

jr Newsletter

January, 1990

How To Make PCjr Software Patches

EDITOR'S NOTE: So many readers have asked about patching software in order to make it operate on their PCjrs that our Questions and Answers Man -- Rene Waldron -- wrote this helpful guide.

The question usually is: "How do I patch a program once I have the patch disk (meaning JR PATCHES, Disk #56 in the Software Store)?" Or, "How do you get DEBUG to load the program X to apply a patch?"

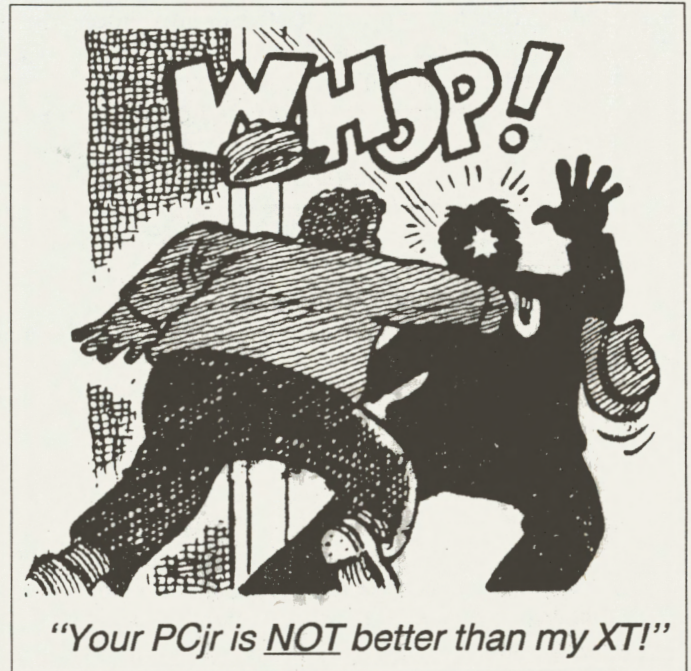
First of all, you should know that patches are generally of two kinds.

(1) The kind which ADDS or REPLACES a file which corrects or changes your configuration or input like a Terminate-and-Stay-Resident (TSR) program.

(2) The kind which actually CHANGES a part of the offending program or one of its files to make it work on the jr. This usually makes the program conform to the "standard" IBM protocol or gets rid of cute short-cuts which programmers are so fond of using.

The TSR type is the simplest for the user to work with. It generally only requires that the patch program be run before running the offending program. This kind of patch is not what gives the beginner problems.

The second type of patch can be implemented in a number of ways. In these cases, ALL the related files of the



patch should be copied to an otherwise empty diskette, making a "work" disk. Include a copy of DEBUG.COM from your DOS disk if the documentation even mentions it. Be sure that any files with .BAT extensions for this patch are also on this "work" disk. The MOST important rule is: if possible, do NOT work with the original file(s), do your patching to COPIES!

BEFORE starting the patch procedure, read ALL of the documentation relating to the patch, even the .BAT files! This will often help to give you some idea of what will happen when the patch is activated.

Now, if it is possible (and with some copy-protected types it isn't) put a copy of the file to be patched on the "work" disk. The documentation will tell you how to do this.

If there is a PATCH.BAT and it requires a xxx.TXT, xxx,SCR (or some such thing) to be on the same disk, you should already have it there, so just type PATCH <Enter> and the .BAT file does all the work! You should see the .BAT file in action on your screen while it does its thing. If you get an error you will see that, too. Usually the .BAT is looking for a file which was not copied to the disk, so be sure that any files needed during the .BAT operation are available on this "work" diskette. If the .BAT run is successful, it will be obvious and you can now copy the patched file back to the program disk and run the program.

If you are instructed to load DEBUG and a file for the patch in order to make the change(s) yourself, here's the

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PCjr Lives!

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What is the difference between a "program" disk and a "data" disk? What, in fact, is a system or "DOS" disk? To understand the mysterious differences, try this. Boot your PCjr with no disk in the drive. Boot? Booting simply means turning it on - a "cold" boot. A "warm boot" is when you clear the machine with the Ctrl-Alt-Del keys and we'll get to that later. What happens when you cold boot with no disk in the drive?

Not finding a disk, the machine "defaults" to BASIC. Why? All IBM brand PC's do this since BASIC programming language is "hard-wired" in a chip on the machine's motherboard. If you have IBM Cartridge BASIC plugged in, you'll see "Version J1.00" on the screen, otherwise it will be "Version C1.20." If the machine can't find a disk, it defaults to BASIC.

What can you do now? A lot, actually. You can program in BASIC and run programs, but you won't be able to save them to disk. This is because the Disk Operating "System" hasn't been loaded. That's what "DOS" stands for. The machine cannot communicate with the disk unless certain programs are loaded into memory when the machine is booted, and those programs must be loaded from a system disk. Why isn't the operating system an integral part of the machine's hardware so that it could be turned on with no disk in the drive? It certainly could have been designed that way, but then it would be difficult to "upgrade" the operating system in the future. You would have to change chips on the motherboard to upgrade. It would also be harder to fix the "bugs" that eventually crop up.

Now take a brand new disk that you know has not been formatted, put it in the machine and cold boot it again. What happens? Right back to BASIC. True, there was a disk in the drive, but it is totally blank, so as far as the machine is concerned, it's not there at all.

Now take a non-system disk that you have been using to store files such as letters and you're sure was originally formatted by the "format" command. If you're not certain, boot the machine with your regular DOS disk and do a "dir" on it. If you don't see the file "COMMAND.COM" listed, it's not a system disk. Boot the machine with it.

Now the machine says "Non-System disk or disk error. Replace and strike any key when ready." Replace with what? A system disk, of course.

The machine is saying this: "Look, dummy, you booted me with a formatted disk in the drive so I figure that you want to use disks in this session. But IT DOESN'T HAVE MY SYSTEM FILES ON IT! How can I work with disks without having my system files loaded? Sheesh..."

Now we'll create a "data" disk and then a "system" disk.

Step 1. Put your DOS disk in the drive and type "format B:" (No quotes, of course, they're just for this article). The drive will run a bit and then tell you to insert a disk for drive B. If you only have one disk drive the machine will alternately recognize your single disk drive as both drive A: and B:. This gives the advantage of two drives with one, a nice feature IBM included in the original PC. It does call for disk "swapping," but at least you can do it. Anyway, insert a blank disk for drive B: and hit a key. After a bit, you will have a formatted disk.

This disk will have 368,640 "Bytes" of free space on it for your files. Why 368,640? A 5 1/4" floppy disk is often called a "360K" disk, meaning that it holds 360,000 bytes of data. But a "K" in computers is NOT 1,000, as it is everywhere else. The reason for this harks back to the earliest ENIAC computers in the postwar period, which had some sort of crude wire setup that contained 1,024 memory locations per memory "bank," which is close to 1,000, Sooo...360K is really 360 times 1,024, which equals 368,640. Get it?

(A byte, by the way, is roughly equivalent to one character of information, such as a letter or number.) This data disk will NOT boot your jr, it will only store data--i.e., it's a sort of "dumb" disk. Do a little "dir" command on the disk and you'll get a "File not found," mainly because there are no files on it. To actually see the amount of free space, you'll have to use the "CHKDSK" program on your DOS disk. To do that, put your DOS disk in drive A; and type "chkdsk B:". After you insert your "dumb disk" in the drive,

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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

Q. Am I right in assuming that the SCSI boards and drives are the same as the SASI boards discussed on various BBSs? Is this the board in the messages of and about the Turning Point Logic Corp? Can you add any information? Do you know where I might be able to purchase the prototype board. I'd like to try my hand at this project, but would need help. J. Searls, (address misplaced).

A. You are absolutely right, the SASI was the original board and SASITALK the software for that board. SCSI is a clone of SASI. One of the important PCjr. BBSs of the Boston Computer Society used the system for years with a 20 Meg hard drive, then the system moved to a new owner. Try the Bionic Dog, BBS in Newton, MA (617) 964-8069 for more information.

Q. I have a Racore second drive with 640k and DMA. Now I have the SCSIJRF20 20 Meg hard drive system which I'm having a hard time setting up so the jr will recognize my Baby Blue Printer. Had no problem prior to adding the hard drive. Do you think I should be using the Parallel Attachment? Here's my config.sys;

```
country=001 (For DOS 3.2)
```

```
device=jrvidma2.sys
```

```
device=scsjrfd.sys
```

If I can't get the jr to recognize a \$500.00 printer I may not want to upgrade further but I won't give up, either! N. Martinez, Kenilworth, NJ

A. Let's take this a step at a time.

(1) Your jr should recognize any printer, no matter the cost. If they are not connected correctly though, or the computer is not configured to communicate properly with it, you will have problems.

(2) Have you tried SWAPCOM or its equivalent to switch the (serial) COM1 port to COM2 to make the printer work? COM2 is really the best way to operate the jr, anyway. We switch the internal COM addresses on boot-up automatically and ALWAYS use COM2 for serial devices!

(3) In any case you should be using a Parallel Printer Attachment. If your printer has both serial and parallel inputs, immediately switch over to a parallel system. (See why below.)

(3) Although SCSI is not a serial device, and communicates using its own dedicated port, the combination of most configuration software with SCSI interface boards checks (and perhaps interferes?) with other connected input/output devices during operation. (Beginning to see the light?)

(4) You do NOT need country=001 in your config.sys file because it is the default.

(5) You will not need whatever serial port (mode= etc.) settings you now have in your autoexec.bat (or whatever) file. LPT1 and PRN will be the default printer outputs, which will be proper in this case. You may have to re-adjust some applications software which you have set up for serial print output.

(6) C: will be the hard drive. Put a copy of command.com on the hard disk then set up the "comspec=" command for drive C: according to the DOS version in use. You don't really need to set up a RAMdisk just for this, and the command.com reload speed should be satisfactory from the hard disk.

For the rest of our readers with a SCSI hard disk, below is a general-purpose, fast-booting, fast-operating, relatively trouble-free config.sys file to try with DOS 2.1 or higher. It takes care of all the problems described above -- and then some! The needed files are all obtainable from the Software Store.

```
device=jrconfig.nrd -s1 -t3 -b1 -d2 -j -v80 -x -c
```

```
device=scsjrfd.sys
```

```
device=ramdrv.com (optional, variable size ramdisk)
```

```
buffers=20
```

```
files=20
```

```
break=on
```

Now, for those of you who boot from the A: drive and have a hard disk, here's a suggested next step. In the

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Questions and Answers

(Continued from page 3)

autoexec.bat file on the A: disk have something like this:
cls
c:continue <space> then <Fn-6> Do not press <Enter>

On the C: drive, in the root directory, make a file called continue.bat;

```
c: (be sure this is first)
echo off
cls
comspec=c:\command.com
(put comspec correction here for DOS 2.1)
mouse/2 (or whatever wakes up the rodent)
Date
Time
ver (optional)
prompt $p $ <Fn-6> (prompt is optional, but kinda nice)
```

Q. My jr seems to have soldered in chips. Will the 8088 also be soldered in? Would a Nec V-20 chip be necessary with the 286 Mesa Board? S. Coulter, Houston, TX

A. To see if the 8088 chip is soldered or socketed, you should lift the disk drive up and look for the chip. It is located under the drive, on the right side of the motherboard about one third of the way towards the rear. It is very clearly marked as an Intel 8088. Look carefully for the presence of a socket; it is a low-profile (thin) black socket and a quick glance makes it look as if the chip is soldered to the board.

A V-20 chip is not necessary if the 286 chip and board are installed. Remember, the 80286 will take over the work of the 8088 or the V-20 so it shouldn't make any difference which one you unplug to install the Mesa board. The Mesa Board works with just about all memory expansion systems, but be sure to ask the supplier if it has been tested with the specific system you have, or if it can be returned if you have a system which has not been tested yet. They should be pleased to do this so they can add your configuration or system to the information about compatibles for the Mesa Board.

Help Spread The PCjr Network

Please help us to serve as many PCjr users as possible by sending us the names and addresses of any PCjr users you know. We will be happy to send them a free copy of jr Newsletter so they can get to know us. And you'll have the satisfaction of knowing you've helped a friend. Send names and addresses to: jr Newsletter, Box 163, Southbury, CT 06488.

If You're in a Hurry, Try These

By Jack Cook

Here are just a few DOS shortcuts that may make things easier for you.

COPY *.* A: DOS manuals say this is how to copy all files in the current directory to a floppy disk in Drive A. **COPY A:** does the same thing as **COPY *.* A:** (except in DOS 2.0 or earlier).

DEL. deletes all files in the current directory.

COPY C:WP A: Use this if you're not logged onto directory WP and want to copy all of its files to A.

DEL WP deletes all files in directory WP when you are not logged onto directory WP. Use with care!

DEL C: ** deletes all the files in your root directory. Be very careful with this one! Your **COMMAND.COM, **CONFIG. SYS** and many of your goodies are in the root directory of Drive C.

DIR.EXE lists all files with an .EXE extension.

Dir * Displays all the files without a file extension. Since most files have, or should have, extensions, and most directories and subdirectories don't although they can, the **DIR *** command is a good way to list only the subdirectories in a given directory.

DIR S* displays all the files that begin with the letter s.

CD.. moves up one level from your present location. The double dot (..) is shorthand for the name of the parent directory.

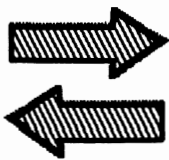
CD..\.. moves up two levels from your present location.

CD..\LETTERS moves up one level and then down one level to a directory named LETTERS.

CD moves to the root directory from any location on the current drive.

DON'T BE SELFISH!

Share your tips and experiences
by sending them to jrNewsletter.



Reader Feedback



Retired PCjr Owner Has Big Plans for jr

I'm more than happy with my PCjr. Since purchasing it in 1984, I'm now just in the position (retirement) to explore and try to get the most out of it. I've been a software "junkie" and have lots of programs. I'm just now sitting down with them to explore and evaluate. My problem is that I still feel very illiterate and slow in learning Database programs and publishing. I feel the jrNewsletter is the only teacher I have and also feel like an abandoned child. I feel upgrading to a more "acceptable" computer (I'm thinking Compaq) is probably wise--but, I know in my heart that the PCjr is a gem. It'll be hard clearing the moths out of the pocketbook to enhance "jr." But the results, more speed and memory and another disk drive will make me feel I've just had another son! So much joy! Now to find a software program that can hold a novel the size of "War and Peace."!

Nancy Silk, Wellsville, UT

TV Adapters, and a Tip for Saving Your Newsletters

1. I am not sure the information in your response to the question about TTL monitors is correct (page 10). The question asks about nine pin monitors while the "T" port has only a five pin output, hence no A8 to connect. I believe the video output on A3 is a composite signal. Could this be decomposed to a five pin TTL system? Are any such cables available?

2. There is an error in John King's hex arithmetic. In the answers on Page 37 he gives the sum of B + E as 1A instead of the correct 19hex.

3. A tip for your newsletter savers. Instead of trying to punch the copies for ringbinders, you may wish to try plastic magazine holders for ringbinders. These are item 02802, manufactured by W. T. Rogers, Madison, WI 53711. I found these to be perfect for the task and they were available inexpensively from my local stationery store.

Larry F. Smith, Santa Barbara, CA.

EDITOR'S NOTE: The nine pin to five pin conversion is possible because some of the pins are unused. But this is

really academic because the easiest solution to the problem is to purchase a PCjr tv adapter, which plugs directly into your PCjr and a tv set. This adapter makes all the necessary conversions and can even be used to record on a VCR. Thank you for the arithmetic correction. We apologize for the error. And thanks especially for the tip on using plastic magazine holders instead of trying to punch three holes in your PCjrs. We looked into the possibility of having them punched as they were printed, but our printer can't handle that efficiently.

Some RAM Disk Questions Answered

Thanks for your prompt shipment of the disks that I ordered. You fellows are really on the ball. A few questions and comments:

1. Disk #26: It says "Type Go and press enter." Ain't no "Go" on the disk.

2. Disk #75: Ram Disk Master. There is a file jrconfig.788, which is an article by Carl Haub to which no reference is made in any of the instructions or doc files. I finally deciphered it by copying list.com on to the disk and then reading the file. Wouldn't it help to include this on the disk with some notations?

Carl Haub's article talks about using EDLIN to type out the data needed for Config.sys. If I use EDLIN, I get a message NOT RECOGNIZED BY CONFIG.SYS. He also mentions device=ansi.sys What is ansi.sys, and what does it do?

I have a 640K jr (Legacy Expansion unit) with two 5 1/4 inch drives and the IBM color display. My config.sys reads as follows:

```
DEVICE=JRCONFIG.DSK -C -T3 -K - V32 -278
DEVICE=RAM.SYS
FILES=20
BUFFERS=20
```

My autoexec.bat reads as follows:

```
SET COMSPEC=C:\COMMAND.COM
COMSPEC D:\COMMAND.COM C:
COPY COMMAND COM C:
SET RAM 250
CLS
```

I want to run PC-Calc+ (A spread sheet program of

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Reader Feedback

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334K) in the ram disk to make it run faster. I usually save my results to Disk B: What instructions do I give to jr to accomplish this? I get confused when I read the instructions. If this is disk C or D and what size I need for the ram disk.

Thanks for your help

Fred Ernst, Destin, FL

EDITOR'S NOTE: You're right, Disk #26 is unlike most of the others in our Software Store, it does not start up by typing the word "GO." Instead, type READ ME. We have changed the instructions on the label in response to your letter.

As for Disk #75, RAM Disk Master, we included a file listed in the directory as JRCONFIG.788 so that users could read it and find out more about using JRCONFIG to set up their PCjrs. The file contains Carl Haub's article, which was printed in the July 1988 issue of jr Newsletter. We thought that most people would check all files on a disk to see what information they might contain, but Fred, you've let us know that this is not necessarily true. So we've included a mention of this file in the opening instructions.

Your problems with EDLIN, the primitive word processor included in DOS, are not clear from the information in your letter. You certainly can make a CONFIG.SYS file using EDLIN, but it's easier to use the COPY CON method, also mentioned in Carl's article. Or use any word processor and save the file in ASCII text format.

The CONFIG.SYS and AUTOEXEC.BAT files you list in your letter will set up two separate RAM disks, which is probably not what you want. When you use JRCONFIG.DSK without a -s option, as you have done, JRCONFIG sets up a 91K RAM disk in low memory. The purpose of this is to fill up the lower (and slower) portion of your PCjr's memory, forcing any software you use to operate in the higher, faster memory. This is also accomplished when you set up a larger RAM disk using the -s option with JRCONFIG, which is what you should do if you want to load PC-CALC + into it. To do this, add -s333 to set up a RAM disk of 333K, or any other size you want. You will then have a RAM disk that will be drive C:. Remember, though, that a RAM drive of 333K uses that much of your memory and you have to leave enough to run the software you want to use. PC CALC + requires 280K of free memory, and more is needed for large spreadsheets, so you will be close to the limit. To determine how much free memory you have (that is, memory not being used by DOS or memory resident software), boot up your system and then type CHKDSK.

Your AUTOEXEC.BAT file shows that you have used RAM.SYS to set up another RAM drive of 250K. So what

your current CONFIG.SYS and AUTOEXEC.BAT files are doing is setting up a 91K RAM drive with JRCONFIG as Drive C: and a 250K RAM drive with RAM.SYS as drive D:. You would be better off with just one RAM drive as we've suggested. Be sure to remove the line SET RAM 250 from your AUTOEXEC.BAT file so you won't end up with two RAM drives.

Config.sys Article Helps Reader Run Software

I have owned a jr for about three years, have upgraded to 640K, use a Star NX-10 printer and a Sportster 2400 modem from US Robotics. Being retired, I find a great deal of pleasure in using my jr for preparing monthly financial reports for a couple of organizations in which my wife serves as treasurer as well as "tinkering" with graphics and Mean 18 Golf.

The article concerning Config.sys files for IBM sidecars on page 15 of the August issue was very informative to me and in fact allowed me to use a copy of Accolade's Minigolf that I had purchased a couple of years ago. That alone was worth the price of a year's subscription.

There are two other PCjrs in our family - one is a 128K and the second has been upgraded to 640K like mine.

Please keep up the good work and help us to realize what can be done with our PCjrs. I am particularly interested in uses of the graphics capabilities and acquiring programs that will provide as many variations of fonts as possible.

Wayne Barney, Peoria, IL

PCjr User With 3.5 Inch Drive Needs to Unprotect Writing Assistant 2.0

I recently added a PC Enterprises, Drive II, 3 1/2" drive to my PCjr which has been expanded to 640K utilizing the Tecmar Captain and Cadet boards. In addition, I have added a jr87 board for using an 8087 co-processor with Generic CADD. A friend of mine has expanded his PCjr with a PC Enterprises, Drive III, 5 1/4" and 3 1/2" drives, and 512K of memory with IBM boards. We have discovered that Writing Assistant, Version 2.0 will run on the Drive III system-3 1/2" drive but not on the Drive II system-3 1/2" drive. Swapping all of the drives, controller cards, and controller adapter cards between systems does not solve the problem. The program locks up at the point that the check for the copy protection file is made, even though the original 3 1/2" disk is used. The program runs fine off the original 5 1/4" drive. PC Enterprises says that they can't help

me since they don't have Version 2.0 with which to work. Every other program I have on 3 1/2" disks runs just fine. Any ideas?

One possible solution might be a copy protection patch for Version 2.0 that is similar to the patch available for Versions 1.X from the jr Newsletter Software Store. Is such a patch available?

Thanks for your assistance and for applying the remaining portion of my Junior Report subscription towards a jr Newsletter subscription.

Bruce Dietzman, Arlington, Texas

EDITOR'S NOTE: We don't have a patch for Writing Assistant 2.0, but you might contact Clyde Dodge, whose letter offering unprotection programs also appears in this issue. This route seems like the best solution to your problem.

Unprotection Disks Available From PCjr User

You are already aware of the fact that I have a disk of patches and programs to overcome the copy protection schemes for many popular programs. In particular, there is one for IBM's Assistant series, including Writing Assistant as well as Reporting Assistant and Graphing Assistant. The program to do this was printed in the Junior Report in the June/July issue of 1988. Then in early 1989 you had an article in the jr Newsletter referring to the fact that I had this disk available. I received a number of requests from all over the country asking for a copy of this disk. Since the program requires that the user employ DEBUG to make changes in the Assistant series programs, a few people were reluctant or unable to make the change, and asked for a copy of my changed disk.

As a matter of fact, there are now two disks! All of the programs on the original disk are included on the new pair of disks, but the names are not exactly the same on the new disks as the old one. If any of your readers is interested, they can obtain a copy of either or both from me at a cost of \$4 each, mailing costs included.

Clyde A. Dodge

1075-258 Space Parkway, Mountain View, CA 94043

Wrong Chips Replaced in Racore Unit: Now Microsoft Word Runs Fine

After much pain, suffering, and pages of tables keeping track of all the different configurations I've tried, I can proudly announce that Microsoft Word versions 4.0 and 5.0 both run just fine on the PCjr. A great deal of the credit to finally discovering that my memory expansion unit had the wrong type of memory chips installed goes to the fol-

lowing people: John Debay, John King, Mike McMillan, Racore Corporation (Shawn), Rene Waldron.

A hearty thank you for the time spent on the phone suggesting different configurations, for the bootup and memory management disks for the technical knowledge that you shared, and for the frustration that you let me voice.

The saga began when I expanded my 128K IBM PCjr with a NEC V20 processor chip and a used 512 Racore drive II (without DMA), and bought a copy of Microsoft Word version 4.0. What I did not know was that the shop that originally sold and installed the entire system installed 64K DRAM chips instead of 256K DRAM chips. The POST ran with no errors. Apparently the previous owner had never run an application which tried to use that last row of memory DRAMS.

Since, I have learned that there are two types of memory boards which may be installed into the Racore Drive II chassis. One has six rows of 64K DRAMS. This expansion memory will bring a PCjr up to 512K, the design maximum for this type of memory board.

A second type of memory board has two rows of 246K DRAMS. The DRAMS for the 128K to 384K range are soldered into the memory board. However, the DRAMS for the 384K to 640K range must be installed into existing IC sock-

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SPECIALIZING IN ACCESSORIES FOR

PCjr ^{IBM}

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Reader Feedback

(Continued from page 7)

ets This expansion memory will bring a PCjr up to 640K, the design maximum for this type of memory board.

As soon as I installed the right memory chips, everything worked just great. I use the following Config.sys, and Autoexec.bat files for all bootups:

Config.sys

```
device=jnconfig.dsk -t3 -f6 -d2 -m -e3 -w79
files=20
buffets=20
device=mouse.sys
```

Autoexec.bat

```
echo off
prompt $p$g
powdclk2.exe
set tmp=c:
set comspec=c:\command.com
comspec c:\command.com
copy command.com c:
copy chkdisk.com c:
copy mode.com c:
cls
```

Microsoft Word versions 4.0 and 5.0 are both excellent, first class desk top publishing programs. If you have need for an easy to use, virtually limitless Word Processing package, I enthusiastically recommend either version. One "word" of caution though (pun intended) - the new spell checker in version 5.0 requires frequent diskette changes. If you don't have a hard disk, I'd recommend sticking with version 4.0.

David Marshall, Idaho Falls, ID

Oil Applied to Drive Bearing Brings Disk Drive Back to Life

This is a brief note on how PCjunior owners may be able to save themselves the cost Of a new floppy disk drive.

One day, the default drive on my system began making what I can only describe as a flicking noise as it spun. The noise was distinctly different from the typical head search noise that Juniors are famous for making. However, a close inspection of the drive mechanism disclosed nothing obvious as the cause of the noise.

The noise gradually increased in volume over a period of months with little more than an occasional boot failure to remind me that there was still a problem. Finally, the system refused to boot at all and it was clear that the reason

was because the drive motor was not operating. Attempts to turn the drive shaft spindle with my fingers was just barely possible and indicated that the failure mechanism was insufficient bearing lubrication.

I applied a tiny drop of light oil to the sintered bronze bearing at the spindle end of the shaft with an insulin syringe (1 cm monojet). However, it had no beneficial effect and pointed to the upper bearing as the real problem. That bearing housing was covered with a piece of black foil tape that required a razor blade to remove. An inspection pf the upper bearing revealed a deposit of something that had the distinct red color of rust, but may have been a special lubricant that had dried out. I repeatedly applied small amounts of oil, briefly ran the motor, and blotted the excess oil to ultimately wick all of the red material out of the bearing. This somewhat lengthy process restored the drive back to its original condition and I similarly lubricated the second drive unit as a preventative measure. The foil tape bearing protector could not be reused. but a foil disk write-protect, cut in half, made an excellent substitute.

If anyone has had a similar drive failure it may be due to nothing more than insufficient lubrication. They may be able to restore their drive unit by duplicating what I did to mine. Care should be taken to keep any oil off the drive belt and spindle.

Saverio Gaudiano, Seabrook, TX

Tip on Using Thick Diskettes

Here is a tip in case it should interest readers. If software diskettes you receive are too thick to fit well in your drive so that you get error messages (and ruined disks if you don't use write-protect tabs) and have to reboot, you can take a little knife, open the snap-like things at the top of the disk case, carefully remove the circular disk, put it in an emptied case that fits your drive, seal the top with scotch tape, and proceed to diskcopy or whatever as usual.

I have done this many times. It takes ten minutes or less and is easier than re-ordering the software, especially if you keep an old, emptied case on hand for the purpose.

Dorothy Folmar, Goshen, AL

Is there a Qfreshjr?

I have been computing with my jr for five years now. Although I use much more powerful computers at work, I find that my 640K jr is still a nice little machine.

However, I know of two utilities that are extremely useful for IBM machines that don't work on jr. I'm sure that a programmer would have little trouble rewriting them for the jr.

The first utility, QFRESH.COM appeared in the July, 1988 issue of PC Magazine on page 331. This software allows you to slow the refresh rate of memory chips, thus accelerating your computing. It works on every IBM-compatible I've tried it on. Please -- somebody rewrite this for jr!

The second utility, QUICKEYS.COM allows you to speed your cursor from about 9 keystrokes per second to rates so high you can't control it. I believe it also appeared in PC Magazine but can't find it anywhere. The jr's cursor crawls across the screen - this is badly needed.

Little utilities like these extend the lives of all our jrs. I hope someone can help us all out within the next few months

Terry Rich, Dickerson, MD

EDITOR'S NOTE: There is a program called HOTKEY.COM on Disk#52 Jr Power Pack. It will speed up your cursor. We don't know of anything that does what QFRESH.COM does. Maybe another reader has some info to share.

Quilt Patterns and a Printshop Problem

I have two questions.

1. Does anyone know of a good program for drafting quilt patterns on the PCjr? I have seen adverts for this specific software. I am interested in the designing of the patterns themselves.
2. I enjoy Printshop, but I do wish I could retrieve a completed item from my data disk (a calendar for instance) and make changes to it. Does anyone know of a way around this problem?

Gwen McFarlane, Alberta, CAN

EDITOR'S NOTE: Perhaps one of our readers who uses Printshop will answer this in a future issue.

Falcon Compatibility Info Needed, We're Waiting for 1.44 Meg Drive

First off, I would like to say that I am very pleased with the information in your newsletter. Upon reading your newsletter, I see Falcon by Spectrum Holobyte is on your compatibility list, I can't seem to get it running on my jr. which is 512K with 2 IBM sidecars and 1 Microsoft booster with my mouse, I tried every config variation that IBM suggest in their literature for the sidecars.

(Continued on page 20)

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The NEW Print Shop Is Full of Features

by Cynthia L. Buckner

When I contacted Broderbund the first time, to ask about upgrading to the "New Print Shop", they told me it would not run on the PCjr. Of course, I asked why and their answer was, not enough memory. I ordered it.

Yes, it does run on the PCjr, with at least 512k memory and DOS 2.1 or higher. A hard disk and 640k is required for color printing, though. I've found it fantastic. It's easy to use and the quality of what you can produce has improved immensely.

There's an exciting assortment of new features. Greeting cards may now have a top fold or side fold. Select a smaller size for a place card or gift tag. Print a sign on one page or up to as large as 9 ft. by 6 ft. Use one of the full panel graphics to design a beautiful detailed certificate. The new graphics display a more professional look. But a conversion utility is included, making it possible to use previous version graphics, fonts and borders. For those of us unable to print in color, the multicolor graphics provided with the program, may also be converted.

At this point, I should tell you that a year ago I purchased my PCjr with: one floppy drive, the original monitor and keyboard with cord, 640k memory, cartridge basic, IBM compact printer and parallel printer attachment. From PC Enterprises, I added a 2nd 5 1/4 (360k) drive, combo cartridge, jr ROM clock, v20 chip, numeric keypad and mouse systems mouse. The numeric keypad, as you will see below, has proved especially useful. I also bought a Panasonic KXP1080i dot matrix printer, from a local computer store.

With the "New Print Shop", you are no longer limited to using only one font on a page when writing your message. And it's possible to use over a dozen different pictures on a single project, such as a poster or card. Print a banner vertical or horizontal. Type text in one or two lines, each with a different style of lettering, if you desire. Add one of the trims to the top and bottom. Choose a different graphic for each end. Make a daily to yearly calendar. Print it out regular size or extra large. A graphic editor is included. The quick print feature allows you to choose text or graphics that may be cut and pasted into an independent project.

I especially liked the name file option. If you design a card or poster, that you want to send to a group of people, a list of 150 names, of your choice, may be merged. Say that you want to send out party invitations. Each card will be printed out identically, except they will be personalized, with one of the names. (Numeric keypad is needed.)

The most dramatic difference in the "New Print Shop" is the ability to customize your project. With the 12 plus options and your imagination, you can do almost anything. They include: move, clone, stretch/shrink, enlarge/reduce

(need numeric keypad), delete, flip (vertical and/or horizontal), align, pick color, change text to graphic (great feature), undo, restore, insert graphic and graphic style (special effects similar to what can be done with text, like 3-D, outline, etc.). Move pictures (and text) around the page. Copy your selected graphic to another position. Changing the shape and size of graphics (or text) produces interesting layouts. Horizontal and/or vertical alignment is possible. If you change text to graphics, they can also be modified in the same manner. (But be careful, as it cannot be undone.) A sign could be used to produce your own wrapping paper. T-Shirt iron-on transfers may be created with special ribbons and print backwards option. With customize and graphic editor, put a border around anything. Maybe you will design your own business card, with a reduced greeting card. By experimenting, new uses for this program are limited to whatever ideas you can come up with.

It is no longer necessary to wait until you finish your project to see how it looks. Preview as you go and change your mind or your choices, anytime you want. An EGA

*You are no longer limited to using
only one font on each page.*

monitor is needed to preview in color. A joystick won't work, but a Microsoft mouse or compatible, is nice to use. Some commands may only be issued through the keyboard. Color ribbons are available for my printer and I have come up with some attractive items by pausing printing, changing the ribbon and/or running the paper through a second time.

You also have several print qualities, which create special effects. To my knowledge, the "New Print Shops" has more graphics, borders and fonts available than any other program of it's kind. With the new customize menu added, it will be difficult for others, such as Printmaster Plus, to compete. Coming out soon is the "New Print Shop Companion". I can hardly wait to see what else we will be able to do. Since my first call to Broderbund, they've been hearing from other PCjr supporters. It's important for all of us to let them know we are out here. You'll have a lot of fun with the new version, but I suggest you purchase it from a discount software store to save on the price, if you do not own the original. (An update may be obtained for \$20.)

In closing, it is this user's opinion that the new Sampler, Party and School & Business graphics are well worth buying. The quality is excellent, but I'll warn you that even though each package has more disks, because of the color graphics, you may feel you are getting less than before.

A 3.5" Boot Drive for the PCjr.

By Dave Tarsan

When the 5 1/4" drive in your PCjr needs to be replaced, consider installing a 3 1/2" unit. You not only get the benefit of twice the storage capacity, but also you find that many more programs will run on the PCjr. The "trick" to the installation is in the boot up process. But before I get ahead of myself, let me tell you about some recent events at our Metro PCjr Users Group meetings. The subject at both Virginia and Maryland meetings was the options for the installation of a second disk drive. A 3 1/2" unit was demonstrated. One of the questions asked (and discussed for the next 10 minutes) was how one could install a 3 1/2" unit as the A drive. The consensus was that it could be done but no one knew for certain how to get it to work. A few days later I "borrowed" a 3 1/2" unit and popped the lid on the junior. It looked the unit could fit and the connections seemed to be in the right place so I did a trial installation. The 5 1/4" A drive in the PCjr is held by four screws to a plastic tray. This tray has the fan attached to it and snaps into two holes located near the rear of the drive. The connections for the power cable and the disk cable are matched. They will only connect one way and you cannot hook them up backwards. So far so good.

The 3 1/2" disk drive comes with a set of face plates in brown or black. You choose the plate and snap it onto the drive and check to see that the drive is terminated to go into an XT unit (an 8088 unit like the PC-XT). The drive slides into the tray and matches to the four holes which held the original 5 1/4 unit. In less than fifteen minutes I installed the drive and powered up the PCjr. It came up in BASIC because I did not (yet) have the boot disk.

I needed a friend to help finish the setup. In order to make up a boot disk I had to create a 360K 3 1/2" disk and then copy the files from my 5 1/4 disk onto the 3 1/2" disk. I used a friend's computer to create the disk using DOS 3.3 and this command: Format a:/s /4. The /s option installed the system files needed to boot the PCjr and the /4 option made the disk a 360K disk. Then I copied all of my files except for Command. Com. Next I copied Driver.sys onto the disk and then added this one statement to the Config.sys file: Device=Driver.sys /D:0. This is where I tricked the PCjr. Driver.sys is a program that tells the computer how to handle additional devices. The /D option tells Driver.sys that the unit is a 3 1/2" drive with a disk capacity of 720K and the :0 option says that the unit will be the A drive.

So here is what happens. You install the 3 1/2" disk and use the new boot disk. While the PCjr is booting, the Driver.sys command gets executed and reconfigures the A drive. It stops being a 360K unit. Instead the A drive is con-

figured as a 720K unit (/D:0).

With the 720K A drive a whole world opens up to you. One disk programs can now use the same A drive for storage of working files. Your data-comm program can use the A drive for both the programs and the downloaded files. Two disk software programs run with no disk swaps.

As you can see, a 3 1/2" drive presents some attractive options and expands the possible uses for your PCjr.

(The above article was originally published in the Metro PCjr Journal.)

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The Ultimate Utility For Serious Computer Users

By John King

EDITOR'S NOTE: When we read that John King, the president of the San Francisco PCjr Users Group, had discovered one of the handiest, most versatile and powerful utilities ever, and that he'd thoroughly tested it on his PCjr, we felt the readers of jr Newsletter should know about it as soon as possible. John's detailed and informative review of 4DOS was written in two parts. The second part will be published in next month's jr Newsletter. In case you want to try 4DOS before then, you can order it from the Software Store (Disk #102)

Utilities are programs which make computing easier or more convenient. They often improve upon a DOS command or add new features which were left out of DOS. For example, the DOS "DIR" command displays the DIRectory of a disk with the file names, sizes, dates, and times listed in one column. An old utility, "SD.COM", also displays the disk directory, but the information is presented in two columns and the files can be sorted alphabetically by name, size, date, time, or file name extension. Twice as many files can be listed per screen, and the sorting options are a big help in finding a particular file on a disk with many files.

There are other utilities which offer improvements on the COPY, DEL, TYPE, and other DOS commands. Most of these are public domain or shareware programs. We have several disks full of utilities in our group Library which you can try at minimum cost.

Over the years, I have tried hundreds of utilities, eliminated the awkward and buggy ones, and saved dozens for future use. I am a utility junky, but now I have found 4DOS, the ultimate utility.

4DOS OVERVIEW

4DOS provides earlier DOS users some commands not added until DOS 3.3, plus enhancements, plus many new, useful commands.

4DOS is such a complete utility that it replaces COMMAND.COM, the DOS command processor. With DOS 3.0 and above, you can actually erase COMMAND.COM from your boot disks if you want. You won't feel lost however because 4DOS retains all the standard DOS commands. COPY still means copy, DEL still means delete, etc.; but these commands are enhanced with new options and new commands are added. For example, the 4DOS DIR command can display information just like COMMAND.COM or in two columns and sorted like SD.COM. It's easy to set which display will be used when you type DIR, so you can customize 4DOS to suit

your needs. Of course, this also means you won't need SD.COM anymore.

4DOS is installed with the SHELL= command in your CONFIG.SYS file. The 4DOS INSTALLATION section in this article explains this in detail. Other than the message during boot up informing you that 4DOS is installed, everything will appear the same initially as with COMMAND.COM. Assuming you booted off a floppy in the A drive, you will still see the familiar A> DOS prompt.

4DOS does not insulate you from the DOS command line with menus or graphical icons, but it does make DOS easier to use as well as more powerful. One of the first things you will notice is that if you type a command incorrectly, 4DOS reminds you of the correct syntax. DEL, for delete, without any filename is incorrect, so 4DOS returns:

```
DEL [/P] [d:][path]filename...
```

If you use the /P option which is a 4DOS enhancement to DEL, you are prompted to answer Y or N as each filename is presented for deletion. This is especially useful when you have used wildcards such as *.* in the DEL command. Improvements to other commands are described in

"4DOS improves on most of the DOS commands, adds exciting new features to DOS, provides an extensive help file, and can replace many of the utilities I now use."

the ENHANCED DOS COMMANDS section which follows.

If you need more help with a command, pressing Function key 1 brings up a menu of all the commands. Move the highlighted bar to the command of interest, press Enter, and you will be able to scroll through one or more screens explaining the command.

The next feature you may notice is that you can edit and recall what you have typed on the command line. If you misspell part of a command, you can move back over it using the left and right arrow keys and insert characters or make deletions with the Ins and Del keys. To recall a previous command, press the up arrow key. Press it again, and the command before that is recalled, and so on. Command line editing and recall has been provided by memory resident utilities such as DOSEDIT and CED, but you won't need them anymore. You may also avoid some of the problems which they can cause.

4DOS adds many new commands which are described in these articles.. These allow you to use "point

and shoot" file marking with many commands, add descriptions to file names, input to batch files from the keyboard, and much more.

Most importantly, 4DOS is safe! I have not lost or damaged any files or had any crashes due to 4DOS the entire time I have been using it. Other users and reviewers report the same safe operation. This is a very well conceived and implemented piece of software.

4DOS was written by Rex C. Conn and Tom Rawson and is distributed as shareware by J. P. Software, P. O. Box 1470, E. Arlington, MA 02174, Tel. (617)646-3975. The authors request that you try the program for three weeks, and if you intend to continue using it, pay the \$50 registration fee. You will receive your personal copy of the program, a printed manual, newsletter, and technical support. As a registered owner, I can say that the manual is well done and the technical support is excellent. This review is based on version 2.21. 4DOS is now in our disk library.

ENHANCED DOS COMMANDS

DOS commands are of two types, internal and external. Internal commands are part of COMMAND.COM and are always available when you are at the DOS prompt. COPY, DEL, and DIR are internal. They are in memory and do not require any disk access. External commands are separate programs from COMMAND.COM and must be available on one of the disk drives. FORMAT.COM, DISKCOPY.COM, and CHKDSK.COM are external DOS command programs.

4DOS replaces, enhances, and adds only internal DOS commands because only COMMAND.COM is replaced. All the external commands continue to operate exactly as before. If you normally copy disks with DISKCOPY.COM or compare files with COMP.COM, you can continue to do so, 4DOS will have no effect on these external commands. Now, let's look more closely at the internal commands.

Some enhancements to the DIR command have already been mentioned, but 4DOS also allows hidden files and file attributes to be displayed. In addition, a description of up to 40 characters may be added to every file name with the new DESCRIBE command. Now instead of just "JOHN-8.LTR" as the file name for a letter to my son, it can read "JOHN-8. LTR Letter to John about my visit in Feb."

The COPY command can take multiple filenames. You can copy the files JOHN-8.LTR and MYTRIP.FEB to drive B with the command: COPY JOHN-8.LTR MYTRIP.FEB B:

You can also put two commands on the same line if you separate them with a carat: COPY *.LTR B: ^ DIR B:

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As a variation of COPY, the new MOVE command will copy a file from one disk to another and erase the file on the source disk.

COPY, MOVE, and RENAME all have the new /P option already described for DEL. If you use this, you will be prompted for a Y or N response as each filename is displayed before it is copied, moved, or renamed. Under DOS 3.0 and above, REN can also rename subdirectories.

TYPE has two new options: /L prints line numbers before each line of text, and /P pauses the display when the screen is full until you strike a key. No more watching text scroll off the top of the screen before you can read it. The new LIST command enhances TYPE further allowing you to scroll forward and backward through a file and search for words or phrases. Both TYPE and LIST take multiple filenames and wildcards. You can read all the text files on a disk with this 4DOS command: LIST *.DOC *.TXT

With DOS you must name each file separately to read it with TYPE.

There are 35 new commands in 4DOS, too many to cover completely, but we can note some of them. Three

(Continued on page 14)

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The Ultimate Utility

(Continued from page 13)

have already been mentioned: DESCRIBE, LIST, and MOVE. Two more eliminate the most frequent uses for CHKDSK.COM. FREE reports total and free space on a disk, and MEMORY reports total and free RAM. HISTORY displays the list of previous commands for use with command line editing.

ALIAS is a very powerful new command which allows one short command to represent a long command or several commands in sequence. For example, instead of typing LIST *.DOC *.TXT every time you wanted to read all the text files on a disk, you could create a new command, List-Docs or LD, using ALIAS.

```
ALIAS LD LIST *.DOC *.TXT
```

If you add this command to your AUTOEXEC.BAT file, the new command LD will be available every time you boot up. When you are through with an alias or want to change it, UNALIAS will remove it. We'll use ALIAS more next month to create the equivalent of batch files.

SETDOS is a new set up command which allows you to configure 4DOS to your preferences. You can select the size of the cursor, the default line editing mode (insert or overstrike), a default of ECHO ON or ECHO OFF, and a few other parameters.

SELECT is used with other commands such as COPY, DEL, and LIST. SELECT displays a list of files which can be marked for action by the second command. Here is the command to display all the files with the extension .DOC, so you can select the ones you want to read.

```
SELECT TYPE /P *.DOC
```

You mark files by pressing the + key. Each marked file will then be TYPEd to the screen pausing each time the screen is full.

Many of the new 4DOS commands are most useful in batch files. I have separated them from those which you are most likely to type at the DOS prompt

BATCH FILE COMMANDS

4DOS brings two batch file commands which were introduced with DOS 3.3 to all DOS users: @ and CALL. The @ symbol in front of any line in a batch file will keep it from being displayed, just as if ECHO were OFF. CALL allows one batch file to call another and return to the first and continue.

INPUT and INKEY allow a batch file to pause for keyboard input while running. They allow batch files to be much more interactive. These new commands replace utilities such as ASK.COM, GETKEY.COM, and my PICK-ONE.COM. Furthermore, INPUT and INKEY are internal commands, so they will operate faster and more conveniently than programs which must be called from a disk.

SCREEN and BEEP improve the appearance and sound of batch files. SCREEN allows you to position the cursor anywhere on the screen like the LOCATE command in BASIC. BEEP makes an audible beep of any chosen frequency and duration. Pick a pleasant tone for a polite attention getter or an unpleasant one to identify a critical error.

For complicated batch files, GOSUB and RETURN allow more structured programming. TEXT and ENDTEXT assist in displaying text without having to type ECHO or REM in front of every line. TIMER provides a stopwatch which is especially useful for optimizing batch files. Finally, CANCEL and QUIT allow much faster exits from a batch file than the standard GOTO END.

That covers twenty-two of the new commands by my count. ~~We'll use these and a few more as well next month.~~ Now lets look at how to install 4DOS, so you can try it out.

4DOS INSTALLATION

4DOS has two modes of installation, swapping and memory resident. In swapping mode, 4DOS uses only 2K more RAM than COMMAND.COM. However, swapping requires DOS 3.0 or above and is practical only for systems with hard disks or EMS memory. For PCjr floppy disk based systems, the memory resident mode is generally more useful and will be covered this month. Swapping mode will be covered next month.

To load 4DOS in memory resident mode under DOS 3.0 or higher, add this line to the end of your CONFIG.SYS file. If you have a hard disk, substitute the correct drive letter for A.

```
SHELL=A:\4DOS88.EXE /P
```

4DOS88.EXE is the actual COMMAND.COM replacement for PC and XT computers. For AT class machines, a slightly modified program, 4DOS286.EXE, is provided. The /P makes 4DOS88 permanent and tells it to run the AUTOEXEC.BAT file.

In DOS 2.1 the program loader is part of COMMAND.COM rather than incorporated in the hidden files IBMBIO.COM and IBMDOS.COM. Therefore, COMMAND.COM must be loaded first with 4DOS88.EXE as a secondary command processor. If you don't understand these details, that's OK. Just add this line to your CONFIG.SYS file.

```
SHELL=A:\COMMAND.COM /C 4DOS88 /P
```

Finally, with all versions of DOS, add this line anywhere in your AUTOEXEC.BAT file. If you have a hard disk, substitute its drive letter for A.

```
SET COMSPEC=A:\4DOS88.EXE
```

Loading 4DOS88.EXE memory resident under DOS 2.1 uses about 58K more RAM than COMMAND.COM alone. Under DOS 3.3, about 55K more RAM is used. This is the price for all the new features that 4DOS offers. How-

ever, some RAM can be recovered because you won't need to load DOSEDIT or CED or keep SD.COM, LIST.COM, and DIRMAGIC.COM on a ramdisk just to have them available. Also, with 4DOS memory resident, you will never again get the "Insert COMMAND.COM disk..." message when you exit a large program.

Next month, we'll look in more detail at the new commands introduced by 4DOS and see how we can put them to work. 4DOS is Disk #102 in the jr Newsletter Software Store.

(The above article was originally published in the San Francisco PCjr Users Group Newsletter. John King, president, can be reached at (415) 472-7035)

Caring For Your Diskettes

1. Refrain from eating, drinking or smoking when handling a diskette to keep contamination from the media surface.
2. Never allow a diskette to be placed near a permanent magnet, electric motor or transformer. Direct contact with these objects can erase recorded data.
3. Do not bend or fold a diskette. This will damage the media and the jacket, resulting in lost data.
4. Never use paper clips or rubber bands on diskettes, again damage could occur.
5. Never touch or attempt to clean the exposed media in the jacket head slot area. This can cause contamination and possible data loss.
6. Don't allow a diskette to be exposed to excessive heat (greater than 140 degrees F). Jacket distortion could result causing lost data.
7. Never place heavy objects on a diskette. Again, physical damage could result.
8. Always remove the old write-on labels before replacing with new ones. Stacked labels could cause drive problems.
9. Do not use penciled labels. When changing or updating labels, create new labels.
10. Use only a soft, felt-tip pen to write on the labels. Indentations in the jacket-media could result from ballpoint pens or pencils causing lost data.
11. The proper operating and storage environment for diskettes is 50 - 125 degrees F./8-80%RH (non-condensing). Best results are obtained when the product is stored at room temperature conditions.
12. Always store diskettes when not in use, and store up-

right in a storage box.

The Truth About Disk Erasure!

Magnetic media products are extremely reliable and offer extreme stability of the recorded data. Once recorded, the magnetic field strength of the bits will remain indefinitely, unless they are altered by an external magnetic field.

The following points are intended to cover facts about diskette erasure, what causes it and what does not.

1. Magnet fields of high intensity can erase the data on a diskette. Some magnetic fields drop off by the cube of the distance from the source. This means you have to be very close to the magnetic field to cause erasure. A spacing of only a few inches is usually all that is necessary to protect a diskette from even very strong magnetic fields.
2. Utility magnets and "refrigerator" magnets are strong enough to erase data from a diskette if direct contact is made between the magnet and the diskette.
3. A magnet as described in #2, when affixed to a file cabinet, with diskettes inside the cabinet, would not be able to cause erasure to the diskettes.
4. Diskettes do not "conduct" the magnetism applied by

(Continued on page 18)

EXPAND YOUR PCJR

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How to Make A PCjr Patch

(Continued from page 1)

routine:

First, make a paper print-out of the documentation relating to the DEBUG changes required, then COPY the file to be patched and a copy of DEBUG to a "work" disk!

Type DEBUG <Enter>. You will see a "-". This dash is the DEBUG prompt, the way the ">" is the DOS prompt. You can now Load the program or file to patch by typing L FILENAME.EXT <Enter>. Use the full file name AND extension of the file which will be patched. The disk drive will run and the dash prompt will reappear; the file is loaded. The documentation will instruct you as to the next step, usually to have DEBUG display a part of the file. These displayed numbers or instructions that you see on your screen should agree exactly with the information on the paper print-out you made. If the numbers (instructions) do not agree, type Q <Enter> (to Quit DEBUG) and start all over again!

The documentation is now carefully followed, step by step, EXACTLY as printed and the patch is applied to the COPY of the offending file. Don't forget to just strike <Enter> to make what you will think is a blank line while in DEBUG if the documentation calls for it. All of what we are describing is in the patch documentation but it may be worded somewhat differently, so read, read, read!

Once you have done a few patches of either type, you will realize that you can write your own .BAT files to apply patches in those cases where .BAT file were not included.

Here's a little .BAT file to write a tiny Assembled .COM file using DEBUG to get you started. This takes care of one of those little nuisances which crop up occasionally. Do you have any programs which leave you with a HUGE cursor or none at all? CURSE.COM is the solution. Of course you could always just type BASIC X <Enter> (when there is no such program as "X") to make BASIC load, look for X, can't find it and return to DOS, but now with a proper cursor!

Anyway, have DEBUG.COM on a diskette and copy these two files to it using COPY CON and do NOT type in anything after <Enter>. These words are there as comments for you to read only. File Number one, type:

File Number one, type:

```
COPY CON: DO.BAT <Enter> copy from the console
DEBUG < ASMB.TXT <Enter> DEBUG will use ASMB.TXT for input.
Now press Fn-6 to write this to disk.
```

File Number two, type;

```
COPY CON: ASMB.TXT <Enter> copy from the console
A 100 <Enter> assemble, start at mem loc 100
MOV CX,0607 <Enter> put top and bot lines for cursor
MOV AH,01 <Enter> call service 01 (cursor) of
INT 10 <Enter> interrupt num 10, then do a
INT 20 <Enter> normal return to DOS
<Enter> yup, nothing here, it's all over!
N CURSE.COM <Enter> we Name it
R CX <Enter> where does it start?
9 <Enter> how many bytes to write?
W <Enter> write the 9 bytes to disk
Q <Enter> quit debug
```

Now press Fn-6 to write this to disk.

OK! Now type DO <Enter> and the DO.BAT file will load DEBUG, input

CURSE.TXT which will assemble a little program named CURSE.COM, write it to disk then quit DEBUG!

Now, whenever you have one of those problem cursors, just type CURSE <Enter> and it will re-do the cursor to just the two bottom scan lines; 6 and 7. Notice, you can modify this if you'd like by MOVing different numbers into register CX at the beginning of the ASMB.TXT program. Just remember, you must use leading zeros: the first scan line is the first number (06 in this case) and the second is the next scan line of the cursor (07 here, the bottom).

The whole reason for this exercise is to show how a .BAT file uses another file (the .TXT file) to load into DEBUG to do Assembly language. You can actually just load DEBUG then manually type in each of the lines in ASMB.TXT and this will positively produce CURSE.COM. It is, as a matter of fact, how we first wrote CURSE.COM. Patches usually start Assembling at an address different than location 100 (the address we used for this demo). As we mentioned before, read ALL the patch files, then work carefully...

Can It Be True?

Yes, As Easy As, really
is. It may not be quite as
powerful a spreadsheet as
1-2-3, but for most of us
As-Easy-As is just as use-
ful and it's only \$5.95 in
the Jr Newsletter Software
Store(Disk #67)

The Duel: Test Drive II

By Michael Chandler

"The Duel: Test Drive II", a game released last summer by Accolade, is an addicting depiction of life in the fast lane. As the driver of either the awesome Ferrari F40 or the slick Porsche 959, the player has the opportunity to simulate speeds only seen at NASCAR events and unheard of on the highway. The graphics and scrolling animation are excellent, as well as the game play. This game leaves other simulations, such as "Flight Simulator", in the dust.

The game begins with a set up menu that allows you to first select your car. The sleek Ferrari F40 (the fastest ever Ferrari) accelerates at an awesome rate, while the Porsche 959 (the fastest ever Porsche) handles extremely well at speeds that can triple the speed limit. The player then selects between either a race against the clock or the ultimate: a race against the other car. All action is controlled through either joystick or keyboard, but the joystick is definitely the easier of the two to use, although at times it is too responsive.

The territory covers three types of terrain: desert (where things can get really fast), mountain (where just staying on the road is often the prime objective), and forest (with curves sharp enough to send you spinning off the road). To make things really interesting, Accolade put in LOTS of traffic (going both ways), and hordes of cops. Luckily, each car is equipped with a police detector (or "Fuzzbuster"), which gives the warning when a cop is in the vicinity. Of course, when you are driving a car that travels a quarter mile in 11 seconds, there is a strong urge to outrun the police. While it's possible to get away from a pursuing cop, it is advisable that it be on a straight stretch of road with little traffic. Traveling at 120 mph on a winding road with traffic isn't the easiest thing to do, so often it's better to slow down, get your ticket (which shows up on the left side of your dashboard, complete with the policeman's signature and your speed violation), and hit the road again.

The game gives you five "lives" in the beginning, and is divided up into sections. Each section is the distance between gas stations. When the player arrives at a gas station and stops, he is given another life, and his statistics for that particular road section are given. These statistics include the time it took to travel the section, the average speed over that distance, the number of crashes, and the number of speeding tickets. Crashes result in the deduction of one life, except for the rear-ending of a police car, which ends the game. Also, with each crash in a road section, 20 seconds is added on to the time as a penalty, which can be very costly in a race against the clock to try to get the fastest time. Therefore, the player must make a split-second decision on whether to excessively speed in treacherous areas or to just play it safe. This makes the game more real-

istic, because you have to make quick decisions out there on the real road as well.

The game has several different skill levels, ranging from "Rookie" to "Pro". The main difference between the easiest levels and the more difficult ones is the auto-shift feature. With this, one can accelerate automatically by just pushing the joystick forward or pressing down on the up arrow key. The higher levels are much more difficult, because the player has to manually shift gears (meaning a lot more moves with the joystick). The consequences of an improper shift are severe, resulting in stripped gears. This also costs the player a "life", and adds a 20 second penalty to the time. I personally have found the "Rookie" levels with the auto-shift feature to be challenging enough!

"The Duel: Test Drive II" features some of the best graphics available in any simulation. The cars look super, and the scrolling animation is smooth. The sound, although not Jr 3-voice supportive, is very realistic and adds a lot to the atmosphere of the game. Most important, though, is the fact that the game is fun. This great game becomes very addictive and is easy to play for an hour or two without get-

"The Duel offers some of the best graphics available in any simulation."

ting bored. It is quite a challenge, and does require a lot of practice, just as real driving does, but once you get used to it, the times and average speeds in the races get better and better.

"The Duel: Test Drive II" requires 512k for PCjr users and runs in 16 colors. It retails for around \$40, but you can usually find a cheaper price at some of the more popular computer software stores (Babbage's, Egghead, Electronic Boutique). Computability (1-800-558-0003) also sells the game at a significant markdown. Scenery disks are also currently available, and are recommended for anyone who really enjoys this game. "California Challenge", a scenery disk that takes the driver across the Golden state, is the first one out; it retails for \$19.95.

Trivia Fans

If you love to tease your brain with trivia, Tommy's Trivia (Disk#98 in the Software Store) enables you to play 3 different ways!

Caring for Diskettes

(Continued from page 15)

- a permanent magnet. If a stack of diskettes were contacted directly by a magnet, only the closest proximity areas could be erased, and not the entire stack.
5. Heat cannot cause erasure until about 850 degrees F. This normally won't be encountered, but high heat can damage the polyester base of the diskette media and PVC jacket causing readback problems.
 6. Static electricity discharge cannot cause diskette erasure. There is no magnetic field associated with static electricity, and extensive testing has shown no erasure. Lightning discharge in close proximity to a diskette through a pipe could generate a magnetic field strong enough to erase a diskette (*and probably destroy it as well*). Static discharge into a computer with a diskette in it could cause information to be recorded, thus static strips and mats are recommended.
 7. Radar and microwave transmissions cannot affect magnetic media unless they are directly in front of the antenna (*this would also be a burn hazard to humans*).
 8. X-rays can not erase magnetic media. Theoretically this is impossible because X-rays do not have any magnetic fields associated with them, and extensive testing has not found any erasure evident with high level exposures.
 9. Metal detectors do not have a high enough field to erase magnetic media. These devices will require posting if they evolve to higher fields that could effect magnetic media, hearing aids, pacemakers, etc.

We hope this has provided you with the proper facts about diskette life and erasure.

3M Corporation

Some Back Issues Sold Out Others Still Available

Most issues of jr Newsletter, starting with and including the June 1988 issue, are still available for your PCjr reference library.

Issues that have been sold out are August 1988, March 1989 and April 1989. All other issues since June 1988 can still be purchased. A complete listing of all issues since June 1988 and the major articles they contained was printed in the Sept-Oct 1989 issue. So check that listing for articles of special interest to you.

Each issue is \$2.95, postage paid, or, if you order 4 or more issues, they are \$2.00 each. Please add \$5 for shipments to Canada.

Send orders to: jr Newsletter, Box 163, Southbury, CT 06488.

Starting Your PCjr

(Continued from page 2)

you'll find that there are 368,640 bytes free. Now let's make a "smart" disk.

A system disk is what you need to turn on jr and have it recognize the disk drive. Formatting a system disk is exactly the same as formatting a data disk with one exception: as in "Step 1" above, type "format b:" but add /s--i.e., type "format b:/s". This process will create a system disk which differs from a "data disk" in that it contains files. Do a "dir" command and see what happens. This time, you won't get a "file not found." You WILL see one file listed, "COMMAND.COM," and the message that the disk has 321,536 bytes free. The listing tells you that COMMAND.COM is 17,792 bytes and those two numbers fall short of 368,640, don't they? Where are the missing bytes? Tune in next month.

(The above article was originally published in the Metro PCjr Journal)

Some Useful Database Tips

By Colin Tuttle

I would like to give you some tips that have helped me set up databases. Keep your fields simple. Don't put first and last names in the same field. This will cause all sorts of problems later. When you set up your field for telephone numbers, keep in mind you might have one or two records where the person would have a long distance number. Instead of defining your phone number field with 7 characters, leave room for 12(area code-phone number...also remember the customary dashes for the phone number). On your zip code field, don't forget the move to Zip plus four, and leave room for 10 numbers.

Finally, don't forget to leave room to grow. You might

add several extra fields to each record when you define it. You don't have to leave a lot of spaces for the field, one or two will be sufficient. I put a few extra spaces in the database I set up for my church, and found them to be handy to show what committee each person worked. I also use another one to show if they are to be sent a newsletter on a regular basis. This one feature allows me to mail weekly to all actives, and monthly to everyone.

With a little planning, a database can keep your life a bit more organized, and you might wonder how you lived without one for so long.

Tricks To Use When Copying

By R. Thurston Clark, Jr.

COPY - everyone knows how to copy a file, right? Wrong!

There's no more to copy than:

COPY (fn).(ext) (newfn).(ext) <cr>

or

COPY *.* B: <cr>

(Note: (fn) means filename, (ext) means the filename's extension)

The above takes care of safety copies on the same disk and "floppy swappy" using one drive. For those of you who have invested in a second 5 1/4" drive, or are thinking about a new hard drive, try these commands and see how easy they are. Also try these on your one or two drive system:

COPY (fn).(ext) + (2ndfn).(ext) (fn.ext)

Combines both files into the first file.

COPY (fn).(ext) + (2ndfn).(ext) (3rdfn).(ext)

Creates a third file from the first two.

COPY (fn).(ext) + ,,

Changes date to the current date. And

COPY CON:(fn).(ext) <cr>

Makes a file out of whatever is typed in (Ed. Ctrl-Z <cr> will exit out of this last function.)

If you do have a two drive system, I recommend an old public domain program from 1984 called "MOVE.COM". I still use version 1 by Lewis Haupt; P.O. Box 25363, Houston, TX 77265. It's great for moving a file from one drive to another. You simply say: MOVE B:/E <cr> and the file is copied from A to B, then deleted from A after you confirm it's OK to do it. This type of program has gone out of fashion since the coming of PC-XT's with "C" drives. Hard disk owners have another problem now: remembering to backup their hard drive.

Another useful program is WIPEDISK, part of the Norton Utilities. It's just the thing if you are serious about erasing the "data" from the disk versus just changing the file name in the FAT (File Allocation Table), which is all that IBM's COPY and the above program actually do.

Of more recent vintage are QUICKDOS, also called QDOS, Version 1.21 for 1987. It copies, moves, deletes, rename, finds, slices and dices. COPYWRITE - I tried 2 versions (April and September) from 1985 on my PCjr 128K machine without success; with 640K: almost, but no cigar.

DISKCOPY from good old IBM, I don't use it - wonder why? Well first I need to talk about fragmentation. Once you start modifying a file, be it with your word processor or spreadsheet program, it gets fragmented. That is, pieces of it end up in different places of your disk. If any hard disk

users are reading this, it applies to you too.

You see, DOS creates a 4K cluster, 2K on an AT, for your file. When you save a file bigger than that, DOS looks for more clusters, and they may not be next to each other, if you save, delete, and modify files a lot. Now back to DISKCOPY. It makes an exact copy of your "Source" disk, so if it's fragmented, you'll have two of them. Copy doesn't work that way if you use a newly formatted disk as the "target", it will create contiguous files on the target disk.

(Ed. note: The DOS FOR..DO command lets you create a looping process. So, if you wish to copy several files to your B disk, try this command:

For %a IN (file1 file2 file3 file4 file5) DO COPY %a
b:

It works like a charm, and can save you a lot of time.)

The Uses of MORE...

by Mike Harrison

If you have ever gone through trying to read some of the .TXT or the READ.ME files that come with some disks that you get, you will appreciate this little batch file. It came from a book I found at the library titled "Things the Manual Never Told You" and was compiled by the Boston Computer Society.

There is a DOS command that is nice to use when reading files, rather than having them scroll across your screen when you use the TYPE command. The command name is MORE.COM and the syntax of the command is MORE < FILENAME. That's simple enough and gives you a screen of data with a nice little note at the bottom of the page telling you "--more--." Press any key and get another screen. One caution, if you turn the "<" to a ">," you lose all the data in the file!! Not good!!

The Boston Computer Society recommends safeguarding the data with an easy set of commands. First you can rename the MORE command (don't worry, it will still work the same) to LOOK.COM with this string: REN MORE.COM LOOK.COM

Now, while still in DOS, type:

COPY CON MORE.BAT	(then press ENTER)
LOOK < %1	(press ENTER again)
Ctrl Z (or F6)	(press ENTER again)

You should get the message "1 file copied."

That's it, just type MORE FILENAME and watch how easy it is to read those .DOC, .TXT, READ.ME and all those text files that used to roll uncontrolled across your screen.

*** PCjr CLASSIFIEDS ***

PCjr w/stacked 2nd drive, Tecmar Jr. Captain & Cadet, 640K, Color Monitor, Keytronics 5151jr keyboard, 300 baud internal modem, DOS 2.1, BASIC Cartridge, BASIC manual. \$500.00 + shipping. Call Matthew (408) 226-6872.

For Sale - Intel 8087 Coprocessor with daughterboard and software for jr; \$150, Mouse Systems PCjr Optical Mouse, \$50, both unused. Call Robbins, (414) 567-9568 evenings or weekends.

IBM PCjr - 640K, Racore II Plus w/DMA, two 5 1/4 drives, Parallel port, clock; PCjr color monitor; ST type 101 keyboard; all cables. DOS 2.1 w/manual. DMA cartridge, BASIC cartridge with manual and Operating Manual. \$750 (UPS paid). John Betz (206) 851-8914.

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IBM PCjr-640K, Racore Drive II w/o DMA, two 5 1/4 drives, PCjr color monitor, AT style keyboard + jr keyboard, 2 joysticks, koala pad, jr internal modem, BASIC and combo cartridges, clock/calendar, manuals, DOS 2.1 Worth \$2300 new. Now \$800 + shipping. Call John Fulan at (209) 485-4724.

For Sale: Packard Ball 1200 Baud External Modem, like new, \$65. Call Chris Reebert after 7 p.m. (718) 529-1528.

Reader Feedback

(Continued from page 9)

Please give me info on how to get it flying. Also I read your article on 3 1/2" drives in the August issue, being that I am in the market for a 2nd drive, I like your suggestion for a 1.44 meg 3 1/2" drive that gets its power from jr. and physically becomes part of the jr. Can you tell me who sells this type of drive? All the advertisements in the newsletter are for 712K & 836K drives.

Gregory Martucci

EDITOR'S NOTE: Falcon was cited by more than one reader who responded to our survey earlier this year as one of their favorite programs. We had listed Falcon as not compatible earlier because we had received information indicating that PCjr users could not get it flying. Since we have not tested it ourselves, we can't tell you how some

PCjr users have managed to run it. Perhaps a reader who has been successful with Falcon will send in some tips. We'll be glad to print them.

The 1.44 drives are being developed by PC Enterprises, and perhaps by others, but are not ready yet. We'll let you know when they're fully perfected and available for sale.

Problems with Freeze-ups and Upgrading 512k Racore

I found there are very few programs I have not been able to run on my jr. The only problem I have run into is trying to run R BASE 5000 for any length of time without getting a screen full of funny characters. Any solution?? I was also unable to run Ulysses and the Golden Fleece even after the company sent me new disks.

I have used many of the Sierra games but will have to expand from 512K to 640K to continue with King's Quest IV and Lounge Lizard Larry II. This brings a good question, is there any way to replace chips in the Racore board to get to 640K or will I have to add a side car?

I would like to thank you for your magazine. It is great and offers help to us with jr's. I have been using mine in my business for over five (5) years and find it does everything I would want any computer to do and would hate to replace it because of all the features it has available.

Donald W. Wing, Esq., Redmond, WA 98052

EDITOR'S NOTE: Your first question about getting the funny characters after running RBase 5000 for awhile sounds very much like you are using an unpatched version of DOS 2.1. You can easily correct this by getting disk #40 from the Software Store and fixing the bug that causes this kind of problem. Or you can upgrade to DOS 3.2 or higher, since the bug was eliminated in versions higher than 2.1.

It is possible to replace the memory chips in a Racore unit, but we can't provide you with instructions. You might check on the cost of doing the upgrade with some of our advertisers.

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Classified Ads are \$12 per month. Send us your typewritten ad (no more than five lines on an 8 1/2 x 11 typed page). Send to Jr Newsletter, Box 163, Southbury, CT 06488

jr Newsletter Software Store

This software is the best public domain and user-supported software for the PCjr we've been able to find. All the programs in this collection have been tested on our PCjrs and are highly recommended. Some of these programs are equal to or better than commercial programs costing hundreds of dollars. The programs in this collection are available for \$5.95 per disk.

*** NEW * 4DOS V2.21** - This is the "ultimate utility" since it replaces almost all DOS commands with new, improved versions. And it adds 35 more useful commands of its own! It will replace many of your favorite enhancement utilities. For example, 4DOS allows 40 character file descriptions, more flexible wildcards, multiple commands per line, handy conditional commands, command stacking, alias commands, faster batch processing -- and MUCH more! A must for all serious computerists. Reviewed 1/90 (Disk #102)

*** CORRECTION *** In the December 1989 issue, a new disk called Games III was added to the Software Store. It was erroneously numbered #99. The correct number for Games III is Disk #101. Games III was reviewed in the December issue, but was omitted from the Software Store listings, so we are adding it here.

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

*** NEW * PCJR AUTOSETUP.** 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)

*** NEW * WAR ON THE SEA.** Based on World War II naval battles, this game allows you to command a fleet in seven different campaigns in the Atlantic and Pacific. Not a joystick game, this one will allow you to see whether you have the strategic skills to be an Admiral. 256K (Disk #100)

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)

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)

AS EASY AS. Excellent, easy to use, spreadsheet program. Works like Lotus 1-2-3, with all spreadsheet functions. Can load and operate 1-2-3 files. 256K ok (Disk #67)

BAKER'S DOZEN. 13 powerful utilities by shareware star Jim Button. Recover zapped files, save screen to files, print sideways, sort files, file management, locate text, pop-up calendar, powerful one screen spreadsheet, set screen colors, and more. (Disk #73)

BATCH FILE UTILITIES. A tutorial on how to create batch files and six utilities to use. 128K (Disk #26)

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)

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)

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)

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)

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)

CHECK PROCESSOR - Easy to use software for financial record keeping. Balance checkbook, print expenses by category, etc. 128K (Disk #59)

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

COMPUTER TEACHER. For those who want to learn how to use DOS commands and to understand basic computer hardware terms, this interactive software will help you become computer literate. Helps you better understand those manuals and computer magazines, as well as how to do more with your computer. 128k (Disk #77)

CROSSWORD CREATOR V3.30. Make your own puzzles up to 36 columns by 22 rows. Many helpful sorting and placement features. Prints out on virtually any printer. 256K (Disk #71)

DOS 2.1 FIX. Patches to fix the bugs in DOS 2.1. Cures most problems encountered when running memory intensive programs. Also patches to

run BASIC and BASICA on DOS 2.1 without having Cartridge BASIC installed. 128K ok. (Disk #40)

DOSAMATIC. A nifty way to view the contents of disks, easily manipulate files and carry out DOS commands. Features a Mac-like "point and press interface which allows you to select the commands you want from pull down menus. Also permits loading several programs at once and jumping from one to the other. 128K ok, but more memory needed for "multi-tasking." (Disk #49)

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, jumping 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)

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)

EARLY LEARNING. A collection of colorful educational games for ages 6-8. Sing-along alphabet, letter match, counting game, maze, pattern matching and more. 128K, need Cartridge Basic. (Disk #48)

EDNA'S COOKBOOK. Will organize your recipes by subject, allowing for quick retrieval. Print out sorted collection for your own cookbook. 128K, 2 drives. (Disk #96)

EQUATOR. An excellent way to learn and review 35 basic equations used in math, finance and science. Learn to compute the volume of a cylinder, compound interest, or average velocity and much more. Manual on disk. 128K (Disk #20)

FAMILY HISTORY. Includes complete manual on disk with how-to info on tracing and setting up your family tree with detailed genealogical information. Easy to use and modify as you gather more data. New compiled version runs faster than previous version. 128K order Disk #33 alone. 256K order #33 and #33A.

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)

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 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)

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)

GOLF/SAILING. Two great games for sailors and golfers! 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)

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)

HOME BUDGET MANAGEMENT SYSTEM. Easy-to-use system for keeping track of income and expenses. Create separate accounts for income tax categories and get a summary at end of year. Provides chart of accounts, transaction reports, sorted ledger entries, etc. 128 K. (Disk #57) Or v. 3.13 for improved screenwriting and disk access speed. 256K. (Disk #57A)

HOME INVENTORY. Taking an inventory of your home might even be fun with this easy-to-use software that takes you through the process step by step. Gives a complete record for insurance purposes. Also good for listing collections. 128K. Cartridge BASIC required (Disk #58)

IMAGEPRINT V1.5. Produces near letter quality print on dot matrix printers. IBM Graphics Printers, Proprinters, Epsoms and compatibles. Contains many format features, three quality levels, interfaces with word processors. 128K ok. (Disk #50)

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)

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)

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)

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

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)

MEAN 18 GOLF COURSES. Three excellently designed courses for those who play "Mean 18," the commercial golf game. Disk #79 has Boca Woods North, Boca Woods South, both with especially challenging water holes, and Kearsage Valley, with fall foliage in full color. Disk #80 has TPC of Avenel, TPC of Sawgrass, with massive sand traps and a tough 17th green on an island, and TPC of Woodlands, which may be the most challenging of all. (Disk #79 and #80)

MIND READER. Experience the wonders of artificial intelligence! Use a full-featured word processor that guesses the words that you're about to type. Works like a charm! 128K ok. (Disk #74)

MINICALC. A small, easy to use, spreadsheet program. 11 columns by 22 rows. On-line help function and manual on disk. In addition to performing calculations, will generate bar graphs. (Disk #27)

MORE SUPER UTILITIES. A collection of excellent screen and keyboard enhancements, useful file managers, color selectors, and more. Under 128K ok (Disk #29)

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)

NEW KEY. Powerful popular program that allows you to redefine keystrokes and assign series of keystrokes to one or two keys. Customize software to meet your needs. Many other useful features included. 128K. (Disk #35)

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. (Disk #39)

PC-CALC. A versatile spreadsheet program that can do up to 26 columns of adjustable size and 256 lines. Features on-screen prompts, many math and statistical functions, hidden column capability, many formatting options, 64 character cells, automatic global recalculation, and more. Has some limits on 128K, but still very useful. (Disk #5 runs on 128K, Disk #6 requires 320K and two drives)

PC CALC PLUS. V2.0 More advanced than PC Calc (Disks 5 and 6), this is a very powerful spreadsheet program which includes graphing features. Excellent. 512K (DS-2 (2 disks) \$10.)

PC-CHECK MANAGER. A menu-driven program that can handle multiple checkbooks, unlimited payees and ledger account assignments. Requires 256K. (Disk #25)

PC-CHESS. Two great chess games on one disk! A full-color, many featured chess program with four levels of play, allows such things as switching sides, setting up the board yourself, validity checking, en passant, etc. The other works on color or monochrome, has window showing options it considers before moving, adjustable difficulty level - but a powerful opponent at any level. 128K ok for one, 256K for other. (Disk #44)

PC-DESKTEAM. Provides memory resident notepad, alarm clock, appointment calendar, typewriter, calculator, phone book, auto-dialer. Some say better than Sidekick! Quick, easy, powerful. (Disk #22 V1.04)

PC DOS HELP. Similar to PC-Prompt, but takes up less memory (16K) as a resident program. Geared to DOS 2.1 with special PCjr commands included. 128K. (Disk #24)

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 wildcard searches. Global updates and deletes. Sorts on any field. Too many features to mention. (Disk #3 runs on 128K, Disk #4 needs 256K)

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)

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-OUTLINE. Organizes thoughts, notes, lists of just about anything. Powerful features create logical outlines, merge with your word processor, customizing allows you to rearrange and manipulate data. Outperforms many commercial programs, says PC Magazine. 128k. (Disk #17)

PC-PROMPT. A memory resident program that provides the format for DOS commands in an on-line mode. Help screen toggles on and off Also help screens for BASICA, Turbo Pascal, Debug and EDLIN. 128K. (Disk #23)

PC-STYLE. Perhaps the best of many programs that help you make what you write more readable. Jim Button made this a very slick, useful tool for improving your writing. It reads and analyzes what you write, then gives you a detailed analysis based upon several useful standards. Fast, easy to use. 128k (Disk #76)

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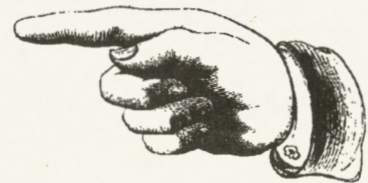
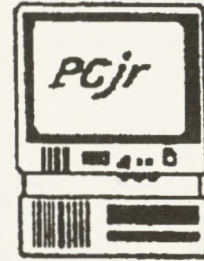
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