

Flight simulator - volume 14
Transferring the first time (4)

2nd disc drive - p. 18

THE JUNIOR REPORT

Symantec's Q&A: Making An Uneasy Life Easier For The PCjr Owner

It hasn't been easy. The life of the PCjr owner has never been easy. Stuck between the search for available upgrades and inexpensive improvements, between functional keyboards and multi-functional cartridges, there is the ever present fear of software incompatibility. This fear pervades our walks through software stores and preoccupies our thoughts through our walks through computer magazines. It is a life of computer what-ifs (what if I had bought another PC, what if the software doesn't run, what if my PCjr were a "real" PC). The PCjr life isn't easy

because there are no constants. The uncertainty of software creates the uncertainty of our own computers. And yet among this feeling of ambiguity, there exists a software program that finally supplies the PCjr owner with a degree of stability, with some solid answers. The program is **Symantec's Q&A**. Yes, it runs on the Junior. Yes, it is considered the **best flat-file database manager for any PC**. Yes, it will make your PCjr a worthwhile investment.

Q&A is an integrated program that combines a flat-file database manager with relational type abilities, a feature-

laden word processor, and a module called the **Intelligent Assistant** (an English language query module for the database.) But best of all for the PCjr owner, both the database and word processor **mimic** two programs that the PCjr owner is usually quite familiar with - **The Filing Assistant and The Writing Assistant**, respectively. The specific use of function keys is often the same, the heavy use of the F-10 key is still dominant. As with the Assistant programs, the Q&A modules also combine as one of the best mail-merge tools around. The difference, however, is that the database and word processing modules are more advanced and have more features than their Assistant Series counterparts, and yet maintain the simplicity and ease of use that made The Assistant Series of programs so popular. In fact, those of you who are familiar with the Assistant Series need not lift one page of the Q&A manual in order to be up-and-running producing effective databases and documents.

The program comes on seven diskettes, and requires at least 512K and two drives. It is not copy-protected. As with any PC, a seven disked program ideally should be installed on a hard disked system, which eliminates a lot of disk swapping. But if you don't have one, and if you can put up with some of that kind of inconvenience, read on.

The Q&A program is completely menu-driven, therefore creating and maintaining databases is a snap.

Whether you are a Filing Assistant pro or not, you will find creating the da-

(Continued on page 19)

Prodigy Runs On Jr!

"My kingdom for a patch to allow me to run Prodigy!" lamented the PCjr owner. Well fortunately, you won't have to trade your kingdom for the Sears-IBM's new on-line service for the PC and compatibles because a patch is now available to the PCjr owner to allow this videotex service to operate on the jr. As described in previous issues of The Report, this service from the aforementioned giants will let your fingers and keyboard do the walking and your VISA card do the shopping on your PCjr color monitor. Once up and running, you will also receive up-to-the-minute news, sports information, and weather predictions. Now that a patch for the PCjr is available, we'll be reviewing this breakthrough service in more detail in a future issue.

The patch (not officially recognized by Prodigy) has been available on certain BBS's across the country. Faithful reader and general all-round nice guy Richard Schneider has sent us a copy of the patch that he had found on a BBS. All that is required is 640K, a Hayes compatible 1200 or 2400 baud modem and this patched screen driver that Richard has so kindly sent us to distribute to the PCjr masses. Next month we'll have the details as to how to get your copy of this patch.

Prodigy is available to PC owners in several East coast states, California, and a few West Coast states. Steve Hynes of Prodigy told us that the service will soon come to the Midwest and to the rest of the country. Their toll free number is 1-800-976-8000, and the service costs \$9.95 a month with a one time charge of \$49.95 for a starter kit and software.

EDITOR'S NOTES

In this issue, we have finally found the space to complete the PCjr Compatibility article that we started a while back. It is shame that we couldn't include it sooner because I feel that it is probably one of the best articles on the PCjr, and should be read by everyone. While you are learning about the whys and why-nots of PCjr software compatibility, you'll learn even more about the PCjr as well.

Dave Strikeleather of New York sent us a letter with some very useful tips on improving The Junior Report. One, list the Shareware programs by subjects rather than by number, which we have started in this issue, and two, print the entire shareware library periodically (every four or five months) instead of monthly, with the original mini-reviews, which we will start shortly. Thanks for the tips, and keep writing. (Dave also states that it's been five months and he hasn't received his manual after registering for AS EASY AS, the great Shareware 1-2-3 clone. We're checking it out.)

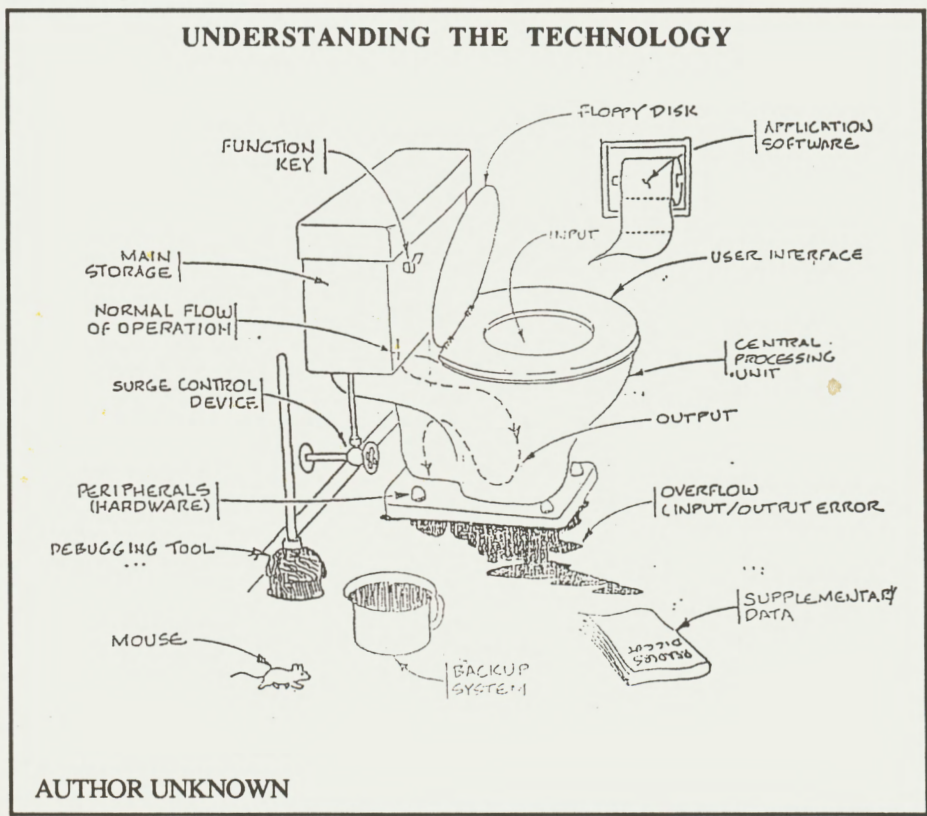
There seems to be some problems with Micro Products Corp. in Midvale, UT, as reported by several of our readers. Some of the boards sold by them had been received in unsatisfactory condition, so we warn our readers not to order from this company until we find out what's happening.

And then there is the problem of the

missing January issue of the Junior Report that some of you have been requesting. There wasn't one, and that is the main reason why two additional issues of The Report has been added to each reader's subscription. If you compare your February issue's mailing label to your December's label, you should see two issues added to your expiration date. If not, let us know and we'll correct the problem.

Finally, I would like somebody to answer these important PCjr questions:

1. Will the PCjr ever be able to display 256 colors?
2. Will there ever be an inexpensive hard drive for the jr?
3. Has there been anyone who has actually used the PCjr traveling case?
4. Was there ever a worse Top Ten song as Woolly Booly?



The Junior Report

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LETTERS

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.

TELECOMMUNICATIONS, BOOKS, AND THE PCJR

Having benefitted from many articles in The Junior Report I decided I would try and find some much needed help with my 300 baud internal modem. As a newcomer to telecommunicating I have tried to get on-line but to no avail. I have QMODMjr and PC-TALK but neither seem to be much help in getting started. I received my modem without any documentation (it was free) so I am not sure if I am missing a basic installation step or just don't have what it takes to be a computer communicator. I would appreciate any information you could provide or a recommendation of a computer communications self-help book that could help me out. As a side note, I am an avid PCjr user and supporter. As a college student, my PCjr has provided me with word processing and programming languages that have made my studies easier and my grades better. THANKS for all you do to keep a GREAT computer going!

Burt Beavers
Wabasha, MN

ProComm (Disk #55) works well with the PCjr internal modem, and there was a specific article on this combination in issues January and February of 1988. However, we know that QModem and PC-Talk (jr version) both work on the jr as well.

*Without being next to you, we really can't discover what the hangup might be. There is a book that was published by Prentice-Hall/Micro Text in 1985 entitled **Telecommunications With The IBM PCjr** by David Carroll which covers the basics of jr telecommunications. You can write to Micro Text Publications/Prentice Hall, Inc. at Englewood Cliffs, New Jersey 07632 for information as to where to get the book.*

MEAN 18

I just purchased an IBM PCjr, color monitor, 128K, single drive, printer side car, software, 62 key keyboard, joystick. I have DOS 2.1, PC-WRITE II, and Course Disk #118 and #119. I understand that I need Accolade's Mean 18 to use these disks. Where do I get Mean 18 so that I can use Disks #118 and #119? I want to get into computing and need help. Which is the best way to increase my memory and add a second drive? I see ads from several sources but don't know which is best. I'm 70 years old so I need a speedy reply.

Bud Eitelman
Whitesboro, TX

Mean 18 is a classic golf simulation that uses all of the PCjr's 16 available colors. Any software store has this commercial program or can order it for you. We have seen it discounted for about \$30.00, which is a great price for this great program.

The best way to increase your memory, though certainly not the only good way, is to get a jrHotShot expansion board which goes INSIDE your jr under the disk drive. Your central microprocessing chip 8088 must be unsoldered in order for you to use this unique expansion board. Most of the vendors in this issue sell it; you can check for the best price since prices

vary from day to day. We have found that all second disk drives work well on the junior, and can not pick one over another. Look for the best deal around for this item.

1.2 MB DRIVE FOR JR

Is there a controller card for the PCjr that will work with a 1.2MB drive?

Hope you will be able to help.
Chris Reeburg
Jamaica, NY

There is not any controller card that we know of that will allow you to use a stock 1.2MB drive with the PCjr. But the 1.2MB drive situation with the PCjr gets much more complicated than that. PC Enterprises in New Jersey sells a special 1.2MB Junior drive which utilizes your current PCjr controller card that sits in your junior. Unfortunately, this drive can only read and write to the high-density AT diskettes. It cannot read or write to 360K diskettes. AT clones which sport 1.2MB drives can at least read these 360K diskettes. Additionally, these special 1.2MB Junior drives also work at 360K speeds and you will not see the dramatic load and search speeds that you will usually find with standard 1.2MB drives. Nevertheless, it's great that PC Enterprises has put forth the money and effort to develop one for the jr.

Pat Calabria of PC Enterprises has told us that they will no longer make these particular drives due to the deficiencies as described above, and will soon announce a new PCjr 1.2MB drive that will correct these shortcomings. Expect the price to be higher, however, because this new drive will use a special controller card. We will receive a model of the new drive as soon as it comes

out to review, so keep the dial here.

FEAR OF PCJR FLYING

I have been a member for two years and this is the first time I have written. I have been educated and informed on many facets of the Junior's ability to produce. Without your help I would really be struggling to grasp its tremendous capacity. I have the jrHotShot expansion board to 640K, the IBM modem, and the IBM voice synthesizer. Three years later, I have mastered about ten percent of this marvel and working hard to learn more.

I have a couple of questions of which I hope you can help me with. First I have **Microsoft's Flight Simulator**. With this I have a **problem of getting the 16 colors** to appear on the panel even though the scenery has them. The panel appears fuzzy. It works only with the four colors.

Next I would like to add a Desktop Publishing floppy and would want to know what you would recommend for the jr.

I enjoy and get a lot of information from letters to the editor. Keep up the good work!

Quentin Christman
Venice, FL

Regardless of whether you have PCjr 16 color, EGA, or VGA, whenever you increase the number of available colors to the screen, you will lose in the quality of screen resolution. That's how God made monitors. When we fly with Flight Simulator, we always use the 4 color mode for that particular reason. I bet you've also noticed that the screen slows down with more colors as well. Unless you're fortunate enough to have a VGA

system and software that supports 256 colors or more, using 4 colors to 16 colors in FS is not that much of a difference.

In a side note, Microsoft dropped 16 color support for the PCjr in the latest upgrade of this great program which we are sad to announce. However, there is now a patch to allow 16 colors for the jr that you can download from some BBS's across the country. We will try to obtain this patch for you flying enthusiasts by the next issue. The newest version has a multitude of features and is well worth the cost with or without 16 colors.

PFS: First Publisher is the best desktop publisher that we have found that runs on the PCjr to date, but who knows tomorrow. At last count, we found at least 5 new desktop publishing programs for the PC, some of which are sure to run on the junior.

TRANSFERRING WRITING ASSISTANT FILES

Perhaps you can help me. I am a subscriber to The Junior Report and have availed myself of some of the Shareware programs. The problem that I, and so many of my associates, face is due in part to our lack of programming knowledge. I come to you pleading for enlightenment.

I have long been a user of "Writing Assistant", but find it somewhat restrictive. I would like to change to some other word processor, (I'm leaning toward PC-Write).

Now for the problem: What happens to the hundreds of pages in the Writing Assistant format? Is there a utility available to convert? If so, is it one of your shareware disks?

A friend mentioned that there was some way of sending a print file (in Writing Asst. mode) to disk rather than to printer, then retrieved with PC Write. If that is possible, could you

explain it in idiot-proof language? (Not to be confused with the higher level of just fool-proof).

Thank You.
Henry Gleich
West Hurley, NY

You have encountered a problem that has faced thousands of PC users through the centuries (er, through the years) and will face thousands more in the future - how to transfer data from one program to another. Of all of the computer programs, word processors are by far the easiest from which to exchange data and documents simply because of these five letters - ASCII which stands for American Standard Code for Information Interchange, a common code that establishes compatibility between various types of data processing and data communications equipment. In other words, it is like a universal language of which most computers and software programs can speak. Almost all word processors will have a utility built in them that will allow you to retrieve and to create ASCII text files for transfer to another system (some people simply call them TEXT files for short). When you access the PRINT menu in the Writing Assistant, you will see the option

Print to: Printer

on the third line. Place a formatted diskette in your A: drive, and tab to this option and replace the word "Printer" with A:XXXXX where XXXXX is anything you want to call your new ASCII file, and you're in business. Of course you now have the time consuming chore of creating the ASCII files.

A better method is to pick a word processing program that can automatically read your old files without

changing them to ASCII text first. The Writing Assistant and its sister program from PFS, PFS:Write, were such popular programs that quite a few programs can retrieve their files with built-in transfer utilities. One of these programs is Q&A and Q&A Write (Q&A's standalone word processor). Imagine how nice it would be to simply insert your old diskette of Writing Assistant files and having a more powerful word processor read them? That's certainly something to think about.

You have often discussed the many dot-matrix printers that are compatible with the PCjr. What I need is to create resumes which require more than just "near letter" quality. What would you recommend for the PCjr?

I got my PCjr as a gift, so money is a consideration - I don't want to spend too much of it.

Thanks for putting out a great newsletter.

M. O'Brien
New York, NY

Letter quality printers use to cost over a thousand dollars apiece, and were commonly called "daisy wheel" printers because the printing element was much like that found in many electric typewriters rather than that found in dot matrix printers. Fonts could be changed by simply replacing the daisy wheel inside of it. Today, dot matrix printers have increased the number of "dots" per letter, thereby improving the quality of the print to "letter" quality. Of course, you would have to check the output of the printout to see if this new level of quality will satisfy your requirements. The obvious advantages of these third generation dot matrix printers are their ability to print graphics and their ability to

change fonts through software rather than hardware changes.

If you still need to buy a letter quality printer, look carefully at the NEC Elf series of daisy-wheel printers. We use the NEC Elf Spinwriter 350 with our PCjr connected through the parallel port. It is not the fastest printer around, but we love it. There are dozens of font "thimbles" available, including a few that will do proportionate spacing, it is software compatible with most programs, and best of all, you can often find it discounted to under \$400., or the cost of a good dot-matrix printer.

One of the few disadvantages is that you must purchase a separate tractor feeding device if you want to use continuous computer paper. We usually

use single-sheet stationary so it is not often we use the tractor feed.

Interestingly, PC Enterprises in New Jersey sells an NEC Elf Spinwriter 370 that was specifically designed for the PCjr. It plugs directly into the jr's peculiar serial port without the need of serial port cables or the infamous PCjr parallel port sidecar. We have never used this special version, but if it can be used with any PC as well as the PCjr, you can save some bucks in purchasing it. We cannot recommend it if it cannot be used with another PC. It is discounted to \$375. and can be purchased directly from PC Enterprises, Box 292, Belmar, NJ 07719 (201) 280-0025.

EXPAND YOUR PCjr

jr. Hotshot 512K Memory	CALL
Racore Drive II Plus w/DMA & 512K Memory	\$500
Quick Silver Cartridge.....	\$ 30
AT Style Keyboard w/adaptor cable.....	\$129
20 Meg External Hard Drive System	\$579
1200 Baud External Modem	\$ 99
JR-RS232 Modem Cable	\$ 19
3.5" External Disk Drive	\$299
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PCjr Program Compatibility (Part 2)

By Steve Mark

Direct Memory Access

Direct Memory Access (DMA) is a standard feature on all IBM PCs except the PCjr. Simply stated, DMA allows the processor to overlap disk I/O operations with other work. Some manufacturers offer a means of adding DMA to the PCjr.

With regard to communications, DMA allows the system, when downloading a file, to continue receiving new data while the data just received is being written to the diskette. Without DMA, a few incoming characters will be dropped on the floor each time the system writes out a buffer full of data. When your download completes, you will have, at best, a text file with some missing letters and, at worst, an unexecutable program. Uploading is not affected, because the system will not try to send data while it is reading from the diskette.

If you have very little extra memory beyond that required to run your communication program, then the lack of DMA is indeed a problem. But if you have extra headroom, the solution is very simple: do your downloading to a RAM disk.

The documentation to QMODEM 2.2 says, "A PCjr must contain a DMA chip to successfully use the transfer protocols." I say this is not true. I normally run QMODEM with a 200K RAM disk. If I plan to download more than 200K files of files, I simply install a larger RAM disk. I have successfully up/downloaded files to bulletin board systems, CompuServe, and point-to-point. After the transmission is completed, copy your new files to a real diskette immediately to prevent losing them in a power outage.

I know that several PCjr users have experienced system hangs that require a reboot to clear. This would make one quite nervous about trusting a RAM disk to receive a lengthy file. Let me try to set you at ease. There is a diskette containing patches to DOS 2.1. These patches fix a bug in the way DOS handles (or fails to handle) certain keyboard interrupts that are unique to the PCjr. I installed the patches (a very simple process) over six months ago and have not experienced any lock-ups since that time. You should be able to get the patch diskette from your dealer or another PCjr user. Ask around, it's worth the search.

DMA in General

The lack of DMA affects the performance of programs

that use diskette drive(s). However, except for the communications concerns covered above, this shortcoming rarely affects whether a program will indeed run on a PCjr.

Some programs will simply not run correctly, or at all, with DMA. I also understand that some copy-protection schemes use the DMA processor. If true, these programs obviously will not run on a standard PCjr. (I do not have a DMA chip in my PCjr and so have had no first-hand experience with these programs.)

If the software you want to run requires DMA, all it takes to run it on your PCjr is money. At least one manufacturer (Racore) offers a DMA chip for the PCjr. The hitch is that the chips usually come bundled in expansion units which also include second drives, parallel ports, and other goodies. That's fine if you are just starting to expand your PCjr, but if you don't want (or already have) a second, it's an expensive DMA chip.

Video Buffer

Here again, I am at (and sometimes beyond) the limits of my personal knowledge, but I'll give it a try anyway.

The video buffer is where the hardware gets the information it needs to put characters and pictures on the screen. Your program has some options as to how (or if) it will put information into the buffer. If the program uses DOS or normal BIOS to write to the buffer, then there should be no problem. Fortunately, most programs are well-behaved in this regard. If your program tries to address the buffer directly, or worse, tries to write directly to the display, bypassing the buffer, then you've got a problem.

There are two differences between the way the video buffer is handled on the PC and on the PCjr. First, as I mentioned earlier, the video buffer is in the main memory on the PCjr, rather than on the display adapter as is the case on other PCs. This means it is at a different physical address. If your program tries to write directly to the address where it thinks the buffer is, it won't work. This is especially true if your PCjr has been expanded beyond 128K, because the memory management software (PCJRMEM.COM or equivalent) moved the video buffer so DOS can find the expansion memory. I have not run across many programs that fall into this category, but I suppose that is small comfort to those of you whose favorite program does. I do not know of any method of getting such programs to run on the PCjr.

The second problem is another that just takes money to solve. In addition to being in a different place, the PCjr's video buffer is mapped differently than the PC's. This means that a position in the PCjr's buffer corresponds to a different place on the screen than the same position in the buffer on the PC's color graphics adapter. A program that tries to manipulate data directly within the buffer will run, but the screen will look very strange. I ran across a game whose title screen was garbage. I took a guess, pressed "any key", and the rest of the game ran fine.

As I said, all it takes to solve this problem is money. The mysterious little PC/PCjr switch on the back of a Racore or Quadram second drive units is there for precisely this purpose. When you power up your machine with the switch in the PC position, and execute the PCVIDEO routine that comes with the hardware, the mapping of the video buffer is changed to match the PC's. After that, my game had a real title screen. If you really want to, you can even run a PCjr using DOS 1.10 this way.

The vast majority of software written for the IBM PC will run on an adequately configured PCjr. In addition, we have discussed several ways to make programs that supposedly will not run on the PCjr work as well.

There are programs, though, that cannot be made to execute correctly on our PCjr machines. Most of these programs write directly to the hardware interface for the diskette drive or display. They do this to optimize performance, or to bypass some limitation of the interface supplied by the system BIOS. Some games and graphics programs write directly to the display to do fancy manipulation of the screen images and improve performance. Unless there is a PCjr version of these programs, you're probably out of luck.

PERFORMANCE TIPS

The simplest, most effective thing you can do to speed up your PCjr is to add memory. There are three ways you can use additional memory to achieve a significant (up to 50 percent in some cases) increase in performance.

The first was discussed earlier. Some programs such as Writing Assistant and Planning Assistant come in two versions. One of these versions is structured to run in a 128K machine. It generally makes heavy use of overlays and goes out to diskette each time you invoke a new function. It works in 128K, but I hope you like the sound of your diskette drive grinding away. The other version, a resident version, loads completely into memory and only needs to access the diskette for data files. An added advantage is that after the program is loaded, you can usually remove the program diskette and insert a separate data diskette. This gives you much more room for files on a single-drive system.

The second performance improvement you will gain from adding memory takes us back to our old friend, the video

buffer. In order to keep the current image on the screen, the image needs to be refreshed every few microseconds. If you remember, the PCjr's video buffer is in the main memory. Because of this, the cycles it takes to do this video refresh are taken from other jobs that are executing in main memory. (I'm not sure, but I believe one out of every three cycles is used for this purpose.) That is why the PCjr seems to process slower than the PC even though it has the same clock and 8088 processor. The good news is that this impacts only the first 128K of memory. Programs that are loaded into expansion memory are not affected.

There are two ways to force all of your programs to load into expansion memory. The simplest is to use the "/C" parameter with the PCJRMEM.COM in your CONFIG.SYS file (or if you are using another memory expansion system, select an option that fills the lower 128K). This causes DOS to fill the system's main memory with I/O buffers, and force all user programs to be loaded above 128K. It also allows the use of the PCjr's enhanced video modes, but that's another story.

The other way is to fill up the first 128K is to define a RAM disk of at least 90K. This combined with DOS and the video buffer will fill the main memory, and your programs will be loaded into the expansion memory. (Editor's note: Larry Newcomb's JRCONFIG.SYS will do this for you.)

Does it really help? I have a program called THAT-SALL.EXE that plays the well known cartoon theme and writes "That's All Folks" across the screen. It takes about 26 seconds to run in main memory, but in expansion memory, it takes about 17 seconds, the same as on a PC or XT. That's a 35 percent improvement.

The third way to take advantage of additional memory takes us back to my old favorite, the RAM disk. Let's go back to those programs that had to overlay themselves to fit into 128K. Sometimes the full version is a separate product that will cost you either an upgrade fee of the full price of the product. If you don't need the additional features that may be available in the full product, you can still get near-resident performance from the PCjr version.

Just load the program and its required modules into your ramdisk, and execute it from there. It will still go through the overlaying process, but will do so at the speed of memory rather than the diskette drive. With a little experimenting, it's not hard to determine which files must be copied to the RAM disk to make this trick work. (Note: this technique does not apply to overlaid programs.) I use this technique to make the Personal Computer Picture Graphics program run almost as fast on my PCjr at home as it does on the XT with fixed at work.

Some programs, including the Assistant series, allow you to specify a work drive for the program to use when

sorting and doing various other tasks. By using your RAM disk for this purpose, many jobs will go a lot faster.

Are you tired of having to swap to your DOS diskette every time you want to use an external command such as DISKCOPY, CHKDSK, PRINT, FORMAT, etc.?

Why not just copy those programs that you use often onto your RAM disk when you boot the system? Then they will be right there on your C: drive for you to use whenever you need them. It's almost like having a small fixed disk.

The one caution to remember about a RAM disk is that when you reboot, or if a power fluctuation causes the system to do a power on/reset, the contents of your RAM disk are lost. Therefore, you should not put any non-recoverable data on a RAM disk. I'm a little gutsy, so when I use Filing Assistant, I copy my file to the RAM disk, update it there, and then copy it back. (Editor's notes: Don't be too gutsy in South Florida, where lightning often causes power outages.) I figure that at worst, I may have to re-enter the session's updates if something happens before I can copy the file back to a diskette. In the eleven months I have been operating in this way, I have never had a problem. Not only does it seem as if I were using a fixed disk, but I've also saved a lot of wear and tear on my diskette drives. If you are using Reporting Assistant, this effect is truly amazing.

SUMMARY

I hope that this have been some help to you. I have tried not to go too far away from the intended subject. For example, there has been no discussion of the PCjr's advantages over the PC (video, music, and a smaller footprint), or the fact that the PCjr comes with things that you have to add to a PC (like a display adapter, serial port, game port, etc.) My objective has been simply to show that the PCjr is a much more useful machine than it is generally given credit for.

Reprinted from the Metro Journal, the newsletter of The Metro PCjr Users Group in the Washington D.C. area.

PCjr Internal Memory Boards			
OK	\$100.00		
256K	\$170.00		
512K	\$270.00		
		PCjr Parallel Printer Ports	
		New	\$65.00
		Used	as available
PC Dimensions			
2700 56th Street N.W. #1-4 Rochester, MN 55901 (507) 288-1396			
PCjr Second Disk Drives 5.25" or 3.5"		PCjr Replacement Drives	
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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. **IMPORTANT** If your Junior only has 128K total, you do not have a memory expansion sidecar attached, and you CANNOT utilize this service). We will replace your 64K chips with 256K chips. We will no longer place sockets into your board, to eliminate half the possible contact points that may become loose. Send your name, address, and phone number to: The PCjr Club, Memory Board Expansions, P.O. Box 59067, Schaumburg, IL 60159-0067 to let us know if you're interested. Once we have your name, you will be notified by phone or mail when we would like for you to ship your board to us for the 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. Tecmar owners should 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 \$165.00 (U.S. Currency). We're sorry but we can only provide this service to those in the continental U.S.A. We will guarantee the work and the 256K chips for 90 days.

JUNIOR'S BIOS VIDEO SERVICES PART II

BY JOHN WILSON

In the following section each of the remaining 10 video services available on the IBM PCjr are listed in numerical order. The title given to each service is adapted from the title given to it by IBM. The input registers are microprocessor registers that must contain the values, or data, listed in order for the service to work correctly. Output registers will contain data after the service has been invoked. A couple of examples are given below. Next, there is a description about each service with details and hints on how to use the service. Finally, there are a few remarks on most of the services to cover anything not mentioned. All numbers in this section are in the decimal number base. Remember, if you write assembly language programs for DEBUG you will have to convert them to the hexadecimal number base. The services are invoked by placing call-specific values in the appropriate 8088 registers as listed in the sections below and then executing an INT 16. Information about microprocessor registers is in most books about 8088/8086 Assembly Language programming, but you can get by pretty well if you just think of them as variables such as are in any programming language.

SERVICE 7 SCROLL ACTIVE PAGE DOWN

Input:

AH = 7

AL = number of lines to scroll

CH = upper row of window

CL = left column of window

DH = lower row of window

DL = right column of window

BH = attribute to use in window

Output:

none

Description: Service 7 is identical to Service 6, except the current window contents are moved down and new lines are added at the top of the window.

SERVICE 8 READ CHARACTER

Input:

AH = 8

BH = display page

Output:

AL = character read

AH = attribute of character

Description: After this service has been invoked AL contains the ASCII code of the character located at the current cursor position for the display page in BH, register AH contains the attribute of the character. This service works in both graphic and text modes, but display pages and character attribute is applicable only in the text modes.

SERVICE 9 WRITE CHARACTER/ATTRIBUTE

Input:

AH = 9

AL = ASCII code of character to write

BH = display page

BL = attribute of character

CX = number of times to write the character

Output:

none

Description: This service writes the character whose ASCII code is in AL on the screen at the current cursor position using the attribute in BL. Any ASCII character can be displayed, even those that are normally control characters (ASCII codes 0 through 32). The character is repeated the number of times specified in the CX register, which is handy for making boxes and other figures in the text modes. The cursor is not moved from its original position by this service. The service can be used for both graphic and text modes, but in graphic modes display page is not applicable and the value in BL will only control the color of the character.

Remarks: See Services 10 and 14 for similar character writing routines.

SERVICE 10 WRITE CHARACTER

Input:

AH = 10

AL = ASCII code of character to write

BH = display page

BL = color of character

CX = number of times to write the character

Output:

none

Description: This service is the same as Service 9 with one exception; in the text modes Service 10 will not set the character attribute. For the graphic modes there is really no difference between the two services.

Remarks: Notice that Services 9 and 10 do not move the cursor along as the characters are printed. If you want the cursor moved after you use either of these services, you must use the cursor ser-

vices (Services 2 and 3).

SERVICE 11 SET COLOR PALETTE

Input:

AH = 11

Graphic Modes:

BH = 0 to set background color

BL = background color

BH = 1 to select palette

BL = palette number for foreground colors Text Modes:

BH = 0

BL = border color

Output:

none

Description: The primary purpose of this service is to select a palette for the medium resolution graphics mode (Mode 4) on the Color Graphics Adapter, but on the IBM PCjr it works for all of the graphic modes. Recall that in the CGA Mode 4 can display three foreground colors from either of two palettes. Palette 0 has green, red and brown for foreground colors, and palette 1 (which is the default palette) has cyan, magenta and white for foreground colors. The background color is black by default, but this service allows you to set it to any of other 15 colors. In any of the text modes, this service allows you to set the border to any of the 16 colors.

Remarks: Service 16, which is available only on the IBM PCjr, also sets the color palette and border color, but it is much more powerful.

SERVICE 12 WRITE PIXEL/DOT

Input:

AH = 12

AL = pixel color

DX = pixel row number

CX = pixel column number

Output:

none

Description: This service, which is applicable for graphic modes only, writes a single pixel, or dot, on the screen at the location specified in DX and CX with the color given in AL. The available colors for the pixel depend upon the graphics mode in effect. If a value of 128 is placed in AL the color value is exclusive OR'ed (XOR) with the current pixel color value. This can be a convenient way to ensure that the dot color will be different than the background. Since two successive XORs will return the original value, you can also use this feature to draw and then erase images.

Remarks: The pixel row number can never exceed one byte, so it would seem safe to use only DL for the row number. However, the IBM Technical Reference Manual for the PCjr specifies that the entire DX is to hold the row number. The reverse function is Service 13.

SERVICE 13 READ PIXEL/DOT

Input:

AH = 13

DX = pixel row number

CX = pixel column number

Output:

AL = color of dot

Description: This service returns in AL the color of the pixel at the location specified in DX and CX. If the location specified is off the screen, the value returned in AL will be zero.

SERVICE 14

Input:

AH = 14

AL = Character to write

BL = Character color (Graphic modes only)

Output:

none

Description: The curious name for this useful service dates back to the old days in computers. This service writes a character at the current cursor position and is similar to Services 9 and 10, except that the cursor is moved along as the character is written. The ASCII code of the character to display is placed in AL. All of the ASCII characters can be displayed except for ASCII character 7 (beep), 8 (backspace), 10 (linefeed) and 13 (carriage return). These four characters perform their normal ASCII function. The attribute of the character is whatever is currently in effect. In the text modes this service cannot set the character attribute, but in the graphic modes it can set the character's color.

Remarks: Because of this service's ability to move the cursor, it is often used rather than service 9 or 10. The attribute of the characters can be set by some other service prior to using this one.

SERVICE 15 CURRENT VIDEO MODE

Input:

AH = 15

Output:

AL = current display mode

AH = number of character columns

BH = active display page

Description: This service returns the current video mode number, as listed in the description for Service 0, in AL. It returns the number of characters columns for the mode in AH (This is redundant information since each video mode, whether text or graphic, has a set number of character columns.). For graphic modes the value returned in BH, active display page, is always zero.

(Continued on page 22)

A N E Y E O N M O N I T O R S

In our never-ending quest for truth, justice and a perfect picture, we investigated eight popular monitors that you might want to plug into your PCjr. We tried both RGB and composite monitors (from the same manufacturer, where possible) to show you how their performance differs and what you can expect from each.

Surprisingly, there was no clear-cut winner. We're not being wishy-washy. Rather, we discovered each monitor has its own strengths *and* weaknesses. Here's what we found.

IBM Personal Computer Color Display The IBM RGB color display sets the standard by which all others must be judged—and it sets a high standard, indeed. Colors are bright and saturated. Brown is really brown,

Eight Screen Tests

and color displays of 80-column text are no problem. The screen is dark—nearly black—and the image appears in sharp contrast.

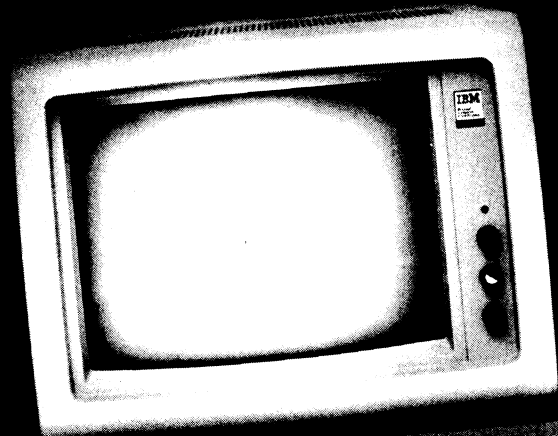
Three controls form a neat line on the right front side: an on/off switch, a brightness control and a contrast control. There are no other accessible controls because, frankly, they're not necessary and may only invite trouble.

Although we do not hesitate in recommending the IBM Color Display for use with the PCjr, it does have a handful of shortcomings. The IBM is neither

the sharpest nor the brightest monitor we tried, nor has its screen been anti-glare treated. The IBM does, however, partially make up for the coarse dot pitch of its picture tube by using a larger tube—it's actually a 13-inch monitor in a crowd of mostly 12-inch monitors. In theory, the on-screen characters should be about 8 percent bigger; in reality, it seems like even more. If you like to be a bit further away from the monitor when computing, the IBM is definitely the best choice.

Perhaps the biggest drawback we

IBM Personal Computer Color Display:
13-inch screen, RGB input,
dot pitch of .43mm



Amdek Color II Plus: 13-inch screen,
RGB input, dot pitch of .43mm



A N E Y E O N M O N I T O R S

encountered is the amount of interference this beast emits. When we put a PCjr atop it, the computer beeped constantly and had disk-read errors galore. Little wonder IBM advises you keep your PCjr a minimum of six inches from this monitor.

Amdex Color II Plus If bigger is better, the Amdex Color II Plus RGB display must be the best. Both its cabinet and screen are the largest of this lot. The cathode ray tube also has the blackest face. The colors displayed on it are clear and bright (its rendition of IBM's brown is among the best). The characters are 80-column sharp, as fine as those of the IBM color display—but not quite as detailed as the best of those reviewed here.

The only weakness of the Color II's image is its contrast between bright, high intensity and dim, low intensity colors: The difference is barely discernible no matter how you adjust the contrast and brightness controls (the latter hidden behind a plastic panel along with a vertical hold knob).

Unfortunately, not all of the Color II's tube is put to use: It suffers severe underscan. That does mean less geometric distortion in its on-screen image, but also makes its characters look little (if any) larger than on the smaller tubes. The color border the Junior can put around its screen is outlined with dark screen all the way around.

The big case means the Amdex will probably be better than the rest under

harsh or severe operating conditions—say, in a family with young children. Also, it keeps potential interference inside; a PCjr perched atop it (a bit precariously) with nary a beep.

The IBM RGB color display sets the standard by which all others must be judged—and it sets a high standard, indeed.

.....

Amdex Color I There is a strong family resemblance between the expensive RGB Amdex and this composite color model—the big case and the big screen. All of the advantages of the more expensive set's cabinet apply to the Color I.

Although the screen face is a lighter gray than the Amdex Color II, colors on the Color I are bright and saturated. And the whole of that picture tube is put to use. The Color I has the largest image area of any monitor listed here. Sharpness is what you would expect for a composite monitor—fine for 40 columns but unusable for high-resolution, 80-column characters.

A small plastic panel under the

screen hides a full array of television-type controls. You also get a sound bonus, although its input requires a miniature phone plug rather than an RCA-style connector.

NEC JC-1216DFA The NEC RGB display shows that you don't have to copy the IBM's styling to have a good-looking monitor. The cabinet design also discourages you from putting your computer atop the monitor. A hinged plastic door hides the single user control, a brightness knob.

Although the NEC looks something like a plastic portable television, it doesn't perform like one. The image on its 12-inch tube ties with the PGS for being the sharpest. It is noticeably sharper than the IBM Color Display.

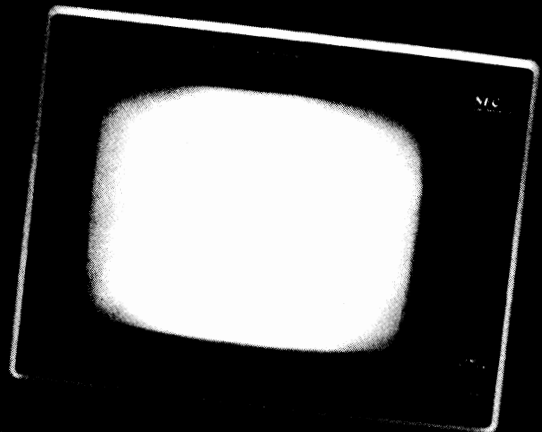
Our criticisms are minor and mostly a matter of preference: The tube has a light gray face that has not been anti-glare treated. IBM brown actually shows yellow. Very bright ambient light can wash out the picture (it was the dimmest tested). If you compute in a greenhouse, this is not the monitor for you. But for a very crisp picture under normal room light, it would be difficult—and much more costly—to do better.

NEC JC-1215MA Although on the outside the NEC 1215 and the 1216 look to have been cast in the same mold—and they probably were—the circuitry inside is entirely different. The 1215 is a composite monitor. Although

Amdex Color I: 13-inch screen, composite input, dot pitch of .63mm



NEC JC-1216DFA: 12-inch screen, RGB input, dot pitch of .36mm



you can tell your PCjr to send it signals 80 columns wide, the results will not be pleasing (or legible) in either color or monochrome. Nevertheless, if your needs are modest and narrow, you'll get sharp, saturated 40-column colors second only to those of genuine RGB monitor.

The 1215's 12-inch screen is pale gray with no anti-glare treatment. Behind a plastic door on the front panel are normal television-like controls for tweaking in everything you hold dear. You can transform the on-screen colors from the cheery Easter egg pastels to murky gumbo dirt dinge.

When the access door is closed, the only exposed control is the on/off switch. The 1215 also handles the PCjr's audio output, and it can literally fill a room with sound.

If you want a monitor to do double duty, for your Junior and your video sound, the 1215 is an excellent choice. But if your plans are for computing only, an RGB unit would be more appropriate.

Princeton Graphic Systems HX-12 The PGS is not only one of the sharpest RGB monitors, but one of the most compatible with the IBM—for instance, its brown is genuine IBM brown. Its cabinet was probably the first to match IBM styling.

The PGS's picture tube is light gray on its face and anti-glare coated, and it measures 12 inches diagonally. That's modest, compared with the IBM. But

this is a big monitor overall, actually a fraction longer than the IBM. It looks even bigger than it is because the full profile of its cabinet covers the back of the picture tube. (IBM's case has a small "neck extension.")

Only two user controls are available on the front panel—on/off and brightness. On the back are vertical and horizontal hold controls.

Although the light face of the tube

The finer dot pitch of the PGS tube allows much greater brightness.

..... might tend to imply lowered contrast in a side-by-side comparison with the IBM, the PGS wins. The finer dot pitch of its tube allows much greater brightness while maintaining readability. Further, the interference shielding of the PGS is good enough that a PCjr can sit atop it without a single disk read error—or the constant beeping that occurs whenever the computer is near the IBM Color Display.

Taxan RGBvision 420 Although styled similarly to standard IBM monitors, the Taxan 420 can be immediately recognized by its compact size, about two-thirds that of IBM's color

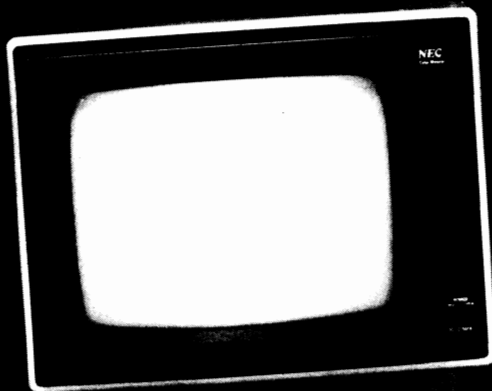
display. Nevertheless, the 420 sports a full 12-inch tube, and because the evaluation model we received had less underscan than any of the others, its image area was larger than those of the other 12-inch tubes. In fact, the active area of the screen goes right to the edge of visibility. (You can adjust the height and width of the picture from outside the set using a "diddle" stick supplied with the monitor.)

Colors are bright, saturated and pure—except IBM brown, which is displayed as a red-orange that is virtually indistinguishable from genuine red, giving the 420 an effective palette of 15 rather than 16 hues with the PCjr.

In 80-column mode, characters were sharper than those of the IBM Color Display, but not quite as defined as the NEC and PGS. When off, the tube itself has a very dark face that has been anti-glare treated; when on, it produces a bright, high-contrast picture—the brightest RGB screen we've encountered—making the 420 the best choice for use in high ambient light conditions.

The only controls on the front of the monitor are an on/off switch and a combination brightness/contrast control. A switch on the back allows operation with several other computers besides IBMs. The 420's cabinet is narrower than the PCjr, so putting the computer on top of the monitor looks ungainly and is not recommended. It also led to disk read errors in our test.

NEC JC-1215MA: 12-inch screen, composite input, dot pitch of .63mm



Princeton Graphic Systems HX-12: 12-inch screen, RGB input, dot pitch of .31mm



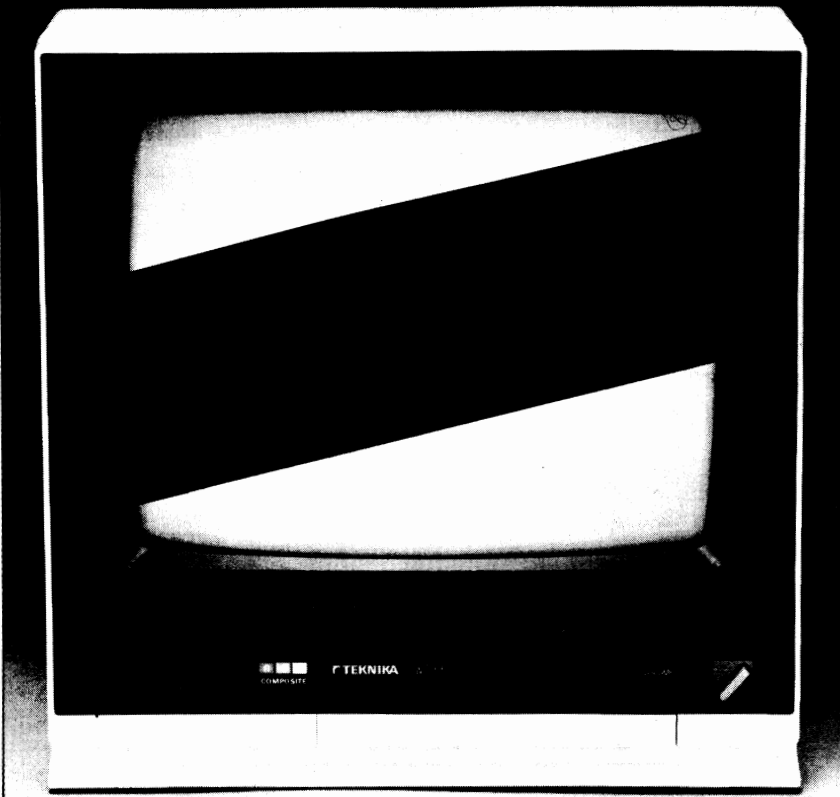
A N E Y

Taxan RGBvision 210 This monitor has both RGB and composite video inputs. Alas, we had no proper cord to try the RGB (it sports a connector different from IBM's standard, and the signals it uses are likely different from those of the PCjr). The manufacturer says that even when using the RGB input, this monitor does not have sufficient resolution to clearly display characters in an 80-column mode. Even in monochrome 80-column mode (in which its composite input should not have been a handicap), white-on-black characters were blotchy. In other words, if you use the 210, you'll want to stay in the PCjr's 40-column mode (if you have the choice!).

A full range of television-style controls (brightness, color, hue) on the back supplement the contrast and combined on/off switch and volume control on the front. The 210 has a built-in amplifier so it can speak in all of the PCjr's many voices, but note that the 210 uses a miniature phone plug rather than RCA phono-style plug for its audio input.

When we first tried the 210, we saw ghost-like shadows added to 40-column characters, a definite drawback. Further investigation revealed they were an artifact of the display's sharpness control. Reducing sharpness frightened the ghosts away. Although of dubious merit for computer displays, this sharpness enhancement can make television and videocassette pictures look crisper. □

Teknika MJ-22: 13-inch screen, RGB or composite input, dot pitch of .50mm



Teknika Electronics Corporation of Fairfield, New Jersey, recently announced an RGB/Composite monitor to be used with the Junior. This medium-resolution display with a 13-inch screen and a .50mm dot pitch arrived too late to be reviewed in this issue. But complete reviews of this and other new monitors will be featured in future issues of *PCjr Magazine*. Stay tuned and don't touch that dial.

Teknika MJ-22

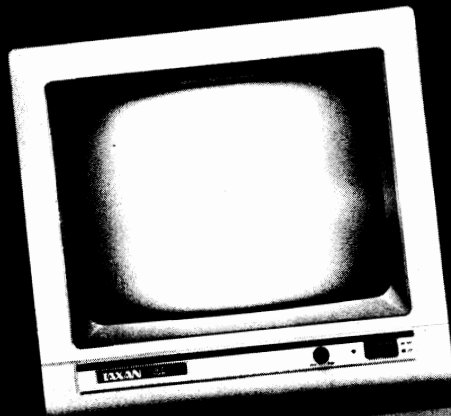
.....
Teknika Electronics Corporation
333 Route 46 West
Fairfield, NJ 07006
(201) 575-0380

List price: \$539

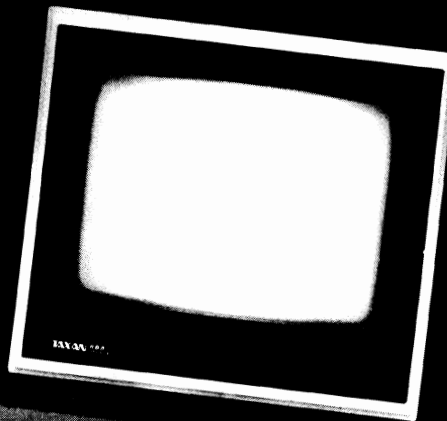
Requires: MA-21 Cable for PC and PCjr

.....
CIRCLE 435 ON READER SERVICE CARD

Taxan RGBvision 420: 12-inch screen, RGB input, dot pitch of .38mm



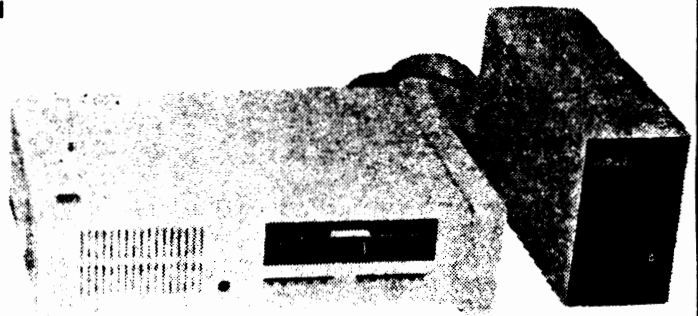
Taxan RGBvision 210: 12-inch screen, RGB or composite input, dot pitch of .63mm



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NOV 1988 - PCjr Slamese Slots	The Best Program for Expanded Jr	PCjr Compatibility List	
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BLAIR'S FIXES

STRG8jr -- A program that lets PCjr owners play STARGATE

STRG8jr is a very easy program to use. Just run STRG8JR.COM once after booting your computer. Then go ahead and run STARGATE.EXE.

The STARGATE.EXE file that I put in the .ARC file I uploaded onto various bulletin boards has been modified to prevent it from locking up the keyboard when you hit ESCAPE. If you have an unmodified version of STARGATE, you can fix it yourself by following the directions below (you type what's in lower case letters; instructions are in brackets):

[Put the disk with STARGATE.EXE in the A drive.]

```
A>rename stargate.exe stargate.com
```

[Put the STARGATE disk in the B drive (or take it out if you have only one disk drive). Put a disk with DEBUG in the A drive.]

```
A>debug b:stargate.com
-a 1d90
XXXX:1D90 in al,a0 [Xs are numbers you don't care about]
XXXX:1D92 nop
XXXX:1D93 nop
XXXX:1D94 [Hit ENTER]
-w
Writing E100 bytes
-q
```

[Put the STARGATE disk in the A drive.]

```
A>rename stargate.com stargate.exe
```

[...and you're done.]

The changes above will prevent STARGATE.EXE from running on a PC. So, I suggest you make a backup copy of the PC version before modifying it for the PCjr. If you want to modify the PCjr version so it will run on a PC, follow the directions above but type this instead:

```
XXXX:1D90 mov al,20 [Xs are numbers you don't care about]
XXXX:1D92 out 20,al
XXXX:1D94 [Hit ENTER]
```

By the way, STRG8jr is a unique fix for STARGATE.EXE. It probably won't unlock the keyboard on any other program. I run STARGATE in fast memory with my Racore switch on "jr". On a 128K PCjr, STARGATE runs in slow motion.

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.

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 STRG8jr is donated to the public domain, it may not be distributed under a different name or without this documentation.


```

100 REM -- BASIC PROGRAM TO CREATE STRG8jr
110 OPEN "STRG8jr.COM" AS #1 LEN = 1
120 FIELD #1, 1 AS AS
130 CHECKSUM = 0
140 FOR I = 1 TO 30
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 AS = 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 = 22657 THEN PRINT "Successful Completion!" : END
280 PRINT "COM file is not valid" : END
290 DATA 233, 181, 0, 0, 0, 0, 0, 0, 414
300 DATA 0, 9, 12, 15, 0, 156, 128, 252, 572
310 DATA 11, 116, 25, 128, 252, 14, 116, 6, 668
320 DATA 157, 46, 255, 46, 0, 1, 129, 254, 888
330 DATA 211, 43, 117, 244, 46, 198, 6, 12, 877
340 DATA 1, 1, 235, 236, 46, 255, 30, 0, 804
350 DATA 1, 156, 80, 83, 81, 82, 30, 186, 699
360 DATA 218, 3, 236, 36, 8, 117, 251, 236, 1105
370 DATA 36, 8, 116, 251, 176, 16, 187, 8, 798
380 DATA 1, 185, 4, 0, 238, 254, 192, 80, 954
390 DATA 46, 138, 7, 238, 88, 67, 226, 244, 1054
400 DATA 51, 192, 238, 31, 90, 89, 91, 88, 870
410 DATA 157, 207, 156, 46, 128, 62, 12, 1, 769
420 DATA 1, 116, 6, 157, 46, 255, 46, 4, 631
430 DATA 1, 46, 198, 6, 12, 1, 0, 80, 344
440 DATA 82, 176, 118, 230, 67, 80, 88, 176, 1017
450 DATA 255, 230, 65, 80, 88, 230, 65, 228, 1241
460 DATA 160, 176, 128, 230, 160, 176, 0, 230, 1260
470 DATA 33, 90, 88, 235, 214, 10, 83, 84, 837
480 DATA 82, 71, 56, 106, 114, 32, 98, 121, 680
490 DATA 32, 77, 105, 99, 114, 111, 87, 105, 730
500 DATA 122, 97, 114, 100, 32, 83, 111, 102, 761
510 DATA 116, 119, 97, 114, 101, 13, 10, 36, 606
520 DATA 184, 16, 53, 205, 33, 140, 6, 2, 639
530 DATA 1, 137, 30, 0, 1, 184, 16, 37, 406
540 DATA 186, 13, 1, 205, 33, 184, 22, 53, 697
550 DATA 205, 33, 140, 6, 6, 1, 137, 30, 558
560 DATA 4, 1, 184, 22, 37, 186, 98, 1, 533
570 DATA 205, 33, 180, 9, 186, 149, 1, 205, 968
580 DATA 33, 205, 39, 0, 0, 0, 0, 0, 277

```

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New 2nd Drive for Junior is Inexpensive, Looks Good and Runs Great!

BY GEORGE SUPPES

As we read in the February issue of the Junior Report, Legacy Technologies has made a commitment to the PCjr and will continue to do so as long as users support their efforts. The folks at Legacy have come up with yet another winner for the PCjr, the Legacy Drive Two, a second disk drive housed in a stand alone case with its own power supply. What makes this system stand out from others is that for the same low price you can have your choice of a 3.5" or a 5.25" drive.

When my 3.5" drive review unit arrived I anxiously unpacked it from its carton. What I received was the disk drive unit and case with attached ribbon cable, a new drive control card, a software disk, and an installation booklet. The drive is housed in a sleek and elegant low profile case measuring 6" long x 2.5" high x 11.75" deep and is painted to match the off-white color of the PCjr. The face plate of the drive is dark charcoal grey and a 3.5" disk was inserted to protect the drive mechanism during shipping.

Connections to the PCjr were obvious but I opted to review the instruction booklet just in case there were any hidden tricks to getting the drive up and running. Written directions for hook-up were clear and precise. Legacy plans to include installation pictures with their drives but my review unit was shipped before the photographs were returned to Legacy from the photographer. The pictures would have given me a better idea of which way to twist the cable where it entered the Junior and from the Junior's internal drive over to the new drive card. A little patience and an examination of how the Junior's original ribbon cable was twisted provided me with the correct orientation.

After disconnecting all power and cables to the Junior and moving to a well lighted area, I simply removed the Junior's cover, slipped the ribbon cable off the internal drive and then pulled out the original drive controller card. The connector in the center of the Legacy Drive Two ribbon cable was attached to the internal drive and the connector at the end of the cable was attached to the new drive controller card. The new drive card was then installed inside the Junior.

To save space I opted to place the new drive on top of my Junior rather than along side of it. Two-thirds of the Junior's cover was able to snap down without pinching the ribbon cable. Where the cover did press on the cable it didn't appear to be causing any damage but I still wrapped the ribbon cable twice with heavy tape for added protection.

Next came the set-up for my Junior to recognize the 3.5" drive. This, of course, required that I use DOS 3.2 or higher. Legacy has included with their drive a copy of

JRCONFIG.SYS with two added files which make recognizing the second drive "simple". The files are named SIMPLE3.BAT and SIMPLE5.BAT; you can guess which file I used to get my 3.5" drive going. The batch file asked me to swap the JRCONFIG disk and my DOS disk a few times and then informed me that the set-up was complete.

I plugged the external drive into a power strip, flipped the new drive's rocker switch to "on", and re-booted the system. So far only fifteen minutes had passed from start to finish. The familiar and long memory count came on the screen and after a few bumps and grinds of the disk drive a new message appeared: "Loaded External Disk Driver for Drive C".

I anxiously typed "C:" and the system returned the correct prompt. I inserted into the new drive the 3.5" disk Legacy had enclosed during shipping and typed "DIR". For a split second I was worried. As I watched the screen I didn't hear or see anything. Suddenly, a long directory of files filled the screen. Eureka, it worked! It was then that I realized I hadn't heard the 3.5" drive turn or read the disk, it was virtually silent. For the first time I had to actually look at the light on the front of a drive to verify that it was working.

I find nothing negative about the Legacy Drive Two that won't be adjusted by the time Junior users start placing orders. Installation pictures to be included with the manual will answer 99% of any questions one may have. In demonstrating the unit to other Junior users, some said they would like a longer ribbon cable between the Drive Two and the PCjr. This would allow positioning the Drive Two along side the Junior when many sidecars are in use. I spoke to the people at Legacy about this and was informed that they would look into making the cable longer. When booting up with the Drive Two attached I found that its power switch needed to be on, if it were off the computer would return disk boot failure messages.

Two drives are becoming essential for many software packages to be run efficiently. The benefits of two drives are virtually unlimited since each of us can make use of a second drive in different ways. The addition of the low cost Drive Two to the family of PCjr add-ons will increase our computing capabilities and help make choosing to keep our PCjrs the right choice.

The Drive Two has a retail price of \$199.00 and can be purchased from Legacy Technologies and PC Dimensions.

Q & A.....

(Continued from page 1)

tabase form is as simple as 1 - 2 - 3. One, pick number one from its database menu (Designing the database). Two, type in your field names (such as Name, Address, City, etc.) onto a blank screen following each with a colon (:). Three, define each field as either a text, number, date, or dollar field. This step, not found in the Filing Assistant, prevents the computer operator from entering the wrong kind of data in a particular field. Finally, hit the F-10 key to record your database form.

Though the designing of the database form is quite similar to that of the Filing Assistant, Q&A has outdone it with more powerful and faster search and update functions. On the average, we found the search function on a sample database was at least five times faster with Q&A than with the Filing Assistant. Also, instead of returning you to the main menu after each search as required by The Filing Assistant, Q&A allows you to search directly from file to file by pressing the F7 key, thereby saving the user hundreds of keystrokes in a lengthy search session. Additionally, the PCjr user is given database functions that are usually reserved for relational-type programs. For example, if you don't want to view just one file at a time, Q&A will show you a table view of a particular field, with each row corresponding to one record. A Lookup feature lets you create a table linked to a file containing information such as a tax rate, price, or product number table. You can then look up the value for a particular field automatically. Other features not commonly found in file managers are the ability to use built-in math functions (sum, average, min., max, etc.), the use of Boolean logic (like "and" and "or") and the capability to search for words that sound alike. Q&A has impressive multiuser capabilities as well. Best of all, one of its built-in utilities allows you to automatically import any Filing Assistant file while you contently sip your cup of coffee.

Though the list of features already sounds impressive, Q&A also includes The Intelligent Assistant module (one of the earliest implementations of artificial technology for the PC) which allows the PCjr user to use ordinary phrases and sentences in performing the daily activities of maintaining and upgrading a database. After a "get acquainted" session, the Intelligent Assistant will scan your database, and then process your queries such as "Name all the employees making over \$30,000," or "Show me all unpaid invoices over 60 days old." Though you may find just using the regular query functions of the database easier, this feature will appeal to first-time and limited database users.

The Writing module of Q&A will also make the Writing Assistant user feel right at home. Basically, you are given

a blank page, and a-typing you will go. Margins, line spacing, indentation, etc., are all controlled by menus. But unlike the Writing Assistant, you will have search and replace features (even searching for all bold text items and not just certain words), font (you can use up to nine different fonts per document) and laser printer support, and a better spelling checker. If you're a Lotus 1-2-3 user, you can merge any spreadsheet or graph to a Q&A document. As we stated earlier, Q&A will merge information from any database into a document or form letter with ease. As with the Assistant series, all the user has to do is to create his or her document, specify which data is to be taken from the database and from which records, and then press a button. The Q&A word processing module will directly import any Writing Assistant document which is great news for most jr users.

There were two problems that we did encounter with the program, however. The first was that in a search where no search specifications are given, Q&A will start with the very first record in your database, and not the most recent, as with The Filing Assistant. In a small database, where viewing each record in the file is accomplished quickly, this is not a serious problem. But try it on a 5,000 record database, and you'll have time to paint The Sistine Chapel. A greater problem is that you must always exit the program from the MAIN menu. Not doing so (such as in the case of a power failure or a memory lapse) you will corrupt your file and must "recover" your database with one of the options of your Q&A utilities menu. We had the unfortunate experience of a power failure, and collectively held our breaths as Q&A repaired our database successfully. If you make frequent backups, you will not be quite as excited as we were when the menu read "If successful you will....." during the course of the repair. All in all though, these problems are dwarfed by the sheer brilliance of the program, and should not deter you from trying this program.

The PCjr owner has fought a long and so far successful battle to keep the jr a viable and productive computer. It hasn't been easy. With a program like Q&A, a landmark program that provides the basic meat and potatoes of computing (database and word processing), the PCjr owner's life seems a lot brighter. It's fast, powerful, and easy to use. But best of all, from the beautiful opening screen colors that will dazzle your eyes to the closing menu, it looks like and acts like an Assistant program. Happy times are here again, and for the jr owner, here to stay.

Q&A Version 3.0

*Symantic Corp.
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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) - \$25. PCjr cartridges - Mouser and Mine Shaft \$12. each. All prices include mailing.

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EYE ON SHAREWARE

This month we have 3 new programs you won't want to miss. Try them, and you'll love them.

MATHSHOP (#150)

MATHSHOP is a powerful and easy to use mathematics learning program for children between the ages of five and twelve. Your first screen is a menu to help you decide what kind of math you want today. You can select addition, subtraction, multiplication, fractions and mixed numbers. You can choose to have easy, so-so, hard or a mixture of problems from the menu. You choose the length of time you want to have to get the answer. Give yourself enough time on the hard problems because they can be really tough.

KNOCK POKER (#151)

"This is not one of your casino games of poker. KNOCK POKER is usually played in the military or as a one on one poker game. When you're looking for a decent poker game to play with a limited amount of players try KNOCK poker. Caution should be taken when playing this game with three or more players. I say this because it's too darn easy to cheat when playing with more than two players. KNOCK poker has been written as a two handed game for that reason." This is what the author tells us about the game. The program is well documented and the game is challenging, with fairly good graphics.

SEA HUNT (#152)

SEA HUNT is beautifully written to take advantage of the PCjr colors and voice. Its a great game of Battleship with a version of the Sailor's Hornpipe that would make Popeye proud. You can have a lot of fun with this game if you don't mind the snide remarks the computer makes when it scores and what a sore loser the computer can be when you score. You can choose your level of competence and turn off the sound, the music and the backtalk if you like. Of course the game will run on other computers, but it was written on a PCjr and especially for a PCjr.

JR'S BIOS VIDEO SERVICES

(Continued from page 11)

SERVICE 16

SET PALETTE REGISTERS

Input:

AH = 16

AL = 0 to set palette register

AL = 1 to set border color

AL = 2 to set palette register and border color BH = color value

BL = palette register to set

ES:DX = points to color list (used if AL = 2)

Output:

none

Description: This service contains three different functions. The first, which is selected by placing a 0 in AL, is similar to the Cartridge BASIC command PALETTE.

For instance, to set palette register 3 to yellow place 3 in BL and 14 in BH. The second function, selected by placing a 1 in AL, sets the border color to the value in BH. The third option with this service is one that sets all 16 palette registers plus the border color. The ES and DX registers point to the color list (That is, they are to contain the address of the color list). The first 16 bytes (numbered 0 thru 15) in the list contain the values of the colors to be assigned to palette registers 0 thru 15, and the 17th byte (number 16) is the color number of the border. The color numbers are:

0 Black	4 Red	8 Dk Grey	12 Lt Red
1 Blue	5 Magenta	9 Lt Blue	13 Lt Magenta
2 Green	6 Brown	10 Lt Green	14 Yellow
3 Cyan	7 Lt Grey	11 Lt Cyan	15 BrightWhite

Remarks: This service is available only for the PCjr, it will not work with the Color Graphics Adapter.

A SHAREWARE REPLAY

PC-EXPERT (#147): Designed to assist the investment manager in technical analysis of timing stock market transactions. You will be tracking foreign exchange rates, the price of silver, gold etc. The graphic historical record displays the last twenty trading days. The Investment Advisor is a rule based investment advisor based on economic assumptions. The rule base is constructed internally within the expert system. As a foundation for the rule system, basic economic assumptions were established using the Statistical Package for the Social Sciences (SPSS).

COURSE DISK (#148): How would you like to play Royal Latham, the British Open course? We also have Muirfield and Great Lakes courses on this disk. As usual this disk is meant to be used with Accolade's great game- Mean 18.

GIN! (#149) If you love Gin Rummy or even if you've never played it but you'd like to learn how, you will enjoy this disk. How much money can you lose to a computer? In addition to regular Gin two other options are available. These are Oklahoma and Hollywood Gin. The disk comes with simple instructions and a menu. You can customize your colors too.

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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.

WORD PROCESSING

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.

SPREADSHEET

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.**

UTILITIES

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.

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.

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

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.

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 jr, also a fix to run Chuck Yeager's very hot selling program Advanced Flight Trainer.

EDUCATIONAL

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

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

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be redesigned for special problems. It is fun and easy. For grades 1-6. **BASIC required.**

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.

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.**

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!

ENTERTAINMENT

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

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

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.**

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.

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.

PRODUCTIVITY

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

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

MR. LABEL (#66): many business and home uses - can create everything from simple reports to custom labels, prints envelopes, letter-heads, 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.**

GRAPHICS

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

TELECOMMUNICATIONS

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.**

LANGUAGES

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.**

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