

# jr Newsletter

January, 1991

## Coming Soon -- VGA for Your PCjr!

Pat Calabria, the chief dreamer-upper of PCjr enhancements at PC Enterprises, has informed us that they have developed and tested a true VGA card for PCjrs. This card, which should be available next month, requires a slight modification to the PCjr system board and utilizes a cartridge to provide software switches.

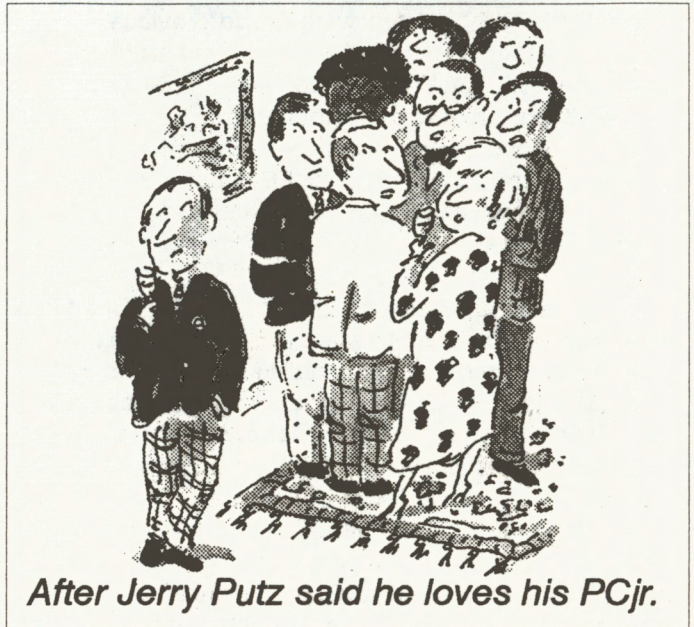
PC Enterprises has several other exciting PCjr enhancements in various stages of development, too. We'll tell you more about them in a minute.

Imagine, crisp colorful VGA images with your PCjr! Not on your PCjr monitor, though. You'll need an analog VGA monitor. The VGA card will, however, give you true CGA, as opposed to PCjr CGA on your PCjr monitor, and it will allow you to run most EGA programs, at least those which were written for 200 line resolution, Pat says.

The PC Enterprises VGA sidecar comes with two connectors, one for the PCjr monitor, the other for an analog VGA monitor.

As for the motherboard modification, PC Enterprises will provide step-by-step instructions for publication in jr Newsletter. The work is about as easy as the PCjr to Tandy 1000 modification, which we published over a year ago and has been performed successfully by many PCjr users. The VGA modification involves cutting three traces, attaching two wires and replacing two components on the system board.

Pat says PC Enterprises will be doing the modification for about \$50, which will include the Tandy Mod, a



*After Jerry Putz said he loves his PCjr.*

couple of compatibility enhancements, and a set-up to accommodate PC Enterprise's 192K internal memory card. With these modifications, your PCjr system board will be ready for the VGA card as well as the 192K memory card which can bring a PCjr up to 736K total memory. The price for the VGA card has not been set yet.

### Another Giant Step for Our Orphan

Unlike PCs, which are capable of having CGA, EGA, or VGA cards simply inserted into the provided slots, PCjrs have their CGA capability "wired in" as part of the system. So PC Enterprises has pulled off quite a feat in designing a way to provide VGA for PCjrs.

Since they had to alter the system, they also had to provide a way for PCjr users to be able to run software, such as early Sierra games, which is written specifically for PCjr's version of CGA. They did this by installing the PCjr monitor and analog monitor connectors on the sidecar and by creating a cartridge which adds the 32K VGA Bios. Just unplug the cartridge and your back to your original PCjr system.

VGA is downward compatible for other standard video modes, so a PCjr enhanced with the new VGA card will be able to operate EGA, "true" CGA, MGA, MDA and Hercules Graphics software.

### Other New Goodies

Now, are you ready for more good news? Pat says they have completed testing and have begun production of 2400 baud internal modems for PCjrs. Until now if you

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**PCjr Lives!**

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# The Basics of BASIC

By: John E. Wilson

**EDITOR'S NOTE:** The following article provides a summary of how to use BASIC, the elementary programming language which enables you to easily write your own small software programs on your PCjr. This article was written to accompany the article in last month's issue about producing music on your PCjr, but it will also be useful to anyone interested in starting to learn BASIC programming skills.

In the main article on making music with PCjrs there are a couple of programs written in BASIC which test out Junior's sound generating capabilities. We used BASIC for three reasons. First, it is a language that absolutely every PCjr owner has. Second, for short programs such as these BASIC is easy to understand, to type in, to execute and to play around with. Third, Cartridge BASIC is the only high level computer language that is able to tap into Junior's advanced sound generating capabilities. If you are rusty on using BASIC, this short article will give you enough information to get up and running with the BASIC programs we will use in this series of articles about sound and the PCjr.

### Which BASIC?

One of the confusing things about BASIC is that there are so many different versions and dialects of the language. In this series of articles we will not use Quick BASIC or Power BASIC or any of the compiled versions. The best version you can use for our experiments is Cartridge BASIC. This BASIC, an optional item offered by IBM for the PCjr, comes on in a cartridge that plugs into the front of the computer.

This version, and only this version, has extensions to the language that can utilize fully Junior's sound generating abilities. If you don't have Cartridge BASIC, you have two other choices. The first is to use the BASIC built into Junior's ROM. You won't be able to save your programs with this version (unless you are one of the rare individuals who has a cassette recorder hooked up to your PCjr) and it doesn't have many of the functions and commands that Cartridge BASIC has, but you definitely do have this version of BASIC and it is surprising what you can do with it. The other choice for someone who doesn't have Cartridge BASIC is to use BASICA.COM which is on your DOS supplemental diskette. You have to rename this program to get it to work on Junior. I have renamed mine, which came with Ver 2.1 of PC-DOS, JRBASIC.COM. If you have problems,

you can find articles in past issues of the Jr Newsletter which have hints and help in using BASICA on a PCjr. This version of BASIC was written for the general PC family, so it does not have the extensions to fully utilize Junior's sound and graphic capabilities. I have successfully run the programs in the main article with all three versions of BASIC.

### Starting BASIC

To start Cartridge BASIC, plug the cartridge into either slot, boot up Junior - preferably without the drivers for memory beyond 128K - and type BASIC <Enter>. To start ROM BASIC (Which IBM calls Cassette BASIC), just start up Junior without a boot-up disk. You will automatically be in ROM BASIC. To start BASICA, type in JRBASIC, or whatever you have named the program. In all three versions you will see a screen with a title and IBM copyright at the top and some references to the function keys on the bottom. You will see an Ok on the left margin with a blinking cursor below it. You can type in CLS <enter>; the screen will clear (except for the bottom line) and the Ok/cursor will move to the top left hand corner of the screen.

### BASIC's Modes

BASIC has two modes in which you can work. In the direct mode, you just type in a standard BASIC command without a line number - such as SOUND 400,5 - and press <Enter>. In this example, you will immediately hear a beep sound, and the Ok/cursor will appear below the line you just typed. You can move the cursor back up to this line, press <Enter>, and Junior will beep again. You can also modify this line and press <Enter> to try out a sound with a different frequency or duration.

If you want to do some operation that requires more than one line you must use the indirect mode. You could call this the programming mode, because you give each

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# Questions and Answers

By Rene Waldron



**EDITOR'S NOTE:** jr Newsletter gets questions in the mail from PCjr owners every day. So many, in fact, that we apologize for not being able to answer them personally. This Questions and Answers column is our way of responding to the questions readers ask about their PCjrs. We can't answer all of the questions we receive, but we try to answer those that are either asked by several readers or those we feel will be of interest to PCjr owners in general. If you have a question that you do not see answered here, or elsewhere in this newsletter, please feel free to write to us at jr Newsletter, Box 163, Southbury, CT 06488

**I keep getting "Abort, Retry, Fail" whenever I happen to have no disk in one of my drives or my printer is turned off. I have to re-boot or get a diskette back into the drive to continue. Anything out there to fix this?**

*P. Douglas, North Bend WA*

A. This can be a frustrating DOS 3.xx occurrence. Your prompt (therefore DOS itself) is doggedly looking for a drive\dir (and the "connected" signal from the printer, or any serial device or SCSI interrupt, by the way) but the default isn't a "live" one for it to read. As you have already determined, you may put any formatted diskette back in the empty drive to get going again, but it is an annoyance. The "fix" is just to type "F" for "Fail" then immediately at the tail of the next prompt, which is either "Drive is no longer valid" or "Invalid drive specification", you should type "C:" or "A:" or whichever drive IS presently valid to get out of this peculiar loop... You may have to repeat this business with the drive letter a few times before it works. Don't recall how long ago we discovered this. It didn't seem to have anything to do with the DOS manual, either.

**Q. Is there any way I can get my Epson LX-90 to print using Electric Desk? It is now set up to print using an Epson MX. This is a great spreadsheet for the jr.**

*E. Weinstein, Stoneham MA*

A. There is a way to choose printers in either the "Install" or "Setup" as options of Electric Desk. You will have to get the original disks (actually the copies you made... you DID make copies RIGHT??!) and find the list of supported printers. You may have to go through the "Install" procedure if "Options" will not allow the choice of a new printer.

The entire Epson line is so well supported by software houses that we feel there should be no problem finding the right driver.

**Q. I am having a problem with Lotus 1-2-3 version 2.2. Version 2.01 ran without a hitch! I have 640k (Racore) second disk drive and a 20 meg RIM hard drive from Paul Rau. The problem is a freeze-up if I try to print directly from the spreadsheet and a re-boot is necessary. In my dealings with the technicians at Lotus, they leave me with the information that the programming is "little changed" from previous releases and the impression that they are losing interest in supporting the jr.**

*P. Foust, Reno NV*

A. We have heard of problems with this version. Remember "little changed" could mean disaster. One single (new) call to make the buffer in the 1-2-3 printer spooler load into the movable video RAM or simply by-pass the Int9 keyboard read in the jr and boom...! We had some problems initially with version 2.01 and here's what we did: We boot with only enough video RAM for a couple of graphics pages so about 64k should do it; just use enough to get out of the first 128k of RAM to run in the higher speed memory. Now, there is a kind of menu utility to re-set the program for hardware/software which comes up if you type "LOTUS" at the DOS prompt. This seems to get you into a "shell" or a TSR so you can select what it is you want to do such as run the spreadsheet, print, or re-set the defaults. Here's smack where we ran into our own graphics and printing problems so we NEVER ran LOTUS 1-2-3 that way. We always ran it with "123" as the operating command from DOS. We NEVER have any TSRs loaded for this program. If there is a way to go directly to the 1-2-3 spreadsheet with your upgrade and you have NO TSRs you could be successful. For your information: The upgrade is not as indispensable as one might be led to believe. Version 2.01 is still being used by thousands of professionals and others all over the place.

**Q. You have remarked a number of times that you run programs without any TSRs loaded to avoid certain problems. How do you do this? Do you re-boot with various AUTOEXEC.BAT or CONFIG.SYS files according to the needs of each program?**

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# Questions and Answers

(Continued from page 3)

A. A number of readers have asked about this. Have we left the impression that we constantly re-boot for each application we intend to run? We hope not. Here's the scoop: We have a general purpose CONFIG.SYS file on our booting disk. That, in conjunction with our AUTOEXEC.BAT file, just uses up the lower 128k (actually 132k in our case) of RAM. We use 64k of video RAM because the standard PC and its programs generally have no demand for more than that. We are using PC-DOS 3.3 and the CONFIG.SYS is;

```
DEVICE=SCSIJRPD.SYS ->recognize-set up
    hard disk (20 meg)
DEVICE=C:PCJRMEM.COM /E ->note that C: is
    already usable! E=64k video
DEVICE=C:RAMDRV.COM ->only gets ready for
    RAMdisk D: of ANY size
SHELL=COMMAND.COM /E:1024 /P ->because our
    PATH and Environment grows
or is modified by various .BAT files (more
    below)
BUFFERS=20 ->for efficiency
FILES=25 ->needed if we were to use
    WordPerfect etc...
```

That's it! Our AUTOEXEC.BAT on the A drive is simply;

```
@ECHO OFF ->or DOS clutters up the screen
un-necessarily
C:MEDVID.BAT ->goes to another .BAT file
on the C: drive
```

Here's the MEDVID.BAT. on C: Adding >NUL after any command will keep screen writes to a minimum.

```
@ECHO OFF ->again, to keep clutter off
screen
C: ->now we have changed to our hard drive
HUSH ->if floppy drive(s) noisy
MODE CO80 ->even though it is jr's de-
    fault, some pgms require this
FASTOFF ->turns off drive motors quickly
    after read/write
COMSWAP ->we always use COM2: for external
    modem, mouse etc.
KMOUSE /2 >NUL ->load IMSI mouse driver
    but don't print on screen
MOUSE -> Microsoft mouse software to acti-
    vate Kmouse
FASTOPEN C:=80 >NUL ->3.3 speed enhance-
    ment to keep dir in memory
PROMPT $p $ ->keeps track of dir and sub-
    dir for me at a glance
SET COMSPEC=C:\COMMAND.COM ->DOS will find
```

```
it here in the root dir
SET PATH=C:\;C:\DOS ->find frequently used
    files in either place
CLICKON ->keyboard click
NOBEEP /2 /9 ->keyboard speed, buffer and
    assorted corrections
Date ->necessary if .BAT file runs and no
    battery clock
Time ->necessary if .BAT file runs and no
    battery clock
VER ->so we're sure which version of DOS
    we've booted with
```

This all looks pretty elaborate and time-consuming, but we use FAST-BOOT sector 1 and the whole thing takes about 42 secs to the Date prompt. We typically have only one application in each of our other hard disk directories. In each directory is a GO.BAT file which takes care of such things as PATH modifications and command-line parameters. This GO.BAT file also loads or unloads any TSR we might need. We do this with the celebrated MARK and FLUSH utility for IBM. Simply MARK, and then load the TSR. When we're done we just FLUSH it out of memory. It won't be there to tangle with the next application. This utility is so good that it can remove a mouse driver or even Lap-Link from RAM if necessary without a glitch!

Whatever commands are needed for efficient, trouble-free operation of the application are developed step by step at the DOS prompt. These commands are then incorporated into the GO.BAT file so it is all automatic when we run each application.

Here's what happens; We boot, choose a directory, type GO and we're running. That's it... saves a lot of time and hassle. We find it not only quick but preferable to any shell or menu program because we do not have anything except what's necessary in memory. Most of those shell or menu programs are themselves TSRs and we know what that means.

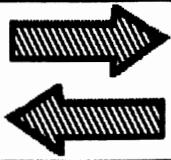
**Q. Is there an way to put what is in my cartridges on disk?**

*Various readers*

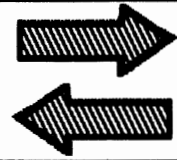
A. Yes. Many readers have wanted more since we printed the BASIC program which allows exploration of the cartridges. First you will need to get some information from the cartridge. The simplest way to do this is to run the BASIC program here for the necessary information. You will need :

- 1) A filename.ext (make it up)
- 2) The segment address of the cartridge data (from the BASIC program)
- 3) The length of the data (from the BASIC program)
- 4) We suggest you only have ONE cartridge in one slot to get the information required.

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# Reader Feedback



## Reader Tells How to Replace Tecmar Power Supply

I'm into my third year of subscribing to your newsletter and let me tell you, I have let all my subscriptions to other computer magazines lapse. I look forward to receiving each issue and usually read it through immediately as soon as it arrives. Keep up the good work!!

My jr has been expanded to 640K using the Tecmar jrCaptain and jrCadet expansion modules. My drives consist of 360 and 720K controlled by a modified PCjr controller (it will handle up to three) and a 10meg Seagate ST412 controlled by a SPC Diskitjr Controller which works flawlessly. I switch between my lmsi optical mouse, my Packard Bell PB2400PLUS modem and an Xmodem cable used to interface jr with my portable with a Giltronix 6 position SELECTO-SWITCH. Also, I have a couple of joysticks for the kids. Throw in a PC Enterprises Thinfont chip, Synetics keyboard adapter attached to a ST/AT autoswitching keyboard, a Tandy mod, a reset button and a HP Thinkjet printer, and you have my system.

From reading the newsletter I know I have shared a very frustrating problem with many of your readers... lockup caused by the wimpy Tecmar power supply. I have totally rebuilt it a couple of times, but the fix was only temporary and within a few months I would be experiencing the same problem again. I took the Captain out of the housing, plugged it into jr and plugged the Cadet into the Captain. I hung a voltmeter on the 5 volt supply and turned on the computer. The 5 volt supply would start out at about 5 volts and then slowly drift down, locking the computer at about 4.7 volts.

The fix is easy. I took a standalone 5 volt supply and attached the positive lead to the bottom leg of the Captain's regulator chip (the one bolted to the metal shield to which the parallel connector is attached) and the negative lead to the shield itself. The problem is gone and the computer can be left on all day without any problems.

Any 5 volt supply rated at a couple of amps or more should do the trick. I used a 9 amp supply 'cause that's what I had in my junk box. The Computer Shopper is a good source for finding a low cost supply.

Again, congratulations on your fine publication and keep up the good work. I use far more powerful computers at work, but I have fun with jr.

*Bill Eastburn, Kingston, TN*

## 14 PCjrs Make Learning Fun In High School Physics Class

I am a physics teacher who just inherited 14 PCjrs which had been networked together in a training lab (yes, PCjrs actually used in business until just this year!) Fortunately, there was also a collection of old newsletters as well. I'm happy to report that the jrs have found a useful new existence as high school physics lab equipment.

My students assembled and debugged the old pc cluster network so that the JRs could run physics software--once they received more memory. I'm adding Hot-Shot cards to most of the jrs (Ed Strauss was great in helping me overcome problems using the cards with the network.) My students are going to try rebuilding some IBM expansion cards (following instructions found here) for the few jrs that had them. We are building photogates, thermal probes, magnetic field sensors, force strain gauges, etc. largely from kits created by Vernier Software (Portland, OR)--another wonderful company that has been willing to send me equipment and share technical information. It has been a great project figuring out the joystick pin-outs on the jrs to make these devices work. Vernier has an analog to digital PC card they plan to release soon and, seeing the potential in the jrs, are asking for my help in possibly creating a jr version. Next project will be to see if we can modify the card to work in the jr modem slot or the sidecar port. HELP! I need advice from you PCjr experts!

Boy, are we having fun. For less than the cost of one new clone, I will have 14 jrs up and running--and just getting them running has been a tremendous educational experience.

As the 386 machines become cheaper, I know the temptation will come to some of you to move on. Just remember two things; 1) the joyful exploring you have done as recorded in these newsletters has positively influenced some students' educations. 2) There is a useful life still in these PCjrs--if you can't find a local school that has somebody comfortable getting "under the hood" of your PCjrs, send them on to me--my students and I will spiff them up, teach somebody what they can do with them, and prolong their lives.

*David Edfeldt, Issaquam, WA*

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## Reader Feedback

(Continued from page 5)

### Jr User Writes Program To Export Filing Assistant Records

I would like to share a recent experience with your readers, many of whom may have encountered the same problem. I had created a sizeable data base using **PFS File**, also known as **IBM Filing Assistant** when most of us brought our PCjr's, and wanted to move up to a software package with more capabilities. My data base, a political list of contributors, volunteers, and the like, had grown to 372 records with 42 fields per record, and I found myself wanting to do manipulations and generate reports that were simply not possible to do with PFS File.

There are, of course, many database management software packages available, with all kinds of advanced features, such as PFS Professional File and PFS First Choice. The problem, then, is how to export a data base from PFS File to one of these other packages. Unfortunately, what I discovered is that PFS File cannot create a "delimited ASCII" file, which has become the standard means of exporting in modern software. A "Delimited ASCII" file is one written in ASCII characters, such as a file that you would send to a printer, but in which each field and record is separated by delimiters, the delimiters are often selected to be quotation marks, commas, and the like. In addition, each record must be followed by a delimiter, such as a carriage return. When a software package tries to read a delimited ASCII file, it makes use of the delimiters to identify the beginning and end of fields and records.

The way that I solved this problem was to write a program in BASIC that reads ordinary ASCII files which can be created by printing the PFS File data base to a disk. My program then converts these ordinary ASCII files to delimited ASCII files. That means that the program reads every character, detects when a new field or record has begun, and inserts the delimiting characters of choice. The resulting converted file can then be read by software packages such as PFS First Choice, after you have initially created a First Choice file that contains the design of the forms.

If any of your readers have PFS File or Filing Assistant data bases that they would like to convert to delimited ASCII files to enable export to other software packages, I would be glad to either provide the program or conversion service for a nominal fee. I'll do the conversion for \$20.00 each (cash or check) including postage and handling for those who send me their Filing Assistant data file on either 5.25 or 3.5 inch floppy disk (Use a disk mailer for your protection, they sell for 69 cents at a computer store

**JR MUSIC MACHINE.** If you want to write and play music on your PCjr, this program allows you to do it. Displays music as you write it using jr's 16 colors, and plays music back in three voice harmony. Features allow you to adjust key, tempo, note values, etc. Color Display required. 128K ok. (Disk #62)

**ORIGAMI.** Learn the art of Japanese paper folding. This program shows you how, step-by-step, to create amazing animals and other objects just by folding paper. Fun for kids and adults, too. 128K. Requires Basic Cartridge. (Disk #39)

**PC-KEY DRAW.** A powerful graphics program that allows you to draw, paint, produce slide shows, store and print your work. 256K, two drives. (Disk #37)

**PC-KEY DRAW DEMO.** Contains a slide show demonstration which allows you to see the amazing results you can get with PC-KEY DRAW. Helps to learn the many graphic capabilities of PC-KEY DRAW. (Disk #38)

**PCJR MUSIC SAMPLER.** A collection of classical music "concerts" performed with great precision to produce the highest quality sound you've ever heard on your PCjr. Disk includes a separate program to activate Junior's sound generator before running game software to get highest quality sound. 128K ok (Disk #119)

**PIANOMAN.** A great music program! Allows you to write your own music, store it and play it on jr's terrific sound system. 128K. (Disk #36)

**PRINTMASTER LIBRARY.** Two disk set full of graphic images for use with PrintMaster. (Disk Set #3 - 2 disks, \$10)

### Communications

**BOYAN.** Selected Best of the Year by PC Magazine, this outstanding telecommunications program will astound you with its smooth functioning and innovative features. Supports all protocols. Need 384K. (Disk #61)

**JRTELE V2.1.** Excellent, easy-to-use telecommunications software made especially for PCjrs, and the PCjr modem. Ideal for beginners, but has enough power and features for most users. Supports 300 and 1200 baud. PCjr internal or Hayes compatible external modems. 128K ok. (Disk #86)

**PROCOMM PLUS TEST DRIVE.** This is the upgrade of the already powerful and popular Procomm V2.42. It's got many new features including an improved host mode, context sensitive help screens, more powerful scripting. In addition to its power, it's very easy to use. (Reviewed 3/90) 256K (Disk #108)

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near me). For those who would prefer to do it themselves, then I'll send a floppy disk with the BASIC program (programmed in Jr cartridge BASIC) along with a documentation file that gives complete conversion instructions for \$6.,00

Neil A. Frankel, 134 Monterey Road,  
Rochester, NY, 14618

## Learn Origami By Watching Your PCjr Do It On Screen!

Origami is a great program — fun for both kids and adults. Origami is the ancient Japanese art of paperfolding, which has been perfected to such a degree that fantastically intricate shapes and amazingly real looking animals and other things can be created just by folding paper!

The Origami software program teaches you how to make these paper wonders — by giving you a demonstration showing exactly what to do. In a way, it's better than taking a class in Origami because you can review each step of the process before going on to the next step, thus proceeding at your own pace.

Children love to just watch the forms take shape until they recognize what the animal or object being created is going to be. And older children as well as adults can take pleasure in their newly learned ability to create beautiful Origami figures.

Origami is Disk #39 in the jr Newsletter Software Store.

## Software Helps You Use DOS Commands

PC-DOS Help, offers on-screen help for 43 DOS commands. The disk also contains a batch file that will customize the help files for the jr keyboard. It can be used as a stand-alone disk for reference when you want to use a DOS command you aren't thoroughly familiar with. Or it can be installed as a resident DOS reminder, taking up about 16K of memory. Designed by Chris Bailey, the user-supported program provides two levels of help for each of 43 DOS commands. The first level consists of a summary of the function and how to use it. This level serves as a handy reminder to be accessed just before using the command. The second level of help provides more detail about the DOS command and often helpful references to other commands used in conjunction with the command being discussed. The author also includes handy notes on how to use the command and specific examples of what each command might be used to accomplish. The disk in the jr Newsletter Software Store is specifically for DOS 2.0 or 2.1 and can be configured for either, when it is being installed. PC DOS HELP is Disk #24 in the Software Store.



**PROCOMM.** This powerful, yet easy to use telecommunications program has become the one favored by more PCjr users than any other. Dialing directory, auto redial, XMODEM, Kermit and other file transfer protocols, auto log-on, DOS gateway, keyboard macros, exploding windows and many other features. The editor of PC Magazine called Procomm "competitive with the best comm programs on the market." Manual on disk. 256K (Disk #15)

### Databases

**3 X 5.** An information management program that works just like a 3 x 5 card file. It offers speed, versatility and simplicity in entering, indexing and retrieving data. Has an integrated word processor, powerful search commands, multiple windows so you can edit in one and search in another, etc. Requires 256K. (Disk #19)

**FILE EXPRESS.** (V4.22) Very easy to use database manager. Extensive menus and prompts to guide you. Excellent choice for maintaining mailing lists, etc. Many powerful features. 256K (Disks #83 and #84)

**MR. LABEL.** Extremely versatile, this software enables you to make labels ranging from the very simple to the very sophisticated. It's the best of many we've tried. 128K ok. (Disk #97)

**NAMEPAL.** An excellent utility program for maintaining and printing name and address lists, address books or mailing labels. Keeps business and personal references and allows user to maintain free-form notes as well. Requires 128K Memory. (Disk #70)

**PC-FILE III.** This excellent database manager will handle up to 9,999 records, such as names and addresses, notes, product descriptions, etc. Uses generic, embedded, soundex and wild-card searches. Global updates and deletes. Sorts on any field. Too many features to mention. (Disk #3 runs on 128K, Disk #4 needs 256K)

### Educational

**ARE YOU READY FOR CALCULUS?** Excellent review of Algebra and Trigonometry skills you'll need before taking Calculus. Provides help in needed areas. Designed by professor in University of Arizona's Math Department. 128K ok (Reviewed 8/90)(Disk #117)

**BIBLE QUIZ.** Excellent quiz game tests knowledge of both the Old and New Testaments. Provides answers and biblical references for each question. For one to three players. 128K OK. (Disk #85)

# "Jigsaw" Is Fun, Without Mess

By James Prossick

Jigsaw is a bright and challenging electronic puzzle game distributed by Britannica Software. The program requires 512K, one 5 1/4 drive, and the Tandy Modification. It will not run in CGA on an unmodified Junior, but makes excellent use of the Tandy 16 color palette.

Putting the pieces together on the screen was much more fun for me than assembling a traditional cardboard jigsaw puzzle, and a lot less mess. There is no need for a card table, a secluded space in the home to keep the puzzle out of harm's way, or even a sharp pocket knife to make those problem pieces fit.

Jigsaw on Junior allows you to start a puzzle at the level of difficulty you desire, and save your work easily without ever a missing piece. You can select 8, 15, 40 or 60 pieces of any of the available images to scramble. Plus, you can do it the "Hard Way" by taking on the puzzle blind, and scrambling the image before you view it in the all together. Being able to select the number of puzzle pieces makes this a game that young children to adults can enjoy.

There is no copy protection on Jigsaw, and the familiar point and shoot user interface was a breeze to use with a mouse and acceptable on the keyboard. Unfortunately, joysticks are not supported. The graphic appeal of the images in TGA adds life to the puzzles. One minor inconvenience for those of us with two drives is that the path to the B drive must be set each time you load the game. Other than that, the game ran smoothly with never a glitch or a system crash.

In Jigsaw, the gamer competes against the clock, while trying to put the right piece in the right place. There are limited sound effects that assist you by providing a tone when a piece is placed correctly and a music burst when the puzzle is complete. If you wish to make solving the puzzle a tad more difficult, then the audio hint can be turned off. At the higher levels, 40 or 60 pieces, this game is good mental exercise for the muscle between your ears. If you do well enough, and crave your name up in bright pixels on the screen, there is a High Score Hall of Fame for each level.

An image disk with 10 pictures for use with Tandy Graphics, plus the title screen shot, are provide as puzzle images for Jigsaw. There are three other image disks in EGA and MCGA format that contain different images, but are unfortunately unusable. The puzzles are saved in PCPaintBrush's PIX format, so if you have a copy of PC PaintBrush you can design your own puzzles. Even though Britannica has put production of additional image disks on permanent hold, graphics in the PIX format, that should work, can be purchased in the public domain. h)0\*0\*0\*here is also a graphics grabber program called Convert that is included, but unfortunately the only graphics it converts are those made on DeluxePaint. This seems rather limited considering the other two big-time paint programs PCPaint and Dr. Halo are not supported.

The conversion of the jigsaw puzzle in the box to the jigsaw puzzle on the computer screen works well and is a lot of fun. That's good to know, because other conversions of traditional games to the computer have not always fared as well. There are some things that could make Jigsaw a better program - like an expanded selection of puzzle images and wider support for painting programs. But you should be able to get around those deficiencies cheaply by supplementing your puzzle graphics through the public domain, and there is a PD program called "lconvert", that with the registered version for \$35.00, will convert almost any type of graphics on the market. As is, Jigsaw is a good entertainment value and excellent mental stimulation.

With its smooth operation on Junior, impressive use of the Tandy palette, and a street price of \$29.95 or less, Jigsaw is a fun way to piece together a puzzle.

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# Beat the Flooz With Pipe Dream

By James Prossick

Pipe Dream from Lucasfilm Games delivers fast-paced strategy with an arcade twist. This game will get you off your elbows and make those joints move!

The object is to direct the flow of the flooz through a series of pipe sections you select. Time is of the essence, and you have to be a real liquid plumber to stay ahead of the flooz with your pipe. With 36 levels, three play modes ranging from training to expert, and a competitive two player option, a computer plumber can get a lot of mileage out of this game.

The player chooses from a stack of pipes on the left, piecing together a path for the flooz to follow by using the mouse, keyboard, joystick, or any combination for the two player mode. All the input devices work fine, but I found the mouse gave the best control.

Depending on the play mode you're in, you'll have a little, or very little, time to start laying pipe before the flooz begins to flow. In training or basic mode, there are five pipe pieces visible at any time. In expert and two player mode, you have two racks of pipes to select from, with three and a half pipes visible in each. The pipe pieces must be used in the sequence they appear, which means you have to use your brain as well as your reflexes to make the right connections.

Planning ahead while operating in a panic is quite a challenge. The flooz must flow through a certain number of pipes to advance to the next level. There is an on-screen counter that tells you how many pipes are needed to start and what's left to finish. As you move up through the levels, obstacles appear on the playing field and the flooz gains velocity. There are also new pipe pieces, like reservoirs, one-way pieces, and end pieces, to deal with.

Points are scored by the number of pipes through which the flooz flows, with double points for each piece of pipe laid after the counter reaches zero, and a big bonus for using the cross pipes, reservoirs and end pieces. There is also a penalty for each pipe you bomb out of place with a new piece. The action is non-stop nerve racking good fun.

Dexterity on the mouse, keyboard, or joystick, and rapid fire synaptic response of the grey matter are essential to succeed as a computer plumber. There are some strategy pointers in the manual that are worth a read before beginning to play. The training mode is a real help to get a grasp on the right pipe combinations and the spatial feel of the game. I'm still a journeyman computer plumber, but I can tell you this much about the trade: Get as much pipe connected as possible early, and then)0\*0\*0\*t together pipe sequences in the playing field's different quadrants, and make the connections where you can. The cross pipes offer an opportunity to use those throw-away pieces, and start a second or third pipeline to connect to. Plus if you get the flow of the flooz to cross, your score takes a big jump up.

*(Continued on page 10)*



**BRAIN BOOSTER.** Includes IQ Builder, a program that both teaches and tests your ability to solve number, analogy, synonym and antonym problems like those on IQ and SAT tests. Also includes Algebra and Chemistry programs. For high school and up. 128K (Disk #43)

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**GAMES FOR EARLY LEARNERS.** Young children like Teach Tot's alphabet and counting games. Other activities teach spelling and telling time. For Preschool through grade 3. Cartridge BASIC, 128K. (Disk #63)

**HAPPY GAMES.** Written by a mother to help her own preschoolers learn on their PCjr, this set of colorful educational games makes learning fun. Teaches colors, shapes, logic, eye-hand skills. 256K and joystick required. (Disk #88)

**LANGUAGE TEACHER.** Helpful exercises for both French and Spanish language students. Hundreds of vocabulary words and verb conjugations. 128K ok. (Disk #72)

## Pipe Dream

(Continued from page 9)

This is real break-neck strategy, and the pause game hides the playing field so don't expect much help there. Just remember to use as much of the playing field as possible, look to lay a series of pipes to connect to the main pipeline, and cross the flooz whenever you can. Color comes in CGA or TGA if you've had Junior modified. In Tandy mode, the color scheme is pleasing to the eye, and makes placing the pipe and tracking the flooz a little easier.

The program disk is not copy protected, but the program is, with another of those wonderful matching wheels. It's a one-step protection scheme at the boot, with no interference in the game play.

Special note to the Junior owners who haven't made it all the way to 640K: This game only takes 256K to get going. That is a rare occurrence in today's memory thirsty world of computer entertainment, especially with a game of this quality. Take the plunge and unclog your mind and unknot your knuckles with Pipe Dream's successful blend of warp speed strategy and kinetic arcade action. With a bargain basement price of \$16.00 from Software Discounters International (800-225-7638) - It's hard to beat. This game may be a computer plumber's nightmare, but it is also addicting fun.

## PC Enterprises To Continue Support for Racore Products

Racore Computer Products, Inc., has announced that the support and service for its Drive II line of products for the PCjr has been transferred to PC Enterprises, of Bel Mar, New Jersey.

Racore said PC Enterprises will provide support and service "warranty and non-warranty," for all PCjr add-on products manufactured by Racore except Local Area Networking (LAN) products. This includes Racore products manufactured under the "Rapport" and "Quadram" names.

"The quality service and support that we have given our users will be continued by PC Enterprises with the excellence that they have become known for. In addition, PC Enterprises now has the technical information and ability to resolve most of the compatibility issues that have prevented Racore users from adding the highly popular upgrade products made by PC Enterprises," Racore said.

For support, contact PC Enterprises at 201-280-0025. For service, call 800-922-7257. Both numbers are available from 9 a.m. to 4:30 p.m. EST.

## How to Use Redirection

Redirection refers to having input or output come or go to devices other than the standards of Keyboard (input) and Monitor (output). In DOS we expect to enter commands from the keyboard and have the results displayed on the monitor.

### A>DIR

Gives a directory of the A drive disk on the monitor.

### A>DIR > PRN

This sends the results of this command to the printer.

### A.DIR > LIST.TXT

Now the output of this command is put into a file on the A disk called LIST.TXT (any filename could have been used).

The greater-than sign (>) used above was to REDIRECT the output to a printer and disk file rather than the default output device; the monitor. This is useful for getting a hard copy print-out of a particular disk's contents.

(From the Newsletter of the Elkhart PC Users Group)

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# Make PCjr Music With A MIDI

By Jack Ender

Have you ever wondered what it might feel like to conduct an orchestra from your PCjr? How would you like to have your own music recording studio in your home? Now, thanks to advancing technology in the music industry, you can bring to your PCjr the Musical Instrument Digital Interface. Most musicians refer to the Musical Instrument Digital Interface as MIDI.

I purchased my first computer, a PCjr, in 1985. Five years later, a few modifications, and a lot of hacking, I still have a computer which is growing with me. Computer sales persons told me that the PCjr was limited and would never be able to compete with XT. Anyone with common sense, a few instructions and materials, and a little soldiering skill, can modify the PCjr to do some heavy duty work.

In this article, I would like to provide you with some basic information on a MIDI interface for the PCjr and how to make your PCjr an orchestra platform. Before I talk about the interface, let's discuss a little MIDI.

## MIDI History

Originally, keyboards and other devices used to make digital sounds had no compatibility or universal standard. As more interest and demand was generated for digital instruments, the National Association of Music Merchants began to discuss a universal standard for their instruments. Out of their discussions came the MIDI standard.

The MIDI standard would make the digital instruments compatible with one another and give hardware and software developers a commercial interest for developing products.

## How Does MIDI Communicate

MIDI uses SERIAL TRANSMISSION. Yes, just like the serial port on the back of your PCjr, MIDI sends serial information but at a much higher baud rate. The PCjr sends serial information from 100 to 4800 bits per second. A MIDI interface sends 31,000 bits per second. MIDI instruments use a 5 pin DIN plug and cord to connect the transmission line from computer to instrument; from instrument to computer; and from instrument to instrument. These three lines are often called, "IN, OUT, and THRU lines." The MIDI card used in my modification simply provides a way to attach a MIDI instrument to your PCjr and it also offers the increased baud rate needed to drive your MIDI instrument.

Instead of going into an elaborate explanation about the kinds of bit and bytes sent through the serial interface to the PCjr, I will simply talk about some hardware basics. There are two types of serial interfaces for MIDI

keyboards.

## The MPU 401

The MIDI standard for serial transmission is a MPU 401. There are many variations on the MPU 401, but the MPU (Music Processing Unit) is a processing unit which provides a buffer between your computer and music keyboard. In theory, sending and receiving up to 48 channels with any number of separate events occurring on each channel, can quickly outpace your computer's processing capability. The MPU primarily processes these events while your computer's CPU handles most of the basic computing tasks.

Now this is a great system, especially if you are in a professional environment and need to process a lot of events at one time. The typical music MIDI keyboard utilizes 16 channels. Any time a key is depressed, an event is sent through the serial interface which tells the com-

*(Continued on page 12)*

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## PCjr Music With A Midi

(Continued from page 11)

puter a key was depressed, what key what depressed, and when the key was released. Each of these three signals are called events. As long as you play with two fingers, you will not likely overrun your computer's CPU (central processing unit). Even normal playing, using 10 fingers will not likely overrun your CPU. But in the professional environment, 16, 32, and 48 channel instruments are used, and that can require enormous processing capabilities.

### The Dumb Serial Interface

Where multiple Keyboards, drum machines, and other MIDI devices are not planned, the simple SERIAL INTERFACE can send the data events directly to the CPU of the PCjr, process them, and send them back to the MIDI keyboard. At 31K baud, it is unlikely that the amateur musician or even the professional with a small studio will overrun the CPU of the PCjr.

In my search for a simple interface which would not require major modifications to the PCjr, I came into con-

tact with Jim Chamberlain of "Optronics Technology". Jim had developed a low priced MIDI card to be used with a music software program called "SongWright".

Calling Jim, I asked if he had heard of anyone who was using one of his MIDI cards on a PCjr. Although no one had utilized one of the Optronics Cards on a PCjr, Jim was interested in the idea. Let me tell you, Jim Chamberlain was a breath of fresh air. Here was a guy who was genuinely interested in pleasing his customer, and was especially interested in helping PCjr users broaden the use of their machines. Before I had gotten off the phone, Jim had already committed to sending me an Optronics MIDI Card.

### How Does This Thing Work?

Now there is a lot to learn in the MIDI arena. I had a CASIO CT-650 MIDI keyboard. When the Optronics card arrived, I began reading the instructions. Something was said about port 02E8 and interrupt 4. Seriously, I thought that a port was where ships docked and a interrupt was what happened when your teen tried to talk to you as you were having a conversation with someone else on the phone. I promise not to dump all the port and interrupt stuff on you.

Simply, the PCjr utilizes port 02E8 and interrupt 2 for the Optronics MIDI card. Jim has provided an excellent BASIC MIDI I/O REFERENCE MANUAL for his MIDI Card. This manual tells the user how to set the port for 02E8 and how to set the interrupt for 2 by a series of dip switches on the card. (switch 4 and 6 are in the ON position)

### The Card Slot Problem

If you have set the dip switches to the proper positions, you are probably wondering how to plug this card in the side of the PCjr. The PCjr uses pins instead of a card slot to connect peripheral devices. If you use the Optronics MIDI card, you need to convert from the PCjr bus to the "XTcard slot bus". Owl Software advertises this adaptor as the JR/XT Bus Expansion Card. This BUS card plugs into the side of the PCjr via pins and the Optronics MIDI card plugs into the XT bus card slot which is now provided to the PCjr.

When you purchase your JR/XT Bus Expansion Card, you MUST MAKE SURE that interrupt 2 from the PCjr bus is connected to the XT interrupt 2 on the card slot. Some manufacturers of this JR/XT Bus never consider that interrupt 2 will be used. Ask the manufacturer to CONNECT interrupt 2. If you are the bold and brave and enjoy making your own bus expansion and want a detailed description of this complete MIDI project, you may write me at the address at the end of this article. Please enclose six dollars for a disk, postage, and handling.

### Up and Running

Now let's review. Set the Optronics MIDI card for port 02E8 and interrupt 2, connect the JR/XT Bus Expansion

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Card to the side bus of the PCjr, put the Optronics card in the XT card slot on the side of the junior, connect a 5DIN cable from the output of the Optronics MIDI card to the input of the MIDI keyboard, connect another 5DIN cable from the input of the Optronics MIDI card to the output of the MIDI keyboard.

If you have done all these things correctly, you will have the hardware necessary to run a MIDI instrument. Jim Chamberlain with Optronics Technology has provided, along with a very concise Reference Manual, a program called, "MIDITEST", which is used to send a note to the instrument and record a note sent from the instrument. By running "MIDITEST", you should be able to immediately know if you are up and running.

#### Software

As an amateur arranger and musician, I have tried a number of pieces of music software. Let me give you two of my favorites. "SongWright Music Publishing System" is a music miracle. With my PCjr connected to the Optronics MIDI card, I played a few notes on the keyboard. On the monitor appeared the musical notes I had just played, arranged on a musical staff and in the proper time. A few minutes later, I had arranged a musical piece. Through the software I set one channel to play the piano voice, on another channel I set the notes for horns, on yet another, I set the notes for violins. In a few minutes, I had a mini-orchestra playing for me. Notation, playback, and score printing are the primary features of SongWright. In my recent tests of a beta copy for an updated version, I was even more impressed. This is a piece well worth the small price you pay for it.

Another favorite of mine is "GF Music Sequencer". Where you are more interested in recording and playback and less interested in musical score, GF Music Sequencer is a quality program. At first this program seems awkward, I could suggest several improvements, but after learning this program, one discovers that it is a real work horse. Underneath that ugly face is a real beauty. Like all the other software and hardware mentioned in this article, the price is amazingly reasonable. The author, Gerald Felderman is also friendly and helpful.

The only drawback to GF Music Sequencer is that the saved file format is not compatible to the standard file format used in other MIDI software. By saving your work to a file which is standard for other MIDI programs, you can transfer your work to other programs. As long as you use your GF Music software and work from your machine, you will not need the standard format. I might mention that Gerald said that he would be working on updating the file format to a standard MIDI file format. Regardless of the file format, GF Music has produced a powerful software package. You won't be disappointed

*(Continued on page 15)*



**MATH FUN!** A great way to get kids learning how to add, subtract, multiply and divide. Includes a program called Math Tutor which has cleverly designed exercises for kids in Grades 1-6. Also Funnels and Buckets, a nifty math game that makes learning math fun. 128K. Need Cartridge BASIC (Disk #42)

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**TYPING INSTRUCTOR.** Disk contains both PC-Touch, a great typing exercise and speed testing program, and Touch Typing Tutor, a combination of lessons, including finger positions, speed tests and a typing game. 128K ok. (Disk #18)

**WIZQUIZ.** The Wizard keeps track of your progress in solving math problems that range from elementary level through fractions and negative numbers. Extensive exercises, with scores and times recorded under each "player's" name. Compete against your personal best as you improve your skills. Grades 4 through adult. 128K ok. (Disk #95)

## Questions and Answers

(Continued from page 6)

```
10 '* Program to check size and Command information in cartridges, if present.
20 '* Note: This program can be compiled with QuickBASIC, as-is.
30 '*
40 SCREEN 0, 0, 0: WIDTH 40: KEY OFF: CLS : CTR$ = CHR$(32)
50 PRINT : PRINT CTR$: "PCjr slot Check-out.": PRINT
60 PRINT : PRINT CTR$: " Enter your choice:"
70 PRINT : PRINT CTR$: " (1) 40 Column screen"
80 PRINT : PRINT CTR$: "          (2) 80 Column screen"
90 PRINT : INPUT "          ", SC$
100 IF SC$ = "1" THEN GOTO 130
110 IF SC$ = "2" THEN WIDTH 80: CTR$ = STRING$(19, 32): GOTO 130
120 BEEP: GOTO 40
130 COLOR 14, 1, 7: CLS
140 TRUE = 1: FALSE = 0: L$ = STRING$(36, 205)
150 PRINT CTR$: " Cartridge Check-out pgm."
160   FOR SLOT = 1 TO 2
170     PRINT CTR$: "Checking slot num.": SLOT: PRINT
180     SLOTSEG = &HE000 - &H1000 * (SLOT - 1)
190     FOR K = 0 TO 63
200       DEF SEG = SLOTSEG + K * 64
210       SIGNATURE = FALSE
220       IF ((PEEK(0) = &H55) AND (PEEK(1) = &HAA)) THEN GOTO 260
230       IF ((PEEK(0) = &HAA) AND (PEEK(1) = &H55)) THEN GOTO 260
240     NEXT K
250 PRINT CTR$: "No cartridge in slot": SLOT: PRINT CTR$: L$: GOTO 500
260 PRINT CTR$: "Cartridge num.": SLOT: " has ";
270 PRINT PEEK(2) / 2; "K of ROM."
280 OFFSET = 6
290 HDRNUM = 0
300 PRINT CTR$: "The following headers are found:"
310   WHILE PEEK(OFFSET) > 0
320     HDRNAME = PEEK(OFFSET)
330     OFFSET = OFFSET + 1
340     HDRNUM = HDRNUM + 1
350     IF HDRNAME < 20 THEN GOTO 380
360     PRINT CTR$: "Cartridge not coded as expected.."
370     GOTO 500
380     PRINT CTR$: STRING$(9, 32);
390     WHILE HDRNAME > 0
400       PRINT CHR$(PEEK(OFFSET));
410       OFFSET = OFFSET + 1
420       HDRNAME = HDRNAME - 1
430     WEND
440     PRINT
450     OFFSET = OFFSET + 3
460   WEND
470   PRINT CTR$: HDRNUM; "headers (commands) were found."
480   PRINT CTR$: L$
490   NEXT SLOT
500 PRINT
```

```

510 PRINT CTR$; "End of check-out."
520 PRINT
530 PRINT CTR$; "    Press 'D' to return to DOS, or"
540 PRINT CTR$; "    any other key to get to BASIC."
550 K$ = INKEY$
560 IF K$ = "" THEN GOTO 550
570 IF (K$ = "D") OR (K$ = "d") THEN GOTO 590
580 KEY ON : CLS : END
590 CLS : SYSTEM

```

Write down the information gained from the above and bring up DEBUG from any disk, leaving the cartridge in place. The segment address is in lines 180 - 240 above. "-" this is the DEBUG prompt, don't type it in. Type the instructions below, ignoring what's in parentheses;

```

-N a:filename.ext <Enter>    (Name of file to write)
-M xxxx:0 yyyy 100 <Enter>  (Move xxxx [segment address], yyyy [length of data] [to
    DEBUG location starting at] 100)
-R CX <Enter> (Read / write to CX register)
yyyy <Enter> (Put length of data in CX, DEBUG always starts at 100)
-W <Enter> (Write the data of CX length to a:filespec.ext - we named it above, remem-
    ber?)
-Q <Enter> (Quits DEBUG)

```

Look on the A: drive for filename.ext and there it is, all in hex. Have fun exploring. Now that it is on disk you might want to try to un-assemble it to learn how these are written.

**Lap-Link review...**  
It indeed works on the jr!!!

## Make Music With a Midi

*(Continued from page 13)*

with the amount of power you get for the price.

### Resources

Most of us have one major question regarding modifications, "What does it cost?" Let me provide for you some specific products, addresses, and costs.

#### MIDI CARD:

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Clear and Concise

#### OTHER:

Do It Yourself Diskette        COST - \$6.00 by Jack Ender  
Explains how to make the        601 Del Prado  
PCjr/XT Adaptor Bus & the        Georgetown, TX 78628  
interfacing of the Optronics MIDI card.  
Examples of Basic Programing for MIDI.

## VGA For Junior

(Continued from page 1)

wanted more than the barely functional 300 baud internal modem, you had to purchase an external modem. Now you can hide the speed under the hood.

If you want to keep your external modem, but want to use a mouse with it, PC Enterprises will provide you with a Microsoft bus mouse. Doesn't need the serial port to run, folks!

Already available is a 150 watt power supply for Junior. You can run all the drives and gadgets you want with that powerhouse!

The company has tested and run successfully now for several months a 1 Megabyte solid state disk drive which is self-booting and operates at a blazing 1 microsecond. A fast hard drive accesses at 10 milliseconds (not microseconds), making PCE's Turbo Drive 10,000 times faster than a fast hard drive. And since it's solid state, it has no moving parts to break down or wear out.

Next in the line of PCjr surprises for 1991 will probably be a PCjr optical scanner. Pat says they've designed and tested one but are not quite ready for production yet.

Further down the road, but still more than just someone's fantasy, is a sidecar that will take video input from a camera. Pat says they've got one working that will capture images from a VHS camera that you can then edit and save on disk. He says you'll also be able to capture images from a video monitor -- anything you see on tv will be yours to store on disk and play with.

And then there's the PCjr fax card. With this you'll be able to have people fax to your phone and get the resulting documents on your printer. This is on the back burner for now, Pat says, because it came up last in a survey of PCjr users' wish lists.

### Who Wants A 386 jr?

But wait, there's more.... If there is enough interest on the part of PCjr users, PC Enterprises will make a "true" 286 or 386 board for PCjrs. No problem, Pat says, but the question is whether enough PCjr users will want to pay the price, which will probably be about \$500. Pat asked us to ask you, our readers, for your thoughts on this, so please let us know.

### File Transfers by Modem

When you consider sending or receiving files electronically by modem, it's useful to know approximately how long the transfer will take. At 1200 baud, files are transferred at about 5,000 bytes/min. The rate will be a bit over one-fourth as great at 300 baud and almost twice as fast at 2400 baud. A disk full of shareware programs that you can buy for three to five dollars will take over an hour to download at 1200 baud. If it's a long distance call, perhaps you should consider mail order.

## The Basics of Basic

(Continued from page 2)

line a number such as the listings in the main article have. We'll cover running a saving programs shortly. You can use both modes more or less at the same time. If you are in the middle of writing a program and want to test out a function, just move the cursor to a clean line, type in the command -without a line number - and press <enter>.

### Entering and Editing a BASIC Program

To enter a line in a BASIC program, just type in the line number, leave a space or two, type in the statement and press <Enter>. BASIC doesn't care if you use upper or lower case letters, although it always returns your lines in upper case (Except for characters within quotes). Normally BASIC is in the typeover mode, but you can press the Ins key to temporarily get into the insert mode. You don't necessarily have to type the lines in order since BASIC will arrange them in the order of their line numbers. So to insert a line between two existing lines, you can just move the cursor down to a clean line, give the line a number that is between the two existing line numbers, type it in and press <enter>.

You must always press <Enter> for BASIC to accept a line. If you change an existing line but you don't press <Enter>, the change does not really take place. If you have two or more lines that are similar (Such as listing 2 in the main article has.) you can type over the existing line number with a new number, make the necessary changes, and press <Enter>. This creates a new line without affecting the existing line. To get rid of a line, type in DELETE n - where n is the number of the line you want to delete.

The screen tends to get messy, so you will occasionally want to type in CLS <enter> to clear the screen. This will not erase the program you're working on, even though it disappears from the screen. To see your lines as BASIC has accepted them, type in LIST <enter>.

### Other Essentials

To run a BASIC program just type in RUN <Enter>. To save a program type in SAVE"d:FILENAME" <Enter>. The "d:" stands for the drive letter, usually drive A:, that you want the program saved to. If you don't enter a drive, BASIC saves to the current default drive. To load a BASIC program type in LOAD"d:FILENAME". To quit BASIC type in SYSTEM <Enter>. If you are using ROM BASIC none of this applies. You cannot save or load, and to quit you will have to re-boot.

This very abbreviated guide to BASIC won't get you very far into BASIC, but it should give you enough information to try out and experiment with the short programs we will use in our series about sound.



## Save The Planet:



### Environmental Database & Educational Program

Save the Planet, the new disk (#120) being added to the jr Newsletter Software Store this month, offers an enjoyable way

to let your computer help you understand and do something about destruction of the earth's environment.

The software consists of a many layered database with a wide variety of data about such things as the effects of carbon dioxide from fossil fuel use, deforestation, CFC destruction of the ozone layer, and many other related issues. In addition to educating you about these issues, STP allows you to project the effects of many forms of pollution on global warming. It draws charts and graphs based upon information from the U.S. Environmental Protection Agency and other sources so you can see what may happen to the earth in the next 10, 20 or more years.

The database is menu driven, which means you use arrow keys to indicate the subject you're interested in, and it takes you through several steps, providing facts, figures, background information and projections related to the subject you select. For instance, if you pick "How Fast Is the Earth Heating Up?" from the initial menu, it shows you a scale of temperature increases over the past 100 years, and gives you information about what has caused this increase and what the results of the increase are and will be. There is also a small game called "Global Roulette."

You have a choice of 15 subjects under the heading of "Looking At the Problem," and then there is another set of selections under the heading "Taking Action to Solve It." The action section gives you information on such subjects as how to "Be a Thoughtful Consumer," "Save Energy in the Home, Car and Work," "Recycling," "Study Politicians' Voting Records," and it even provides an easy way to "Write to Washington."

If you want to do your part to halt the increasingly rapid destruction of the earth, this program can help you do it. Although it is easy to use, Save The Planet contains a lot of technical information and therefore is for high school students and adults. Registered users of this shareware program will receive the latest updates. It runs on PCjr's with 512K of memory and one disk drive.

Please see page 23 for ordering information.

## Another Source of PCjr Replacement Parts

Ideal Computers, of Longview, TX, has several IBM PCjr replacement parts available at inexpensive prices.

For example, they are selling the larger power supplies (11 inch), which were standard in some PCjr's, but others got smaller ones. The larger supply provides enough power to run a mouse, when the smaller supply won't do. These power supplies are going for about \$20.

Ideal also has drive support brackets, disk adapter cards, 64K memory cards, color display adapters, internal modems, tv adapters, and others.

Since Ideal's policy is to sell only to businesses, we suggest you make up a business name using your last name. No one will arrest you, we don't think. We heard they had a two for one sale going, but it's probably over by now. You might ask, though. Don't tell 'em we sent you.

## New Version of Prodigy Works With Tandy Mod

The latest version of Prodigy software runs in 16 colors without a hitch if your PCjr has the PCjr to Tandy 1000 modification, but requires a patch if it doesn't.

The patch on our PCjr Patches Disk #56 works for the old version of Prodigy software, but will not work with the new version. Although we are told that only one single byte needs to be changed, at this moment we don't have the information to put a new patch on the disk.

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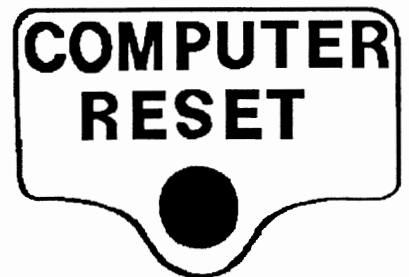
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## How to Use Piping and Filters

Piping is a way of telling DOS to transfer the output from one command to be the input for another command. Piping is a form of redirection, except DOS will create a temporary file on a disk to accomplish the task.

Piping usually involves the use of special commands, termed Filters, to accept data, do something with it, and then pass it to the next step. There are three standard filters used by DOS in piping:

**FIND:** Used to search a file directory for a specified string of text.

**MORE:** Used to display one screen at a time.

**SORT:** Used to sort disk filenames.

The symbol used by DOS to indicate a piping operation is the vertical bar (|).

Examples:

**A > DIR | SORT**

Will display on the monitor the list of files on the A disk, BUT in filename alphabetic order.

**A > DIR | SORT/+10**

Will display on the monitor the list of files on the A disk, BUT by alphabetic order of the filename extensions. Extensions are ten characters from the left on the screen during a DIR.

**A > DIR | SORT > PRN**

Same as the 1st example except the results of this command will be printed out.

**A > DIR | SORT > SAM.D**

Same as the 1st example, except the results of the command will be saved in a file on the disk called SAM.D.

**A > DIR | SORT | MORE**

Will display in sorted order one screen at a time.

**A > DIR | FIND "05-14-89"**

Will display a list of files that were last changed on May 14, 1989.

**A > DIR | FIND "SALES"**

Will display a list of files that have the word SALES in the file name.

*(From the Newsletter of the Elkhart PC Users Group)*



**WORD PROCESSING FOR KIDS.** Simple, fun and easy-to-use word processor designed especially for beginning writers. Allows children to express their ideas easily and then print them out in large type on your printer. Colorful opening menus make learning the simple commands very easy. Parents/teachers manual is on the disk. 128K. (Disk #41)

**WORDCRAZE.** Create your own word search puzzles and print them out for friends and family. Just make the list of words you want in the puzzle and it's printed out for you. Or try Quotefall, a unique type of scrambled word puzzle. And then there's a high-level version of Hangman. Just try escaping from the noose in this one! 256K (Update review 8/90) (Disk #87)

### Games

**ADVENTUREWARE.** Six different text adventures with titles like "Island of Mystery," "Terror in the Ice Caverns," and "Moon Mountain Adventure," all test your wits and take you to strange mysterious places. 128K (disk #14)

**ARCADE GAMES.** Includes Kong, Pango, PC-Golf, Pyramid and other exciting, colorful games for hours of fun. 128K. (Disk #30)

**BOARD GAMES.** Eleven different games on one disk! Hours of fun with Monopoly, Yahtzee, Cribbage, Backgammon, Othello, and others. All run great on your PCjr! 128K. Need Cartridge BASIC (Disk #31)

**BUSHIDO.** Test your skills in martial arts combat. Fighters kick, spin, duck, punch, etc. Requires 256K and keyboard with function keys (Disk #16)

**CASTAWAY/S. AMERICAN TREK.** Test your survival skills as the survivor of a shipwreck in the South Pacific. Or as an explorer of South America. Two novice text adventures from Jim Button. Ages 12 and up. 128K. (Disk #53)

**COMPUTER JOKER.** Disk full of jokes, wisdom, and visual tricks to play on your computing friends. 128K ok (Disk #64)

**DOUBLE TROUBLE.** Two of the most challenging, highest quality arcade style games we've seen — Amazing Mazes and Willy the Worm. Ten different mazes and five levels of play will tie your brain in knots. And Willy, who is the fastest, jumpingest worm you'll ever see, will beat you for sure! You can even modify Willy to give yourself more (or less) trouble. 128K ok. (Disk #68)

**Want a \$200 database manager for \$5.95 ?**

Try PC-File III (Disk #4) on page 21. It's powerful, full of features and easy to learn.



## Care of Diskettes

On the lightside! Here is a short article to brighten your day. It is reprinted from Bits & Bytes, Fremens - B.C. & Yukon Mensa Newsletters

**DUNGEONS & WARS.** In Dungeon Quest you can choose to be a dwarf, elf, magic-user, fighter or other type of character. You select your strengths and weapons, too. Then you enter the dangerous dungeons on your Quest. Thermonuclear War pits the US vs. the Soviets in a very real demonstration of what a nuclear war might be like. Combat is a strategic battle on the ground. 128K ok. (Disk #9)

**DUOTRIS.** Two great Tetris-like games on one disk. Similar to the popular Russian strategy game, both of the versions add new twists of their own. Written in Turbo Pascal, both are high quality games. 128K ok (Reviewed 8/90) (Disk #116)

**GALAXY.** One of the easiest to use word processors we've ever seen, Galaxy has all the features you need to write letters and do most word processing. It has many, but not all, advanced features. Its strength is its simplicity, with help menus always ready to assist you. You probably won't even have to read the manual. 128K ok. (Disk #69)

**GAMES I.** An assortment of games for hours of fun and excitement. Includes Spacewar, Airtrax, Life, Wumpus, Wizard and more. All good with 128K. Need Cartridge BASIC (Disk #8)

**GAMES II.** A wild bunch of games to test your wits and skills. Includes Slither, Xwing, Torpedo, ABM2 and Overreact, where you are in charge of a nuclear plant. 128K. Need Cartridge BASIC (Disk #34)

**GAMES III.** Kingdom of Kroz, an award-winning arcade action game. Go-Moku, a challenging Japanese strategy game, also known as Pente. Zigsaw, the first really good on screen simulation of a jigsaw puzzle. All three on one disk. 256K Reviewed 12/89 (Disk #101)

**GAMES IV.** Turbo-Car tests your skills at driving a fast car on a two lane highway. Can you keep from crashing? Return to Kroz is a colorful, exciting arcade-strategy sequel to Kingdom of Kroz on Games III. Trek Trivia tests and expands your knowledge of Star Trek. Three great games on one disk! 256K Reviewed 2/90 (Disk #106)

**GOLF/SAILING.** Two great games! The golf game has three courses, user definable club ranges and a swing control that determines whether you hit a slice, hook or straight shot. Three nine hole courses (Novice, Pro, and Sadistic). In the other game, you try to sail the three legs of the Bermuda Triangle avoiding, if you can, the creeping mists, alien crystals, vortexes and storms. Your boat is equipped with radar, rudder and sail (all of which you control) and an engine for emergencies. 128K ok for sailing. Need 256K for golf. (Disk #47)

- \* Never leave diskettes in the disk drive as data can leak out of the disk and corrode the inner mechanics of the drive. Diskettes should be rolled up and stored in pencil holders.
- \* Diskettes should be cleaned and waxed once a week. Microscopic metal particles can be removed by waving a powerful magnet over the disk. Any stubborn metallic shavings can be removed by scouring powder and steel wool. This will allow the diskette to spin faster resulting in better access time.
- \* Do not fold diskettes unless they do not fit into the drive. Big diskettes may be folded and used in little disk drives.
- \* Never insert a diskette into the drive upside down. The data can fall off the surface of the disk and jam the intricate mechanisms of the drive.
- \* Diskettes cannot be backed up by running them through a photocopy machine. If your data is going to require backing up, simply insert two diskettes into your drive. Whenever you update a document, the data will be written onto both diskettes. A handy tip for more legible copies: keep a container of iron filings on your desk. When you have to make two copies, sprinkle the iron filings liberally between the diskettes before inserting them in the drive.
- \* Diskettes should not be inserted or removed from the drive while the drive light is on or flashing. Doing so could result in smeared and possible unreadable text. Occasionally the light remains flashing in what is known as the "hung" or "hooked" state. If your system is "hooking" you will probably need to insert a few coins before being allowed to access the slot.
- \* If your diskette is full, and you need more storage space, remove the disk from the drive and shake vigorously for two minutes. This will pack the data (\*data compression) to allow more storage. Be sure to cover all openings with masking tape to prevent loss of data.
- \* Data access time can be greatly improved by cutting more holes in the disk jacket. This will provide more simultaneous access points to the disk.
- \* Diskettes may be used as coasters for beverage glasses, provided they are properly waxed beforehand. Be sure to wipe the diskette dry before using in the drive again.
- \* Never use scissors and glue to manually edit data on a diskette. The data is stored much too small for the naked eye, and you may end up with data from some

other document stuck in the middle of your file. Razor blades and masking tape may be used. However, an electron microscope is highly recommended.

- \* Periodically spray diskettes with insecticide to prevent system bugs from spreading.

## Batch Files

Batch files are DOS tools that allow you to automatically execute one or more DOS commands sequentially. For example, you are tired of changing default drives, subdirectories, and typing the word LOTUS each time you wish to enter into the LOTUS 123 spreadsheet program. The three steps required are:

```
A> C:
C> cd\lotus
C> lotus
```

These steps can be combined with a single BATCH file called lot.bat. To build, type the following: \*

```
c>copy con: lot.bat
c:
cd\lotus
lotus
<F6>
```

(\* copy con means copy from the console or screen. Lot.bat is name of new file being created)

Save to disk by pressing the <F6> function keys. Now each time LOT is entered at the DOS prompt by C>LOT, the commands within the LOT.BAT file are automatically executed sequentially.

*(From the Newsletter of the Elkhart PC Users Group)*

**Save A Heap of Money!**



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## \*\*\* PCjr CLASSIFIEDS \*\*\*

**For Sale: Chicklet Keyboards, \$12.00; IBM 128K sidecars, \$110.00; IBM 300 bd internal modems, \$20.00; Power Sidecard w/power brick \$75.00; BASIC cartridge w/no manual, \$50.00.** Prices include shipping cost. Modems come with instructions to convert card to an external COM1 port. Wanted: Defective IBM color monitors for PC and PCJR. Picture Tube must be intact. Will pay \$50.00 for repairable units. Hank Kennedy (512) 255-2812. 812 Chisholm Vly. Dr. Round Rock, TX 78681

**PCJR - 640K via Tecmar Jr. Captain.** 2 360K drives, color, Thinfont module, IBM internal modem, 2 keyboards, original and 1 DataDesk. Cartridge Basic, DOS 2.1, all original manuals and packing. PCE Combo and Configuration cartridges, many, many programs! \$450 plus shipping. Jack Goetz, (713) 931-1941.

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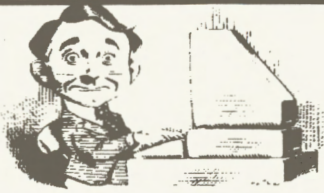
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Ads received by the 10th of the month will be printed in the following month's issue.



# Need Help?

The following disks from the jr Newsletter Software Store can help you to get the most out of your junior. To order, see the coupon on page 23.

**PCJR AUTOSSETUP.** A beginner's dream: Just select from a menu to make separate boot disks especially for each type of software you use. Automatically creates the right config.sys and autoexec.bat files for RAM disks, games, word processing, telecommunications and other software to run at maximum power and efficiency on your PCjr. Designed especially those who haven't mastered the art of customizing their computers. This one does it for you! 256K (Disk #99)

**JR TOOLKIT V2.0.** A collection of 30 upgrades, modifications and repairs. Some easy, some require experience. Includes adding second 5.25" drive (easy) or 3.5" drive (easy), PCjr to Tandy 1000 Mod (harder), power supply upgrade (harder), reset button (harder), V20 speedup chip (easy), how to quiet drives (easy), adjust monitors (easy), plus many others. (Reviewed 3/90 & 6/90) (Disk #110)

**JR POWER PACK.** A collection of particularly useful programs for PCjr owners. Set up RAM disks, address memory to 736K, turn a joystick into a mouse, set screen colors, keyboard click, scan and search text files, screenblinker, print spooler, and more. 128K. (Disk # 52)

**JR POWER PACK II.** Disk full of programs to make your PCjr more useful and powerful. Fix compatibility problems, set up ram disks, tiny word processor, set up 3.5" drives, use DOS easily, and more. Need 256K for some, 128K ok for most. (Disk #65)

**PCJR COMPATIBILITY DISK V3.5.** Lists hundreds of software titles, along with info on how they run (or don't run) on PCjrs. Includes many tips on how to make software PCjr compatible. Powerful search feature finds titles quickly and easily. 128k ok. Updated April, 1990. (Disk #60)

**PCjr PATCHES V.5.0** Patches to fix software that ordinarily won't run on PCjrs. V.5.0 adds patches for Prodigy, Telix V.3x, Bard's Tale II, Maniac Mansion, Designasaurus, California Games, and F-19. Also patches for Flight Simulator V.3.0, Arctic Fox, Managing Your Money V.3, Autocad, King's Quest IV (early 512K version), KQ II (PC ver), Turbo C, Quick BASIC V3-4, Advanced Flight Trainer, Double DOS, Bard's Tale I, Turbo BASIC, and BASICA. (Disk #56)

# jr Newsletter Software Store

The software in the jrNewsletter Software Store is the best public domain and user-supported software for the PCjr we've been able to find. All software has been tested on our PCjrs and is highly recommended. Some of the programs are equal to or better than commercial programs costing hundred of dollars. These are offered for you to try at \$5.95 per disk. Some shareware requires additional payment if you continue to use it.

## Software Listings In This Issue:

Art, Music, Communications - page 7

Databases & Educational. - 7

Educational - 9, 13 & 19

Games - 19 - 20



- \* **NEW \* RESUME SHOP.** Makes preparing a professional looking resume easy. Guides you through all the steps of the process with a series of menus and suggestions. One page limit. 256K (Reviewed 12/90) (Disk #121)
- \* **NEW \* ASIC.** Excellent BASIC compiler turns your BASIC programs into executable COM or EXE files. A shareware alternative to costly compilers. 128K (Reviewed 12/90) (Disk #122)
- \* **NEW \* PCJR MUSIC SAMPLER.** A collection of classical music "concerts" performed with great precision to produce the highest quality sound you've ever heard on your PCjr. Disk includes a separate program to activate Junior's sound generator before running game software to get highest quality sound. 128K ok (Disk #119)
- \* **NEW \* BEST OF JR NEWSLETTER IV.** For your handy reference, disk has the most informative articles, columns, and tips published in Jr Newsletter from June 1989 through May 1990. Easy to use search utilities provide quick ways to find any subject of interest. 128K ok (Disk #118)
- \* **NEW \* SAVE THE PLANET!** If you want to do your part to stop destruction of the earth's environment, this disk can help you. Let your PCjr explore this extensive database of information on the major environmental issues as well as what you can do to help. Charts, graphs, background facts, games and demonstrations all related to saving the only planet we have. Need 512K. (Reviewed 1/91) (Disk #120)

Please circle the diskette #'s of  
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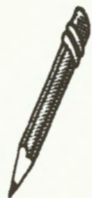
- 1 PC WRITE V3.02 (3 disks-\$12)  
2 PC CALC PLUS. 512K (2 disks-\$10)  
3 PRINTMASTER LIBRARY. (2 disks-\$10)

## # TITLE

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2a PC-WRITE V2.7 (256K), Disk 1  
2b PC-WRITE V2.7 (256K), Disk 2  
3 PC-FILE III. 128K  
4 PC-FILE III. 256K  
5 PC-CALC. 128K  
6 PC-CALC. 320K  
8 GAMES I  
9 DUNGEONS & WARS  
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12 REFLEX POINT  
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26 BATCH FILE UTILITIES  
27 MINICALC  
28 SUPER UTILITIES

- 29 MORE SUPER UTILITIES  
30 ARCADE GAMES  
31 BOARD GAMES  
32 PLAY AND LEARN  
33 FAMILY HISTORY (128K), single  
33A FAMILY HISTORY (256K), need both  
34 GAMES II  
35 NEW KEY  
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40 DOS 2.1 FIX  
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42 MATH FUN!  
43 BRAIN BOOSTER  
44 PC-CHESS  
45 ZAXXON/GALAXY TREK  
46 PHRASE CRAZE  
47 GOLF/SAILING  
48 EARLY LEARNING  
49 DOSAMATIC  
50 IMAGEPRINT V3  
51 PRINT HANDLER  
52 JR POWER PACK  
53 CASTAWAY/S. AMERICA TREK  
54 THE BEST OF JR NEWSLETTER I  
55 SUPER BOARD GAMES  
56 PCjr PATCHES V.5.0  
57 HOME BUDGET MANAGEMENT, 128K  
57A HOME BUDGET MANAGEMENT, 256K  
58 HOME INVENTORY  
59 CHECK PROCESSOR  
60 PC-JR COMPATIBILITY DISK, V3.5  
61 BOYAN  
62 JR MUSIC MACHINE

- 63 GAMES FOR EARLY LEARNERS  
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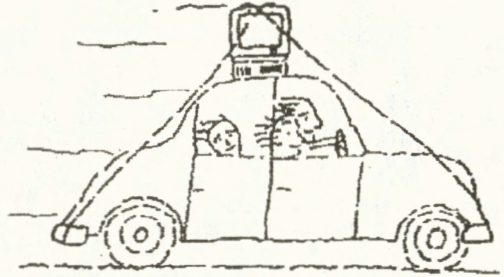
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