

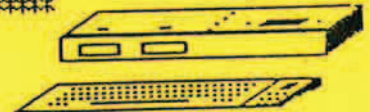


NIBBLES & BITS

The Comprehensive Monthly Newsletter for ADAM Users



P. O. Box 37
Oak Hill, WV 25901



July 1987
vol: 2, nmb: 1
single issue: \$3.50

EDITOR'S NOTE	3
N&B NEWS	3
ADAM NEWS	4
TIDBITS	5
ADAM USERS FORUM	5
CP/M TIPS	6
BIT BY BIT	
ASCII Codes	7
BYTE-SIZED BASIC	
Pokes To Play With (part 13)	7
Hi-Res Shapes	7
HACKER'S DELIGHT	
Transferring Data (part 8)	8
An Editorial Comment	8
QuikDISK	8
ezFILER	12
ADAM PRODUCT REVIEWS	23
ADAM USERS' GROUPS	24
BULLETIN BOARD	24
ADAM ACCESS	25
PRODUCT LIST	26
PUBLIC DOMAIN SOFTWARE	29

This issue includes three SmartBASIC program LISTS and one disassembled Z80 routine.

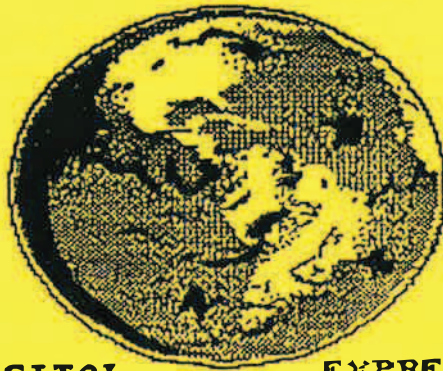
ColecoVision, ADAM, SmartBASIC, and SmartWriter are registered trademarks of Coleco Industries, Inc. CP/M 2.2 is a registered trademark of Digital Research, Incorporated.

"NIBBLES & BITS" is printed in the USA. Copyright (c) 1987 by DIGITAL EXPRESS. All Rights Reserved.

DESIGNED and PRINTED with the amazing ADAM™ computer (using an Orphanware 64K expander, an Eve Electronics Centronics parallel interface, a Panasonic KX-P1080 dot matrix printer, ShowOFF I, and ShowOFF II).

NIBBLES & BITS

IDDD IDDD IDDD



DIGITAL EXPRESS

IDDD IDDD IDDD

The N&B Staff

EDITOR-IN-CHIEF:
Dr. Solomon Swift

DESIGN EDITOR:
Tim Whelstine

TECHNICAL DIRECTOR:
Chris Davidson

CIRCULATION DIRECTOR:
Tony Michaels

CONTRIBUTING EDITORS:
Janet Weston
Ted Johnson
Cindy Herrington

PUBLIC NOTICE

"NIBBLES & BITS" is published monthly by DIGITAL EXPRESS. Individual issues may be purchased for the current month or for a back issue for \$3.50; the premier issue was July, 1986. The standard subscription rate for one year (12 issues) is \$22.00 in the USA, its possessions, and Canada; and, the annual rate is \$30.00 in other foreign countries. The standard subscription rate for six months (6 issues) is \$12.00 in the USA, its possessions, and Canada; and, the semi-annual rate is \$16.00 in other foreign countries. All subscription issues are sent by U.S. mail, FIRST CLASS.

We welcome contributions of original reviews, programs, articles, questions, and comments. Please include your subscription ID number from your mailing label on all written correspondence to us.

Your subscription ID number is on the first line of your mailing label (affixed to the newsletter). It is a 10 digit code. The first four digits are the month and year of the final issue in your current subscription. Following the ID number is a brief message. If this is your final issue, the message will read "FINAL ISSUE!!!". If this is your penultimate (next to last) issue, the message will read "TIME TO RENEW". Otherwise, the message will apprise you of the exact number of issues remaining in your subscription (excluding the current issue). Please verify this information each month.

To insure that you don't miss any issues, please renew early and let us know promptly of any address change. Please include your subscription ID number on the address change notification (you can get a free address change kit from your local US post office).

DISCLAIMER

The editor(s) and publisher have exercised due care in the preparation of this newsletter. Neither the N&B staff, nor DEI, nor any contributors (of any capacity) make any warranty, either expressed or implied with regard to the information contained herein, either by interpretation, use, or misuse. Reviews and opinions submitted by the readership at large do not necessarily reflect the opinions of the editor or staff. DEI has no affiliation with College Industries. Unless stated otherwise, all correspondence shall be considered as "open to public review".

EDITOR'S NOTE

N&B NEWS

Is ADAM a worthwhile investment? Some of the latest generation of 256K+ computers offer incredibly sophisticated computing possibilities. In the light of these powerful new machines, it can be tempting, at times, to consider another computer.

But, where do you draw the line? Is it really worth the price of a new Seville to have the newest, most powerful complete system available? A system, by the way, that will be obsolescent in another year or so.

It doesn't even matter which PC you select as an example. This is an industry in which obsolescence is the norm. So what if ADAM is orphaned? All systems are destined for a tantamount fate. Remember, the home computer market is only 10 years old. Think about it.

The full resources of ADAM haven't even been tapped into yet. In fact, ADAM can do virtually anything that today's more popular machines can do. Granted, it may be a while before all the software is available. But, it will surely be developed.

Consider what was available for our computer just two years ago. There was virtually nothing. Back then was when it took true "loyalty" to "stick" with ADAM.

There is so much to choose from today that it can be confusing to the newcomer. Standard serial and parallel interfaces are available. A speech synthesizer is available. 64K RAM expansion cards are readily available. A 256K expander was recently completed. A data pack formatter was recently completed. A light pen is available. At least three companies are working on double-sided disk drives. You can use an 80 column video in CP/M. You can use industry standard modems (300, 1200, or 2400 baud). You can use any industry standard dot matrix printer.

Consider software. In the last six months, three programs have been developed to allow graphics screen printing. In the same period of time, two ramdisk programs have been released for use with SmartBASIC. One company has recently released an integrated spreadsheet, word processor, database package. A number of superb educational and entertainment packages are available. You have literally thousands of public domain programs to choose from. There are also a number of very professional, highly informative newsletters available. Dedicated user's groups abound.

The list goes on and on. Support for ADAM has never been greater. Nearly 50% of everything that's available for ADAM was developed in the last year! New products are coming out at an almost exponential rate. Yes, ADAM is definitely a worthwhile investment. The ADAM computer is the best value per dollar of any system on the market!


EDITOR-IN-CHIEF
Solomon Swift

□□□ We have just finished SpritePOWER. This is the second of our second generation of ADAM software. It features the same Coleco-like graphics and sound as FontPOWER. This program makes it a snap for you to design and use sprites in your own programs. The retail price is only \$19.95 and it's JUST \$14.95 to subscribers of "NIBBLES & BITS".

□□□ Our sixth collection of SmartPAINT files is completed. This gives you 78 ready-to-use public domain pictures to choose from.

□□□ In past issues we've listed the names of readers who've offered significant contributions to DIGITAL EXPRESS. If you've made such a contribution and we haven't listed your name yet, please let us know.

□□□ There was a minor bug with the first fifty or so FontPOWER shape DEMONstration programs. These three BASIC programs were missing line number 55 which set the pointer to the shape tables. If you like, we'll update a defective disk or data pack free of charge. Line number 55 should read:

55 POKE 16766, 208: POKE 16767, 107

□□□ We've added Video Hustler to our Coleco PD library. This game of billiards is from an unreleased cartridge.

□□□ Guy Cousineau has just contributed an excellent package to our PD exchange. The volume, entitled "ShapeMaker", includes a superb utility for designing your own hi-res shape tables. It also includes documentation files, a number of font shape tables, and assorted demonstration programs.

□□□ A few months ago, we offered a special self-booting disk containing EZmenu and EZcopy. Many readers have commented favorably about this package. In response, we have added it to our PD exchange. It makes a great medium to store your own BASIC programs. Just pull the reset and select your file by pointing to the name with an arrow. EZcopy allows you to back up your software. "TurboCOPY", which comes with our commercial package TurboDISK, is a super-advanced (copyrighted) version of both these two programs.

□□□ If you've had troubles with SmartBASIC's file writing commands (OPEN, CLOSE, etc.) to create databases, you may be interested in EZfiler. This issue contains the LIST and explanation of this rather complex program. Next month, we'll add the finishing touches to the program. When completed, you'll have a self-booting address filer with an instant graphics screen after pulling reset. The finished product is available now in our PD exchange.

□□□ Several months ago, you may recall, Dr. Swift mentioned that he'd publish the LIST of a ramdisk utility for use with the 64K RAM expansion card and one for use with standard RAM. After all the research involved and the complexity of the program, the 64K card ramdisk became a commercial package, TurboDISK 1.0. In this issue, we've LISTed the one that works with standard RAM. It will cancel out the TurboDISK function; but those who don't have the card may find it to be a very useful program. See the HACKER'S DELIGHT department.

□□□ What would you like to see published in N&B? Let us know. We're compiling a "wish list" of programs and articles. Even if you've sent suggestions before, please remind us. Our readers have a strong voice in the periodical; let us know.

ADAM NEWS

□□□ Terry Fowler of gHAAUG has a video tape for beginning ADAM users available in VHS format. The tape demonstrates Coleco's software, other commercial titles, and some public domain programs. The price is only \$14.95 including shipping. See the BULLITEN BOARD for his address.

□□□ Terry Fowler has also recently completed FILE PRINTER. This self-booting program will print your SmartWriter documents on a dot matrix printer. It will print in columnar format (two columns) or letter format (which allows for variable margins and type sizes). The package includes instructions and sample documents. The price is only \$9.95.

□□□ By the time you read this issue, NIAD should have opened the first ADAM retail outlet. CompuKingdom is located in the Chicago area; you may write to Lyle Marschand for a flyer containing the specifics.

□□□ Don Periman, of In House Service Reps, has completed a double-sided, ADAM compatible disk drive. With a storage capacity of 304K, you also get a CP/M patch and a DOS formatter. The drives are \$295 including shipping. See the BULLITEN BOARD for his address.

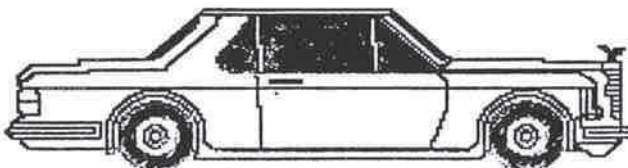
□□□ A couple of months ago, Mr. T. SOFTWARE released a useful set of SmartBASIC V1.0 enhancements called BASICaide. A few weeks ago, they updated it to revision 2. This improved version offers keyboard macros (press one key and have a word printed on the screen) and a much improved BIN command (stays in RAM). We now carry the latest version. It is available for the SAME price. If you purchased the first one from us, we'll update it for you free of charge. Just send your old instruction manual and the original medium.

□□□ WALTER'S SOFTWARE will soon release a new program, LIBRARIAN. It will create a SmartFiler database by cataloging your tapes and disks. This could be a tremendous time-saver, if you have a lot of software.

□□□ E&T SOFTWARE is currently offering a special for Strategic Software's two latest programs. Buy ProofREADER and 3 ribbons for only \$43.95 or get it with 3 data packs for just \$39.45. They are also offering a special on MicroWORKS for only \$24.95. These special offers expire August 31.

□□□ Walter's software has just updated their RAMDISK program with a feature to not initialize the ramdisk. This allows you to keep your programs on the ramdisk with relative permanency. This is like our "ramdiskNOT" program on TurboDISK.

ROLLS ROYCE
SILVER SPIRIT



TIDBITS

\$\$\$ If the tape in one of your data packs comes loose (it can happen to even the best DDPs), you can fix it. Just remove the five anchor screws from the shell. Then re-spindle the tape taking care not to touch the tape face. It's best to work with the spindle that has the least amount of tape. Thread the tape back through the guides. Re-insert the screws, tighten, and then catalog the data pack. Many times there will be no loss of data. On occasion a block or two may be damaged. Often, writing to a bad block (saving a program, etc.) will correct it. Use extreme care! Don't let a loop get completely unraveled; you may not be able to get it back right.

\$\$\$ Here's some computer jargon that you may find interesting:

HI-RES: this term describes a chipper mood.

LO-RES: this term describes a depressed mood.

ROM-MINDED: this term applies to someone who is adamantly close-minded; one who doesn't mind spewing forth info, lectures, etc., but refuses to accept any new ideas.

TROJAN: Alluding to the trojan horse, this term describes a program designed to destroy a system; it is particularly common among CP/M and MS-DOS public domain libraries. The program or patch works fine for quite some time, then it abruptly wipes out other programs and file directories. Trojans are developed by nefarious hackers.

\$\$\$ Many consider Jeopardy to be Coleco's best game package. Here are a few tips. CONTROL + V at almost any point will toggle the background music. STORE allows you to save a partially completed game (one per medium). UNDO takes you back to the previous menu. WILDCARD toggles between the player graphics with the scores and the answer board. When asked if you're using a question pack, you can use a trick to quiz on the game designers. To do so, press CONTROL + UP arrow, CONTROL + RIGHT arrow, CONTROL + DOWN arrow, CONTROL + LEFT arrow.

\$\$\$ Three companies currently offer repair service for the ADAM disk drive. These are EVE Electronics, In House Service Reps, and ADAM Users Group 1986.

ADAM USERS FORUM

The following questions and comments have been culled from recently received mail. The reader's input is a reasonable facsimile of the actual correspondence. For the benefit of all readers my reply, where applicable, is generally more detailed than any written reply. Unless the reader requests differently, street addresses are omitted.

GRAPHICS PRINTING

I would like to know what graphic printing programs can be used with the regular ADAM printer?

Scotty R. Carroll
Pikeville, KY

IN RESPONSE: "SignShop" by Strategic Software is your best bet. It allows you to create interesting graphics from commands that you enter. Also, there are a couple of programs in the public domain which will print PaintMASTER pictures on the ADAM printer. This takes several pages of paper, however.

COLOR BLEEDING

Is there anything that can be done for ADAM's color bleeding problem? Some of Coleco's games seem to correct the bug.

Steve Pitman
Cincinnati, OH

IN RESPONSE: This is a question that I'm asked quite frequently. In a word, no. This is an inherent bug with the video chip; it was not designed for detailed hi-res graphics. But, how does Coleco avoid the problem? Most of their games draw graphics in both the background and foreground. This allows for two different colors within each 8-pixel bit image. They also use sprites as part of some stationary graphics.

COMMON QUESTIONS

Is there a fix for the fifth sprite problem? Is there a way to patch ADAMcalc for a dot matrix printer?

IN RESPONSE: When there are more than four sprites on any one horizontal plane, the lower priority sprites vanish from the plane. This is another video chip bug. It can be compensated for with an interrupt routine set up at address 102 (\$66). This involves rather sophisticated z80 programming. Some Coleco games use such a routine.

Yes, it is possible to patch ADAMcalc for a second printer. I still haven't figured it out, though. For those who are researching a fix, here's some of what I've discovered. Printing is set up with an interrupt option for use with the 64K RAM card. The last four blocks of the program (on the medium) contain most of the print routines. The print SmartKEY labels are in the fifth block. The lower 12K of RAM is used to store spreadsheets. Normal EDS patches won't work because the program over-writes the EDS print string routine as a print buffer.

CP/M TIPS

by Patricia J. Herrington

Pat Herrington is the editor of the monthly newsletter of the Metro Orlando ADAM Users Group. The following article is from their July 1987 issue.

What exactly is CP/M? It doesn't fall into any of the ordinary categories of applications programs, because it is not a language in itself. It is an operating system that allows the user to control the different parts of the computer setup and to perform file maintenance functions. In this regard, CP/M is like the EDS that is built into ADAM (and the version that comes with a disk drive). The difference is that CP/M is an industry standard common to virtually all small computers; it links your ADAM to the world of computing in general, and it opens up a galaxy of software that will probably not be written specifically for the ADAM. Furthermore, if you learn to use CP/M on ADAM, you will know a lot about the operating systems of other computers. Better yet, there is a mind-boggling number of public domain programs in CP/M.

Speaking of mind-boggling, that describes most people's first reaction to the Coleco CP/M manual. But don't let it scare you. Much of it is written for the machine-language programmer (that's the "assembler" part of the title). But, until you want to explore machine language, you can access most applications programs with a few simple commands contained at the beginning of the book. CP/M is not as "user friendly" as you may be used to. It has some idiosyncrasies; but, you can handle it.

When you are ready to take the plunge, you are not bound by the Coleco manual. Since CP/M is so prevalent, there are plenty of good books available on the subject.

You won't be able to do much of anything with CP/M without some application programs to run. Most user's groups offer plenty of these to choose from.

Here are some aspects that you should keep in mind. Note that any files with the extension ".LBR" or ".LIB" are "library" files. This means that several smaller files that go together have been condensed into one large file. The files need to be extracted before they can be used. There are various PD utilities available to accomplish this. One of them is called "DELIB.COM".

The prompt (the character that tells you ADAM is ready and waiting for a command) doesn't look like the SmartBASIC prompt. It looks like this:

A>

The "A" identifies the current drive. If you change drives, the prompt will change to "B>", or whatever. Actually, once you're used to it, you will appreciate knowing which drive is logged in at the moment. Don't let it throw you if you run across a program that uses "AO>". The "O" identifies the user area. Ignore it for now.

The drives do not have the same labels as in BASIC. Furthermore, whatever drive you boot from becomes drive "A". If you boot from your first data drive, it is drive "A", the second data drive is drive "B", and the first disk drive is "C". If you boot from a disk, then disk one is drive "A", the second disk is "B", and the first tape drive is "C". This is explained fully in the manual; but, remember not to boot from your second data drive -- it gets entirely too confusing. A ramdisk (if you have the 64K card) is always drive "M", no matter which drive you boot CP/M from.

CP/M is backwards from BASIC in identifying files. If you want to rename or copy a file, you must list the new file's name first, and then the original file's name. Again, this is fully explained in the manual. But it may be tough, initially, to remember to put the new name first. And when you start using "PIP", the same conventions apply. The file you are copying TO comes FIRST.

The arrow keys don't work in most CP/M programs unless you hold down the control key. CP/M identifies the left and right arrow keys as "CONTROL + S" and "CONTROL + D". I once deleted files using the program "WASH" because I hit the arrow key without holding down the CONTROL key. CP/M saw it as "CONTROL + D", and that was the command to delete files in that program! You'll be using the arrow keys a lot, too. Most CP/M programs designed for other computers will show on our screen looking like the moving window mode in SmartWriter, because of our smaller screen display. And, "CONTROL + S" and "CONTROL + D" can mean different things within a program. So, learn to keep your fingers OFF the arrows keys without using CONTROL! With an 80-column card, you don't have to worry about this.

BIT BY BIT**ASCII CODES**

All computers, whether a mainframe or a PC like ADAM, have a very simple level of "electronic comprehension". Internally they only understand two concepts, "YES" and "NO". That's it; no "MAYBE" and no "SEE SPOT RUN".

But, how do they perform such sophisticated tasks? How do they appear to have a sort of intelligence? How can they possibly control so many aspects of modern life if they only understand "yes" and "no"? How? Because there is such an enormous number of possible combinations of "yes" and "no". ADAM's programmable memory (called "RAM"), alone, works with well over a half million of these affirmations or negations.

Have you ever wondered why computers use electricity? It's not merely a convenient power source; there are two other fundamental purposes. First, is celerity of locomotion; electrical impulses travel fast -- very fast. Second, electricity provides a convenient means of representing "yes" and "no". A high voltage indicates "yes" and a low voltage means "no".

In human terms, it's easy to think of the "yes" as "1" and the "no" as "0". From this precept of congruence, we can understand the entire operation of a computer.

Since we are only using two numbers, we'll refer to this system of understanding as "binary". For convenience, we can refer to each of the two numbers as a "bit" (acronym for BInary digiT).

ADAM uses an 8-bit processor, the z80a CPU. This means that it can work with a maximum of 8 bits (8 yes/no combinations) at any given instant. A group of eight bits is referred to as a "word" or a "byte".

Working with eight bits and two possibilities with each bit allows for 256 combinations (2^8 to the 8th power). 256 words is a good starting point, but hardly enough to handle advanced computer operations. But, if that's ALL the combinations, how can more be derived?

This is where the genius of internal computer software design comes in, using different sets of words. One set represents the alphabet, numbers and symbols. Another set represents the graphic designs for the letters, numbers, etc. Still another one is used to represent numeric data for arithmetic operations. And, they're all tied together by a control set.

The set that stands for the alphabet values is called the ASCII code (American Standard Code for Information Interchange). The set that is used for graphic designs (character shapes, hi-res graphics, etc.) is referred to as "bit maps". And, the control set of bit combinations is called "operation codes".

- more next month -

BYTE-SIZED BASIC**POKES TO PLAY WITH****Changing File Types:**

Have you ever wanted to change the filetype of a program. This can be very useful in READING SmartWriter files, etc. There are a number of utilities which include this function. But, it can also be accomplished from BASIC.

The trick involves a minor change to the RENAME command. Suppose you want to change an H file type to an A file type. Do this:

```
POKE 20482, 72
POKE 20487, 65
RENAME test01, test01
```

The "72" is the ASCII value for an "H". The "65" is the ASCII value for an "A". Substitute your own filename for "test01". Now, do a CATALOG; you'll see that it changed. The default value for each address is "65".

A Correction:

We goofed on Guy Cousineau's correction for the color tables last month. Use these POKES:

```
HCOLOR translation:
POKE 18728, 121: POKE 18729, 0: POKE 18730, 0
```

```
COLOR translation:
POKE 18735, 121: POKE 18736, 0: POKE 18737, 0
```

Error Trapping:

In the April issue of "Family Computing" Gregg Noblett had a trick LISTed that will tell you which line number a program error occurred on. If you work in HGR2 mode a lot, this can be extremely useful. Here's a modified version:

```
59999 END
60000 er% = ERRNLN(0)
60010 ln = PEEK(16124) + 256 * PEEK(16125)
60020 ln = ln - 4
60030 ln = PEEK(ln) + 256 * PEEK(ln + 1)
60040 TEXT: PRINT " ERROR: "; er%
60050 PRINT " LINE: "; ln: END
```

HI-RES SHAPES

SmartBASIC provides a powerful graphics utility with its support of hi-res shapes. The interpreter offers DRAW, XDRAW, SCALE, and ROT for shape control.

But, before you get involved with this form of graphics there are some basics to cover. First is the difference between these designs and sprite shapes.

Both types of designs require a shape table. But the data in these tables is entirely different. Shapes for sprites are designed in bit - image format. Each byte in a sprite's shape table corresponds precisely to the image you see. The designs for hi-res shapes are in a notation format. The bytes in this data table are a machine code shortcut for HPLOTTing. Hi-res shapes, then, are just a very fast alternative to using other BASIC commands.

- more next month -

HACKER'S DELIGHT

TRANSFERRING DATA

(part 8)

This month we conclude the series on transferring data in z80 code. The LDIR op - code requires a setup just as an OS routine does. Its primary purpose is to transfer large sections of memory quickly. But, it can be also used for RAM filling in similar fashion to the routine we explored last month.

The HL register pair is Loaded with the source address. The DE pair is Loaded with the destination address. And, the BC pair is Loaded with the number of bytes to transfer. Then, you simply execute LDIR. The sequence of the setup does not affect the result. Because this is an op-code and not a routine *per se*, the transfer is remarkably fast.

There is also a reverse parallel for the op - code, LDDR. The difference is very important. With LDIR the bytes are transferred above the source and destination addresses, I stands for increment (Load, Increment, Repeat). With LDDR the bytes are transferred below the source and destination addresses, D stands for decrement.

Here is an example with equivalents:

In BASIC:

```
FOR x = 1023 TO 0
POKE 56320 + x, PEEK (54272 + x)
NEXT
```

In Z80 code:

```
33, 0, 212,
17, 0, 220,
1, 0, 4,
237,176,
201
```

In mnemonics and hex code:

```
LD HL, $0400
LD DE, $DC00
LD BC, $0400
LDIR
RET
```

AN EDITORIAL COMMENT

Normally we LIST five to eight original programs in each issue. This month we've only got three; and, two of these must be used together, "HELLO" and "ezFILER". Hopefully, you'll find that the usefulness of these unique programs warrants the smaller number.

Many readers have compared our publication to Serendipity Production's "Technical Journal" for the ADAM computer. They were the company who designed the first BASIC binary conversion utility, "CRUNCHER". All similar programs today are based on their innovative converter. The company became defunct after only three issues (for some unknown reason). My point, though, is that one simple innovation made a dramatic change in BASIC programming for ADAM.

Every month I, too, try to include at least one program that will have some favorable impact on the ADAM community as a whole. In reality, however, predicting a "hot program" (particularly one that must be typed from a LIST) is, by no means, done with scientific certainty.

Probably our most successful, non - commercial program to date is EZkeysII. We have hundreds of positive, written comments on file regarding the program. Oddly enough, I only considered it to be of minor significance when I first typed it in.

Personally, I think that this month's two programs are a couple of the best we've published. But, you are the judge. QuikDISK provides a ramdisk utility with standard RAM; it does not require the 64K card. ezFILER reveals an alternative to BASIC's OPEN command, explores several programming tricks, and provides a useful address file utility.

QuikDISK

A ramdisk is a section of computer memory reserved to simulate a disk drive. You can store files on it, retrieve them, INIT the directory, etc. You can use all the standard file handling commands with it. QuikDISK (LISTed on the next page) is one such program.

Since it sets aside part of standard RAM for file storage, it will take away from your programming space. You can determine how large or small you want the ramdisk to be.

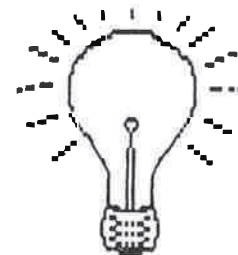
A 3K ramdisk will permit one 1K user file. One "K" is used for block zero, and one "K" is used for the directory.

- continued on page 11 -


```

5 REM *** QuikDISK ***
10 REM standard RAM ramdisk
20 REM does NOT require 64K expander
30 REM will disable turbodisk
40 REM requires SmartBASIC V1.0
200 POKE 16149, 255: POKE 16150, 255
210 POKE 10950, 208: POKE 10951, 107: LOMEM :27600
220 POKE 58348, 255: POKE 58401, 255
500 TEXT: PRINT " This program creates a"
510 PRINT " ramdisk within standard RAM."
520 PRINT " It will cancel turbodisk.": PRINT
530 PRINT " What size ramdisk?"
540 INPUT " (3 - 20): "; sz$: sz% = VAL(sz$): POKE 0, sz%
550 IF sz% < 3 OR sz% > 20 THEN PRINT " aborted!": END
1000 REM INIT blocks fix
1010 DATA 195,92,228
1020 FOR x = 62245 TO 62247: READ mc: POKE x, mc: NEXT
1030 DATA 254,7,48,4,30,159,24,10,254,25,48,4,30,255,24,2
1040 DATA 30,10,197,213,229,195,40,243
1050 FOR x = 58460 TO 58483: READ mc: POKE x, mc: NEXT
2000 DATA 197,213,229,245,254,26,40,4,241,195,126,241
2010 DATA 241,229,33,0,0,83,30,0,25,25,25,25,84,93,225
2020 DATA 62,108,130,87,66,75,84,93,96,105
2030 DATA 1,0,4,237,176,225,209,6,5,62,5,144,193,62,128,201
2100 FOR x = 58343 TO 58395: READ mc: POKE x, mc: NEXT
2200 POKE 61819, 195: POKE 61820, 231: POKE 61821, 227
3000 DATA 197,253,229,245,254,26,40,4,241,195,233,241
3010 DATA 241,229,33,0,0,83,30,0,25,25,25,25,84,93,225
3020 DATA 62,108,130,87
3030 DATA 1,0,4,237,176,253,225,6,5,62,5,144,193,175,201
3100 FOR x = 58396 TO 58441: READ mc: POKE x, mc: NEXT
3200 POKE 61926, 195: POKE 61927, 28: POKE 61928, 228
4000 LOMEM : (27+sz%)*1024: sz% = PEEK(0)
4010 POKE 10950, PEEK(16095): POKE 10951, PEEK(16096)
4020 POKE 58477, sz%
4100 PRINT CHR$(4); " init QuikDISK,d7"
5000 PRINT " QuikDISK initialized!!!"
5010 PRINT " Minimum LOMEM: "; (27+sz%)*1024: END

```



SPECIAL OFFER

Until August 31ST any product order with DIGITAL EXPRESS with a subtotal greater than \$29.99 gets a free BIC roller pen (black ink). Be sure to mention this offer with your order.

TITLE (asmb#52) :

QuickDISK

- read block -

addr:	Label:	Value(s):	Op Code:	Comment:
58343	store	197	PUSH BC	;store incoming BC pair
58344		213	PUSH DE	;store incoming DE pair
58345		229	PUSH HL	;store incoming HL pair
58346	check	245	PUSH AF	;store AF pair
58347		254, 26	CP 26	;check for "d7"
58349		40, 4	JR Z, 4	;if so, then rdbl
58351	done1	241	POP AF	;start alternate exit
58352		195,126,241	JP 61B22	;branch back to norm rout
58355	rdbl	241,	POP AF	;set previous stack
58356		229,	PUSH HL	;temporarily store HL
58357	mult	33, 0, 0	LD HL, 00	;prepare for multiply
58360		83	LD D, E	;multiply by 256
58361		30, 0	LD E, 0	;reset E
58363		25	ADD HL, DE	;add once
58364		25	ADD HL, DE	;add twice
58365		25	ADD HL, DE	;add three times
58366		25	ADD HL, DE	;add four times
58367		84	LD D, H	;transfer HL to DE
58368		93	LD E, L	;continue transfer
58369		225	POP HL	;retrieve original HL
58370	xfer	62,108	LD A, 108	;prepare for RAM offset
58372		130	ADD A, D	;continue offset math
58373		87	LD D, A	;complete offset math
58374		66	LD B, D	;store DE pair
58375		75	LD C, E	;continue storage
58376		84	LD D, H	;transfer HL to DE
58377		93	LD E, L	;continue transfer
58378		96	LD H, B	;get source address
58379		105	LD L, C	;continue with source
58380		1, 0, 4	LD BC, 4	;prepare LDIR
58383		237,176	LDIR	;write block
58385		225	POP HL	;retrieve incoming HL
58386		209	POP DE	;retrieve incoming DE
58387	flagtk	6, 5	LD B, 5	;prepare flag trick
58389		62, 5	LD A, 5	;continue prep
58392		144	SUB B	;set Zero flag
58393	done2	193	POP BC	;retrieve incoming BC
58394		62,128	LD A, 128	;set accum OK value
58395		201	RET	;exit diverted patch

Programs such as "RAMDISK" by Walter's Software and "TurboDISK" by DIGITAL EXPRESS create the ramdisk capability on the 64K memory expansion card. The programming techniques are very similar to those used by this program. These two others, however, are considerably more complex.

Using the ramdisk is simple. Lazer Microsystems, who wrote SmartBASIC, provided a drive suffix for a Coleco ramdisk utility. The project was discontinued by Coleco, however, when they dropped ADAM. The suffix is "d7". To use it, for example, just enter "CATALOG,d7". The EOS drive code for "d7" is "26" (d1 is B, d2 is 24 and so on).

The program doesn't include our usual data entry error checking routines. So, check each line carefully before RUNNING it. In most cases, an incorrect data value will simply produce an "I/O error".

QuikDISK Design:

Writing a program such as this requires a solid understanding of several aspects of z80 programming and of using the operating system. The BASIC program can be considered to consist of four segments. These are: disable ramdisk, patch read block routine, patch write block routine, and enable ramdisk.

Line number 200 resets the POKE limit to 65535. Line number 210 sets LOMEM and the LOMEM lower limit. If you try to set LOMEM below the limit, you'll get an "Out of Memory Error". Line number 220 disables the ramdisk (in the event that it was already setup).

Line numbers 500 through 550 allow you to select the ramdisk size, 3 to 20 blocks. A 20K ramdisk (with this program) will only leave you about 5K for BASIC programming.

Line numbers 1000 through 1050 correct the INIT function. This way your ramdisk will be INITED with the correct number of blocks. The machine code for this routine was explained last month.

Line numbers 2000 through 2200 patch the EOS "read block from a medium" routine. The assembly language specifics of the patch are detailed on the previous page (page 10). The EOS read block routine occupies addresses 61819 through 61925. All reading from a medium is channelled through this routine. Thus, this is the only logical place to divert a patch.

The first step is to change the first three bytes of the EOS routine, diverting execution to our patch. The patch, in turn, checks to see if the current drive is "d7". If not, execution Jumps back to the byte of the EOS routine after the diversion. In order to write the rest of the patch, you must understand the EOS read block routine's setup. The accumulator contains the current drive value. The HL pair contains the RAM destination address. And, the DE pair contains the medium's source block number.

We are going to employ LDIR for the xfer. Thus, we need to translate the EOS register values into ones that can be used by LDIR. The first thing we do is convert the DE block number to a RAM address value. Each block is 1024 bytes in length. Thus, we multiply the number by 1024. Our ramdisk starts at address 27648; so, we need to offset the high byte of the product by 108 ($108 * 256 = 27648$). We now have the source address of RAM that will be read from. But, LDIR needs the source address in HL; we just transpose the registers.

Before we exchange values though, we need to save the incoming HL pair. This contains the destination address in RAM. We use BC to temporarily hold the value. Then exchange DE and HL and then exchange HL and BC. It sounds a little complicated; but, if you study the assembly language, you'll see the overall simplicity.

Now we use LDIR. Immediately, the correct block of the ramdisk is read and placed into the appropriate buffer. To finish up, we must trick the operating system. Each device is controlled by a "device communication block". Since we don't have 6801 chip dedicated to the ramdisk, we don't have a DCB. To work around this, we subtract five from five, setting the "Z" flag. Next, we Load a 128 into the accumulator. This simulates a DCB response of "device read OK".

The write block routine, in lines 3000 through 3200, is almost identical. Line numbers 4000 through 4100 adjust the BASIC interpreter to accommodate a ramdisk in standard RAM. The program concludes by Initializing your new, powerful ramdisk.

An Overview:

Now, you can have SEVERAL programs in memory simultaneously (granted, small ones). Your new ramdisk is fully compatible with ALL file handling commands. There is, however, a minor shortcoming.

Binary converted BASIC programs with a lower LOMEM setting will erase the ramdisk. This is because BRUNning one sets LOMEM via z80 codes rather than BASIC channels. Also, take care to not POKE values into your ramdisk. If you'd like to have a FULL - FEATURED ramdisk, we recommend our TurboDISK for those who have the 64K card. Remember, all ramdisk files are erased when you turn ADAM off!! ENJOY...

ezFILER

Have you ever been annoyed by BASIC's data files commands, eg, OPEN, READ, WRITE, CLOSE? Have you ever wanted to print very nicely formatted address labels with a multiple copy option? Would you like to boot BASIC properly from any drive? Would you like to see a nice graphics screen as soon as reset is pulled (to start off a software package)? Would you like to see how to create a database of random access files? ezFILER does all of this for you and demonstrates a number of programming secrets, as well.

This month we've LISTed the two central components of the package, "HELLO" and "ezFILER". This is a good example of the purpose of a turnkey (HELLO) program, ie, to setup for and pass information to a second program. This permits more programming space for the second or primary program. Next month we'll continue the explanations and complete the series of programs. You can use ezFILER as is, by RUNNING HELLO. Since our completed project will be a self-booting medium, you shouldn't have any other BASIC enhancement utility in memory when first entering the programs.

As an added bonus, the program provides a utility for printing monthly address labels (for newsletters, etc.). We are currently in the process of converting our subscriber address files for use with it.

The HELLO Program:

Pages 13 and 14 LIST the turnkey program for "ezFILER". This "HELLO" program has three major components: corrections to BASIC, creation of machine code routines, and setup of values for "ezFILER".

Line number 100 sets LOMEM and corrects the POKE limit. The lower end of programmable RAM is set to 35328. This is to provide room for the database and the machine code routines. Line numbers 1000 thru 1060 correct the BSAVE bugs with BASIC. Line numbers 2000 thru 2050 correct the DATA / REM extra space bug. Line numbers 3000 thru 3060 establish a PR#2 and a PR#3 command. These BASIC patches were explained in previous issues.

Line numbers 4000 thru 4020 set up a z80 routine to clear the database buffer. It instantly clears the 7.5K of reserved space, filling the addresses with an ASCII ETX (End of Text) or CHR\$(3). The ETX is employed for facility, as you'll see later. Line numbers 5000 thru 5030 setup a routine that turns the cursor to a block. You may have seen similar cursor designs on other computers. Line numbers 6000 thru 7030 setup sound routines. We've used these in other programs.

Line numbers 8000 through 8010 setup a short parameter table for the second program. Address 200 contains the current printer value. A "1" signifies the SmartWRITER printer, "2" stands for any dot matrix (parallel interfaced) printer, "3" is for an EPSON compatible printer, and "4" is for a PANASONIC printer with line justification commands. Address 201 is used to store the current month. The value is the month number (1 - 12). Addresses 202 and 203 are used to store the current year. This value is stored in z80 integer format. For example $7 * 256 + 195 = 1987$.

Line number 8020 clears the database buffer and POKEs the number of free records into address 27647. The database is currently designed to provide for thirty 256 byte records. Line numbers 8100 thru 8120 set the default current file name. This is used by "ezFILER"; it keeps track of the database name.

Line numbers 8200 thru 8220 create a routine to print the info in the records on the screen. We will detail this routine next month. Lines numbers 8300 thru 8320 set up a routine for transferring records. Since the length of each record is pre-determined, we can easily move the 256 byte sections around in RAM. We do this when sorting (alphabetically) and deleting.

Line numbers 8400 thru 8440 pass your home address to the second program. This was intended for a print envelope function; there wasn't enough RAM, however, to make us of it. We left it in the LIST so you could see how to pass strings of varied length on to another program.

Line numbers 9000 thru 9080 create a routine to scan the four drives for media. We've used this particular routine in several other programs. It was introduced on page 16 of our March 1987 issue.

Line numbers 9500 thru 9520 create a routine to read a medium's directory. Line numbers 9600 thru 9620 create a routine to home a data pack or disk without interrupting the program's execution.

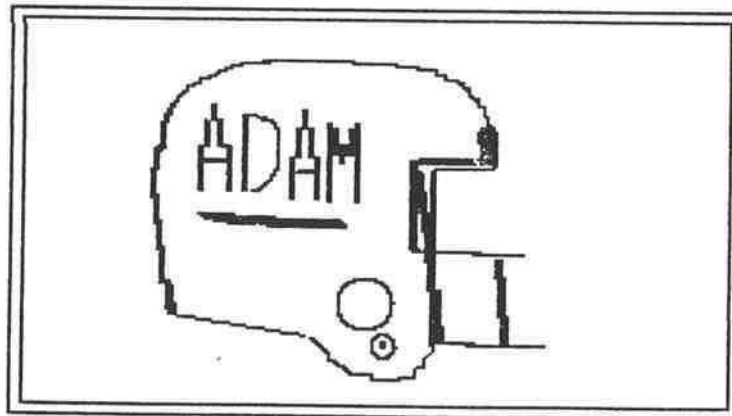
Line number 10000 sets the colors for the TEXT screen. Line numbers 10010 thru 10020 display a text title screen. Line number 10030 turns on the simple music routine and then loads the second program into memory. If you don't have a binary converter (such as Intel-LOAD) change the "brun" to "run".

Next month we'll study the "ezFILER" LIST. It is replete with useful tricks. Until then, go ahead and type it in. As always, take frequent breaks when entering a long program.

We also have the completed package available in our PD library.

ezFILER HELLO LIST continued ...

```
8200 REM print string routine
8210 DATA 33,0,0,126,254,3,200,205,210,46,35,24,246
8220 FOR x = 11660 TO 11672: READ mc: POKE x, mc: NEXT
8300 REM transfer records routine
8310 DATA 33,0,0,1,0,0,17,0,0,237,176,201
8320 FOR x = 11673 TO 11684: READ mc: POKE x, mc: NEXT
8400 g1$ = "DIGITAL EXPRESS"+CHR$(3)
8410 g2$ = "P.O. Box 37"+CHR$(3)
8420 g3$ = "Oak Hill, WV 25901"+CHR$(3)
8430 g4$ = g1$+g2$+g3$: FOR x = 1 TO LEN(g4$)
8440 POKE 11684+x, ASC(MID$(g4$, x, 1)): NEXT
9000 REM scan drives for media routine
9010 DATA 62,4,205,126,252,40,5,50,252,255,24,21,62,4,205,84
9020 DATA 252,253,126,20,230,15,254,3,62,4,56,2,62,255,50,252,255
9030 DATA 62,5,205,126,252,40,5,50,253,255,24,21,62,5,205,84
9040 DATA 252,253,126,20,230,15,254,3,62,5,56,2
9050 DATA 62,255,50,253,255,62,8,205,126,252,62,8,205,84,252
9060 DATA 253,126,20,230,15,254,3,62,8,56,2,62,255,50,254,255,253
9070 DATA 126,20,254,48,48,4,62,24,24,2,62,255,50,255,255,201
9080 FOR x = 27486 TO 27594: READ mc: POKE x, mc: NEXT
9500 REM read directory routine
9510 DATA 58,181,65,1,0,0,17,1,0,33,0,212,205,243,252,50,0,0,201
9520 FOR x = 27595 TO 27613: READ mc: POKE x, mc: NEXT
9600 REM home medium without interrupt routine
9610 DATA 58,181,65,1,0,0,17,1,0,33,0,212,205,162,252,201
9620 FOR x = 27614 TO 27629: READ mc: POKE x, mc: NEXT
10000 POKE 17059, 23: POKE 17115, 23: POKE 17126, 246: TEXT
10010 VTAB 4: HTAB 11: INVERSE: PRINT " ezFILER ": NORMAL
10020 POKE 16953, 32: VTAB 22: HTAB 10: PRINT "standby ..."
10030 CALL 27436: PRINT CHR$(4); "brun ezFILER"
11000 POKE 16953, 95: PRINT " error # "; ERRNUM(0): END
```



```
5 ONERR GOTO 11000
10 REM ezFILER turnkey (HELLO) program
20 REM by DIGITAL EXPRESS
30 REM July, 1987
90 REM run HELLO program first
100 LOMEM :3532B: POKE 16149, 255: POKE 16150, 255
1000 REM BSAVE corrections
1010 POKE 19459, 34: POKE 19460, 249
1020 DATA 16601,63817,19585
1030 FOR x = 1 TO 3: READ adr: POKE adr, 35: POKE adr+1, 249: NEXT
1040 DATA 16604,19558,19563,19576,19595
1050 FOR x = 1 TO 5: READ adr: POKE adr, 73: POKE adr+1, 249: NEXT
1060 POKE 19566, 72: POKE 19567, 249: POKE 21019, 11
2000 REM DATA/REM space fix
2010 DATA 19,26,183,200,254,32,40,248,183,201
2020 FOR x = 6346 TO 6355: READ mc: POKE x, mc: NEXT
2030 DATA 0,205,203,24
2040 FOR x = 15815 TO 15818: READ mc: POKE x, mc: NEXT
2050 POKE 335, 180
3000 REM PR#2/PR#3 command
3010 DATA 245,219,64,203,71,40,250,241,211,64,201
3020 DATA 205,11,47,205,78,4,254,13,192,62,10,24,2
3030 DATA 62,0,195,78,4
3040 FOR x = 0 TO 28: READ mc: POKE x+1102, mc: NEXT
3050 POKE 16217, 89: POKE 16218, 4
3060 POKE 16219, 92: POKE 16220, 4
4000 REM clear file buffer routine
4010 DATA 33,0,108,17,0,30,6,3,112,35,27,122,179,32,249,201
4020 FOR x = 27407 TO 27422: READ mc: POKE x, mc: NEXT
5000 REM turn cursor to block routine
5010 DATA 33,1,0,17,248,2,1,8,0,205,26,253,201
5020 FOR x = 27423 TO 27435: READ mc: POKE x, mc: NEXT
5030 FOR x = 1 TO 8: POKE x, 255: NEXT
6000 REM music routine
6010 DATA 6,20,62,128,211,224,120,211,224,62,146,211,224
6020 DATA 17,0,10,27,122,179,32,251,5,16,234,62,159,211,224,201
6030 FOR x = 27436 TO 27464: READ mc: POKE x, mc: NEXT
7000 REM noise routine
7010 DATA 62,226,211,224,62,240,211,224,17,0,80,27,122,179
7020 DATA 32,251,62,255,211,224,201
7030 FOR x = 27465 TO 27485: READ mc: POKE x, mc: NEXT
8000 REM various setup values
8010 FOR x = 200 TO 209: READ mc: POKE x, mc: NEXT: DATA 1,7,195,7
8020 CALL 27407: POKE 27647, 30
8100 cn$ = "new file": FOR x = 1 TO LEN(cn$)
8110 POKE 27629+x, ASC(MID$(cn$, x, 1)): NEXT
8120 POKE 27629+x, 3
```

```
5 POKE 16134, 27: ONERR GOTO 60000
10 REM ezFILER,by DIGITAL EXPRESS,July 1987
20 REM run HELLO program first
100 cb% = 27407: tc% = 27423: mm% = 27436: nn% = 27465: sd% = 27486
110 rd% = 27595: hd% = 27614: mx% = 30: hc$ = "USA": re$ = CHR$(13)
120 DIM fd$(12), mx%(12), mo$(12), nm$(39): CALL hd%
130 sp% = 11660: tf% = 11673: m1$ = CHR$(27)+CHR$(69)
140 m2$ = CHR$(27)+CHR$(70)
300 g% = 1: FOR x = 11685 TO 11770: a% = PEEK(x)
310 ON g% = 4 GOTO 500: IF a% = 3 THEN g% = g%+1: NEXT
320 g$(g%) = g$(g%)+CHR$(a%): NEXT
500 DATA check parameters,enter record,scan records,edit record
510 DATA sort records,delete a record,clear workspace
520 DATA file options,print workspace,exit program
530 FOR x = 0 TO 9: READ m1$(x): NEXT
540 DATA SURNAME,FIRST NAME,ORGANIZATION,ADDRESS,CITY
550 DATA STATE (PROVINCE),ZIP (POSTAL) CODE,COUNTRY
560 DATA PHONE NUMBER,FIRST ISSUE,TERM (months),ID CODE
570 FOR x = 1 TO 12: READ fd$(x): NEXT
580 DATA 0,25,25,25,25,20,20,20,20,15,15,15
590 FOR x = 0 TO 12: READ mx%(x): NEXT
600 DATA SmartWRITER,dot matrix,EPSON compatible
610 DATA PANASONIC features,done
620 FOR x = 1 TO 5: READ pt$(x): NEXT
630 DATA disk one,disk two,tape one,tape two,done
640 FOR x = 1 TO 5: READ dv$(x): NEXT
650 DATA January,February,March,April,May,June,July,August
660 DATA September,October,November,December
670 FOR x = 1 TO 12: READ mo$(x): NEXT
680 DATA change drive,change printer,change date,done
690 FOR x = 1 TO 4: READ pm$(x): NEXT
700 DATA scan forward,scan backward,edit record
710 DATA delete record,print record,done
720 FOR x = 1 TO 6: READ m2$(x): NEXT
730 DATA load file,save file,delete file,rename file,done
740 FOR x = 1 TO 5: READ m3$(x): NEXT
750 DATA address label,newsletter label,done
760 FOR x = 1 TO 3: READ pa$(x): NEXT
780 DATA print all labels,print newsletter labels,done
790 FOR x = 1 TO 3: READ pb$(x): NEXT
980 DATA 27,108,0,27,81,35,27,97,1
990 FOR x = 65520 TO 65528: READ mc: POKE x, mc: NEXT
1000 TEXT: CALL tc%: POKE 16953, 95: GOSUB 31100
1010 FOR x = 0 TO 9: VTAB x+6: PRINT " "; x; " = "; m1$(x): NEXT
1020 VTAB 17: PRINT " Select option by number: ";
1030 GET k$: k% = VAL(k$): k% = k%+1
1040 IF k% < "0" OR k% > "9" THEN GOSUB 30300: GOTO 1030
1050 GOSUB 30100: IF k% > 5 THEN k% = k%-5: GOTO 1070
1060 ON k% GOTO 1100, 2000, 3000, 4000, 6000
1070 ON k% GOTO 10000, 11000, 12000, 13000, 56000
```

ezFILER LIST continued ...

```

1100 HOME: INVERSE: HTAB 2: PRINT " drive:  ": PRINT
1110 HTAB 2: PRINT " printer: ": PRINT: HTAB 2: PRINT " date:  "
1120 NORMAL: GOSUB 31600: VTAB 1: HTAB 14: PRINT dv$
1130 VTAB 3: HTAB 14: PRINT pt$(PEEK(200))
1140 VTAB 5: HTAB 14: PRINT mo$(PEEK(201)); " ";
1150 yr% = 256*PEEK(203)+PEEK(202): PRINT STR$(yr%)
1200 VTAB 10: FOR x = 1 TO 4: PRINT " "; x; " = "; pm$(x): NEXT
1210 GET k$: k% = VAL(k$): IF k% < 1 OR k% > 4 THEN GOSUB 30300: GOTO 1210
1220 GOSUB 30000: ON k% GOTO 1300, 1600, 1800, 1000
1300 HOME: PRINT " select a drive option:": PRINT
1310 CALL sd%: dv% = 1
1320 IF PEEK(65532) <> 4 GOTO 1330
1325 POKE dv%+27640, 4: PRINT " "; dv%; " = "; dv$(1): dv% = dv%+1
1330 IF PEEK(65533) <> 5 GOTO 1340
1335 POKE dv%+27640, 5: PRINT " "; dv%; " = "; dv$(2): dv% = dv%+1
1340 IF PEEK(65534) <> 8 GOTO 1350
1345 POKE dv%+27640, 8: PRINT " "; dv%; " = "; dv$(3): dv% = dv%+1
1350 IF PEEK(65535) <> 24 GOTO 1360
1355 POKE dv%+27640, 24: PRINT " "; dv%; " = "; dv$(4): dv% = dv%+1
1360 PRINT " "; dv%; " = "; dv$(5)
1400 GET k$: k% = VAL(k$)
1410 IF k% < 1 OR k% > dv% THEN GOSUB 30300: GOTO 1400
1420 GOSUB 30100: IF k% = dv% GOTO 1100
1430 POKE 16821, PEEK(27640+k%): GOTO 1100
1600 HOME: PRINT " Select a printer:": PRINT
1610 FOR x = 1 TO 5: PRINT " "; x; " = "; pt$(x): NEXT
1620 GET k$: k% = VAL(k$): IF k% < 1 OR k% > 5 THEN GOSUB 30300: GOTO 1620
1630 GOSUB 30000: ON k% = 5 GOTO 1100: POKE 200, k%: GOTO 1100
1800 HOME: PRINT " Enter month (by number):"
1810 lf$ = "0": hf$ = "9": ml = 1: ll = 2: vt% = 1: ht% = 28: GOSUB 55000
1820 ON a% = 27 GOTO 1000: a% = VAL(b$)
1830 IF a% < 1 OR a% > 12 THEN GOSUB 30300: GOTO 1810
1840 POKE 201, a%: VTAB 3: HTAB 2: PRINT "Enter year:"
1850 vt% = 3: ht% = 15: ll = 4: GOSUB 55000: IF a% = 27 GOTO 1000
1860 a% = VAL(b$): IF a% < 100 THEN a% = a%+1900
1870 POKE 203, a%/256: POKE 202, a%-256*PEEK(203): GOTO 1100
2000 HOME: GOSUB 31200: HTAB 3: PRINT "press <return> after typing "
2010 PRINT " press <escape> to abort entry"
2020 PRINT " "; : FOR x = 1 TO 29: PRINT "-"; : NEXT
2030 VTAB 20: POKE 16993, 20: POKE 16995, 4: HOME
2100 lf$ = " ": hf$ = "z": ml = 0: vt% = 23: ht% = 2
2105 GOSUB 31700: VTAB 20: HTAB 2: PRINT "RECORD #: "; rn%+1
2110 FOR x = 1 TO 12: VTAB 22: HTAB 2: PRINT "Enter "; fd$(x); ":"
2120 ll = mx%(x)-1: GOSUB 55000: IF a% = 27 GOTO 1000
2130 IF b$ = "" AND x = 8 THEN b$ = hc$
2135 IF b$ = "" GOTO 2160
2140 FOR y = 1 TO LEN(b$): a% = ASC(MID$(b$, y, 1))
2150 POKE k9+mx%(x-1)+y, a%: NEXT y
2160 k9 = k9+mx%(x-1): PRINT: PRINT: PRINT: PRINT: NEXT x

```


ezFILER LIST continued ...

```
2200 rc% = PEEK(27647): POKE 27647, rc%-1: GOSUB 30000
2210 GOSUB 30100: PRINT: PRINT: PRINT: PRINT
2220 ON PEEK(27647) = 0 GOTO 1000: GOTO 2100
3000 ON PEEK(27647) = mx% GOTO 31800: GOSUB 40000
3005 rn% = 0: GOSUB 31710
3010 GOSUB 40100: GOSUB 31900
3020 FOR x = 1 TO 6: PRINT " "; x; " = "; m2$(x): NEXT
3030 VTAB 23: HTAB 2: GET k$: k% = VAL(k$)
3035 IF k% < 1 OR k% > 6 THEN GOSUB 30300: GOTO 3030
3040 GOSUB 30100: ON k% GOTO 3100, 3110, 3200, 3300, 3400, 1000
3100 rn% = rn%+1: GOTO 3120
3110 rn% = rn%-1
3120 mr% = mx%-PEEK(27647)-1
3130 IF rn% > mr% THEN rn% = 0
3140 IF rn% < 0 THEN rn% = mr%
3150 GOSUB 31710: GOSUB 40100: GOTO 3030
3200 GOSUB 31900: PRINT " Enter field # to edit:"
3210 lf$ = "0": hf$ = "9": ml = 1: ll = 2: vt% = 17: ht% = 25
3220 GOSUB 55000: IF a% = 27 GOTO 3270
3230 fd% = VAL(b$): IF fd% < 1 OR fd% > 12 THEN GOSUB 30300: GOTO 3220
3240 HOME: PRINT " Enter new "; fd$(fd%); ":"
3250 lf$ = " ": hf$ = "z": ml = 0: ll = mx%(fd%)-1: vt% = 19: ht% = 2
3260 GOSUB 55000: ON a% = 27 GOTO 3270: GOSUB 41000
3270 HOME: GOSUB 31710: IF mk% = 0 GOTO 3010
3280 mk% = 0: GOTO 1000
3300 GOSUB 41500: GOTO 3270
3400 HOME: PRINT " Which print option?"
3410 FOR x = 1 TO 3: PRINT " "; x; " = "; pa$(x): NEXT
3420 GET k$: k% = VAL(k$): IF k% < 1 OR k% > 3 THEN GOSUB 30300: GOTO 3420
3430 GOSUB 30100: ON k% GOTO 3500, 3600, 3270
3500 GOSUB 41700: ms$ = " ": GOSUB 41800: GOSUB 42000
3510 FOR y = 1 TO cq%: GOSUB 43100: NEXT: GOTO 3270
3600 GOSUB 41800: GOSUB 42000: GOSUB 45000
3610 GOSUB 45300: GOSUB 43100: GOTO 3270
4000 ON PEEK(27647) = mx% GOTO 31800: mr% = mx%-PEEK(27647)-1
4010 HOME: PRINT " Enter RECORD # to EDIT:"
4020 lf$ = "0": hf$ = "9": ml = 1: ll = 2: vt% = 1: ht% = 28: GOSUB 55000
4030 ON a% = 27 GOTO 1000: rn% = VAL(b$)-1
4040 IF rn% < 0 OR rn% > mr% THEN GOSUB 30300: GOTO 4020
4050 GOSUB 31710: HOME: GOSUB 40000: GOSUB 40100
4060 mk% = 1: GOTO 3200
```

ezFILER LIST continued ...

```

6000 ON PEEK(27647) = mx% GOTO 31800: IF PEEK(27647) = mx%-1 GOTO 32000
6100 HOME: PRINT " Really SORT records?"
6110 PRINT: PRINT " (Y=yes & N=no): ";
6120 GET k$: IF k$ = "n" OR k$ = "N" THEN GOSUB 30100: GOTO 1000
6130 IF k$ <> "y" AND k$ <> "Y" THEN GOSUB 30300: GOTO 6120
6200 GOSUB 30100: HOME: PRINT " SORTing alphabetically ..."
6300 mr% = mx%-PEEK(27647)-1: FOR x = 0 TO mr%: k9 = 27648+x*256
6310 b$ = "": FOR y = 0 TO 24: a% = PEEK(k9+y): IF a% = 3 GOTO 6330
6315 IF a% >= 97 AND a% <= 122 THEN a% = a%-32
6320 b$ = b$+CHR$(a%): NEXT y
6330 nm$(x) = b$: NEXT x: FOR ii = 0 TO mr%-1: FOR jj = ii+1 TO mr%
6340 IF nm$(ii) <= nm$(jj) GOTO 6400
6350 du$ = nm$(ii): nm$(ii) = nm$(jj): nm$(jj) = du$: POKE tf%+5, 1
6360 POKE tf%+2, ii+100: POKE tf%+0, 212: CALL tf%
6370 POKE tf%+2, jj+100: POKE tf%+0, ii+100: CALL tf%
6380 POKE tf%+2, 212: POKE tf%+0, jj+100: CALL tf%
6400 NEXT jj: NEXT ii: HOME: PRINT " records sorted."
6410 GOSUB 30100: GOTO 31000
10000 ON PEEK(27647) = mx% GOTO 31800: mr% = mx%-PEEK(27647)-1
10010 HOME: PRINT " Enter RECORD # to DELETE:"
10020 lf$ = "0": hf$ = "9": ml = 1: ll = 2: vt% = 1: ht% = 28: GOSUB 55000
10030 ON a% = 27 GOTO 1000: rn% = VAL(b$)-1
10040 IF rn% < 0 OR rn% > mr% THEN GOSUB 30300: GOTO 10020
10050 GOSUB 31710: HOME: GOSUB 40000: GOSUB 40100
10060 GOSUB 31900: GOSUB 41500: GOTO 1000
11000 HOME: PRINT " Really CLEAR workspace?"
11010 PRINT: PRINT " (Y=yes & N=no): ";
11020 GET k$: IF k$ = "n" OR k$ = "N" THEN GOSUB 30100: GOTO 1000
11030 IF k$ <> "y" AND k$ <> "Y" THEN GOSUB 30300: GOTO 11020
11100 GOSUB 30100: HOME: PRINT " clearing workspace ..."
11110 CALL cb$: POKE 27647, mx%: cn$ = "new file": GOSUB 31400
11120 HOME: PRINT " workspace cleared!!!": GOTO 31000
12000 HOME: GOSUB 31600: PRINT " to read "; dv$; ", "
12010 PRINT: PRINT " press <return> ...";
12020 GET go$: GOSUB 30100: IF go$ <> CHR$(13) GOTO 1000
12100 GOSUB 31910: HOME: PRINT " reading "; dv$; " ..."
12110 POKE rd%+7, 1: CALL rd%: IF PEEK(0) <> 128 THEN GOSUB 30300: GOTO 12000
12120 HOME: fi% = 0: st = 54324: vt% = 0: ht% = 2
12130 st = st+26: vt% = vt%+1: IF PEEK(st+12) = 1 GOTO 12200
12135 IF PEEK(st+12) = 4 OR PEEK(st+12) = 20 THEN vt% = vt%-1: GOTO 12130
12140 POKE sp%+2, st/256: POKE sp%+1, st-256*PEEK(sp%+2)
12150 IF fi% > 14 THEN ht% = 16: VTAB vt%-15: GOTO 12170
12160 VTAB vt%
12170 HTAB ht%: CALL sp%: IF fi% > 29 GOTO 12200
12180 fi% = fi%+1: GOTO 12130

```

ezFILER LIST continued ...

```
12200 VTAB 17: HTAB 2: INVERSE: PRINT " current file: ": NORMAL
12210 VTAB 17: HTAB 20: PRINT cn$: PRINT
12220 FOR x = 1 TO 5: PRINT " "; x; " = "; m3$(x): NEXT
12230 VTAB 24: HTAB 15: GET k$: k% = VAL(k$)
12240 IF k% < 1 OR k% > 5 THEN GOSUB 30300: GOTO 12230
12250 GOSUB 30100: POKE 16993, 6: POKE 16995, 18: HOME
12260 ON k% GOTO 12300, 12400, 12500, 12600, 1000
12300 PRINT " Enter the filename to load:"
12310 vt% = 21: ht% = 2: lf$ = "!": hf$ = "z": ml = 1: ll = 10
12320 GOSUB 55000: IF a% = 27 GOTO 1000
12325 a% = LEN(b$): IF RIGHT$(b$, 1) = "H" THEN b$ = LEFT$(b$, a%-1)
12330 HOME: PRINT " getting "; b$: " ..."
12340 VTAB 23: PRINT CHR$(4); "bload "; b$: ",A27647"
12350 cn$ = b$: GOSUB 31400: GOSUB 30000: CALL hd%: GOTO 1000
12400 PRINT " Enter new filename:"
12410 vt% = 21: ht% = 2: lf$ = "!": hf$ = "z": ml = 1: ll = 10
12420 GOSUB 55000: IF a% = 27 GOTO 1000
12430 HOME: PRINT " storing "; b$: " ..."
12440 VTAB 23: PRINT CHR$(4); "bsave "; b$: ",A27647,L76B1"
12450 cn$ = b$: GOSUB 31400: GOSUB 30000: CALL hd%: GOTO 1000
12500 PRINT " DELETE which file:"
12510 vt% = 21: ht% = 2: lf$ = "!": hf$ = "z": ml = 1: ll = 10
12520 GOSUB 55000: IF a% = 27 GOTO 1000
12525 a% = LEN(b$): IF RIGHT$(b$, 1) = "H" THEN b$ = LEFT$(b$, a%-1)
12530 HOME: PRINT " deleting "; b$: " ..."
12540 VTAB 23: PRINT CHR$(4); "delete "; b$
12550 GOSUB 30000: GOTO 12100
12600 PRINT " RENAME which file:"
12610 vt% = 20: ht% = 2: lf$ = "!": hf$ = "z": ml = 1: ll = 10
12612 GOSUB 55000: PRINT: ON a% = 27 GOTO 1000
12614 a% = LEN(b$): IF RIGHT$(b$, 1) = "H" THEN b$ = LEFT$(b$, a%-1)
12616 PRINT: PRINT " Enter NEW filename:": ob$ = b$
12618 vt% = 23: ht% = 2: lf$ = "!": hf$ = "z": ml = 1: ll = 10
12620 GOSUB 55000: ON a% = 27 GOTO 1000
12630 HOME: PRINT " renaming "; ob$: " ..."
12640 VTAB 23: PRINT CHR$(4); "rename "; ob$: ",,"; b$
12650 GOSUB 30000: GOTO 12100
13000 HOME: PRINT " Which global printing?": PRINT
13010 FOR x = 1 TO 3: PRINT " "; x; " = "; pb$(x): NEXT
13020 GET k$: k% = VAL(k$): IF k% < 1 OR k% > 3 THEN GOSUB 30300: GOTO 13020
13030 GOSUB 30100: ON k% GOTO 13100, 13200, 1000
13100 ms$ = " ": GOSUB 41800: GOSUB 42000: mr% = mx%-PEEK(27647)-1
13110 FOR y = 0 TO mr%: rn% = y: GOSUB 43100: NEXT: GOTO 1000
13200 GOSUB 41800: GOSUB 42000: mr% = mx%-PEEK(27647)-1
13210 FOR y = 0 TO mr%: rn% = y: GOSUB 45000: IF ms$ = "GONE" GOTO 13230
13220 GOSUB 45300: GOSUB 43100
13230 NEXT: GOTO 1000
```

ezFILER LIST continued ...

```

30000 POKE mm%+1, 20: POKE mm%+15, 10: CALL mm%: RETURN
30100 POKE mm%+1, 8: POKE mm%+15, 25: CALL mm%: RETURN
30200 POKE mm%+1, 2: POKE mm%+15, 7: CALL mm%: RETURN
30300 POKE nn%+1, 226: POKE nn%+10, 120: CALL nn%: RETURN
30400 POKE nn%+1, 228: POKE nn%+10, 20: CALL nn%: RETURN
31000 PRINT: PRINT " press any key to continue..."; : GET go$
31010 GOSUB 30000: RUN
31100 VTAB 1: INVERSE: HTAB 2: PRINT " records free: "
31110 HTAB 2: PRINT " records used: "
31120 HTAB 2: PRINT " file name:      ": NORMAL
31130 VTAB 1: HTAB 10: PRINT PEEK(27647)
31140 HTAB 10: PRINT mx%-PEEK(27647)
31150 GOSUB 31300: HTAB 10: PRINT cn$: RETURN
31200 IF PEEK(27647) > 0 THEN RETURN
31210 PRINT " workspace full!!!": GOSUB 30300: GOTO 31000
31300 cn$ = "": FOR x = 27630 TO 27640: cn% = PEEK(x): b$ = CHR$(cn%)
31310 ON cn% = 3 GOTO 31640: cn$ = cn$+b$: NEXT
31400 FOR x = 1 TO LEN(cn$): a% = ASC(MID$(cn$, x, 1))
31410 POKE x+27629, a%: NEXT: POKE 27629+x, 3: RETURN
31600 IF PEEK(16821) = 4 THEN dv$ = dv$(1)
31610 IF PEEK(16821) = 5 THEN dv$ = dv$(2)
31620 IF PEEK(16821) = 0 THEN dv$ = dv$(3)
31630 IF PEEK(16821) = 24 THEN dv$ = dv$(4)
31640 RETURN
31700 rn% = mx%-PEEK(27647)
31710 k9 = 27647+rn%*256: RETURN
31800 HOME: PRINT " No RECORDS in workspace!!!": GOSUB 30300: GOTO 31000
31900 POKE 16993, 8: POKE 16995, 16: VTAB 20: HOME: RETURN
31910 POKE 16993, 24: POKE 16995, 0: RETURN
32000 HOME: PRINT " ONLY one RECORD!!!": GOSUB 30300: GOTO 31000
40000 HOME: HTAB 2: INVERSE: PRINT " RECORD #:"
40010 FOR x = 1 TO 12: x$ = STR$(x): IF x < 10 THEN x$ = " "+x$
40020 VTAB x+2: HTAB 2: PRINT x$; " ": NEXT: NORMAL: RETURN
40100 GOSUB 40200: k9 = k9+1: VTAB 1: HTAB 15: PRINT rn%+1; " "
40110 FOR x = 1 TO 12: k9 = k9+mx%(x-1)
40120 POKE sp%+2, k9/256: POKE sp%+1, k9-256*PEEK(sp%+2)
40130 VTAB x+2: HTAB 6: CALL sp%: NEXT: POKE 16953, 95: RETURN
40200 POKE 16953, 32: POKE 16993, 12: POKE 16995, 2: POKE 16996, 5
40210 POKE 16994, 26: VTAB 10: HTAB 10: HOME: POKE 16994, 31
40220 POKE 16993, 8: POKE 16995, 16: POKE 16996, 1: RETURN
41000 IF b$ = "" AND fd% = 0 THEN b$ = hc$
41010 GOSUB 31710: FOR x = 1 TO fd%-1: k9 = k9+mx%(x-1): NEXT
41020 IF b$ = "" THEN y = 1: GOTO 41100
41030 FOR y = 1 TO LEN(b$): a% = ASC(MID$(b$, y, 1))
41040 POKE k9+mx%(fd%-1)+y, a%: NEXT y
41100 POKE k9+mx%(fd%-1)+y, 3: RETURN
41500 HOME: PRINT " Really DELETE record # "; rn%+1; "?"
41510 PRINT: PRINT " (Y=yes & N=no): ";
41520 GET k$: IF k$ = "n" OR k$ = "N" THEN GOTO 30100
41530 IF k$ <> "y" AND k$ <> "Y" THEN GOSUB 30300: GOTO 41520
41540 GOSUB 30100: HOME: PRINT " deleting record ...": GOSUB 41600
41550 HOME: PRINT " record deleted!!!": POP: GOTO 31000

```

ezFILER LIST continued ...

```
41600 mr% = mx%-PEEK(27647)-1: POKE tf%+2, 100+rn%+1
41605 IF mx%-rn%-1 = 0 GOTO 41620
41610 POKE tf%+5, mx%-rn%-1: POKE tf%+8, rn%+100: CALL tf%
41620 FOR x = 35072 TO 35327: POKE x, 3: NEXT
41630 POKE 27647, PEEK(27647)+1: RETURN
41700 HOME: PRINT " How many copies?"
41710 vt% = VPOS(0): ht% = 20: ml = 1: ll = 3: lf$ = "0": hf$ = "9"
41720 GOSUB 55000: IF a% = 27 THEN POP: GOTO 1000
41730 cq% = VAL(b$): IF cq% < 1 OR cq% > 500 THEN GOSUB 30300: GOTO 41720
41740 RETURN
41800 HOME: PRINT " press <return> to print ...";
41810 GET go$: IF go$ <> re$ THEN POP: GOSUB 30100: GOTO 1000
41820 GOSUB 30000: HOME: PRINT " printing ..."; : RETURN
41900 IF PEEK(200) > 2 THEN x$ = m1$: GOTO 44100
41910 RETURN
41950 IF PEEK(200) > 2 THEN x$ = m2$: GOSUB 44100
41960 RETURN
42000 IF PEEK(200) = 1 THEN pj% = 1: RETURN
42010 pj% = 3: IF PEEK(200) <> 4 THEN RETURN
42020 POKE 65522, 0: POKE 65525, 35: FOR x = 65520 TO 65528
42030 POKE 1127, PEEK(x): CALL 1126: NEXT: RETURN
43100 x$ = ms$: GOSUB 44100: x$ = re$: GOSUB 44100
43102 k9 = 27648+rn%*256+50: x% = PEEK(k9)
43103 IF x% = 3 THEN x$ = re$: GOSUB 44100: GOTO 43110
43104 GOSUB 44000: x$ = re$: GOSUB 44100
43108 GOSUB 41900: x$ = "ATTN: ": GOSUB 44100
43110 GOSUB 41900: k9 = 27648+rn%*256+25: GOSUB 44000: x$ = " ": GOSUB 44100
43120 k9 = 27648+rn%*256: GOSUB 44000: x$ = re$: GOSUB 44100: GOSUB 41950
43130 k9 = 27648+rn%*256+75: GOSUB 44000: x$ = re$: GOSUB 44100
43140 k9 = 27648+rn%*256+100: GOSUB 44000: x$ = ", ": GOSUB 44100
43150 k9 = 27648+rn%*256+125: GOSUB 44000: x$ = " ": GOSUB 44100
43160 k9 = 27648+rn%*256+145: GOSUB 44000: x$ = re$: GOSUB 44100
43170 x$ = re$: GOTO 44100
44000 FOR x = 0 TO 24: x% = PEEK(k9+x): IF x% = 3 GOTO 44130
44010 x$ = CHR$(x%): GOSUB 44100: NEXT: x$ = ""
44100 IF pj% = 1 THEN POKE 12043, 201
44110 PR #pj%: PRINT x$;
44120 IF pj% = 1 THEN POKE 12043, 245
44130 PR #0: RETURN
45000 yv% = PEEK(203)*256+PEEK(202)-1900: xx% = 0
45030 ct% = yv%*12+PEEK(201): yr$ = "": FOR x = 1 TO 4
45040 a% = PEEK(27647+rn%*256+205+x): IF a% = 3 GOTO 45060
45050 yr$ = yr$+CHR$(a%): NEXT
45060 IF LEN(yr$) = 3 THEN yr$ = "0"+yr$
45070 mo$ = LEFT$(yr$, 2): yr$ = RIGHT$(yr$, 2)
45080 mo% = VAL(mo$): yr% = VAL(yr$)
```

ezFILER LIST continued ...

```

45100 te$ = "": FOR x = 1 TO 4: a% = PEEK(27647+256*rn%+220+x)
45110 ON a% = 3 GOTO 45120: te$ = te$+CHR$(a%): NEXT
45120 IF LEN(te$) = 1 THEN te$ = "0"+te$
45130 IF LEN(te$) = 2 THEN te$ = "0"+te$
45140 t1% = VAL(LEFT$(te$, 1)): t2% = VAL(MID$(te$, 2, 1))
45150 t3% = VAL(RIGHT$(te$, 1)): te% = 100*t1%+10*t2%+t3%
45160 mt% = mo%+yr%*12+te%: tt% = mt%-ct%-1: mt% = mt%-yv%*12-1
45170 IF mt% > 12 THEN mt% = mt%-12: xx% = xx%+1: GOTO 45170
45180 yf$ = STR$(yv%+xx%): mf$ = STR$(mt%)
45190 IF mt% < 10 THEN mf$ = "0"+mf$
45200 IF tt% = -1 THEN ms$ = "(expired)": RETURN
45220 IF tt% < -1 THEN ms$ = "GONE": RETURN
45230 IF tt% = 0 THEN ms$ = "FINAL ISSUE!!": RETURN
45240 IF tt% = 1 THEN ms$ = "TIME TO RENEW": RETURN
45250 tt$ = STR$(tt%): ms$ = "("+tt$+" more)": RETURN
45300 x$ = mf$: GOSUB 44100: x$ = yf$: GOSUB 44100
45310 k9 = 27648+rn%*256+235: GOSUB 44000: x$ = "      ": GOTO 44100
55000 VTAB vt%: HTAB ht%: FOR j = 1 TO 11: PRINT CHR$(95);
55010 NEXT: b$ = "": VTAB vt%: HTAB ht%: fe% = FRE(0)
55020 GET a$: a% = ASC(a$): IF a% = 27 GOTO 30000
55030 IF a% = 13 AND LEN(b$) >= m1 GOTO 30100
55070 IF a$ >= lf$ AND a$ <= hf$ GOTO 55120
55080 IF a% <> 8 AND a% <> 163 THEN GOSUB 30300: GOTO 55020
55090 IF b$ = "" THEN GOSUB 30300: GOTO 55020
55100 IF LEN(b$) = 1 THEN b$ = "": GOSUB 30400: GOSUB 55170: GOTO 55020
55110 b$ = LEFT$(b$, LEN(b$)-1): GOSUB 30400: GOSUB 55170: GOTO 55020
55120 IF LEN(b$) < 11 GOTO 55160
55150 GOSUB 30300: GOTO 55020
55160 PRINT a$; : GOSUB 30200: b$ = b$+a$: GOTO 55020
55170 PRINT CHR$(8); CHR$(95); CHR$(8); : RETURN
56000 TEXT: PRINT " end of program."
56010 PRINT: PRINT " enter NEW to clear RAM.": END
60000 CLRERR: POKE 12043, 245: PRINT CHR$(13): PR #0: RUN

```

July 1987						
SUN	MON	TUE	WED	THR	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

August 1987						
SUN	MON	TUE	WED	THR	FRI	SAT
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

PRODUCT:	ELECTRONIC GAME PACK I
MANUFACTURER:	Ape Software
MEDIA TYPE:	DDP / disk
GRAPHICS/SOUND/DESIGN:	98/95/96
INSTRUCTIONS:	94
USEFULNESS vs. PRICE:	97
RECOMMENDATION:	highly recommended
PRICE:	19.00 (E&T Software)
RATED BY:	N&B staff

This is an excellent set of five one - player games by the Canadian company. The package was developed a little over a year ago; but, it was hardly even marketed here in the states. The graphics are stunning using sprites, shapes, and customized fonts. The set includes five challenges against the computer. And, it is definitely one of the best games packs available.

In the classic MASTERMIND you try to deduce the correct sequence of four objects in 10 or less guesses; the SmartKEYs and arrow keys are used for input. With 3D TIC TAC TOE you play with your choice of 3 difficulty levels playing on the 4 by 4 matrix. With BATTLESHIP you position your fleet on a 10 by 10 grid; you have a battleship, cruiser, two subs, and two destroyers. The game alternates play between you and ADAM using explosion clouds to indicate hits -- superb graphics. BACKGAMMON also features very nice graphics as you play the classic game against ADAM. MINER is rather unique. You and ADAM alternate turns collecting ore on an 8 by 8 grid of mines. Moves are made in an "L" shape (like a knight's move in chess). After collecting ore, the mine is closed and can not be landed on again. The object is to collect the most ore before you get stuck.

If you like games that make you think (logically), you'll thoroughly enjoy the ELECTRONIC GAMES PACK.

PRODUCT:	FontPOWER
MANUFACTURER:	DIGITAL EXPRESS
MEDIA TYPE:	data pack/disk
GRAPHICS/SOUND/DESIGN:	99
INSTRUCTIONS:	100
USEFULNESS vs. PRICE:	100
RECOMMENDATION:	highly recommended
PRICE:	12.95
RATED BY:	D.L. Decker
	President of D.L. DECKER ENTERPRISES

This package is another fine contribution to the ADAM world by the programmers at Digital Express. Thanks to Digital Express, the "cries" of various ADAM owners for font utility software have finally been answered with FontPOWER.

The purpose of FontPOWER is to allow the ADAM owner to design and use fonts in SmartBASIC V1.0 or SmartBASIC V2.0. There are several examples of fonts developed for this program included with the software. Examples include "script," "thin," "italic," "micro," "cory," "roman", and more. This program is TOTALLY SmartKEY driven. For example, colors can be changed just by pushing a SmartKEY. Digital's ad claims that the program looks like a COLSCO program, and it certainly does!! The quality of this program exceeds the quality of any other third party product I've ever reviewed. When the directory of the storage medium is accessed, the files are shown on a "file card" which is very similar in graphics display to COLSCO's file directory in SmartWRITER. Furthermore, unlike other third party programs, the files are chosen with the arrow keys and loaded by pressing return (no more typing file names!).

All functions worked well while drawing fonts. The north and south arrow keys are used to advance ASCII characters while designing fonts. "CONTROL P" is used to transfer the current font character design to the grid. "CONTROL G" is used to transfer the designed font to the current ASCII value. All fonts can be saved to data pack or disk for later retrieval. SmartKEY II toggles the pen "down" (for drawing) or "up" (used when moving the pen to another location on the grid). SmartKEY III changes the pen from "draw mode" to "erase mode." SmartKEY IV clears the grid for designing fonts from scratch, while SmartKEY V fills the grid, which allows design by erasing boxes (turning off bits). SmartKEY VI is used to switch between menus.

This program also has an "INIT DIRECTORY" feature and "RENAME VOLUME" feature. The "INIT DIRECTORY" can be used to initialize media, including a new name and standard (one-block), two, or three block directory. The "RENAME VOLUME" feature can be used to name a volume with a name other than the standard "FIRST DIRECTORY."

Overall, this program is an EXCELLENT VALUE for the price. Documentation is extremely well-written. The software design is "top notch", making it a "must" for the ADAM owner who works quite a bit with SmartBASIC.

**ADAM USERS'
GROUPS****WASHINGTON**

Barbara Duncan
3727 34th Avenue SW
Seattle, WA 98126

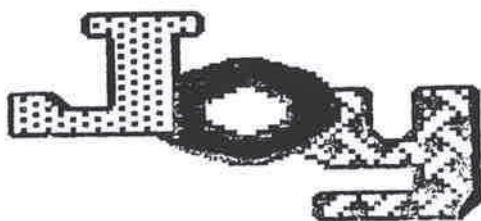
Dave Sandahl
USNH, Box 2844
FPO Seattle, WA 98778

Puget Sound ADAM Network
Valorie Zimmerman
22607 SE 322nd Street
Kent, WA 98042

AUSTRALIA

Bendigo ColecoVision Club
W.R. Oldacres
C1 - 2, Fenton Street
Bendigo, VIC 3550
Australia

ADAM Owner's & User's Group
Frank Ellis
19 Cervantes Street
Macgregor, QLD 4109
Australia

**BULLETIN BOARD**

- ADAM-LINK of Utah BBS -
7:00pm - 7:00am, M-F, MST
24hrs on weekends & holidays
(801) 484 - 5114
default ADAMlink parameters

ADAM video tape, etc.
Terry Fowler
Route 2, Box 2756
Pearland, TX 77581

ADAM Hardware
ORPHANWARE
P.O. Box 324
Canal Fulton, OH 44614

ADAM accessories & newsletter
ADAM USERS GROUP #1986
2226 Patterson
Joplin, MO 64801-6322

ADAM Hardware
TRISYD VIDEO GAMES
26 Florence Crescent
Toronto, Ontario
Canada MGN 4E4

ADAM Software
Walters Software
Route 4, Box 289 - A
Titusville, PA 16354

E & T SOFTWARE
1010 Westminster
Garland, TX 75040

ADAM Hardware
In House Service Reps
620 Harmon Cove Towers
Secaucus, NJ 07094

ADAM Supplies
M.W. RUTH COMPANY, INC.
3100 West Chapel Avenue
Cherry Hill, NJ 08002

Sprite POWER

© 1987 by DIGITAL EXPRESS

for use with

ADAM™

THE COLECOVISION
FAMILY COMPUTER SYSTEM

SpritePOWER, the latest software release from DIGITAL EXPRESS, is the first **TOTALLY** machine code sprite design utility for the Coleco ADAM™. Just like **FontPOWER**, it amazingly simulates Coleco's design techniques. You'll see **SmartKEYs** at the bottom of the screen just like Coleco's software. You'll see the directory of file names displayed on a graphic file folder just like Coleco software. Instantly after pulling the reset switch, you'll see a graphic title screen just like Coleco programs. Like **FontPOWER**, you'll be tempted to think it is a Coleco program (without the bugs). And, it's written totally in z80 code -- *super fast and super professional*.

What will it do for you? It allows you to create your own sprites in the most sophisticated design environment ever used on ADAM. The program has three primary design features: draw sprites, merge sprites (from different sets), and animate sprites (so can see how they'll work in your programs). You can store the bit - image data as a z80 file, a binary image BASIC "H" file, or as a BASIC text (DATA) file -- this makes the program useful to programmers of every level. You can even use the sprite sets with Ben Hinkle's powerful sprite commands (*Hacker's Guide* volume 2). It even comes with three complete sets of sprites for your use -- sprites make **great** graphic animation tools for your games and educational programs.

Of course, **SpritePOWER** comes with a detailed, easy - to - understand user's guide which tells everything you need to know to make the most of the program. And, it tells you (in understandable terms) how to use sprites in your own programs. How much is the **MOST POWERFUL**, most user - friendly sprite design utility ever developed for use with ADAM? The retail price is only \$19.95; and, "NIBBLES & BITS" subscribers can get it at the discount price of just \$14.95. This is one program you'll cherish for years to come.

DIGITAL EXPRESS ... quality you CAN depend on!!!

PROGRAMMING UTILITY SOFTWARE

□□□ Intel-BEST 3.3 (by DIGITAL EXPRESS)
* makes over three dozen changes to SmartBASIC V1.0; includes nine very user friendly MUSIC commands

>>> \$24.95 (each) retail price
>>> \$18.95 (each) for N&B subscribers

□□□ Intel-LOAD V1.0 (by DIGITAL EXPRESS)
* converts BASIC 1.0 programs to LOAD up to 12 times faster; stays in RAM; onscreen help; two BSAVE options

>>> \$15.95 (each) retail price
>>> \$11.95 (each) for N&B subscribers

□□□ Intel-LOAD V2.0 (by DIGITAL EXPRESS)
* converts BASIC 2.0 programs to LOAD up to 12 times faster; stays in RAM; onscreen help; two BSAVE options; works only in STDMEM

>>> \$15.95 (each) retail price
>>> \$11.95 (each) for N&B subscribers

□□□ SmartBEST V1.0 (by DATA DOCTOR)
* makes several changes to SmartBASIC V1.0; not compatible with Intel-BEST 3.3

>>> \$16.95 (each) retail price
>>> \$14.95 (each) for N&B subscribers

□□□ SmartTRIX I (by DATA DOCTOR)
* a set of 10 user friendly programming aids; two very nice sprite programs; 60 page manual; disk and DDP versions not compatible

>>> \$29.95 (each) retail price
>>> \$24.95 (each) for N&B subscribers

□□□ BASICaide (rev2) (Mr. T. Software)
* several SmartBASIC 1.0 enhancements including a new "CHAIN" command for merging programs and a new "BIN" command that executes the built-in function for converting SmartBASIC 1.0 programs to LOAD up to 12 times faster

>>> \$11.95 (each) retail price
>>> \$9.95 (each) for N&B subscribers

□□□ TurboDISK 1.0 (by DIGITAL EXPRESS)
* creates a ramdisk ability from SmartBASIC V1.0; corrects INIT blocks and BSAVE short buffer; includes TurboCOPY -- a utility for controlling files and copying copy buffer

>>> \$24.95 (each) retail price
>>> \$19.95 (each) for N&B subscribers

□□□ FontPOWER (by DIGITAL EXPRESS)
* utility using Coleco-like graphics for designing your own font sets; 8 font sets including "script", "roman", "cory", & "bold"; shows you how to use font sets in high or low resolution graphics; plus three font shape tables for use in HGR or HGR2 mode

>>> \$16.95 (each) retail price
>>> \$12.95 (each) for N&B subscribers

□□□ SpritePOWER (by DIGITAL EXPRESS)
* utility using Coleco-like graphics for designing your own sprites; includes three sets of sprites; extensive instruction manual; shows you how to use the sprites in your own programs; requires the 64K RAM card

>>> \$19.95 (each) retail price
>>> \$14.95 (each) for N&B subscribers

□□□ MegaUtil (by MARATHON COMPUTER PRESS)
* an excellent collection of varied programming aids; includes ByteWriter (block editor), CopyWriter (media back-up utility), PD modules, programming tips, more +++

>>> \$32.95 (each) retail price
>>> \$27.95 (each) for N&B subscribers

□□□ TurboDISK 2.0 (by DIGITAL EXPRESS)
* creates a powerful ramdisk ability for SmartBASIC 2.0

>>> \$15.95 (each) retail price
>>> \$11.95 (each) for N&B subscribers

RECREATION/GAMES SOFTWARE

□□□ MageQuest (rev 2) (by REEDY SOFTWARE)
* superb graphic adventure; includes 9 levels of play in the main adventure plus 3 solo adventures; additional solo adventures are available from REEDY SOFTWARE

>>> \$16.95 (each) retail price
>>> \$14.95 (each) for N&B subscribers

□□□ TRIVIAPAC I (by Mr. T. Software)
* 1200 questions; 6 categories; one to four players; graphics and sound; many hours of fun; DDP version only

>>> \$17.95 (each) retail price
>>> \$14.95 (each) for N&B subscribers

□□□ KID'S TRIVIAPAC (by Mr. T. Software)
* 1080 questions; 6 categories; one to four players; graphics and sound; many hours of fun; DDP version only

>>> \$17.95 (each) retail price
>>> \$14.95 (each) for N&B subscribers

□□□ Strategy Strain (by DATA DOCTOR)
* nine intellectually challenging computer classics; graphics and sound; superb Star Trek adventure

>>> \$18.95 (each) retail price
>>> \$14.95 (each) for N&B subscribers

□□□ Lab Mouse (by REEDY SOFTWARE)
* exciting game that puts you in the role of a laboratory mouse stuck in a maze; all hi-res graphics; five skill levels; auto-loading

>>> \$13.95 (each) retail price
>>> \$11.95 (each) for N&B subscribers

□□□ Entertainment Pack (by REEDY SOFTWARE)
* three challenging computer classics (connect 4, blockade, and slide puzzle); great graphics; fast animated sprites; one or two players

>>> \$16.95 (each) retail price
>>> \$14.95 (each) for N&B subscribers

GUIDES/BOOKS/INSTRUCTIONS

□□□ The Hacker's Guide to ADAM (vol one)
* Ben Hinkle's in-depth guide to the technical aspects of exploring ADAM; 60 pages; 18 programs

>>> \$12.95 (each) retail price
>>> \$10.95 (each) for N&B subscribers

□□□ The Hacker's Guide to ADAM (vol two)
* Ben Hinkle's detailed guide to SmartBASIC V1.0; 110 pages; HELLO program includes several BASIC enhancements

>>> \$12.95 (each) retail price
>>> \$10.95 (each) for N&B subscribers

□□□ Hacker's Guide software (by Ben Hinkle)
* all the programs from volumes one and two

>>> \$5.95 (each) retail price
>>> \$4.95 (each) for N&B subscribers

□□□ EZ Ref 101 (by DIGITAL EXPRESS)
* approximately 700 Z80 instructions listed in NUMERICAL sequence; 9 pages; decimal, hex, op codes, operands

>>> \$2.45 (each) retail price
>>> \$1.95 (each) for N&B subscribers

□□□ EZ Ref 102 (by DIGITAL EXPRESS)
* approximately 700 Z80 instructions listed in ALPHABETICAL sequence; 9 pages; decimal, hex, op codes, operands

>>> \$2.45 (each) retail price
>>> \$1.95 (each) for N&B subscribers

□□□ Pinball Construction/HardHat Mac Guides
* 40 pages of instructions for the popular public domain package

>>> \$2.45 (each) retail price
>>> \$1.95 (each) for N&B subscribers

MISCELLANEOUS UTILITY SOFTWARE

□□□ ShowOFF I (by DIGITAL EXPRESS)
* self-booting graphics design package (enter text, draw polygons, save pictures, etc.) with a variety of print options (preset for Epson FX / IBM 5152 printer codes); printing graphics requires a Centronics parallel interface for printer

>>> \$29.95 (each) retail price
>>> \$24.95 (each) for N&B subscribers

□□□ ShowOFF II (by DIGITAL EXPRESS)
* machine code print enhancements for SmartWriter (adds CONTROL features to SmartWriter) and SmartBASIC; requires Centronics parallel interface, a Panasonic KX 1080 or 1080i printer, and a 64K expander

>>> \$19.95 (each) retail price
>>> \$14.95 (each) for N&B subscribers

□□□ ShowOFF IIa (by DIGITAL EXPRESS)
* very similar to ShowOFF II except that it is compatible with any dot matrix printer that supports EPSON FX escape codes; works with the EPSON and STAR line of printers and the Okimate 20; does not include line justification commands or internal document margin control

>>> \$19.95 (each) retail price
>>> \$14.95 (each) for N&B subscribers

"NIBBLES & BITS" SOFTWARE

□□□ N&B binder set 01 (by DIGITAL EXPRESS)
* all six issues from 07/86 thru 12/86 in a sturdy 3-ring binder; includes two DDP's or two disks containing all the programs

>>> \$29.95 (each) retail price
>>> \$24.95 (each) for N&B subscribers

□□□ N&B binder set 02 (by DIGITAL EXPRESS)
* all six issues from 01/87 thru 06/87 in a sturdy 3-ring binder; includes two DDP's or two disks containing all the programs

>>> \$29.95 (each) retail price
>>> \$24.95 (each) for N&B subscribers

□□□ N&B issue programs (by DIGITAL EXPRESS)
* set 01: all the programs from 07/86 thru 09/86
* set 02: all the programs from 10/86 thru 12/86
* set 03: all the programs from 01/87 thru 03/87
* set 04: all the programs from 04/87 thru 06/87

>>> \$9.95 (each) retail price
>>> \$4.95 (each) for N&B subscribers

COLECO COPYRIGHTED SOFTWARE

□□□ SmartLOGO (data pack only)
* Coleco's version of the popular language; 350 ++ page manual

>>> \$27.95 (each) retail price
>>> \$22.95 (each) for N&B subscribers

□□□ SmartFiler (data pack only)
* Coleco's general purpose database program; 38 page manual

>>> \$18.95 (each) retail price
>>> \$15.95 (each) for N&B subscribers

MISCELLANEOUS SUPPLIES

□□□ Coleco/LORAN digital data packs
* designed and formatted by Loranger Manufacturing

>>> \$4.95 (each) retail price
\$39.95 (for 10) retail price
>>> \$3.95 (each) for N&B subscribers
\$33.95 (for 10) for N&B subscribers

□□□ Plain Label digital data packs
* Sony brand formatted by E & T SOFTWARE

>>> \$3.95 (each) retail price
\$33.95 (for 10) retail price
>>> \$2.45 (each) for N&B subscribers
\$18.95 (for 10) for N&B subscribers

□□□ Plain Label 5.25" disks for ADAM
* double sided, double density, with envelope

>>> \$.79 (each) retail price
\$6.95 (for 10) retail price
>>> \$.49 (each) for N&B subscribers
\$4.25 (for 10) for N&B subscribers

□□□ SmartWRITER printer ribbons
* black ink, just like the one that came with your ADAM

>>> \$5.75 (each) retail price
\$15.95 (for 3) retail price
>>> \$5.25 (each) for N&B subscribers
\$14.75 (for 3) for N&B subscribers

□□□ Panasonic printer ribbons
* black ink, nylon, approximately one million characters, fits these models: 1080, 1080i, 1090, 1091, 1091i, and 1092

>>> \$6.95 (each) retail price
>>> \$5.45 (each) for N&B subscribers

□□□ multipurpose adhesive labels
* white, tractor feed, 3 1/2 x 1 1/8, fan fold, single column

>>> \$2.95 (for 500) retail price
\$5.45 (for 1000) retail price
>>> \$2.25 (for 500) for N&B subscribers
\$3.95 (for 1000) for N&B subscribers

□□□ word processing computer paper
* white, tractor feed, 9 1/2 x 11, fan fold, 20 lb. wt., clean edge, one part, single column

>>> \$4.25 (250 sheets) retail price
>>> \$3.45 (250 sheets) for N&B subscribers

EDUCATIONAL SOFTWARE

□□□ The Spanish Vocabularyian
(by MARATHON COMPUTER PRESS)

* a unique program for ADAM; includes electronic dictionary; includes 1600 words; expandable to 7400 words; quizzes; printed study sheets; report cards

>>> \$18.50 (each) retail price
>>> \$15.95 (each) for N&B subscribers

□□□ Quikfax Quest (by DIGITAL EXPRESS)

* three academic quizzes; includes study mode (on - screen and hardcopy); US capitals, world capitals, and Chemistry elements

>>> \$18.95 (each) retail price
>>> \$14.95 (each) for N&B subscribers

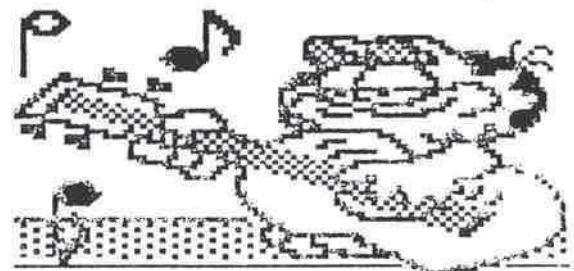
□□□□□□□□□□

□□□□□ Unless otherwise noted, all software is available on disk or datapack.

□□□□□ All DIGITAL EXPRESS media is warranted to be free from defects in materials and workmanship. If the storage medium proves defective at any time, return it to us for repair or replacement (at our discretion).

□□□□□ The product prices listed herein may be subject to change after August 31, 1987.

□□□□□□□□□□



DEI Public Domain Facts

You may get any of the volumes described below on DATA PACK or DISK for ONLY \$5.95. Subscribers also have an option to get a volume FREE (limit three per calendar month); this option does NOT apply to the volumes in the "Coleco Unreleased Titles Library".

Here's how to get one FREE. (1) Contribute an original program for any library. (2) Send a signed statement that the program is NOT copyrighted. (3) Send the program on DDP (digital data pack) or disk; one DDP or disk for each volume that you want to exchange. And, (5) include a return mailer with sufficient postage or send \$2.50 for shipping costs.

Public domain software is offered as a quick, inexpensive means for you to expand your ADAM software library. Note, however, that public domain software is not necessarily of commercial quality. Although we do attempt to winnow out flawed programs, there is no guarantee of quality regarding these packages.

SmartBASIC V1.0 LIBRARY

You must boot your own SmartBASIC first in order to use the volumes in this library. All programs will speed load. Each volume (except the utility volumes) is controlled by a user friendly ramdisk (does NOT require the 64K expander) central menu.

"N&Bgames01": An assortment of text adventures, board games, and animation games -- 130K of files.

"N&Bgames02": An assortment of text adventures, board games, and animation games -- 154K of files.

"N&Bgraph01": A variety of graphics displays and music programs -- 88K of files.

"N&Bmath01": Several scientific and financial math programs -- 114K of files.

"N&Butil01": Intended for more advanced programmers this volume includes programming utilities -- 108K of files.

SmartPAINT Files LIBRARY

In order to view/use the volumes in this library you should have SmartPAINT (from ShowOFF I) or the HGR Picture Manager program in the February 1987 issue of "NIBBLES & BITS" (page 16).

"N&Bpix001": 13 different HGR picture files.
 "N&Bpix002": 13 different HGR picture files.
 "N&Bpix003": 13 different HGR picture files.
 "N&Bpix004": 13 different HGR picture files.
 "N&Bpix005": 13 different HGR picture files.
 "N&Bpix006": 13 different HGR picture files.

Coleco Unreleased Titles LIBRARY

"SmartBASIC 2.0": Improved interpreter; 49K program; works with or without the 64K expander; includes new commands STDMEM, EXTMEM, MERGE; plus more ...

"Pinball Construction/Hardhat Mac": Best of Electronic Arts; latest version with two demo pinball games; 1 to 4 players with Pinball Construction; one or two players with Hardhat Mac.

"ADAMLink II": Supports uploading and down loading of SmartWriter compatible files; includes U/D instructions; requires the ADAMLink modem.

"Jeopardy": The extremely popular ADAM game; just like the game show; great graphics; hall of fame; one to three players.

"Super SubRoc": 90K arcade-type game; super graphics; hall of fame.

"Troll's Tale": Easy to play graphic/text adventure; supports one player; disk and DDP versions NOT compatible.

"Video Hustler": Graphic billiards game; one to four players; from an unreleased cartridge.

CP/M 2.2 LIBRARY

The volumes in this library require that you boot your own CP/M 2.2 package first.

"CP/Mgames01": 30 games.

"CP/Mgames02": 25 games.

"Test/Music": System tester (requires the 64K expander) and a hodgepodge of music samples -- from an unreleased Coleco cartridge program.

Pinball Games LIBRARY

Each volume in this library is self-booting or may be used with the Pinball Construction Set.

"N&B-PBgames01": 10 pinball games.

"N&B-PBgames02": 10 pinball games.

Miscellaneous Collections LIBRARY

"MWplus01": A collection of improvements to MultiWrite by Strategic Software. Requires MultiWrite software. Written by Jim Guenzel.

"N&Bacalc01": several paradigm and other files stored in ADAMcalc format; contributed by Terry Fowler; 148K of files.

"EZpak": a self - booting disk / DDP makes a great medium to store your own files on; contains EZmenu and EZfiler.

"ezFILER": a self - booting disk / DDP containing an address filer utility with advanced print options; graphics screen after reset.

"SHAPEMAKER": a large collection of font shape tables; a very nice hi - res shape design utility; several demonstration programs and instruction files. Written by Guy Cousineau.

Volume Title: N&Bpix004
 (13 hi-res pictures in SmartPAINT format)

Max.HRP (digitized picture of Max Headroom)
 Albert.HRP (bust of Albert Einstein in his latter years)
 space.HRP (spacewalker entering an airlock)
 Alice.HRP (coronation scene from Alice in Wonderland)
 Kling.HRP (symbol of a Klingon warship from Star Trek)
 3d.HRP (three dimensional drawing)
 scroll.HRP (a scroll that you can fill in with your own text)
 book.HRP (an open book that you can fill in with your own text)
 title.HRP (the title screen from FontPOWER by DIGITAL EXPRESS)
 castle.HRP (medieval castle in a lightening storm)
 snoopy.HRP (drawing of the Peanuts' character, Snoopy)
 joy.HRP (ornamental drawing of the word "JOY")
 bulb.HRP (an incandescent light bulb)

Volume Title: N&Bpix005
 (13 hi-res pictures in SmartPAINT format)

N&B002.HRP (NIBBLES & BITS letterhead)
 right.HRP (ADAM computer facing right)
 left.HRP (ADAM computer facing left)
 form02.HRP (a product order form; print at double length)
 total.HRP (TOTAL column for above form)
 title2.HRP (an ADAM title screen that you can modify)
 folder.HRP (a large blank folder)
 cats.HRP (a digitized photograph of two Siamese cats)
 dog.HRP (a digitized photograph of a dog)
 dragon.HRP (drawing of a dragon)
 Reagan.HRP (a digitized photograph of President Reagan)
 border.HRP (an ornate screen border)
 shutt.HRP (a digitized photograph of a space shuttle lift-off)

Volume Title: N&Bpix006
 (13 hi-res pictures in SmartPAINT format)

garf01.HRP (a drawing of Garfield, open-armed)
 spiral.HRP (concentric rotated squares)
 Khad.HRP (digitized photograph of Libia's Khadaffi)
 oval.HRP (an ornate oval)
 cross.HRP (picture of a crucifix)
 star.HRP (a multi-pointed star)
 tri.HRP (twirled concentric triangles)
 garf02.HRP (Garfield playing a guitar)
 barrel.HRP (a large barrel)
 bird.HRP (a bird in a cage)
 heart.HRP (drawing of a Valentine's heart)
 manger.HRP (a Nativity scene)
 candle.HRP (drawing of a candleabrum)

PRODUCT ORDER FORM

YOUR NAME _____
 ADDRESS _____
 CITY _____ STATE _____
 ZIP _____ PHONE _____
 ID NUMBER _____

PRODUCT	QNTY	MEDIA	PRICE

Subtotal →	.
Shipping →	.
Tax →	.
Other →	.
Subscription →	.
Grand Total →	.

TAX:
 - applies only to residents of West Virginia
 - compute as 5% of order subtotal

SHIPPING:
 - inside 48 contiguous states: \$3.00
 - elsewhere: \$4.50

TO ORDER:
 - complete this form; send check or money order (US FUNDS) to:

DIBITAL EXPRESS
 P.O. Box 37
 Oak Hill, WV 25901

- THANK YOU for shopping with DIGITAL EXPRESS -

ID# 1187P11112 (4 MORE)
Steve Pitman
3705 Church Street
Cincinnati, OH 45244

Please RUSH this issue to:

FIRST CLASS

JULY 1987 "NIBBLES & BITS"

DIGITAL EXPRESS
P.O. Box 37
Oak Hill, WV 25901



NIBBLES & BITS

The monthly newsletter for
users and programmers of



ADAMTM

The ColecoVision
Family Computer System

