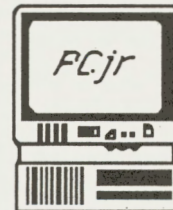


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The Junior Report



December 1988 Volume 4 Number 12

The National Newsletter for PCjr Owners

Accolade Seeks Greater PCjr Compatibility

Prolific software publishing company wants to help the 500,000 PCjr owners with PCjr-compatible software.

Software is the lifeblood of any computer system; it is the one major determining factor whether a computer survives or is banished to obscurity. Though the PCjr owner is fortunate to possess a computer that is almost 95% PC compatible, things haven't always

gone as planned as some software publishers have totally disregarded the needs of these 500,000 potential customers. However, Accolade, an entertainment software company from San Jose, California, is trying its best to make as many of their software programs as PCjr-compatible as possible, according to Dan Jeung, head of the company's Tech Support team.

"Though Accolade doesn't officially support the PCjr, we want to let the jr owner know that we are trying, however," stated Jeung.

Accolade, a company that practically came out of nowhere to become one of the major entertainment software companies in the United States, has released several new games that are PCjr compatible. *Jack Nicklaus' Greatest Golf Courses, 4th and Inches, Grand Prix*, are some of the popular titles the jr owner can add to his collection.

Unfortunately, not all of the Accolade offerings can be run on a junior, especially a few that are self-booting and require more than 256K of memory. One help in this situation is the self-booting compatibility cartridge by Ed Strauss which we are hoping to review in future issue.

Even with PCjr compatibility, Accolade's games are not taking advantage of jr's special 16 color graphics, and instead appear in 4-not-so-glorious CGA colors. To this Mr. Jeung states that Accolade is studying the possibility of including a 16-color PCjr graphics choice in future prod-

ucts, much like the way they are handling Tandy's 16-color graphics which is a menu choice in many software games. But before that happens, they must have some kind of evidence that there IS a PCjr demand. Jeung said that the company makes a lot of technical decisions based on those warranty cards that most owners routinely throw away. If all PCjr owners could return his or her card with the word "PCjr Owner" in BIG, RED letters, it could possibly change some more minds about supporting the jr. Jeung recommends all jr owners to make sure that they return the cards. Also, those owners who haven't bought Accolade software should send a short letter or a postcard to Accolade stating that he or she is a money-carrying PCjr consumer who should not be forgotten. A letter campaign is the best tool in keeping the software coming for jr. All correspondence should be directed to Mr. Dan Jeung, Accolade Software, 550 S. Winchester Blvd., Suite 200, San Jose, CA 95128.

PCjr owners have always had to put up with "almost" 100% PC compatibility. There is enough good software out there to keep the junior a very viable computer system. Accolade, by its genuine concern with PCjr compatibility, hopes to extend the exciting life of the PCjr, giving all jr owners reason for holiday cheer and a happy new year.

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By Harrison Day

All in all, it's been a good year for the jr - we're still here

Well, it's the end of the year and now we get to reflect on what happened in the past year and predict what we might expect in the upcoming year. All in all, it was a great year for the PCjr and the PCjr owner - we're still alive and kicking! Few people had given the PCjr much of a chance to survive more than a year past its discontinuation in 1985, and here we are almost four years later - still finding new ways to make our PCjr's more productive and more fun. Over the years we have joked that owning a PCjr is more than mere possession, it's a lifestyle. Our lives are often consumed with questions of compatibility and upgrades. If you look closely at last year's record, you'll find that the junior ran most of the "good stuff" that came out for the PC. From a hardware standpoint, the PCjr had a very good year. Internal keyboard adapters, turbo boards, 1.2 meg drives, video enhancers, and new ways to utilize jr's cartridge slots, and more kept jr's life exciting. For an "obsolete" computer, the jr has

done very well in staying abreast its PC compatible counterparts. But best of all, "we're still heeerrree," and that in itself is worth celebrating.

The best thing about The Junior Report is that it provides a vehicle for PCjr owners to help one another. Often we receive tips and advice on how to make your jr a better computer and often we print these in the letters column. We also get information about where to get cheap or difficult to find PCjr items from our wonderful readers such as from the following:

Chris Reeburg of Jamaica, NY writes to inform us that Mendelson Electronics, Inc (800) 422-3525 has two items for the jr: model #500-006, size 7 7/8" x 4 3/4" x 2 1/4", 75 watts, price \$23.95, and a small 120 volt fan \$9.00. According to Chris, the tiny fan will fit nicely in a shelf supplied by PC Enterprises (\$6.95). Thanks, Chris.

Another reader writes to tell us that PC Dimensions in Rochester, MN (507) 288-1396, has acquired several 8087 math co-processor daughterboards that will fit into the PCjr CPU. The cost of these daughterboards, which can house the chip that will

speed up math-intensive programs such as Lotus 1-2-3, is \$105., and in quantities of 10 or more - \$95.

This month we have included a PCjr Magazine reprint article which heralded IBM's then new 128K memory sidecar. Though the sidecar is now oldhat, it does illustrate that wonderful electronic tool called the ramdisk, which alone makes the article worth reading.

Also, almost every entry in our classified section this month is new so look over them carefully for some bargains. For those who have had ads in previous sections and still have those items to sell, please re-submit then for our next issue.

Well, I guess that's all for this year. It was fun being with you all, fun discovering again what a neat computer the PCjr is. I'm looking forward to more hardware accessories and more software programs for the jr in the coming year. The PCjr has survived due to the sheer determination and love of its owners, and I see no reason why it will not continue in 1989.

From the entire staff of The Junior Report, we hope you will have Happy Holidays and a great year, especially for IBM's oldest orphan - the spunky PCjr.

The Junior Report

A Publication of The PCjr Club

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*ANSI.SYS - WHAT IS IT FOR?

By Joe Sturgil

No computer should be turned on without having ANSI.SYS loaded from your CONFIG.SYS file. You can find the program, ANSI.SYS on your DOS disk. When ANSI.SYS is installed, it acts like a watchdog that monitors everything routed to the video display. ANSI.SYS watches for combinations of characters called escape sequences. This term derives from the fact that they always begin with the Escape character - the character generated when you press the Esc Key. Following the Escape Character in the escape sequence is the left bracket ([). When ANSI.SYS notices this particular combination of characters, it considers what follows to be a command to perform some action. Among other things, there's a command to change the default screen colors.

Therefore, to change screen colors, all you need to do is send the correct escape sequence to the screen. You can't do this at the DOS prompt by pressing ESC and then typing the rest of the sequence. (If you press Esc, you'll merely see the cursor drop down a line.) DOS must be tricked into accepting the Escape character, and one trick is to use the DOS PROMPT command. Another is to use the DOS TYPE command to print a file that contains the escape sequence on the screen. Here's how to do both.

The PROMPT command is ordinarily used to change the familiar DOS prompt to something different, but it can be used to enter the Escape character too. This is represented in the PROMPT command by the character \$. (Note that the "e" is always lowercase.) For instance, enter the following com-

mand at the DOS prompt to change the default character to blue: PROMPT \$e[34m. When you press the Enter Key, you'll notice the prompt appears in the new color. If you clear the screen with the CLS command, any new text displayed afterward is blue. You'll also notice the familiar DOS prompt has disappeared. You can restore it by entering PROMPT. Note that nothing is appended to this command. You'll always need to perform this step when you use the PROMPT command to set colors. You can similarly set the background color to white with the command: PROMPT \$e[34m\$e[47m. Or you can combine the two commands and set both the text and background at once: PROMPT \$e[34m\$e[47m. Notice that in these examples, the sequence ends with a lowercase "m", which is another part of the code. The "m" like the "e", must always be entered in lowercase.

To use the TYPE command to send escape sequences, you must have a word processor or text editor that allows you to enter the Escape character. (The DOS program EDLIN is one of these.) Many text editors display a left arrow (<-) to show an escape character, but this isn't always the case. EDLIN, for instance shows it as ^V. If your text editor doesn't print some kind of character on the screen when you press ESC, it probably won't enter the character.

Let's assume you can at least use EDLIN to enter the Escape character. After entering it, type the left bracket and the rest of the sequence as shown above. Save the sequence on Disk. Then, at the DOS prompt, substitute the name of your file for filename. When you type this file, ANSI.SYS recognizes and acts upon the escape

(Continued on page 11)



By Dolores Jack

Thank you for your letters and comments. We're sincerely sorry that we are not able to answer all letters personally, but will attempt to cover as many questions and topics as possible in this column. All letters become the property of The PCjr Club and are subject to editing for length and clarity.

MANAGING YOUR MONEY

I got started on Andrew Tobias' "Managing Your Money" a few years ago shortly after I got my junior and have been hanging in through the successive versions. I recently made the transition from version 4 to version 5, but not without a few false starts. I now have version 5 running nicely and I find it a big improvement over version 4. I have learned a lot of useful information from your "letters" column, so maybe I can help somebody else out for a change.

My system has a single floppy drive with 640K from a Tecmar jrCaptain sidecar (PCjr memory upgrade). I'm using a 360K RAM drive called C:, obtained with shareware #82 jrCONFIG.SYS. I have added IBM's DOS patch that goes with their DOS 2.10 (PATCH.COM and DOS21).

1. My first problem was with the setup instructions. I found that I had to go to their customized setup, which they claim is for hard disk users only. Not so. I entered a: ; c: for Chapter drives, Overflow Drives, and Data Path and this sent things around to the proper drives.

2. I still had difficulties, so I added Fixjr to my Disk #1 Autoexec.bat by

copying Fixjr, Jrauto, and Jr from version 4 onto this disk, and entering the command "Jr".

3. I may have misunderstood MYM's instructions as to what to do after I killed the Samle programs. I ended up copying my version 4 *.db and *.ark files onto my version 5 disks where the samples used to be and then the conversion went OK and I was in business.

The procedure I use is to copy Disk #2 into C: (the RAM drive), then start MYM with Disk #1 in A:, and follow directions. It's clear sailing from there on.

Robert Hall
Schenectady, NY

Managing Your Money was one of two "premier" programs that IBM had hoped would legitimize the PCjr as a "home-business" computer. It remains one of the great programs today, and thanks to you, PCjr MYM followers can follow you through version 5, effortlessly.

jrCONFIG.SYS HELP

I enjoy receiving The Junior Report and find it very useful, particular on maintenance. Don't forget that some of us readers are first time computer owners, having purchased a used junior, and speaking for myself, appreciate articles on the basics. What I want to know is all of the knowledge that writers assume we readers know.

Here is a problem I have. I upgarded my junior with the 512K version of jrHotShot Fast Memory. This considerably improved my ability to do word processing and store records. BUT ---- on PC File III, which I purchased from the Club, I entered 5 names into a simple name/address/phone file, and the disk tells me it is "full." Could it be full.....or is it not aware of the additional capacity for memory? I have 500 records I want to enter. Would the

jrCONFIG.SYS #82 help? I only have one disk drive. What would be your recommendations on how to handle my problem?

Martha Moser
Evanston, IL

The best way to check how much memory your PCjr is actually recognizing and how much memory is available for applications such as your database is to use the DOS command CHKDSK at the A> with DOS in the Drive A, after you have booted your system. The bottom line will tell you exactly how much free memory you have. Judging by your letter, we think that you are probably not using a PCjr memory recognizing file in your start-up DOS disk. Many junior owners who have bought their juniors used may not be aware that the PCjr needs a special program in order for it to recognize extra memory, even though the chips are there, and the screen counts up to 512K or 640K. Most manufacturers of expansion boards (e.g. Racore, Tecmar, IBM) included the software with the original purchase. We think that jrCONFIG.SYS (Disk #82) is the most versatile (see last month's issue) and should belong on every jr owners shelf. Often one configuration file will allow the jr to run a difficult program while another may not, so it's not a bad idea to have a few memory expansion programs available on different DOS disks.

EARLY GAMES PROBLEMS HOW TO QUIET YOUR DRIVE

Readers of the Junior Report may be interested in my recent experience at trying to run a newly purchased program. I purchased Early Games for Children by Springboard Publishing, a program which is labeled as working on the PCjr and has for a

long time been on 128K PCjr compatibility lists. When I tried the program, it didn't run on my jr., a "program too big to fit into memory" message occurred and the machine locked up. As the label stated a 256K requirement, I then booted with 640K and retried. This time the program went through the opening title screen but gave various error messages when the actual program went to load.

My only remaining way out was to wait through the weekend and call Springboard's technical assistance number (non-toll free) on the following Monday. The woman I talked with quickly informed me that Springboard no longer supported the PCjr and the latest versions of Early Games would not work on the PCjr, despite the fact that the label states PCjr compatibility. I was quickly offered the chance to send Springboard my original (copy protected) program and in return I would receive the older version which supported the 128K PCjr. This I did and I still await my PCjr version, all this for the cost of the program, a long distance phone call, and the mailing to Springboard. A great deal, huh?

Try this simple cure for a **noisy disk drive**. First, as always, make sure the read/write head rails are lubricated as outlined in a previous issue of The Junior Report. If your drive still seems noisier than reasonable, place a cushion under it. Go to a fabric store such as a Minnesota Fabrics and purchase a 3/4" thick piece of **seat back padding**. Buy it big enough that you can cut two 3" wide by 12" long strips. These will fit under the PCjr case on each end with a little overlap and still allow the Jr some breathing space. Much of the noise from the Jr. is caused by **vibration against the desk the jr sits on**. The cushion absorbs the vibration before it reaches the desk and thereby reduces the noise considerably.

George Suppes
Rochester, MN

Thanks for the tips, George, vibration of any kind is bad for the mechanical components of your computer. It's not great on the ears either.

1200 BAUD INTERNAL MODEM FOR THE PCjr

I've had my PCjr for about four years now, and have since upgraded it to 640K. My subscription to The Junior Report last year came as a breath of fresh air --- a much needed source of information. At this point, especially since prices are coming down, I would like to invest in a modem. Is it possible to find a 1200 baud Hayes compatible that works internally in the jr?

Everything I've read suggests that only a 300 baud will work internally and that 1200's can only work as the more expensive external models. Is this the case, or are there internal 1200's for the junior?

Any information on this matter will be greatly appreciated.

Thanks for a great newsletter.

David Pultz
New York, NY

The original internal modem for the PCjr could only transmit data at the rate of 300 baud, a snail's pace in today's standard, and also a killer on the phone bill. Microcom's ERA 2 (which you may find at flea markets or classified ads) was the first PCjr 1200 baud internal modem and fits nicely inside the jr. The only problem is finding one. Unless your serial port on your PCjr is currently used, we don't see why you don't use an inexpensive external modem with your junior. They're really inexpensive now and work well with this computer. A check with the vendors in this issue will give you several choices to buy. While you're deciding, don't en-

tirely rule out the possibility of buying a 2400 baud modem - the savings in phone costs will quickly make up the initial cost difference. Whatever you do, happy telecommunicating.

CHURCH HELP NEEDED

I plan to keep church records on my PCjr. I have adapted the PC-Ledger program, and it seems to be sufficient so far, but I wondered if there were any programs out there that were designed specifically for church record-keeping. The only two I've seen advertised (PowerChurch and Parish Data Systems) look great, but they're beyond my budget and more complete than I need (I just want the accounting part). Do you or any of your readers know of any programs I might consider?

Also I wrote to you some time back telling you about error messages I was getting intermittently on my Junior. There's more to the story - by late summer, we had decided that the machine would have to go to the shop - we couldn't count on it to run. I then decided to try one last thing - I unplugged the surge-protector/monitor stand. Haven't had an error reading since!!!??!!

Dotty Doennig
Neosho, MO

Heaven help us, but we do not have much information about church record keeping software. However, many of our readers are well into the church and they might be able to help you. Let's hear from all of you.

A NAVY FAREWELL TO JR

True to what I said in the recent article of mine you printed (The Junior Report September 1988), I have deserted my trusty Jr and moved up to a more powerful and flexible AT compatible. *The Jr Lives!*, however. I

have passed it on to my son and grandson who recently moved from Los Angeles to Missouri. (Does that make it Hugh Junior's Junior?)

I'm going to miss you guys. I have thoroughly enjoyed The Junior Report over the past two years and been most impressed with the hard work, integrity, and hustling spirit of the editorial and circulation staff. Your diligence and dedication are a tribute not only to yourselves but the doughty little machine to which you are so devoted.

Don't think ill of me for deserting the ranks. Though I know you must have received some flak for the article I wrote and which you so honestly printed, believe me when I say I'm going to miss my Jr. I defended it also, though I didn't tell you in either the letter or the article.

Just over a year ago, in the first issue of the short-lived PC Clone magazine, an article appeared denigrating the Jr and calling it "a classic IBM mistake." I fired off a letter that appeared in the second issue of the magazine calling them to task for their comments and giving them a rundown of how I upgraded mine to upper-level PC capability. At about that same time, PC Magazine printed a similar slur on the machine. I wrote to the author of that article giving him thirty different kinds of hell and though that letter was not printed, I did receive a handwritten apology for the comments.

But, as the saying goes, time and tide wait for no man...or machine. In order to write more efficiently (if not more clearly and profitably), I found it necessary to have more storage available. The people making the hard disks for the junior seemed to think they had jr users by the short hairs and refused to lower their prices to the point the average user could upgrade. It was cheaper,

in the long run, to pass the Jr along to others and find an economical starting point for a significant move upward. That's what I've done.

All the best to The Junior Report and all of you who work so hard to make it a success. You've made a Christian out of this old retired naval officer and I'll always think of you fondly. Continue to give 'em hell and don't take any stuff off of anyone. You people are the best.

I suppose the only thing left to say is the old Navy farewell: I wish you fair seas and a following wind and may the Lord hold you in the palm of His hand before the devil knows you're dead.

All the best and Happy Holidays to a wonderful group of people.

Hugh Taylor, Sr.
Los Angeles, CA

Hugh, we hardly knew ye. The life of the PCjr owner has not been an easy one, but we all have persevered through tough times, and the rather indifferent nature of the rest of the PC community. Like all creatures who have been shunned by society (the computer society), we have banded together into a closely-knit group; a group that refuses to let everyone else dictate the future of our computers. With writers like yourself, owners like PCjr owners, we have done quite well in our tasks. We're sorry you're leaving our ranks, but we have always been aware of jr's shortcomings, and we're not blind to the fact that some of us have to move on to more powerful machines.

In closing, there is an old PCjr adage that I like to use: Old Juniors never die, they just get passed onto sons and grandsons. We wish you luck in your future computing.

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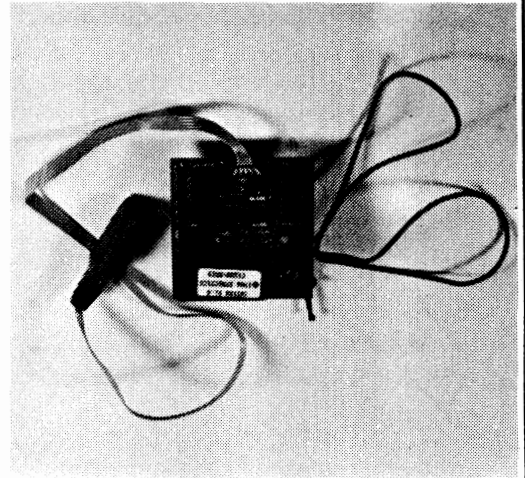
Internal Keyboard Adapter for the PCjr

Synectics Software and Systems introduces internal keyboard adapter for the PCjr that allows the union of the junior with the original IBM PC keyboard, eliminates annoying keyboard beep.

"My PCjr computer kingdom for an IBM PC keyboard!" spake the jr owner more often than not. I, personally have always loved the original IBM PC keyboard. The sound, the feel, the clikitty-clack of my two fingers merrily dancing across the keys of a real PC keyboard as the words flowed onto my PCjr color monitor was a dream that came often in the night for me, only to vanish as the harsh and unforgiving sun's rays filtered into my junior's den - exposing an original PCjr keyboard. But Christmas is a time for miracles, and my wishes have come true thanks to the efforts of a new Santa in the form of Synectics Software and Systems. The IBM PC keyboard has come home to the junior.

The IBM PCjr was introduced in 1984, and immediately it was chastised for its silly keyboard. The decision to use the original "chicklet" keyboard might have been one of the

worst hardware decisions in computer history. Certainly, the idea of using keyboard overlays to facilitate ease of use with various computer software programs was a noble idea, but in practical terms, the look and feel of the original PCjr keyboard set the junior out on the wrong foot from the start. How could anyone consider the junior a serious computer when its keyboard looked like a toy and acted like one. IBM came to the junior's rescue with a new PCjr "enhanced keyboard" after the critics made computer mincemeat of the chicklet. This new keyboard was light years ahead of the previous one, but several man years behind the standard IBM PC keyboard. I am convinced that the junior may not have met such a horrible fate if IBM in its wisdom had included a scaled down version of its original PC keyboard with the purchase of the PCjr. Word processing, database entry, spread-



sheet manipulation, the meat and potatoes of personal computing, were seriously threatened by both the chicklet and enhanced PCjr keyboards. Certainly, there have been good alternatives from manufacturers of the Keytronic, Cherry, and Datadesk junior keyboards that have brought some respectability back to the PCjr input scene. But a marriage of the lonely heart PCjr to the ever ready and capable true blue IBM PC keyboard could never be consummated - till now. Synectics Software and Systems of San Jose, California has brought together these two natural partners with the introduction of their PCjr Internal Keyboard Adapter. We were fortunate to try out one of these remarkable units and can now report about this modern miracle.

The IKA (internal keyboard adapter) came to our offices accompanied by two keyboards - the IBM original PC keyboard and Synectics Software's generic

BY HARRISON DAY

brand. We would later try out both after the IKA had been installed. A simple 3 paged, xeroxed, stapled set of instructions was all that the documentation provided for, but it was concise and very easy to read and follow. The hardware installation instructions recommend you to refer to your IBM PCjr Guide to Operations manual for diagrams, but we found it unnecessary as the instructions included were sufficient. We carefully unwrapped the two items (the IKA and the IBM PC keyboard) and went straight to work on the hardware installation. The only necessary tool was one medium flat blade screwdriver used only to remove the PCjr CPU cover.

The IKA is a mini circuit board with two mounting holes, and two wire extensions - one for exiting the rear of the PCjr unit to connect with a keyboard, and the second for connecting to chip #74LS08 which resides on the PCjr motherboard near the rear of the CPU unit. Unlike the previous keyboard adapters that you may be familiar with, this is an internal one, so the first step

is to unplug the PCjr from both its power outlet and to its many peripherals. Since you will be entering the inside of the CPU, it is wise to exercise safe practices with dealing with sensitive electronic parts by making sure that you follow the standard static discharge handling rules (i.e. don't perform these procedures on carpeted areas, don't excessively handle device leads, dissipate any possible charge before handling devices, etc.). After removing the CPU cover, you are asked to identify the PCjr keyboard infrared module which sits in the front of the unit directly to the left of the disk drive (see figure 1). The IKA will replace this infrared module. The IR (infrared) Module is easily removed by carefully grasping the module and lifting straight up. The module is held by two plastic posts and when you lift it, you will here it snap out because of the friction grip of the posts. After removal, you will see an eight pin socket into which eight pins on the underside of the IKA will be placed. You now must carefully align the IKA's pins into the socket

But for my precious junior, all I wanted was an IBM PC keyboard this Christmas. Miracles do happen this time of the year. Just ask my PCjr.

and also onto the two mounting posts, and snap the IKA into place (See figure 2). After the snap of the mounting posts through the mounting holes on the IKA, we noticed that the pins on the underside did not enter the eight pin socket all the way. As it later turned out, it was not necessary to have the pins flush with the socket since the keyboard functioned perfectly

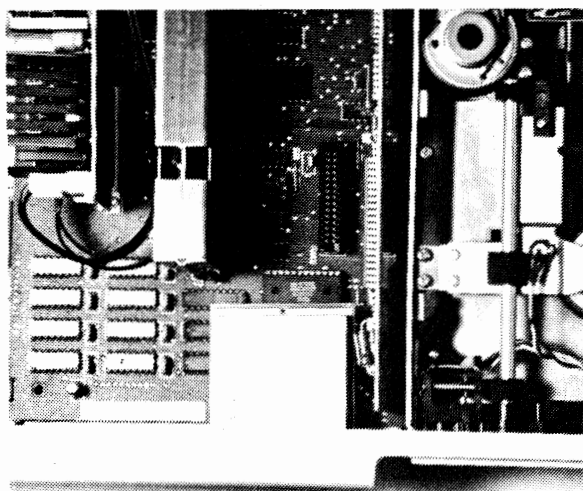


Figure 1

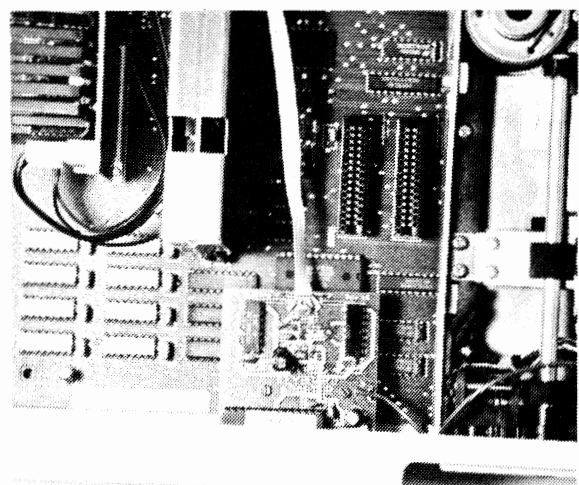


Figure 2

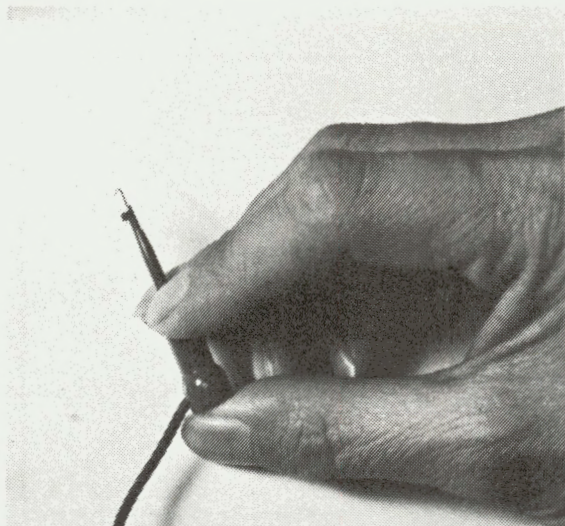


Figure 3

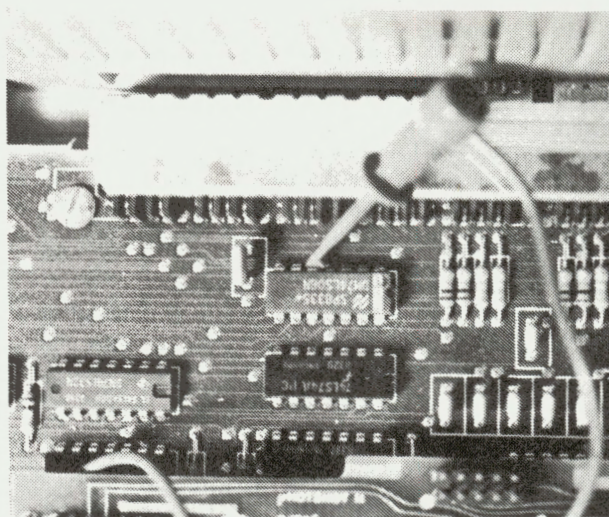


Figure 4

any way. Now you will lead the one gray ribbon cable to the back of the PCjr unit. The instructions recommend filing down part of the lip of the back wall of the CPU for easier exit of this connecting cable, but we found that it was easier just to slide it along side the On/Off power switch in the back thereby eliminating any filing all together. The most difficult step is next, hooking the "EZ-Hook cable" from the IKA to the fifth pin of chip #74LS08 on the rear of the PCjr motherboard. It was easier than it sounds. Squeezing the plastic end of the EZ-Hook exposes a small clip to connect to the chip (See figure 3). Accessing this chip wasn't bad, but we found that it was easier to remove the disk drive (it is held by four mounting posts accessible from the bottom of the unit) to connect the hook. Our particular chip had the inscription of DM74LS08N on it and your chip may vary from this. This pin has 14 pins total, and you must hook the EZ-Hook onto the fifth pin from the right on the side of the chip closest to the rear of the unit. For location of the chip, see figure 4. As you can see from figure 4 which shows the EZ-Hook connected, we could not lay the connector flat along side of the

chip as shown in the hardware instructions. It remained on an angle when we replaced every component back into place with no dire effects. The rest of the installation was a breeze - just putting everything back into place, putting on the cover, reconnecting the power cord and peripherals. In all the procedure took less than 20 minutes.

We attached the IBM PC keyboard to the connecting ribbon cable exiting the rear of the unit, booted our junior, and collectively held our breaths. When requested to enter the current date, I placed my nimble fingers on the fresh and sexy PC keyboard, and fired away. The clikitty-clack was music to my ears. I then loaded WordPerfect to test out Synectics claim that the internal keyboard adapter would buffer keystrokes better than the other adapters. Now I'm not saying that I am the world's fastest typist, but I could not elicit one beep out of the junior regardless of how fast I could type. I was amazed. I was happy.

Now not everyone is as excited about the IBM PC keyboard as I am, in fact some feel it is horrible. For those, Synectics has provided an alter-

nate keyboard from a company that doesn't call itself three letters. This keyboard functioned just as well as the IBM, but had less of a tactile response and less noise than the IBM. Words are useless in describing the feel of a keyboard, and the best advice I could give you is to say to try out an IBM keyboard at an IBM dealer, and try out a Compaq computer keyboard (which I found to be very similar to the generic keyboard), and then decide between the two. The secret of the entire operation is the IKA adapter, of course.

I do not ask for much from Santa this time of the year. A Porsche, an Italian villa, or a winning million dollar lottery ticket would suffice. But for my precious junior, all I wanted was an IBM PC keyboard this Christmas. Miracles do happen this time of the year. Just ask my PCjr.

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ANSI.SYS.....

(Continued from page 3)

sequence.

You can have more than one escape sequence in a file. Enter them on separate lines, each line ended with a carriage return. The following examples sets the color to red and the background to white: <Esc>[31m <Esc>[47m where <Esc> represents the escape character entered with your text editor. Another way to include more than one command in a file is to combine the number codes, separating them by a semicolon: <Esc>[31;47m. In this version, the Escape-left bracket combination is entered only once at the beginning of the sequence, as in the concluding "m". You'll notice that when you TYPE the file, the escape sequence itself can't be seen on the screen.

That's because watchdog ANSI.SYS removes its own commands from the flow to the screen before you can see them. In fact, a good way to determine whether ANSI.SYS is properly installed is to TYPE a file containing escape sequences. If you can see the codes on the screen, then ANSI.SYS isn't on board.

You'll save time if you include either the PROMPT or TYPE command in your AUTOEXEC.BAT file. Be sure that both ANSI.SYS and AUTOEXEC.BAT are on the boot disk.

The table on the right shows foreground and background colors and their number codes. The general escape sequence formula is <Esc>[number code m (without a space between the number and the "m").

ANSI.SYS is capable of much more than setting default screen colors. Unfortunately, the DOS manuals supplied with most computers contain very little information about its capabilities. Reprinted from The OKC Jr Orphans Chronicle.

Is Your Junior An Artist?

The PCjr has its drawbacks, but it performs a lot of computer chores admirably, such as word processing and database management. Another strength is Junior's graphic abilities. With or without a mouse, there is an abundance of good to great drawing programs that run well on the PCjr, and the best part is that they are all coming down in price. Whether you draw for fun or for profit, we would like to see your work. Just send in a printout of your masterpiece to The Junior Report, The Guggenheim Collection, P.O. Box 59067, Schaumburg, IL 60159-0067, and we'll feature some of the best pieces during the year, and at the end of the year, we'll pick the very best drawing and award a first, second, and third place prize. Just send your masterpiece, a description of your PCjr setup, and the software you are using. So let's see how good your PCjr really is with a brush. You may surprise your Junior and yourself.

<u>COLOR</u>	<u>FOREGROUND</u>	<u>BACKGROUND</u>
BLACK	30	40
RED	31	41
GREEN	32	42
YELLOW	33	43
BLUE	34	44
MAGENTA	35	45
CYAN	36	46
WHITE	37	47

How to Backup Your PCjr BASIC Cartridge

Most of us, PCjr Owners, have had our systems for quite a few years now. The PCjr system has only one floppy drive but two cartridge slots. I usually plugged the BASIC cartridge in one slot, and the Clock Calendar Cartridge in another slot. This set up worked rather well, that is, until I loaned out my system and it was returned with the BASIC cartridge damaged. (The tale of how the BASIC Cartridge was damaged is another story by itself.) The reason that I loaned out my PCjr in the first place had a lot to do with showing off how great the PCjr's educational values were, especially at running those low cost Sesame Street programs. Unfortunately, in the process of showing off, the BASIC cartridge's internal IC (ROM Integrated Circuit) was damaged beyond repair.

As you all know, the BASIC Cartridges, among many other PCjr specific products, are very difficult to find. If you wish to replace and/or purchase another new BASIC cartridge from your local IBM dealers, you would be very likely laughed out of their showroom. A check with some of the PCjr vendors in this magazine will sometimes produce an available BASIC cartridge. My alternative was to duplicate (or shall we say BACKUP) my friend's BASIC cartridge.

BY LARRY YOUNG

Backing up is hard to do, especially if it is PCjr's hard-to-find BASIC cartridge - unless you know how to do it.

I like to remind our readers that IBM Corp. and Microsoft Corp. own the copyright in the BASIC ROM software. This ROM contents should not be copied for commercial distribution and infringe on their ownership. Or, better yet, you may want to consult your copyright lawyer about backing up your BASIC cartridge for your own use, for example:

one cartridge for two PCjr systems.

Anyway, these are my experiences and steps on backing up and replacing my damaged BASIC cartridge. They follow below:

1. Save the BASIC Cartridge ROM content in diskette.

Fortunately, I have saved, and explored the BASIC cartridge on diskette before it was damaged. If you borrowed a good PCjr BASIC Cartridge from your buddy to make a backup, you will need to understand the copyright ownership question. I booted up with my backup DOS (2.1 or higher) diskette containing DOS's DEBUG.COM program, and the BASIC cartridge plugged in. I then executed the DEBUG program as shown in figure 1 below.

A>debug	(Lower case signified entered commands)
-d e800:0	(display the beginning of BASIC Cartridge)
E800:0000 55 AA 40 E9 1D 00 05 42 41 53 49 43 E9 82 01 06	
" "	
" "	(check the ROM contents are not FF.)
" "	
-d eff0:0000	(display the end of BASIC Cartridge)
EFF0:0000 29 00 61 1B 62 1B 8E 00 00 00 1A 1A FF FF FF FF	
" "	
" "	
" "	
-n basicrom.bin	(set output file name as BASICROM.BIN)
-r cx	(set output amount to 32768 bytes)
CX 0000	
:8000	(enter hex value 8000 bytes) (you can also patch the BIOS at this time)
-w e800:0000	(output to file from starting address)
-q	(exit DEBUG)

Figure 1

Having done this, you have now saved the BASIC Cartridge contents into a diskette file called BASICROM.BIN. The file name is arbitrary. The file size is 32K byte, that is 8000 hexadecimal in value. Check the output file by looking at the diskette file directory :

```
A>dir
BASICROM COM    32768  6-20-88  1:40p
```

You can also double check the output file contents by using DEBUG again. See Figure 2 below.

2. Purchase the Cartridge Kits and EPROM Integrated Circuits :

I purchased four PCjr ROM Cartridge kits from Integrity Technology Corp. in Milpitas, CA. for \$4.95 each. I also paid \$3.50 for their ROM Cartridge Technical Reference Manual diskette.

You can purchase the EPROM (actually called Ultraviolet light Erase-able Programmable Read Only Memory) IC from most local electronic retail stores (ie: Fry's Electronics in Santa Clara, CA.) or most electronics distributors (ie: Allied Electronics, 800-433-5700). The EPROM IC generic part number is 27256-250. That is a 256K EPROM IC in 28 pins DIP, with 250 nsec access time, 32K bytes of memory in 8 bits per byte width format, usually with programming voltage at 12.5 volts.

After you got the EPROM IC, you should erase its internal contents to blank by Ultraviolet Light EPROM Eraser. There are very inexpensive EPROM Erasers, costing no more than \$35.

3. Programmed the BASIC cartridge contents into the EPROM IC

I used the DATA I/O Model 201 External EPROM Programmer. Obviously, this DATA I/O EPROM Programmer is a very expensive equipment. The only reason I chose it is because I had access to it.

Since this EPROM programmer only accepts ASCII for-

mats, I had to convert the BASICROM.BIN binary file to Hexadecimal ASCII file in Intel 8 bits Data Record Format. The program I had written for this is the BASIC program HEX-CONV.BAS listed at the end of this article. After you start the program, you can go for a cup of coffee. It takes 25 minutes in a PC-XT and 35 minutes in a PCjr. Running in Compiled BASIC will be much faster.

In your jr, do the following:(Diskette has room for 100KB file?)

```
A>basica hexconv          (start BASICA program )
Converting from BASICROM.BIN to BASICROM.HEX
                          (go for a cup of coffee..)
```

```
Byte Remaining = 32768
File BASICROM.HEX translated.
```

```
A>dir          (check directory)
BASICROM COM  32768  6-20-88  1:40p
BASICROM HEX   92174  6-20-88  2:56p
```

I connected the PC through RS232 Serial Port to the EPROM programmer in the following configuration.

```
PC or ---> Serial Port Cable --> EPROM Programmer -->
PCjr      (cross pin 2 & 3)  DATA I/O Model: 201
                                      27256 EPROM
                                      (NEC 27256-25)
```

In the PC, I used the Public Domain communication program PC-TALK III. In the EPROM Programmer, I pushed the setting to "RS232 PORT" and "COMPUTER CONTROL". The default communications setting is 9600 Baud, 8 bits data, 1 stop bit, no parity. Communication started by entering these commands into the PC, through the PC-TALK program, to the EPROM Programmer :

```
M (To EPROM Programmer : start computer communication)
> (From EPROM Programmer : acknowledge, command OK)
```

First I transmitted the BASICROM.HEX data from the PC to the EPROM Programmer.

```
I      (To EPROM Programmer : Input data from Host)
Alt-T      (To PC-TALK : Transmit a file)
FILENAME: basicrom.hex  (transmitting file to EP
                        ROM programmer)
> (From EPROM Programmer : command executed OK)
4532@ (To EPROM Programmer : set to NEC 27256 type)
> (From EPROM Programmer : command executed OK)
B      (To EPROM Programmer : check EPROM for Blank)
> (From EPROM Programmer : command executed OK)
P      (To EPROM Programmer : program the EPROM)
> (From EPROM Programmer : command executed OK)
V      (To EPROM Programmer : verify the EPROM)
> (From EPROM Programmer : command executed OK)
S      (To EPROM Programmer : perform checksum)
C85B    (From EPROM Programmer : checksum)
> (From EPROM Programmer : command executed OK)
```

```
A>debug basicrom.bin
-d      (display the beginning of BASIC Cartridge)
XXXX:0000 55 AA 40 E9 1D 00 05 42 41 53 49 43 E9 82 01 06
" "
" "
-d 7fe0      (display the end of BASIC Cartridge)
XXXX:7fe0 29 00 61 1B 62 1B 8E 00 00 00 1A 1A FF FF FF FF
" "
" "
-q
A>
```

Figure 2

You can use other brands of external but a lot less expensive EPROM Programmers (must have a RS-232 serial port link), or borrow one from your friends for a couple of hours. The method of using these EPROM Programmers differ widely. I recommend you read and follow its operating manuals and instructions.

PC --> EPROM Programmer in -->
(PC Expansion Card)
External Mount --> 27256 EPROM
(Socket)

The option of using the EPROM programmer in a PC expansion card is usually least expensive. These EPROM Programmers usually come with their own operating software running in the PC, instead of PC-TALK. You may need to convert the BASICROM.BIN binary file into ASCII Hex file in Intel 8 bit Data Record Format or some other types of format. You can use or modify my BASIC program at the end of this article to fit your needs.

4. Solder the EPROM and assemble the new BASIC Cartridge
I soldered the 28 pins EPROM DIP IC in the "ROM 1" socket location (slot near the gold plated edge connectors) of the PCjr ROM cartridge kit printed circuit board. Make sure pin #1 of the EPROM IC matches the PCB's socket hole marked "1". The EPROM IC pin #1 usually marked with a dot, or a mark, or slotted short edge which should matches the PCB's slotted IC marking footprint.

The detail assembly instructions and PCB schematics are in the PCjr ROM Cartridge Kit Technical Reference Manual in diskette (file name RC-TECH.REF).

That's it, good luck and have a happy backup!

Contact list : (For your reference only, not endorsements)

1. **Integrity Technology**, 105 Serra Way, Suite 230, Milpitas, CA. 95035 (408) 262-8640 They charge \$3.00 for shipping and handling. PCjr ROM Cartridge Kits : \$5.75 each, min. 4 kits. PCjr ROM Cartridge Kits Technical Reference Manual : \$3.50 diskette. PCjr Clock Cartridge : \$ 34.50 each.

2. **JDR Micro Device**, 1224 S. Bascom, San Jose, CA. 95128 (408) 995-5430 EPROM IC 27256-250: \$5.95 each, Programming voltage 12.5V, 28 pin DIP. EPROM Eraser : Data Ease EPROM Eraser, erase 2 EPROMs in 10 minutes, \$34.95

EPROM Programmers :

MCT EPROM Programmer in IBM PC Expansion Card, with software, \$130 Intelligent Serial EPROM Programmer, external with RS232 Serial Port. \$199 un-assembled kit, \$349 assembled with case and power supply.

3. **Fry's Electronics**, 541 Lakeside Drive, Sunnyvale, CA. 408-733-1770 EPROM IC 27256A-250 : \$6.99 each. Programming voltage 12.5 V, 28 pins. EPROM Eraser : Palm Eraser (Compact EPROM Eraser, erase in 2 minutes) \$49.95 each EPROM Programmer :

EPROM Programmer for IBM PC Expansion Card , with software. \$119.95 EPROM Programmer for Apple Expansion Card , with software. \$109.00 External EPROM/EEPROM Programmer (Logical Device, Inc. Shooter) with module RS232 serial connector. \$395.00

4. **Data I/O** , 10525 Willows Road NE, P.O.Box 97046, Redmond, WA. 98073 EPROM Programmer, Model 201.

Technical Help Line : 800-247-5700

Conversion Program to Convert from Binary to ASCII Hex in Intel 8 Bits Data Record Formats for EPROM Programmers. Written in PC BASIC. Copyright reserved by Larry Young, 1988.

```
100 ' Convert from Binary to ASCII Hex in Intel 8 bits Data Record Format
150 PRINT " Converting from BASICROM.BIN to BASICROM.HEX "
200 PRINT " Bytes Remaining = ";
250 OPEN "R", 1, "BASICROM.BIN", 1 : FIELD 1, 1 AS IS
300 OPEN "O", 2, "BASICROM.HEX"
350 NBYTE = 0 : NCKSUM = 0
400 GET 1
450 WHILE NOT EOF(1)
500 IF NBYTE MOD 16=0 THEN PRINT #2,":10";RIGHT$("000"+HEX$(
NBYTE),4);"00"; :NCKSUM=16+(NBYTE MOD 256)+INT(NBYTE/256)
550 PRINT #2, RIGHT$("0"+HEX$(ASC(IS)),2);
600 NCKSUM = (NCKSUM + ASC(IS)) MOD 2048
650 NBYTE = NBYTE + 1 : IF NBYTE = 32768! THEN GOTO 800
700 IF NBYTE MOD 16 =0 THEN PRINT #2,RIGHT$("0"+HEX$(
NCKSUM),2) : LOCATE ,20 : PRINT 32767-NBYTE; 750 GET 1 : WEND
800 PRINT #2,RIGHT$("0"+HEX$(NCKSUM),2) : PRINT
#2,":00000001FF"
900 CLOSE:PRINT:PRINT "File BASICROM.HEX translated."
```

For more information contact : Larry Young, P.O. Box 604, Milpitas, CA. 95035

Last Updated : September 26, 1988

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Junior's Graphic Text Characters

A recent Junior Report article about the graphics modes of IBM's PCjr mentioned that in Junior's ROM BIOS (Read Only Memory Basic Input/Output System) are data tables for drawing text characters, but there wasn't room in that article to elaborate on them. In this article we'll take a close look at these tables and how they are used, and we explain how you can customize them.

While Junior is in one of the text modes, characters are written on the screen by means of a special chip called the Character Generator ROM, but this chip doesn't work in the graphic modes, so when Junior is using one of the graphic modes the characters must be drawn on the screen pixel by pixel. As a service to programmers, IBM included a table in ROM BIOS that contains patterns to draw the ASCII characters. In the IBM Color Graphics Adapter, used on PCs, XTs and ATs, these tables covered only the first 128 ASCII characters, but IBM went a step further with Junior and added a table for the remaining 128 ASCII characters. A graphics program does not have to use these tables, and many of them don't, but they are there and so are the means in the video services of the ROM BIOS translate the table patterns into characters. IBM put all of the ASCII characters in their tables, even the ones that are normally non-printing and are for control, such as beep, tab, line feed

John Wilson shows us how the Junior creates text characters, and how even we can customize them ourselves.

and carriage return.

The table for ASCII characters 0 through 127 begins at the absolute address of FFA6E (a hex number) in the ROM BIOS of both the PC CGA and the PCjr. The table for ASCII characters 128 through 255 begins at address FE05E in the PCjr, and as previously mentioned the PC CGA does not contain a table for these characters. Each character pattern takes eight bytes of memory and the character patterns are consecutive in memory, so that ASCII character number zero is in the first eight bytes, ASCII character number one is in the second eight bytes and so on. Thus, it is easy to locate any character in this table by multiplying it's ASCII number by eight. For example, an uppercase G is ASCII character number 71, so it starts at byte number 568 (71 X 8) from the very start of the table. Decimal number 568 is 238 in the hexadecimal base, and therefore the bit pattern for "G" starts at hex address FFCA6 (FFA6E + 238).

If you look inside the ROM BIOS at the eight bytes beginning at address FFCA6 you will see the following

hexadecimal numbers:

3C 66 C0 C0 CE 66 3E 00

We'll try to make some sense out of these numbers. The G is to be formed within an 8 pixel by 8 pixel box, and each of the eight hex numbers is the pixel pattern for a row within that box. The 3C is for the top row and the 00 is for the bottom row. Remember that a byte is composed of eight bits. If we translate each of these hex numbers into binary (See the sidebar article "Why Use Hexadecimal?" in the September 1988 issue of The Junior Report for an easy technique to use in converting hex to binary.) and arrange the numbers in a column you can begin to see the pattern of a "G", and if we leave the zeros out and make the 1's into X's you will be left with a magnified G.

Bit Hex	Binary	Pattern
3C	00111100	XXXX
66	01100110	XX XX
C0	11000000	XX
CE	11001110	XX XXX
66	01100110	XX XX
3E	00111110	XXXXX
00	00000000	

That's the way Junior uses the character table. Pixels which are controlled by the zeros are left off and

BY JOHN WILSON

pixels controlled by the ones are turned on to form the character. Notice that there is a blank column of pixels on the right side, and a blank row on the bottom so that the characters won't blend together. Descenders on lowercase letters, however, do use the bottom row.

The tables for ASCII 128 through 255 work just the same, except that they start at the absolute memory address of FE05E and the relationship between the ASCII code number and the table offset is a little different. The location of a character in memory can be found by the equation:

$$\text{Address} = (\text{ASCII Code Number}) - 128 + (\text{Table Start Address})$$

If you try this equation by hand the conversions between hexadecimal and decimal are messy (Unless you are better at hexadecimal arithmetic than I am.). It works easily in a computer program, but you don't really need to know the address at which the pattern for a character starts because Junior's BIOS figures it out and goes on to display the character.

Listing 1 is a BASIC program that gives you a tour through the character generator tables. For every character the program will list the ASCII character number, print the character (if it can), give the starting address of the character, and then for each row in the character box give the byte's hex value and shows the bit pattern with an X for an "on" pixel. Figure 1 is a screen print for the character G. To see the characters in the extended set, move the REM's in lines 135, 1050 and 1115

to the previous lines. As it is written, the program will start at the beginning of the character table and show every character, but you can modify the FOR/NEXT loop starting at line 135 to look at just selected portions of the tables. The program, which is run in a text mode, has problems in printing some of the ASCII characters that are normally used as control characters. For example, character number 7 beeps, and character number 10 causes a line feed when the program prints them (in line 1050), but the program still shows you the graphic bit pattern for these characters.

Since these character tables are in Read Only Memory (ROM) they cannot be modified, but it is possible for you to make up your own table, place it in Random Access Memory (RAM) and then set up Junior to use that table instead those in ROM. Before we get into details on how this is done, we need to first find out how Junior finds the proper character table.

Whenever a graphics program calls for a text character to be printed Junior looks in a certain address location in an interrupt table for the starting address of the character table to use (These addresses listed in interrupt tables are often called vectors.). If the character to be printed has an ASCII number of 127 or less Junior looks in interrupt address 110 (hex) for the starting address of the table, and if the character has an ASCII number of more than 127 Junior looks in Interrupt address 7C for the table's address. Normally in interrupt address 110 Junior finds the address FFA6C and in interrupt address 7C Junior finds the address FE05E, and, as we have already pointed out, the ready made character tables do indeed start at these addresses which are

in ROM. To be complete, we should explain that the PC also has these same interrupt addresses and 110 points to address FFA6C just as Junior does, but interrupt address 7C points to address zero and there is nothing at address zero.

You cannot change the character tables, but you can change the addresses listed in the interrupt tables.

Therefore, you can make up your own character table, place it somewhere in RAM, and change the interrupt so that it points to your table. The BASIC program shown in Listing 2 does just that. This is a demonstration program that just prints the capital letters A and B on the screen, but the letters are slanted instead of being in their usual form.

The DATA in line 400 contains the bit pattern for an italics (or slanted) A, and the DATA in line 410 contains the bit pattern for an italics B. The letters were just drawn out on paper with a 8 by 8 grid pattern, and then the pattern was converted to hexadecimal (The reverse of what we did earlier in the article.).

The memory location to store these numbers was picked as follows: The top of RAM in my computer for cartridge BASIC is 128K bytes (20000 hex). The video display buffer takes 16K bytes, so the top of free memory is at location 112K (1C000 hex). Junior will recognize a maximum of 1K (400 hex) bytes in a table (128 characters times 8 bytes per character) so you could safely start your table at 111K (1BC00 hex), but I dropped another 1K and started the table at 110K (1B800 hex) in RAM. You'll notice that in BASIC's DEF SEG statement the right-

most digit in the hex number is dropped. Since the characters I wanted to test have ASCII numbers of 65 and 66, I stored the bit patterns starting at offset 520 (65 X 8). Of course, if you had a complete table you would start at zero offset.

About the only other thing you need to do is to correctly enter the address of your table starting at location 110 (hex). Notice that the ad-

dress takes four bytes and that it seems to be entered backwards. This is the way the Intel chose to address memory locations. You must also restore the original address of the interrupt at the end of the program, otherwise Junior will print out random bit patterns after the program is ended.

Listing 1

A BASIC program to display all of the graphic mode text characters. As it is written, the program displays ASCII characters 1 through 127. To see ASCII characters 128 through 255, move the REM on line 135 to line 130, the REM on line 1050 to line 1045 and the REM on line 1115 to line 1110.

Listing 1

```

100 KEY OFF: SCREEN 0 : WIDTH 80 : COLOR 14,1,1 : CLS
110 DEFINT A-Z
120 DEF SEG = &HF000
130 FOR CHAR = 1 TO 127
135 REM FOR CHAR = 128 TO 255 'TO SEE THE EXTENDED CHARACTER SET
140 GOSUB 1000
150 NEXT CHAR
160 END
900 '
1000 'SUBROUTINE TO SHOW EACH CHARACTER
1010 '
1020 IF CHAR > 127 THEN CH = CHAR - 128
1030 CLS:LOCATE 3,8
1040 PRINT "CHARACTER: ";CHR$(CHAR);" CHARACTER CODE: ";CHAR
1045 LOCATE 5,8: PRINT "STARTING ADDRESS: "; HEX$(&HFA6E + CHAR * 8)
1050 REM LOCATE 5,8: PRINT "STARTING ADDRESS: "; HEX$(&HE05E + CH * 8)
1055 LOCATE 7,5: PRINT "SCAN BITS"
1060 LOCATE 8,5: PRINT "LINE HEX 01234567"
1100 FOR ROW = 0 TO 7
1110 BYTE = PEEK(&HFA6E + ROW + CHAR * 8) 'ASCII CHAR 1 THRU 127
1115 REM BYTE = PEEK(&HE05E + ROW + CH * 8) 'EXTENDED ASCII CHAR SET
1120 LOCATE 10 + ROW,5 : PRINT ROW;" ";HEX$(BYTE);" ";
1130 FOR K = 7 TO 0 STEP -1
1140 IF BYTE >= 2^K THEN BIT$="X" : BYTE=BYTE - 2^K ELSE BIT$=" "
1150 PRINT BIT$;
1160 NEXT K
1190 NEXT ROW
1200 LOCATE 22,5
1210 WHILE INKEY$ <> "": WEND:
1215 PRINT "PRESS ANY KEY TO STOP. BREAK TO QUIT"
1220 FOR A = 1 TO 1000
1250 NEXT A
1260 IF INKEY$ = "" THEN RETURN
1270 LOCATE 22,5: PRINT "PRESS ANY KEY TO CONTINUE"
1280 WHILE INKEY$ = "": WEND
1300 RETURN

```

Listing 2

A BASIC program to print italic characters on the screen.

```
100 SCREEN 1 :DEFINT O
110 DEF SEG=&H1B80
120 FOR OFFSET = 520 TO 535
130 READ BYTE
140 POKE OFFSET,BYTE
150 NEXT OFFSET
200 DEF SEG=0
210 POKE &H110,&H0 : POKE &H111,&H0
230 POKE &H112,&H80 : POKE &H113,&H1B
300 PRINT "AB"
350 POKE &H110,&H6E : POKE &H111,&HFA
370 POKE &H112,&H0 : POKE &H113,&HF0
380 REM
400 DATA &H6,&H1E,&H16,&H36,&H7E,&HC6,&HC6,&H0
410 DATA &H3C,&H36,&H66,&H7C,&H66,&HC6,&HFC,&H0
500 END
```

Figure 1

Screen from the BASIC program to display the graphic text characters.

CHARACTER: G CHARACTER CODE: 71
STARTING ADDRESS: FCA6

SCAN	BITS
LINE	HEX
0	3C
1	66
2	C0
3	C0
4	CE
5	66
6	3E
7	0

XXXX
XX XX
XX
XX
XX XXX
XX XX
XXXXX

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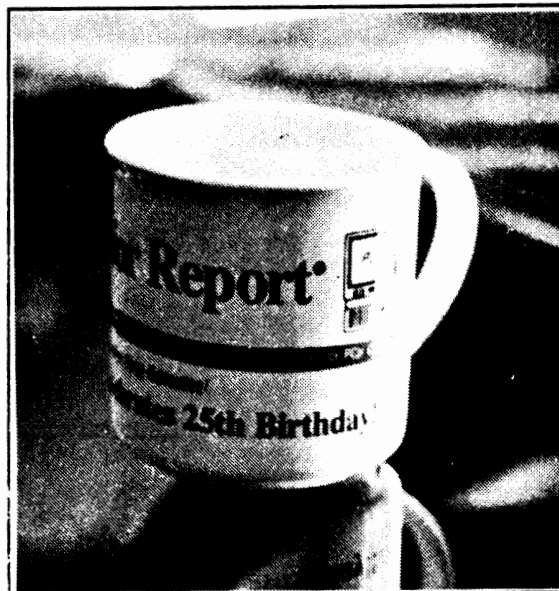
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RAM DISK DELIVERS TWO-DRIVE POWER

New memory products simulate second drive, take Junior to 512K

By Don Kennedy

Owners of PCjr's with 256K or more of memory now have an additional reason to tell IBM, "Thanks for the memory." Besides making the PCjr more powerful and capable of running more programs, this newly available extra memory can also be used to simulate a second disk drive.

IBM is offering a set of easy-to-use programs that allow you to make full use of the extra memory and designate blocks of the random access memory (RAM) to create what is called a "RAM drive." (IBM calls it a "memory disk.") You can use this RAM drive the same way you would a physical disk drive—running programs within it, reading from and writing to it, and so on.

The concept is not new; some of the memory expansion boards issued by other companies have come with programs to create RAM drives. However, the IBM installation program makes it especially simple and easy to do this, and has the very nice feature of remaining installed on any program disk that includes the disk operating system (DOS) tracks. For example, word processing, database, and spreadsheet programs set up in a DOS format can

be installed so the RAM disk will be created each time those programs are booted.

Moving Day Installation of extra memory and a RAM drive requires three steps. First, it is necessary to rearrange the memory locations for any PCjr to use more than 128K of RAM.

When a PCjr is configured with just 128K of RAM, the section of memory for temporarily storing what's headed for the video display is found in the "top" 16K of memory, the last section of RAM the computer searches when running through its paces. These are memory locations 112,000 through 128,000.

If this video buffer were to remain there when extra memory is added, the computer would stop searching when it reached the "hole" in its memory—it would not make use of any memory added above the first 128K. To sidestep this problem, the IBM program moves the video buffer and relocates it within the DOS section of memory.

In the 128K configuration, DOS occupies memory locations 00000 to 24000. But it swells by about 20K when the PCJRMEM.COM file transfers the

video buffer there and adds memory- and video-handling routines that remain as resident code. Because the DOS section grows, the user memory is pushed to higher memory locations, filling the area that previously was reserved for the video buffer.

The net result, though, is that all usable random access memory becomes contiguous and the PCjr makes full use of all extra memory beyond 128K when this program is run.

The Phantom Once the extra memory is made contiguous, the RAMDISK.COM file enables you to create the RAM drive that will work as the phantom, but fully functional, disk drive. The IBM installation program is menu-driven. After you choose the option to create a RAM drive, you designate the amount of memory you want the RAM drive to contain.

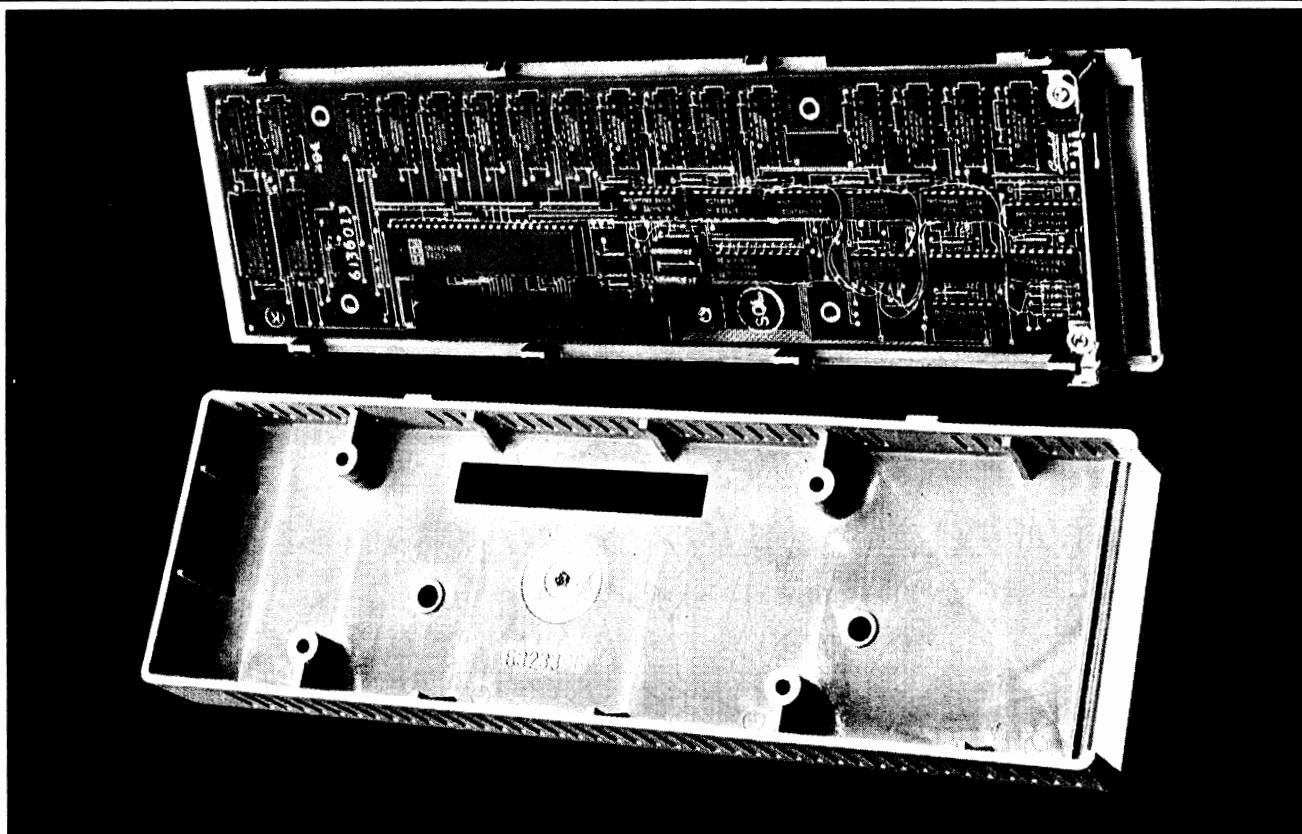
Default values set the memory for the RAM drive at 60K, but you are free to create a drive with as little as 10K of memory or as much as 512K, assuming your system has enough memory to expand the RAM disk to its upper limit.

The RAM drive software is then permanently installed on the DOS disk. You'll have to reboot the disk immediately after installation to alert the computer to the new memory configuration, but every time you boot DOS in the future, the RAM drive will be automatically created.

In addition, the installation program will ask if there are other programs you wish to have the RAM drive installed on. If you have installed DOS, for example, on your word processor or spreadsheet, you can then install the RAM drive on the program disk and have it created automatically every time you boot that program.

This is done through a CONFIG.SYS file that is automatically copied onto the disks during the installation process. When a system disk is booted, the PCjr loads DOS and, during this process, looks for any CONFIG.SYS files before it executes an AUTOEXEC.BAT file, which is a file listing the DOS commands to be performed automatically every time the disk is booted.

These system configuration files instruct the PCjr to use input or output logic other than that which it has been programmed to expect. In a sense, the system configuration file "rebuilds" DOS before DOS becomes resident in memory.



Inside an IBM PCjr memory sidecar. The 16 memory chips along the top of the card hold 128K of RAM.

In this instance, the CONFIG.SYS file instructs the PCjr to move the video buffer into DOS and create a RAM drive. The file reads:

```
DEVICE = PCJRMEM.COM
DEVICE = RAMDISK.COM /60
```

The number at the end of the second line is the amount of memory you have chosen to allocate to the RAM drive. So if you have created a RAM drive with 256K, for example, that line will read `DEVICE = RAMDISK.COM /256`.

Tandem Disks The effect of all this, of course, is that the PCjr will now function automatically as a two-disk-drive system every time you boot an installed disk. The benefits are immediately apparent if you are using programs that require or recommend two drives.

If, for example, you have a word processing program and wish to avoid the disk swapping that can become so cumbersome with a one-drive system, you merely have to install a RAM drive on the program disk once, and every time you load that disk's contents into the PCjr, you can place the program in the RAM drive and use the physical disk drive for your data disk, which will contain whatever files you create or edit during the program's operation.

You can transfer your program to the C: drive automatically during the booting process, using an AUTOEXEC batch file. That way, you will have to make only one disk swap, putting your data disk into the physical drive once the program is loaded.

An example of such a batch file, using *WordStar*, would be:

```
copy a:ws*. * c:
c:ws
```

The first line copies all *WordStar* files to C:, and the second runs *WordStar* in the RAM drive.

At the point at which *WordStar* appears on the screen, you would remove the program disk, insert the data disk, and never have to swap disks again. In addition, the data disk will not contain any *WordStar* command or overlay files, so significantly more space will be available on the disk for your work. The same is true of every other program that runs best on two drives, with the program resident in one and data being written onto a disk in the other.

A program in the RAM drive operates much faster than one located physically in a disk drive. To understand why, first consider how a program runs on a 128K, one-drive PCjr. The program is physically stored on a disk in the disk drive and must be

loaded into RAM before it can be run. But because the PCjr has no separate video memory, both the program and video information are stored in the same RAM. As the program is run, the chip that controls the display on the screen and the microprocessor are trying to read information from the same memory and must take turns. This means that the program execution must wait while the video controller chip updates the screen.

But a program in a RAM drive doesn't have this problem. When the IBM software creates a RAM drive, it uses the PCjr's original memory first, storing the program in the first 128K. When the program is loaded from there into user RAM to be run, it is loaded into the new, added memory. This memory doesn't store any video information, so the video controller chip never tries to read that memory. The microprocessor has the memory all to itself, and never has to wait. As a result, programs run at least twice as quickly.

Interestingly, we found that this installation program will work on the 128K model of the PCjr, enabling you to create a small RAM disk of about 18,000 bytes. This is such a small amount of memory that it probably is of little use in most applications. □

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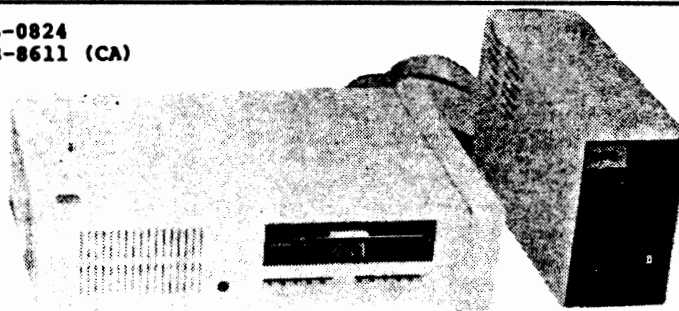
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December 88

Letters From Blair

Blair Bieser is our resident software genius who has never met a software program he didn't like, or at least patch to run on a PCjr. Blair sends us these programs for you to make your life as a PCjr owner as enjoyable as possible. This month Blair sends us a nifty program that will save your PCjr color monitor screen. Next month's letter will feature patches that will allow the PCjr to run games such as Digger, Digdug, Hopper, Paratrooper, and Encounter. Until then, let's read this month's letter below.

SAVERjr -- A screen saver for the PCjr

SAVERjr is a tiny little screen saver especially designed for the PCjr. If you haven't hit a key for the last five minutes, SAVERjr blanks your screen to prevent the current image from being burned onto it. To reactivate the screen, hit any key (I suggest you always use the "shift" key, since it will probably have no effect on whatever program you're running).

System requirements:

To use this program, you must have a PCjr.

Setup:

Use the BASIC program to create a copy of SAVERjr.COM. Then put "SAVERjr" in your AUTOEXEC.BAT file so that it will be installed every time you boot your computer. You should NEVER install SAVERjr more than once per computer session.

SAVERjr may not work with some games, because these often take over the PCjr's timer (which SAVERjr uses to keep track of how long you've gone without hitting a key).

Technical support:

If you need technical support, please send a self-addressed, stamped, business-size envelope to the address below. I'll make every effort to help anybody who asks. Just be sure to provide as much information as possible about your particular problem. By the way, BASICjr, FIXQCjr, and PALETTE have all been improved since being published in The Junior Report. If you want the new versions, drop me a line or visit the IBMJR forum on CompuServe.

Blair M. Bieser

Address until August 1, 1989:

1517 W. 9th Street
Apt. 23
Lawrence, KS 66044

Permanent address:

8413 Nall
Prairie Village, KS 66207

Although SAVERjr is donated to the public domain, it may not be distributed under a different name or without this documentation.

SAVEjr - A Screen Saver for the PCjr

```

100 REM -- BASIC PROGRAM TO CREATE SAVERjr
110 OPEN "SAVERjr.COM" AS #1 LEN = 1
120 FIELD #1, 1 AS A$
130 CHECKSUM = 0
140 FOR I = 1 TO 35
150     LINESUM = 0
160     FOR J = 1 TO 8
170         READ BYTE
180         CHECKSUM = CHECKSUM + BYTE
190         LINESUM = LINESUM + BYTE
200         IF (BYTE < 256) THEN LSET A$ = CHR$(BYTE)
210         PUT #1
220     NEXT J
230     READ LINECHECK
240     IF LINECHECK <> LINESUM THEN PRINT "Error in Line"; 280 + 10 * I
250 NEXT I
260 CLOSE
270 IF CHECKSUM = 22479 THEN PRINT "Successful Completion!" : END
280 PRINT "COM file is not valid" : END
290 DATA 233, 223, 0, 0, 0, 0, 0, 0, 456
300 DATA 170, 234, 0, 3, 5, 15, 0, 0, 427
310 DATA 0, 0, 0, 0, 0, 0, 0, 0, 0
320 DATA 0, 0, 0, 0, 0, 0, 2, 3, 5
330 DATA 4, 5, 6, 7, 8, 9, 10, 11, 60
340 DATA 12, 13, 14, 15, 46, 198, 6, 29, 333
350 DATA 1, 1, 46, 255, 46, 0, 1, 156, 506
360 DATA 250, 80, 30, 14, 31, 160, 29, 1, 595
370 DATA 138, 224, 34, 6, 10, 1, 117, 18, 548
380 DATA 10, 228, 117, 86, 255, 6, 8, 1, 711
390 DATA 116, 93, 31, 88, 157, 46, 255, 46, 832
400 DATA 4, 1, 83, 30, 51, 219, 142, 219, 749
410 DATA 187, 73, 4, 138, 31, 31, 128, 251, 843
420 DATA 4, 116, 79, 128, 251, 5, 116, 74, 773
430 DATA 128, 251, 10, 116, 69, 187, 28, 1, 790
440 DATA 198, 6, 10, 1, 0, 81, 82, 186, 564
450 DATA 218, 3, 236, 36, 8, 117, 251, 236, 1105
460 DATA 36, 8, 116, 251, 176, 16, 185, 16, 804
470 DATA 0, 238, 254, 192, 80, 138, 7, 67, 976
480 DATA 238, 88, 226, 245, 51, 192, 238, 90, 1368
490 DATA 89, 91, 199, 6, 8, 1, 170, 234, 798
500 DATA 198, 6, 29, 1, 0, 235, 163, 83, 715
510 DATA 187, 14, 1, 198, 6, 10, 1, 1, 418
520 DATA 235, 195, 187, 10, 1, 235, 185, 10, 1058
530 DATA 83, 65, 86, 69, 82, 106, 114, 32, 637
540 DATA 98, 121, 32, 77, 105, 99, 114, 111, 757
550 DATA 87, 105, 122, 97, 114, 100, 32, 83, 740
560 DATA 111, 102, 116, 119, 97, 114, 101, 13, 773
570 DATA 10, 36, 184, 2, 53, 205, 33, 140, 663
580 DATA 6, 2, 1, 137, 30, 0, 1, 184, 361
590 DATA 2, 37, 186, 44, 1, 205, 33, 184, 692
600 DATA 28, 53, 205, 33, 140, 6, 6, 1, 472
610 DATA 137, 30, 4, 1, 184, 28, 37, 186, 607
620 DATA 55, 1, 205, 33, 180, 9, 186, 191, 860
630 DATA 1, 205, 33, 205, 39, 0, 0, 0, 483

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George Suppes
2700 56 St. N.W. #1-4
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IBM PCjr 640K, one drive, internal modem (2), speech attachment, parallel port (2), external power supply (2), joysticks (4), extra 128K IBM sidecar, PCjr color monitor, color paint car-

tridge w/ joystick driver, loads of software, BASIC cartridge, adapter cables, DOS, manuals, games, etc. \$600.
(Will sell parts or in whole)
IBM Proprinter with cables and software \$250.

Bob Merrill
102 Brant Court
Georgetown, KY 40324
(502) 868-5202

IBM PCjr Compact Printer good condition with 2 rolls of paper \$40. UPS Paid USA, original PCjr chicklet keyboard \$15. UPS paid USA.

Lawrence Allan
700 Chestnut St.
Neenah, WI 54956
(414) 722-2192

IBM PCjr 128K, jr color monitor, parallel sidecar, internal modem, power side, speech sidecar, keyboard and serial cables, 1 joystick. All for \$460. and I'll pay shipping. Or will sell these and other parts separately.

Hank Kennedy
813 Chisholm Vly. Dr.
Round Rock, TX 78681
(512) 255-2812

PCjr Lotus 1-2-3 1A for sale - best offer, Also WANTED - functioning Microcom ERA-2 modem for PCjr.

Alfred Woelk
28 Nutmeg Court
Ridgefield, CT 06877-3710
(203) 431-0777 evenings.

Software for sale: VP-Planner, VP INfo, DOS 2.1, DOS 3.0, Display-write 1 and 2, IBM Graphing Assistant, Reporting Assistant, Filing Assistant, PFS File, Easy Writer, Logo, Professional File, Professional Word, Multiplan, Personal Communications Manager, various versions of PC Tools, 123 Report Writer, Disk

Optimizer, SQZ!, Sideways, Lightning, Sidekick, Copy II PC, other PCjr programs, ASK! Best offer.

Hardware: Taxan amber composite monitor, joysticks, keyboards, cables.
Alfred Woelk
28 Nutmeg Court
Ridgefield, CT 06877-3710
(203) 431-0777

512K Tecmar Sidecar \$250., BASIC cartridge \$50., IBM Writing Assistant with manual \$75., Tecmar Executive Writer and Number Works with manual \$25., Compute's First Book of IBM \$12., Icons and Images by Larsen \$12., The New Jr: A Guide to IBM's PCjr by Rosch \$12., 1001 Things to Do with Your IBM PC by Sawusch & Summers \$12., Exploring The IBM PCjr Home Computer by Norton \$12., Hands-On Basic for the IBM PCjr by Luehrmann and Pechham \$12.

Brian Lund
850 Gray Rd.
Cocoa, FL 32926
(407) 632-3143

Gorilla Banana Printer, yes, that's really the name - it's a primitive but very sturdy dot matrix from Leading Edge, with cable, manual, graphics driver software \$50., Okimate 20 Color printer, (can print in color and includes special software for the PCjr), with cable and manual \$75. Both printers have received only light use. Software: WordPerfectjr, the best-selling word processing program in aversion tailored specifically for the 128K Junior, original diskette and manual \$45., PFS File, manual and diskette and 2 copies \$55., Packet of Shareware programs - PC Write 2.71 (2 diskettes), New York Word 2.1 (2), and Freeword (1) - so you can evaluate them all together. \$25.

MEMORY EXPANSION BOARD UPGRADES

If you want to be the first kid on your block to have 256K chips in your IBM, Tecmar, or Microsoft **expansion board**, this one's for you (you must already have 256K total RAM in your PCjr system. **IMPORTANT** If your Junior only has 128K total, you do not have a memory expansion sidecar attached, and you CANNOT utilize this service). After replacing the 64K chips originally soldered in your JrCaptain or IBM expansion sidecar, adding new sockets, and inserting 256K chips, you will effectively have 640K of RAM in your PCjr to play with. All work will be done by qualified technicians headed by Brian Cook. What we want you to do, is to fill out the form below to let us know if you're interested. Once we have your form on file, you will be notified by phone or mail when we would like for you to ship your board to us for prompt work, hopefully within three weeks time. The cost of mailing the board to us and insuring it will be your responsibility, and the cost and care of returning your upgraded board to you via UPS in a safe manner will be ours. We want you Tecmar owners to send your power supply along as well, so that we can test the board with your own power supply before we do anything to it. The cost of this service will be \$155.00 (U.S. Currency). If you should have any questions concerning this service, please let us know on your form. We will guarantee the work and the 256K chips for 90 days. Canada please write.

Name : _____

Telephone no.: _____

Address _____

City _____ St _____ Zip _____

Mail form to:

The PCjr Club
P.O. Box 59067
Schaumburg, IL 60159-0067
ATTN: Brian Cook

Games on PCjr cartridges - Mouser and Mine Shaft \$12. each. All prices include mailing.

John Stevenson
 Box 478272
 Chicago, IL 60647
 (312) 227-0569

Tecmar 128K jrCaptain Board with clock/calendar and printer port. \$100.

Henry Carter
 3818 W. Tacon St.
 Tampa, FL 33629
 (813) 839-5928

PCjr 640K with color monitor

new Fujica M2551 disk drive, Tecmar jrCaptain sidecar, all manuals, programs galore, joysticks, excellent. Send S.A.S.E for full details....best offer.
 T.D. Gosman
 9 Warner Court
 Huntington, NY 11743

New IBM cordless keyboards

\$25., 128K single drive Jr with IBM color monitor, modem, DOS 2.1, BASIC cartridge, Hands on BASIC & Jr manual \$600. I would like to buy an Enhanced AT style keyboard for my Junior. (I

would consider trading some items.)

Charles Mellinger
 110 S. Ronks Road
 Ronks, PA 17572
 (717) 687-8223

IBM PC Compact Printer, excellent condition, \$50., DAC Easy Accounting version 1.0, \$25., Numberworks, (small spreadsheet), \$10., Documentation for all.

Wanted: If you're selling your PCjr, or not using it, sell me your second drive, preferably 5 1/4, or hard drive okay, must be working, and reasonably priced. Will pay cash or trade.

June Stewart
 368 Park Avenue
 Wheeling, IL 60090
 (312) 459-4880

One Centronics GLP Printer \$30. plus shipping costs. Two 360K disk drives @ \$35 plus shipping. All items in perfect condition.

Chris Reeberg
 111-67 145 Street
 Jamaica, NY 11435
 (718) 529-1528

Microsoft Mouse with Booster of 128K, Color Paint by IBM, Software

for Mouse and Ramdisk Configuration. Asking price for above \$200.00.

Ronald Rukan
 46 Rivercliff Drive
 Milford, CT 06460
 (203) 877-3035

IBM PCjr 640K via Tecmar with parallel port. Original color monitor, single drive, thermal printer, and manual. Software includes cartridge BASIC, Executive Writer, Numbers Works, Graph & Calc, etc. \$550.

Bill Tolson
 159 Via Los Miradores
 Redondo Beach, CA 90277
 (213) 373-4104 E & W

IBM PCjr 512K, Legacy expansion, 2 drives, parallel port, color monitor, enhanced AT style keyboard, 2 joysticks, cassette storage recorder and cables, BASIC cartridge, video adapter, assorted cable sets, 2 extra PCjr keyboards, manuals and software. \$650. UPS paid.

Tom Kravcar
 321 S. Hickory Ave.
 Bartlett, IL 60103
 (312) 289-5283

EYE ON SHAREWARE

By D. Glanville

The reason (excuse) most often given for the purchase of a new computer is "it will help me with my writing" of letters, book reports, stories, term papers, memos and any other writing task we keep putting off. The Shareware disks we offer this month were selected to help you keep your New Year's resolution. Come on write, write, write.

MAXI-READ (#143)

MAXIREAD is a fast, easy-to-use package that helps you improve the impact and understandability of your writing. It gives you a "Readability Summary" of your product to show the readability/understandability of your message or text. It analyzes and reports on the "personal tone" of your message. It's able to analyze ASCII or Wordstar files (and possibly other files from other word processors.) Lists those words that are adding to the complexity and offers synonyms for frequently used long words. It enables you to print your results and your text on the screen on the printer or both. Maxi-read is a tool to help you improve the "impact" of your spoken or

written message.

QEDIT v2.07 (#144)

QEDIT is considered by many professionals to be the best editing program available. With QEDIT you can edit files as large as your computer will allow. You can do multi-file editing, viewing files through as many as eight windows. You can use the "pop-down" menus to access QEDIT's commands. The help screen can be customized to fit your own needs. It provides "C mode" which utilizes automatic indentation for C language programming. It provides line drawing to create diagrams and tables. It supports up to 200-column and 100-line screens. You will be able to create your own macros which will execute a series of commands and keystrokes by pressing a single key. As the man says these are just a few of the excellent features, but incredibly QEDIT requires less than 50k of disk space.

SCREENWRIGHT PROFESSIONAL (#145)

SCREENWRIGHT PROFESSIONAL

is a word processing program specifically designed for screenplays and teleplays. Special care has been taken to keep SW Pro simple to use. You can concentrate on your creative writing instead of on a stack of computer manuals. SW PRO includes both a complete text editor and formatter, no other software is required. You type in your screenplay using the text editor, and print it by using your formatter. The reference manual contains examples to demonstrate just how easily you can use SW PRO with your scripts. Just how many words do you think it takes to write an episode of Thirty something?

TAROT32 (#146)

For those of you who are eager to know what the New Year will bring to them, I suggest you get TAROT32. Have the computer read your cards by answering a few simple questions. Avoid the Hanged Man!!!! If you believe in fortune cookies, you'll love TAROT32.

ORDER FORM ON PAGE 31

PC FILE III (#1): the classic, updated, full-featured database program that has set the standard for shareware programs. Considered by many to be better than most commercial programs. Version 4.

PC WRITE (#2): this best-selling shareware program is equal to or better than most word processors on the market. This is the latest version (2.55) and will run on the single drive, 128K PCjr.

PC TALK (#3): PCjr adapted version of one of the most popular communications programs.

HOME MANAGEMENT (#4): a reliable, general purpose financial manager.

KIDS (#7): a special children's disk composed of a kid's word processor, an intermediate math program, and a colorful counting game for the preschooler.

PC-KEY-DRAW (#9): the most powerful graphics program available in shareware. Requires 256K.

GAMES (#10): one of the best selling game disks has Combat, Dungeons & Dragons, & Global THERmNuclear War.

PC TUTORIAL (#12): a course in computer and the PC-DOS environment.

EDUCATIONAL GAMES (#18): features math exercises, thinking programs, and the classic Flashcards.

LABEL MASTER (#19): the original label making program has a variety of uses. Requires 256K.

GAMES (#24): Poker games, Battleship, Land Mines, Fire, Grime, and Hostages.

IMAGEPRINT (#25): A must-have printer utility that makes your dot matrix into a lean, mean, quality text producing printing machine. Can proportionally space text. Requires an Epson or IBM compatible printer.

QMODEMjr (#26): a special PCjr version of the popular communications program, allows easy access to BBS's.

PC-LEDGER & PC ACCOUNTS RECEIVABLE (#27): A very good business manager for the small and home business. 256K.

EZ FORMS (#28): Create and print custom forms to fit every need. A business necessity. **Requires 256K.**

PC-STYLE (#29): Written by Jim Button, helps improve your writing skills by analyzing your writing style. Easy to use, it wakes up your documents or prose, making your writing more readable and stylish.

PC-CALC (#31): A "visible" spreadsheet program that challenges those offered commercially. Income tax computations, calculating depreciation, computing loan interests, or just plain balancing your checkbook are just some of the chores this program can handle.

DOSAMATIC (#35): No, it doesn't slice and dice onions, but it is one heck of a DOS utility, that includes multi-tasking abilities, debugs, sorts, and much more.

PC-DESKMATES (#36): A memory resident that includes an alarm clock, phone book, calendar, notepad, and printer commands.

GAMES (#38): Frogger, Wa-Tor, R-Logic, and Zaxxon, among others.

GAMES (#39): Includes Yahtzee, Chess, Slot Machine, and Wizard.

GAMES (#40): How about a game of CoreWar, Keno, Othello, or Golf?

GAMES (#41): Features Striker, an arcade-style helicopter attack game that will make you swear you're in a real arcade. Also has Catacombs of Nemon, and JumpJoe.2 (A donkey Kong lookalike) **Requires 256K.**

GENEALOGY (#42): Contains both informal format and LDS format for you to see if you are related to the Czar of Russia.

TRIVIAL TOWERS (#45): Trivial Pursuit in a computer form, has six categories from which to choose, or write your own questions and answers. **TWO DISK SET - \$10.00. Also requires either RAMDISK or 2 drives.**

ULTRA UTILITIES (#47): features U-File, U-format, and U-Zap in a powerful collection of programs that will allow you complete access to the power of your PCjr DOS operating system and of your PCjr disk drive controller circuitry.

CASHTRAC 5.15 (#48): an excellent program intended for use by the household manager, club treasurer, small business, and expense account keepers. **Requires 256K.**

PCjr UTILITIES (#49): special utilities for Junior includes a print spooler, two text editors, and a program that can create special PCjr keyboard templates for WordPerfect 4.1, Reflex, PC-Write 2.55, and others.

GOOD HEALTH (#50): features PC-Recipe, a fun program that maintains recipe information, and allows you to display, update, add, change, and re-calculate recipes. Also has BioRhythm and ELIZA, the "artificial intelligent" companion.

TUNE TRIVIA (#52): Quick, for one thousand dollars, NAME THAT TUNE! For up to six players.

PROCOMM 2.42 (#55): This has become the new standard in Public Domain communications software. Powerful and easy-to-use, this version is the one that works well on the Junior. **Requires 192K. TWO DISKS - \$10.00.**

GAMES (#56): Includes three casino games led by Las Vegas Style Craps that includes its own tutorial, three text adventure games, and an assortment of other arcade games that should keep everyone busy.

Jr MUSIC MACHINE (#57): One of two music programs on this disk, this program lets you play and see music simultaneously, and utilizes Junior's special sound capabilities.

GOLF HANDICAPPER (#58): Allows you to compute, store, update and print golf stroke handicap information for up to 75 players, using the handicap formula established by the USGA.

PC-FONT (#59): A utility program which enables your Epson or IBM Graphics printer to print a variety of fonts that includes block graphic, engineering, scientific, foreign language, and other special characters.

SLEUTH (#61): A murder has just been committed, and your job is to mingle with houseguests, search the house, and solve the crime. Every game is different. If you like the game of CLUE, you'll love SLEUTH.

SAN MATEO EDUCATION (#62): Educational games for children 12 years and older. Includes scramble, states, nations, chemist, and many more.

BUTTON GAMES (#63): Includes Buttonware educational and adventure games SOUTH AMERICAN TREK (You are a special investigator for the Federal Geographical Magazine and you have been sent to gather information about each country in South America. Your travels will take you from one end of the continent to the other where you will be picked up by a friendly submarine), and CASTAWAY (You are shipwrecked in the Pacific, slowly drifting through the fog until you find a deserted island. There you find countless treasures, but they are worthless if you cannot return to civilization. Will you be able to get off the island?)

PC WRITE 2.7 (#64): Newest version of best selling Public Domain word processor. Now has Spelling checker. **Requires 256K. Two disks \$10.00.**

THE DESIGNER (#65): a fantastic programming tool for BASIC users working with animated graphics on the Junior. You can draw on the screen in color, store your work in either "screen" or "sprite" form, and recall it later to make changes.

MR. LABEL (#66): many business and home uses - can create everything from simple reports to custom labels, prints envelopes, letterheads, price tags, ID badges, file folder labels, name tags, inventory slips, and much more. Will also retrieve and print information from databases such as PC-File and dBase III+. **Requires 256K.**

GAMES (#68): includes PC BOWL, Backgammon, and NIM.

SIDEWRITER (#69): Prints text files sideways. A must for spreadsheets that cannot fit into 80 or 132 columns across.

DUNGEONS AND DRAGONS (#70): The most popular of all games in this genre, this will place you in a world where the fantastic is fact and magic really works.

BEYOND THE TITANIC (#71): Enthusiasts of Infocom's famous text-adventure games will find this as exciting as Zork or Planetfall.

JAPANESE (#74): An introduction to this fascinating language. May be important to the businessman or traveler.

PC-FILE+ (#75): Power-pack update for the most popular shareware program of all time. **2 Disks - \$10.00.**

PINBALL II (#76): For all pinball wizards and non-wizards. Provides hours of challenge. Requires a joystick.

MAHJONG (#77): One of the most popular games in the world, it employs extraordinary graphics, and has extensive documentation for the beginner. Color only for Racore owners.

AMY'S FIRST PRIMER - PCjr Version (#78): This is probably the best collection of educational games in the world of Shareware for the pre-school. Includes sing-a-long alphabet, letter-matching game, numbers-matching game, among others. Colors are spectacular.

ORIGAMI (#79): Brings the ancient art of paper folding to your Jr world. Create rabbits, jets, penguins, samurai helmets, etc.

BIBLEQ (#80): Bible trivia covers a wide range of topics such as geography, personalities, incidents, and teachings.

JRCONFIG.SYS (#82): Updated version of JrCONFIG.SYS & CONFIGJR.SYS. The only must have utility for ALL PCjr owners. The most powerful and flexible software for getting a PCjr to run with expanded memory and additional disk drives. The list of special PCjr features is too lengthy to print here.

1-2-3 WORKSHEETS (#83): Among others, loan amortization, check book manager, etc. **Req. 256K, 2 dr, & Lotus 1-2-3**

WORLD STATISTICS (#84): Simple, menu-driven database of statistical and demographic information about the nations.

PHRAZE CRAZE (#85): Like Wheel of Fortune gameshow, easy to learn and play. Great fun for the whole family.

EXTRA SENSORY PERCEPTION (#87): Tests your ESP quotient. It makes for a very interesting time as you test yourself or your friends. This disk also contains a couple of versions of the game PAC-MAN for both monochrome and color systems.

PC-DOS HELP (#88): Good instruction and provides an on-line help capability for those DOS commands - just type HELP and the selected command for doing something. Two level explanations plus special batch files demystify the learning and usage of DOS. Special attention is given to the PCjr owner.

MAKE MY DAY (#89): A complete, computerized time management system for the PCjr owner. It contains an appointment calendar, a job scheduler, a time log, and an expense account manager.

MEALMATE and others (#90): Mealmate is a planning aid for people preparing meals for someone on a carefully controlled diet. Mealmate is the indispensable guide for anyone preparing meals that have to meet strict dietary requirements.

MATH TUTOR (#92): This elementary grade level tutorial supplies age-graded exercises and tests for a variable student body, and can be redesigned for special problems. It is fun and easy. For grades 1-6. **BASIC required.**

FOOTBALL POOL MANAGER (#94): written by fellow PCjr owner and loyalist Andy Kunz. This software program performs all of the tedious work that is involved with running a football pool such as generating the weekly pick sheets (+ and - odds), summary spreadsheets showing everyone's picks, and standings reports, among others. This has good documentation.

GALAXY (#95): powerful, easy-to-use word processor with pull-down menus. Highly recommended for the novice Jr owner.

AS EASY AS (#96): Called the LOTUS 1-2-3 of the shareware world, just spreadsheet looks and acts just like its famous commercial cousin. One of the best-selling shareware programs. **Requires at least 320K.**

MOVIES ON LINE (#97): user-friendly movie cataloging program with thousands of movies on file. **Requires 256K.**

FILE EXPRESS (#98): reviewed in the November issue, this database has received great praise from everyone. Its ease of use, menu format, mailing features, and report generator has made it quite popular already. **Requires 192K, 2 drives or one floppy plus a ram-disk. TWO DISK SET - \$10.00.**

PCjr PATCHES (#99): Must have disk for all PCjr programmers. Contains fixes that will allow you to run Turbo BASIC, Double-DOS (early versions), QuickBASIC 3.0, and Turbo C on the PCjr. As an extra bonus, there is a fix to run Chuck Yeager's very hot selling program Advanced Flight Trainer on the PCjr.

A86 Assembler 3.07 and D86 Debugger 2.24 (#100): Both of these famous programs come on this diskette. Written by Eric Issacson, A86 is a full-featured, fast assembler and D86 is a full screen debugger with powerful commands and features.

GAMES (#101): two great new games: SKYRUNNER, a challenging arcade game with impressive graphics, and MONOPOLY, a new version which allows full viewing of the game board, good color, and better game play.

BUTTON GAMES 2 (#103): BUTTON GAMES #1 are text adventure games designed for those who don't have much experience with this type of game. BUTTON GAMES #2 are a little more advanced. In NEBULA, you are a NASA explorer sent to investigate a newly discovered star system. In DARK CONTINENT you find yourself in Africa looking for King Solomon's Diamond. On the third day you awake to find your native bearers have deserted you and taken all your money and supplies. Will you make it?

CITY DESK (#104): If you always wanted to be a publisher try this Shareware publication program. Automatic indexing, merged text files, headers and footers, includes Banner headlines and Layout options.

GAMES (#105): Some really fun graphics on this disk include Aquarium (if you are tired of looking at a blank monitor you can turn it into an aquarium and watch the fish swim around), EYE if you'd like to have your computer look back at you, YAHT a colorful game of Yahtzee, Wizard is similar to Rogue and is addicting, MILLEBNS is a solitaire game of Millebourmes.

BAKER'S DOZEN (#106): Fourteen of Jim Button's best utilities. BTTNCALC is a one page spread-sheet. CALENDAR a programmable date calendar, DISKUTIL with many HELP screens you can change files or directories-restore lost files-patch files and much more, FILECOMP compare two ASCII text files, GKEY provides all keyboard information, LOCATE find any file on disk or in which file(s) given string occurs, PRO90 prints files at 90 degrees, PC_SORT sort files with up to four fields, PRN-FILE redirects all information normally sent to your printer to a disk file of your choice, RDIR remove subdirectory including all files and children directories, SNAPSHOT take pictures of any 80 column screen (not graphics) in any program, SWCOM12 switch RS-232 ports for COM1 and COM2, SWLPT12 switch printer ports for LPT1 and LPT2. Some of these utilities require 256K of PCjr memory.

PC-STOCK (#107): PC-STOCK is a general purpose stock trend analysis program. It was developed with ease of use and graphic

presentation of data as the primary objectives. PC-STOCK is entirely menu driven, making it very easy for the occasional user as well as the professional user to enter, modify, and obtain graphic trend analysis of stock data.

XWORD (#108): A crossword puzzle maker program. XWORD will enter your words, prompt you for clues and print out the completed puzzle, clues and solution. This is a great program for those who like to have puzzles that use special word lists (religious words, spelling words, family names etc). The printout looks very professional. Highly recommended. **Requires 256K.**

WORLDX (#109): This dandy little program will locate and print out maps of countries, states, cities and capitals from the whole globe. Just choose country, state or city you want to see then choose the map scale. Another option is POINTER. A mercator type projection of the world is displayed with a pointer located in the Atlantic Ocean. Use your cursor or number keys to position the cursor at the location you desire to examine. As the cursor moves its latitude and longitude will be indicated. When it is near where you want it, hit the enter key and the cursor will become the center of an expanded view. You can now reposition the cursor and expand again by hitting enter. Including the full world map you have five expansions. After a few expansions the names and locations of visible cities will be plotted. This program is not just instructional - it's fun! **Requires 300K.**

THE GAMBLER (#110): Three different programs to help you choose your lottery numbers and a BINGO game. PLOTTO by member C. A. Bates, not only makes selections, it tells you which selection the program feels has a better chance of winning. When you've made your choice you can have PLOTTO print it. If the lottery doesn't appeal to you try BINGO. This program will print out Bingo cards, then choose the BINGO numbers. All's that missing is the parish, the shouting, and the prizes. Well, you can't have everything.

BRIDGE PAL (#112): A bridge game with instructions. There are three ways to play BridgePal. SOLO bridge is for one player. The SOLO game is the only one that lets you replay the hand, if you wish. TWO PLAYER bridge provides scoring for two people, who take turns playing random hands. Similarly, DUPLICATE scores for two, but deals the same sets of hands to both players. If you want help with your game. Just push "H" and the computer will make your bid for you. Are you sure this is how Omar Shariff started?

AMPLE NOTICE (#114): An appointments calendar program. Appointments can automatically set up a 'pop-up alarm clock'. The disk also has alarm clock and a utility which prints addresses sideways so that envelopes can be addressed from a standard dot matrix printer.

DMAIL (#115): A professional mailing list system that can create any number of lists, limited only by disk space. You can sort addresses on any of nine sort keys, copy selected addresses from one list to another, target your mail by city, zip code, area code, key word, etc. A powerful program. **512k required.**

ENCHANTED CASTLE (#116): Your adventure begins at midnight in the center of a medieval castle. You will search for the Star Diamond and escape with the handsome (beautiful) prince(ess). The Enchanted Castle is full of traps and dangers! The castle consists of over one hundred rooms and escape will require many hours of play. **256k required.**

HAPPY GAMES (#117): Four great educational games for the very young. The first three are an excellent aid to pattern perception for young children and WIGGLEWORM is a nice arcade style game for one or two children.. I highly recommend this disk. **Joystick required.**

MEAN 18 COURSE DISKS (#118) and (#119): These two offerings are meant to be used with ACCOLADE'S best-selling "MEAN 18" golf game. Each of these disks has three courses. Disk 118 has Eagle River, Bay Tree and Palmer courses. Disk 119 has Firestone, Bear Creek and Desert Inn Country Club courses. Those of you who have MEAN 18 will want to have these extra challenges; those who don't have MEAN 18 are missing a lot of fun.

TYPING ASSISTANT (#121): If you want to learn to type or if you can type but need to increase your speed, this is the program for you. This program was designed to help the beginning touch typist and to help experienced typists sharpen their skills. Written by a fellow PCjuniorite, so give it a try!

BOWLING LEAGUE SECRETARY (#122): So many of you requested a bowling program similar to our GOLF HANDICAPPER that we found this disk just for you. Spare yourself all the work. This system can handle 18 teams, up to 5 bowlers per team, and up to a 50 week season. Programs are provided to enter scores, print standings (weekly), prepare Book average listings, and more.

ABC FUN KEYS (#123): This program was written with imagination and aimed at children aged two to five. There are four programs intended to help you teach your child letter recognition and to encourage him to pick out, from your computer keyboard, the letter showing on the screen. The color graphics are attractive and will be enjoyed by the very young child.

Please circle one or more below

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63
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Number of program disks wanted: _____ times \$5.90 = _____

_____ times \$10.00 = _____

Total enclosed : _____

NAME _____

ADDRESS _____

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ZIP _____

PHONE # _____

Check here if this order has five programs or
more for FREE library case _____ OR
(1) Free single disk program _____

THE NEWEST IN THE SHAREWARE LIBRARY

ASTROLOGY (#126): A full-featured astrology program for those of you who want to cast their horoscope. This program will help you calculate your chart and print out the results. Charts can be displayed in either graphic or cartwheel form. This program requires 256k and two disk drives but it can be used with 640k using a RAM disk.

FORM LETTERS (#127): One hundred different forms and form letters for personal and business use. You will find a thank-you note, an absentee record, a demand for payment, a request for a refund, a letter of resignation and even a nasty letter cancelling an order placed with a pushy door-to-door salesman. All these letters are saved in ASCII form and can be imported to your word-processor. You can fill in the spaces or tailor the letters to your exact needs.

ASTRONOMER, WHEEL, AND RECEIPT (#132): Astronomer is a program designed to calculate important astronomical data for major planets for a specified place and time. The program uses current date and time when the computer is turned on. 256K REQ.

Wheel is another version of Wheel of Fortune and Receipt is a nifty little program created to print a cash register receipt for those refunds. You know how annoying it can be if you've ever got a refund form, bought the product and then lost your cash register receipt, or you have only one register receipt and several refunds requesting it. You can make a pretty credible copy of your receipt with this.

WAR AT SEA (#133): This is a high level strategic and tactical situation using typical World War II naval campaigns. Some ships are limited to battles in which they actually took part and others may be used without having actually taken part in the battle. This is not a hand/eye coordination game, it is a strategy game. Choose from seven campaigns including Pacific (U S. vs. Japan), Solomons (Japan vs. U.S.) and Atlantic (Germany vs. England). You will be asked to select your navy from a large stockpile and you are given information which will assist you in choosing your ships. Then choose your targets. MAN YOUR BATTLE STATIONS! 256K REQ.

BASIC TUTORIAL(#134): Two basic tutorials, one for adults and one for youngsters. Introduction to Basic touches on statements, commands and functions. You will learn how to do simple programming. A friend told me she learned more from this program than she did from a whole semester of Basic Computing at night school. You'll learn how to LIST it, LOAD it, LOOP it, LET it, and that's just the L of it. You will understand RND, GOTO, INT, TRON, TROFF, DELETE, REM, DE-DUG, READ, RUN, SAVE and IF THEN. ARCHIE, the tutorial for kids is well presented and amusing. Your child will have the opportunity to study simple Basic structures at his own speed. This is an excellent disk for anyone wanting to learn more about the BASIC language. BASIC CARTRIDGE REQ.

BASIC PROGRAMS (#136): This disk contains six BASIC programs along with documentation that programmers will find indispensable. These include BASKEY, a utility for defining function keys 1-10 for use while working in BASIC (provides all information, options, and operations on a single screen), MENU and MENUEDIT for creating and maintaining a menu from which BASIC programs can be run, and MENU.DOC explains how to set up a library in which control returns to the MENU program after a called program ends. These programs, written and adapted by Mike Graff, afford flexibility and capability that you will find most desirable.

CANASTA and PCDARTS (#137) CANASTA is designed to let the computer be both a tutor and player. The computer doesn't cheat. It checks your cards only to be sure you meld properly and forgets what it sees when it takes its turn. The computer keeps the score and gives you a message when you are breaking rules and tells you when to draw, discard, meld etc. When you have learned to beat the computer, you can be sure you are a pretty sophisticated player. PCDARTS is a simple game of darts using a British style dart board. You choose the angle and make the toss. (No ale or stout is supplied.)

MORE DOS UTILITIES (#139): This is our writer Tim Hallen's favorite group of PC DOS utilities that help the PCjr owner. It contains programs such as LABEL, DOSEDIT, MYDOS, FASTFLOP, BIGFONT, LISTS, CURSOR, RAMDISK, and lots and lots more. To this diskette, we have added QP, a program that will print out any file documentation in a quarter page size, or in other words, four pages of documentation will appear on a standard size sheet of computer paper! This is not just a good utilities disk, it is a great one. Deserves to be on the shelf of all good Americans and PCjr owners.

POKER (#140): A great poker shareware program that will satisfy the gambling nature in the worst of us. Good graphics and lots of fun. Now, who's gonna bring the chips?

MEAN 18 COURSE DISK (#141): More great, new courses to test your Mean 18 golf skills. Don't call yourself a Pro till you have mastered these courses in PCjr's glorious 16 colors. A must for Mean 18 golf freaks.

JrTELECOM ver 2.1 (#142): Finally a good telecommunication program written specifically for the 128K PCjr. Get connected with this easy to use program. Gentlemen, start your modems!

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