRANSFER POINTER#2 LO;HI [NUMERIC STORE AREA]
94	-99	:176-181 FLOATING ACCUMULATOR#1 (USER FUNCTION EVALUATED HERE)
95	.....	[PRIMARY ACCUMULATR E,M,M,M,M,S] [MSB PARAMETRS 181=FLPT SIGN
100	:	:182 DUPLICATE COPY OF MANTISSA OF FAC#1 [TAYLOR SERIES CONST CNTR
101	:	:183 COUNTER - NUMBER OF BITS TO SHIFT TO NORMALIZE FAC#1 [SEE 103
102	-107	:184-189 FLOATING ACCUMULATOR#2 [SECONDARY ACCUMULTR] [DIADIC HLDNG AREA
103	.....	[101 IS ACCUMULATOR HIGH ORDER PROPOGATION WORD]
108	:	:190 OVERFLOW BYTE FOR FLOATING ARGUMENT [SIGN COMPARISON PRIM/SCND
109	:	:191 DUPLICATE COPY MANTISSA SIGN [LOW ORDER ROUNDING BYTE-PRM ACML
110	-111	:192-193 POINTER TO ASCII REP OF FAC IN CONVERSION ROUTINE LO;HI
111	.....	[CASSETTE BUFFER LENGTH\ TAYLOR CONSTANT POINTER]
112	-117	:194-199 CHARGET RAM CODE GETS NEXT CHARACTER FROM BASIC TEXT
118	:	:200 CHRGET RAM CODE REGETS CURRENT CHARACTERS
119	-120	:201-202 POINTER TO SOURCE TEXT LO;HI
121	-140	:203-223 NEXT RANDOM NUMBER IN STORAGE \ OR
136	-140	.....NEXT RANDOM NUMBER IN STORAGE
141	-143	:512-514 24 HOUR CLOCK IN 1/60 SEC [CLOCK THAT INCREMENTS 60 PER SEC



# PET SOFTWARE

## LAS VEGAS CASINO SERIES:

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DATASOFT RESEARCH  
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Forest Grove, OR 97116

DISTINCTIVE INTERIORS  
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D&R CREATIVE SYSTEMS  
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DR DALEY  
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EXCEL CO  
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**F** FANTASY GAMES SOFTWARE  
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FORETHOUGHT PRODUCTS  
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GRI Plaza  
Kimball, NEB 69145

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San Francisco, CA 94116

subtraction is performed yielding the NEW PET POKE location as planned. This sounds complicated, but is really quite simple. Here are some examples of common POKES that will work on BOTH PETs:

CLEAR KEYBOARD BUFFER & GET CHARACTER

200 POKES25-PT\*367,0:  
WAIT525-PT\*367,1: GETA\$

FILL KEYBOARD BUFFER WITH RETURNS

210 FOR N=0 TO 9:  
POKES27+N+PT\*96,13: NEXT

DISABLE STOP KEY

2POKES537-PT\*393,PEEK(537-PT\*393)+3

\* If you would like to understand what someone elses program is doing with its PEEKs and POKES look up the location on the applicable chart. The discription on the right may help your understanding of that POKE or PEEK function.

## FINAL NOTES

These charts were compiled within 2 weeks of the arrival of the NEW PETs. If you find any flaws or areas to be clarified please let me know. A corrected, more complete chart hopefully will be printed in next issue.

## COMMODORE NEWS

The 32K NEW PET went up in price to \$1295. The PET 2021 electrostatic printer was cancelled & will not be produced. The PET 2040 dual floppy disk unit went up \$200 to \$1295. The PET 2041 single floppy disk unit has been cancelled due to lack of interest. It is replaced by the 2040A single floppy for \$895, which is \$300 more than the model cancelled. It is the dual floppy with only 1 drive installed. Also note: two different RELIABLE sources have told me they consider the PET Printer to be "junk" or "not commercial quality". That of course is strictly opinion. I have not seen them yet and thus can not say one way or the other.

144	-145:537-538	IRQ RAM VECTOR LO;HI [HARDWARE INTERRUPT VECTOR]
146	-147:539-540	BRK INSTRUCTION RAM VECTOR LO;HI [BREAK INTERRUPT VECTOR]
148	: "?"	NMI RAM VECTOR
150	: :524	I/O OPERATION STATUS BYTE [STATUS (ST)]
151	: :515	LAST KEY INDEX [WHICH KEY DEPRSD\255=NO KEY][MATRIX ROW-COL
152	: :516	SHIFT FLAG (0=NO SHIFT) 1=SHIFT] [SHIFT KEY 1 IF DEPRESSED]
153	-154:517-518	CORRECTION FACTOR FOR CLOCK LSB; MSB [CLOCK INCREMENTS 30/SEC
155	: :521 "	DUPLICATE OF 59410(NEW=?)BOTTOM ROW KEYS [KEYSWITCH PIA FLAGS
157	: :523	FLAG <> MEANS VERIFY NOT LOAD INTO MEMORY [LOAD=0=VERIFY=1]
158	: :525	INDEX INTO KEYSTROKE BUFFER # OF CHARACTERS IN KYSTRK BUFFER
159	: :526	FLAG TO INDICATE REVERSE FIELD ON
160	-166:"?"	UNUSED
167	: :"?"	CURSOR ON FLAG
168	: :549	COUNT OF JIFFIES TO BLINK CURSOR[CURSOR TIMING CNTDN][POKE=1]
169	: :550	SCREEN VALUE OF CHARACTER UNDER CURSOR
170	: :551	CHAR SAVED DURING BLNK\CURSR ON/OFF FLG[CURSR BLNK FLG\POKE=0
171	-173:"?"	UNUSED
174	: :610	POINTER INTO LOGICAL FILE TABLE [NUMBER OF OPEN FILES]
175	: :611	DEFAULT INPUT DEVICE # [NORMALLY=0]
176	: :612	DEFAULT OUTPUT DEVICE # [OUTPUT TO CHD DEVICE, NORMALLY=3]
177	: :613	TAPE VERTICAL PARITY\COMPUTATION OF PARITY ON CASSETTE WRITE
178	-185:"?"	UNUSED [?]
180	: :229-233	GENERAL PURPOSE AND ADDRESS DIRECT LO;HI (ALSO LOCATN 201-204
181	: :616	TAPE BUFFER ITEM COUNTER [POINTER IN FILE NAME TRANSFER]
184	: :621	[COUNT OF REDUNDANT TAPE BLOCKS]
186	: :624	SYNC ON TAPE HEADER COUNT\COUNTDOWN SYNC ON CASSETTE WRITE
187	-188:625-626	POINTER TO ACTIVE CASSETTE \ OR
188	.....	INDEX NEXT CHARACTER IN/OUT TAPE BUFFER#1;#2[187 FOR#1\188-#2
189	: :627	COUNTDOWN SYNCHRONIZATION - CASSETTE READ[LEADER CNTR\PASS1/2
190	: :628	FLAG TO INDICATE BIT/BYTE TAPE ERROR [WRITE NEW BYTE]
191	: :629	FLAG TO INDICATE TAPE ROUTINE READING SHORTS [WRITE START BIT
192	-193:630-631	INDEX TO ADDRESSES TO CORRECT ON TAPE READ PASS 1; PASS 2
193	.....	[192 FOR PASS 1 ERROR LOG POINTR\193 FOR PASS 2 ERR LOG PNTR
194	: :632	FLAG-CASSETTE READ-TELLS CURRENT FUNCTN-COUNTDOWN,READ
195	: :633	COUNT OF SECONDS OF SHORTS TO WRITE BEFORE DATA [CHECKSUM]
196	-197:224-225	POINTER TO CURSOR POSITION [SCREEN POSITION ON LINE]
198	: :226	COLUMN POSITION OF CURSOR [POSITION OF CURSOR ON LINE][0-79]
199	-200:227-228	LOAD START ADDRESS LO;HI [UTILITY POINTER]
200	.....	[TAPE BUFFER,SCROLLING][INVERSE VIDEO CURSOR=1]
201	-202:229-233	PRINT LOAD END ADDRESS LO;HI (INCLUDES LOCATION 180)
202	.....	[END OF CURRENT PROGRAM\ TAPE END ADDRESS]
205	: :234	FLAG FOR QUOTE MODE ON/OFF [DIRECT/PROGRAMMED CURSOR*0=DIRECT
206	-208:"?"	UNUSED
209	: :238	CURRENT FILE NAME LENGTH [NUMBER OF CHARACTERS IN FILE NAME]
210	: :239	CURRENT FILE LOGICAL ADDRESS [GPB FILE #]
211	: :240	CURRENT PRIMARY ADDRESS [FILE COMMAND(FROM OPEN)] [GPB COMND]
212	-213:241-242	CURRENT SECONDARY ADDRESS [212 DEVCE][213 MAX LINE LNTH40/80
214	-215:243-244	START OF CURRENT TAPE BUFFER POINTER LO;HI
216	: :245	CURRENT SCREEN LINE# [LINE WHERE CURSOR LIVES]
217	: :246	DATA TEMPORARY FOR I/O [LAST KEY HIT(ASCII)*BUFFER CHECKSUM]
218	-219:249-250	POINTER TO CURRENT FILE NAME LO;HI [FILE NAME POINTER]
220	-221:"?"	UNUSED
222	: :"?"	CASSETTE READ BLOCK COUNT
223	: :"?"	UNUSED
224	-248:553-577	TABLE OF LSB OF START ADDRESSES OF VIDEO DISPLAY LINES(25)
225	.....	[SCREEN LINE WRAP TABLE]
249	-250:519-520	INTERRUPT DRIVER FLAG FOR CASSETTE#1 SWITCHES; #2 SWITCHES
250	.....	[249 FOR CASSETTE #1 ON][250 FOR CASSETTE #2 ON]
251	-252:247-248	POINTER TO START LOC FOR O.S. LO;HI [TAPE START ADDR*TAPE PNT
252	.....	[POINTER TO PROGRAM DURING VERIFY, LOAD]
512	-591:10-89	BASIC INPUT BUFFER (80 BYTES) [NUMBER OF ARRAY SUBSCRIPTS]
513	.....	512-513 IS THE PROGRAM COUNTER
514	.....	514 IS PROCESSOR STATUS
515	.....	515 IS ACCUMULATOR
516	.....	516 IS X INDEX
517	.....	517 IS Y INDEX
518	.....	518 IS STACK POINTER
519	-520.....	519-520 IS USER MODIFIABLE IRQ
593	-602:578-587	LOGICAL FILE NUMBERS [LOGICAL NUMBERS OF OPEN FILES]
603	-612:588-597	PRIMARY DEVICE NUMBERS [DEVICE #S OF OPEN FILES]
613	-622:598-609	TABLE OF SECONDARY ADDRESSES [COMMAND/SECONDARY ADRS OPEN FIL
623	-632:527-536	INTERRUPT DRIVEN KEYSTROKE BUFFER
634	-825	BUFFER FOR CASSETTE #1 (192 BYTES)
826	-1017:826-1017	BUFFER FOR CASSETTE #2 (192 BYTES)

Please send any additions or corrections you find for the charts above to the PET GAZETTE.





# Skyles Electric Works

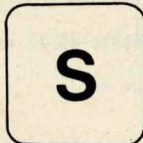
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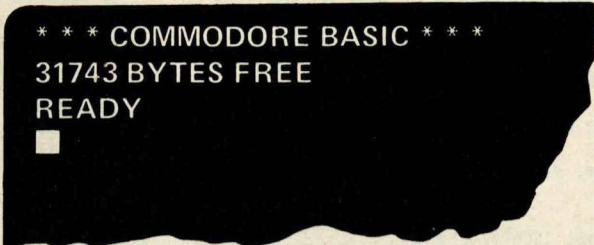
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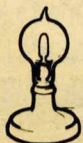


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The program POKE/PEEK find and list was quickly thrown together as an attempt to aid in modifying existing programs to work on the NEW PETS. Since it will be mainly used by NEW PET owners with 16K or more to check out programs made for the 8K PET it shouldn't matter that it is a bit long. I am sure that a more convenient way exists. With a bit of modification I am sure that Jim Butterfield's FIND program would do the trick better. But the listing here will suffice to start with. Once you have it keyed in save it on tape. Then you can make an ASCII version of it and add it onto any existing 8K program that doesn't use the same line numbers by using the MERGE method which I will explain following this program listing. I am very anxious to help ease the difficulty of conversion from OLD to NEW PETS. Please send any programs or tips you may come up with to the PET GAZETTE to be included in the next issue. Also note, there seems to be a slight problem with this program, but I don't have the time to check it out thoroughly since I have to get this issue put together and sent to the printers. Sorry for any errors.



```
63900 CLR:REM POKE/PEEK FIND&LIST - COPYRIGHT (C)1979 BY LEN LINDSAY
63901 X=1024:Y=0:DIM Z1(255),Z2(255),PV$(255),LC(255)
63902 PRINT "[CLR]RESULTS TO [RV$]S[COFF]CREEN OR [RV$]P[COFF]RINTER?"
63903 FOR CB=1 TO 10:GET CB$:NEXT CB:REM CLEAR KEYBOARD BUFFER
63904 GET A$:IF A$="" THEN 63904
63905 IF A$<>"P" THEN GOTO 63907
63906 PRINT:INPUT "DEVICE NUMBER 5C 3 LEFTJ";DV
63907 A=PEEK(X):REM VALUE IN LOCATION X
63908 IF A=0 THEN LC=LC+1:PRINT LC;:Z2=Z1: Z1=X:REM LAST TWO DELIMITERS
63909 IF Z2+1=Z1 AND PEEK(X+1)=0 THEN EC=Y: GOTO 63931: REM END OF PROGRAM
63910 IF A=151 OR A=194 THEN GOSUB 63914:REM 151 IS VALUE OF POKE 194 IS PEEK
63911 X=X+1
63912 IF X>9000 THEN EC=Y: GOTO 63931: REM SAFETY CHECK FOR END OF PROGRAM
63913 GOTO 63907:REM NEXT LOCATION
63914 P=X:REM POKE/PEEK LOCATION
63915 PRINT "[RV$]"Y+1"[LEFTJ] [OFF]";:REM PRINT POKE COUNT
63916 C=0:REM DIGIT COUNTER
63917 Y=Y+1:REM POKE COUNTER
63918 LC(Y)=Z1:REM LOCATION OF DELIMITER
63919 PV$(Y)="" :REM INITIALIZE DIGIT STRING
63920 Z1(Y)=(256*(PEEK(Z1+4)))+(PEEK(Z1+3)):REM LINE NUMBER THIS LINE
63921 Z2(Y)=(256*(PEEK(Z2+4)))+(PEEK(Z2+3)):REM LINE NUMBER LAST LINE
63922 P=P+1:REM NEXT LOCATION TO CHECK
63923 PV=PEEK(P):REM VALUE IN LOCATION
63924 IF PV=32 OR PV=96 OR PV=41 THEN 63922:REM SPACE, SHIFT SPACE, "(" -SKIP
63925 IF PV=44 THEN RETURN:REM COMMA THUS DONE
63926 IF PV<48 OR PV>57 THEN PV$(Y)=PV$(Y)+"?":RETURN:REM NONDIGIT BEFORE COMMA
63927 PV$(Y)=PV$(Y)+CHR$(PV):REM ADD NEXT DIGIT TO STRING
63928 C=C+1:REM DIGIT COUNTER
63929 IF C>5 THEN PV$(Y)=PV$(Y)+"?":RETURN:REM TOO MANY DIGITS
63930 GOTO 63922
63931 IF DV THEN OPEN 5,DV : CMD 5 :REM OPEN PRINTER
63932 REM *** PRINT POKE/PEEK LINES NOW ***
63934 PRINT:PRINT "PROGRAM CONTAINS"LC"OR LESS LINES":PRINT "AND"Y"POKES/PEEK$"
63935 PRINT "[RV$] LINE# POKE# DLN LOC PREV LINE"
63936 FOR Y=1 TO EC
63937 Q=Z1(Y):GOSUB 63953:PRINT Q;
63938 PRINT " ";
63939 Q$=PV$(Y)
63940 FOR Q=1 TO 8-LEN(Q$):PRINT " ";:NEXT Q
63941 PRINT Q$;
63942 Q=LC(Y):GOSUB 63953:PRINT Q;
63943 PRINT " ";
63944 Q=Z2(Y):GOSUB 63953:PRINT Q
63945 IF INT(Y/20)<>Y/20 THEN NEXT Y : REM PRINT 20 LINES THEN GO TO NEXT LINE
63946 FOR CB=1 TO 10:GET CB$:NEXT CB:REM CLEAR KEYBOARD BUFFER
63947 GET CB$:IF CB$="" THEN 63947
63948 IF DV THEN CMD 5 : REM KEEP PRINTER ON LINE
63949 PRINT "[RV$] LINE# POKE# DLN LOC PREV LINE"
63950 IF EC-Y+1 THEN NEXT Y
63951 IF DV THEN PRINT#5,"":CLOSE 5:REM TURN PRINTER OFF LINE
63952 END
63953 IF Q<10 THEN PRINT " ";
63954 IF Q<100 THEN PRINT " ";
63955 IF Q<1000 THEN PRINT " ";
63956 IF Q<10000 THEN PRINT " ";
63957 RETURN
```

## NEWS FROM HERE AND THERE

FLASH! Programm International is now the exclusive distributor of PETSOF (from England) programs. Watch for some previews in our next issue.

FLASH! Microsignal is no longer in business. The rights to its products have been acquired by VOICETEK.

FLASH! (again) McGraw-Hill acquires ADAM OSBORNE & ASSOCIATES. McGraw-Hill previously acquired BYTE magazine in April of this year.

NEW PET GROUP - Longfg Island PET Society, Harborfields High School, Taylor Ave, Greenlawn, NY 11740 - Attn: Ralph Bressler.

New PET Group - UTAH PET USER GROUP, Jack Fleck, 2236 Washington Blvd, Ogden, UT 84401.

REVIEW - ADAK-1-PET - THINC  
Technical Hardware Inc, PO Box 3609  
Fullerton, CA 92634

The review on this product missed our deadline. It exists and works. Watch next issue for more.

REVIEW-AIM161-DAM SYSTEMS  
Connecticut Microcomputer  
150 Pocono Rd, Brookfield, Conn 06804  
We have a complete set up of this analog to digital conversion system. However the review missed our deadline. It does exist, and it works. Watch for more next issue.

REVIEW-MICROPHYS PROGRAMS  
2048 Ford St, Brooklyn, NY 11229  
The review on several of these programs is late. We have a review copy of a couple of the many programs offered. Watch for more next issue.

## SORRY IF WE MISSED YOU

Please let us know if you sent us a review copy and it was not reviewed. Be assured it was not on purpose, we just have so many things to review, and everyone who takes something to review doesn't always write up a review on time.



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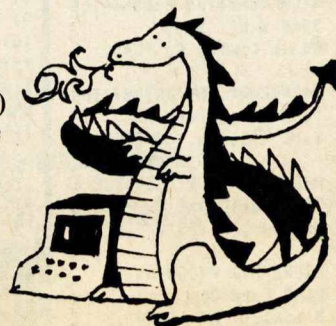
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## MERGE PROGRAMS

This method is by Brad Templeton, related by Jim Butterfield. It was previously printed in PET USER NOTES 1-6. Jim said we also could relate this info.

- 1) LOAD the program you wish to merge onto another.
- 2) Rewind a blank cassette. Label it ASCII of PROGRAM NAME.
- 3) Type in this line:

```
OPEN1,1,1:CMD1:LIST [RETURN]
```

- 4) Press RECORD and PLAY as requested.
- 5) After tape stops moving type:

```
For OLD PET:  
?"POKE611,0":PRINT#1:CLOSE1 [RETURN]
```

```
For NEW PET:  
?"POKE175,0":PRINT#1:CLOSE1 [RETURN]
```

You now have a tape of the program currently in the PET that can be merged with other programs not containing the same line numbers. It is an ASCII listing of the program. We will refer to it as ASCII PROGRAM.

Now here is how to do the merge. You have two programs. One is ASCII PROGRAM. The other program is the one you wish to add ASCII PROGRAM onto. We will refer to it as ORIGINAL PROGRAM.

- 1) LOAD ORIGINAL PROGRAM into PET.
- 2) Remove tape and place ASCII PROGRAM cassette into tape #1 & rewind it.
- 3) Type:

```
OPEN1 [RETURN]
```

- 4) Press PLAY as requested and wait for tape to stop moving.
- 5) Clear the screen and type 4 cursor downs:

```
[CLR, 4 DOWN]
```

- 6) Type the following line. Do NOT hit RETURN.

```
- OLD PET:  
POKE611,1:POKE525,1:POKE527,13:?"[HOME]"  
Do NOT hit RETURN.
```

```
NEW PET:  
POKE175,1:POKE158,1:POKE623,13:?"[HOME]"  
Do NOT hit RETURN.
```

- 7) Type Cursor Home and 6 Cursor Downs:

```
[HOME, 6 DOWN]
```

- 8) Type the same line as listed in step 6
- 9) Hit RETURN.
- 10) Your tape will move. Eventually things stop with a ?SYNTAX ERROR or ?OUT OF DATA printed between the two lines. The tape should then stop moving. If not simply hit the STOP key.
- 11) Type:

```
CLOSE 1 [RETURN]
```

- 12) SAVE your now completely merged program. Finished.

YOURS								PET'S									
8	■	■	■	■	■	■	■	8	■	■	■	■	■	■	■		
7	■	■	■	■	■	■	■	7	■	■	■	■	■	■	■		
6	■	■	■	■	■	■	■	6	■	■	■	■	■	■	■		
5	■	■	■	■	■	■	■	5	■	■	■	■	■	■	■		
4	■	■	■	■	■	■	■	4	■	■	■	■	■	■	■		
3	■	■	■	■	■	■	■	3	■	■	■	■	■	■	■		
2	■	■	■	■	■	■	■	2	■	■	■	■	■	■	■		
1	■	■	■	■	■	■	■	1	■	■	■	■	■	■	■		
	A	B	C	D	E	F	G	H		K	L	M	N	O	P	Q	R

ENTER LETTER, NUMBER OF YOUR SHOT: ■

NOTE: PILOT review is without our having seen the programs.  
NOTE: To the left is BATTLESHIP, from GAMES PAK 1, from PET GAZETTE, for \$10 with 5 other games.

PILOT  
\$19.95

COMPUTER PROJECT  
Peninsula School  
Peninsula Way  
Menlo Park, CA 94025

PILOT (Programmed Inquire, Learning or Teaching) is a dialog-oriented interactive language. It is easy to learn and text oriented. PILOT was invented by John Starkweather of the University of California Medical Center in San Francisco.

The Peninsula School Implementation of PILOT comes on a tape with six programs and a twenty-four page manual. The six programs are:

PILOT: The PILOT interpreter, written in BASIC.

GOLD: An untraditional version of Goldilocks written by you and the computer.

HAMMURABI: An economic simulation well known to all. This program demonstrates the use of the C (compute) command.

SKY: A dialog between you and the computer demonstrating the power of PILOT's Y and N commands.

NAMES: and

HANDS: Are both adapted from programs written by Ellen Nold and Sallie Cannon. Both engage the user in "conversation with the computer."

HAMMURABI and HANDS are suitable for those 10 years and up, while all others are suitable for those 8 years and up and may be used by even younger children with assistance.

Peninsula School PILOT supports the following commands:

T: (type), similar to BASIC PRINT.  
A: (ask), similar to BASIC INPUT.  
M: (match), the users last input is matched to a list following the M.  
If a match exists the match flag is set.  
J: (jump), program execution jumps to label specified.  
U: (use), jump subroutine.  
E: (end), return to BASIC.  
R: (remark), same as BASIC.  
H: (head), clear screen and home.  
F: (foot), prints "Press RETURN to go on."  
C: (compute), allows use of most BASIC commands.

Y,N: (yes or no), executes or not depending on the value of the match flag.  
: (expression), executes or depending on the value of the match flag.

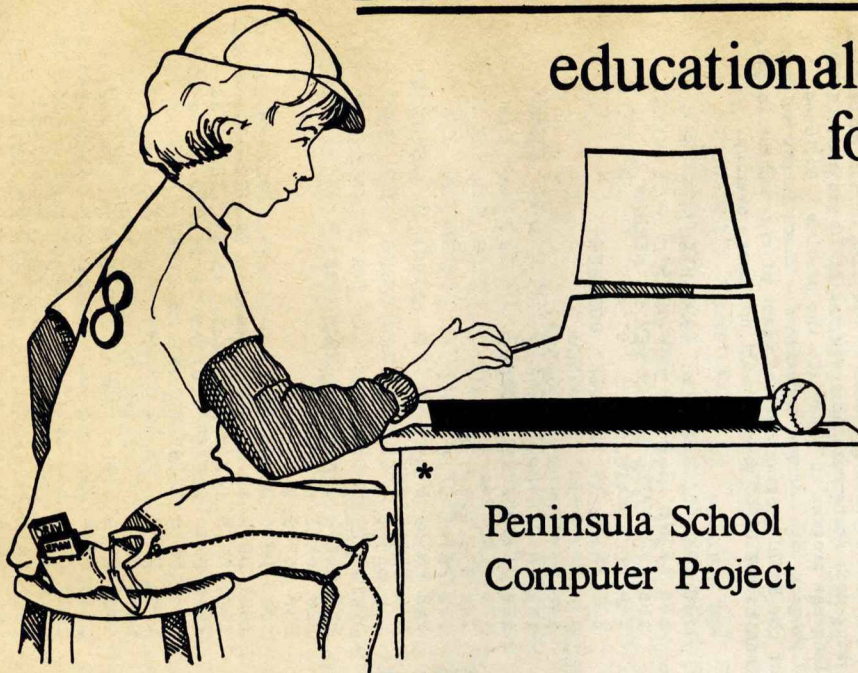
Peninsula School PILOT works very well and in the year I have used it have found no bugs in the program. It types lower case letters without shifting (shift for upper case) and the program will not bomb-out if a return is inadvertently pressed. This program is as a good value to any PET owner and is especially good for any programmer who would like to write interactive software for learning or teaching.

by Greg Johnson



# PET PROGRAM TAPES

educational software  
for 8k pets



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Our games and languages for 8K Pets are challenging and easy to use. **Draw** was featured in *People's Computers*. **Quest** will be featured in *Byte*. Each tape comes with a booklet of listings and other useful information. If any tape fails to load, return for a complete refund.

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The tape test program in a recent issue of The PET Gazette (p. 32, Spring '79) has some errors in it. You have apparently added to the size of Jim Butterfield's original program and poking data statements destroys the BASIC program. I have relocated the machine language program to alleviate the problem. Enclosed is a listing of the modified program with changes underlined. There is now sufficient space between the end of the BASIC program and the start of the machine language program so minor additions to the BASIC program will not cause overlap.

Sincerely yours,

*Harvey B. Herman*  
Harvey B. Herman  
Professor of Chemistry

```
10 GOTO900
100 PRINT"TAPE TEST BY JIM BUTTERFIELD"
104 PRINT"KILOBAUD MAY 1979"
106 REM TYPED BY HARVEY B. HERMAN
110 POKES9468,12
120 PRINT:X$="LEADER":GOSUB500
130 X$="DATA":GOSUB500
140 X$="ERROR":GOSUB500
150 INPUT"TAPE UNIT";T
160 IFT>20RT<160T0150
170 POKE 241,T
180 SYS(2380):END
500 PRINT"UCI"
510 PRINT"B H=";X4
520 PRINT"JFK"
530 RETURN
900 Z=2280
910 READX:IFX=999THENGOTO100
920 POKEZ,X:Z=Z+1
930 GOTO910
1000 DATA 32,55,248,120,166,241,202,240,21,206
1001 DATA 19,232,169,144,141,78,232,173,64,232
1002 DATA 142,8,2,41,239,141,64,232,16,11
1003 DATA 238,17,232,169,52,141,19,232,141,7
1004 DATA 2,169,80,141,25,2,169,2,141,26
1005 DATA 2,88,32,30,249,44,19,232,16,248
1006 DATA 162,2,160,0,169,32,149,56,161,48
1007 DATA 240,6,148,48,169,160,149,56,202,16
1008 DATA 239,165,56,141,122,128,165,57,141,242
1009 DATA 128,165,58,141,106,129,32,54,247,16
1010 DATA 206,48,204,0,32,92,9,44,64,232
1011 DATA 44,16,232,76,126,230,174,73,232,173
1012 DATA 72,232,236,73,232,208,245,160,255,140
1013 DATA 72,232,140,73,232,224,252,144,8,224
1014 DATA 255,208,7,201,80,144,11,230,50,96
1015 DATA 224,254,208,16,201,96,144,12,165,232
1016 DATA 41,252,240,3,230,48,96,230,232,96
1017 DATA 169,0,133,232,230,49,96,999
```

READY.

LEN LINDSAY GOOFED!

In converting TAPE TEST (Kilobaud, May '79) from machine language to Basic DATA statements ... he forgot that the new statements would reside in the same memory locations as the original machine language. Result: a self-destructing program.

If you have the data statements punched up, try the following changes to get it going:

Change 1280 in lines 180 and 900 to 5376

Change the value 5 to 21 in the following DATA lines:

1004

1010

Think that should work.

--Jim Butterfield

Dear Mr. Lindsay:

On another matter, the Tape Test program by Jim Butterfield, which appeared in the May Kilobaud, does not work on my 8K PET. The problem is that lines 910 and above are overwritten as the machine program begins loading from the data statements. One solution is to relocate the machine program at a higher memory location. I suggest page 15 (3840,10). To do this:

1. Change the "1280" in statements 180 and 900 to "3840".
  2. Change the "5" in statements 1004 and 1010 to "15".
- The program will now run properly on any size PET. An additional "cosmetic" improvement is obtained by inserting a space directly after the first quote in statements 500,510 and 520. This change will place the white box inside the three circles. Of course, as was pointed out, a direct load of the machine program would be more efficient, but this procedure would require more explanation.

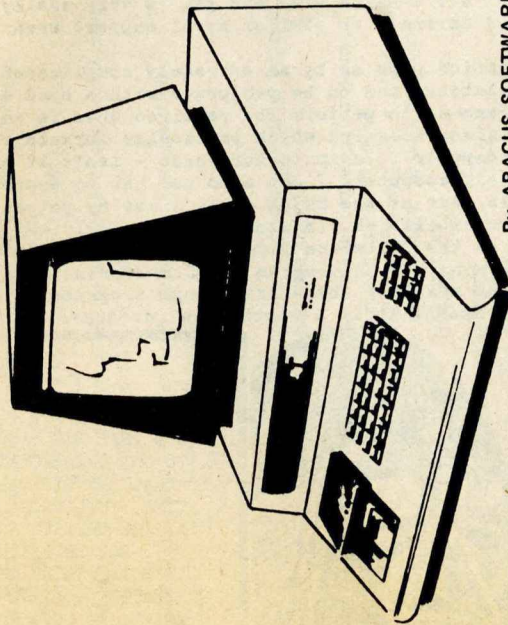
I enjoy PET-pourri very much!

Stanley Gross

```
1 INPUT "DELETE LISTING FOR LINE VC 3 LEFTJ":L
2 INPUT "NUMBER OF CHARACTERS VC 3 LEFTJ":N
3 X=1025
4 LN=PEEK(X+2)+(PEEK(X+3)*256):IF PEEK(X)=0 THEN INPUT "?LINE VC 3 LEFTJ":L:GOTO 3
5 IF LN=L THEN C=X+3:GOTO 7
6 X=PEEK(X)+(PEEK(X+1)*256):GOTO 4
7 C=C+1:IF PEEK(C)<>255 THEN 7
8 FOR O=C TO C+N:POKE O,20:NEXT O:INPUT "MORE LINES VC 3 LEFTJ":M$:IF M$="Y" THEN 1
9 POKE 525,9:PRINT "ECLRJC 2 DOWNJ":FOR Z=1 TO 9:POKE 526+Z,13:PRINT Z:NEXT Z:PRINT "[HOME]":END
```

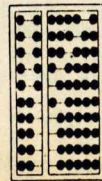


# PET<sup>®</sup> MACHINE LANGUAGE GUIDE



By ABACUS SOFTWARE

PET trademark of Commodore Business Machines and Commodore International



**ABACUS SOFTWARE**  
P. O. Box 7211  
Grand Rapids, Michigan 49510

Does the idea of using machine language for your Pet interest you? If so, then you might be interested in the PET MACHINE LANGUAGE GUIDE by Abacus Software.

This manual is intended to help the PET owner who would like to progress beyond the Pet's native language, BASIC. Included in the guide are sections on using the Pet's input and output routines, clocks and timers, floating point, fixed point and Ascii number conversion routine, built-in arithmetic functions - all from machine language programs.

There are suggestions for writing your own machine language programs to be accessed from BASIC. The sample programs are all written at a level which is simple enough for the newcomer to machine language to understand. More than 30 of the Pet's built-in routines are fully detailed so that the reader can immediately put them to good use.

Two editions are now available- a 4K/8K Edition and a 16K/32K Edition to support either operating system. The price for either is \$6.95 + .75 postage. Quantity discounts are available.

- PET MACHINE LANGUAGE GUIDE 4K/8K EDITION @\$6.95 + .75 POSTAGE
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P.G.



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-Continued-



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PET GAZETTE  
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Madison, WI 53704

PET LIBRARY  
401 Monument Rd #177  
Jacksonville, FL 32211

J PETREY  
3208 Navajo Way  
Las Vegas, NV 89108

PET USER GROUP  
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PROGRAM DESIGN INC  
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Greenwich, CT 06830

PROGRAMMA INTERNATIONAL  
3400 Wilshire Blvd  
Los Angeles, CA 90010

PROGRAM/PETABLE  
PO Box 461  
Philipsburg, PA 16866

PRS - PROGRAM OF THE MONTH  
257 Central Park West  
New York, NY 10024

PS SOFTWARE HOUSE  
PO Box 966  
Mishawaka, IN 46544

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QUANT SYSTEMS  
PO Box 628  
Charleston, SC 29402

QUILL SOFTWARE  
2512 Roblar Lane  
Santa Clara, CA 95051



Me and my Pet...



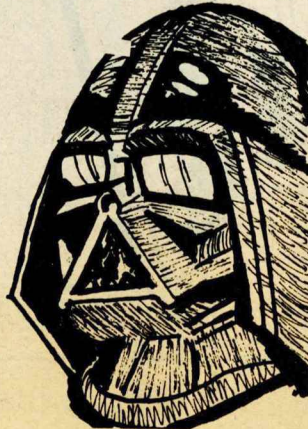
Thought you might enjoy knowing one users' use for his computer- there are a lot of people out there in the weeds that are thinking about buying one and wonder "what will I use it for?"

To begin with, I am a ham radio operator so I purchased Microtronics M-65 unit to use with the PET. This means that my computer copies and reads Morse code up to 100 WPM - it also sends canned programs for people to practise with - indeed a handy feature. The M-65 generates either random 5 letter words or random 5-character groups at whatever speed you request. It also allows composing 10 up to 255 character canned messages which come in very handy for telling my location, name and station - something one often repeats as new friends are encountered on the radio bands. The M-65 unit does all this in teletype too, and it is very entertaining to copy screen after screen of flawless text. This use clinched the decision to buy a PET which is famous for low interference and not being affected by strong radio fields. The M-65 alone is quite good when signals are reasonably strong- with a terminal unit its capabilities are quite improved. It has the same problems with poorly sent code that any other machine copier would have and never misses a letter with well sent code. Microtronics has a Slowscan TV adapter in the works!

I have about 40 games for the PET many of which come from CURSOR-the subscription service and whose programs I highly recommend - also I have copied many from Ahls: Basic Computer Games - all of which add up to hours of entertainment for the whole family. I've got a few of the more advanced games too - Osero, Checkers etc - full time fun for grown-ups too.

To add to Pets dexterity, I have found it excellent help in educating my 2-year old and four year old. While neither of them seem able to handle a typewriter successfully they can spend hours on the PET (and do). The two year old is learning his letters and gets a great thrill of keying an "A" and getting it! because Pet normally handles capitals it is ideally suited for this and a simple "POKE 59468,14" puts it in upper and lower case for more advanced studies! I have a program from Cursor that makes it act like a regular typewriter (Shifted=Capitals) and it can be used nicely as a word processor. Another program my two year old enjoys is one in which every time you push any number pet generates another 12 different faces constructed from PETS excellent Graphics - after they are displayed he gets to point to which ones have triangles for noses and which have circles for mouths etc which not only gives him practice at basic shape recognition but also seems to give him considerable entertainment. My four year-old on the other hand likes to write short words, play hangman and guess a number and quite a few other similar easy games. She also enjoys the simple arithmetic that her peers are dealing with and pet is very easily programmed to print "that's very good Carrie!" or similar moral support when a correct answer is presented.

My profession pays me by an extremely complicated formula and while a series of calculations had to be performed with a hand calculator in the past Pet can be programmed to perform the required ones in each particular case (it differs). Pet can also recognize which particular formula to use and when. The company uses a computer to compute our wages - isn't it only fitting we use one to check their computer? I can also use Pet to decide which way to spend my month. These are some of the major areas I use my pet in but there are many unexplored possibilities. In closing, I can only say I haven't enjoyed anything as much as the PET since I can remember and only wish I had gotten it earlier. I am learning how to program it (Commodore's Basic Basic teaches me with PET) and in the meantime there are enough programs to keep everyone in the family busy for hours. Truly a worthwhile investment!



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The package contains six generally well written, and interesting games for 8K PETs, some of which are not generally available elsewhere. Included are:

LEM - Land a vehicle on the moon safely

- Good Points:
1. Height scale changes on approach
  2. Terrain semi-realistic
  3. Auto-pilot mode
  4. After soft-landing, men (A) plant a flag and blast off.

Needs Improvement:

1. Round-off error (?) makes thrust setting non-integer.
2. Time taken to land could be made part of contest with other players.

Nuclear Reaction - Two player board game played on 6x6 field.

- Good Points:
1. New game (at least to me)
  2. Requires strategy to play well
  3. Kids loved it.

Needs Improvement:

1. Explosions need to be more clearly delineated (possibly with sound).

Artillery - Two players shoot at each other over a mountain.

- Good Points:
1. Random mountain
  2. Wind factor
  3. Kids loved it
  4. Teaches angles

Needs Improvement:

1. One player gets to see his previous values much longer than the other.

Bounce - Ball randomly bounces around screen leaving "droppings" behind.

Good Points:

1. Frequency of drops can be changed.

Needs Improvement:

2. Player can "eat" his way out of a bind.

Needs Improvement:

1. No purpose to game except to see how long it can take you to fill screen.

Checkers - Play checkers against the PET.

- Good Points:
1. Double jumps allowed.
  2. Kids enjoyed playing.

Needs Improvement:

1. Board too small
2. Mediocre game played by PET
3. Did not give message when it won.

Dodgem - A board contest to see who removes his pieces first (one or two players).

- Good Points:
1. Fun to play against another player
  2. Strategy necessary

Needs Improvement:

1. PET plays poor game
2. Some rules are not stated (can't block other player completely or move backwards).

Most of the programs were really fun and satisfied our insatiable appetite for new and different things to do with the PET. I have only one general complaint. Some of the games lack enough detailed directions to play properly the first time. I was particularly annoyed when, as I was about to beat my wife in Dodgem, the PET said I lost because of a rule we were both unaware of. It turned out that was my last chance to win because she plays a great game. I am consoled, however, as I can still beat my kids in Artillery. by Harvey Herman

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# Resources

Continued



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**RECREATIONAL COMPUTING**  
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Menlo Park, CA 94025

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PO Box 2571  
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Santa Clara, CA 95051

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Los Angeles, CA 90064

**RICO ENTERPRISES**  
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Ledyard, Ct 06339

**PETER RUETZ**  
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Woodside, CA 94026

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Milford, CT 06460

**STEVE SHAW**  
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Tampa, FL 33601

**SIGMA ASSOCIATES**  
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Rochester, NY 14618

**SILVER SPUR**  
PO Box 365  
Chino, CA 91710

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PO Box 501  
Hiram, OH 44234

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**SOFTAPE**  
10756 Vanowen  
North Hollywood, CA 91605

**SOFTBREW**  
6206 Newberry Rd #318  
Indianapolis, IN 46256

WPP changes for the 16K and 32K PETs

POKE 59468,14 ← Alt into lowercase

```
200 y=250
6020 ?"Input mode."
6032 ifst1and64$oto1000
6100 b$=c$
6110 sosub63210
6120 ifd=0then?b$::soto6150
6130 ?c$::c$=b$
6150 il$=il$c$::ifc$=chr$(34)then?c$ " ;
↑ ↑
crsr left
```

8940 sosub63200

```
14005 d=3
62010 ifl=0then?e=1:soto62050
62050 d=3
63100 c$=c$(1):sosub63200
63110 sosub8980:print#5,1;">";c$:return
↑
```

crsr left

```
63200 ifd<>3thenreturn
63210 ifc$=" "thenreturn
63215 e$=""
63220 for j=1 to len(c$)
63240 if p<=mid$(c$,j,1):p=asc(p$)
63250 if p<=91 then p=p+128:soto63280
63260 if p<=193 then p=p+128
63270 if p<=219 then p=p-128
63280 e$=e$+chr$(p)
63290 next j
63300 c$=e$
63310 return
```

Editors note:  
These changes  
may need further  
modifications.

Delete line 6045.

THIS LISTING WILL ADD DISK SAVING CMC WPP

```
2000 PRINT:INPUT"Which disk(1 or 2)";DD
2010 PRINT:INPUT"File name";DF$
2015 DF$=DF$+".DAT"
2020 IF DD=1 THEN 2026
2025 IF DD=2 THEN 2028
2026 $ODISK,W,1
2027 $GOTO 2050
2028 $ODISK,W,2
2050 FOR I=1 TO Y
2060 IF I(1)=" " THEN RR=I
2070 IF I(1)=" " THEN 2100
2080 NEXT I
2100 DR$=STR$(I):$WDISK
2120 FORN=0 TO Y
2130 IF I(N)=" " $GOTO 2200
2140 DR$=T$(N):$WDISK
2150 NEXT I
2200 DR$="EOF":$WDISK
2220 $CDISK:$GOTO1000
3500 PRINT:INPUT"Which disk(1 or 2)";DD
3510 PRINT:INPUT"File name";DF$
3515 DF$=DF$+".DAT"
3520 IF DD=1 THEN 3540
3530 IF DD=2 THEN 3550
3540 $ODISK,R,1
3545 $GOTO 3560
3550 $ODISK,R,2
3560 $RDISK:PP=VAL(DR$)
3563 IF L=0 THEN L=(-1)
3565 RR=PP+L+1
3570 FOR I=L+1 TO RR
3580 $RDISK:IF DR$="EOF" THEN 3595
3585 T$(I)=DR$
3590 NEXT I
3595 $CDISK:P(0)=RR+1:L=0
3600 $GOTO 7000
```

READY.

ADDITION to the CMC Word Processor  
by R. Wild

In using the CMC word processor I only ran into one problem. When writing text I would accidentally put a space at the end of a line. They warn you against this but I don't always remember! To correct this I added this AUTO return feature which works very well and allows the user to forget about the RETURN key.

```
6075 IF LEN(IL$)>45 AND C$=CHR$(32) THEN  
C$=CHR$(13):GOTO6045
```

If you want a longer line length increase from 45 to the desired length. If a shorter length is desired decrease from 45 to the desired length. Note that this only varies the text files length and in no way changes your final text line length. Also note that LEN(IL\$) cannot be greater than 255.

I also added this as an exit feature:

```
1060 IM$=LEFT$(IL$,2):IF IM$="ex" then 63200  
63200 PRINT"clr home":POKE 59468,12:END
```

The next set of lines will enable the Compu/Think disk users to store files on disk. First add these lines:

```
1070 IF IM$="sd" THEN 2000  
1080 IF IM$="ld" THEN 3500
```

After entering these lines enter the rest of the program listings and you're off!!

To summarize I've added to the command mode 3 commands:

- 1 ex to exit
- 2 sd to save text to disk
- 3 ld to load text from disk

If you have Connecticut Microcomputer's Word Processor Program change the following lines as listed and you will hear a little beep every time you hit a key. (using pins M & N for sound output)

6043 GETM\$,C\$:IFC\$=" "GOTO6043  
6044 POKES9467,16:POKES9466,9:POKES9464,222:FORBK=1 TO 15:NEXTBK  
6045 POKES9467,0:POKES9466,0:POKES9464,0  
6046 IFST1AND64THENRETURN



**Attention: Commodore PET Dealers**

Since Commodore has marketed only 10 of the cassettes which I have created and in order to provide teachers and instructors with extremely creative software which they can immediately employ in their courses, I can offer to supply you with any of the more than 90 cassettes listed below at a 20% discount. Please note that the 10 programs already marketed by Commodore (indicated by an asterisk) should be obtained directly from them. The other cassettes will most likely become commercially available from a national hardware or software vendor (possibly Commodore) in the very near future. In the interim, I will serve as a temporary source of the software needed to make the microsystems more attractive to the high schools and colleges in your area.

There are three types of programs in the Microphys series.

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Please address all inquiries and requests for software directly to:

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212 646 0140

For additional information,  
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**NOTE:** An additional 10% dealer discount will be extended to all orders for 50 or more cassettes. Enclose this ad with your order. Expires: 7/1/79.

The computer programs listed below have been designed for exclusive use on the Commodore PET 8K microcomputer. They should be obtained from your local PET dealer or, if unavailable, directly from Microphys Programs.

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1. Linear Kinematics
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12. General Gas Law
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26. The Mole Concept \*
27. The Normality Concept
28. The Molality Concept
29. Stoichiometry: Mass/Mass
30. Stoichiometry: Mass/Volume
31. Stoichiometry: Volume/Volume
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33. pH Concept
34. EMF of Electrochemical Cells
35. Electric Field Analysis
36. Photoelectric Effect
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702. Trigonometry I
703. Simultaneous Equations I (2x2)
704. Simultaneous Equations II (3x3)
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707. Verbal Probs. I - Numbers
708. Verbal Probs. II - Coins
709. Verbal Probs. III - Ages
710. Verbal Probs. IV - Interest
711. Verbal Probs. V - Mixtures
712. Verbal Probs. VI - Geometry
713. Verbal Probs. VII - Rates
714. Verbal Probs. VIII - Digits
715. Verbal Probs. IX - Work
716. Arithmetic Progressions I
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410. 11th Grade V

THE COST OF EACH CASSETTE IS \$ 20.00

\* Available from Commodore

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**SOFTOUCH**  
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**SOFTSIDE SOFTWARE**  
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PET 32K	\$1295	\$1125
PET 8K	\$ 795	\$ 695
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SEA-16 New 16K Static RAM		\$ 325
Seawell Motherboard-4K RAM space		\$ 99

	10/\$31.00	10/\$28.50
3M "Scotch" 8" disks		
Verbatim 5" diskettes		
2114 L 450 ns 4K Static RAM		\$ 6.95
2716 EPROM (5 volt)		\$ 45
Programming the 6502 (Zaks)		\$ 9.90
6502 Applications Book (Zaks)		\$11.90
6500 Programming Manual (MOS)		\$ 6.50
6500 Hardware Manual (MOS)		\$ 6.50
First Book of KIM		\$ 8.90
Programming a Microcomputer:6502 (Foster)		\$ 8.90

Cassettes (all tapes guaranteed)

Premium quality, high output lownoise in 5 screw housing with labels:

C-10	10/5.95	50/25.00	100/48.00
C-30	10/7.00	50/30.00	100/57.00

WRITE FOR 6502 AND S-100 PRODUCT LIST

**A B Computers**  
115 E. Stump Road  
Montgomeryville, PA 18936  
(215) 699-8386

### REVIEW

**\*\* RAM ADAPTER \*\* - DON HENDERSON**  
PO BOX 661  
Westminster, CA 92683

### REPLACE A DEFECTIVE RAM AT 1/2 THE COST!

Over a period of 4 months I had to replace 3 bad 6550 RAMS in my PET! (Total cost of \$82.00) Besides the expense, it was very frustrating to have to wait for the local computer store to get their allotment of these RAMS. Now there is a way to replace a defective 6550 RAM with the 2114 at approximately 1/2 the cost, and the 2114 is usually available at most computer stores. I quote the cover letter that came with the sample adapter:

With the 2114 RAM ADAPTER (22 Pin Plug + PC Board + 18 Pin socket) you can replace 2 6550 defective RAMS without the addition of a decoder. This is accomplished by removing a good 6550 video RAM (Motherboard location C3 or C4) and inserting the good RAM in the defective 6550 RAM location. Then install an adapted 2114 RAM in the vacant video RAM location.

Sounds easy, doesn't it! The instructions that come with the adapter are clear and easy to follow.

The cost is \$6.00 (not including the 2114). Extra RAM adapter PC Boards and Decoder PC Boards are available. Write to Don for details.

Review by Bill Coughlin

YOU HAVE 27 HORSES, CAPTAIN KANGAROO  
AND SNOOPY HAS 81 ...  
BUT POOR DONALD DUCK DOESN'T HAVE ANY.

IF YOU AND SNOOPY SHARE WHAT YOU  
HAVE EQUALLY WITH DONALD DUCK, HOW MANY  
HORSES WILL EACH OF YOU HAVE? 29  
SORRY, CAPTAIN KANGAROO, **KEY MISSING!**

YOUR ANSWER (NO GUESSING!) IS 24  
STILL WRONG...THE ANSWER IS 36  
27 HORSES + 81 HORSES = 108 HORSES!  
108 HORSES DIVIDED BY 3 = 36  
PRESS ANY KEY FOR NEXT PROBLEM.....

**EDUCATIONAL PAK 1** includes 6 programs, including STORY PROBLEMS (above). \$10 from PET GAZETTE.

### SPECIAL NOTE

There is no such thing as the ULTIMATE PET RESOURCE HANDBOOK. This was the original name of the PET GAZETTE.

CONDUIT is trying to distribute software for schools. Recently they announced several software packages for the PET. These are described in their FREE publication, PIPELINE. To receive this magazine simply ask to be put on their PIPELINE mailing list. (You do NOT have to say "THE PAPER offer" to get on the list even though that is what the PAPER printed in their VOL2#3 issue. You could mention the PET GAZETTE if you want) Their address is: CONDUIT, PO Box 388, Iowa City, IOWA 52240.

### CORRECTION

There was an error in the listing of CASE CONVERTER as printed in the BEST OF THE PET GAZETTE. Change line 62200 to begin thus:  
62200 IF L<L1 THEN etc...

CMS SOFTWARE (5115 Menefee Dr, Dallas, TX 75227) is converting the OSBORNE & ASSOCIATES Business Systems Software for the NEW PET. This includes General Ledger, Payroll, Accounts Receivable, and Accounts Payable. It will work with a printer and Commodore Dual Floppy disk unit. For delivery dates and information contact CMS SOFTWARE.

CAP ELECTRONICS (1884 Shulman Ave, San Jose, CA 95124) has this tip to help your PET read tapes it can't seem to read normally. Take a small piece of cloth folded a few times and place either under or over the cassette placed in the tape drive, then LOAD. This should compensate for different head alignment.

I received an interesting letter from Robert Seeley. Unfortunately, he didn't include his address at the beginning or end of his letter. I don't save envelopes so I can't list his address here. Anyway, here is what he has to say:

I've finished entering the TRACE program donated by Bret Butler and I've run into a seeming anomaly. The program functions and the entry and exit are correct. I've very carefully inspected the DATA statements and using my monitor I've checked all the memory locations for correctness. Assuming no operator error, I've run into an interesting problem. Upon the SYS7868 entry and subsequent RUN of the BASIC program, the top portion of the screen lights up and each line is displayed as that line is executed. This would seem to indicate that the general structure of the TRACE program is OK. The lines containing equations and variables only are properly evaluated (ie. 10 A=1, 20 B=A+1). The problem develops when lines containing statements requiring BASIC interpretation (ie. 10 PRINT"B=";B, 20 C=SQR(B)) are encountered. The machine spits out an ?Illegal Quantity Error message on every line that does not contain strictly variable or numeric information. I've managed, with proper debugging, to execute many other machine language programs with my machine. I suspect that the engtry points into my ROM for this program are at fault. I have an older PET (#12975) and think that perhaps there are some different entry points for the evaluation of the BASIC statements. If this is not the case I'm asking for suggestions. It is possible that I have an error in typing the program or that the machine is defective or that the program is in error. I doubt that the machine is defective because of the number of machine language programs I've debugged and (finally) RUN.

(EDITORS NOTE: The TRACE program should be listed correctly. I have RUN it as listed and had good results. There are subtle problems with it possibly. Let us know what you find out.)

Part of a letter from Mr. Public is very representative of most letters mentioning Commodore. It states:

...I have had some experience using computers from the KIM-1 to the IBM 360/50. Never have I seen such poor documentation as was provided with the PET 2001-8. No schematics and no explanation of the operating system. The same goes for the TIM (PET version)...

ANSWER: No comment!



# SAWYER SOFTWARE

Business for the Commodore PET™

## ☆ ACCOUNTING PACK I —

Accounting Pack 1 is a general ledger package designed for small businesses and homeowners. It contains check journal, general ledger, income statement (current ytd, previous month ytd and current month), balance sheet (current month and previous month). There are 15 commands and 6 reports that can be generated. The system uses an unique single-entry bookkeeping system and can hold up to 50 entries per period (month, week, day) and up to 40 different accounts. Each period's data is kept on convenient cassette tapes. Utilizing the general ledger command the user can view the general ledger entries for the month from Assets to Expenses or stop in midstream and view one particular account. Or the user can type in an account name such as "Advertising" and view the entries for that month. The Accounting Pack 1 program includes a checkbook reconciliation routine which aids in finding checkbook errors. Sawyer Software plans updates to Accounting Pack 1 to enable the user to use a printer, floppy disk or more memory. Accounting Pack 1 is well documented, with a newly updated User's Manual. Several businessmen are using Accounting Pack 1 and have written to us their satisfaction with the program along with their purchase of other software.

..... \$25.00

"Accounting Pack I by SAWYER SOFTWARE can be described in one word: Fantastic. Any who has prepared a balance sheet manually will have a slight heart murmur upon using the Accounting Pack. It is amazing that the program fits in 8K. I would say the Accounting Pack is useful and could justify the price of a PET unto itself for any small business."

Review in BEST OF PET GAZETTE.

## SCHEDULE PLANNER —

Schedule Planner can be used by secretaries, receptionists, housewives or anyone wanting to plan and have at their fingertips their own schedule. Data entered is data: time, priority and description. The commands allow the schedule to be shown for a particular day, request of time or the "viewing" of appointments according to importance.

..... \$15.00

## SCHEDULE PLANNER #2 —

Schedule Planner #2 includes all the features of Schedule Planner, but is used for one or more individuals. Utilizing Schedule Planner #2 a customer can call in asking when his appointment with Dr. Jones is and in seconds the receptionist can give the date and time. Or Dr. Jones can find out his schedule for the day. With the viewing command, an appointment at 12:00 on a particular day will display on the screen at that time allowing receptionists and secretaries to validate appointments.

..... \$20.00

## ★★★ NEW ★★★

### ☆ ACCOUNTING PACK II —

Accounting Pack II is a much more powerful version of Accounting Pack I. It has all the features of Accounting Pack I, plus up to 250 entries per period, MENU, Optional debit-credit of entries, easy addition or deletion of accounts, formatter for reports, intelligent report generator and single entry for sales transactions. Accounting Pack II requires at least 8K additional memory for your PET. OPTIONS: 1. Accounting Pack I to Accounting Pack II data file converter (free to previous owners of Accounting Pack I).

AP2 also utilizes a printer for hard copies of all reports.  
..... \$45.00

### PAYROLL - 16K —

Same as Payroll, but utilizes 8K additional memory in PET. Handles any number of employees by holding 25 employees' information per cassette. Also has Menu.

..... \$45.00

### ☆ BUSINESS ANALYSIS —

Business Analysis allows management to have available to them information for financial planning decisions. Up to 4 years of balance sheet and income statement information can be entered with resultant analysis in the areas of liquidity, leverage, profitability and activity. The ratios generated for each year are the: current ratio, acid test, debt-nw, profit-nw, profit margin, sales-rec, sales-inv, sales-wc, with a brief explanation of each. The growth analysis gives the yearly growth in 5 areas and the average growth in 5 areas. Future growth analysis projects figures for the next year.

..... \$30.00

### FINANCIAL PACK I —

Financial Pack I includes Amortization Schedule, Calendar (which figures days between two dates), Rebate (which is calculated on the Rule of 78's), Compound, Annuities and Monthly payment.

..... \$15.00

### CHESSBOARD —

Chessboard allows two players to play chess on your own PET graphic chessboard. This program displays each player's time and records each move to allow you to playback the game at another time.

..... \$15.00

### ☆ PAYROLL —

Especially designed with the small businessman in mind. Utilizing cassettes can record data for any number of employees (8 employees per cassette). Computes tax information and updates totals for quarterly and yearly reports. Employees can be salaried or hourly and pay periods can be either weekly, bi-weekly, semi-monthly or monthly.

..... \$30.00

### BUSINESS GRAPHIC PACK 1 —

Business Graphic Pack 1 is a simple program to use, but professional in output. The graph includes title, labeling of axis, dual graphic ability, whether the data is in Mill's, 100's or 1000's, and an optional x-axis = date and labeling of the x-axis with month and year. Entry is as easy as typing the title, # of entries, the X,Y value (Jan. 15, 1978 would be entered as 115.78), entering if the x-axis = date, if the user wants crosshatching and then graphing. The program also includes Nth order and Geometric regression to give the user a formula for his set of data (if possible).

..... \$25.00

### CHECKBOOK RECONCILIATION —

Designed for ease of use and to find those troublesome checkbook errors, this program balances your checkbook and bank statement from month to month. It locates over ten different types of errors and instructs the user on correcting them, including bank statement errors made by your bank. Records data on cassette for next month's balancing - saving re-entry of figures.

..... \$25.00

### CALCULATOR —

Especially for the accountant-bookkeeper. This program not only allows your PET to function as a calculator, but also has such features as Lister (which verifies and displays errors between two tape listings) and Matrix (which adds columns vertically and horizontally).

..... \$10.00

All Programs include documentation, are in BASIC and on cassette or Compu-Think Disk. Add \$5.00 for disk software and enclose your Compu-Think disk serial number.

☆ PET is a trademark of Commodore Business Machines, Inc.

TRS-80 is a trademark of Radio Shack a Tandy Corp.

# Sawyer Software

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# RESOURCES

-Continued-



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Seattle, WA 98105

ROGER WALTON  
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Bethany, OK 73008

SJ WHITE  
429 So Cordova St  
Alhambra, CA 91801



X & Y ENTERPRISES  
PO Box 796  
Huntsville, AL 35804



ZZYP DATA PROCESSING  
2313 Morningside  
Bryan, TX 77801



REVIEW #2: ASSEM/TED by C. Moser  
I've written several programs with ASSEM/TED & am extremely pleased with the results. Unfortunately, many of the editing features & file tape routines were inoperable on PET. The assembler program is accurate & fast. The op code set is quite complete. It handles addresses, text, labels & operands in mixed modes of decimal, hex, binary, ascii, variable, absolute & relative. One particularly desirable feature is the ability to individually address the low & low bytes of an address or label. The program is well written, a very professional job. However, the instruction manual is minimal & inadequate for a beginner, though a good quick reference for one familiar with the system. I had to spend considerable time & effort experimenting and rereading the manual. The effort was well spent. The program does all that could be expected. Because the source tape saving feature was not working, I was unable to try out the macro assembler feature of the program. Using my PET enhanced with BETSI S-100 motherboard & 16K added RAM, I was able to generate some very large & complicated programs with ASSEM/TED. It is a great program that a few corrections for the tape feature & an expanded manual would make unbeatable.

---Warren Fitzgerald

REVIEW#3: ASSEM/TED by C. Moser  
Carl Moser, at my request, provided more information about ASSEM/TED. First, the price is \$37, including shipping & manual. Second, if the new PET 16 & 32K models need a new version, it will be provided sometime later. Third, COMMODORE is using ASSEM/TED with their disc. If they release the patch information, Carl will pass it on to past ASSEM/TED buyers. Fourth, the ASSEM/TED is ROMable, it would be located in the second 8K of user RAM on PETS with more than 8K of memory, limiting Basic to 8K unless relocated. There are no plans to sell it in ROM. Fifth, COMMODORE's TIM monitor is used to save and load object code generated by ASSEM/TED, but the source code is saved & loaded by ASSEM/TED itself. Finally, TED may be used alone, as a word processor.

---Jim Strasma

# THE COMPUTING TEACHER

- Is a professional journal, designed for educators interested in the instructional use of computers and calculators.
- It is in its sixth year of publication.

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If you or your school makes instructional use of computers and/or calculators then you need this publication. It is now in its sixth year of publication, with subscribers in more than 30 states. It is an excellent source of information about how computers and calculators are being used in education and how they can effect the curriculum at all levels.

## REVIEW: 6502 MACRO ASSEMBLER & TEXT EDITOR FOR PET... (C. Moser)

This program is to currently available Basic coded Assemblers what an Apollo moon rocket is to a Piper Cub! It requires a minimum of 16K (nominal) RAM to operate, and occupies locations 2000-3f00\$. Loading it into an 8K PET leaves -7936 bytes free. Perhaps this is just as well. Those with the ability to use such an advanced tool will likely need and have more than 8K of RAM. It does load into the new 16K Business PET and seems to work with it, as nearly as I could determine in a 3 hour visit to the nearest owner. However, it uses page zero locations 1b-58\$. In 8K pets, these are part of the Basic input buffer, and safe to use when Basic doesn't need them. However, in the new models, these locations serve a multitude of functions, and there may be some conflict in use, though I didn't observe any. (If you have a new model, check to see if there is a new version for your model when you order.)

The program is designed to share memory with the Commodore TIM monitor program, which can be used normally to save programs generated by ASSM/TED. This machine language program has virtually everything one could want in an assembler/editor. Some of its features are: Macros, conditional assembly, labels up to 10 characters long, auto line numbering, auto formatting; creates relocatable object code on tape, usable object code in memory, or both at once; manuscript feature for writing letters, entry of graphics &/or lower case; loading & storing on 1 or 2 tapes (requires 2 to create relocatable code on tape from taped modules); vectors for printer or disc (write your own patch); string search & replace; screen editing just as in Basic. About half of the 8K of program space is used by the text editor (TED). It has 27 commands, several of which have several parameters. Among the more notable are a renumber function, a delete-range function, duplicate lines function, and an auto tab function.

The assembler (ASSM) uses 2 or 3 passes. The first pass sets up a labels file, the second an object file, and the third a relocatable object file on tape. Each source statement has 5 fields: line no., label, mnemonic, operand, & comment. Fields 2-5 are separated by 1 or more spaces. Each line may contain up to 80 characters. Unless a label is entered in the mnemonic field, ASSM/TED keeps track of which fields are needed automatically. All standard 6502 mnemonics may be used, along with 22 pseudo-ops. Labels may be symbolic, decimal, hex, or binary, or expressions. All 11 addressing modes are used. The same macro may be used repeatedly through a program, with or without separate code generated. They may be nested 32 levels deep. Most parameters in both programs have suitable default values. There are 32 error codes. Finally, both ASSEM/TED and the Relocating Loader are "ROMable".

Without knowing the price, and subject to Warren's evaluation in use below, I find the documentation excellent, the features almost all that could be wished, and highly recommend the program to those able to use it. In comparing it to other similar programs, only the ALS-8 for the 8080 offers more--a simulator that single steps through execution, displaying all registers as it goes.



I would like to put myself out on a limb and look at GAMES commercially available for the PET. Many readers have written asking for my recommendations.

These serious thinking games get my recommendation:

**MICROCHESS** from Personal Software (PO Box 136-05, Cambridge, MA 02138) Play a GOOD game of chess against your PET for \$19.95. Reviewed in the BEST OF THE PET GAZETTE pg 40.

**MASTERMIND** from PET Gazette (1929 Northport Dr, Room 6, Madison, WI 53704) This is the BEST implementation of the game of MASTERMIND. Your PET can be either code breaker or code maker. The PET will almost always break your code faster then you can break its. Cost is only \$10 for GAME PAK 1 which includes MASTERMIND and 5 other good games.

**MAXIT** from Harry Saal (810 Garland Dr, Palo Alto, CA 94303) This number strategy game can be played either by two players or you vs the PET. Reviewed on pg 55 of the BEST OF THE PET GAZETTE, MAXIT costs only \$4.95

**OTHELLO** from CMS Software (5115 Menefee, Dallas, TX 75227) Reviewed in issue #7 of the PET Gazette this is a good version of the game of Othello. Price is \$7.95.

**MARKET** from Dr. Daley (425 Grove Ave, Berrien Springs, MI 49103) This is a two player game. Each player manages his own company, including advertising budget, product prices and production. Your PET calculates how many units each person would sell for each quarter. Go broke and you lose. Invest \$7.95 in this program.

These CLASSIC computer games I recommend:

**STARTREK** is the all time classic. Almost everyone is selling a version of it. I recommend these 3 sources: Dr. Daley (425 Grove Ave, Berrien Springs, MI 49103) has several versions, some with sound effects, real time, and other added extras. \$7.95 or a super 16K version for \$19.95. See its review on pg 84 of the BEST of the PET GAZETTE.

Warren Swan (15933 Grove Ave, Oak Forest, IL 60452) has a good real time version for \$20. It is reviewed on pg 28 of PET GAZETTE issue 7.

Dad's Reliable Software (1614 Norman Way, Madison, WI 53705) has a unique real time version that is very challenging for \$12.95. It is reviewed on pg 84 of the BEST of the PET GAZETTE and pg 28 of PET GAZETTE issue 7.

**BREAKOUT** is a standard video game. A good PET version with sound effects is available from CAP Electronics (1884 Shulman Ave, San Jose, CA 95124) for only \$4.95. It is reviewed on pg 26 of the PET GAZETTE issue 7.

**KINGDOM** is a simulation allowing you to attempt ruling a kingdom. Of the many versions available my favorite is from Personal Software (PO Box 136-05, Cambridge, MA 02138) for \$14.95 (with 3 other programs). Reviewed on pg 47 of the BEST of the PET GAZETTE.

**BLOCK** is a classic video game also known as BLOCKADE, SNAKE, and WRAPTRAP. ZZYP (2313 Morningside, Bryan, TX 77801) has a good version for \$9.95 (along with Football). Reviewed on pg 87 of the BEST of the PET GAZETTE.

**CHASE** is a superb action game. Robots chase you about the screen. The best version I have seen is from PET User Notes (Box 371, Montgomeryville, PA 18936)

There are a few unique games I can recommend.

**TANKTICS** from PLEIADES GAME CO (202 Faro Ave, Davis, CA 95616) is a very good tactical game with you vs the PET. \$15 includes a game board, 2 part program on cassette, game markers, and manual. Reviewed on pgs 24 & 30 of PET GAZETTE issue 7.

**SWORDQUEST** from Fantasy Games Software (PO Box 1683, Madison, WI 53701) at \$12.95 and **DEVILS DUNGEON** from Engel Enterprises (PO Box 16612, Tampa, FL 33687) listing and manual only or on cassette from Jon Staebell (5102 Arrowhead Dr, Monona, WI 53716) are excellent fantasy games. See their review on pgs 66 & 67 of the BEST of the PET GAZETTE and in Kilobaud March 1979 PET POURRI.

**MAX** from Tycom (68 Velma Ave, Pittsfield, MA 01201) is a great dice game for \$7.95. Also known as lying dice it is reviewed on pg 18 and 31 of PET GAZETTE issue 7.

**PRESS-UP** from Jamestown Small Computer Systems (2508 Valley Forge Dr, Madison, WI 53719) is a fun, graphically illustrated game for kids as well as adults. Play against the PET or an opponent. Price is \$7.95.



## BOOKS

**BEST OF THE PET GAZETTE** (1929 Northport Dr, Room 6, Madison, WI 53704) is 100 pages of articles, reviews, program listings, resources, and more specifically for PET users. Only \$10 while they last.

**PET USER MANUAL** from Commodore (901 California Ave, Palo Alto, CA 94304) is \$9.95 at dealers, or if you already own a PET send a photocopy of your proof of purchase, serial number and \$3.50 to Commodore for a copy. Information from their previous tiny mini-manuals are all contained in this one bigger manual plus some added information.

**TIS Workbooks** (PO Box 921, Los Alamos, NM 87544) cost about \$4 - \$5 each. There are 6 different workbooks, each focusing on some specific area of PET programming.

Here are my recommendations on PET accessories.

**KEYBOARD** - Skyles Electric Works (599 N Mathilda Ave # 26, Sunnyvale, CA 94086) has a full size keyboard with numeric keypad that just plugs into the PET keyboard plug. Price is \$125. It is reviewed in the PET GAZETTE issue #7.

**JOYSTICKS** - Coyote Enterprises (Box 101, Coyote, CA 95013) has a well designed connector that plugs into the user port. With 2 Atari joysticks and sample game programs, test program, and programming instruction programs the cost is \$50.

**Creative Software** (PO Box 4030, Mountain View, CA 94040) has a connector for the user port. With 2 joysticks and sample games the cost is \$60.

**PRINTERS** - Connecticut Microcomputer (150 Pocono Rd, Brookfield, CT 06804) has a printer adapter (output RS-232) for \$169. It should work with any RS-232 printer. We use a Teletype 43 and are pleased with it.

**SDOUND** - The best way for sound output is to hook up your own speaker/ amplifier using pins M & N of the user port. This was explained in FEB 1979 Kilobaud PET POURRI and in the BEST of the PET GAZETTE.

**BLANK CASSETTES, LABELS, AND BOXES** - Computer Way (PO Box 7006, Madison, WI 53707) has the highest quality cassettes and accessories at very good prices. After many problems with other brands of cassettes, we now use Computer Way tapes exclusively - and rarely have any problems.

**FLOPPY DISK UNITS** - COMPU-THINK (3260 Alpine Rd, Menlo Park, CA 94025) has both single and dual density floppy disk units with 1 or 2 drives. Their system works only on OLD PETs and appears to be better than Commodore's Disk system.

## REVIEW

CRIBBAGE - \$7.95  
CMS SOFTWARE  
5115 Menefee  
Dallas, TX 75227

They have done it again! The people at CMS have come up with another superior program. This is the first time I've seen where the PET plays you in a game of Cribbage. It displays your hand and while you're thinking about your crib it does the same. After you and the PET choose your discards your hand is redisplayed showing just the four cards you have left. The game continues on just like it is supposed to be played, no exceptions. The screen shows both scores and the hand count. The PET will even take any points you miss. All in all it is a great program and a great game.

By Bill Bendoritis

**N O W** Commodore Dual Disk Drives  
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PET FUN WITHOUT GAMES  
(or HOW TO FOOL AROUND WITH YOUR PET)

by Len Lindsay

This is hopefully the first in a series of articles. This article will describe a program that does absolutely nothing when you run it, but bounces a ball back and forth across the screen when you list it. It is really amazing to see. This program makes use of one of PETs peculiarities. The PET can execute several of its special key functions while listing if they are not in the quote mode. Here are the key functions and their POKE value:

HOME CURSOR (19)  
CURSOR RIGHT (29)  
CURSOR DOWN (17)  
DELETE (20)

During your normal PET BASIC programming it may seem impossible to get these functions into your BASIC line without being in quote mode. I accomplish it by putting a "PI" symbol (SHIFT ↑ up arrow) where I would like my special function and including a short program that changes all the "PI"s into the value I choose. In my example program I wish to use both the HOME (19) and CURSOR DOWN (17) so I needed to use two different symbols to use in their place. I used "PI" (value of 255) and the up arrow (value of 94). My short program changes each "PI" into a HOME CURSOR and each up arrow into a CURSOR DOWN.

I wished to make sure the screen was cleared before my animated list of a ball bouncing began so I start with 27 CURSOR DOWNS which scroll everything quickly off the screen. I then use the HOME CURSOR to keep the lines listing on the top of the screen.

My example program provides animation of a ball (a "+") when listed using only the top line of the screen. After you type in the program as listed save it on tape. Once it is RUN it changes itself and it will be very hard to make changes. Please make sure that you type in a "PI" immediately after each REM in lines 100 on. These will be changed to HOME CURSOR by the short program in the first 4 lines. Also be sure that the \* in lines 250 and on is followed by 1 SPACE and then a "PI". The space erases the \* from the previous line and the "PI" becomes HOME CURSOR. This final "PI" in these lines is needed, not because I wanted a final HOME CURSOR, but because PET BASIC does not recognize trailing spaces at the end of a BASIC line. Thus to end my line with a space to erase the \* from the previously listed line I had to have something after the space so it would be retained in my BASIC line. But I did not want anything to print on the screen. So I ended the line with a HOME CURSOR. A DELETE would be just as effective.

PROCEDURE - Type in the program as listed. Save a copy on tape. This is your PREMASTER. RUN the program. It changes itself. You now can save a copy on tape after RUNNING it. This is your FINAL. You will not be able to make changes or corrections to your FINAL copy of the program. If changes need to be made, make the changes to your PREMASTER and then RUN it to produce your new FINAL.

My program is only an example. The entire PET video screen could be used during a LIST for comprehensive animation. You can get to any point on the screen by beginning with a HOME CURSOR followed by the correct number of CURSOR DOWN and CURSOR RIGHT. First you may wish to use the DELETE function to erase the line number and REM printed on the screen.

\*\*\* CHALLENGE \*\*\*

My challenge to every PET READER is to come up with a program that when RUN will do nothing, but when LISTed will CLEAR the SCREEN, draw a target halfway down on the right side of the screen, shoot an arrow across the screen from the left, hit the target, and graphically illustrate the impact. This IS possible!

PERPETUAL LIST

I have added one final touch to my animated LIST program. If you simply hit RETURN after LISTING it the first time, it will continue LISTing over and over until you hit the STOP key. Line 9 prints a line on the screen that will be directly executed when you hit RETURN. The first POKE in this line puts a 1 into the keyboard buffer counter. The PET interprets this as 1 key has been hit. The second POKE puts the value of a CARRIAGE RETURN (13) into the first position of the keyboard buffer. These two POKES trick the PET into thinking that you just hit 1 key and that it was a CARRIAGE RETURN. Remember how after the first LIST the CURSOR appeared over the "P" in the that line. You actually hit RETURN to execute the line. After the second LIST the CURSOR will once again appear over the "P" in the line, BUT the PET thinks that you just hit RETURN so it immediately executes the line again beginning an endless circle. To STOP hit the STOP key.

FINAL NOTES

The old 8K PET and NEW 16K and 32K PETs use different locations in their first few pages of memory. Thus many PEEK and POKE locations have changed. Old PET programs utilizing PEEK and POKE may have to be modified to run on the NEW PETs. Line 4 in my program as LISTED will function properly only on the OLD 8K PET. To be used on the NEW PETs change it to the following:

```
4 POKE158,5:PRINT["CLRLJL2DOWN"]:"FORX=1TO4:POKE622+X,13:  
PRINTX:NEXTX:PRINT["HOME"]:"END
```

These changes are due to the keyboard buffer and its counter locations changing.

To implement the PERPETUAL feature mentioned above on the 8K PET use LINE 9 as listed including these POKES:  
POKE 525,1:POKE 527,13

On the NEW 16K and 32K PETs change these POKES to the following:  
POKE 158,1:POKE 623,13

If you would like to be MEAN you can disable the STOP key so that the only way to stop the LIST would be to turn off the PET. To do this you must insert one POKE just before the first POKE in LINE 9. For the old 8K PET insert:  
POKE537,136:

For the NEW 32K PET insert:  
POKE144,46:

For the NEW 16K PET insert:  
POKE144,PEEK(144)+3:

I do not have a 16K PET so can not check what exact value to POKE. But it should be 3 more than what is there to start with. Thus you could do a:  
?PEEK(144)  
and add 3 to the result and use that number in your POKE.

PLEASE WRITE

More fun next installment. Please write with your comments, ideas, and suggestions as well as your entry program on tape for my CHALLENGE. Write to: Len Lindsay, Editor, PET GAZETTE, 1929 Northport Drive, Room 6, Madison, WI 53704.

CALCULATORS/COMPUTERS GONE

The magazine that I was very impressed with, Calculators/Computers has ceased publication. Word is that their material and articles were passed on to either Interface Age (PO Box 1234, Cerritos, CA 90701) or Computing Teacher (Computing Center, Eastern Oregon State College, La Grande, OR 97850). I am sorry to see it go.

SOFTWARE FOR SCHOOLS

Microphys (2048 Ford St, Brooklyn, NY 11229) has announced over 90 programs on cassette for the OLD PET. These are in Chemistry, Physics, Math, and Vocabulary for Junior and Senior High School use. LA limited number will also be available from Commodore.









# READ THIS (or else)



I have just finished reading a few of your articles on the PET. I'm happy to see the wealth of information available for the PET. After reading the GAZETTE, and digesting its overwhelming information I decided to speak out on one particular topic: Software protection.

After reading the protection given by BC Computing's protection method I began to worry about software I may buy in the future. First of all, I, like I imagine many other PET owners, have learned a great deal about PET programming by looking at others' programming techniques. Secondly, I can only think of one or two programs I haven't modified to work either more efficiently or changed to work a way I like better than the original. I pose this question to you: How many times will you purchase a \$7-\$25 program and find you don't like the way it runs and then can't change it to work the way you thought it would? Also how will you make the extra copy to use to save the original from wear and tear? For those who will one day own a disk how can they copy them to the disk?

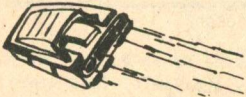
I realize that software protection might encourage the writing of more software but I seriously question if it will improve the quality. I feel that there are already many companies writing good quality software and I hope they think twice before adding no list and no copy protection.

As for those who will copy a program for a friend, I hope you realize your not only breaking the law but your also penalizing the rest of us PET owners. I only hope that software companies realize most of us aren't giving their programs away.

Sincerely,

*Bob Wild*

Robert Wild  
286 Littleton Apt. 306  
West Lafayette, IN 47906



## GAZETTE NOTES ON SOFTWARE PROTECTION

The letter from Robert Wild along side these notes brings up some questions which deserves some comments at least. There may be NO answers as such.

First, is the illegal copying of programs a REAL problem? I think definitely YES! Consumers at large are not aware of the work involved in programming. They are used to taping their favorite songs off records (which is also illegal?). Why not copy a program or two? What happens to a software company when they can not sell enough of their programs? If the programs do NOT sell due to poor quality, then the company better re-evaluate their product. But if the programs are superior to others on the market and consumers make themselves copies from their friends (whose program he copied from his friend, etc) then why even try to market the programs? Please don't fool yourself. Program copying is happening, and in great numbers. This is very unfortunate, but true. Some examples I personally know of. Jim Butterfield performed a test with the idea of copying programs. He included a note at the beginning of his programs to this effect:

YOU MAY COPY THIS PROGRAM  
FOR YOUR OWN USE  
SEND 25 CENTS (US OR CANADIAN)  
TO- JIM BUTTERFIELD  
14 BROOKLYN AVE  
TORONTO CANADA  
DO NOT REMOVE THIS NOTICE



I am sure that Jim's programs spread quickly via User Groups. Especially since his programs are well done. How many quarters did he get from those making themselves a copy? You may be surprised at the quantity. He received none, absolutely nothing!!!



Are you surprised? Then, another example. SAWYER SOFTWARE is marketing business software for the PET. This is sophisticated software. A copy of his ACCOUNTING PAK was offered to someone at a USER GROUP meeting. Another example. I received in the mail a copy of PERSONAL SOFTWARE's ASSEMBLER. Someone asked me to send them a program in exchange for it. I have also received copies of other programs from various companies. These usually were asking for an exchange program for them. Something is very wrong here. One of the program authors in our PAK series had his name and address at the beginning of his program. He received a tape in the mail FULL of copyrighted programs. Someone liked his program and was sending him some programs in appreciation. The problem is that all these programs trading hands are not free to give. When you buy a program, you purchase the right to use it yourself. It is not yours to give to others.

Thus the protection of software is the key. But Robert's concerns about this also are real and should be considered. Can we have the BEST of BOTH WORLDS? Can we protect the software and still allow for modifications and have listings available for reference? I believe that with a lot of effort it should be possible. (But, will the company who perfects this method for the PET benefit from it? Or will other companies "take" the ideas and use them to protect their own programs without 'purchasing' this protection method)

Here are my thoughts on the matter. To protect a program you must somehow disable the ability to make a copy of it. One method is to disable the stop key and never allow the user to escape from the program. But how can the user modify the program to fit his needs? This is the tricky part. I can envision two methods. One would be to have many alternatives available via changing the values of variables. The program could start by asking what values the user would like. But this is a very restrictive method. A more complex, but possibly more flexible method would be to supply a program listing (with appropriate sections deleted and replaced with comments relating what the missing lines do) and have some way that any changes to the lines can be "appended" onto the program. Lines could be overwritten, added, or deleted. Possibly a more automated version of the merge procedure (see page 12) would allow something like this. The program might operate like this: LOAD the program. (Protection will prevent a LIST or SAVE) RUN the program. It disables the stop key, fixes a few pointers and incorrect lines and links and then asks if there is a modification needed. If not, the program continues as usual. If so, the program tells the user to place his modifications tape in tape unit #1. This tape would be an ASCII listing of the modified lines, or something of that order. The program would read in that tape, check each line to make sure it will not remove any protective features, and modify the program accordingly. If your modifications were recorded right after the program on the tape, it would only add a minute or so delay to the loading process.

Your thoughts on this matter are more than welcome, they are encouraged. Type them single spaced and send to the PET GAZETTE. Oh, what about the backup copy? Most companies I have talked with that have some protection method built in said that if a users tape was damaged (your dog thought it was a modern bone?) it could be returned for a replacement for a nominal charge.

Finally, about protection yielding improved quality. This is a gray area. I look at it this way- I have talked with programmers who have excellent programs but refuse to have them marketed due to the probability that they will be copied. So maybe the quality of programs being written won't improve. But the quality programs already written but not released might become available. But I do believe more would also be written.

Special thanks to BC COMPUTING and COMPUTER WAY for their PET program protection information.

Len Lindsay, Editor



REVIEW  
 BULL/HITS - COMPUTER BUS - \$14.95  
 PO Box 397A  
 Grand River, OH 44045

I usually don't mind doing reviews - there is usually something good to be found in the program or product that I am reviewing. However, once in a while I come across a program to review that is so overpriced for what it does that I am put into my "bad review" mood. Such is the case with BULL/HITS.

BULL/HITS is really a version of MASTERMIND. A 4 digit code is set and you (or your opponent in the 2 player option) try to break the code in the fewest number of moves. The PET keeps track of how many BULLS (correct digit in correct column) and HITS (correct digit in wrong column) you have on each move. Decreasing points are awarded by how many turns it takes you to guess the code. You can select a single or two player version, and it has an UNCLE option if you feel you are hopelessly lost. For \$14.95 it's not worth it - for \$10.00 you can buy the GAMES PAK 1 from the GAZETTE and get an excellent version of MASTERMIND. (along with 5 other games as well)

Sorry COMPUTER BUS - but that's the way I see it! (Please lower your price)

Review by Bill Coughlin

REVIEW-6502 DISASSEMBLER-\$12.95-PS SOFTWARE HOUSE  
 PO Box 966, Mishawaka, IN 46544

This disassembler is excellent. 3 different people were supposed to have done a review on it for me by now. After 6 months it's about time, so I will do it. It provides you the MEM CODE, OP CODE, and OPERAND along with the decimal AND hex address. You can disassemble any part of memory in either OLD or NEW PET. It even disassembles the protected ROMs. If you are looking for a good disassembler, this is it. - Len Lindsay

REVIEW  
 Da Mangler  
 DAD'S RELIABLE SOFTWARE  
 1614 Norman Way  
 Madison, WI 53705

This game also has been called chase. The object is to elude robots chasing you around the screen. You have to avoid running into electric posts or the walls in your attempt to get away from the persistent robots. The robots tend to try to take a direct path to your location. So, the way to eliminate them is to get them to run into the posts destroying themselves. There are 5 levels of difficulty from easy to impossible. You start out with 10 robots chasing you and if you eliminate them the number increases until you get to 25. If you get caught the number decreases. If you get caught with only one robot after you it's rather poor. As an added bonus this program has sound using the Gazette conventions. With an action game like this, sound effects add alot. Control of your movements is with the number pad. This is a good version of the game.

By Bill Bendoritis

REVIEW  
 BEAT THE MARKET  
 DAD'S RELIABLE SOFTWARE  
 1614 Norman Way  
 Madison, WI 53705

This program is supposed to simulate the stock market. You are given \$10000 to invest in any number of sessions you choose. You can buy or sell stock, invest in bonds, or create new stocks. There are high priced stocks which tend to act like blue chips, and cheap more speculative stocks. In general I didn't like the game due to the way the stocks moved up and down in price with little rhyme or reason. It seemed to boil down to a guessing game. Sometimes I made money, while other times I lost it. I really can't say I could figure out a system. Though the game was nicely displayed I just didn't like it. It does what is was intended to do.

by Bill Bendoritis



**NEW!!!** FOR THE PET®

**CHECK MANAGEMENT  
 HOME BOOKKEEPING PROGRAM**

Both programs  
**\$7.95**

At last! A three-part program designed to help you keep your checkbook balances correct . . . to reconcile your bank statement . . . to balance your budget or help to establish one. All in one program—ready to load and run!

**PART 1 — BALANCE CHECKBOOK LINE-BY-LINE**  
 Gives the correct balance after each check, deposit or service charge. Prompts you for each check number to avoid "missing" checks—then gives a summary of the check numbers written and totals. *It even warns you if you're overdrawn!*

**PART 2 — BANK STATEMENT RECONCILIATION**  
 Takes you step-by-step through the reconciliation—then gives a summary of checks outstanding, deposits in transit, total service charges, and the correct balance you should show in your checkbook.

**PART 3 — BALANCE BUDGET BY EXPENSE ITEMS**  
 Using the ten common home budget classifications—or any ten of your choice—you enter checks (or cash expenditures) and the budget item each is for. When you're done, the program summarizes your target percentages, actual percentages, total expenditure for each classification, number of checks written and the gross amount for all checks.

Designed to be easy to use—especially for spouse who has a hard time keeping the checkbook current! Full "prompting" leads the user through the various steps . . . even catches many of the mistakes you may make.

**PLUS FREE ADDED BONUS!** **ADD 'EM UP** (with sound effects)

AN ADDITION TUTOR AND GAME FOR THE KIDS

Choose from easy, medium or hard addition problems—play against time, or the current records of right and wrong. You get two chances to enter the correct answer . . . if you get both wrong, the correct answer is shown and that problem stored for later review. For added fun (and incentive) appropriate sound effects are included. (requires your audio amplifier connected to user port—also available from Jamestown Small Computer Systems—but program runs with or without the sound effect option)

Choose any two of the following programs for just \$7.95 postpaid!

**CHECK MANAGEMENT**  
 A three part program to keep correct checkbook balances, reconcile your bank statement, to balance or help establish a budget.

**ADD'EM UP**  
 An addition tutor for kids with sound effects.

**MUSIC MIMIC**  
 A "Simon Says" with sound. The Pet displays a musical staff, and plays a note. The player responds with the same note. The first note is then replayed and another added and so on for 5, 10, or 20 notes. If the player gets all correct then the computer plays a song as a reward.

**SOUND SAMPLER**  
 A demo tape showing how to generate sound—uses the PET CASSETTE conventions.

**ANIMATED RUN**  
 A short demo tape showing animated graphics and sound.

**PIZZA, PORCUPINES, & PAUL**  
 Uses player's string variables to generate random word math problems. Combinations of addition, subtraction, multiplication and division. Whole number answers only.

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**608 274-1733**  
 Ask for Kenn

PET trademark of Commodore Business Machines and Commodore International



## OUR REVIEWS REVIEWED

As I mentioned before, we are not CONSUMER REPORTS, nor do we try to be. Our reviews are written by users for users. The most important aspect of a review that we print is that it GUARANTEES the product exists. We do not print reviews until we have the product ourselves. Too many products advertised simply do NOT exist, and may NEVER exist. Never order any product unless you are sure it exists. EXAMPLE: You may have seen the MANY FULL page ads for WORLD POWER SYSTEMS, INC. Many double page, even a 6 page ad in PERSONAL COMPUTING, June 79 issue. The word is that the company sort of took the money and ran. Many TRS-80 owners learned the lesson the hard way.

## SPECIAL WARNING

I am surprised that MICROTRONIX (PO Box Q, Philadelphia, PA 19105) still exists. I have had many letters concerning orders never delivered. To verify this we ordered their JOYSTICK CHESS program for the PET. We ordered it OCT 19, 1978. They were very quick to cash our check#1154 for \$19.95 for the program and check#1155 for \$2.50 for postage. Needless to say, we have yet to get even a postcard from them. If you order anything from MICROTRONIX, don't say we didn't warn you. Is there a lawyer out there who would help us get our money back? Write to us if you are having problems with MICROTRONIX.

If you are stuck, and they won't deliver your order, even after months one person had luck with this method. Microtronix has a toll-free line:

800-532-4550

He had an order undelivered after nearly one year. So he continually kept calling their toll-free line asking about it. He managed to tie up the line so well that they sent him his order. We don't have the time to keep calling on our order. If you have free time give them a call and ask about the PET GAZETTEs undelivered order.

Jay R Hill had these comments on our reviews. (Unfortunately he typed them double spaced and we had to retype them - please send your letters typed single space, or as a data tape for Connecticut Microcomputers Word Processor program)

Dear Len Lindsay, Keep up the good work on the PET GAZETTE! I find the ads and reviews to be helpful in improving the overall capabilities of my PET. However I think some of the reviews need improving. For example, the Connecticut Microcomputer Word Processor review. Does it print PET lower case code, true ASCII or both? I have a Teletype 43 and cheap interface. Lower case comes out as upper case letters. I have to check to see if ASC(A\$) greater than 128, if so A\$=CHR\$(ASC(A\$)-96). Does the word processor hold segments of manuscript in memory, if so how large in bytes? Can the segments be edited in sequence using cassette 1 as input with 2 as output?

Still looking at the OCT/NOV 78 issue (the BEST yet), the review of LIFE doesn't give timings of the generations. I've seen versions with 6 minutes, 30 sec, .5 sec, and .3 sec. It is a big difference! How do they get 64x64 on the screen? It seems like 50x80 would fit but not 64x64.

I was particularly interested in the review of MICROCHESS 2.0 since I have it. It is very good and reasonably priced. The review should have discussed some of the negative points however. I have such a long list that I am thinking about an article for KILOBAUD or somesuch. (Ed note: How about an article for the PET GAZETTE?) Good graphics are nice but it is more important that it play according to the rules of CHESS and be useful in learning CHESS. It doesn't play a very challenging game (opinion) since I have beat it every time at level 8, and I'm unrated. Pat O'Donovan claims to be registered, whatever that means (Ed note: Our error, he was RATED, not registered as we typed in error)

What is important is the rating. Before I list a few of the specifics about the program, let me point out that the ad on pg 26 (OCT issue) is misleading. Peter Jennings claims the game looks up to 6 moves ahead. It should read 6 half moves, since it is universal convention to number moves as a full move when both players have moved.

*continued*

## POINTS IN FAVOR:

- 1.It can capture en passant.
- 2.It castles king side and queen side.
- 3.It has a CHESS clock.
- 4.Position adjustments are possible.
- 5.Flexible algebraic notation is used: KP-K4 is E2-E4 or S254. This is very nice since my keyboard will not make 'g' all the time. (Ed note: Jay, you should be rooting for standard chess notations in keeping with the professional tone, ie the 6 move comment)
- 6.The board is always shown with your pieces at the bottom. You can reverse the board with an X command. The notation (displayed with the N command) is always consistent with algebraic, unlike the CHESS CHALLENGER.
- 7.The graphics are good considering the limitations of the PET.
- 8.The price is reasonable.

## POINTS OUT OF FAVOR:

- 1.The play is poor once out of the opening table. I'd rate it below 1200 based on tests in CHESS DIGEST magazine (level 5 to 8).
- 2.There are really roughly two levels of play. Levels 1-4 take 3 to 8 sec while levels 5-8 take 17 to 23 sec on a certain test position. (Ed note: what test position?)
- 3.The program doesn't check legality of your castling move. The instructions do warn you of this. Castling will 'kill' the pieces the king and rook land on!
- 4.The game loses track of its place in the opening table if you use "0-0" or "0-0-0" while castling. To avoid this I found you must use 5171 or 5131 from white or 5878 or 5838 from black.
- 5.It is difficult to set up middle and endgame positions for study since you can't 'create' pieces. If the position has two queens forget it.
- 6.The program can play itself by use of the 'X' and 'P' (play) commands but it loses track of its opening table. This may be to keep you from determining the opening table contents, but results in poor play. If you are determined you can determine all the openings.
- 7.The opening table doesn't generally follow the common lines, thus increasing the likelihood of serious players getting out of the 'book' and not being challenged.
- 8.Here is a bad one! Pawn promotion always results in you getting a Queen unless you have two Queens. Then you get up to two Rooks, then Bishops, etc. This is against the rules!! There are times where you need a Knight to check mate, or a Rook or Bishop to avoid stalemate!
- 9.The game is not 'randomized' so you get the same openings and remaining game over and over again unless you deviate or use a different level. (Ed note: If it has a good move, let it make it consistently, why use others just to be random)
- 10.It randomizes its first move as white (P-QB4, P-Q4, P-K4, P-KB4, N-KB3, or N-KB3). When you play white you only see 1 ... N-KB3 when you play you always get 1 P-K4, P-K4 (Ruy Lopez-Berlin defence) and never a Caro Kann, French or Sicilian! They're in the table if you play them from black.
- 11.At level 8 the game seems to look 3 moves ahead only when the king or queen is attacked. It loses minor pieces to the most simple pawn traps. Also I'm still wondering why it allowed a simple one move king-queen fork by my knight once.
- 12.Level 1 is not completely suited for lightning chess since it plays fast until a queen or king is involved. Then it will take 6 or more minutes looking for the best move. NOT FAIR! (Ed note: my understanding was that Level 1 was for use by beginners - not for experts and lightning chess)

COMMENTS: These likely will require extended memory.

- 1.A bell or other output to the ports would be nice to let you know when it is your turn (some moves take 10 minutes, and once it took 25 minutes).
- 2.Printout to teletype would be nice.
- 3.Restart of game at the n-th move (by storing the game in memory and/or tape).



Bret Butler's TRACE program, written in machine language to trace execution of programs executing in BASIC (or PET direct execution mode), and published in the Spring 79 issue of The Gazette (page 18) is one of the most exciting programs I have seen running on the PET.

One drawback in the version previously published is that it is written for an 8K PET and restricts memory use by another program to around 7K, even if you have loads of extra memory attached.

The version at the end of this article has been modified to run on a PET with 16K memory (presumably there are quite a few folks who have an 8K PET with 8K added). In this version, the TRACE is turned on with SYS 16060, and turned off with SYS 16045. Change TRACE speed with POKE 16164,X.

In the program listing which follows, the 16 bytes and one BASIC constant which were altered are underlined. Comparing the 8K version to this one should allow the astute programmer to adjust it to any 256 byte boundary. If you need to, and have trouble figuring it out, write to me care of Micro Software Systems, P.O. Box 1442, Woodbridge, VA 22193.

```
6005 FOR I=1 TO 340 :READ K:POKE 16044 +I,K:NEXT I
6010 DATA 162,5,189,181,224,149,194,202,16,248,169
6020 DATA 239,133,210,96,169,172,133,134,169,62,133
6030 DATA 135,169,255,133,124,160,0,162,3,134,125
6040 DATA 162,3,32,239,62,208,249,202,208,248,32,239
6050 DATA 62,32,239,62,162,5,189,249,63,149,194,202
6060 DATA 15,248,169,242,133,210,76,106,197,230,124
6070 DATA 208,2,230,125,177,124,96,230,201,208,2,230
6080 DATA 202,96,32,197,0,8,72,133,79,138,72,152,72
6090 DATA 166,137,165,136,197,77,208,4,228,78,240
6100 DATA 107,133,77,133,82,134,78,134,83,173,4,2
6110 DATA 208,14,169,3,133,74,202,208,253,136,208
6120 DATA 250,198,74,16,246,32,201,63,169,160,160
6130 DATA 80,153,255,127,136,208,250,132,76,132,84
6140 DATA 132,85,132,86,120,248,160,15,6,82,38,83
6150 DATA 162,253,181,87,117,87,149,87,232,48,247
6160 DATA 136,16,238,216,88,162,2,169,48,133,89,134
6170 DATA 88,181,84,72,74,74,74,32,211,63,104,41
6180 DATA 15,32,211,63,166,88,202,16,233,32,217,63
6190 DATA 32,217,63,165,75,197,201,240,55,165,79,208
6200 DATA 4,133,77,240,47,16,42,201,255,208,8,169
6210 DATA 4,32,225,63,24,144,33,41,127,170,160,0
6220 DATA 185,145,192,48,3,200,208,248,200,202,16
6230 DATA 244,185,145,192,48,6,32,223,63,200,208,245
6240 DATA 41,127,32,223,63,165,201,133,75,104,168
6250 DATA 104,170,104,40,96,168,173,64,232,41,32,208
6260 DATA 249,152,96,9,48,197,89,208,4,169,32,208
6270 DATA 2,198,89,41,63,9,128,132,81,32,201,63,164
6280 DATA 76,153,0,128,192,79,208,2,160,7,200,132
6290 DATA 76,164,81,96,76,255,62,32,248,62,55,32
```

EDITORS NOTE: The above listing may not reproduce very well since it was a very light gray ink on a dark yellow paper. Whenever you send a listing or article or review to be printed in the PET GAZETTE, make sure you use a NEW DARK ribbon on your printer or typewriter. White paper is preferred and reproduces the clearest. We did everything we could to make the listing above as clear as possible. Sorry for any illegibility. The listing is shown as received and has not been tested by the GAZETTE.

## REVIEW

TUNNEL VISION & KAT & MOUSE - \$7.95  
A B Computers  
P.O. Box 104  
Perkasie, Pa 18944

A lot of the programs you see for game playing on the PET tend to be of a few limited types; (Star Trek, board games). The people of AB computers seem to put out some totally different programs. These two games, both in the same program are very different, and darn challenging. In Tunnel Vision you have to find your way through a maze which is not visible. You work your way through the maze by moving forward one step at a time. You also can turn left or right to change direction. To help make a decision on what to do you can strike a match (hit return). The PET will then display a clue. You will see that there is a path ahead, a left or right opening, a tee or a wall. You can ask the PET to display a track of where you have been. It is really tough. In Kat & Mouse you can see the maze. You start out on one side of the maze and work your way to the opening on the other. Unfortunately the PET (Kat) is also loose in the maze and he quickly works his way through looking for you. You are dead if you get caught. At first it seems impossible to avoid the Kat but when you realize that the Kat always searches in the same manner it becomes a little easier to avoid him. This is mentioned in the instructions but it takes awhile to put the knowledge to use. Both these games are "video" type games and a lot of fun. - By Bill Bendoritis

## DEAR PET GAZETTE

THIS LETTER IS BEING PRINTED USING A PET COMPUTER AND A 'EXPANDOR' PRINTER. THIS PRINTER WAS PURCHASED FROM PETSHACK. AT FIRST I HAD PROBLEMS TRYING TO FIGURE OUT HOW TO REMOVE THE PINS FROM THE SPROCKET DRIVE IN ORDER TO USE PRESSURE FED PAPER. I CALLED PETSHACK TO FIND OUT HOW IT WAS DONE BUT THEY DID NOT KNOW HOW EITHER SO HE CALLED THE FACTORY AND THEY SAID TO USE A 'VERY' SMALL HEX WRENCH TO UNSCREW THE PINS. THE MAINTENANCE MANUAL SUPPLIED WITH THE PRINTER IS VERY THOROUGH EXCEPT IN THIS MINOR DETAIL.

THIS PRINTER USES THE IEEE BUS FOR CONNECTION TO THE PET.

COMPUVOX - \$29.95  
Sample programs - \$3.95 each  
by MICROSIGNAL now acquired by  
VOICETEK  
Box 388  
Goleta, CA 93017

Compuvox is a first attempt at low-cost audio input to the PET. The hardware consists of a small plastic box containing the necessary electronics, plus a length of cable to attach to the ports of the PET. A manual is included, and 2 programs on cassette are available for \$3.95 each. Not included, but required, are connectors for the user port and second cassette drive's port (for +5 V. power).

The manual is well-written and clear. It explains installation, the sample programs, as well as the use of the unit for one's own programs.

The concept is also clear. Compuvox senses the presence or absence of sound at any given instant. The programmer must then work presence/absence times into a recognizable input for his program.

This may sound quite elementary, but human speech patterns, in contrast to those of R2D2, are not easily interpreted in terms of jiffy counts. Because of this problem, the sample programs simply count the number of sound pulses, and use this count to change the direction of motion of a cursor-like object.

One of these games is a sound version of "Snake," but far more difficult to use than a simple keyboard version. One sound forces the direction downward, two to the left, three up, and four to the right. Personally, I greatly prefer the keyboard version.

The other game is indicative of the professionalism of the software. Words in the instructions are misspelled, and often are terminated at the end of lines mid-word, without the courtesy of a hyphen.

A good programmer may be able to make interesting use of this device, tailoring the input to his voice. However, Microsignal did not leave us with any adequate examples of its use, nor should one be surprised, given the complexity of programming.

I would recommend this to anyone who is interested in some complex voice analysis in machine language. For myself, I think I'll have to wait until I see it put to a practical use through a more user-oriented combination of hardware and software. -by Steve Kortendick

## Review

MUSIC MIMIC - \$7.95 for 2  
Jamestown Small Computer System  
2508 Valley Forge Dr.  
Madison, WI 53719

I had trouble reviewing this program because it is obviously geared for children. In it the PET displays a large musical staff. It then plays a note and you must play the same note using the number keypad to represent each note. If you get the note right it play two notes, and so on up to 5, 10, or 20 notes depending on the difficulty you chose. If you get them all correct the program plays a little song. The sound uses the PET GAZETTE conventions (pins M&N). The program does a nice job of what it is intending to do. It is geared strictly toward the younger PET user. - By BILL BENDORITIS



**SPECIAL NOTES:** The review on an alternative 2nd cassette Interface is printed without our seeing a review copy because of the number of inquiries into this. The DISK review is in advance of our unit which was shipped a couple days ago. The letter to the right is very typical of software companies attitudes toward Commodore. We have a complete PET ANALOG INPUT set as in the ad below.

**REVIEW: 2ND CASSETTE INTERFACE**  
 P.S. SOFTWARE HOUSE  
 P.O. Box 966  
 MISHAWAKA, IN 46544

THIS \$49.95 DEVICE PLUGS INTO THE PET 2ND CASSETTE PORT AND HAS CABLES FOR THE EARPHONE JACK AND EITHER THE MIC OR AUX. JACK OF THE RECORDER. A 3RD CABLE, OPTIONALLY USED, GOES TO THE REM. RECORDER JACK TO TURN IT ON AND OFF UNDER PROGRAM CONTROL.

AN ADVANTAGE OVER OLDER RADIO SHACK RECORDERS IS THE MANUAL RESET BUTTON WHICH PERMITS REWINDING WITHOUT UNPLUGGING. THE PAGE OF INSTRUCTIONS SUPPLIED ADVISES THAT THE INTERFACE IS USEABLE WITH 'MOST ANY STANDARD LOW-PRICED CASSETTE RECORDER'. IT CERTAINLY WORKS WITH MY OLDER GE MODEL AND LOADS HAVE BEEN RELIABLE WITHOUT FIDDLING THE TONE AND VOLUME CONTROLS.

NOW FOR THE BAD NEWS. THE INSTRUCTIONS ADVISE THAT PROGRAMS RECORDED ON THE BUILT-IN RECORDER MAY BE INCOMPATIBLE WITH THE 2ND UNIT. THIS IS THE CASE ON MY SET-UP.

MORE BAD NEWS. THE INSTRUCTIONS MAKE NO MENTION OF FILES AND ALL MY ATTEMPTS TO OPEN A FILE ON THE 2ND RECORDER HAVE RESULTED IN A 'DEVICE NOT PRESENT' MESSAGE.

ALTHOUGH THE P.S. 2ND CASSETTE INTERFACE IS A WORKABLE DEVICE, COMMODORE'S OWN \$99.95 2ND RECORDER MAY BE A BETTER BUY.

JOHN HIRSCH

Dear Mr Lindsay

Enclosed please find your order. I am enclosing gratis a copy of [redacted] and a copy of my infamous [redacted] game. I am giving these to you free in hopes that you will editorialize and [redacted] on Commodore in public for being such a [redacted] Company. (you've already shown some ability for this, so I think I've come to the right man.) In particular, it really gripes me that they are bringing out the new PET (yeh) which couldn't be better designed to be software-incompatible with the old PET (BOO). There's no reason (other than their general incompetence) that Microsoft couldn't have been instructed to keep the zero page references the same or as near the same as possible. Then such Mickey Mouse things as fiddling with loc'n 525 would still work. Sure. Commodore will say that all they guarantee is software compatibility at the BASIC level, but that's ignoring the issue. They wouldn't have had to keep everything the same; just as much as could be done conveniently. And not only that, those idiots don't even tell you where the entry points for FLPINT and INTFLP are in the new ROMs. So how on God's green earth are we supposed to use the USR function? Seriously, I really doubt if there's much in the way of serious software out there that doesn't use various aspects of the BASIC ROM, and an awful lot of that is just gonna plain disappear pretty soon. And that really gripes me because its going to do in the PET just as sure as shooting. Compare this with the TRS-80 where people are complaining that in the new BASIC release they changed 1 (yes, one!) poke location. It's funny that people care about things like this, as the PET is a nice machine regardless of Commodore's suicide drive, but I guess that's the difference between a normal person and a computer nut.

REVIEW

DISKMON DISK SYSTEM

\$1295.00

Compu-Think

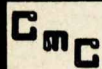
3260 Alpine Road

Menlo Park, California 94025

This floppy disk system utilizes a Pertec Computer Corporation Model FD200 Flexible Disk Drive. It requires approximately 4K memory to operate the system which necessitates memory expansion for the 8K Pet.

It comes with all the necessary hardware and simple instructions for installation in about 30 minutes. I have absolutely no hardware experience and I was able to successfully complete installation with only one minor omission. (When I finished the page of instructions I had two nylon screws left over which I discovered I missed in my initial run through).

The exciting features of this equipment are its speed (8K program loads in less than 1.5 sec.) and its reliability (not a single load error to date). It automatically self-reorganizes disk space after each save or erase command. The company provides three useful utility programs with the unit. The unit allows you to access 200K of data on the dual disk system. The company promises to allow the user to upgrade the equipment to 400K or 800K for the difference in cost when these new units become available.



# PET ANALOG INPUT



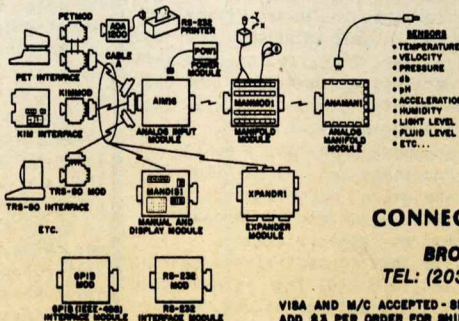
Analog to Digital Conversion System for the Commodore PET Computer

Give the PET the ability to sense, measure, and control the world around it with DAM SYSTEMS modules. Just plug the PETSET1 into the PET to set 16 channels of analog input. Screw terminals are provided for each channel so you can hook up Josticks, pots, or whatever appropriate sensors you have.

Each of the 16 analog inputs, in the range of 0 to 5.12 volts, is converted to a decimal number between 0 and 255 (20 millivolts per count). Conversion time is 100 microseconds.

In addition, the PETMOD provides two IEEE ports and one user port as well as a DAM SYSTEMS port.

Software is provided. A one line program is all that is necessary to read a channel.



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- 1-AIM161 - 16 ANALOG INPUTS-8 BITS-100 MICROSEC
  - TEMPERATURE
  - VELOCITY
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  - FLUID LEVEL
  - ETC...
  - 1-PETMOD - PET ADAPTER-2 IEEE PORTS-1 USER PORT-1 DAM SYSTEMS PORT
  - 1-CABLE A24 - 24 INCH INTERCONNECT CABLE
  - 1-MANMOD1 - MANIFOLD MODULE-SCREW TERMINALS FOR INPUTS, REFERENCE, GROUND
  - 1-POW1 - POWER MODULE

PETSET1a for 110 VAC \$295  
 PETSET1e for 230 VAC \$305  
 Order direct or contact your local computer store.

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INTERVIEW WITH THE DRAGON  
PART I

Bob Albrecht, co-editor of RECREATIONAL COMPUTING, and co-founder of Peoples Computer Company, is known world-wide as the DRAGON. This interview was by phone. Part II will be in next issue. So on with the interview---

PET: Who is the Dragon & why was that name chosen?

DRAGON: The Dragon is Bob Albrecht. I liked dragons, ever since I was about 13. Dragons are a part of Science Fiction and Fantasy. You may have noticed that there is at least one dragon in every issue of RECREATIONAL COMPUTING (formerly PEOPLES COMPUTERS, formerly PEOPLES COMPUTER COMPANY).

PET: How did Peoples Computer Company get started?

DRAGON: The newspaper came first. It was called Peoples Computer Company. It actually wasn't a company at that time. We took the name in the same fashion as ROCK GROUPS chose their names. For example, BIG BROTHER AND THE HOLDING COMPANY. They really weren't a holding company, but a rock group. We really weren't a company, but a newspaper. About a year later we became a real company, and named ourselves after the newspaper.

PET: How did your Original Newspaper evolve into the present RECREATIONAL COMPUTING?

DRAGON: Back about issue volume 5 number 5 I left and Phylis Cole took over as editor. She changed the format from a newspaper into magazine format, 8 1/2 by 11. She also changed the name to PEOPLES COMPUTERS. Then a bit later Bob Kahn came on. That's when the name began to evolve again. When I came back we changed our name to RECREATIONAL COMPUTING. Our magazine is for recreational and educational uses of computers. And the new name fits that very well.

PET: How many of the original staff are still with PCC?

DRAGON: Dennis Allison was on the original board, and still is. He is the "D" in DR. DOBBS. Bob Kahn was on the original board and still is. I was on the original board and was one of the 4 who put together the first issue. And Leroy Finkel also helped with that first issue, and he is still with PCC. There were 9 of us to start with. We're now in our 8th year of publishing and have about 25 full or part time staff.

PET: What are the future plans for PCC?

DRAGON: FUTUREPLAY has just started as a feature in RECREATIONAL COMPUTING. Watch it expand in the next few issues. PROGRAMMERS TOOL BOX is another feature that will be expanding offering small subroutines and other various helpful aids to programmers. LANGUAGE FORUM will be coming back. We'll be talking about computing languages especially for children. And then there is COMPUTERTOWN USA (Menlo Park). This project is to turn Menlo Park into the first Computer Literate city. It has already started, and there now is one PET that permanently resides in the public library. The project itself will be involving MANY PETS. We'll keep the PET GAZETTE posted on all future developments. Anyone wishing to find out the latest scoop should send a large self addressed stamped envelope to: COMPUTERTOWN USA, PO Box 310, Menlo Park, CA 94025. And by the way, schools should check with their nearest PET dealer. They may be able to qualify for the 3 for the price of 2 offer.

The interview had to stop here for the DRAGON had to leave to take a few computers to the local PIZZA PARLOR. Interesting?? Stay tuned for PART II next issue. And by the way, our cover this issue is compliments of RECREATIONAL COMPUTING. If you are writing to them, make sure you mention what you think of the cover art. Computers in the bathroom?

PROGRAMMABLE CHARACTER GENERATOR

SCHIESSL & STEINER (Augustenstr. 91/2, D-8000 Munchen 40, WEST GERMANY) has announced a programable character generator for the PET 2001. You can design your own character set of up to 256 characters using their comfortable interactive program. This character set can be saved on tape or diskette for future use in your programs. It can also be used to have a graphic resolution of 320 x 200 points (256 maximum characters). They offer machine language routines to plot points and lines. The price is about 1,300 DM including software and tax. Delivery is 4-6 weeks. I have not seen it, but it sounds interesting.

8080 SIMULATOR FOR THE PET

JK JOHNSON (9304 Emory Grove Rd, Gaithersburg, MD 20760) has modified the 8080 Simulator for the 6502 by Dann McCreary (PO Box 16435-8, San Diego, CA 92116) to work on the PET. The cost is \$19.50 from Dann to work on the KIM-1. JK Johnson will make his adaptation available for tape cost plus \$1.50 to any bona-fide purchaser. Contact him for further details. He said that this 8080 simulator is so good that it defies description. This program allows the PET to execute the 8080 instruction set. This is a significant step forward for the PET.

BC COMPUTING JOINS COMPUTER WAY

Computer Way (PO Box 7006, Madison, WI 53707) is expanding in the personal computer field, including the PET computer market with the BC COMPUTING staff. Readers can refer to my column in the past issues of KILOBAUD for info on BC COMPUTING and COMPUTER WAY. Computer Way markets the highest quality diskettes and cassette tapes, and now will soon be able to protect PET programs. They also sell quilted covers for the PET for \$15. I have seen them and they are nice.

PET SCREEN TRANSFORMATION

Competitive Software (21650 Maple Glen Dr, Edwardsburg, MI 49112) is selling light snake gray plexiglass "face" for your PET screen. PLEXI-VUE fits over the screen and surrounding formed plastic. You then have a transformed PET. The whole top looks like a screen, similar to some fancy terminals. It is available for \$9.95. I have one for each of my PETS. They look more professional, but they have a slight reflective problem, similar to a dull mirror.

PET COMPUTER ON RUBBER STAMP

ProMark (410 Stony Battery Rd, Lancaster, PA 17601) will sell you a professional rubber stamp with the PET pictured on the left and your Name and Address (3 lines) for \$5.75. Let the world know you have a PET. Make it part of your return address with this Stamp.

PET FIRMWARE

What is FIRMWARE. Firmware could be referred to as software on a chip. Once this chip is plugged into your PET it will be available whenever your PET is turned on. For example, the NEW PET ROMs are firmware. They include the TIM monitor for the PET as well as PET Operating System. This Commodore ROM set will be available to OLD PET owners for \$50 soon. Now I've heard rumblings about new chips for the PET with Line renumbering, Automatic Line Numbering, and much more. Next time I should know more and will let you know exactly what is included. You could try contacting the following two sources for advance info if you are desperate: Skyles Electric Works (599 Mathilda Ave #26, Sunnyvale, CA 94086) or Harry Saal (810 Garland Dr, Palo Alto, CA 94303).

16K PET ASSEMBLER-TEXT EDITOR

CW Moser (3239 Linda Dr, Winson-Salem, NC 27106) is selling what appears to be an excellent assembler for the PET written in machine language. The price is \$37 for PET tape and very nice Manual. I have a copy of it so you know it does exist.



## CASSETTES

One important area for all PET users is cassettes and how to store them. Remember, you are dealing with a picky computer, not a stereo playing a tape of FLEETWOOD MAC. Choose your cassettes for use with your PET with extreme care. If anything goes wrong with your cassette you lose hours, days, and even weeks of work. To prevent this loss, use only the very BEST cassettes you can. To be extra safe keep two copies of each program - on two different tapes - stored in two different places. The safest place to store your cassettes is in a metal box or cabinet away from heat and high humidity. Since this is not practical for tapes used daily at times, it may be a good idea to keep "master" tapes of your programs and store these in a metal box. These master tapes can be C-30 tapes with many programs on each side. Fast access is not important for hopefully you will never need to use the master tape.

I recommend using only C-10 cassettes for regular program storage. A program can be stored on the front and the back and each will be easily and quickly accessible. I have used most of the tapes you see advertised and had MANY problems. Some tapes were no good to start with. I couldn't even find programs SAVED on SCOTCH tapes. MICROSETTE seemed very good at first, but after a short time it seemed that the programs would "fade" away and no longer would load. Other tapes seemed to be bad on the tape heads. After only a few SAVES and LOADs the tape heads would need to be cleaned to work reliably. Still others made awful noises while running.

The type of tape that I find works extremely well and is far superior to others is AGFA PREMIUM (also called AGFA PE 611/811). There are several types of AGFA tape so beware of tapes advertised as AGFA. Make sure it is AGFA's best.

Just as important as the tape used is the cassette housing it is loaded into. Even the best tape in a cheap housing will not work properly. A high quality cassette housing will have hard windows (not greased paper), steel pins, flanged rollers, and be screw type rather than welded. Fortunately I have found a good source for AGFA PREMIUM tapes in a high quality cassette housing as described above. Besides stocking only the BEST tapes they have very fast delivery (guaranteed 1 week delivery) and very low prices. Thus it is easy to understand why all my tapes now come from COMPUTER WAY (PO Box 7006, Madison, WI 53707). Write to them for full information. They have cassettes of any length. Their C-10 prices are:

- 25 @ \$1.00 each
- 50 @ 0.95 each
- 100 @ 0.85 each
- 400 @ 0.70 each

Computer Clubs receive a 10% discount on orders of 200 or more. Shipping is included. They take VISA & MC.

After spending all the time making your tapes I recommend neatly labelling them. Blank labels are inexpensive and available in several colors (including RED, WHITE, BLUE, GREEN, and YELLOW) for \$3.45 per 100 from COMPUTER WAY. These labels come on sheets of 10 and include strips to use to label your box or cases. Or COMPUTER WAY has a roll of 1,000 white labels for \$14.95.

There are several ways to organize your tapes for easy access. Demco Educational Corp (2120 Fordem Ave, PO Box 7483, Madison, WI 53707) has several good cassette storage systems. They have revolving round units that hold 25 cassettes and can be stacked on top of each other. They cost \$45 for 3 units. I have 6 of these and like them. They also have several cases with flip out holders and several types of cassette books.

20th Century Plastics (3628 Crenshaw Blvd, Los Angeles, CA 90016) have 3 ring cassette binders for \$6.95 each (3 or more) These hold 12 tapes and allow you to store listings and documentation neatly using the 3 ring binder method. RADIO SHACK has a similar folder that holds 12 tapes without the 3 ring binder part for \$2.59 each.

Then of course you can store your cassettes in single boxes. There are 3 types of boxes generally available. A hard plastic Norelco style hinged box is good if you wish to see through the top. But they are a bit brittle. A translucent soft hinged box is more durable and usually a couple cents cheaper. Then there is the two part soft plastic type. The first two are available from COMPUTER WAY.

Remember to keep your tape heads clean for reliable service. COMPUTER WAY has both cotton and lint-free foam tipped swabs and special tape head cleaning fluid.

## RUMORS

The latest rumor I have confirmed is that the PET will soon be called the CBM. Will I have to change my Kilobaud Microcomputing column title from PET POURRI to CBM POURRI? That just doesn't sound right!

## PROGRAM PROTECTION REVISITED

Last month I told you about BC COMPUTING (2124 Colorado Ave, Sun Prairie, WI 53590) who has the best protection method for the 8K PET. Since Commodore changed things in the new PET, programs protected on the OLD PET will not be protected on the NEW PET (and vice versa). But BC COMPUTING is already in the final stages of developing a protection method that will work with either PET. So all is not lost due to Commodore and the new locations in memory.

## NEW PRINTER

SKYLES ELECTRIC WORKS (599 Mathilda Ave #26, Sunnyvale, CA 94086) is marketing the PAL (Printer on A Leash) for the PET. It is a thermal printer, using paper 4 7/16" wide. It prints 40 characters per line - including UPPER and lower case, 96 characters in all. It zips along at 40 characters per second printing in both directions. The price for all this is \$450 plus \$10 shipping. A test and demonstration tape is included as well as over 200 feet of paper. It comes ready to simply plug into the PET IEEE port and RUN.

## MICROCOMPUTER INDUSTRY TRADE ASSOCIATION

MITA (345 Swett Road, Woodside, CA 94062) is just what the microcomputer market needs. Both the consumer and the manufacturer or dealer will benefit. The organization has just started but is rapidly growing. Hopefully, membership in this association will be a sign of a responsible company. Two of the associations present members are in the PET market: Connecticut Microcomputer and the PET GAZETTE. Hopefully other PET companies will join this organization.

## PET SHIRTS

Beautiful high quality colored T-shirts are available from Computer Way (PO Box 7006, Madison, WI 53707). Both children and adult sizes are available at only \$5.95 per shirt. Every proud PET owner should wear one, especially to PET club meetings. Several different PET designs are available. Your name can be included for a slight additional charge.

## PET REFERENCE BOOK

Channel Data (5960 Mandarin Ave, Goleta, CA 93017) has come out with the second edition of their Channel Data Book. It is a vast improvement from the first edition and would be a worthwhile addition to every PET owners library. For \$20 you receive a high quality 3 ring binder filled with listings of PET companies and their software and hardware. Since it is organized by category it is easy to use and very helpful.

## DISK UNITS

After working with Commodores DUAL DISK unit for 1 week, I decided to order a COMPUTHINK DUAL DISK unit from New England Electronics (679 Highland Ave, Needham, MA 02194). Since their delivery is quick, I should have it in time to tell you about it next time.



Dear Len,

This is a quick note after a week using the PET with the new keyboard and the new ROMs. It is for publication when and as you wish.

The new ROMs are a delight, with some reservations; the new keyboard is outstanding, and must be recommended without reservation even with the extra cost it entails for the cassette deck. My speed on the old keyboard matches that on a Selectric (in the 60-80 wpm range); on the new one it is much higher, and my error rate is lower than on either of the others! I now have use of (and soon will have for myself) a 32K PET, and the floppies are also on the way any day now.

I converted all of my software which is to be sold (via Programma) to be interoperable on the two machines. BRIFFING and WORD PROCESSOR exist in separate forms for the two machines (of necessity). Following are the salient differences between old and new ROMs.

1. Page one has been reassigned; PFEKs and POKEs are different now.
2. The TAB has been deleted (it's a NO/OP now). Replace it by ending the prior print, then PRINT cursor up SPC(x), where x is the value which would have been TABbed.
3. In lower-case mode (still POKKE 59468,14), the keyboard functions as a typewriter: shift for upper case. Not only does that make lower-case instructions unique to one or the other set of ROM's, it also creates extraordinary listings!!

The result of the above is that care will be needed to ensure that the right software goes to the right machine. That will create problems for you and for related forms of distribution; interoperable code will be the rule at Programma, and I will support it by retaining both machines and by promising to make the software operational for the users. I can't make the same offer to you; as you have already discovered, the roles of commercial products and free exchange are significantly different.

Enough for now. Please keep up the good work, and the outstanding gazette.

Sincerely yours,

(NOTE: SEE UPDATE BELOW)

First, my outline of PET differences between ROM's is not right: although there is some difference in the way the TAB works on some machines, it is not a consistent thing - or at least, I haven't solved it to date. The other points appear to be valid, and I recommend eliminating TAB where practical until the anomaly goes away or is explained. (It might just be that the first machine I used had a bug, or ???)

On the discs, your disappointment is an understandable result of Commodore's way of doing business - but don't despair. The mechanical problems are real - the disc does not seat properly. The people from whom I'm buying mine are at Commodore today trying to resolve the problem. They have my disc with them, and won't deliver it to me until it's right. (There is a possibility that if the drive is cold enough it will load the discs correctly. I wonder what the temperature is in the test facility there?) I am ready for the disc system now, having developed my record cataloguing system. Yet, I'm not sure whether to wait for the new disc ROM's or to go with brute force; I suppose the latter.

Sincerely yours,

P.S. Many thanks for the memory map. It's new to me and very useful (although incomplete).

\*\*\* PREVENTIVE MAINTENANCE \*\*\*

Get a RAM test program and run it at least twice a month! Don't rely on the PET's power-on diagnostics to catch a bad RAM. Even though the BYTES FREE is correct, you can still have a defective RAM. (I've had to replace 3 of them)-(The new PET's have a high incidence of video RAM problems)

Besides running a memory test program, CLEAN YOUR PET! I use a can of pressurized air (DUST OFF - available at photo shops) and blow the dust out of my PET's internals. Also clean and demagnetize the tape heads and check head alignment.

A clean PET doesn't guarantee a healthy PET, but as the cliché goes, "it sure can't hurt" - Bill Coughlin

REVIEW  
LEGIONNAIRE - \$9  
Pleiades Game Co  
202 Faro Ave.  
Davis, CA 95616

This is the sequel to TANKTICS which was reviewed last issue. TANKTICS required a separate hexagonal playing grid board (which came with the cassette). LEGIONNAIRE draws the hex grid right on the PET screen which is very handy and looks very nice. This sophisticated game is in REAL TIME. The PET is your opponent and is continually moving his pieces, whether you move or not. This is a thinking strategy game, with 9 levels of play. You command 8 groups of Legionnaires. The pleasant surprise is that there are sound effects, and they use the PET GAZETTE conventions (pins M&N). Any WAR GAMER will enjoy this. Now, how about a program for the PET to challenge me to a GOOD game of RISK!!!

NW PET USER'S GROUP  
JOHN F JONES  
2134 NE 45TH AVENUE  
PORTLAND, OR 97213

Phone (503) 281-4908

REVIEW  
FULLSIZED KEYBOARD - \$139.95  
New England Electronics  
679 Highland Ave.  
Needham, MA 02194

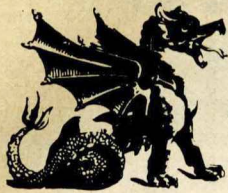
If you're a typist, and you hate to "hunt and peck" on the PET'S small keyboard, then this is a keyboard worth considering for a second unit.

This is a fullsized keyboard with a standard typewriter design (especially nice if you're a "touchtypist"). There is no separate numeric keyboard as the numbers are on the upper row. The keyboard has such features as: single key functions for cursor control, shift/run, insert, delete, clear screen, and cursor home. The keyboard attaches directly to the front of the PET'S frame and plugs directly into the logic board (functions simultaneously with the PET'S keyboard) The keyboard does not have the PET'S graphics, but this is no problem as you can always use the PET'S keyboard. The keyboard has a good "feel" to it and is enclosed in a white metal case.

There are a couple of minor inconveniences: 1. There is no apostrophe - you have to reach up and use the PET'S keyboard. 2. The SHIFT key is a SHIFT/LOCK. Thus you have to press the key twice to turn Shift on/off. Also, there is no SHIFT on the right hand. The INSERT key acts like a SHIFT key (if you aren't in quote mode) When using the CMC Word Processor, however, the letters that were made upper case by using the Insert key, print on a printer as 4's! (ie. Don't use the INSERT key to SHIFT)

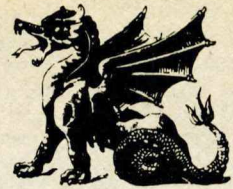
Despite these "inconveniences", I recommend the keyboard based on quality construction and the fact that it works! (Besides, it's a lot better than the little keypad on the PET) - Bill Coughlin





# Fantasy Games Software

P.O. Box 1683  
Madison, Wisconsin 53701



## NEW for the 8K PET

Full scale role-playing adventure games for the PET!  
Action games with vivid graphics!

**SWORDQUEST** *The dim torchlight casts grotesque shadows as you move stealthily through the stone corridors. Suddenly, out of the darkness hurtles a nightmarish form. Red eyes gleam and fangs seek your throat as you put all your strength behind the downward stroke of your mighty two-handed broadsword . . .*

You seek the jewels and holy sword in the demon-haunted tomb of a long-dead wizard—can you survive? A unique application of the PET graphics.

Cassette and instruction booklet . . . . . \$12.95

**ESCAPE FROM THE DEATH PLANET** *The air crackles with laser beams as you burn down another armored stormtrooper and dodge into a side passage a split second ahead of the energy bolts slamming into the bulkhead behind you . . .*

Can you escape the Imperial Stormtroopers and the Killer Robots with turret-mounted laser cannon? VIVID GRAPHICS! Laser beams, explosions, etc.

Cassette and instruction booklet . . . . . \$12.95

Programs double-recorded on high quality cassettes. Instructions are included in separate booklets so that the full 8K memory might be utilized for the games.

Both cassettes for \$21.95

# PET:™



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PET is certainly the greatest business tool since electric pencil sharpeners, and printers and floppy disks will herald an explosion of commercial applications.

Basic seems like the ideal language for a small business system - but it has a hidden "gotcha" that will give you problems if you don't know how to handle it. I call it, "the missing pennies problem", and it's common to almost all Basic implementations.

Crank up your PET and try this: PRINT 2.23 - 2.18 -- it's a simple business calculation and the answer has gotta be a nickel, right? So how come PET says .0499999998?

Think of the mess this could cause if you're printing out neat columns of dollar-and-cent results. Think of the problems if you arrange to print the first two places behind the decimal point: you'll print .04 instead of .05! Think of what the auditor will say when he finds that the totals don't add up correctly!

In a moment we'll discuss how to get rid of this problem. First, though, let's see how it happens.

PET holds numbers in floating binary. That means certain fractions don't work out evenly. Just as, in decimal, one third works out to .333333 .., an endless number, PET sees fractions like .10 or .68 as endless repeating fractions - in binary. To fit the fraction in memory, it must trim it. Thus, many fractions such as .37 are adjusted slightly before storage.

Try this program: it will tell you how numbers are stored inside PET:

```
100 INPUT"AMOUNT";A:B=INT(A):C=A-B:?"A;"=;"B;".;
110 FORJ=1TO10:C=C*10:D=INT(C):C=C-D:?"D;";IFC>0THEN NEXTJ
120 ?;GOTO100
```

If you try entering numbers in our above example, 2.23 and 2.18, you'll see how PET stores them - and why the problems happen.

How to fix the problem? Easy. Change all numbers to pennies - which eliminates fractions - and your troubles disappear. For example:

```
340 INPUT"AMOUNT";A : A=INT(A*100+.5) converts A to pennies;
.....
760 PRINT A/100 outputs pennies in dollars-and-cents
```

REVIEW: SERIES ONE, by ADP SYSTEMS, INC.  
95 West 100 South--Logan, Utah 84321  
phone: (801)752-2770 cost:\$25

SERIES ONE is a very full C-60 cassette tape with a wide variety of programs, 25 in all, each recorded twice. It comes with a nice instruction booklet, which really isn't needed, as most of the programs are self-explanatory. The collection is full of "hit the right button at the right time sorts of graphics games". I am easily bored by these. Young children might enjoy them longer, but would not often win, as the limits are set for skilled users. The programming is of better quality than many such "bargain packs", & even includes REMARKS about what's happening, (too rare in PET programs). If more comments were added, the programs would be quite valuable as examples of good programming. For example, these programs AUTOMATICALLY adjust to old or new ROM PETs. Screen format-

ting is well done, as are most graphics. None of the programs use sound. Most instructions are OK, tho some standards were not observed, especially using the numeric keypad as a joystick with '5' as [center]. The star program is 'MORTGAGE LOAN', which allows you to ask for whatever information you need far more flexibly than other such programs I've used & written. It is the only one I've found that tells how much house you can seek, based on the payment you can afford. The other 'big' program is 'SAVINGS ACCOUNT', which like M.L., provides information from several angles. Two others are worth mentioning. 'RAILROAD' uses PEEK/POKE graphics to move a dot around a complex R.R. layout with eight switches you can open & close to vary its motion. 'AUTO RACE' is unusually realistic. One game uses hi-resolution plotting; several use POKE graphics. An unusual 'Horse Race' is unwinnable, as PET's moves have precedence over yours.

The problems I found are correctable, if you know how to program in Basic. Unfortunately, the primary market for these programs may be those least able to change them, new PET owners who don't already have 2/3rds of these programs under other names. Overall, SERIES ONE is not as good a buy as CURSOR MAGAZINE, nor are the programs as well done as similar ones available through the PET GAZETTE & various users groups. On the other hand, you can do a LOT worse elsewhere.

---Jim Strasma

REVIEW-COLORED CASSETTE LABELS  
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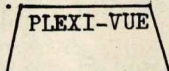
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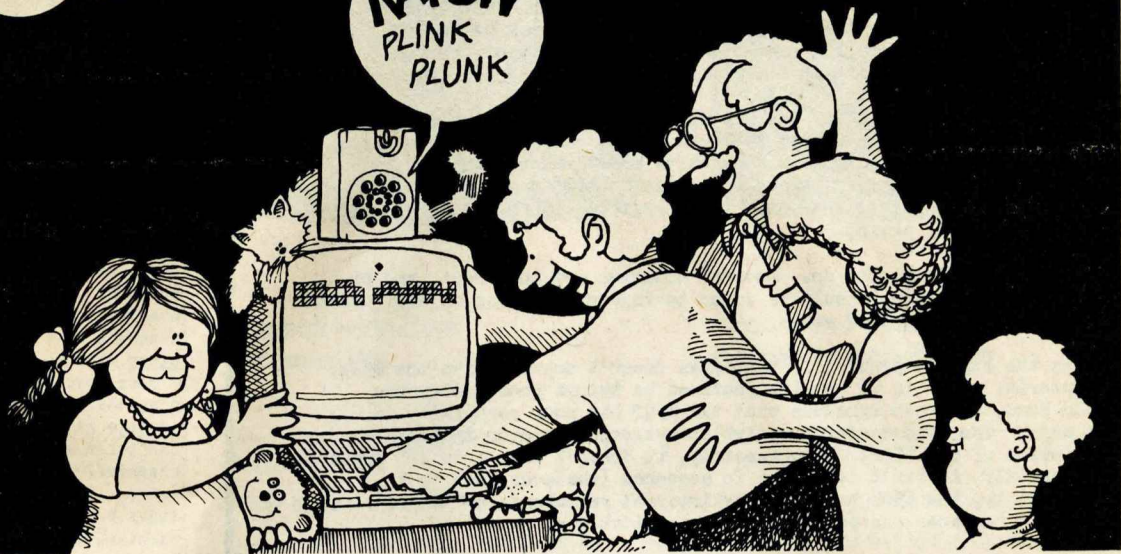
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REVIEW: Programming the 6502, by Rodnay Zaks (SYBEX, 305 pp.)  
review by Jim Butterfield

The 650X community is in need of good reference and/or tutorial books on their chip. Unfortunately, this book doesn't make the grade.

There are too many mistakes and oversights in the book to make it a good reference or teaching guide. Some of the problems are relatively minor goofs that may be corrected in a future edition: for example, page 15 notes that binary 10000000 equals a value of minus zero (1), and page 181 says (twice!) that the BIT instruction uses relative addressing.

More seriously, there seems to be a lack in the author's depth of understanding. Exercise 3.17 asks the reader, "Why is the return from a subroutine so much faster than the call?" Why indeed? The 6502's JSR (Jump Subroutine) and RTS (return from subroutine) in fact have identical execution speeds. On the same subject, Zaks suggests that a handy way for a calling program to pass parameters to a subroutine is through the stack. He doesn't mention the formidable coding problems that this creates.

Zaks doesn't seem to realize the important difference in indexing behaviour between zero-page and absolute modes, namely that zero-page indexing can be used to achieve a negative index value. Anyway, he doesn't mention it; indeed, he makes little mention of zero-page indexing except to state that only the X register can be used as an index (wrong again).

The list of problems goes on. Several examples are incorrect, and on at least one occasion, insult is added to injury by having an explanation of how the incorrect code works.

Perhaps the biggest problem is that Zaks doesn't seem to like the 6502. His tutorial style is to outline features he thinks good processors should have, and then conclude that the 6502 has poor capability in that area. The word "unfortunately" occurs over and over in his description of the 6502: Unfortunately, it doesn't have both ADD and ADC; unfortunately, it can't test bits in sequence (whatever that is); unfortunately, the 6502 has very few internal registers; unfortunately, only the A register can be shifted ... the list goes on.

It reaches a climax on page 182 where Zaks first details indirect addressing on the 6502. He does this with seven sentences criticizing the way it's done. This is followed by, "In fairness, it should be noted that few microprocessors provide any indirect addressing at all."

Faint praise for one of industry's biggest-selling microprocessors. A beginner reading this book might wonder whether he's made a mistake in opting for the 6502. Nowhere does the book mention the chip's speed and versatility.

Does the book have anything going for it? It covers the instruction set quite well, with addressing modes outlined somewhat patchily. Many of the coding examples are well set out and explained. Interrupts are dealt with in a rather rough manner, and support chips are passed over briefly. There are eight pages of good appendices, and a thorough index.

It's still hard to find material dealing with the 6502. If you're desperate, this book will be of some help.

REVIEW: PERSONAL ACCOUNTING SYSTEM  
by Ron Smith/Programma International  
6 programs--cost \$15?

The documentation is excellent, & the need for such a system is real. However, this program, as delivered, won't safely keep the financial records for an average computer-using family. I can't in good conscience recommend my wife (or any other nonprogrammer) change over to PAS for the checkbook record & budget. There are too many ways to crash & lose IMPORTANT data. There IS a fair amount of error-trapping & double-checking in PAS, but not enough when family financial records are involved. I could accept this, if there were no fat in the program, but PAS is loosely coded. There is plenty of room for either more hand-holding & error-trapping for the user or more data space. This requires using more subroutines, more string constants, & more statements/line. I made several such changes as I worked with PAS, but this shouldn't be the user's job. Perhaps one of you who likes to do this will make the needed changes & suggest P/A reimburse you suitably. With about ten hours of good editing, this could be a dynamite set of programs. Even now, there is much to be learned from the data file system, (easily understood, thanks to the loose coding.)

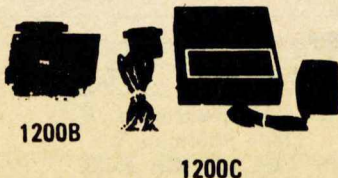
Some specific problems I had in running the program were: 1) once you begin to make an entry in TAPE TRANS, you can't cancel the entry. 2) TAPE TRANS cheerfully accepts the same transaction twice. 3) You can't back-up copy data tapes w/o losing the current data in the machine. 4) In RECONCILE, I misunderstood a question & had it read the wrong data--there was no warning of the mistake, & I was sure I'd had a read error. 5) It's easy to make the wrong response. For example, in OUTSTANDING, if you answer 'Y' to the question "Done?", you continue, not end. Answer 'N' & NOTHING happens. At several points I had to list the program to see what was expected of me.

To its credit, PAS provides a nice display of accounts, a full description of checks & deposits, & a good cross checking of totals. If your accounts fail to balance, you'll be told.

Jim Strasma

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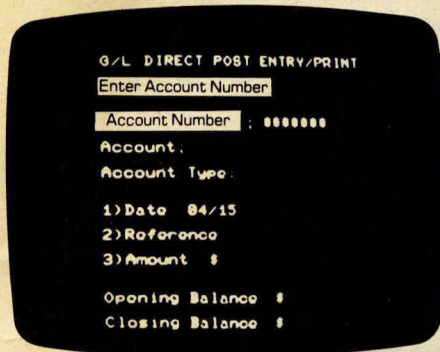
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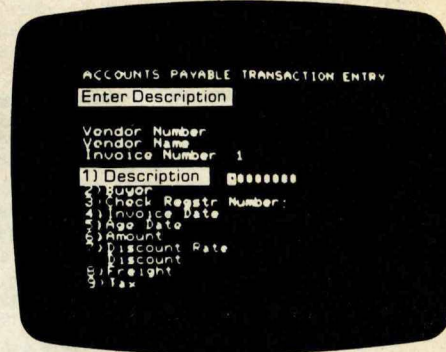
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The PET® Gazette Summer '79 39



Barry Macdonald in CANADA has this request:  
A call for help from someone with more knowledge than myself. Texas Instruments has recently come out with a new IC designated the SN76477, which can produce an almost unlimited number of special sound effects, ranging from a dog's bark or bird chirp to a gunshot or explosion. The October 78 issue of POPULAR ELECTRONICS (p.75) has a number of such circuit layouts. I'd like to see someone come up with a circuit that would allow me to connect this to my PET and to call different sound effects with a program. SEND any info available to the PET GAZETTE and we will print it. Maybe someone can send in a short article on this.

Chuck Stuart writes with this interesting info:  
There is an ON...GOTO bug in the PET. Chuck Johnson came close to it on page 45 of the BEST OF THE PET GAZETTE, but he stated that the ON...GOTO statement would accept and adjust for any non-negative value. In my PET BASIC that statement is false. The ON...GOTO statement will fail with any number outside the range 1 to 255 inclusive. I find it necessary in cases where I'm not sure what the argument value may be, to code the statement as follows:

```
100 IF A>0 AND A<256 THEN ON A GOTO...
```

The statement will now be failproof and if need be, any unwanted values may be caught when they fall through. That brings up another coding trick. I have seen some programmers have trouble with the FOR-NEXT loop always looping at least once regardless of the initial counter values. If the entire loop can be placed on one line then it can be coded as follows:

```
100 IF A THEN FOR I=1 TO A:.....NEXT A
```

This is especially useful when desiring to space down a number of lines or print on the top line if A=0.

One other thing. I can't get the NOT statement to work correctly in large programs. It works in small test routines, but not in programs.

David Peebles, 201 Commerce Building, Fort Wayne, IND 46802 would like to know if anyone knows how to connect an old Friden Flexwriter to his PET. He also had questions about the second cassette memory. The second cassette memory is really not memory in the sense some may think. After adding the second cassette to your 8K PET you still have only 8K. Your memory is NOT expanded. But you now can save DATA on tape using this second cassette. The data will be "remembered" while on the cassette tape. Later your PET could READ the tape and "remember" the DATA you had stored on the tape. Thus, the second cassette is NOT memory, rather it is an IEEE device, a peripheral.

Bob Boynton from Indiana sent us this info on using modules while writing programs:  
In the BEST of the PET GAZETTE (p.68) you present a program which erases lines of a program. (Auto Line Eraser). You asked readers to write you about uses of this concept other than the one you demonstrated. All of my programming starts the same way. I READ in a tape that I call MODULES. It has a number of subroutines and programs on it that I might use in writing a program, but that I do NOT want to look up in a book. At the moment it has pieces of programs for doing things like saying hello, READING and WRITING data from and to tape, producing borders, renumbering lines, finding a specific word in the program, and your LINE DELETING program. To use any one of these features I either renumber the lines, or RUN that section. This is very handy. The only difficulty had been that I then had to clean it out once my program was written. That meant spending several minutes at the keyboard typing line numbers and Carriage Returns. Now that is no longer necessary. I just run your program, and the lines are erased by themselves.

INSTRUCTIONS to WORD PROCESSOR  
from USEFUL PAK 1 - \$10  
from PET GAZETTE

Welcome to Mike Richter's word processor for the Commodore PET. It provides most of the functions of the big machines at a fraction of the cost.

The program permits you to READ a text in a standard format, to PRINT it to screen or printer in your choice of format (centering the text on the page), suppresses leading blanks, does not break words across lines, and otherwise behaves like a very smart typewriter. The program has been checked out from the IEEE port through a CMC adaptor to the RS232C input of a Diablo printer.

When you WRITE with this program, the keys function like those of a standard typewriter (i.e., shift for upper case). To paragraph, forcing leading blanks with an automatic tab, use the up arrow. In general, characters may be deleted and corrections may be made as you go by using the "DEL" key; when that is not working, you are on a segment boundary and will have to EDIT the correction.

A segment is a string of up to 170 characters; all editing is based on those segments, and you will find that the segments advance automatically when you move the cursor beyond one. You may signify completion of the editing of a segment by keying "RETURN". A character is deleted by moving the cursor over it and keying "DEL". You may replace a character with any string by putting the cursor over the character and keying the up arrow. End the insertion (as you end input when you WRITE) with a backslash. The up arrow and the backslash are the only reserved characters.

Kurt Carpenter writes: Occasionally while editing I have trouble with the cursor jumping to the end of the present line rather than to the first character of the next line (after hitting RETURN). This seems to happen only after I have executed code to READ/WRITE my own data files on tape. The editing works properly but repositioning the cursor is terribly inconvenient. Has anyone else run into this problem?

ANSWER: It seems that the problem is with correct operation of the CMD command. The problem described above also can be seen after printing on a IEEE printer. When the CMD command is still in effect and control comes back to the PET screen often the cursor will appear in the "wrong" place. The cure is to terminate the CMD command. For example, if your command was issued as OPEN 5,5:CMD5 you would issue a PRINT#5 command to terminate the CMD. Also remember to then CLOSE the file with a CLOSE5.

Commodore's 1978 Annual Report states that income rose from \$1.5 million to \$4 million, a 165% increase. Commodore does not break down its sales figures, however, a good guess is 25,000 PETs sold in 1978. Commodore will offer a "new generation of PET computers" but do not say when.

Meanwhile, Radio Shack has sold about 100,000 TRS-80's and Apple sold about 20,000. This puts Commodore PET just above the Apple in sales. Too bad Commodore doesn't have the good advertising and marketing we see for the TRS-80.

Remember the computer in the movie 2001: A SPACE ODESSY? It's name was HAL. Funny thing, the next letter in our alphabet for each of those three letters spells IBM.

We got a letter which included the following:  
For PET owners who are using the IEEE port to run a printer and are having problems with too slow a cycle on carriage return to run at higher speeds (30 cps) without losing the first few characters. Location 4 (Old PET) contains the number of null characters to be printed after a CR/LF (carriage return / line feed) in a PRINT# statement. This location can contain up to 255 nulls. Instead of using OPEN1,5:CMD1 use POKE 612,5 (5 being device #) (Old PET). This operates the same as CMD but prints the nulls after the CR/LF. Works with LIST commands also.  
signed, Jerry.



# DR. DALEY'S SOFTWARE FOR THE PET

DR. DALEY's software continues to expand offerings. Listed below are our newest business offerings. With the new PET disk and printer these programs make sense for the small businessman. Dealers you should be able to increase your sales to the businessman by giving a demonstration of these programs. These programs are available NOW for the Compu/Think disk and will be converted to the Commodore Disk as soon as DR. DALEY's gets one.

**INVENTORY** This program will maintain a complete inventory for the small business. Functions include entering and editing of the new inventory, modifying individual records, closing out files for the end of the year inventory report, printing the current inventory and displaying the individual record. This consists of three programs capable of maintaining an inventory of 325 items per disk. With complete documentation. . . . . \$ 99.95

**ESTIMATE** This set of four programs will build a file for use, in conjunction with the above inventory files, to prepare accurate estimates for an individual job. Small businessmen have told us that the preparation of an accurate estimate for a job is the most time consuming and inaccurate operation he has to perform. This program can eliminate the difficulties and inaccuracies of this operation. With complete documentation. . . . . \$ 99.95

**MAIL LIST** This program will maintain a mailing list and will allow sorting of the list into subgroups using up to three search parameters. The program maintains the files in zip code sequence. The initial entries are sorted into the proper zip code order and all subsequent entries are entered into the proper place in the file. Will display the lists on the screen or will print it on labels (three wide). Will allow about 800 names per disk. \$ 69.95

**LEDGER** This set of programs is now under development. It will have a complete set of financial records, receivables, payables, will print statements, bills, invoices and will be designed to be used in conjunction with the INVENTORY and MAIL LIST data files. However, these programs are not mandatory for the proper operation of the program. Write or call for more details on this program. . . . . \$149.95 (tentative)

These programs will be shipped with two copies of the diskette and a blank diskette for data files. Included as well, will be complete documentation and examples illustrating the use of the program. It is designed for use with any 80 column printer connected to the IEEE bus.

**CLASS ATTENDANCE** This program can be used to maintain tape files for the attendance records of any group which meets regularly. This version will allow attendance of up to 5 for up to 39 time periods. Ideal for keeping school attendance records. All entries are alphabetical and are sorted automatically. . . . . \$ 12.95

**CHURCH ATTENDANCE** Similar to the above program, but will allow attendance of up to 5 for up to 12 time periods. Designed for keeping church attendance records. . . . . \$ 12.95

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The tap counter consists of the counter and the trigger circuit which is built into the cassette. The electronic counter is a basic 3 decade counter with rest. There are hundreds of plans and ways of building these; I'll leave that section to your own ingenuity. As a guide see fig.1. Although the one I now have is built into a separate box, I plan on building one onto the chassis just above the cassette. I drilled the bottom left part of the case for jacks for the power and signals. Being cheap I used two RCA-phono plugs. Power was taken from the main filter capacitor and dropped to the required level by a series resistor (size depends on current draw).

The important part is the generation of the pulses to the counter. Most up-to-date stereo cassette decks have tape motion detectors that turn the cassette off when the tape stops. These units come in a variety of shapes and sizes but should be similar to fig.2. These sensors are really rotating, single-pole, double-throw switches. I obtained mine at the local repair shop.

Electrically the sensor has to be connected to a contact bounce suppressor as in fig.3. Now for the physical modification.

Remove the cassette; remove the tape unit from the case. Place the transport on the table right-side up. Notice that one of the reel tables has a pulley. Using 5-min. epoxy glue the sensor onto the frame behind the reel table and beside the motor. I hope that the two photos help show this. This position is very important because the belt (also obtained at the repair shop) must go between them and not hit anything. Make sure that it is right before glueing.

The bounce suppressor does not have to be made on a circuit board. It is simple enough that the 5N7400 can be glued to the cassette case and using some careful soldering connect the wires directly onto the I.C. pins.

This is a simple tape counter. It will not count in rewind. So if you start at the beginning of the tape there is no problem but if you are at the middle then things get a bit complicated. It is not the best answer to the location of programs but is easy and fast.

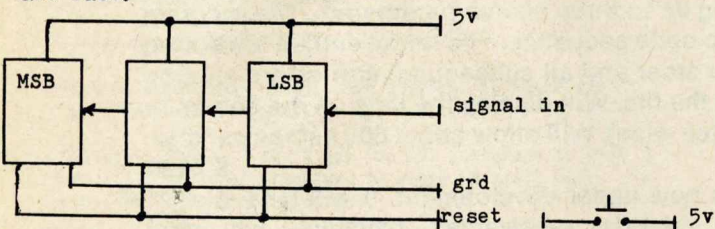


FIG 1

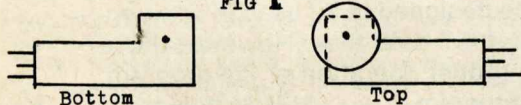


FIG 2

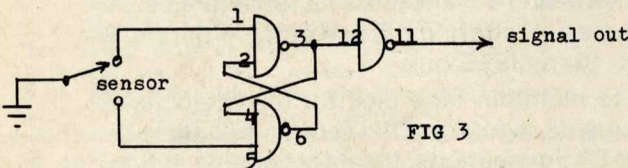


FIG 3

The serious problem of incompatibility from OLD to NEW PETs is illustrated in the following letter from David Curtis: The TRACE program from Mr. Butler doesn't function properly on my NEW PET. The problem lies in the line number display. What is displayed is the following: 50505 except sometimes it displays 10101. Very strange indeed! I made no mistakes entering the program and even used TIM to verify the program after it was loaded. Do you have any additional info on this situation?

ANSWER: Most sophisticated software for the PET will NOT work on the NEW PET. Please do NOT blame the programmers nor the companies for this very serious problem. Write to Commodore and tell them what you think about their creating this incompatibility problem. Of course, they probably will NOT answer your letter. It has been said that the changes were made to create problems for the independent companies making PET compatible products and software. I still can't believe that they really are killing themselves like this.

REVIEW  
ENTERPRISE MCC - \$10  
Brent Klinchuch  
2744 Ashwood St.  
Orange, Ca 92665

When I got my PET one of the first programs I had to have was a "Star-Trek" game. Unfortunately, I found that it grew boring quickly. It seemed that most versions were pretty similar, and somewhat dull. Well it is nice to see versions now coming out which are different and more challenging. This is such a version.

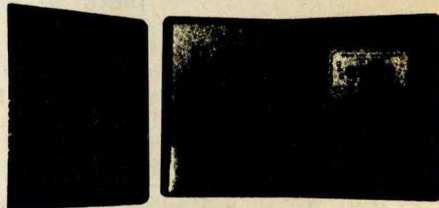
In it you move through the quadrants by holding down the number key in the direction you want to go. If you hit a star, Klingon or Romulan you're destroyed, no second chances. You can fire phasers or torpedos but the phasers use power so fast that you tend to stick to torpedos. To fire a torpedo you hold down the letter "T" and use the number pad to choose the direction. The enemy is also moving constantly except when you have the torpedo key held down. The Klingons and Romulans fire at you also. One hit and your dead. Fortunately they need glasses. What makes this game tough is the small amount of energy you have, and the small number of bases for refueling.

The program is well written and the instructions which are given on one side of the tape are very good. - Bill Bendoritis

REVIEW-BLANK CASSETTES-\$0.70 per 400 - COMPUTER WAY  
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Computer Way cassettes are the BEST cassettes I have used. They are AGFA Premium tape in quality housings. Their prices are very reasonable, and clubs get an extra 10% discount. I just found out that the TRS-80 club in town also uses Computer Way tapes.

- Len Lindsay

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This program permits composing and printing letters, flyers, advertisements, manuscripts, etc., using the COMMODORE PET and a printer.

Script directives include line length, left margin, centering, and skip. Edit commands allow the user to insert lines, delete lines, move lines and paragraphs, change strings, save onto cassette, load from cassette, move up, move down, print and type.

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# APPLE II®

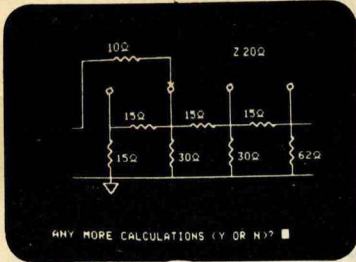
# QUALITY SOFTWARE

# PET®

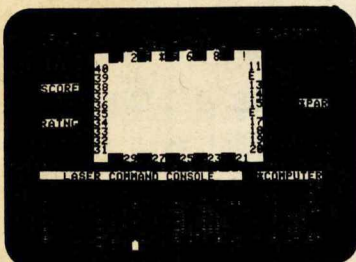
# PROGRAMMA



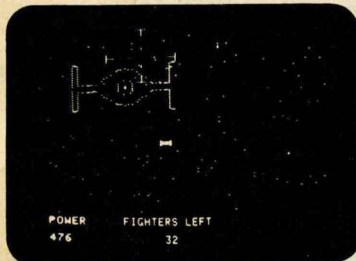
**3-D ANIMATION** A-\$24.95



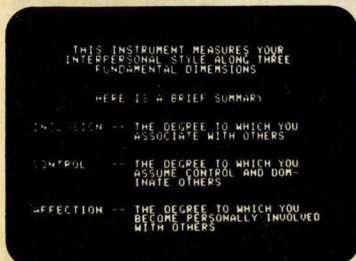
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**STRATO LASER** A-\$15.95



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FORTH is a unique threaded language that is ideally suited for systems and applications programming on a micro-processor system. The user may have the interactive FORTH Compiler/Interpreter system running stand-alone in 4K to 6K bytes of RAM. The system also offers a built-in incremental assembler and text editor. Since the FORTH language is vocabulary based, the user may tailor the system to resemble the needs and structure of any specific application. Programming in FORTH consists of defining new words, which draw upon the existing vocabulary, and which in turn may be used to define even more complex applications. Reverse Polish Notation and LIFO stacks are used in the FORTH system to process arithmetic expressions. Programs written in FORTH are compact and very fast.

APPLE II COMPUTER \$34.95  
PET 2001 COMPUTER \$34.95

## Apple PIE

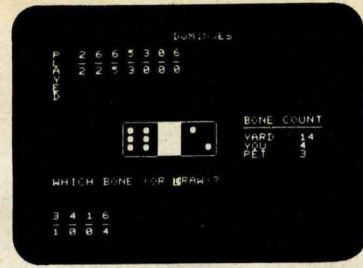
PIE (PROGRAMMA IMPROVED EDITOR) is a two-dimensional cursor-based editor designed specifically for use with memory-mapped and cursor-based CRT's. It is totally different from the usual line-based editors, which were originally designed for Teletypes. The keys of the system input keyboard are assigned specific PIE Editor function commands. PIE includes the following features: blinking cursor; cursor movement up, down, right, left, home, plus tabs; character insert and delete, string search forwards and backwards; page scrolling; GO TO line number, plus top or bottom of file; line insert and delete anywhere on screen; append and clear to end of line; move and copy buffer.

APPLE II COMPUTER \$19.95

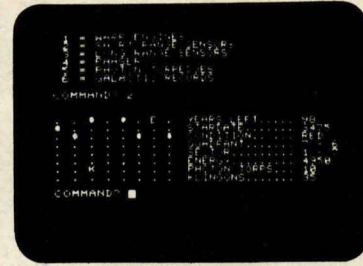
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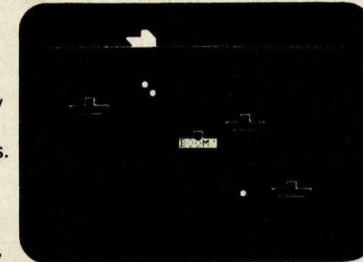
**APPLE II LIGHT PEN** \$34.95



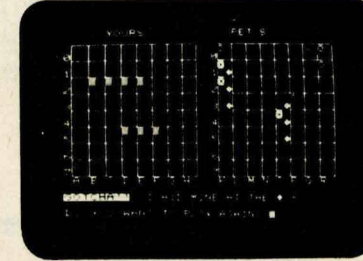
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# Software Products



**A Warning:**

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There's no tape loading and no occupying of valuable RAM memory space: The Skyles MacroTea puts 9K bytes of executable machine language code in ROM (from 9C00 to BFFF—directly below the BASIC interpreter).

Like all Skyles Products for the PET, it's practically plug in and go. No tools are needed. And, faster than loading an equivalent size assembler/editor from tape, the MacroTea is installed permanently.

```
5 REM THIS PROGRAM IS USED TO DEMONSTRATE  
A PRINCIPLE AND IS USED ONLY FOR THAT
```

```
10 REM THIS IS PROGRAM "ADD STATEMENTS"
```

```
20 REM IT HAS OPTIONS OF ADDING LINES  
TO A PROGRAM OR DELETING LINES  
100 PRINT "IF YOU WANT THE OPTIONAL LINES  
ADDED, ENTER Y. IF NOT N
```

```
101 PRINT "DO NOT HIT RETURN"
```

```
110 GET A$
```

```
120 IF A$ <> "Y" AND A$ <> "N" THEN 110
```

```
125 IF A$="N" THEN 200
```

```
126 PRINT "(CLEAR DOWN DOWN)"
```

```
130 PRINT "230?1"
```

```
135 PRINT "335?2"
```

```
140 PRINT "440?3"
```

```
145 PRINT "545?4"
```

```
150 PRINT "650?5"
```

```
155 PRINT "755?6"
```

```
160 PRINT "860?6"
```

```
165 PRINT "965":REM WILL ERASE 965
```

```
170 PRINT "1070 REM":REM ADDS A REM
```

```
175 PRINT "GO TO 200"
```

```
185 POKE 525, 10:FOR I=0 TO 9: POKE 527+I,13:
```

```
NEXT I: PRINT "(HOME)": END
```

```
190 REM KEYBOARD WILL NOW ENTER TEN CARRIAGE  
RETURNS CODED BY POKE X,13
```

```
191 REM THE FIRST 9 WILL COPY THE 9 LINES  
ON THE SCREEN INTO THE PROGRAM
```

```
195 REM THE TENTH CARRIAGE RETURN WILL  
ACTIVATE THE LINE 175
```

```
196 REM THIS LINE 175, WITHOUT A LINE NUMBER,  
WILL BE IN IMMEDIATE MODE
```

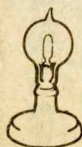
```
197 REM THE IMMEDIATE MODE WILL ACTIVATE  
THE "GO TO 200"
```

```
198 REM THE END STATEMENT IN LINE 185 HAS  
BEEN AVOIDED BY THE GO TO 200
```

```
200 PRINT "(CLEAR)": PRINT "PROGRAM BEGINS HERE
```

Preston F. Marshall  
2/23/79

**The Skyles MacroTea: 11 chips on a single PCB.**  
Operates interfaced with the PET's parallel address  
and data bus or with the Skyles Memory Connector.  
(When ordering, indicate if the MacroTea will  
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You can save \$20.) Specifications and engineering  
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products, fully and intelligently documented.



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(408) 735-7891

ASSEMBLE LIST

```
0100 :MOVE TBL 1 TO TBL2  
0110 .BA $400  
0400— A/ 0B 0120 LOOP LDY #00  
0402— B9 0B 04 0130 LDA TBL1.Y  
0405— 89 0B 05 0140 STA TBL2.Y  
0408— C8 0150 INY  
0409 D0 F7 0160 BNE LOOP  
0170 :  
040B 0180 TBL1 .DS 256  
050B 0190 TBL2 .DS 256  
0200 :  
0210 .EN
```

LABEL FILE 1 = EXTERNAL

```
START = 0400 LOOP = 0402 TBL1 = 040B  
TBL2 = 050B  
110000,060B,060B
```



Dear Len- CASE CONVERTER, pg 81 of the BEST OF THE PET GAZETTE has a bug: Line 62200, L>L1 should read L<L1. After making this change, it runs fine and saves a lot of work. GAZETTE readers may be interested in a modification I added so that CASE CONVERTER would erase itself after changing all quoted text to lower case. Here's how:

```
62300 change to read THEN 62700 instead
      of THEN END
62700 PRINT "(CLR)(down)(down)":J=1:
      POKE525,10:FORI=62000TO62800STEP10
62800 PRINTI:POKE526+J,13:J=J+1:NEXTI:
      PRINT "(home)":END
```

Ken Morse  
3249 Ramsgate  
Augusta, Ga. 30909

YES, we goofed (again). Bill Morgan was one of the many to bring this to our attention. His letter follows:

Gentlemen, I just bought a copy of the BEST OF THE PET GAZETTE and it certainly was a pleasant surprise. As a fairly new PET owner I've been looking for a good source of PET related information. I would certainly appreciate being placed on your mailing list. I'll be sending a donation soon. I have a question. I entered the file manager program (page 28) but got an error message when I ran it. The statement GOSUB 1380 appears twice in the program but there is no line 1380. what happened??? Thanks for your help.

ANSWER: Below is a listing of how the FILE MANAGER should end, from line 1380 on. Sorry 'bout that!

```
1380 DATA120,56,169,233,237,26,2,141
1390 DATA26,2,88,96,173,35,2,201,255
1400 DATA208,12,169,0,141,119,3,169
1410 DATA90,141,120,3,208,25,238,119
1420 DATA3,173,120,3,205,119,3,176,14
1430 DATA169,6,141,120,3,162,255,142
1440 DATA 3,2,232,142,119,3,76,133,230
1450 FORI=889TO947:READJ:POKEI,J:NEXTI:RETURN
1460 REM**730,820
READY.
```

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HELP	TRACE	STEP
OFF	APPEND	DUMP
FIND	UNLIST	

Every one a powerful command to insure more effective programming. Like the **HELP** command that shows the line on which the error occurs...and the erroneous portion is indicated in reverse video:

```
HELP
500 J = SQR(A*B/C)
READY
```

...Or the **TRACE** command that lets you see the sequence in which your program is being executed in a window in the upper corner of your CRT:

```
TRACE
READY.
RUN
```

#100  
#110  
#150

The **Programmer's Toolkit** is a product of Harry Saal and his associates at Palo Alto ICs, a subsidiary of Nestar Systems, Inc. Dr. Saal is considered a leading expert in the field of personal computers and the Nestar System is considered to be the ultimate multiple microcomputer program storage system.

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```

100 OPENS,5:REM UNLESS ALREADY OPEN
50000 FSS=""
50005 FOR NY=0 TO 24
50010 FOR NX=0 TO 39
50020 NS=PEEK(32768+NY*40+NX)
50030 NSS=CHR$(NS)
50040 IF NS>0 AND NS<32 THEN NSS=CHR$(NS+64)
50050 IF NS>63 AND NS<96 THEN NSS=CHR$(NS+32)
50060 FSS=FSS+NSS
50070 NEXT NX
50075 PRINT#5,FSS;:FSS=""
50080 PRINT#5:FOR NV=0 TO 5:PRINT#5,CHR$(0);:NEXT NV:NEXT NY
READY.

```

Cliff Costa sent us the SCREEN Dump Improvement as listed here. He said the run time of the original (published last issue) was 5:18. His run time is 3:11 or a 40% saving.

REVIEW-LIGHT PEN-\$29.95-3G Company Rt 3, Box 28A, Gaston, OR 97119  
The light pen consists of a FLAIR Plastic Pen with the guts removed and a photocell inserted. This is connected to a small flip-flop board mounted on a User port plug. No other power is needed and you can also access pins M & N to connect music to the same board and avoid wear on the user port. (This is a bit difficult though) The pen comes with a single demo program. With study this can be deciphered since remarks are copious, but I would have liked a flowchart. The pen works well. You blink a cursor in the places near answers etc. and when the pen 'sees' the cursor it will change a bit on the user port. The pen is cheap, plugs right in and gives exciting ideas.  
- by Ken Finn

```

10 REM YOU MAY COPY THIS PROGRAM
20 REM FOR YOUR OWN USE
30 REM SEND 25 CENTS (US OR CANADIAN)
40 REM TO- JIM BUTTERFIELD
50 REM 14 BROOKLYN AVENUE
60 REM TORONTO CANADA M4M 2X5
70 REM DO NOT REMOVE THIS NOTICE
80 REM
90 REM ..HOPE PROGRAM IS USEFUL
100 PRINT "[DOWN]TREND LINE 2 IGN]TO COPY THIS PROGRAM LIST 10-90[ 2 IGN]WANT INSTRUCTIONS";
110 INPUT Z$:IF ASC(Z$)=78 GOTO 200
120 PRINT "[DOWN]PROGRAM DOES ANALYSIS AND FORECASTING..[IGN]ENTER HISTORICAL DATA.."
130 PRINT "...AND PROGRAM WILL TRY TO 'FIT' THE[IGN]THE DATA TO (1) A STRAIGHT LINE"
140 PRINT " OR (2) A GROWTH CURVE."
150 PRINT "YOU MAY CHOOSE EITHER, AND PROJECT[IGN]THE LINE INTO THE FUTURE IF DESIRED.."
160 PRINT "[DOWN]TO PRODUCE TABLES OR GRAPHS,"
170 PRINT "ENTER FIRST AND LAST TIME PERIODS[IGN](WHEN ASKED)[DOWN]"
200 S=50:DIM Y(S,1),S(1),T(1),C(1),N$(1),A(1),B(1),R(1)
210 N$(0)="STRAIT-LINE":N$(1)="GROWTH"
220 PRINT "[DOWN]TREND LINE ANALYSIS J BUTTERFIELD[DOWN]"
230 PRINT "INPUT VALUES - 0 AT END"
240 DEF FN A(X)=INT(1000*X+.5)/1000
250 FOR N=0 TO S
260 PRINT N+1;:INPUT Y(N,0):IF Y(N,0)<=0 GOTO 280
270 NEXT N
280 INPUT "[DOWN]ANY CHANGES":Z$:IF LEFT$(Z$,1)<>"Y" GOTO 320
290 INPUT "CHANGE ITEM#":N1:IF N1>N+2 OR N1>S+1 OR N1<1 GOTO 280
300 IF N1>N+1 THEN N=N+1
310 INPUT "TO":Y(N1-1,0):GOTO 280
320 X1=0:X2=0:FOR K=0 TO 1:S(K)=0:T(K)=0:C(K)=0:NEXT K
330 FOR J=0 TO N-1:Y(J,1)=LOG(Y(J,0)):X1=X1+J:X2=X2+J*J
340 FOR K=0 TO 1:Y=Y(J,K):T(K)=T(K)+Y:S(K)=S(K)+Y*Y:C(K)=C(K)+J*Y:NEXT K,J
350 D=X2-X1*X1/N:D1=X1/N:PRINT "FORMULAE:"
360 FOR K=0 TO 1:A(K)=(C(K)-X1*T(K)/N)/D
370 B(K)=T(K)/N-A(K)*D1:R(K)=A(K)*(C(K)-X1*T(K)/N)/(S(K)-T(K)^2/N):NEXT K
380 PRINT N$(0);:Y="":A(0);"[LEFT]*X+":B(0)-A(0):S=0:IF R(1)>R(0)THEN S=1
390 PRINT N$(1);:Y="":EXP(B(1)-A(1));"[LEFT]*EXP("":A(1);"[LEFT]*X)"
400 PRINT N$(S);" LOOKS LIKE BEST FIT..[DOWN]"
410 PRINT "[DOWN]SELECT;":N$(0);" OR ":N$(1);
420 S=0:DEF FN Y(Y)=Y:INPUT Z$
430 IF ASC(Z$)=71 THEN S=1:DEF FN Y(Y)=EXP(Y)
440 INPUT "WANT A TABLE":Z$:IF LEFT$(Z$,1)<>"Y" GOTO 510
450 INPUT "PERIOD: FROM,TO":F,T
460 FOR J=F-1 TO T-1:PRINT J+1;TAB(6);:IF J>=0 AND J<N THEN PRINT Y(J,0);
470 Y=FN A(FN Y(J*A(S)+B(S))):PRINT TAB(15);Y;TAB(25);:S$="+ "
480 IF J>=0 AND J<N THEN Y=Y(J,0):T$=STR$(FN A(Y)):IF Y<0 THEN S$="- "
490 IF J>=0 AND J<N THEN PRINT S$;MID$(T$,2);
500 PRINT:NEXT J
510 INPUT "WANT A GRAPH":Z$:IF LEFT$(Z$,1)<>"Y" GOTO 670
520 V$="[ 24 DOWN]"
530 H$="[ 40 RIGHT]"
540 INPUT "PERIOD: FROM,TO":F,T:IF T>F+30 THEN T=F+30
550 H=FN Y(A(S)*(F-1)+B(S)):H1=FN Y(A(S)*(T-1)+B(S)):IF H1>H THEN H=H1
560 PRINT "[CLR][DOWN]";INT(H+.5):PRINT "[HOME] 6 RIGHT][DOWN].[DOWN]";
570 FOR J=1 TO 19:PRINT "[LEFT][DOWN]";:NEXT J:PRINT "[LEFT]-";
580 FOR J=F TO T-1:PRINT " ";:NEXT J:PRINT "=":P=6:S$="f cde#"
590 FOR J=F-1 TO T-1:Y=FN Y(A(S)*J+B(S))
600 Y1=Y*20/H:Y2=INT(Y1+.5):Y3=(Y1-Y2)*8+5:F$=MID$(S$,Y3,1)
610 P=P+1:PRINT "[HOME]";LEFT$(H$,P);LEFT$(V$,21-Y2);F$:NEXT J:P=6:FOR J=1 TO 500:NEXT J
620 FOR J=F-1 TO T-1:IF J<0 OR J>N-1 GOTO 660
630 Y=INT(Y(J,0)*20/H+.5):P=P+1:IF Y>20 GOTO 660
640 PRINT "[HOME]";LEFT$(H$,P);LEFT$(V$,21-Y);"z"
650 NEXT J
660 PRINT "[HOME]";LEFT$(V$,22);
670 INPUT "ANY CHANGES":Z$:IF LEFT$(Z$,1)="Y" GOTO 290
680 INPUT "MORE TABLES/GRAPHS":Z$:IF LEFT$(Z$,1)="Y" GOTO 380

```

Here is a program from Jim Butterfield. Notice his notice at the beginning. See page 26 for comments on this notice. I like this program. It tries to predict the future (trend) given several known points in time.

EDITORS NOTE: There are problems with this pen. One is that you have to turn up the brightness on your screen to get it to be able to sense the blinking light. The explanation & demo program are very minimal and you have to 'decipher' (as Kenn put it) the method of programming. Someone called to tell me he thought the pen was sensitive to location on the screen. I have not had this problem however. I have had trouble with its accuracy however. I have spent quite a bit of time on trying to come up with a GOOD ACCURATE subroutine for light pen input and have not perfected one yet. Anyone who has 'cracked' this problem please let me know.]

Here is a listing we just received and haven't had a chance to test out yet. It is supposed to format/edit your input value. Sorry but there is no name on the listing to credit this to.

```

E1 IS I/P VAL TO BE EDITED
E2 GIVEN TO SUBRTN IS LEN (TOT# DIGITS) OF EDITED O/P
E3 GIVEN TO SUBRTN IS DEC POS DESIRED IN O/P (WILL ROUND)
E1# IS RETURNED EDITED E1 OF LENGTH E2+2. E2# IS 5/6N
- DEFAULT-
9700 IF E2=0 THEN E2=8:E3=2
9710 E1# =STR$(INT (E1 * 10 ^ E3 +.5))
9720 E2# =LEFT$(E1#,1) : E1# =RIGHT$(E1#,LEN (E1#) -1)
9730 IF LEN(E1#) < E3 THEN E1# =RIGHT$( "0000"+E1#,E3)
9740 E1# =RIGHT$( " " +E1#,E2)
9750 IF E3=0 THEN E1# =E1#+E2# : GOTO 9770
9760 E1# =LEFT$(E1#,E2-E3) + "-" + RIGHT$(E1#,E3) +E2#
9770 RETURN

```



Dear Len,

I thank you for your latest PET Gazette. I also would like to offer a rebuttal to the poor review of HOME UTILITIES.

First, all of my tapes for sale have been \$9.95 including 1st Class Postage. Secondly I feel instructions should be a part of a program, not a piece of paper that can get lost. I have tried to incorporate instructions in my programs, and will do so with more detail from now on. Since it took almost 6 months for the review to appear and I have talked to you twice on the phone I would have gladly told you what the problem was that created the mess your reviewer was getting. In the MPG program I have made changes extensively to make the program run easier with the instructions on screen to prompt inept users. I am enclosing a copy of the version that I am selling to show that the 5 programs have been re-engineered towards the user.

I must say that I have had only one return for problems and that was with a child running an earlier version. The remarks towards the SAVINGS program may be true, in that it is slow in a WORST case situation which the reviewer obviously tried to create. In all practical real life situations it is fast enough and formats the answers which is far more than I can say for a lot of programs that I have purchased.

Dr. Daley and Larry Shallenberger of PETCHACK felt that I ought to write a rebuttal because they felt as I do that some of your reviews leave a lot to be desired. A good review should point out what the program or product has to offer, its strong points and any drastic weaknesses inherent. But to waste time printing in your paper what was showing on the screen when the instructions weren't followed is crude. I have the cMc Word Processor and am going to send you a few reviews in the near future to show you what a review should be.

I have used the AXIOM 801 Printer and will do you a review on it. In short though Larry and I are going to get one! It is the cheapest graphics printing unit out and duplicates beautifully.

All in all I still think you have the greatest paper out!

### Comments refer to letter at left.

GAZETTE COMMENTS: We welcome opposing views on any review we print. Please realize that these are reviews written by users, not meant to be in depth studies. We agree that instructions should be part of the program, but HOME UTILITIES has few instructions within the program other than questions for the user to answer. The MPG program works better now. BUT, there are only 4 programs, not 5, on the tape. The example used for SAVINGS was a common situation, not a WORST CASE. I just now tried starting with \$.01 adding \$.01 each year for 100 years at 5.15% interest compounded daily. After OVER 8 MINUTES the PET told me I would then have \$32.16. Many people say they will write reviews for the GAZETTE, few ever write them. I sincerely hope to see your review. We also encourage others to write comprehensive reviews if they feel these are needed. Most of our readers say they like the short reviews.

Thank you,  
*James Mendenhall*  
James Mendenhall  
COMPETITIVE SOFTWARE  
21650 Maple Glen Dr.  
Edwardsburg, MI 49112

# CONTEST

The PET GAZETTE does not wish to be outdone by Commodore in creating excitement (see page one for Commodore's excitement). So we would like to start a series of contests. Actually these aren't real contests, but that word helps us create some excitement. Really we need a service, and will reward the BEST answer to our needs with 6 FREE programs for the PET.

UNCONTEST #1 - We would like a GOOD version of the song RHIANNON, by Fleetwood Mac from their album Fleetwood Mac. There are two ways we hope to see this done. First using the PET GAZETTE sound conventions (User Port pins M&N). The second using the PETUNIA or MTU's Music system. Our REWARD is 6 free programs to the BEST version for our needs.

UNCONTEST #2 - We would like to see modifications to several programs that are very useful on the 8K PET. We would like to alter them to work on a 16K PET.

From CURSOR - LIST. This program will LIST your program with extra spaces in between BASIC commands and will spell out the special functions (ie. [DOWN] for the cursor down key).

From SOFTWARE SHOPPE - RESEQUENCE. This program will renumber a BASIC program including all branches (GOTOs etc). REWARD of 6 free programs to the first of each.

UNCONTEST #3 - There is no REWARD for this one. Please notice that our last page is a REVIEW form. This is a quick way for you to let us know what you think of the GAMES that you have purchased for your PET. It is very easy to fill out and should give a good picture of the GAME. Of course we still will need 'essay' type reviews. Actually, every PET User will be rewarded by the REVIEWS you send in. Future issues will list programs and their 'ratings' according to your REVIEWS sent to us. Make one photocopy for each game you have and send us a stack of reviews. We will have our PET do the tallying and analysis for us. PASS copies out at your User Group meeting and through your dealer. Thank you from everyone.

REVIEW-PET Machine Language guide-ABACUS SOFTWARE-\$6.95  
PO Box 721, Grand Rapids, MI 49510

Although most programmers prefer to code in higher level languages, to others there is a certain "magic" of being able to write programs in assembly language. The usual reasons are: to speed up programs that take too long in BASIC; to perform functions not otherwise possible; and to "fit" a program into an area of memory where a BASIC program would not fit.

The BASIC language on the PET is interpreted, that is, it is not compiled into machine language. Therefore, because of the inherent overhead of an interpreter, in order to get optimal efficiency from a program, it should be written in assembly language and then assembled into machine code.

The PET Machine Language Guide by ABACUS SOFTWARE will not teach you 6502 programming, however, it does serve as an excellent supplement as it contains many useful routines. It has a good section on fixed and floating point numbers, and is well worth the low price of \$6.95.

If you want to learn in detail about the 6502 and it's instruction set, I suggest getting PROGRAMMING A MICROCOMPUTER:6502 (Addison-Wesley) and then the Machine Language Guide by Abacus Software as supplemental reference.

Review by Bill Coughlin

### ProMark

Presents professional quality rubber stamps designed exclusively for Pet\* owners.


Format stamp for your tapes - - - - - \$4.25

Program 1. \_\_\_\_\_ 4. \_\_\_\_\_  
2. \_\_\_\_\_ 5. \_\_\_\_\_  
3. \_\_\_\_\_ 6. \_\_\_\_\_



Name and address stamp (3 lines) with micro computer logo (same as on format stamp) - - - - - \$5.75

Logo only - - \$2.50 - Both format & name & address \$9.00

Send check to -  ProMark  
410 Stony Battery Rd.  
Lancaster, Pa. 17601

Pa. Res. add 6% state sales tax.

Satisfaction guaranteed - prompt delivery.

Pet\* is a registered trademark of Commodore Bus. Machs.



For official use only

Review Number

Center Program #

# GAME REVIEW

Please PHOTOCOPY and distribute

Apple II       PET

TRS-80 Level I       Other

TRS-80 Level II

FORM designed by Robert Purser  
modifications by PET GAZETTE

Date

Name of Program: \_\_\_\_\_  
(include cassette name, if necessary)

Source: \_\_\_\_\_  
(Manufacturer's name on the cassette label)

Reviewer's Age \_\_\_\_\_ M/F \_\_\_\_\_ Reviewer's Name \_\_\_\_\_

SCORING >>>      LOW 1 < 2 < 3 < 4 < 5 > 6 > 7 > 8 > 9 HIGH

<p><b>1. Level of Challenge</b> Write in "1" for not challenging, up to "9" for extremely challenging.</p>	_____
<p><b>2. Level of Interest</b> The approximate amount of time before you get bored; i.e., 5 minutes for a dull program, up to 5 hours for a fascinating program.</p>	<p>_____</p> <p>hours minutes</p>
<p><b>3. Ease of Use</b> "1" for awkward or inconvenient, up to "9" for a program which is easy, quick, and convenient to use.</p>	_____
<p><b>4. Originality and Creativity</b> "1" if it is the "same old stuff", up to "9" if it is totally brilliant and unique.</p>	_____
<p><b>5. Educational Value</b> "1" if the program does not try to teach you anything, up to "9" if you really learn facts or skills.</p>	_____
<p><b>6. Program Polish (optional)</b> "1" if the program is amateurish, sloppy, and incomplete, up to "9" if the program is well done.</p>	_____
<p><b>7. Program Documentation (optional)</b> "1" if there are no instructions, up to "9" if the instructions are so clear even your Grandmother could understand how to load and run the program.</p>	_____
<p><b>8. Good Use of Special Features (optional)</b> "1" if the program does not use the built-in features of the computer, up to "9" if the program really "swings".</p>	_____
<p><b>9. Overall Value</b> "1" if the program is not even worth the effort to load it, up to "9" if everyone should buy this program.</p>	_____

Mail to PET GAZETTE, 1929 Northport Dr, Rm 6, Madison, WI 53704



This issue has alot in it. It started as 64 pages, but due to lack of funds we had to cut it back to 48 pages. (Printing 4,000 copies and postage for them is phenomenal) A special thanks to all who sent donations in the past few months. They really saved the day. We were able to order and pay for the Commodore Dual Disk unit (see pg 1 for our initial comments). We are counting on donations from our newer readers to help pay for the COMPU-THINK dual density dual drive disk we ordered with a 24K Expanda-Mem. Items like these are major expenses, and we are sure you will benefit from reading our comments on them. If you ever disagree with what we say, please don't go mumbling about, WRITE to us single spaced typed and relate your side of the story.

We hope you think the GAZETTE is a worthwhile publication. Donations to help us continue are appreciated and should be sent to PET GAZETTE, 1929 Northport Dr, Room 6, Madison, WI 53704. (foreign please submit US funds) Maybe send a few REVIEWS at the same time (see pgs 47 & 48).

Our system is a NEW PET 32K, OLD PET 32K, COMPU-THINK disk, Commodore disk, CMC Printer Adapter, Teletype 43, Axiom printer/plotter, Skyles keyboard, NEECO keyboard, MTU visible memory and music system, joysticks, and CMC AIM system.

We now use a mod for the CMC Word Processor Program to allow RIGHT justification. We may now try printing three 40 Character columns per page. The top of this page is an example of how it will look..

We are very disappointed in the lack of interest in our 100 page BEST OF THE PET GAZETTE. We still have ALOT left. We are surprised that every reader doesn't want a copy. It has over 100 REVIEWS, 20 program listings, and plenty of info and articles. So help us recoup our printing costs, see the order form on page 31.

REVIEWS on MAYDAY and CROSSBOW from Hayden Book Co were late. Both programs do exist. Watch next issue for more.

NEXT ISSUE will have our comments on the COMPU-THINK disk and MTU's Visible Memory and Music System, all shipped and on their way to us now. Also a GOOD memory map for the NEW PET by Jim Rutterfield and Part 2 of our INTERVIEW with the DRAGON.

LATE ENTRIES - We just received a package from International Technical Systems. They have a nice Vinyl cover for the PET, a nifty NEW-CURSOR reset button, and colored cassette labels. Their \$4.80 price for 60 colored cassette labels seems a bit steep. Computer Way sells 50 for only \$1.95.

SPECIAL NOTE: All programs listed in the PET GAZETTE including this issue as well as past issues, are for the OLD PET unless otherwise noted. Some of these programs may need modifications to run on the NEW PET.

The PET GAZETTE is a member of MITA (Microcomputer Industry Trade Association). We hope this new organization will meet the needs of both the consumer and the manufacturer/dealer.

## PRODUCT DESCRIPTION

### TAPE

Computer Way cassettes are loaded with AGFA PREMIUM tape. This tape is BEST for use with personal computer cassette storage. Recommended by the Microcomputer Resource Center.

### CASSETTE HOUSING

Even the BEST tape will give poor results when loaded into a cheap cassette housing. At Computer Way only the BEST housing is used: screw type, flanged rollers, hard windows, and steel pins.

### BOXES

HARD boxes are the Norelco Style, clear plastic front, black back, hinged.

SOFT boxes are translucent, very sturdy, and hinged. They are best for transporting your tapes via the mails.

### LABELS

ROLL of 1,000 is most economical and best if you plan to type your labels.

SHEETS of 10 are best if you plan to print or xerox them. They also come in colors which are handy for color coding types of tapes.

### ACCESSORIES

CLEANING FLUID is made especially for cleaning tape heads, guides, capstan, and pinch rollers. Dirty tape heads can damage tapes.

SWABS come with six inch handles. FOAM is lint-free. Recommended. COTTON is most economical.

MARKING PENCILS are made to mark easily and clearly on plastic tape housings. Type labels later.

\*\*\*SATISFACTION GUARANTEED\*\*\*



### PRICE LIST

TAPES	UNIT PRICES				
	25	50	100	200	400
C-10	1.00	0.95	0.85	0.80	0.70
C-20	1.15	1.10	0.95	0.90	0.80
C-30	1.25	1.20	1.05	0.95	0.85
C-46	1.40	1.35	1.25	1.15	0.95
C-60	1.55	1.50	1.40	1.25	0.99
C-90	2.25	2.20	2.00	1.80	1.70

### BOXES

HARD	0.20	0.18	0.15	0.14	0.13
SOFT	0.18	0.16	0.13	0.12	0.11

### TOTAL PRICES

LABELS SHEET	TOTAL PRICES			
	50	100	500	1000
WHITE	1.50	2.75	11.95	19.95
RED	1.95	3.45	15.95	26.95
BLUE	1.95	3.45	15.95	26.95
GREEN	1.95	3.45	15.95	26.95
YELLOW	1.95	3.45	15.95	26.95
ASSORTED	1.95	3.45	15.95	26.95

ROLL of 1,000 WHITE for only 14.95

### ACCESSORIES

CLEANING FLUID	bottle	2 oz	2.45
	can	8 oz	4.20
CLEANING SWABS	cotton	100	1.95
	foam	25	7.45
MARKING PENCILS	white	1	0.95
		12	7.95
	black	1	0.95
		12	7.95
	mixed	12	7.95

\*\*\* PRICES INCLUDE SHIPPING TO CONTINENTAL U.S. \*\*\*

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## ORDER FORM

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DEDUCT: CREDIT VOUCHER

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RELAX... we take





