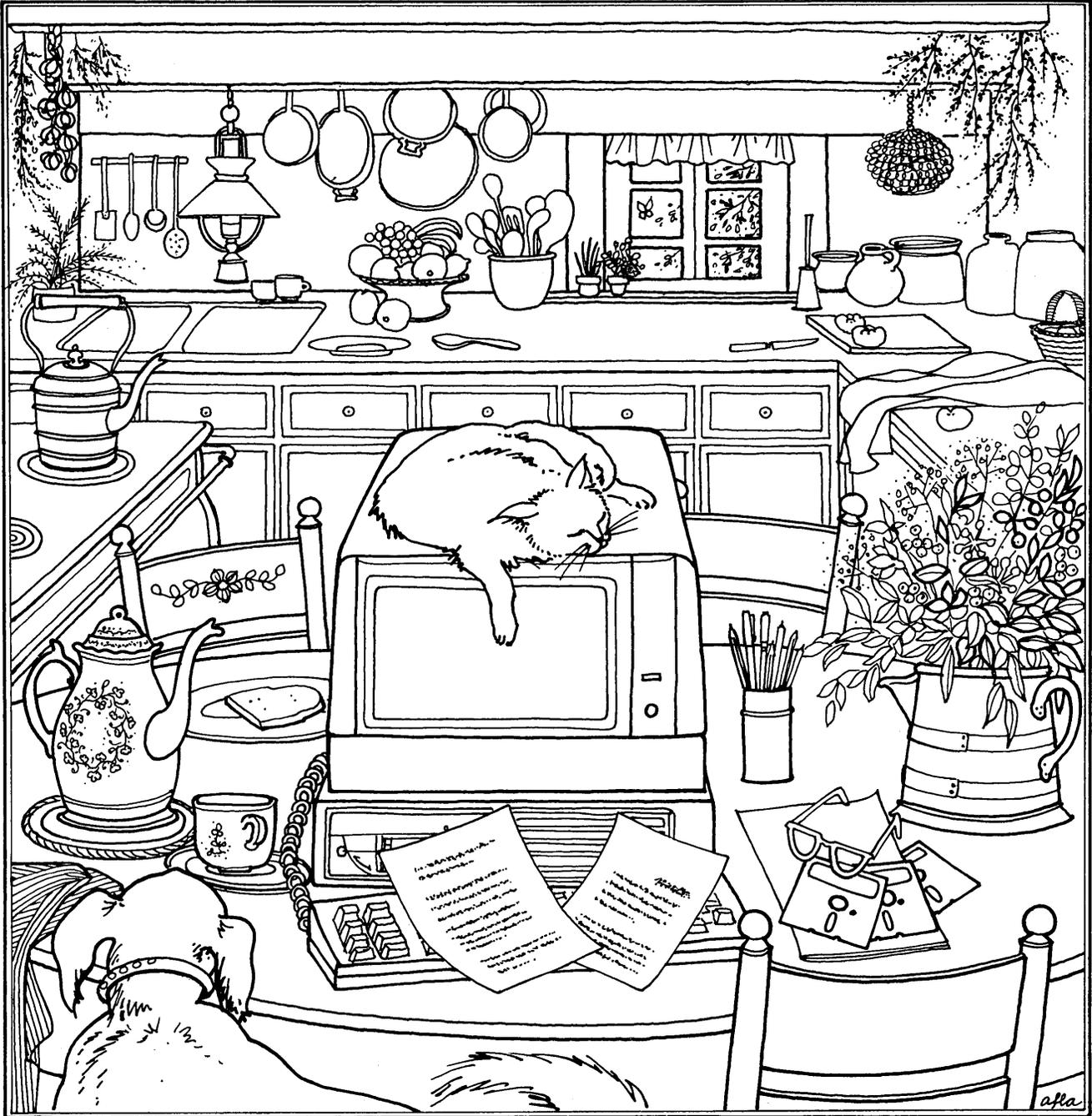


Morrow Owners' Review

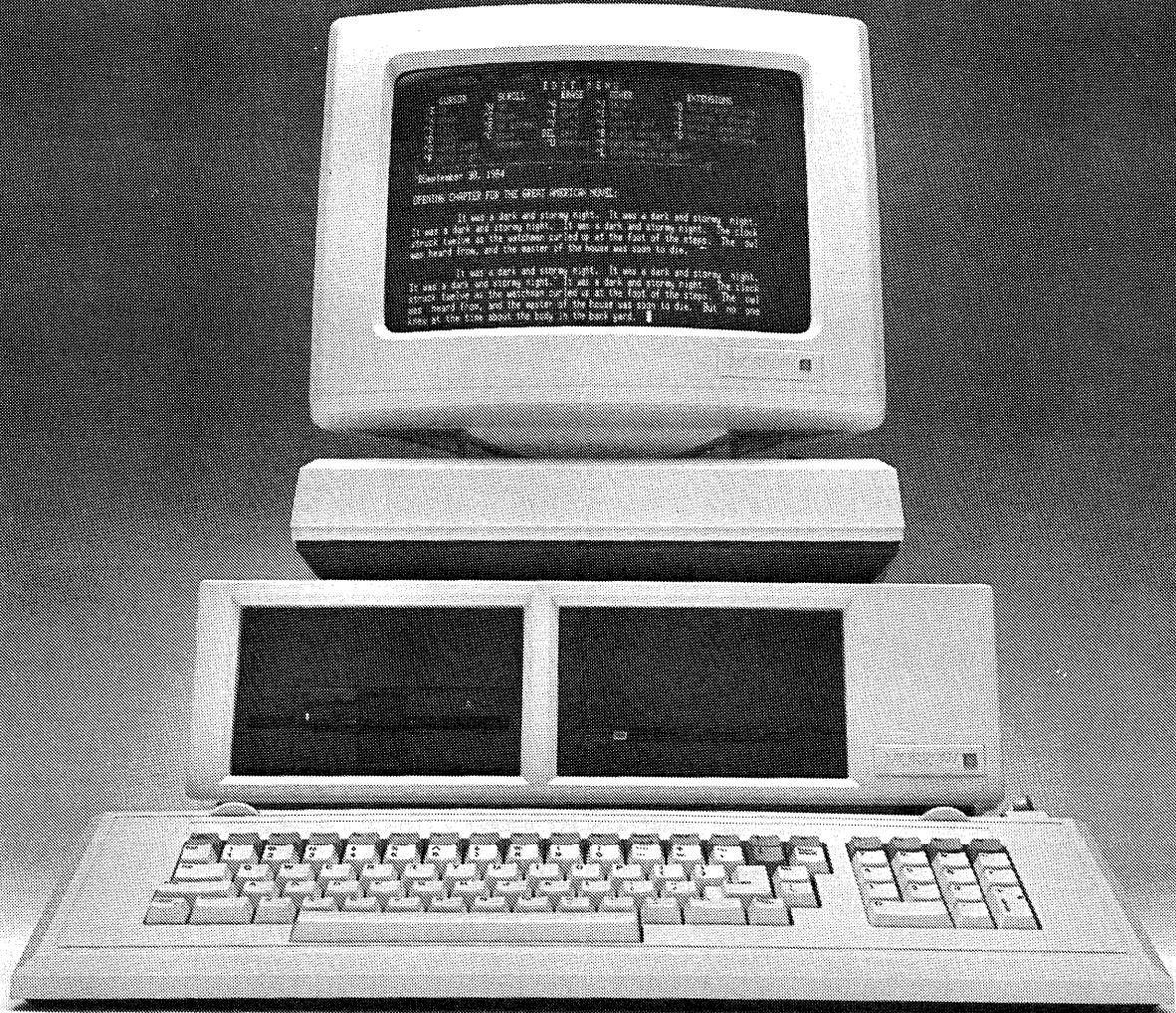
VOLUME 1, NUMBER 4, OCTOBER 1984



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MORROW



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Morrow Owners Review

P.O. Box 5487, Berkeley, CA 94705
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WRITTEN CONTRIBUTIONS of more than 30 words should be submitted on a 5 1/4 " Morrow format floppy in a WordStar file; right margin at 50 (^OR = 50); right justification OFF (^OJ); two spaces after the period (end of sentence); one blank line between paragraphs; three spaces indentation at the beginning of each paragraph. Thank you! Always include printed hardcopy of your prose. If you enclose postage, your floppy will be returned within a month. No modem transfers. Instead use MCI Mail (preferred over floppies) addressed to: MREVIEW (MCI Mail ID 217-1566).

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Cartoons page 10, 12	-	Robert Johnson
Cartoons inside back cover	-	Bob Johnson
Cartoon page 8	-	Holte/Punch/London
Meticulous reader	-	Stan Young
Prime Morrow supporter	-	Ed Niehaus

EDITORIAL

The hard life of the novice user.

Being a beginner is hard in almost any human endeavor. It is amazing to discover how many people--especially during the last year--went out to buy a computer not having the slightest idea of what a challenging adventure they had embarked upon. Perhaps they were simply afraid to be left out of this new fad promising omnipotence, and then found themselves over their heads in a power struggle with a machine!

You see, it is so unlike buying, say, a vacuum cleaner. Ever wonder why there are no Vacuum Cleaner Users Groups around? And how about TV sets? They are about as intricate as your average personal computer. But TV users groups don't seem to be in need, dealers are hardly ever accosted and manufacturers never hear much from their end-users.

With personal computers it is different. First off, the new computer user is afflicted with an exaggerated expectation: instant liberation from drudgery, a new tool that will finally organize the owner's life or business. But, as John Lennon pointed out long ago, "Life is what happens while you're making other plans...."

People who complain about misleading sales pitches by computer sales personnel often overlook the essential contribution they themselves make in closing a sale. Their fear of being left out of this wondrous new wave of activity in our culture makes them prone to hearing only what fits their dreams. On the other side, the sales person is often tempted to promise too much, both in terms of the ease with which magical computer powers can be obtained and in terms of the amount of support that will be given. Often this is done not out of malice but from simple lack of experience. They are, in a sense, novices themselves, but equipped with a different set of motivations.

Pandora's Box

The dire consequences of this transaction become clear soon after the Morrow computer is unwrapped at home or in the office. Almost immediately the new computer user is overwhelmed by the demanding little instrument. Not surprising when you take a look at the writing style still prevailing in software manuals. The first cries for help fall upon the beleaguered ears of the dealer. Now, that dealer, knowing it would be unwise business to bet on just one horse, sells many types of computers of which the Morrow is just one. Even if he has managed to take in the training seminars that Morrow offers for dealers,

he is not likely to have become the expert the user had learned to expect during that convincing salespitch.

As frustration sets in, Morrow becomes the next likely target for the user's wrath. After all, didn't they make the machine that makes the user climb the walls? Believe it or not, there actually was a time when George Morrow would personally return calls to mired customers, holding their hand till firm ground was reached. But after Morrow had successfully sold tens of thousands of machines, not enough people could be spared to deal with phone calls. And soon there were not even enough phones! Hiring more people and getting more phones would have meant raising the price of the computer--out of the question in Morrow philosophy. Their response was to train the dealers and provide them with phone support.

However, no matter how good Morrow's intentions were with their low price/dealer support philosophy, many users feel today that it just did not pan out for them. And it's easy for them to overlook the fact that they got a good computer for a relatively low price. Of course, the users expect to get it all.

Is Morrow unique as a manufacturer who does not help you when you call them? Many people assume that IBM and Apple and Hewlett-Packard are far more helpful. But do those dealers really hold the beginner's hand when problems arise?

And is it any different in the world of medium sized or main-frame computers (the big ones)? Yes, there you can sometimes get good help and training, but you pay for it dearly. Hewlett-Packard offers a wonderful phone support organization for programmers--but by subscription and at a stiff fee.

Is there a solution?

As you might have suspected all along: There is no free lunch. But before this realization crushes you, take a look at the users groups, those wonderful volunteer self-help organizations. While they suffer from their own limitations--after all, they're made up of amateurs--for minimal expense, you find a remarkably rich resource.

A lucky minority of users stumbles into such a user's group sooner or later, but sometimes with a warped assumption of what those groups are about. Aren't they for pirating commercial software and for getting back at the manufacturers of both hardware and software by wielding all sorts of leverage with the avenging power of legions of irate consumers?

Most users groups are not that way at all. You

need only read their newsletters and attend their meetings to find out that most have developed a high standard of integrity. They have learned to discard the old tricks of adversary relationships and taken on new ways of negotiating based on cultivating trust and cooperation. The established groups continue to grow in size and significance (see listing in MOR, April 1984) while many new groups get started every month.

What users groups are good at is lending the newcomer a hand--almost for free. In Berkeley, California, for instance, members of BAMDUA (the 800 member Bay Area Micro Decision User's Group) can go to a Novice Emergency Clinic, a one evening class intended to help frustrated beginners over the first and often most frustrating hurdles. Local meetings and newsletters in many areas of the country abound with helpful ideas. Many groups organize classes in various subjects for different levels of user-experience.

Users groups are often good at training beginners to assume responsibility for their fate--that is, they are basically on their own. Many of the more experienced members still have fresh memories of their own frustrating experiences and are willing to support beginners to act creatively and effectively. Getting this essential training in a users group is highly preferable to trying to get it from a dealer, considering the dealer's different motivation and experience and lack of time due to competitive pressures. Of course, when you need repair or service or additional gear, then the dealer becomes important again. In fact, maybe that's the only service to count on the dealer to provide.

What if you live far away from any Morrow users group? Join them anyway! Join several of them. Their newsletters make up for the meetings you cannot attend. And don't overlook the fact that many Kaypro, Osborne (FOG) or other CP/M oriented user's groups will receive you with open arms.

What if you just are not a group person? Then, as a last resort, enjoy this issue of the Morrow Owner's Review. You'll find a large selection of articles devoted to the "curious novice." (See Table of Contents.) This section is the result of your editor's endless pleading with potential writers of MOR articles to please keep you, the newcomer to computers, in heart and in mind.

Anything else? Write me anytime. I may even print your letter, especially when you put it on a floppy or send it to MREVIEW via MCI mail.





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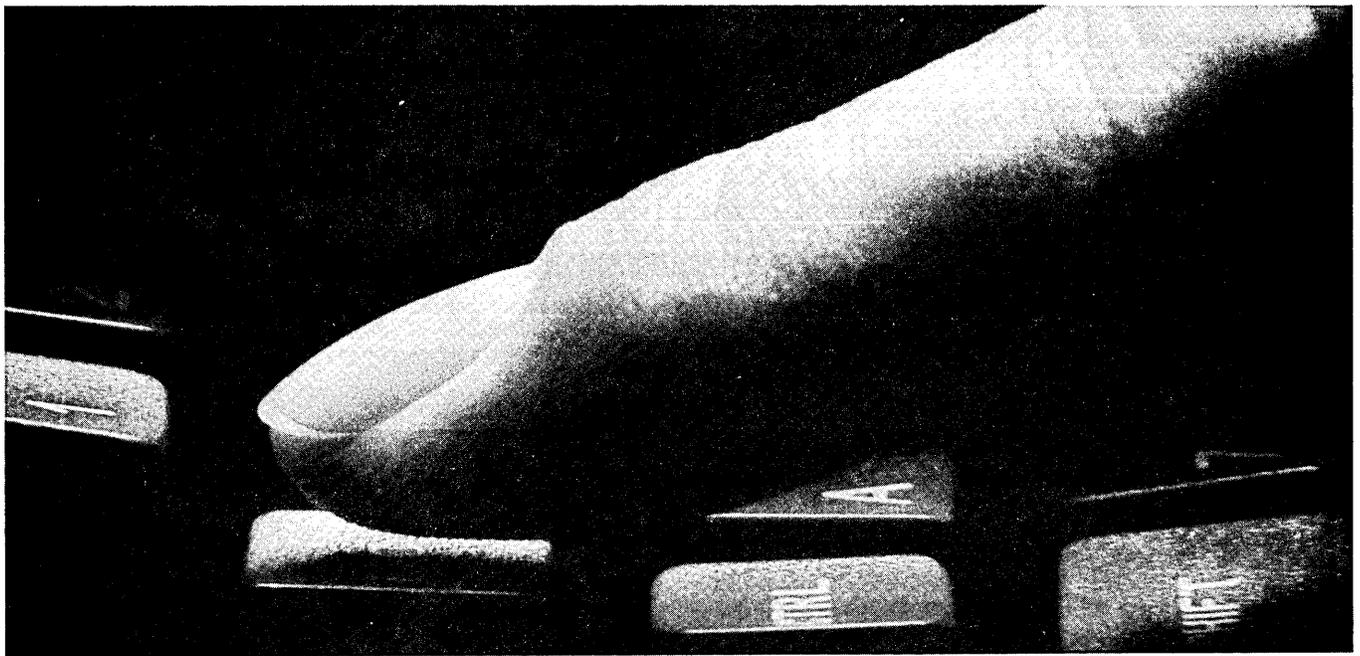
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LETTERS TO THE EDITOR

THE KINDNESS OF STRANGERS

Dear Editor:

By now you've heard shout after shout of joy from all us weary pioneers as we discovered our very own magazine waiting in our mailboxes. I personally did a leap that would have won me a spot in a Toyota commercial.

I feel there is a place for technical articles in the Review, but I also agree with Stacey Peck (MOR #3) that we neophytes are thirsty for all the basic knowledge of our machines that we can get. Articles offering basic hints and strategies are usually the first things I go for. I personally have been most fortunate to receive an ocean of guidance (and patience!) from an individual I've not yet met outside the telephone and modem. Go read TODAY magazine's "The Kindness of Strangers" and you'll know why people like Stan Young make it all worthwhile....

Bill Lamp'l, Lithia Springs, Ga.

THE CREDIBILITY OF MOR

Dear Editor:

About commercial "articles" in MOR.... I put quotation marks around the word "articles" because I honestly don't think they qualify as such. Yes, I realize your motives--get information to Morrow users in the most direct way possible. Obviously, manufacturers are in an excellent position to offer such information. But how is the reader to sift out the commercial bias that often is present? If the editorial content of MOR is to have genuine merit, I think, then it must be as objective as possible. And the business of journalism (which you have voluntarily entered) makes special demands. You must take care to eliminate not only impropriety, but also the **appearance** of impropriety. And when a manufacturer is allowed to contribute an article, it produces (at least in my mind) a vague sensation of distrust.

It's a problem, because users (especially Morrow users, who seem to be less technically versed than many) need all the assistance they can get. I don't pretend to have an instant solution. Perhaps commercial contributors should simply be charged a standard advertising fee, and their contributions **clearly** labeled as such. Considering that they will likely be attracting new business, they shouldn't really object to paying for their space. And if they do, and there's something MOR readers

absolutely ought to hear about, then find somebody willing to report on it. By phone if nothing else.
Andy Adler, Louisville, KY

HOW ABOUT A BOOK REVIEW COLUMN?

Dear Editor:

I am one of that vast number to whom Morley Farquar referred in his published letter--those "who just want their computers to be well behaved tools." I find a lot of computer literature incomprehensible. Here is a suggestion for MOR: namely, that you feature a book review column, wherein someone could recommend to us virtual newborns those volumes most likely to provide the milk (not tough meat) needed for computerological development.

I really like the cover of MOR #2: the way it seems to (quietly) say "computers belong in the home...."

Elwin Green, PGH, PA

PRETTY FORMIDABLE FOR A BEGINNER

Dear Editor:

HALLELUIAH! And a warm welcome to MOR from another orphan. We have an MD3 with Wordstar and an MP200 printer, used entirely for word processing at present. Our dealer (John Potter, Altair Business Systems, Dayton) got us "up and running" before he quit business to concentrate on programming, so we're in somewhat better shape than Roy Walters of Texas or your friend the Curmudgeon; but we still have a LOT of problems and questions, and it's mighty lonesome out here.

Now I have a suggestion. The software documentation that comes with the machine is pretty formidable for a beginner. I was lucky enough to stumble on some introductory material on WordStar that helped a lot (and is still helping). Anyone who, like me, is a complete beginner on computers and is interested primarily in word processing, should get as much help as he/she needs to get booted up to the stage where the Main Menu comes onscreen (Chapter 5 in the MD User's Guide). From that point, any or all of the following will get you going on WordStar:

How To Use WordStar, Audiocassettes and Users Guide. Written by Lionel J. Soracco, Jr.

FlipTrack Learning Systems, Glen Ellyn, IL,
1983.

Introduction to WordStar, by Arthur Naiman.
Sybex, 1982. ISBN 0-89588-077-6

WordStar With Style, by Roger B. White Jr.
Reston Publishing Company Inc, 1983.
ISBN 0-8359--8793-0

The three-cassette course really takes you by the hand, assuming you know nothing more than how to pay attention; it includes a handy booklet that summarizes each stage of instruction. The Naiman book is the most comprehensive; White's book takes you a little further. All three are well indexed, which alone--in view of the manuals' failings in that respect--makes them worth having. After six months, I am still using all three; what I can't find in one, I can usually dig up in another. (When all else fails, I go to the manual, which is just beginning to make sense; but it's like digging one rock out of the bottom of a pile....)

Mrs David A. Huber, Xenia, OH

MORE NON-TECH ARTICLES PLEASE

Dear Editor:

I just received my first issue (#2) of MOR. I like it a lot and am desperately grateful to be in touch with others who have heard of the company and who even know something about the machines!

Please keep the mix of articles weighted toward the nonhigh-tech. I am mildly interested in technical things, but I haven't the training to take advantage of the more esoteric material. Better yet, try to persuade authors to write for nontechnical types, but offer considerable space for technical appendices. I am also oriented toward cookbook approaches which enable me to get things done without necessarily understanding fully how the miracle is wrought.

There were several references to the BAMDUA newsletter. I haven't the foggiest idea what BAMDUA stands for, but I would remind the letter-writers who complained about the number of BAMDUA articles re-printed in MOR that not all Morrow users are in the San Francisco area and do not have access to BAMDUA.

James P. McGregor, Annandale, VA

[BAMDUA is the acronym for the Bay Area Micro Decision User's Group, PO Box 5152, Berkeley, CA 94705, (415) 658-0152 (Voice), 654-3882 (BBS).]

HAPPY WITH HIS DEALER

Dear Editor:

This being a rainy Sunday in Richmond, Virginia, and my wife still peacefully snoozing, I will take this opportunity to drop you a note of appreciation which I have been intending to do ever since I received the first Morrow Owners' Review.

My Morrow dealer is Mike Gittin of MTM in Richmond. Mike is a smart and caring individual and has been a tremendous help to me in answering my stupid questions and helping to clear bugs out of the system. Keep up the good work and I will keep bragging up Morrow and my dealer. Together we will all prosper.

C. Clifton Dyche, Jr., Richmond, VA

CURE FOR SLEEPY MD3 DISK DRIVES?

Dear Editor:

Hello.... Was very glad to be on your mailing list for the initial copy of the Morrow Owners' Review. Just the first issue has answered several questions and given me hope in a number of other areas. On page thirteen you have a very good article by Sypko Andreae on the "sleepy drive syndrome." When I finally got all my working diskettes copied and was starting on some of the many programs to use, I ran into this problem. No explanation given, I had to do some calling around. It took perseverance but I finally found an IBM PC user who recommended I use Dysan Diskettes. He wasn't too sure it would solve my dilemma but I should use them for longer error-free life of the diskettes themselves. I invested and changed all my working diskettes to Dysans and use the others for data storage and backup. I haven't had a "sleepy drive" since.

Lewis D. Byrd, Bellingham, WA

CURE FOR NOISY MD3 DISK DRIVES?

Dear Editor:

The first two issues of MOR, April & June 1984, talked about the sleepy drive syndrome on MD3s. I talked to my dealer about upgrading my ROM from 2.3 to 2.5, and his response was "No, that won't help the problem." Then in the June issue of MOR (VOL. I, #2), I read the letter by David Stoddard on page 5 about the "dynamic" friction and low torque motors as being diagnosed as the real problem. "COW CHIPS"!

My MD3 HAD a sleepy "B" drive, but it's now wide awake!!! I haven't had a problem in over 150 hours of operation.

I think that the root cause of the problem is the mounting of the drives. The "B" drive is mounted directly over the "A" drive, causing an increase in temperature in the "B" drive. Result: increased resistance and additional starting torque requirements for the motor. The dynamic friction and low torque motor do contribute to the problem. The "A" drive, in my experience, hasn't had any problems.

The best cure for the problem turned out to be adding vent holes just above and slightly to the rear of the "B" drive. This provides additional cooling air flow over the drives, resulting in 100% reliability of both drives!

Herb Lore, Stuart, FL

[We recommend that before you drill any holes ANYWHERE in your MD3 chassis, you talk it over first with your dealer or a capable electronics technician. Editor.]

CLIMBING THE WALLS

Dear Editor:

Take all this with a grain of salt: Although my complaints are genuine, and I'm climbing the walls at the moment, I do know that once my machine does function I'll have one hell of a starter system.

Skip Agen, Danbury, CO

WAS UP THE RIVER, BUT NOW THERE IS MOR

Dear Editor:

On June 28, 1984, I went to my mailbox to get my daily mail. After examining the contents, looking for bills and making sure I didn't bounce any checks, I found this blue magazine.

THANK YOU !! THANK YOU !! THANK YOU !!. You have no idea how I have searched and searched for ANY information on the Morrow MD2.

I wish I had received a copy of the first issue of the Morrow Owners' Review; I would have contributed to the "fund." I have probably spent at least \$500.00 on magazines & journals, hoping to find anything at all on the Morrow. All I found was 2 separate hardware reviews, and 1 ad featuring the lonely rower in the water. I felt the guy in the boat was luckier than I--at least he seemed to have both paddles. I felt I was up the river but with no paddles.

Gilbert C. Schisler, Tampa, FL

WISH I HAD ONE YEARS AGO

Dear Editor:

The computer has become my right and left hands. I can't believe the amount of written work that I can get out with it in the time frame that I have available. I am very pleased to have purchased it, as it has paid for itself in increased income and efficiency many times. Too bad that they didn't exist in this form many years ago.

Jack A. Eckert, Port Washington, WI

LEARNING TO USE IT ON MY OWN

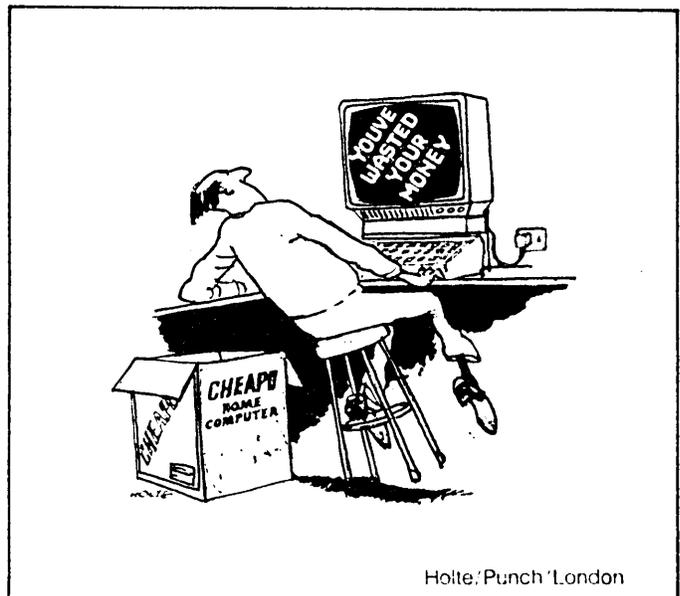
Dear Editor:

Hooray! I have received my first copy of MOR in the mail, so now I know that I am on the mailing list.

The letter from Roy, San Antonio, was certainly a puzzler for me. Perhaps because I started with the idea that the MD3 is a friendly computer, and also started working with NewWord which seems to be pretty clearly written, I have felt from the beginning that I could learn to use it on my own.

I tend to be disturbed by the letters which are overly critical of your first effort. I think it was a great first effort and that the #2 is even better. You seem to be on the right track. Keep up the good work. I think Morrow has a great idea in providing a fine product at a very reasonable price. You are providing really helpful information in a usable format. Thanks!

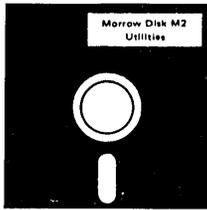
Don A. Jones, Florissant, MO



Micro Cornucopia

The Single Board Systems Journal

MORROW USERS DISKS



Micro Cornucopia is drawing rave reviews as the technical journal with style, but Micro C, as we like to call it, is more than just a magazine.

Micro C is also a central exchange of software that people have written or modified for their systems and from these contributions we have put together the following Morrow disks (186K format).

MICRO CORNUCOPIA

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Bend, OR 97709



(503) 382-8048

Morrow Users Disks

\$12⁰⁰ each

The following are full disks of software assembled specifically for the Morrow. Each program has a .DOC (documentation) file and many come with source.

Morrow Disk M1 Modem software

This disk is absolutely priceless if you will be using a modem to communicate with bulletin boards, other micros or mainframes.
MMODEM: Morrow version of MODEM 795. You can change your baud rate inside the program. Includes source and library so you can customize it if you wish.
SMODEM: This is MODEM7 setup for SMART-MODEM compatible modems. Handles autodial and autoanswer.
SQ/USQ: Programs to squeeze and unsqueeze files for faster transfer.

Morrow Disk M2 Utilities

Really oodles of spiffy little (and big) programs to help you get full use of your Morrow.
ZESOURCE.COM: A true Zilog format disassembler for 8080 and Z80 object(.COM) files. Now you can turn .COM files into .MAC files.
UNERA.COM: Simply enter "UNERA" followed by the name of the file you just erased and presto, the erased file is back! A lifesaver.
FINDBD54.COM: Checks an entire disk, reports bad sectors, and then creates a special file containing those sectors. You save a bundle on disks.
CAT2: This a group of programs which create and maintain a single directory of all the programs you have on all your disks. Even keeps track of which programs are backed up and which aren't.
DUMPX, DU-77, COMPARE, FORMFEED, DIR-DUMP, . . . and all have documentation on disk.

Morrow Disk M3 Games

PACMAN.COM: Despite the Morrow's lack of graphics, this one looks and plays amazingly like the real thing! Keep it hidden.
ZCHESS.COM: Chess with a 1-6 level look ahead.
OTHELLO.COM: You learn it in minutes, master it in years.
BIO.COM: Generates custom graphic biorhythm.
MM.COM: Master Mind.
WUMPUS.COM: Classic wumpus hunting.
ADVENTURE.COM: This is the famous 550 point super version of Adventure. There isn't room on one disk for this program and all the data files (the cave is huge) so the data files are on Disk M4.

Morrow Disk M4 Adventure Data & Aliens

ADVT.DAT: This disk contains the data files for the 550 point Adventure (the latest, greatest, most cussed version ever devised by half-mortals). You must have both M3 and M4 to play Adventure.
ALIENS: This is the game that made arcades famous. Keep this one hidden from the younger set or you won't get to play Adventure.

Morrow Disk M5 MX-80 Graphics

A complete Epson MX-80 graphics printer package including example files. Same as M6 except for MX-80 (or compatible) printers.

Morrow Disk M6 Prowriter Graphics

This is a complete Prowriter printer graphics package written by the same Micro C subscriber who wrote the MX-80 graphics package. Plot points, lines, circles, boxes, and more. Examples, documentation, and more.

Morrow Disk M7 Small C Version 2 Compiler

This is a greatly extended version of Ron Cain's Small C compiler. Version 2 has more expressions and larger library, true subset of Unix C. Disk contains compiler, documentation, and library —everything you need.

Morrow Disk M8 Small C Version 2 Source

This disk contains the source (written in Small C) of the Small C version 2 compiler. Get M8 if you want to try extending the compiler. (You must have M7.)

Morrow Disk M9 ZCPR

ZCPR: The big news on this disk is the self-installing version ZCPR available only from Micro C. Once you have ZCPR in your CP/M, you'll never go back to straight CP/M! For instance, ZCPR searches drive A for any program not found on drive B, so, even an empty disk in drive B appears to contain every program on A. It's great for text editors, compilers, etc. Plus many more new features to make CP/M easier to live with. In fact, Digital Research incorporated many features of ZCPR into CP/M 3.0.
EX14: a super replacement for SUBMIT.

Morrow Disk M10 Assemblers

We've received a lot of requests for a Z80 assembler. So Dana put in some long hours getting the Crowe Z80 assembler to run on the Morrow (and every other Z80 machine).
CROWECPM: This is a first class Z80 assembler. We use this assembler daily (and we included its source). Takes standard Zilog mnemonics.
LASM: This is a more powerful version of the ASM assembler you received with the Morrow. This will link multiple programs together at assembly time.
PRINTPRN: This program makes it easy to print the listing files generated by the Crowe assembler.

**Morrow Disk M11
Library & Checkbook Programs**
CHECKS: This has been a very popular group of programs. Categorizes checks so you can keep track which are tax deductible and which get charged to which projects. Includes source and excellent example check files. Very powerful.
LIBR: This is a complete set of library routines which let you group files into a single file called a library. Then CP/M sees them as a single program, but with the library routines, you can list them out separately, run them separately, or divide them up again. Almost like a unix environment.

Morrow Disk M12 Pascal Compiler

This is a real Pascal compiler. It supports only a subset of the language (no records, pointers, booleans, reals or complex) but it generates a real .COM file. Everything is on this disk: the compiler, its source, example programs and documentation.

Morrow Disk M13 Z80 Tools

This is for those of you who are into Z80 assembly language.
XLATE.COM: A very good 8080 to Z80 translation routine.
DASM.COM: An easier to use version of ZSOURCE (the Z80 disassembler). This full disk includes source and documentation for both routines.

NEW! Morrow Disk M14 Z80 Macro Assembler

This is a real Z80 macro assembler! Syntax closely follows RMACK and MAC. Also includes pseudo-ops to support conditional assembly, etc. No phase or relocatable code.



THE COMFILE

by Ed Niehaus

As the saying goes, I have good news and I have bad news. I've been asking for mail and the good news is that I got some; the bad news is that half of it was from people who are rather irritated with me. Why? Well, I stuck my neck out and said that it is the dealer's responsibility to support the customer (not Morrow's). Of those six of you who responded, half took me to task for such crimes as insensitivity and arrogance.

Ouch. Maybe I deserve it. Here's the thesis that made these folks so mad: Morrow's responsibility is to produce a reliable product, make it economically worth buying, and to recruit and support dealers to sell it. The dealers' responsibility is to find customers and fit computers to their needs and (here's the rub) provide answers to their questions and solutions to their problems after the sale.

This sat very well with some of those who wrote. For example Norine Dresser wrote a very nice letter about Integral Micro (Los Angeles), saying "I bought my machine in November of '83 and both Gary [Marsh] and Peter [Weiss] have been terrific! They have delivered on every promise, and then some. They are never curt, and are always willing to solve a problem, either by phone, or in person." Others reported similar experiences.

However, the letters I got from three people indicated clearly that they were VERY upset. I

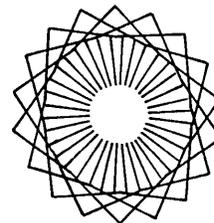
had said that most of us find a computer to have been one of the most important purchases of our lives. People who've had trouble seem to bear this out. "Buying a Morrow was the worst mistake I ever made in my life" one woman felt. "Not only did my dealer refuse to help, they gave me Morrow's number and after putting me on hold, told me to see my dealer." I also got some ominous warnings about how our "attitude is going to put us out of business."

Can both of these situations be the case? Aren't they mutually exclusive? The answer depends on several things. The main one is the dealer. He (or she, our language needs a neuter personal pronoun) is our interface with the customer, our buffer, our representative. In each of these unhappy cases, the dealer hasn't done his job. I know I know, let's be fair; I admit that from time to time we haven't been as helpful to the dealers as we maybe could've been. Our dealer support department is working hard to remedy that.

Two of the letters I received quoted me saying "we do our best to keep users away." I admit it-- I did write those words; the context was an explanation of how our Dealer Support Department works. We're trying to protect this resource for the use of our dealers in supporting you. Since I wrote those words, I have since read a book called In Search of Excellence. The author's prescription for business success is "stay close to your customers."

Well, you are our customers. How can I help? I've answered the letters I've received (except one from an officer in the military which I'm embarrassed to report got lost in the paper shuffle... if he reads this and sends it again, I'll try to help). I'll answer any others I get, and help any way I can. Morrow is committed to eliminating any "bad" dealers we may have (define bad as those dealers who fail to do their support job). I'll strive to make additional support resources available.

We're not like Jim Unger's classic cartoon that has Herman envious of the ostrich, "...the sand runs into your ears and it's peaceful." I guess if we wanted peace and quiet we wouldn't be in the computer business. We want to know if our customers have troubles the dealers aren't solving. We want to help.



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DAVID'S Q & A COLUMN

by David Block

Well, again I sit before the mesmerizing amber glow... Time is short this month (and so is my column), since we are working hard to ship the first PIVOT's. When we last left our intrepid writer, he was working on quieting down those drives. From the letters that are still arriving, it's clear that I can please some of the people some of the time, but I can't please all of the people all of the time. Let's get to the questions.....

Dear David,

My MD3 drives seem noisy, and when I followed your instructions, I found that the bytes were already set to the value you said to change them to. Apparently the step rate had already been changed, but my drives are still noisy, and driving me up the wall. What can I do?

Hard Of Hearing

Dear Hard Of Hearing,

As you and many other people have discovered, not all drives can be quieted down. Some drives are noisy no matter what the step rate is. Just rest assured that noisy drives don't mean that the drives are being worn out, just that they are noisy.

Dear David,

I have an MD11, and am having trouble running DataStar on it. It gives me an error, reporting that there is no directory space left. My MD11 shows that there are still lots of free directory entries. Is there a fix for this problem?
DataStuck

Dear DataStuck,

Cheer up! DataStar was written for CP/M 2.2, and there is a difference between CP/M 2.2 and 3.0 that a very few programs get stuck on. The program DataStar is one of them. Have your dealer call our dealer support department and request the CP/M 2.2 RSX for the MD11. It will solve your problem, and at no cost to you.

Dear David,

When I received my MD11, I noticed that it came with Smartkey II on the MBASIC diskette, yet when I try to run it, nothing works right. What can be done about it?

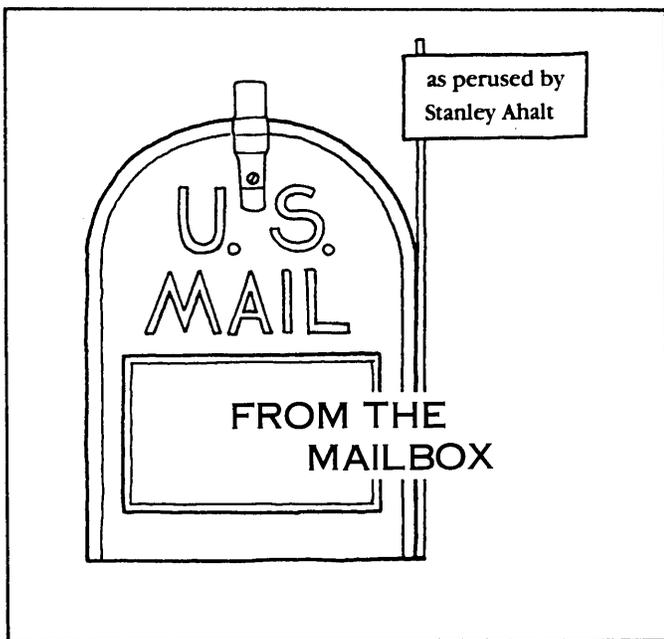
Not-so Smart

Dear Not-so Smart,

To make production easier, some of the same diskettes are sent out with different model Micro Decisions. The MBASIC diskette is one of these. The copy of Smartkey on the MBASIC diskette is really meant for MD2 and MD3 computers, and will not run on CP/M Plus machines. On your MD11, you will have to use the KEY.COM program that came with it to define the keys on your terminal. There is a version of Smartkey II available that will work on the MD11. It can be ordered from:

Software Research Technologies, Inc.
3757 Wilshire Blvd. Suite 211
Los Angeles, CA. 90010
(213) 384-5430





From Doug M., Honolulu, HI (must be nice to live in paradise!): Doug is a paralegal and uses MD3's both at work and at home. He handles fairly large files (20-40K), double spaced, and NewWord (NW) drops out letters while word wrapping AND will not drop down the extra line while in the double spaced mode until you pause and let the screen update. The latter happens only on the screen, not in the document. However, the letter dropping DOES occur in the document. DOES ANYONE KNOW OF A PATCH???

Doug would also like to interface his MD3 to his Korg Poly 800, a synthesizer equipped with a Musical Instrument Digital Interface (MIDI). Although he can find interfaces for Apples and Commodores, he can't locate one for CP/M machines! Anyone with some help in this area???

From Agatha T., Sterling, VA: I just got the June issue of Morrow Owners' Review and found it excitingly informational.

I have had my MD3 since April. I've been using it primarily for word processing, and I would like to share with you further information on the word wrap bug in NW.

First, in my experience the problem has nothing to do with how fast one types. Though I am not a technician and have no idea how to describe the exact nature of the problem, I have isolated it and can explain in layman's terms what goes wrong.

The problem occurs only after the ^OS command has been entered when you want to write a data file in (for example) double or triple spacing. The problem occurs at exactly the same point in the file every time; that point seems to coincide with about 2K of data. The problem never occurs in single spacing. In fact, if you encounter the

problem and use the ^OS command to return the file to single spacing, the problem will disappear. Use the ^OS command to change the spacing again and the problem returns.

The only way to defeat the problem is to type everything in single-space. If you are like me and sometimes prefer to work in double or triple spacing, there is one way to minimize the problem. When the bug crops up, use the ^QR command to return to the beginning of the file, then use ^QC to return to the end of the file. Your paragraph should appear as you originally meant to type it, and the bug will go away for another 2K of data (2-3 pages, depending on what spacing you are using). I haven't the foggiest idea why that happens; I just know that it works.

I hope this information is useful to you. Use it any way you want to. I am also interested in contributing to the Review, especially with non-technical articles about NW which is the program I am most familiar with so far. Let me know if I can be of any help. [Are you kidding! We encourage EVERYONE to write, on any topic at all! - Stan] ###

Computer Tyme of Springfield, MO is offering BDOS-27.RSX, which it claims will solve the majority of problems concerned with the incompatibilities between CP/M 3.0 and CP/M 2.2. It seems that many of the programs which run on the MD3 won't run on the MD11 because the programs make calls to BDOS call number 27, which is not supported under CP/M 3.0. BDOS-27.RSX solves this problem. Single License--\$25. Dealer License--\$100.

Computer Tyme
216 South Glenstone
Springfield, MD 65802
417-866-1222

Please write me with your results using this program so I can pass on the info to others. ###

From Bill B., Marquette, MI: When Bill types with WS, he always single spaces so he can see the maximum number of lines on the screen. To double space printer output, he sets his OKIDATA 92 to print three lines per inch by sending it the sequence 1BH 25H 39H 30H, embedded in the text. Then, to get nice margins, use the dot commands (at the beginning of the file):

```
.MT 3
.MB 3
.HM 1
.FM 1
.PL 33
```

This saves reformatting the text and messing about with carriage returns.

Bill also uses a trick he found in MICROCOMPUTING to enable him to embed printer commands in WS files. He patched the escape code 1BH (which is what the OKIDATA expects before commands) into the USR4 area, i.e. ^PR (01 1B). Then to invoke it he simply does a ^PR followed by the sequence of characters needed to make the printer do whatever! [Great Tip!]

Bill would like to know if there is any way to do a keyword search of a file using Pearl, and if there is any way to use Pearl's SORT with files other than Pearl's. ###

From Stephen R.: Hello!! I thought I would take a shot in the dark and try 'sahalt' on the MCI and begorrah, it works. I would like to put this into the arena: Is there a version of ZCPR2 that will work on the MD2 <<BIOS 1.3 ROM>> without much mucking around in the depths of assembly or MAC assembly? I uploaded a file called ZCPR2-MD.LBR from Computer Connections, (202) 547-2008, that allegedly was created by Rick Conn to permit installation simply by overlaying a hex file of ZCPR2 on a SYSGEN image. When I followed his instructions precisely and booted the result, the system hung. I don't have MAC and am nearly ignorant of assembler (I wish I had time to learn it) and would like to get some of these features without getting lost. ###

Ernest Stefanik, 373 Wilson St., Derry, PA, 15627 has most of the SIG/M and CP/MUG disks and offers copies for \$1.25 per disk, each 240K source disk requiring 2 SSDD destination disks. He will send a catalog for \$10 postpaid. ###

Ray H. Dees has sent me a copy of a Basic program which allows the MD2, rev 2 w/MDT50 printer port to be configured for different baud rates, parity, word length, and stop bits. If anyone would like a paper copy of the listing, I will be glad to send you a copy if you send me 10 cents for copying and a self addressed stamped envelope. ###

More than one person has sent me rave reviews of "Getting the Most From Wordstar," by M. David Stone, Prentice Hall. It covers microjustification and proportional spacing. ###

Can anyone tell Alfred N. of Ann Arbor why using control-P to echo something to the line-printer causes some of the words to be printed in italics. He has a Epson FX80 printer. ###

From Haydn H., Fairfield, IA: You can connect your US Robotics modem with a conventional cable by switching pins 2 and 3 using the jumpers inside the modem. ###

From Kathryn K. in New Hampshire: Does anyone know why Quest fails on period close? This problem is haunting. The program gives a "file write error ..@ 6006 in KGSL." ###

From Nina Seco, University of Washington, Seattle, WA One of our local Osborne people has come up with a great new program which works on any CP/M micro and (almost) any printer. It's called TYPEWRITER, and turns your printer into one (from WORDSTAR or any program that allows you to run another program from it) for little annoying tasks such as addressing an envelope without having to remove the tractor feed, filling out forms where words must fit into a fixed space, and --my favorite--putting words beneath lines of music! It does this in non-correcting typewriter mode and in a one-line "word processing" mode which prints the line only when you hit CR. It has variable vertical and horizontal spacing and pitch (including proportional spacing) and supports boldface and/or underlining and has a graphics mode which lets our daisy wheel printer pretend it's a dot matrix. It is available for \$25 for about a dozen brands of daisy wheel and dot matrix printers from:

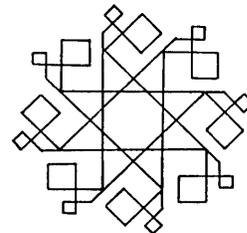
MicroCost Software
19705 - 1st Avenue South
Seattle, Washington 98148

It works fine with my Morrow MD2 and Diablo printer.

Anyone struggling with dBASE II will love a new book put out by SYBEX: UNDERSTANDING dBASE II, by Alan Simpson. It's carried by some of the chain bookstores or can be ordered directly by calling (800) 227-2346. The cost is about \$25 and well worth every cent.

Many thanks to all for the Review. It's just great! ###

Well, that's all for this issue, folks! Keep that mail coming, but PLEASE send it on disk or via MCI Mail when possible; my chubby hands are all tired out! If you can't send by one of these methods, then SEND IT ANYWAY!



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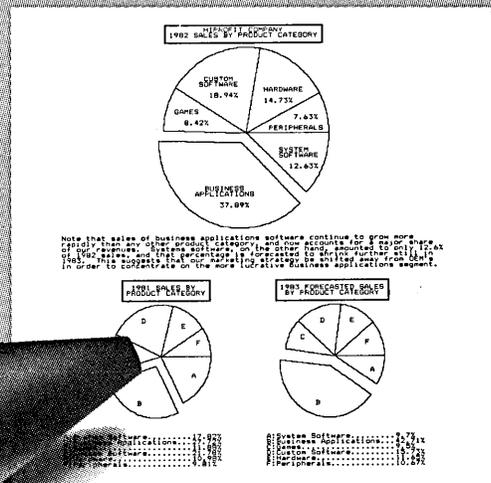
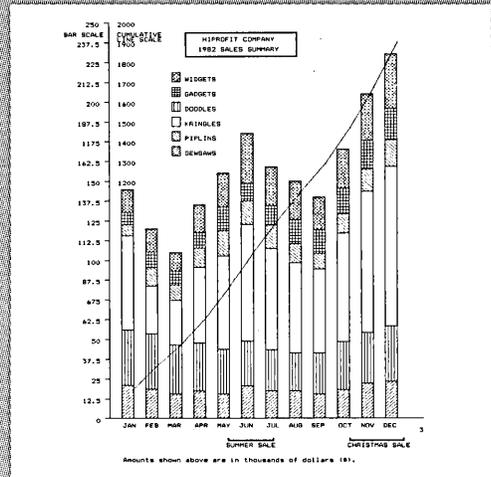
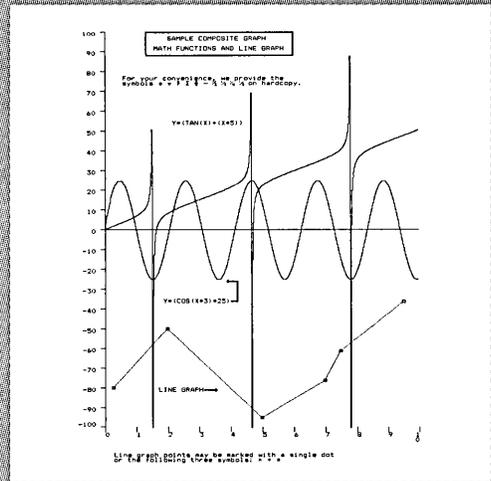
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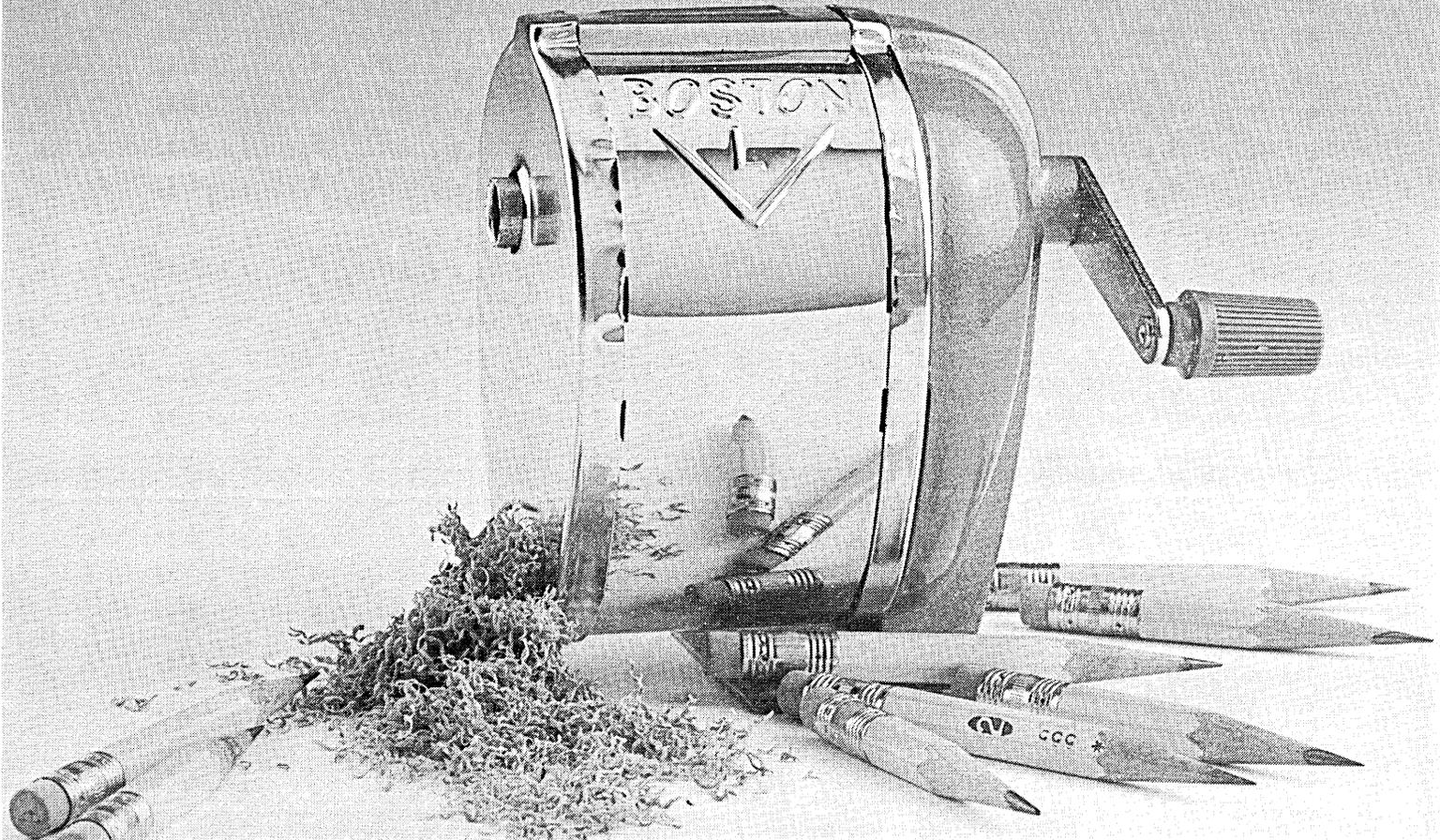
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LOST & FOUND

by Clarence Heier, P.O. Box 15540,
Davenport, IA 52806, MCI MAIL CHEIER 209-8555

By the time this appears in print, MOR and LOST & FOUND have been in operation for over 6 months. During that time, nearly 200 users of Morrow equipment have written to me expressing an interest in joining or forming a local users group.

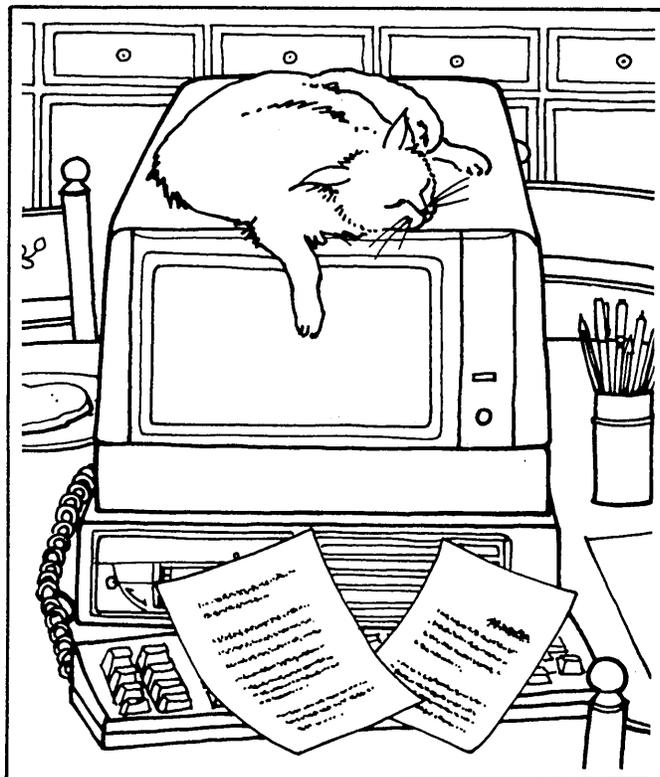
Unfortunately, most of the people who wrote to me are so widely scattered that there is little I can do to get them established within a group. Still, many have been referred to groups in their area and many more are in the process of forming a group in their area. Also many users have been referred to some of the larger existing groups so they can have some of the advantages of belonging to a local group.

And the rest of them? Well, I've been regularly communicating with about 70 of them, most via letter and some by phone, helping them answer their questions and sharing what knowledge and public domain software I do have. Many of them have expressed their appreciation. Some have blown the dust off their Micro Decision and are now using it again.

I've been working on something a little bit more like a users group for this last group of people. The distances that separate this last group precludes meetings as such, but if you're interested in joining a group that meets once a month via mail, write to me. Share your thoughts with me. I'll respond by sharing my ideas and thoughts with you. Maybe we can form such a group with most of the advantages of a local group for those who are just too far away from another Morrow user. Tell me what you think.

Another option for this group is to search out another local computer group. The group need not be Morrow dedicated. Most of the Osborne groups are welcoming Morrow people. Nearly any group centered around another CP/M system will allow Morrow owners to join. The only way to find out is to find them and call.

The LOST & FOUND DEPARTMENT is still operating. This program operates by putting people interested in a local group in contact with others of the same interest. Several groups have been formed in this way and several others are in the process of being formed. If you are interested in this, write to the address listed above. Your name will be distributed only to people in your area with a similar interest.



CLEO

by Lionel Johnston

Cleo was asleep on the Okidata printer on the system unit, probably because the big S100 power supply makes it the warmest spot in Eric's studio. A whiskeyjack, the mountain jay, came to the bird feeder only a foot or so outside where the cat lay dozing. Sam, on his blanket beneath the feeder, woofed at the bird. Cleo leapt up and lost her footing in the printer slot. As she fell onto the table, she managed to trip the system reset. Eric's drawing vanished from the screen; he yelled at the cat, and both Sam and his mother Barley began barking in earnest. Eric rebooted and was examining his backup file when the purr of the Yamaha generator sputtered and stopped: it holds only two hours' gas. It was time for lunch anyway.

(Reprinted from CADalyst Vol. I, #3, June 1984, Newsletter of the Auto CAD Users' Group.)

NEWS ABOUT MORROW USERS GROUPS

by Clarence Heier

I would like to begin reporting on group activities via a new column. If you are interested in giving your group some free publicity, please write to me. Let me know about your group and what you are doing. Tell me about what you are doing to attract new members, and what kind of meeting programs you have been having. Tell me about the unusual activities of the group or its membership. Tell me also of some of the nuts and bolts of group operation, how you are procuring meeting space, etc. Pictures are welcome and encouraged.

Each issue I would like to recap the information received. The best and the most unusual will be printed. This is a great way to give your group some publicity. It is also a terrific way to share ideas with the other groups.

Send all information to: Clarence Heier, P.O. Box 15540, Davenport, IA 52806; MCI Mail CHEIER 209-8555.

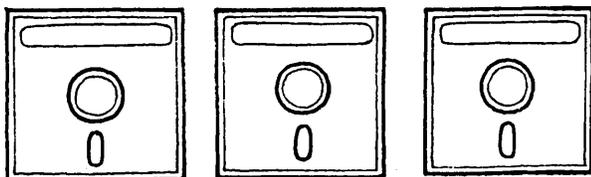
A copy of your newsletter would be appreciated.

New Morrow Users Groups.

A series of meetings will be held for Micro Decision owners at **The University of Chicago**. The meetings will be held during the lunch hour, once per month. They are for the convenience of the Staff and Students of the University, but are open to all Micro Decision owners. If interested, please contact: Roger Anderson, Administrative Assistant, The Department of Education, The University of Chicago, 5835 Kimbark Avenue, Chicago, IL 60637.

A new group has been formed in the **CHICO, CA** area. If you are interested in further details please contact: Chico Area Morrow Users, c/o Joan Osterman, 1819 1/2 Magnolia Avenue, Chico, CA 95926.

In the December '84 issue of MOR we will print an updated list of all known Morrow Users Groups.



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"MagicBind supersedes MailMerge." (Microsystems, March/84)

"While other programs claim to have proportional spacing built in, MagicBind is a highly sophisticated program... Many newsletters use MagicBind (including this one)." (Peter McWilliams' newsletter, May/84)

"I, for one, wouldn't want to do without it." (Creative Computing, June/83)

"The dot commands are simple, enormously powerful, completely without the discouraging drudgery of having to memorize a seemingly endless number of WordStar-type commands." (Business Software, August/84)

"A set up of WordStar and MagicIndex is, I think, the ultimate in word processing." (Pennsylvania law firm)

"Thanks to MagicBind, the 'missing link' in my system [IBM PC] has been found... With so many things in the world which don't work, it's marvelous to find a product that does what you expect—and even more." (Network TV news producer)

Yes, we run into many users who have spent much time (and money and frustrations) trying out every program offering proportional spacing, footnoting or indexing only to find the results unsatisfactory—until, that is, they try MagicSeries and exclaim, "thrilled," "perfect," or "absolutely beautiful."

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Special Free Offer

SmartKey II speeds up and improves accuracy in computing and is so good that it is now being bundled with Morrow computers. Smartkey II lets you easily reprogram as many upper and lower case keys on your keyboard as you want, even while WordStar, New Word, or any other software is in operation. In a dynamic review of SmartKey II, Stan Ahalt flatly states, "This is probably the most useful software I have ever seen." Peter McWilliams, William Buckley, and others are equally impressed.

Uses for this powerful, easy to operate program are endless. With SmartKey II you can assign up to 3,750 characters to a single key. Once you have redefined keys, you can put them to work or change them at will. You can also store your "smart key" definitions in a special file and use them later, or make numerous definition files to use with a variety of your favorite programs or projects. Imagine saving complex command codes, boilerplate paragraphs, sentences, proper nouns, inventory numbers, or whatever, and then injecting any of them into your work with the stroke of a single key. This is a must-have, time saving computer program for all MD owners.

SmartKey II has a little known super companion program called SmartPrint II. SmartPrint II retails at \$49.95. SmartPrint lets you give single-stroke commands to make your dot matrix printer produce italics, greek characters, graphic symbols, boldface, underlining, extended typefaces, accent marks, and much more. SmartKey II retails at \$89.95. Now, for a limited time only, Central's **combination pack** of SmartKey II and SmartPrint II is only **\$79**. In addition, as a bonus, with your purchase you will receive a **free copy** of Paul Golding's book, *Screen Smarts, The Computer Tamer's Guide*. This book is a \$15.95 value. It tells how Mr. Golding, a professional writer, uses SmartKey II to turn his humble computer into a supercharged dedicated word processor. Please don't delay, this offer may not be repeated. Order today to get SmartKey II, SmartPrint II, and a free copy of *Screen Smarts, The Computer Tamer's Guide*, fast.

Warning: SmartKey II will not work with MDT20 terminals. Order SmartKey II and SmartPrint II for MD2, MD3, and, now, MD11 computers. SmartKey comes with a complete step-by-step manual. Makes similar programs look dumb.

Spikes, Surges, and Noise

The Morrow has enemies. But now you can protect it from the mish mash of electrical currents that race through your home or business. Powerful up-surges of current can actually blow out your machine. Less powerful, barely noticeable spikes, surges, and noise can silently degrade your system in time, ruining chips, destroying data, and causing expensive service calls.

The fact is: "Line filtering will protect your computer...from power surges or other undesirable occurrences from the power source." Surge protection will help your Morrow provide years of trouble-free service. Also, if you plan to use your Morrow to access information by modem, you must have a reliable high frequency noise (EMI/RFI) suppressor to insure against data loss and scrambling.

There are many "toy" surge suppressors on the market. They are smartly colored, but beware. The performance difference is amazing. The best surge and noise suppressors on the market are made by Panamax. Our "Panamax Challenge Certificate" tells all. It is a startling comparison of Panamax quality with 11 other well-known brands. One aspect of this revealing report tells how Panamax responds to and cuts surges in 5 or less pico seconds, while most other suppressors respond at a comparatively slow 5 to 50 nanoseconds!

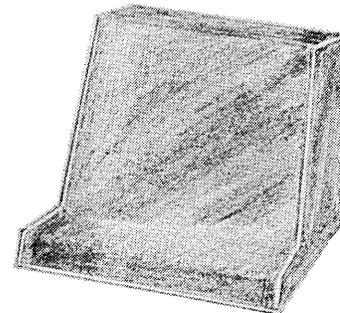
Check our regular low prices. Try the Panamax of your choice for 15 days. Receive the "Panamax Challenge Certificate" with your purchase. If not completely satisfied with your purchase, return for immediate full refund. Your Morrow deserves Panamax protection, the best there is. Order today.

Introducing A Classic Form Fitting Morrow Cover

At last, the classic MD dust cover you'll be proud to own and use. This first rate computer cover is made from a premium, lint free, static free, washable, free breathing, and fade resistant sailcloth. It comes in a rich looking Navy blue or Sand. The Navy cover has a smart contrasting silver gray piping and trim that adds a superior finished look. Not to be outdone, the Sand cover is handsomely finished in a rich chocolate piping and trim.

This remarkable form-fitting dust cover makes you feel good and will keep your MD dust free and looking brand new for years to come. For a limited time only, your price for this factory direct, custom made, sailcloth Quality Cover is \$18.95. When ordering remember to indicate color preference. This special low price is subject to change. You must be completely satisfied with your purchase of this cover or we will refund your money immediately. Order today.

Richly tailored inside and out. Look inside any of our Quality Covers; see the ultimate finishing; we use machines that sew with 3 needles so that edges will not unravel or shed lint. We stress perfection because you deserve the best. Compare for long-lasting satisfaction.



Matching sailcloth covers for many different popular printers: \$14.95.

- Quality tailoring
- Easy care fabrics
- Attractive colors
- Professional appeal

FACTORY DIRECT



Morrow owners are talking about ...

The Compleat Morrow Micro Decision, A Guide to the MD 1, 2, 3, and 11 published by the Computer Book Group of the Reston Publishing Company is hot off the presses. This book is causing quite a stir among new and veteran Morrow owners. It's no wonder too. The author, Steven Frankel, is an independent

consultant that has written an entire line of computer books, and as such is uniquely qualified to thoroughly explore and explain the architecture, capabilities, and uses of Morrow computers. This fully illustrated book takes you on a grand tour of the ins and outs of the operation of Morrow computers. Long time Morrow owners say how much they appreciate the informative treatment Steven Frankel has given their computer.

The Compleat Morrow Micro Decision is the first serious book on the Morrow computer line released by a major publishing house. The more than 220 fact-filled pages of this book are jam packed with accurate information and technical advice that make it an invaluable tool for Morrow owners. Hard facts explored here include reviews and advice on the selection of super productive software that will enhance the operation of your Morrow. If you want to learn more about your Morrow computer and how to get real computing power from it, put this book on your desk. It pulls no punches. Retail price of this book is \$16.95. Our current price is **\$15**. Please call or write today to order your copy of this informative book today. Satisfaction guaranteed or your money back.

PANAMAX SURGE SUPPRESSORS

Description	List	Price
2 outlets, D NF	\$ 79.00	\$ 59.00
4 outlets, LC S RB NF	\$109.00	\$ 89.00
6 outlets, LC S RB NF	\$119.00	\$ 99.00
UltraMax, LC S UA NF	\$159.00	\$129.00
TeleMax, D 1OL 2PJ NF	\$ 89.00	\$ 72.00

D: Connects direct to grounded wall jack.
 LC: Includes 6 foot long heavy duty line cord.
 S: Includes illuminated on/off switch.
 NF: Includes EMI/RFI noise filter.
 RB: Includes reset button.
 OL: Includes outlet.
 PJ: Includes 2 phone jack receptacles.
 UA: Includes under voltage alarm/brown out protection.
 All units include the added security of a 4 amp fuse.
 Unique Panamax EMI/RFI noise filters provide protection in common and transverse mode. Essential for modem communications, multi-user stations, etc.
 All Panamax units are factory guaranteed for 60 months.

"Spikes and surges can be the greatest threat to your computer outside a 4 year old child with a jelly sandwich aimed for the disk drive slot."

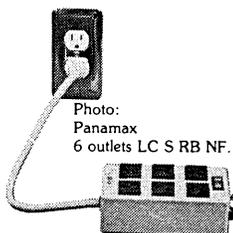


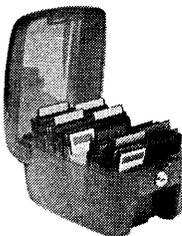
Photo: Panamax 6 outlets LC S RB NF.

"Power line-associated problems are estimated to cause nearly 70 to 90 percent of the malfunctions in the IBM PC."

"Overvoltage can be fatal to both data and hardware alike."
P.C. Magazine, March 1983

Lockable Diskette Defender

Handsome, sturdy, smoke-tinted acrylic tray holds 70 MD-size diskettes. Flip-up lid keeps out dust, debris, and moisture, and locks securely to guard your important work. Comes with 7 dividers with index tabs for easy filing and to keep floppies upright to prevent bending, warping, and scratching. Tough and secure metal lock never comes in contact with diskettes because it is enclosed in a special plastic housing. Super value at \$23.95 for one, or \$22.95 each if you buy 2 or more. Keep prying eyes and sticky fingers away from your data. Order today.



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INSIGHT

COMPUTERESE EVEN A MOTHER WOULD LOVE = SPREADSHEET CALCULATORS, PART I. =

by Art Zemon

Now that you have your computer at home, what do you DO with it?

That is not a rhetorical question. After spending a couple of thousands of dollars on machinery and software, you are probably looking for ways in which it can justify its existence. Every time I ask myself that question, I seem to come up with at least a couple more ideas (sometimes to my wife's dismay!).

Fortunately for my wallet, most of my ideas involve using the software which came bundled with my MD3. Some of the things which my Morrow does for me are:

- keeping track of my monthly bills, telling me which ones to pay today, and printing the checks
- connecting me, via a modem, to my computer at work, CompuServe, MCI mail, and countless bulletin board systems
- answering "What if?" questions about my budget
- balancing my checkbook
- greatly simplifying comparison shopping, and
- planning of long car trips.

The most wonderful thing about all this is that I did it all without buying any additional software. I only wrote one small program (to print the checks with the dollar amount spelled out) and I used MicroSoft Basic as the language. I picked up a public domain communications program to allow me to communicate with other computers. All the rest of the functions are done completely with the software which comes with both the MD2 and the MD3.

The Versatile Spreadsheet Calculator

One of the most versatile programs which came with my MD3 is the spreadsheet calculator. Of the six items in the previous list, the last four are all done exclusively with the spreadsheet calculator. All four applications are simple to set up, easy to use, and save me time.

In this article I will outline what a spread-

sheet calculator is and what it can do. My spreadsheet calculator is LogiCalc, so I will phrase my examples in LogiCalc terms. Everything I will be talking about, however, can be done with SuperCalc or virtually any other spreadsheet calculator.

What is a spreadsheet calculator?

A spreadsheet calculator is a program which allows you to "write" numbers on a large sheet of paper and then do arithmetic on them. You can also think of it as a hand calculator with three extensions:

- 1) The spreadsheet calculator can remember many numbers.
- 2) It shows all of the numbers to you at one time with each in its proper place (within the limits of your CRT screen).
- 3) It remembers how to do the arithmetic you want done on the numbers.

These extensions are almost magic when you have more than a few numbers and want to perform arithmetic repeatedly on them.

Consider the classic example for spreadsheet calculators--a budget. Budgets are basically columns of numbers which are totaled at the bottom. This is a problem eminently suited to spreadsheet calculators. Answering "What if?" questions about a budget requires exactly the three traits of a spreadsheet which I just mentioned.

- 1) There are many numbers which need to be remembered. A budget consists of dollar amounts for many categories (house payment, car payment, insurance, food, gas, electric, phone, etc.). The budget often spans many time periods.
- 2) Each number has a "place" where it should be kept. Primarily, the "place" is in a column above the total. Secondly, the "place" is to the right of a label (or category).
- 3) The arithmetic to be performed never changes. The total is always derived by summing the individual items in the budget. Even if the number of items in the budget changes, the total is still the sum of the entire column.

Building a Budget Model

As we build a budget model, I will describe what you will see and type if you are using LogiCalc. If you have SuperCalc or another spreadsheet calculator, then you will see and type things which are slightly different. Your user's manual should allow you to find the right commands from my descriptions of the desired actions.

Start running your spreadsheet program. If you are running LogiCalc then you should see something like this:

```
Col>|A      |B      |C      |D
Row:-----
1 |>         <
2 |
3 |
4 |
5 |
```

This is your spreadsheet. You can think of it as a giant piece of paper divided into rows and columns. Every intersection of a row and a column is called a "cell." A cell can hold either a number (e. g., 1, 235, 14.87, 0) or an alphanumeric string (e. g., "Food," "Month 1") or a formula (I'll explain formulas a little later).

To put it another way, imagine a giant sheet of paper divided into boxes like this:

	A	B	C	D
1				
2			DOG	
3	6			
4				

You can put something into any of the boxes. The boxes are called "cells." Each cell is at the intersection of a row and a column. For instance, "DOG" is in the cell at the intersection of the second row (2) and the third column (C) or cell C2. The number six is in the cell A3.

Back to the budget. We will build a budget with three categories: food, house payment and utilities. To simplify our first model further, we will restrict it to only one time period.

Enter the string "Food" into cell A1 by typing "Food" and pressing <RETURN>. Your screen should look something like this:

```
Col>|A      |B      |C      |D
Row:-----
1 |>Food     <
2 |
3 |
4 |
5 |
```

You may have realized by now that the cell which is surrounded by angle brackets "> <" is the current cell. Anything you enter will be placed in the current cell.

Now move the current cell down to the next row by typing ^X. (This is shorthand for "control-X" or "hold down the control key and press X.") You should end up with a screen like this:

```
Col>|A      |B      |C      |D
Row:-----
1 | Food
2 |>         <
3 |
4 |
5 |
```

Now place the word "House" in cell A2 by typing "House" followed by <RETURN>. Continue until your screen looks like the following diagram. The commands to move the current cell in LogiCalc are the same as the cursor movement commands in WordStar and Newword.

```
Col>|A      |B      |C      |D
Row:-----
1 | Food     >         <
2 | House
3 | Utilities
4 |
5 | Total
```

You have just entered the labels for our budget. Now you are ready to enter the numbers for the budget. With B1 as the current cell, type "200" followed by <RETURN>. Notice what happened; cell B1 is displaying "200.00" even though you typed "200". Also notice that the number is "right justified" in the cell. I point these things out because they apply to numbers but not to strings.

Numbers are right justified in the cells. This means that the decimal points will line up. Numbers are also displayed with the same number of digits behind the decimal point regardless of how you type them. The default is two digits, just right for dollars and cents, although you can change it. There are other formatting options which you may want to examine. You will find the details in your user's manual.

By the way, I strongly encourage experimentation as an excellent way to learn. You cannot damage anything by experimenting with the software which came with your Morrow. Make a backup copy of your disk and then experiment away! The absolute worst thing you can do is remove all your files from the disk but if you have a backup copy you haven't really lost anything at all!

Continue entering numbers and moving the current cell until your screen looks like this:

Col>	A	B	C	D
Row:-----				
1	Food	200.00		
2	House	500.00		
3	Utilities	150.00		
4				
5	Total	>	<	

Formulas -- Spreadsheet Magic

The only step remaining is to describe the arithmetic to the spreadsheet calculator. You could type "200+500+150" into cell B5. The spreadsheet calculator would display the correct answer. That, however, would defeat the purpose of using the spreadsheet calculator in the first place. Instead, you want the calculator to sum the numbers which you have already entered in column B. Do this by entering the following formula into cell B5:

+B1+B2+B3

When you press <RETURN> the number "850.00" will appear in cell B5. Your spreadsheet calculator has summed the numbers in cells B1, B2 and B3.

The formula "+B1+B2+B3" is interpreted as follows by LogiCalc: The initial plus sign indicates that this is going to be a formula. If you had left it off, then LogiCalc would have treated this just like the string "Total" in column A; the character string "B1+B2+B3" would have appeared on your screen. "B1" refers to the value stored in cell B1, likewise for "B2" and "B3". The other plus signs mean just what you would expect, sum the three values.

One of the primary reasons for using a spreadsheet calculator is to answer "What if?" questions. For example, what if you spend \$250 on food? You can find out by entering the number "250" in cell B1 and typing ";RA" followed by <RETURN>. Watch what happens as you type: ";RA<RETURN>". You are actually working your way through a short series of choices which tell LogiCalc how to recalculate the spreadsheet. LogiCalc displays cell B5 as "900.00".

There are other nice features to using a spreadsheet calculator. One of them is that you can add new rows to an existing model. For example, you can add gasoline to the budget by doing the following:

- 1) Position the current cell pointer (the angle brackets in LogiCalc) on row 2.
- 2) Insert a new row by typing ";IR".
- 3) Insert the word "Gasoline" into cell A2 and the number "80" into cell B2.

Now recalculate the spreadsheet (by typing ";RA<RETURN>" if you are using LogiCalc). You got the wrong answer--\$830.00! That is because the formula in cell B6 still sums only cells B1, B2 and B3. Replace the formula in cell B6 with the following (for LogiCalc):

+sum(B1>B4)

This formula means "sum the values of all the cells in column B rows 1 through 4." (SuperCalc and other spreadsheets provide the same "sum" function but the syntax may be different.) Cell B6 should now display the correct answer--\$980.00.

Using a formula which specifies a range of cells (B1>B4) has an advantage other than simply being shorter. The spreadsheet calculator will automatically adjust the formula whenever you insert or delete rows within the specified range. Try inserting a new row--"Child care"--at the top of the spreadsheet and you will see.

Summary

I have covered the barest basics of using a spreadsheet but, unfortunately, I am out of space. In the next issue of MOR, I will continue this discussion of spreadsheets. I will expand the budget model to include more than one month, calculating totals for each month and for each category and a grand total.

After finishing the budget model, I will show you how to use your spreadsheet calculator to balance your checkbook and to plan trips. I also hope to be able to answer any questions you might have.

If you do not want to wait two months to ask your questions or read the rest of this article, I can be reached in a number of ways. Just pick one. I hope to hear from a lot of you!

Arthur Zemon
4743 Matney Avenue
Long Beach, CA 90807

MCI mail: AZEMON
CompuServe: 72406,3275

MANUALS

by Milton Levison

I just acquired another Morrow Computer. I bought an MD3 last year and just bought an MD11 for another purpose. I suppose I'm different than I was when I first got into computers a year ago; but so is Morrow.

This is not a story about the new computer. It's a story about the new manuals. Some are better. MUCH BETTER. At least I think so.

Admittedly, I'm not a good judge. What I suffered in the first two or three months with unreadable manuals shouldn't happen to a nice old man like me. Somehow I worked it out with lots of help from our club. I survived and lived to buy another. So much of the impossible, incomprehensible jargon that was so offensive some time ago isn't so obscure now. But I think there's a real difference. Let me present a case in point.

I attended a BAMDUA meeting a couple of months ago at which President Bob Dilworth of Morrow participated along with other Morrow executives and five dealers and about 200 Morrow users. At one point, Mr. Dilworth remarked that the Personal Pearl manual is a good one. I blew up and shouted, "You're dead wrong, Mr. President! You don't know what you're talking about."

With my new MD11 came a Personal Pearl manual in a bright new cover. I glanced through and was happy to find a section dealing with a problem I've had some difficulty with for a long time. I read through the section and solved my problem. I was delighted. And ashamed of having shouted at Mr. Dilworth the way I did.

So I wrote an apology to Dilworth and congratulated him on the splendid new manual for Pearl.

When I sat down to write this story, I got to the point where I said, "Here's a case in point" and planned to contrast the old manual with the new. So I dug out the old manual and looked up the miserable text that drove me crazy when I first began to deal with the problem last year.

I was shocked to find it was exactly the same in the new manual as in the old. THEY NEVER CHANGED A WORD.

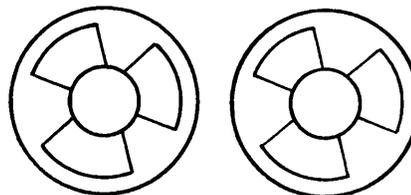
Morrow didn't change. I changed! I caught up with their stupid, impossible language and can read it now.

But that doesn't make the manual acceptable. It only proves that people can live through and

surmount almost any obstacle.

But now what do I say to Mr. Dilworth? How do I apologize for an apology and revert to status quo ante?

(From the CP/Morrow Computer Group Newsletter, Sacramento, CA, July 1984, Vol. I, #8.)



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HOW TO TELL WHAT MD YOU HAVE

by Brian Leyton

I have noticed that there is a great deal of confusion about the differences between our various computers. With the MD1, MD2, and MD3, it was confusing enough for some people. But now, we have the Revision 1 board, and the Revision 2 board, and the MD11 which doesn't have any revisions yet. Then there's the MD16 and the MD34 coming up soon, along with the PIVOT, and who knows what else the people at Morrow have in store for us. Needless to say, all of this can get quite confusing to a novice when he's asked what revision board he's got, and he had thought that a Morrow is a Morrow is a Morrow. Well, in this article I would like to set a few misconceptions straight, as well as explain to everyone just what else is out there in the rest of the Morrow world.

Well, in the beginning George created the Micro Decision 1 (MD1). The name originally came from the line of S100 computers Morrow marketed called the Decision 1. Therefore, a logical name for this mini-version of the Decision 1 was the Micro Decision. The MD1 was a very simple computer. It only had one single-sided disk drive, one serial port for the terminal, one for a modem or printer, and an expansion drives connector. The MD2 was basically the same computer, except that it had two disk drives. This configuration used a motherboard which we know today as the Revision 1 board. Well, all was going quite well, when they decided to put double-sided drives on the Micro Decision. This was called the MD3.

Now bear in mind that the MD3 used the same motherboard as the MD1 and MD2 did. That is, until the folks at Morrow decided to confuse us a little by releasing the Revision 2 board. The new features on this board are that the expansion drives connector on the back was replaced by a parallel printer port, and that an 8253 timer chip was added to the serial ports. This timer chip allows the user to program the baudrate from 110 baud up to 9600 baud using software control (SETUP). Previously, the only speeds selectable by software were 300 and 1200 (SETBAUD).

It has come to my attention that many people are confused by the differences between the Rev. 1 and Rev. 2 boards. They confuse this with the difference between the MD2 and MD3, assuming that all MD2s are Revision 1, and all MD3s are Revision 2. This is not true, though it is a very simple mistake to make. It seems that the MD3 was released only a short time before the switch from Rev. 1 to Rev. 2. Therefore, only a small number of MD3s were shipped with Rev. 1 boards. Also, once the MD3 was released, the sales of MD2s dropped considerably. This leaves us with the majority of MD2s being Rev. 1, and the vast major-

ity of MD3s being Rev. 2. But don't be surprised to find out that some MD3 owners still don't have a separate port for their printer.

Well, with the hardest part out of the way, I'd like to briefly explain what some of those other neat things are that keep coming out of Morrow.

The MD11 is Morrow's latest product to actually hit the market. (The other products have still not been released at the time of this writing.) The MD11 is really a different computer from the MD1, 2, and 3. It uses a completely different motherboard, has 128k of memory (as opposed to 64k), and runs CP/M Plus (3.0). The only functional similarities between the MD11 and the others is that it uses the same disk format, and is usually sold with the same terminal. This means that some programs which run on the older MDs may not run on the MD11. However, this is a very rare occurrence, and many of those programs are being adapted to the MD11, so owners shouldn't worry about compatibility of software.

The real advantage of the MD11 is its speed. The 11-megabyte hard disk stores a very large amount of data, and is able to access it in a fraction of the time it takes for a floppy. CP/M Plus also utilizes the larger amount of internal memory which makes many processes run faster. For instance, part of the memory between 64k and 128k is used as a buffer for data traveling to and from the hard disks. Many disk accesses can then be replaced by memory accesses, which are much faster. It is a little like a RAM disk process, where a chunk of RAM memory acts as if it is a disk. (See advertisement for E-Systems Piggy Bank Board, MOR, Vol. 1, #2, June 1984, p. 38.) This process happens automatically and is "transparent" to the user, meaning you don't have to do anything to make it work so fast.

The new MD16 and MD34 are just versions of the MD11 with larger hard disks. Typically, the more storage a hard disk has the faster it is able to access the data. Therefore, these new computers will probably be even faster than the MD11.

The last computer I will deal with is the PIVOT. I really don't know much about the PIVOT yet except that it will be an MS-DOS battery operated portable with a built in modem, clock, and LCD screen measuring 80 columns by 16 lines. This computer will not run any of our CP/M software, but is supposed to run a great percentage of IBM P.C. software. Certainly something to look forward to.

Well, that about covers it for now--that is, unless Morrow springs any more surprises on us!

ABOUT SURGE AND SPIKE PROTECTORS

by Jerry Sheperd

[Any season can have its periods of Thunder & Lightning, and the accompanying, often "unexplained" damage they can cause in all electronic devices, including television sets and personal computers. Other sources of electrical interference can affect the computers we have learned to enjoy and depend on. Jerry Sheperd of Schaumburg, IL, wrote an article that we reprint here from the National EPSON QX10 Users Group Newsletter so that we may all understand the potential problems and the most economical preventative measures we can take to protect our sizeable investments. --Editor]

It's 10:47 AM, July 29th in San Antonio, Texas at the office of Jack Peres CPA. KER-BLAP! KER-POW! BLINK and every light in the place brightens, dims and then goes back to normal. Meanwhile, on every CRT in the office, something is going crazy. The Wang Word Processor is completely dead, with not even a blip left on screen. The computer on Jack's desk is still on though, thank goodness; they had been running a financial analysis of the past year's budget on a spreadsheet, to prepare a revised projection for the present year. Jack thought, "Boy, we really should make back-up copies of all this material before something really bad happens."

As it turned out, the Wang wasn't the only thing that died; every diskette in the computer was dead and wouldn't reload. Jack's computer was the unhappy recipient of one of Mother Nature's little gifts, caused by a voltage spike created when lightning hit close to a San Antonio power and light electric line over a half mile away. Dang those thunderstorms anyway!

Back in the jungle of the Chicago business suburbs where the sun is bright after a summer rain shower, the manager of ABC Wholesale Auto parts can't get the dBASE II inventory program to work. Manager Carl Keys is getting nothing but junk on his computer screen. Everything was working okay a moment ago, and the Epson has never given him a problem before. Carl tells his customer to hold on until he can run back to the warehouse to see if the parts needed are in stock. After ten minutes of searching, the parts are found, but the customer was tired of waiting and had hung up. Carl called the customer back and got the order, but was left wondering why his computer still isn't working the dBASE II program he has learned to depend on.

Carl is the beneficiary of a small gift from

the neighboring office building: a power spike caused by the turning on of their central air conditioning required by the clearing and warmer weather.

Hours of work, many unhappy customers, and hours of frustration inherent in the re-inputting of data will be the price paid by these unprotected users. They had been unaware of power spikes, surges, glitches, and transients, which can occur anywhere there is a power outlet in a home or office. They crackle into your computer many times each day, and require some user precautions.

The power company sends out clean 120 V AC power, but what happens to it on the way to the computer's power cord is what causes the problems. You can get more than 120 V many times in a given period of time, sometimes 160 V, sometimes 1200 V and maybe even once in a great while, several thousand volts. They usually don't last long, maybe even only a small fraction of a second, which can't hurt anything. Right?

WRONG!

They didn't usually hurt electronic equipment when they were based on vacuum tubes, but for the last few years, most electronic equipment and ALL computers have been manufactured using transistors, solid state devices, IC's and so forth. While solid state based equipment is far more reliable and durable under normal circumstances, it can't take over-voltage.

A spike is an electrical impulse. A computer regards a spike as data and will process it just like any other data input, and as a result you get false results, errors, and perhaps scrambled logic. Computers are sensitive to very low voltage electrical impulses, so even "minor" low voltage spikes or surges can cause errors.

When lightning strikes, it can cause an inductive surge on power lines nearby. The power cord will transmit this surge to your computer and even your printer. Inductive kicks--caused by the turning off and on of electrical motors, furnace motors, washing machines, or even the snapping on and off of the water heater--can cause them. While inductive kicks do not have the potential to do the damage that lightning has, they can cause errors and even circuitry damage to your sensitive computer. At the very least, they can shorten the life of solid state computer components.

The least common type of power spike is caused

by a momentary power failure, and the surging return of power. This sends out a large spike that can damage almost any electronic device. These spikes are dissipated as they move along the power line, so if it originates far enough away, it might not do any severe damage by the time it gets to your computer.

Computer owners should buy and USE spike or surge suppressors. These devices monitor the voltage entering your computer or other solid state device and intercept the spike or surge before it can do any harm. These suppressors take a spike off line, clamp the peak off and send it to the ground before it can enter the computer.

There are two common types of surge or spike protectors available for your computer. They are metal-oxide varistor (MOV) and the zener diode. The MOV is the most common. Both perform the same task, but their methods differ.

The MOV is technically a variable resistor. It creates a conductive bridge for the spike to cross. The resistance varies according to voltage and becomes more conductive as critical voltage levels are reached.

The zener diode presents a one-way street to the current within standard line-voltage. When the zener senses a voltage surge, it becomes a conductor, and literally sucks up surges and absorbs them.

The two most critical factors to find out when considering a spike protector are clamping voltage and time. By clamping voltage, we mean that a certain voltage must be reached before your spike protector becomes conductive and begins to suppress the surge. The clamping time is the actual response time required for the suppressor to react and dissipate the surge. You should look for a surge protector with a response time of 5-15 nano-seconds. A protector with such a response time will allow only about three excess volts per nano-second to pass through to the computer.

NOTE: Surge protectors with a response time greater than 5 nano-seconds will not protect your equipment from the very destructive ultrafast voltage spikes. Also, don't trust anyone who says their response time is faster than one (1) nano-second! That would really be stretching the truth and, moreover, is impossible to prove. To insure such a response time would cause you to spend more than the cost of your computer, software and house put together! Also, the clamping voltage should be in the range of 145 - 160 V. Voltages of short duration up to this point should not harm your equipment.

What should you expect to pay?

A simple, single-outlet surge protector can be

had for \$20 retail, or less. You can also select ones with radio frequency interference (RFI), electro-magnetic interference (EMI), and noise suppression protection for up to several hundred dollars. With a little care in the selection process, you can usually obtain protection commensurate with the price paid. Keep in mind, the cost-benefit ratio is a consideration. You don't want to spend so much that you could have bought a new computer for a little more.

If you have questions or want more information, write Jerry Sheperd at PO Box 941339, Schaumburg, IL 60194.

I THOUGHT IT WOULD NEVER HAPPEN TO ME

by Rick Goulian

[The following article concerns replacing chips in your MD. A **WARNING** is in order. Before you get out your soldering iron in an effort to cure your machine of a bad chip, consider your success rate in matters like this. **The logic board of the MDs is easily damaged beyond repair** if you try to remove a chip with a soldering iron. If you have not ever done this sort of thing before, **DON'T DO IT NOW**. If no dealer is available, get an experienced technician to do it for you. Needless to say, this is not a process for beginners or non-technical types. It is for the desperate, experienced user who cannot go anywhere else for support. --Editor.]

I have always heard about the bad effects lightning can have on computers, but I never thought it would happen to me. I am writing this to let other Morrow owners know about a technical problem I had with my MD2 during a lightning storm, and how I eventually fixed the problem.

Let me begin by saying that southern Arizona is prone to severe electrical storms during our "monsoon" season, which begins in late July and can continue into early September. One day in early August, I sat down with Crosstalk to do some work at the Dec VAX on campus from my MD2 and, lo and behold, my communications port was not working! It seems my Morrow had been hit by a voltage line transient which knocked out my communications port.

It took quite a while to narrow the problem down to my Morrow ("It can't be my computer!"). But with several years of technical computer experience behind me, and the Morrow Owners' Review article on the unsupported diagnostics feature in front of me, I determined that there was a problem somewhere on the circuit board. (The diagnostics test #4 would not tell me that the port had failed--the test just froze; I had to reboot to

get out). But now what?

My first assumption was that the USART chip for the communications port had failed. I had no schematics available, so I used logical reasoning: the USART closest to the port was the suspect chip. However, not only was I wrong about which chip to replace but I found out the hard way that, instead of desoldering the chip, you are much better off clipping the legs of the chip, removing it, and then cleaning out the pad holes. The runs cannot handle the heat of desoldering and they leave the circuit board. Once the pads are clear, you can solder a socket in place and put in a new chip. To top things off, I finally replaced the correct USART, and it still did not solve my problem.

Now that I knew the USART was not at fault, the next chips to consider were the MC1488 and MC1489 chips (also known as SN75188 and SN75189). My local electronics supply store told me they were out of stock on those chips: "We can't keep the shelves stocked with those two chips during the monsoon season." Now I knew I was on the right track! As soon as the chips were back in stock, I bought one of each. It was the MC1489 quad line receiver (the one between C20 and C22) that did the trick.

My Morrow is now working as well as ever, and I am delighted that I did not have to send it in for repair--a \$250 to \$400 alternative. I hope that other Morrow owners can benefit from my experience should they ever lose operation of a communication port.

However, I recommend that you take corrective measures to make sure it "never happens to you." There are two ways to prevent electrical disturbances from damaging your computer: never operate your machine during electrical storms or, better yet, buy a line filter.

In conclusion, I am very grateful to Morrow Owners' Review for printing Dave Mintie's excellent article on the MD2 diagnostic feature.



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Compare Defaults:

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NEVER TOO OLD TO START WITH A MORROW

by Herb Kahler

Would you please send a free copy of the Morrow Owners' Review to my mother? At 85 she has just purchased a Morrow to use as a word processor to assist her in the novel she is writing. Although my wife and I are programmers of 12 and 17 years, respectively, and the rest of our large clan are pretty well attuned to the electronic era, "Mama" is putting us all to shame by being the first one to own a P.C. The contrast of old/new is heightened by the fact that her novel is to be reminiscences of her childhood in the horse-and-buggy days in Nebraska.

She chose the Morrow mainly because she could read its screen better than any other comparably priced one and because her writers' journals had mentioned it favorably. Her eyesight is getting very poor, but she's avidly reading every word of all the user's manuals for the hardware and software packages. (She uses a big magnifying glass.) The word processor is pretty necessary for her because her arthritis has gotten so bad that her typing had become hopeless.

She had us drive her around to several computer stores in the Washington D.C. area when she was shopping for it. Boy, did she get good service! Her white hair and cane seemed to catch every salesman's fancy and they knocked themselves out being nice to her--bringing her chairs to sit in while trying the sample machines, etc. She also wow'd 'em with all the jargon she knew, because she had been reading everything she could get her hands on about word processors. And the service she has got from the small dealer she finally bought her machine from has been out of this world. So far they've made three free house calls to help her with various problems. The guy even brought her a telephone extension cord and rigged it up so she'd be able to talk to him on the phone while seated at the machine.

Any computer buff would envy her the time she's able to spend communing with her machine--FULL time. Being retired and unable to drive anywhere except when we negligent offspring take her on occasional forays, she spends literally every waking hour seated at the tube!

It's become her whole life--although she swears up and down she doesn't care a hoot about the machine except that she wants it to do a job for her. She's now on Chapter Seven.

I have a hunch she'll read the MOR with great interest--slowly, perhaps, but cover to cover....

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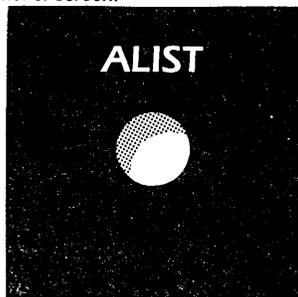
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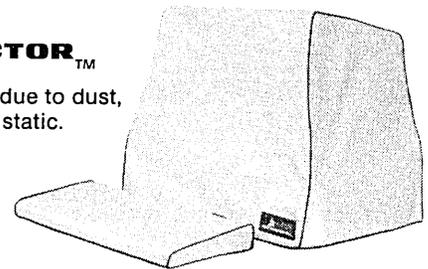
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MISCELLANEOUS ANNOUNCEMENTS

by Sypko Andreae

CALLING ALL ARTISTS! We call upon you all to create a front cover line-drawing for this publication. The theme should be relevant to MDs and their uses. There will be PRIZES for the submissions we print. First prize is \$100 in cash or 80 brand-X floppies. Second prize is MOR mailed to you first class for three years. Third prize is 5 floppies of Public Domain software. Fourth prize is a cassette tape recording of George Morrow speaking at a large BAMDUA gathering. Fifth prize is a personal handshake from George Morrow to be arranged in the future.

FIRST CLASS MAILING OF MOR AVAILABLE. Bulkmail is very slow, and a few copies of MOR have gotten lost on their way to you. As long as free distribution of MOR continues, you can have your copy mailed to you first class for \$12/year (6 issues) in the US and Canada, and for \$24/year anywhere else.

UNPUBLISHED MOR ARTICLES ON FLOPPIES. Many submitted articles don't make it into print not because they are unworthy but because we have such an abundance of articles. You can order 3 SSDD floppies with unpublished MOR articles (and various other goodies) from MOR for \$8 per floppy,

post paid. In the December issue we hope to print an annotated directory of these floppies. (Provided there is space, that is!)

CASSETTE TAPE OF GEORGE MORROW. This 90-minute recording of George Morrow talking to a large meeting of BAMDUA members is available from MOR for \$6, post paid.

BAMDUA RECEIVES TAX EXEMPT STATUS! A few days ago, after a year of effort, BAMDUA, the 800-member Bay Area Micro Decision Users Association in California, became tax exempt. In case you don't know, tax exempt status is really hard to get for Personal Computer users groups. If you are interested in how they got it, write to Mitch Tannenbaum, 126 Post Street, 6th Floor, San Francisco, CA 94108.

E-SYSTEMS NAME CHANGE. E-Systems of Berkeley, the makers of the Piggy Bank ramdisk and the Gangbox data switches, has been acquired by Plex Technologies, Inc., and their products will now be marketed under the Plex Technologies name. The location and phone number remain the same: 2308 Fourth Street, Berkeley, CA 94710, (415) 486-0686.

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MORE PRINTING AND EDITING CONCURRENTLY WITH WORDSTAR

by Nick Mills

In *Morrow Owners' Review* (Vol 1, #2, June 1984), there was an article entitled "Concurrent Editing and Printing with WordStar" on page 19. This allowed a serial printer to work while you were editing. My primary printer is a Juki 6100 Daisywheel printer with a parallel interface. This printer also caused the computer to lock up and drop characters if I tried to edit and print at the same time. The article also said the patch was for serial printers only. A little research led me to a more universal solution. The attached solution will work on the *Morrow*, if your WordStar is installed to use CP/M's List driver, with No Protocol. But first, let me digress a little and explain the reason for the problem.

Although clever programming by the authors of WordStar makes it seem as though the computer is doing several things at a time, in fact, under CP/M, our Micro Decisions only handle a single thing at a time. Many times a second--in between each character it writes to the screen, and between each block of text it reads or writes to the disk--WordStar checks to see if we have pressed a key. WordStar can do this because the authors of CP/M provided a standard method of checking the status of the keyboard. In the early versions of CP/M, no method was provided to check if the printer was busy. So WordStar could only send characters to the printer and hope that CP/M would return quickly.

CP/M will always wait if it is given a character for the screen or printer until the screen or printer signals it is ready. Normally the screen will accept characters quite quickly. My MD50 terminal will display 960 characters a second. The printer, however, will only print about 20 characters a second. It accepts them much faster at first, until its buffer fills up. Then it tells CP/M to wait. So WordStar never gets to see if we are still pressing keys, and our immortal prose drops in the bit bucket (computer phreaks phrase to describe the home of our files after we type ERA *.*). Help is at hand. Digital Research recognized the problems. So versions 2.0 (and higher) of CP/M have a standard way of checking to see if the printer is busy. This is what WordStar needs, and what the patch in the article on Concurrent Editing and Printing (MOR, June 1984) did for the serial printer. But it did not use the standard entry point provided by CP/M. So it only worked for the serial printer.

Morrow, efficient and complete as ever, has provided a means of checking to see not only if

the serial port is busy by means of either the X-ON/X-OFF protocol, or hardware handshaking, but also if the parallel port is busy. You can switch between all of these with the SETUP program provided with our machines. I have only tried this with the Revision 2.2 CBIOS on an MD3 with the Revision 2 motherboard. I suspect that the code to check the serial port exists, however, in earlier versions of the CBIOS (Customized Basic Input/Output routines). (Maybe Dave Block can tell us!) Now all we have to do is tell WordStar how to check if the printer is ready for the next character, without sending a character and letting CP/M wait. One way is to use WordStar's port driver as the June '84 article did. A more general way is to use the routines provided in the CBIOS. CBIOS is the part of CP/M provided by the hardware vendor--in our case *Morrow*--which actually controls the hardware.

We will have to do a little exploration using the CP/M debugger. This will let us find out exactly where the routine that we need is living inside our RAM (Random Access Memory). First, let's get to the CP/M system prompt. Boot the first system disk you made. In the Micro-Menu system, answer <Esc> to the first prompt. Your screen will clear and you get a message telling you how to get back to the Micro-Menu. Then the CP/M prompt A> will appear at the left edge of the screen, like this:

A>_

[This is CP/M's way of telling you it is ready for you to enter a command. From now on, everything in brackets like these [] is a comment from me. All the output from the computer is normal, and everything you should type is underlined.]

A>DDT<cr> [Don't type '<cr>',
just press the return key.]

DDT VERS 2.2

-D0,3 [Tell DDT to display the contents of
memory locations 0 (zero) to 3.]

0000 C3 03 F2 00 ... [Ignore the dots--DDT will
show you the characters in
memory if it can.]

[We are only interested in the middle one of
the three numbers--in this case F2. Your
computer may show a different number. It

should be in the range D0 to F5. Write this number down. We will need it later. It is the start of the table of entry points to the CBIOS. The LISTST entry point is defined by the writers of CP/M as being exactly 2Dh bytes after the address given. Now we are done with DDT, press CTRL C.]

address you found earlier with DDT]

```
LOCATION TO BE CHANGED: <cr>
ADDRESS: 02E3 OLD VALUE: 00H NEW VALUE: B7<cr>
LOCATION TO BE CHANGED: <cr>
ADDRESS: 02E4 OLD VALUE: 00H NEW VALUE: C0<cr>
LOCATION TO BE CHANGED: <cr>
ADDRESS: 02E5 OLD VALUE: 00H NEW VALUE: 37<cr>
LOCATION TO BE CHANGED: <cr>
ADDRESS: 02E6 OLD VALUE: 00H NEW VALUE: C9<cr>
LOCATION TO BE CHANGED: LIBSY:<cr>
ADDRESS: 071A OLD VALUE: 00H NEW VALUE: C3<cr>
LOCATION TO BE CHANGED: <cr>
ADDRESS: 071B OLD VALUE: B7H NEW VALUE: E0<cr>
LOCATION TO BE CHANGED: <cr>
ADDRESS: 071C OLD VALUE: C9H NEW VALUE: 02<cr>
LOCATION TO BE CHANGED: HAVBSY:<cr>
ADDRESS: 0718 OLD VALUE: 00H NEW VALUE: FF<cr>
```

-^C

[Now put a copy of your WordStar working diskette in the A drive and press CTRL C again to log in the WordStar diskette. DO NOT USE EITHER THE DISTRIBUTION DISK OR YOUR ONLY WORKING COPY.]

[When you enter 00 as the location to be changed, you are signalling that all your patches are complete. You will get one more chance to decide if everything is OK. If you reply Y to that question, then the changes are saved to your new WordStar program. If you have a dot matrix printer and want to add the other print customization commands, similar to those shown on Page 21 of the June '84 issue of Morrow Owners' Review, do so before answering 00 to the 'LOCATION TO BE CHANGED' question.]

A)^C

[Now enter the name of the WordStar installation program INSTWS.]

```
LOCATION TO BE CHANGED: 0<cr>
```

A)INSTWS

[The program will sign on and ask you if you want a normal first time installation. Answer N to this question. I will omit the program's frequent requests for confirmation to speed up this part of the narrative, but you will have to answer the question]

After all this work, it's time to test our program. Load WordStar, tell it to print out your favorite file, and while it is doing so, try editing a different file. Lots of luck, and enjoy.

N

[Choose option D at the installation menu, and enter the name of your WordStar program, probably A:WS.COM, in answer to the filename question.]

If you are interested in learning what we have done to WordStar, carry on reading.

D

[At the terminal, printer, protocol and printer-driver questions, answer U--no change. Some of these responses may display some incomprehensible text. But carry on anyway.]

At location MORPAT: (an area provided by WordStar for user patches), we installed the following machine language code:

U

U

U

U

```
MORPAT:
CALL LISTST (entry point)
;ask the CBIOS to check if the printer is busy.
; It will return a 0 (zero) in the A register if
; the printer is busy.
;
ORA A
;set the Zero flag if the printer is busy
; and clear the Carry anyway.
RNZ
;we only want to return with the Carry flag clear
; if the printer is not busy
SIC
RET
;Since we fell through the Return Not Zero above,
; the printer must have been busy, so we Set Carry
; flag and return to WordStar.
```

N

[At the end of this you will be asked if all the changes have been made. Answer No to the question. You will now enter WordStar's infamous patcher. Don't panic. If you do something wrong, you can always press RESET and nothing will be changed. Then you can try again from INSTWS. From here on I will show your entries and all of the responses. If you find your computer showing very different values, I suggest you try contacting your dealer.]

```
LOCATION TO BE CHANGED:MORPAT:<cr>
ADDRESS: 02E0 OLD VALUE: 00H NEW VALUE: CD<cr>
LOCATION TO BE CHANGED: <cr>
ADDRESS: 02F1 OLD VALUE: 00H NEW VALUE: 2D<cr>
LOCATION TO BE CHANGED: <cr>
ADDRESS: 02E2 OLD VALUE: 00H NEW VALUE: F2<cr> **
```

[NOTE: ** at this location enter the

At location LIBSY:, we put a Jump to MORPAT, and then set the HAVBSY: flag to tell WordStar it should check to see if the printer were busy before sending a character to it.

That's all folks. Keep hitting the keys, and enjoy a more responsive computer.

BRIGHTENING YOUR DAY WITH NEWWORD

by Bill Steele

When I started working with NewWord I was tempted to rename it "DimWord." The folks at NewStar decided to have text come up in half-intensity video, to allow for future versions in which highlighted text would indeed really be highlighted. Unfortunately, half-intensity is hard to read in a brightly-lighted room. And for me, there's something positive about having your words glow brightly back at you.

After a bunch of phone calls to people who mostly told me to turn up the brightness control, I finally talked to someone at NewStar who gave me a clue that let me work out a way to make NewWord display text in full intensity. Here's how:

NewWord controls screen attributes with a routine called VIDATT, starting at address 036F. The version for Televideo terminals is listed on page C-16 of your NewWord encyclopedia. This has a subroutine at 03D3 that makes highlighted text bright, but for normal text it jumps past that to 03D7. To abort that jump, just use DDT or the NewWord patcher to change the byte at 03C8 from D7 to D3.

This works only if NewWord is installed for a Televideo terminal. Fortunately, the MDT 50 works fine with this installation, since all its control codes are the same as the Televideo. I expect the MDT 20 would work the same way. If you install NewWord for the MDT 50 (aka Freedom 100), you get a different routine at this address, which I haven't been able to figure out yet. Among other things, it contains a subroutine that's never called!

Modified this way, NewWord puts everything in full-intensity, except parts of the status line. You can toggle to half-intensity by hitting ESC, and back to full by typing Ctrl-J, space. You will also drop to half-intensity if you change help levels from inside a file; but you can again toggle back with Ctrl-J, space.

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PROGRAMMING YOUR FUNCTION KEYS WITH NEWWORD

by Bill Steele

One of the best-hidden features of NewWord is its ability to program the function keys on the Freedom 100 (a.k.a. MDT 50) and similar terminals with "hardwired" keys. Using this feature, I've set up 28 shorthand keys that save a lot of time in editing and overcome a couple of what I consider to be minor nuisances in NewWord. There seems to be no limit to the number of keystrokes one can program into this system, so some interesting routines are possible.

The function key routine is described in the User Area Listing (Appendix C) at the end of your NewWord Encyclopedia, starting on page C-5. This section is an assembly language listing, with comments, of areas of NewWord that can be patched by the user. For those who wouldn't look at assembly language with a ten-foot spyglass, here's a brief description of how the routine works.

The function keys on many terminals send out a burst of several characters. F1 on the Freedom 100, for instance, sends "Ctrl-A, @, CR". The four editing keys above the numeric keypad send bursts of two characters, each beginning with an escape character. The key labeled "EOP/CLR/EOL", for example, sends "ESC T". All 14 of these keys send different bursts when shifted.

You'll find a complete list of the function key sequences on page 21 of your Freedom 100 terminal manual. There's no way you can change the character sequences; they're built into the terminal hardware. The terminal sends these characters at machine speed: the complete sequence goes out in less than three milliseconds, much faster than anyone could type them. NewWord watches for such bursts and can be programmed to translate them into other sequences of characters.

The translation is controlled by a table that begins at address 0238. A single byte at 0237 sets the time delay during which the burst has to arrive in order to be recognized as a function key burst. As NewWord comes from the factory, the table is set up for the twelve function keys on a Televideo 925. The function keys on the Freedom 100 send the same sequences as the first ten on the Televideo (and many other terminals). They aren't working for you now, however, because NewWord comes with the byte at 0237 set at 00. Change that byte to 03 or maybe 04 (we'll explain how to change it shortly) and your function keys will instantly perform the functions listed on page C-6.

Those functions, however, aren't what I would

consider the best choices. For instance, one key is set up to output Ctrl-L, for "find and replace again." Pressing a function key isn't much less work than hitting "Ctrl-L"; furthermore, on the Freedom 100 you can already get a Ctrl-L by hitting the right arrow. (You can't, alas, reprogram the arrow keys with this system; they send single control characters, not bursts. Neither can you program the "CLR/HOME" key, which sends a single character, Ctrl-Up Arrow.) Also, the preprogrammed table provides functions only for F1 through F10 in their un-shifted modes.

You can set all the keys up the way you want them by entering a new table starting at 0238. Or, if you prefer, you can keep the first ten functions NewStar has programmed in and add new ones starting at 027E.

The format of the table is as follows: first, you enter a byte that tells NewWord how many characters there are in the function key sequence; for the function keys, this will always be 03; for the editing keys, it will always be 02. Then you enter the hex values of the characters the key sends. Next, enter a byte that gives the number of characters in the control sequence you want the key to send, followed by the sequence itself, also translated into hex. Repeat the process as many times as you have keys to program. NewWord simply translates the first sequence of each pair into the second.

To signal the end of the table, enter 00 00 00. NewWord provides the space from 0237 to 02E5 for your table; if you have more than that (I did), you can jump to an area called MORPAT at 0431 (pg. C-19), where there are another 48 bytes of space. You don't have to enter a jump instruction; just enter 00 followed by the address to which you want to jump. In this case, that would look like: 00 31 04. (Note that the bytes of an address are entered in reverse order.) You can't jump in the middle of a sequence; the 00 has to come where NewWord would expect to see the number of bytes in the next function key string, so you may have to jump before you get to the very end of the table area. Also, if you end up with the jump address at the very end of the space, it crashes the system for some reason. After jumping, enter the balance of your table, and be sure to end with 00 00 00.

Entering the complete table takes a lot of typing, and since the strings are of different lengths it will be hard to change it around later, so I suggest you take your time in deciding what

functions you want, and where to put them. (One way to change the table without retyping it entirely might be to jump around a sequence you've decided to eliminate, and put the new sequence for that key at the end of the table. The system doesn't require that you enter the function keys in order.)

I made up Table I as a text file and played around with it for several days. With NewWord's unerase feature, it's easy to pick up a line of the table and move it around. I also made up a file with the names of the functions arrayed horizontally, printed it out in 15 pitch and taped the printout to the top of my keyboard so I could get a feel for where I would have to reach for a particular function.

In general, I put functions that wouldn't be used often at the far left. Cursor movements are arranged logically in the center: Top Screen and Bottom Screen are side by side, with Begin File and End File under them; Left Screen and Right Screen are to the left and right, respectively, with other related movements nearby. I'm including my table, of course, just to give you ideas; feel free to use it if you want, but more likely you'll prefer other functions or a different arrangement. For instance, since I write for publication I use underlining all the time, but hardly ever use boldface.

Once you've worked out the sequences of key-strokes you want, you have to translate them into hex numbers. Use the table of the ASCII Character Set in your terminal manual. Remember that "Control" characters, which you get by holding down the control key and pressing some other key, are represented by one hex byte each, not two. The control key is like a shift key: when you press it down, other keys produce a brand new character. The control characters are listed in your table by their names--NUL, SOH, etc.--which hardly anyone ever uses. NUL is Ctrl-@, SOH is Ctrl-A, etc. In other words, the characters in columns 0 and 1 of the table are the Ctrl versions of the characters in columns 4 and 5.

You may well ask, "Why should I do all this work when I can get the same results with a program like Smartkey?" Well, if you use Smartkey II to set up both the function keys and the editing keys, you have to disable its "supershift." Even if you use it just for F1-F10 it uses up 20 supershifted characters. If you let NewWord program the function keys, Smartkey will be free to supershift every other key on the keyboard!

You can enter your new table through NewWord's patcher, as explained by Bart Anderson on page 23 of the June, 1984 MOR (Vol. I, #2), but it's hard to see what you're doing this way, or correct mistakes, and also hard to get at the MORPAT area

if your table is long enough to need a jump. The "expert" (that's me, now that I've staggered through it) will already know how to enter the table using CP/M's DDT program. For the novice, here's a step-by-step procedure. Your input is indicated by underlining.

Boot up your system disk on drive A; put a NewWord working disk (preferably a copy, in case you goof) on drive B. With a one-drive system, you can pip DDT.COM onto the NewWord Disk. At the A> prompt type:

```
A>DDT B:NW.COM
```

[If you only have one drive, omit the "B:"]

```
DDT VERS. 2.2
NEXT PC
2800 0100
-D0237 <cr>
```

[The "-" is DDT's prompt.]

DDT will display a screenful of numbers, representing the bytes presently in memory at address 0237 and thereafter. This is just a check: you should see a 00 at 0237, then the sequence of bytes printed in your manual beginning on page C-5; you might take a minute or two to look this over and compare it with the manual to get a feel for what's going on. Next, type:

```
-S0237 <cr>
```

[The "S" stands for "set." This command allows you to change the byte at this address and subsequent addresses, just like the patcher.]

```
0237 00 03 <cr> (This sets the time delay)
0238 03 03 <cr> (First byte of your table)
0239 01 01 <cr> (Second byte of your table)
etc.....
```

As you enter your table, check the addresses every so often to be sure you don't go past 02E5 and overwrite something else. When you get close to the end of the space NewWord provides, you'll have to enter a jump, as described above.

You can stop the process any time by entering a period instead of a new byte, followed by a carriage return; the byte at which you entered the period won't be changed. You can then resume by typing "S" followed by the address at which you left off. As you get close to the end of the table, for instance, you might want to interrupt the setting process and type "D" followed by the address you're at, to display the following bytes and see how much room you have left.

If you don't feel like typing in the whole

table at one sitting, you can stop anywhere, save the results as described below, and you'll find that the keys for which you've entered functions will work; you can come back later and finish the table by repeating the process described above, starting at the address where you left off. Actually, I recommend that you do only seven or eight keys at a time, save the results, then run NewWord and see if those keys work. If you've made a mistake, you won't have to go back and change the whole table. Doing it that way, and counting mistakes, it took me about an hour to set up the whole table.

When you finish typing your table, you have only changed the copy of NewWord that is currently in memory; the version on the disk is unchanged. To fix that, continue as follows:

-^C (Ctrl-C) (This terminates DDT)

>A SAVE 39 B:NW.COM

[This writes the changed version of NewWord back on your disk, overwriting the original. 39 is the number of 256K blocks NewWord occupies. You might want to save the new version under a different name, e.g., "TEXT.COM". This will leave the original version of NewWord unchanged on your disk. If the new version works, you can erase the old one and rename "TEXT.COM" as "NW.COM."]

That's it. You can, of course, repeat the above process as many times as you need to in order to get things right, or to experiment with different functions. I'll be interested in hearing what functions other people think up.

TABLE I

KEY	SENDS:	#	HEX	FUNCTION:	CHARS:	#	HEX
F1	^A @ CR	03	01 40 0D	Exchange words	^T ^A ^U	03	14 01 15
F2	^A A CR	03	01 41 0D	Save & Cont.	^KS	02	0B 53
F3	^A B CR	03	01 42 0D	To Sentence Beg. (1)	^QF . CR U B CR ^F	08	11 46 2E 0D 55 42 0D 06
F4	^A C CR	03	01 43 0D	L end of line	^Q S	02	11 53
F5	^A D CR	03	01 44 0D	Top Screen	^Q E	02	11 45
F6	^A E CR	03	01 45 0D	Bottom Screen	^Q X	02	11 58
F7	^A F CR	03	01 46 0D	R end of line	^Q D	02	11 44
F8	^A G CR	03	01 47 0D	To Sentence End (1)	^QF . CR U CR ^D	07	11 46 2E 0D 55 0D 04
F9	^A H CR	03	01 48 0D	Move Block	^KV	02	0B 56
F10	^A I CR	03	01 49 0D	Underline	^P^S	02	10 13
EOP CLR	ESC T	02	1B 54	Del. Word L	^A^T	02	01 14
DEL LIN	ESC E	02	1B 45	Return-Yes (2)	CR Y	02	0D 59
DEL CHR	ESC Q	02	1B 51	Del. Line L	^Q DEL	02	11 7F
PRN	ESC P	02	1B 50	Del. Line R	^QY	02	11 59

Shifted

KEY	SENDS:	#	HEX	FUNCTION:	CHARS:	#	HEX
F1	^A ' CR	03	01 60 0D	Find Mark (3)	^QF CR G CR ^G	07	11 46 5C 0D 47 0D 07
F2	^A a CR	03	01 61 0D	Center Text	^OC	02	0F 43
F3	^A b CR	03	01 62 0D	Mark Block Beg.	^KB	02	0B 42
F4	^A c CR	03	01 63 0D	To para. beg.	QF ^P CR CR B CR ^F	08	11 46 10 0D OD 42 OD 06
F5	^A d CR	03	01 64 0D	Beg. File	^QR	02	11 52
F6	^A e CR	03	01 65 0D	End File	^QC	02	11 43
F7	^A f CR	03	01 66 0D	To Para End	^QF ^P CR CR CR ^A	07	11 46 10 0D OD OD 01
F8	^A g CR	03	01 67 0D	Mark Block End	^KK	02	0B 4B
F9	^A h CR	03	01 68 0D	Copy Block	^KC	02	0B 43
F10	^A i CR	03	01 69 0D	Make Para. (4)	CR ^I ^B	03	0D 09 02
EOP CLR	ESC Y	02	1B 59	Del. Block (5)	^KY Y	03	0B 59 59
DEL LIN	ESC R	02	1B 52	Mark Sentence (1)(6)	^KB ^QF . CR U CR ^D ^KK	0B	0B 42 11 46 2E 0D 55 0D 04 0B 4B
DEL CHR	ESC W	02	1B 57	Mark Paragraph (6)	^KB ^QF ^P CR CR CR ^KK	0A	0B 42 11 46 10 0D 0D 0D 0B 4B
PRN	ESC L	02	1B 4C	Reform and Ret. (7)	^B ^QF CR B CR ^G	09	5C 02 11 06 5C 0D 42 0D 07

NOTES:

(1) This doesn't work with sentences ending in a question mark or exclamation point, of course.

(2) Use this when opening a new file, to bypass the Yes-No prompt.

(3) I miss WordStar's Ctrl-QP (cursor to previous location) command.

Say you have some extra paragraphs stored at the end of the file, and you want to nip down and get one, then come back to where you were and insert it. Type a backslash before you go, and any time later, this will bring you back. When you get back, it deletes the backslash. I chose the backslash because it's easy to find on the keyboard and can be typed without shifting.

(4) Use to make one paragraph into two, with the cursor located where you want the second paragraph to begin, and, of course, with insert on.

(5) Again, this bypasses the Y/N question when you delete a block larger than the unerase size. If you use it on a smaller block, you end up with a "Y" just left of the cursor, which is no big deal.

(6) Use with the cursor on the beginning of the paragraph or sentence. If you hit the key anywhere in a paragraph or sentence, it will mark from there to the end.

(7) I often want to reform a paragraph while I'm still working on it, to see the stuff that's gone off the right side of the screen; again, this makes up for the missing Ctrl-QP command.

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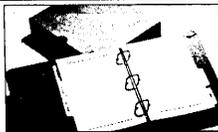
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by Mike Guffey

Title: THE FREESOFTWARE HANDBOOK--1984/1985
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Cost: \$17.95 plus \$2.00 handling/shipping

One of the joys of using the CP/M operating system is that there is an abundance of users groups throughout the land. These groups, among other things, promote the availability of free public domain software. Fine, you say. But what IS public domain (P.D.) software and, furthermore, why should I want it? you ask.

Well, there is finally a good, comprehensive answer to that riddle. It goes far beyond merely just answering the question. It explains many of the other mysteries of P.D. programs. It is called "The FREE SOFTWARE HANDBOOK--1984/1985 CP/M edition" and is published by PeopleTalk Associates. (The same folks who wrote "The PERFECT Manual" and "WordStar and Friends," two other VERY useful books for Morrow owners.)

This is a book that offers (among other things) to show you how to:

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[NOTE: The use of the word FREE in this context means that the software is, in and of itself, free; it is not sold. However there may be costs in obtaining it: cost of postage, copying and handling. More on this later.]

If you are new to CP/M P.D. software, this is the book to start you out right. If you've collected a fair amount of the software, this book will probably point out a few you've missed and could use. And if you are indifferent to the subject, this book is a good reference when you finally see the light.

The book is well-organized into chapters that cover:

- * Basic questions about P.D. software in general
- * Games
- * Communications
- * File management
- * Miscellaneous utilities
- * Tools for "hackers"
- * Specific applications
- * Libraries, archiving and cataloging
- * A top ten--the ones we all should own
- * A program reference/index to determine if you have the same program with a different name

The book covers seventy of the more useful P.D. programs. It tells you how and where to get them (including disks from PeopleTalk in several formats). It tells you what each is for and how to use it. In most cases, the book's documentation is FAR easier to understand than what may be included with the P.D. software. It is thorough and fairly well researched.

But...it is only the beginning. Perhaps "Volume 1" should have been added to the title. For there is far more in the fabled Public Domain than this book reveals. True, some P.D. software is useless (to a majority of average computerists)--too complex, under-documented, too esoteric in its applications. And the information on the P.D. communications is dated. But many useful programs have been missed; quick printer configuration utilities are a notable exception.

These are not so much flaws as indications that this book is a pathfinder. If widely distributed, it could help fuel the modem-mania some of us believe will be the next craze in computing. (We current modem users are a tiny minority.)

However, it has two flaws that may prevent endorsement by wide segments of the Special Interest Group and User Group communities at large. One is the price: \$17.95 may be too much to pay for a computer book aimed at the average CP/M user. Many, probably most, CP/M users are very price conscious about their hardware, their software, their firmware, whatever. There is a very vocal minority that feels PeopleTalk was exploiting the neophyte market with the \$21.95 price tag on their two previous manuals.

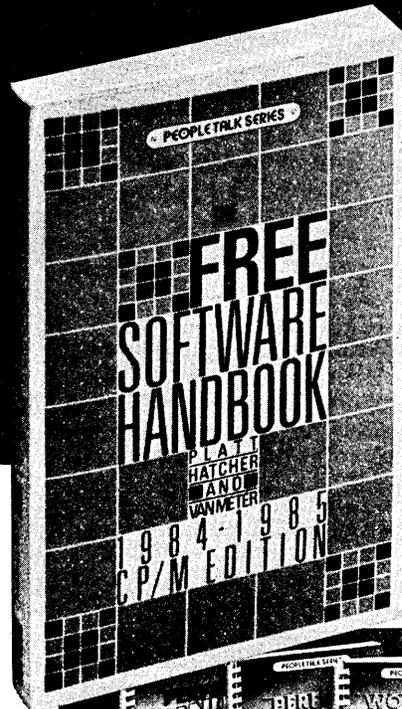
The second flaw is also related to price. At the back of the book is an offer for the seventy programs discussed within for \$49.95 PLUS \$2.00 shipping and handling. When the prevailing price for CP/M P.D. software is \$12 for double-density disks crammed with all the programs that will fit, PeopleTalk is asking \$51.95 for three double-

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density or six single-density disks. That's over \$17 per disk. Two reliable firms that ship large numbers of P.D. disks (CP/M-oriented) for \$12 are Micro-Cornucopia and SheepsHead Software. Some call this charging what the market will bear. Others object to the \$12 disks, but accept the economic realities involved. \$17 per disk IS a bit much. \$17 per disk makes P.D. software "nearly free" and sits on a razor's edge between "handling" and selling.

Also, the book misses some points worth mentioning. One is that, although some P.D. software is machine/hardware specific (you can't use it on all computers), modification is not very difficult for not-yet-"hacker" hobbyists. This is because of the simplicity of CP/M which lumps all machine-specific codes into one module, called the BIOS (basic input/output system). "How-to" CP/M books abound. The transition from average user to hobbyist is not too difficult. This point can, of course, be made in Volume 2.

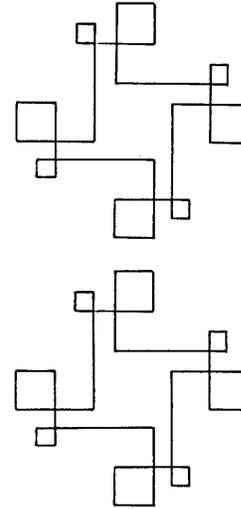
There is a use for one utility (FINDBAD.COM) which can add to your disk usage savings. ALL disks have magnetic media on both sides. Single-sided disks are merely not certified error free on the second side. This means that you can usually format a single-sided disk on a double-density machine. The problem is that you may have a bad sector on that uncertified second side. With the P.D. program called FINDBAD.COM you can locate and lock out these bad spots before usage. In many cases a single-sided disk will format and run without errors as a double-sided disk (especially with the "name brands" and MOST especially with DYSAN brand). But with FINDBAD.COM you can pay less for your disks and still maintain quality media. (Bargain brand-x disks often lose the recorded data in storage and turn out to be no bargain after all. Stick with the national brands and this trick.)

The book is generally oriented to the novice user. There is one choice of "hacker" utilities worth quibbling over. The program DU-V86.COM (version of 8.6 of DU.COM) is a fine piece of work. There is an alternative that will do many of the same things but is menu-driven and easier to operate for less-experienced users. It is called FIX.COM and is well-documented. Although it is considerably larger (one version is 36k0), it is not as intimidating and will perform many/most of the tasks DU.COM will (including finding bad sectors FINDBAD.COM may miss and often "fixing" them).

In conclusion, if you have no problems with shelling out eighteen bucks for a VERY useful book, this one is recommended as a good value and competitively priced with other computer-related softcover books. If you have ANY other way to obtain P.D. software besides mailing out nearly fifty bucks, please do so. If you need ideas or

help, you can contact me via
THE SOURCE: SMAIL (BBL126).

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HOW TO MODIFY OUTPUT PORTS WITHOUT EVEN TOUCHING A SCREWDRIVER

by Ed Berne

[Editors' note: This article deals with the serial ports of the MD2 and the MD3 and how you can modify their behavior. It assumes that you are able to write small programs (in MBASIC, PASCAL or assembly language) to change the operation of a serial port. We have added some additional information to the original article to clarify the issues further]

I'm all thumbs. The last time I picked up a screwdriver I ruined an almost new toaster. Does this mean I can't experiment with modifying the output ports of my Micro Decision? No way; it can be done with software.

The nice thing about experimenting with software is that you (usually) can't damage anything. If all goes awry, there's always the trusty reset button.

Why would anyone want to manipulate the computer's output ports anyway? As you know, the ports are the only way for a computer to communicate with the outside world, including its own peripherals. If you want to connect anything other than the most standard devices to your computer you may well have to modify the port.

As I stated in my previous article (MOR, Vol. 1, # 2, June 1984), the Morrow output ports are controlled by an 8251 universal asynchronous receiver/transmitter (UART) chip. This chip can be programmed to configure and control the computer's communications.

What follows is unavoidably technical; all you tyros may quit reading at this point.

The 8251 is programmed by "writing" control words to it. These are written by sending them out the same status/command ports used to read the port status (see my last article). On the MD2 these addresses are FD hex for the terminal port and FF hex for the printer port.

It takes two words to define the operation of the 8251 chip, the **Mode word** and the **Command word**. The mode word defines the operating parameters, such as synchronous vs. asynchronous, parity, and baud rate. The command word controls the actual operation in the desired format.

To program the 8251, all you have to do is construct the appropriate words using the information below and send them to the UART. In either MBASIC or assembler languages you write to the

chip with an OUT command. You can change bits from MBASIC using the XOR operator. The MBASIC statement:

$$N = N \text{ XOR } B \wedge 2$$

will change the value of bit B in the number N, where the least significant bit is bit 0.

Both the Mode word and the Command word have 8 bits, numbered 0 - 7. (You cannot read information from these words.)

Mode Word Format

Bit Number	Meaning
	Clock Divisor
	Sync Mode X1 X16 X64
0 (LSB)]	0 1 0 1
1]	0 0 1 0
	Character Length - Bits
	5 6 7 8
2]	0 1 0 1
3]	0 0 1 1
4	Parity: 1=enable 0=disable
5	Parity: 1=even 0=odd
	Number of Stop Bits
	Invalid 1 1-1/2 2
6]	0 1 0 1
7 (MSB)]	0 0 1 1

Command Word Format

0	Transmit Enable: 1=enable
1	Data Terminal Ready: 1=sets RS-232 DTR signal low (pin 5)
2	Receive Enable: 1=enable
3	Send Break: 1=send break
4	Error Reset: 1=reset all error flags
5	Request To Send: 1=sets RS-232 pin 6 signal to low
6	Internal Reset: 1=next word is mode word
7	Enable Hunt Mode: 1=enable. Used only in synchronous transmission

If you write a byte to a port it will wind up in the Command word. To write a byte to the Mode word you have to first do an internal reset (send a byte with [bit 6] = 1 to the Command word.) The next byte you send then winds up in the Mode word.

So, what can you do with all of this? Using bits 0 and 1 of the mode word, you can change your baud rate. Using bits 4 and 5 you can implement parity checking on a communications channel. Best of all, using bits 1 and 5 of the command word you can control an external device.

For example, I have implemented telephone dialing with my non-smart modem (a Novation J-CAT) by manipulating DTR (command word bit 1) to cause the modem to send the dialing pulses over the phone line and RTS (command word bit 5) to cause the modem to take the phone off-hook.

And, I did it all without touching a screw driver.

[Editor's Addendum:]

In experimenting with port modification, it is important to know what revision logic board is in your machine. Most MD2s have Revision 1 boards and most MD3s have Revision 2 boards, but it is hard to tell until you boot the MD and read on the screen what ROM revision it has. If it says: "ROM Rev. 1.x" (where x is some number), then you know you have a Rev. 1 board.

Normally we use our serial ports in **Asynchronous mode**. The alternative is **Synchronous mode**. We recommend that you do not select "Sync Mode" (bit 0 and 1 set to 0 in the Mode word) unless you have the 8251 specification sheet handy and are able to understand it.

In the table above, the meaning of the bits of the Mode word are for the Asynchronous mode only. In "Sync mode" some of the bits in the Mode word have different meanings.

The Clock Divisor values for bit 0 and 1 in the Mode word will enable you to change the baud rate of your serial port to some extent. The following examples hold true for the printer/modem port on your MD2 or MD3 (port address = FDh).

If you have a Rev. 1 board (MD2 or MD3), you should leave the baud rate dip-switch in the factory set position of 1200 baud. This switch is inside the machine on the port side of the logic board and is marked SW 2.

If you have a Rev. 2 board (MD3 or MD2) you should use the program SETUP to set the the printer/modem port to 1200 baud.

Using your home-made program has this effect:

Loading the X64 value will set baud rate to 300.
Loading the X16 value will set baud rate to 1200.
Loading the X1 value will set baud rate to 19200.

If you have a Rev. 2 board, it is hardly worthwhile to using this approach to modify the baud rate of your port, because SETUP does a much better job. Under option C it supplies you with 7 baud rates (110 - 9600). Why 19,200 baud was left out in SETUP is a mystery which, if asked about, makes certain Morrow engineers blush.

If you have a Rev. 1 board, the described approach is useful, because SETBAUD will only give you a choice between 300 and 1200 baud, and now you can have 19,200 baud also. Great for serial printers with print-buffers. Stan Young wrote a little program in Turbo Pascal called MDBITS.COM that lets you select the 3 baud rates. Available at cost from SCMUG RBBS (408) 438-6392, or on a floppy for \$8 from the BAMDUA Software library, P.O. Box 5152, Berkeley, CA 94705.

The default settings of bits 2 - 7 of the Mode word will get you by in most instances. There are some rare bulletin boards that require something different. If in doubt do not change the default settings which are: character-length 8 bits, parity disabled and 2 stop-bits. If you get confused, just reboot the machine and all default settings will be restored again.

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ADM-20 UPGRADE KIT

by David Schnapf

[Before you embark on this project, note herewith this SAFETY WARNING about opening up and working inside terminals. If you have never done this before, get some advice from your TV repairman or dealer-technician. Turning off the power to the terminal or even unplugging it IS NOT ENOUGH! The terminal should either be allowed to sit unplugged for AT LEAST 24 HOURS or the CRT (Cathode Ray Tube) should be properly discharged. The CRT can retain dangerous voltages for hours after the terminal is unplugged. --Editor]

I bought my MD-2 computer back in February of 1983. In shopping around, my search boiled down to either the Morrow or a Kaypro. At the time the Morrow came with the ADM-20 terminal (alias MDT-20) manufactured by Lear-Siegler. One of the attractive features of the Morrow was the fact that it had function keys and cursor keys. When it was explained to me that these keys did not work in Wordstar and other application programs, I called Morrow (in those days you could call the factory and actually get some advice over the phone) and was told that a free revision to the terminal's EPROM was in the works to enable the use of these features.

True to form, Morrow never did a thing to follow through with the new EPROM. The function keys, which were set up to generate control characters, and the cursor control keys collected dust on my keyboard while I asked everyone in sight if anything could be done to enable them.

Finally, I noticed an ad in the second issue of the Morrow Owners' Review for an ADM-20 upgrade kit which promised to solve the problem. Since I couldn't find anyone who had already tried the kit, I called the number listed in the ad and asked if I could get some more information. The woman who answered agreed to send me some material and suggested I call back in the evening if I wanted to talk to her husband about the kit. The information I received wasn't really all that impressive, but was enough to convince me to risk \$40 and order the kit. I chose not to spend a few extra bucks to order a new terminal cable for a "type ahead" function. (The "kit" comes with the software to modify CPM for this capability; however, the documentation suggests that cable replacement is necessary if your original cable has too few wires.)

I received the kit, consisting of two EPROMS and a software disk, reasonably quickly. While I haven't yet fully explored the capabilities of my upgraded system, it does meet the basic purpose

for which I bought it. Since Wordstar is the primary use I make of my Morrow, the upgrade seems worth it for that alone. All the keys on the keyboard are now fully functional.

The upgrade makes terminal setup much easier and allows the terminal configuration to be set by way of escape sequences from programs. In addition, the function keys are fully programmable and a complete set of graphics characters is available, again through appropriate escape sequences. I'm not much of a programmer, so I haven't yet explored these possibilities. This is an area where the somewhat sparse documentation could be improved considerably.

Installation of the EPROMs proved to be relatively easy, although I feel a word of caution is in order. (While replacement of the EPROMs could affect a Morrow warranty, I assume anyone with the MDT 20 terminal no longer has any warranty rights.) One should be extremely careful when fooling around in the inside of the terminal. When laying the unit on its face, be careful to protect the knobs. Note that the shell of the terminal provides considerable support to the cathode ray tube. In my case, the old EPROMs did not come out easily and the technique described in the documentation was not helpful. Rather than buy or borrow an EPROM puller, I gently wedged a jeweler's screwdriver below the EPROM and lifted a little bit at a time from alternate ends. This worked fine, and installing the new EPROMs was a breeze.

After reassembly, the computer worked beautifully. The first task is to hit the setup key and choose whatever values you want for various terminal attributes. The setup is much easier than with the old EPROMs and includes a special Wordstar setting which configures the terminal for that program. I found the documentation on setup to be partially in error. On one hand, you are told to change only two settings, one for Wordstar and the other to turn the cursor on. This is what you should do. However, they also provide a list of recommended settings for the remaining values--in my case the recommended changes simply did not work.

The documentation also suggests that one make changes to certain values in the Wordstar program by running the installation program. I ran the suggested patches on one version of Wordstar and kept an unchanged version. Frankly, I have been unable to see any difference between the two and wonder if the changes are really necessary.

All in all, forty dollars seems like a good price for this upgrade to the MDT 20 terminal, especially for anyone who uses Wordstar a lot. (However, the documentation could be better, and in some cases even proved to be wrong.) More advanced users will, I'm sure, appreciate some of the capabilities I haven't tried yet.

THAT DRIVES BE QUIET

The LAST final word on the drive quieting BIOS patch.

By Brian Leyton

It has come to my attention that there is still quite a bit of confusion about the article that I wrote about quieting the drives on the MD3, (MOR, Vol. I, #1, April 1984, p. 34), and the subsequent article by Dave Block (MOR, Vol. I, #2, June 1984, p. 35). I would like to clarify once and for all exactly what the situation is as far as both articles are concerned.

The instructions I wrote up in my article were given to me by Mike Raynor of Priority One Electronics. Those instructions were designed for use only on an MD3 with a Revision 2 board, and were only tested on BIOS Revision 2.2. The memory locations I specified apply only to that version of the BIOS as far as I know. Many of the problems people had with this patch were because they attempted to install the patch on a revision other than 2.2, not because of any problem in the article, or because of anything they did wrong.

Dave Block attempted in his last article to avoid this problem altogether by giving a completely different set of instructions to use. Dave's version avoids giving absolute memory locations which will work only on one version of the BIOS. Instead he gives an explanation of how to calculate the proper locations yourself for the version of the BIOS you are using. If you follow Dave's instructions, you will be accomplishing the same thing you did with my article, except that Dave's version will work for all different BIOS revisions, not just 2.2.

Well I hope this clears up the questions a little, good luck and HAPPY (and quiet) COMPUTING!

[Editor's note: There are even more problems. Some diskdrives just won't be quieted down very well, no matter what you do. It is not even always clear which brand of drives exhibit the noisy, grinding syndrome the most. Not only MD3s but also MD2s are afflicted. If only we could be in the computer store at the time of the sale and warn potential users to test their system for disk noise BEFORE they take the computer home...but the salesman is always there first.]

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MORROW ORIENTED RBBSs

by Sypko Andreae

This is for all you owners of modems. The search is on for Morrow-oriented electronic bulletin boards, with or without RCP/M (up/down-load facility for files). Below is an alphabetical listing of the ones we know of, but we suspect there are a few more.

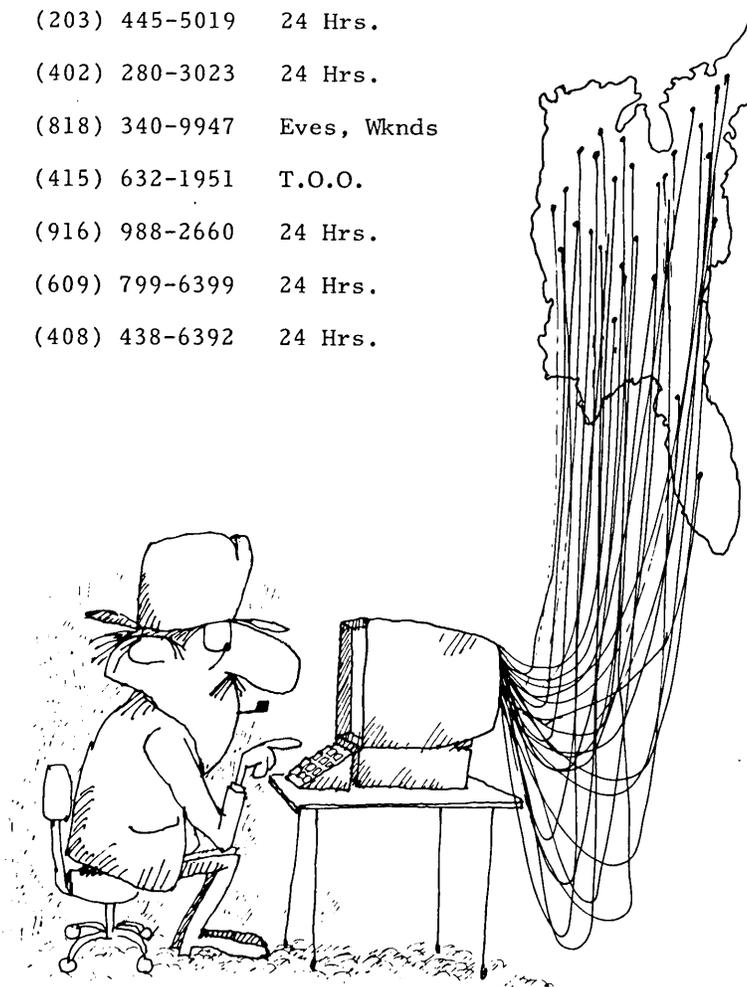
If you know of any Morrow-oriented or MD-based boards, drop MOR a note. We have heard rumors of boards in Washington D.C., in Minneapolis, and in Washington state, but we can't find anyone to confirm them.

3/12 means: Uses either 300 or 1200 Baud. CBBS: Message communication only.
3 means: Uses only 300 Baud. RBBS: CBBS + file up/down load facility.
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For the latest listing of RCP/M boards nationwide download the file RCPM-xx (where xx is a number). The national distribution point for new RCPM lists is the Hollywood RCP/M (213) 653-6398.



Bob Johnson, Talking Pictures

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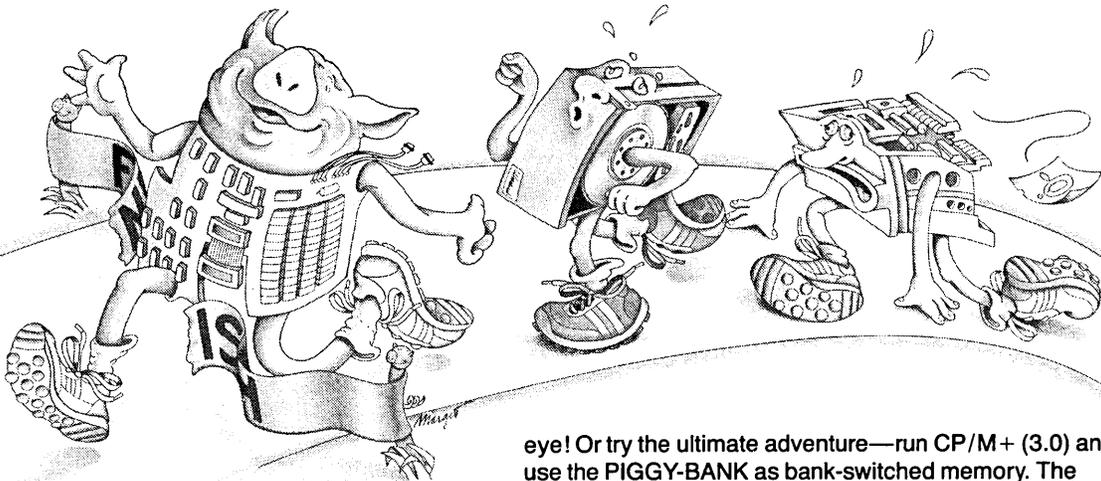
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