

The Amateur Computerist

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WHAT CRITICISMS HAVE YOU OF THE AMATEUR COMPUTERIST NEWSLETTER?

Recently, some of the staff of the *Amateur Computerist* visited the MIT Technology Museum in Cambridge, Mass. It was enlightening to see an exhibit tracing the history of "*The Tech*", a newspaper by MIT students.

Just as MIT and the student newspaper "*The Tech*" were stimulated into activity by new developments in technology, so the *Amateur Computerist* owes its origins to the emergence of the computer and the problems that developed in having education that would meet the wondrous needs of the computer.

In the exhibit of "*The Tech*" one issue especially stood out. That issue contained the request to the readership to offer their criticism and suggestions to help the MIT student newspaper more adequately serve the needs of its readers.

Though the *Amateur Computerist* newsletter was born 3 years ago out of a fight at the Ford Rouge Plant in Dearborn, Mi., for computer programming classes, copies of it have gone around the country as people from varying regions and walks of life have requested sample copies or subscriptions. However, despite the interest shown in single issues, the staff feels the great need to have more input from the readership of the *Amateur*

Computerist so as to sort out the direction the newsletter should go in.

In the Nov. 16, 1918, issue of "*The Tech*," this letter appeared:

"How can we improve this paper and make it meet the demands of the student body here at the Institute? We ask you for your co-operation in this matter and hope that you will give us your frank criticism.

What changes can we bring about that will make it a more satisfactory paper to you?

Will you help us make "*The Tech*" the best college daily in this country?"

We ask the same questions, only about the *Amateur Computerist* newsletter. We need your comments and criticisms so that the newsletter can better serve the educational needs of the amateur computerist movement. Only if we hear from you and have some input regarding the kind of changes you would like to see, can we make the newsletter better serve the movement it has grown out of.

We welcome your comments and questions. Also, if you wish us to print your letter but to withhold your name, let us know. In any case, we need your input if the *Amateur Computerist* is to continue in a way that will help the development of the amateur computerist movement in the U.S.

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TIPS AND TRICKS

by Michael Hauben

Problem: Your IBM computer won't boot from the hard drive and you suspect something might have happened to one of the system files. After trying unsuccessfully both DOS's SYS command and Norton's NDD command, you don't know what to do next.

Caution: While trying to correct this problem, make sure you use the same DOS version's system files that were on your hard drive before the problem occurred.

Solution:

- A. Clean out the boot sectors.
 1. Remove all attribute (archive doesn't matter) flags from any files in the root directory. (Read Only, System, and Hidden Flags). You can use any of the following:
 - A. Norton's File Attribute command (FA FILENAME /[/ro,sys,hid][+,-]) (eg FA MSDOS.SYS /hid-)
 - B. PC-Tools:In File Menu, attriBute change, and then type the letters of the flags: H,S,R and save it.
 - C. Mace Utilities has a utility also.
 - D. DOS has ATTRIB to change file attributes, BUT it doesn't work with the system flag.
 2. Make a backup directory to move files into. (MD \BAKUP)
 3. Copy all files from the root directory to the backup directory. (COPY *.* \BAKUP).
 4. Delete the system files in the backup directory. (COMMAND.COM and IO.SYS, MSDOS.SYS or IBMBIOS.COM, IBMDOS.COM)
 5. Delete all the files in the root directory. (DEL *.*)
- B. Try to use DOS's SYS command to copy the system files to the boot sector/ root directory. (From A drive, SYS C:)
- C. If SYS doesn't work, try using the Norton Disk Doctor to transfer the system files. (Using NDD's MAKE DISK BOOTABLE)
- D. If NDD doesn't work:
 1. Remove the hidden, read only and system flags on your system files on a floppy disk with the system files.
 2. Copy the hidden files from your floppy into the root directory of the hard drive. (COPY FILENAME C:\)
 3. Place all of the flags back on to the system files.
- E. Try to boot...if this works, move all the files from the backup drive

to the root directory, and delete the files in the backup directory and remove that directory.

(CTRL-ALT-DEL, COPY \BAKUP .,DEL \BAKUP, RD \BAKUP) (Note: the "COPY \BAKUP ." step copies the files from "\BAKUP" to "." which represents the current directory you are in, which should be the root directory.)

F. If this procedure doesn't succeed for you, write us describing what you tried to do, and what the results were. We will either write back, or will print the letter to get help from our readers.

LETTER TO EDITOR

I enjoyed the *Amateur Computerist* [vol 3, no 2 - ed]. I enjoyed Floyd Miller's words because they are so true. If Floyd Miller's words are still read and appreciated then perhaps we can say that Floyd Miller still lives. I know that his words touched my heart!.

Deb. C.
Michigan

EDITORIAL

by Ronda Hauben

Three years ago, in September, 1987, several of us met to discuss publishing a newsletter that would continue the efforts to support education among amateur computerists. The *Amateur Computerist* has continued in that vein despite the fact that many computer magazines have gone out of business, and the battle to restore computer programming classes to the Ford Rouge Plant, and the teacher of those classes, seems to have hit a dead end.

In the meantime, however, certain facts have been discovered which perhaps shed some light on the battle which occurred at the Ford Rouge Plant.

First, the invention of the computer is a significant technological milestone in the history of the development of human technology. The *Amateur Computerist* serialized a history of the development of computers in its pages during its second year of publication.

The second fact is that not only

has the computer been developed after 400 years of documented human efforts to create it, but also the amateur computerist movement in the 1970's successfully fought the attempts by big computer companies to keep the computer from the masses of people. A low cost personal computer with open architecture was developed in the process that has found its way into millions of homes in the U.S. and around the world.

The third fact is that amateur computerists in the U.S. created the personal computer, and these amateur computerists were the product of the American education system. Yet there has suddenly been a barrage of propaganda condemning that education system and insisting that the very companies that tried to hold back the creation of a computer for the masses be given a more direct influence in the education system.

The fourth fact is that the combining of computer education and factory work was stymied at the Ford Rouge Plant, and despite substantial efforts of many people, no progress has been made to restore those classes. Instead the teacher has been tied up in endless and futile legal battles in a court case and at the state labor board over three long years. The court has now given its clear OK to Ford that there is no government support for restoring the classes and the teacher, but instead the court has thrown the case out on a concocted technicality, e.g. that the teacher wouldn't say which students typed the petition or contributed their words asking for the restoration of the classes. The teacher is now in danger of being fined for her attempt to ask that the court help in the battle. And the state labor board is only now holding a hearing after postponing the case almost 4 years. And the teacher is not being allowed to submit her evidence into that case.

Thus it is clear that the effort of big companies like Ford to prevent computer programming education at their own factories has been given active support and encouragement by the courts to prevent the kind of grassroots educational movement that

produced the personal computer in the 1970's from going on to encourage that the computer be successfully integrated into the workplace.

Where does this leave the *Amateur Computerist* newsletter and the battle to integrate computer technology at the shop floor level?

The *Amateur Computerist* invites articles and letters from readers suggesting what has been learned over the past three years and what is the way forward. It seems clear however, that without a grassroots computer education movement which is independent of the big companies and the government, computer education in the U.S. will be stymied until a way is found to overcome the fetter.

In the book, *Ancient Society*, analyzing the role played by technology in the development of society, the writer, Lewis Morgan, explained the significant impact the invention of iron had on the development of human intelligence. He said: "The process of smelting iron ore was the invention of inventions... beside which all other inventions and discoveries hold a subordinate position. Mankind, notwithstanding a knowledge of bronze, were still arrested in their progress for the want of efficient metallic tools, and for the want of a metal of sufficient strength and hardness for mechanical appliances. All these qualities were found for the first time in iron. The accelerated progress of human intelligence dates from this invention. This ethical period, which is made forever memorable, was, in many respects, the most brilliant and remarkable in the entire experience of mankind." (*Ancient Society*, by Lewis Morgan, New York, 1877, p. 539)

We expect that the invention of the computer will create just such another stupendous leap for human society and human intelligence, once it is possible to break through the blockade being put up by the big companies who are trying to interfere with this breakthrough.

A Common Man of Greatness

By Michael Hauben
(Editor's Note: Following is the Eulogy presented to honor Amateur

Computerist writer Floyd Hoke-Miller at the memorial service held in his honor on July 14, 1990.)

"You just don't have any constitutional government in America (today). You got laws, but nobody shows any respect or regard." It's rare that such honest words are spoken. They came from a proven 91 year-old rebel in an interview done on January 11, 1990 a few months before his death. This rebel had written a poem called **The Critic and the Rebel**. It reads:

We've had our rebels, both good and bad
From Attila the Hun, to Ivan the Mad.

We've had Crusaders for the
Carpenter's cross
That history records as a religious loss.

We've had soap-boxers stand for
human rights
Only to be martyrs for their
courageous fights;

But none like those with the Barons
of Barter
Where Labor fought Capital for a
Magna Carter

So let the critics rant and let
them rave
We are all destined to some sort of
grave;

And if the rebel's maligned as
totally rotten,
He'll be remembered when the
critic's forgotten.

Whether history calls him a hero or
a heel
There is one thing it can not
conceal --

He was a Rebel!

This rebel was our Floyd Hoke-Miller. Most importantly he was a labor poet who "wrote for the downtrodden" (what he called workers). He wanted to "educate to emancipate instead of dominate." Floyd was also an active participant in the 1936/37 Flint Sitdown strike that won General Motor's recognition of the UAW as the

chevrolet workers' bargaining representative.

Floyd was born in Fort Mayberry, Arkansas in 1898. He said about his birthplace, "It was just a small jerkwater, all-purpose town. That had everything from a factory on down to just everything in it. It was a one man town... I was brought up there in a condition of oneness of the pioneer spirit."

When, in 1927, a huge flood destroyed his home, Floyd traveled to Flint, Michigan in search of work. Upon reaching Flint, Floyd found work as a clerk for the Canadian Pacific Railroad. Railroad work was in the spirit of one of his heroes, Eugene V. Debs, who also started out a Railroad worker. Floyd's union spirit grew and developed while he worked for the railroad. He joined the Brotherhood of Railroad Clerks and always carried his BRC card with him. Floyd later landed a job in Chevy Engine plant number four. That was in March or April of 1930.

Even before World War I, Floyd started to write poetry as a hobby and a possible source of income. Floyd told me he didn't start to write labor poetry until he was 35 in 1933, when a lady interviewed him and read some of his poetry. Floyd asked her if he should go into a specific field. She said definitely, you should write labor poetry, and the Poet Laureate of the Flint Labor movement was born.

Floyd explained, "I am writing for the downtrodden. I was writing on the form educate to emancipate...So in other words, educate the man so he can understand what is going on, to look at and see what's happening." Floyd said he wanted to leave a better world than he found it. Floyd explained why he wrote poems for the common man in his poem, **The Laborer, Yes!**

You ask me why I praise his kind
And why I seek to rouse his mind
To thoughts beyond his daily task,
Wherein the chains that daily bind
Are shrouded lies to keep him
blind --

And those are the things you ask
About the man the Gods don't bless,
The Laborer, Yes!

I'll tell you why I take this stand
To praise the one with hardened
hand;
With daily drudge and sweaty smell,
He's the greatest one in all the
land
But yet, the least one in command
Of all the goods the traders sell
And take the more and give the less
The Laborer, Yes!

As he advanced in years, Floyd said his goal was, "To leave the torch for someone else to pick up and carry. Because when one man lays it down, somebody else has to pick it up." His idea of this torch included many things. Some of them were: the struggle of and for the common man, the struggle for the open press, and the struggle for a six hour day with no loss of pay.

Floyd often used Eugene Debs's famous saying, "When I rise it will be with the ranks, and not from the ranks." Laura Miller, Floyd's wife for 67 years, clarified what Floyd meant. She said, "Floyd is a good man, a common man." Floyd's poetry is by a common man, for and about the common man.

Floyd used various nom de plumes, like Vicky Vann and Evelyn Pierce. He had two main reasons to use them: he wanted people to think his poems were the ideas of many and not just one, and he wanted people to focus on the ideas in his poems and not that he was the poet. He was trying to spread the idea, not the man. Floyd also found that it wasn't safe to publish under one's own name during WWII. He explains some of this in his poem **My Obsession**:

'Tho I may use some pseudonyms,
A nom de plume or phoney,
I never stoop to downright whims
of writing pure baloney.

I know that workers make the works
By brains and muscles toiling
And taken by the class that shirks
Whose object is despoiling

That's why I strive in all my
rhymes
To paint the picture clearly
Of how there can be better times
If workers plan sincerely.

While he was working in the "Chevy" auto plant, he inspired others to write labor poetry and prose. Floyd felt he was obligated to as he said, "I had to try to make another poet, and so I made a few down the line (fellow workers on the assembly line) writers. [I] tried to get somebody else to do it, because it's the idea that counts. The man will be gone and forgotten, but the idea won't be forgotten. It lives on forever. It is the premise, not the person (that counts.)"

A friend of Floyd's expressed to me his opinion that Floyd was an example of the universal man. When you spoke to Floyd you heard references to current American literature, European literature, ancient Greek literature, and Roman literature. His grasp of the historical and intellectual content of our age was immense. He read continuously throughout most of his life, and through his reading examined everything; he took in the essence of it all. As a poet he studied the meaning of words. He had an extremely broad vocabulary and was forever finding the right word to convey just precisely the image he wanted. Writing poetry made him into a more articulate and clearer thinker. He had the ability to look at current world problems and cut through to their essence.

Floyd will be deeply missed as he was a treasure and an inspiration to us all to keep on looking for solutions. In his memory we are holding this memorial to continue this inspiration to others. We hope you all take something away from this memorial to keep in your thoughts. Floyd would have wanted the pieces of his torch picked up by others.

COCO CORNER

by Scott McMahan
(Editor's Note: In the previous issue vol 3, no 2, the Amateur Computerist printed a CoCo program, but by mistake, we left out Scott McMahan's column introducing the program. Fortunately, Scott brought this printing error to our attention. We apologize and are instituting a procedure to

check submissions against printed copy to try to prevent such an error from occurring again. We are printing Scott's column in its entirety as a correction to the last issue.)

This month's programming exercise is aimed at those of us who like to stay healthy. All of us should strive to at least be in reasonable fair shape, after all. Especially if our line of work keeps us behind typewriters and desks (or both, in my case.) There's no reason why we can't have a little fun doing it, though, and no reason not to get some use out of the CoCo.

This CALORIE program came about when my mother's doctor gave her a book on low-cholesterol stuff, an area that I don't even pretend to understand. When it comes to health fads, the only thing of which I'm sure, is that they don't last. Cholesterol, however, is staying around for a long time. There may actually be something to it. It never hurts to be healthy, though. The best way to get educated on a subject is to read about it, so read my mother did. She has never been a mathematical genius, and she freely admits it, but then again there is really no need for anyone other than a computer software designer or an engineer to learn higher algebra, trigonometry, and calculus (you knew I'd tie cholesterol into computers somehow.) When my mother stumbled over a certain formula for determining how many calories one needs to eat to reach one's ideal weight, she was utterly confused and brought it to me, the family member who has had higher math. I also found myself confused.

The only thing computers are good for, after all, is making sense of complicated mathematics. I went through the formula step by step and programmed it into my computer, with the following result:

```
0' CALORIE
1' by Scott McMahan
2' on 7-21-88
4' *****
6' For People who are not mathematic
   geniuses yet want to watch the
   cholesterol and calories.
8' *****
```

```
9 CLS
10 INPUT "What is your personal
   weight goal or ideal weight (in
   pounds) "; W
20 PRINT: INPUT "What is your age "; A
25 PRINT: INPUT " Are you (M)ale or
   (F)emale "; S$
30 IF A = > 45 THEN B = 1 ELSE B = 0
40 IF B= 0 AND S$= "F" THEN W= W * 10
50 IF B= 0 AND S$= "M" THEN W= W * 11
60 IF B= 1 AND S$= "F" THEN W= W * 9
70 IF B= 1 AND S$= "M" THEN W= W * 10
80 CR = (A - 25) * 10
90 W = W - CR
95 CLS
100 PRINT "Which of these applies to
   you? 1) SEDENTARY (OFFICE WORK)
101 PRINT "2) MODERATELY SEDENTARY
   (OCCASIONAL EXERCISE)
102 PRINT "3) MODERATELY ACTIVE
   (REGULAR EXERCISE)
103 PRINT "4) VERY ACTIVE (INTENSIVE
   EXERCISE)"
105 INPUT "Choose one ( 1-4 ) "; PA
110 IF PA = 1 THEN W = W + (W * .3)
120 IF PA = 2 THEN W = W + (W * .4)
130 IF PA = 3 THEN W = W + (W * .5)
140 IF PA = 4 THEN W = W + (W * 1)
150 CLS
160 PRINT "          THE RESULTS:  "
170 PRINT" Your daily caloric
   requirements are "; W;
   " calories."
180 END
190 ' *****
```

The formula I used comes from page 44 of the book *HEART SMART: A PLAN FOR LOW CHOLESTEROL LIVING*, by Gail L. Becker, R.D. It is very intimidating on paper but it is easy on the computer. I hesitate to give a very detailed explanation of what the program does, since I am not entirely sure what all the numbers mean myself. All I know is that it works, and the program gives me the same answers as were given for the examples in the book. If you are really interested in the why and how, I suggest you get the *HEART SMART* book and talk to your doctor.

On a more computer-oriented note, the process which the computer goes through in each step of the program is much the same as you'd go through were you doing it by hand. With the information supplied in the input statements, the computer decides

which numbers to multiply the variables by and when to add and subtract. The main difference is that the computer is not intimidated by confusing procedures and does not lose track of what it is doing.

That's about all that can be said about the CALORIE program. On to more esoteric things. (As if calories and cholesterol aren't esoteric enough! At least you might understand this!) Somewhere in the depths of your CoCo's memory is a place called 282 (or, if hexadecimal turns you on, 11A). You can use this memory location to turn the CAPS LOCK on and off without simultaneously pressing SHIFT and O. If you use the command:

POKE 282,0

it will make the letters lowercase (which show up on the screen as green characters on a black background), forcing you to shift to get uppercase, black-on-green characters. To go back to the locked position, you use the statement:

POKE 282,255

It will return you to the normal all-caps state.

I'm not sure exactly how useful this feature can be, but in some situations (where word processing, for example) it could come in handy. It's a good one to file away for reference.

That wraps it up for this installment, and be sure to drop in again next time when, finally, I get around to explaining how you can put characters on the screen using POKE. Keep in mind: COMPUTERS ARE ONLY AS GOOD AS WHAT YOU PUT INTO THEM.

(Editor's Note: Columnist Scott McMahan has asked for responses from readers on his columns. Readers are invited to send us letters to forward directly to the columnist or for inclusion in the letters to the editor section. Just indicate whether your letter is for publication or to be forwarded to the writer.)

EXCERPTS FROM BBS DISCUSSION ON TRADE UNIONS

(Editor's Note: In the last issue, we promised to include articles on BBS's in upcoming issues. For this issue, we are printing some excerpts from a

discussion item posted on the MNET bulletin Board in Ann Arbor. The discussion was too long for us to be able to print all of it, but we are printing excerpts to give a flavor of the discussion. The computer can facilitate getting to the heart of serious intellectual disputes and clarifying the differences. The item discussed some of the problems of American trade unions and democracy within the trade unions.)

Item 26 entered Sat, Sep 16, 1989 (16:20) by (history)

Why couldn't the UAW organize Nissan? What does the loss by the UAW of the vote at Nissan seem to signify?

#1(history) Sat, Sep 16, 1989 (16:32): I find it interesting that the UAW supposedly has a reputation as the most democratic of U.S. unions. It seems that it's quite the opposite -- and that the lack of democracy is a great weakness it will now have to deal with....

If there are no democratic elections, no free press, no right to speak freely at union meetings (which is the situation I've found), then there isn't much democracy. If there is no democracy in trade unions in the U.S., where else might one expect to find any democracy?

Also, the UAW leadership at the last Convention explained that they stood for "jointness" with management. Why then should a worker pay them dues money?

Trade unions were formed as a protest against the exploitation a worker experiences from an employer. "Jointness" is a contradiction in terms from the basis and need for trade unions. Thus it seems that the UAW is being attacked from within by those who cry "jointness" rather than defending workers in their fight with management.

#2 (russ) Sat, Sep 16, 1989 (18:48): Adversarial relations with the company led to lower productivity in the US auto industry. When the Japanese, with their cooperative, goal-oriented philosophy hit our shores, they rolled over the nation like a tide. Their plants spotting the USA seem to be our future: we have seen them, and they certainly work.

If labor and management are busy fighting each other instead of working together to produce goods, then they will make fewer and poorer goods than those who spend their time better. This is a bad deal for the consumer, and I expect the confrontational factions in the UAW to continue to lose ground as the example of the productivity and profitability of cooperation continues.

#7 (history) Sat, Sep 23, 1989 (18:45): Re #2: But adversarial relations are the description of exploitation, not of the attitudes of managers and workers. The economics of factories dictate that there are adversarial relations, regardless of how covered up the public relations department tries to gloss over the reality....

#8 (russ) Mon, Sep 25, 1989 (11:33): Re #2:.... Factories produce a product, which the auto companies (and most other enterprises) sell for more than the cost of materials and energy. The excess is available for wages, salaries and expansion. These are the economics of the factory; are you implying that something else is implicit in this, such as disagreements over how the excess is divided? I know counterexamples exist to invalidate most blanket claims....

#9 (history) Wed, Oct 4, 1989 (22:43): ...Yes I am implying that there is a disagreement - over several aspects of your model. First, where does the excess come from? You seem to say from the sale of the product.

I would say that it comes from the labor power of the worker. The company buys a worker's labor power. They buy the worker's ability to work. They pay him just enough to survive so he can work. During the time a worker works, the products he produces belong to the employer. The employer buys, for example, the ability of a worker to work for a day. For example in 4 hours of the worker's workday he produces enough to pay his wages. The additional 6 hours (say he works a 10 hour day) belong to the company gratis. That's where their wealth (profit) comes from. It's like the serf who had to work several days for free on his Lord's

land. Here the worker works gratis for part of his workday, but the economics is more hidden.

Second: I disagree that "the excess is available for wages, salaries and expansion." That implies that the more excess, the more expansion. The opposite is the case. Companies will make every effort to keep from investing in new machinery, updating processes of production, etc. They will make every effort to lower the wages and expand the hours of workers.

If workers' wages drop and hours expand, it is no longer profitable for a company to put in new machinery. Only high wages and shorter hours lead to expansion. Thus the society gains by supporting higher wages and shorter hours for workers, not in supporting companies efforts to gain at workers' expense....

#12 (russ) Mon, Oct 9, 1989 (09:23): Re #9: What about robot factories (which do exist)? Whose "labor" makes those products?

What about the costs of the enterprise itself? Buildings must be paid for and repaired, heated, lit, and replaced periodically. Machinery must be purchased and maintained. And *all* of this must happen before a worker can work a single hour. How much should the people who make this possible be paid (note: they are capitalists)? Remember that they put forth their effort up front, and get a return later if they get one at all.

Engineers and designers have done wonders with products, making them simpler, cheaper and more capable all at the same time. (Example: the IBM Proprinter: 3 minutes to assemble, vs. 30 minutes for an Epson.) Where does the additional value come from there, the assembly worker or the engineer?

Labor by itself is worthless. You can move stones from one end of a field to the other and back all day, taking much labor but making zero value. The value produced by labor, design, management, or any other activity can only be measured by the desire of people for its products. You could probably not sell more than a few thousand modern Model T copies

today, no matter how much labor they took....

#16 (history) Thu, Oct 19, 1989 (00:33): Re #12 - ...Re "How much should people who make this possible be paid?"

Ans. Under feudalism the lords retained the surplus wealth.

Under capitalism, the capitalists retain the surplus wealth (surplus value)....

Also Robert Owen was a factory owner in England who found that reducing the hours of labor and paying his workers higher wages benefitted him as well as his workers. He was able to make the same or a higher profit with a 10 hour day than 12 or 16 hour day other factory owners had.

And he then went to Parliament and tried to get a shorter hours bill passed.

But just as there have been different ways of creating wealth through the ages - i.e. primitive communalism, slavery, feudalism, capitalism -- to say that history stops here is it seems short sighted....But Russ, are you saying that people's desire determines value? Are you suggesting that Marshall's marginal utility is a description of our economic reality?

#18 (garima) Thu, Oct 19, 1989 (01:22): I don't think its up to anyone to create laws to regulate distribution of wealth. A free market will create its own distribution -- which WILL be just in a TOTALLY free market, each being rewarded for the exact value of his/her work or labor or effort and what it can earn.

#19(history) Thu, Oct 19, 1989 (08:22):....Are you saying that there are no laws governing the economy? That there is economic anarchy and that there is no way to understand how the economy functions, but instead just throw up ones hands and make no effort to do anything that will help the economy develop in a healthy way?

COMMODORE C64 RESET SWITCH

(Editor's Note: The staff has not been able to try out this How to article. If you need help or have questions, please write and we will

forward your correspondence to the writer.)

Have you often wished that the Commodore 64 computer came with a reset button? With the persistent crash of games, and other programs that render the computer temporarily useless, I've found the RESET button that I have added to my computer to be a big nerve saver.

Now the RESET button will break a basic program while erasing it, but it will stop most if not all machine language programs and leave them intact. With some commercial games that use total machine code, the RESET button will actually cause the game to reset and start from the beginning! Games such as Juice!, and BLACK THUNDER to name a few. And besides, using the RESET every time you would normally turn the computer off and back on to reset, can save a lot of wear on not only the computer but the power supply as well.

Yes, you must crack open your 64 to add this feature. And yes this will void your warranty. But since this is my second 64, and my warranty has been up for quite some time now, I thought what the heck, you only live once.

The tools that are needed to install your RESET button are very common and can be found in anyone's, (or Fathers), garage workshop.

Check off the tools as you find them:

- 1 Voltmeter
- Power/Hand drill
- Assorted drill bits
- Soldering Iron (not gun)
- Wire Snips
- Wire Stripper
- Phillips screwdriver (Medium size)
- Solder wick (Not necessary. But Handy!)
- Solder. (64/40 A MUST!)

Check off the electrical components as you find them:

- 1 LED
- 1 SPDT switch (push Button a Must!)
- 3-4 feet STRANDED THIN Wire
- 1 static wrist grounder. (See text)

GETTING STARTED

Check off the steps as you complete

each one. Please do check them off, trust me, it helps.

[] Take your C64 and disconnect any cables and accessories that it might have hooked up to it.

[] Remove the computer from its normal work area and place it upside down on a workbench, or table. If the spot your computer was normally used at has sufficient room, then by all means keep it there.

[] Locate the static wrist strap from your parts inventory and put it on. For the amateur, a static wrist strap keeps dangerous static voltages away from your self and your computer. (these straps can be found at your local Radio Shack store. Ask a sales person for help.) To use the strap, you must find an electrical ground somewhere. The one I use is a ground wire attached to an electrical outlet. I hooked a wire up to the screw that holds the front plate on. However, if you are not sure of what you are doing, do not use this route. I would suggest that you then find a cold water pipe, and use this as a tie point instead of the outlet. To use the strap, put the black band around your wrist and affix it with the velcro strips attached to it. Notice that there is a wire coming out of the black band. This is your grounding wire. Take the clip on the end and attach it to a longer wire. (They never give you enough cord!) Now take the other end of your extra wire and wrap the bare wire end of it around the pipe. If you're using the outlet, unscrew the plate on the outlet and wrap the bare wire around the screw. Then screw the screw back in the hole. There. You're grounded, and safe from ruining your computer from static electricity. (However, don't let anyone that has just come into your room touch you. They are NOT grounded and would therefore, pose a static threat.)

[] Take the screwdriver and open up your computer from the three screws near the keyboard. (Screws are on the back, keyboard front.)

[] Plug in your soldering iron and let it heat up.

[] As you remove all of the screws, place them in a safe place.

[] Flip your C64 back over.

[] Now lift up on the top half of your computer. The top half will swing open, because it is hinged at the back.

[] Notice that your computer might have some foil like shielding over the components. Remove this shield as best as possible.

[] With one hand holding the top half open, look inside and locate two sets of wires. One set will go from the left side on the computer to the top half of the case. This is the keyboard connector. Take your free hand and pull the connector from its socket. Carefully though! You don't want to bend any of those pins! (A little force might be necessary.)

[] After you have disconnected the cable, locate another thinner cable rising up from the bottom to the top on the right side. This is the LED connector. Pull this up in the same fashion.

[] The top half on your C64 can now be removed and set aside.

GETTING FAMILIAR

[] Take a good look at your system. Become familiar with some of the areas that we will be using next.

[] With the computer bottom still in the position it would be when you normally use it, look in the upper left hand corner of the component board. (Near the spot where you removed the keyboard connector.) You should see part of the board that sticks out the back of the case. This is the USER PORT. From here, we will tap into the RESET line.

[] Take the top half of your computer and locate where you would like to put your RESET button. Locate a spot where it will be out of the way of accidental resetting.

[] Once you have that spot located, make sure that when the switch is installed, it won't brush up against any other components in your computer once it is installed.

[] WARNING! The "Vented" area that runs to the left and right of the power LED is very thin and tends to shatter VERY easily.

[] Drill the necessary hole for your switch.

[] Bring the two halves close together with the keyboard half upside down and facing away from the back of

the C64.

THE HOOKUP

[] For the next few steps refer to the diagram following the article.

[] The place that you will be soldering to will be a small hole in the PC board. (PC = Printed Circuit) The tie point that you will be looking for will be a small hole just above a resistor bank. The resistor bank in my computer is black and runs from left to right on the board. (Your resistor bank might be a different color.)

[] With a properly cleaned SOLDERING IRON tip, melt a small dot of solder into the small hole.

[] Now take the stranded wire in your supplies and strip one end about 1/4 of an inch.

[] Take your soldering iron and tin the end of the wire by heating the wire and melting a little solder onto the wire. Continue to heat the wire until the solder is "absorbed" by the stranded wire. This will help the wire to adhere better to the PC board.

[] Now take the wire and by following diagram #2, heat up the bead of solder that you put on the PC board, and solder the wire to the board. See diagram #2.

[] Secure the wire by wrapping it around, or through one of the capacitor components near your solder connection. This will give it a more solid grip.

[] BY NO MEANS SHOULD YOU PULL UP ON THE WIRE WITH ANY FORCE WHAT SO EVER! Doing this could pull the copper trace up from the PC board. Then your in a nice mess. By executing the last instruction, you should be reasonably safe from this calamity.

HALF DONE!

By this time you should have your switch installed, and your first wire installed.

[] Take the piece of wire that is about 3-4 feet long that has one end soldered to the PC board, and cut it to a length that will easily reach the other top half of the keyboard when apart. Doing this allows easy access when needed. Hint: make sure that the remaining piece is => half the original.

[] From diagram #1 again, locate a

glob of solder that is just below the PC screw. From this point, we will take our ground for our RESET.

[] Strip and tin the second piece of wire the same as you did the last one. (Have you tinned both ends of both pieces yet...?)

[] Take your iron and heat up the glob of solder on the PC board where previously indicated. Solder the second half of the wire to this point. (You should have TWO wires now coming from the PC board.)

INSPECTING AND INSTALLING YOUR SWITCH

[] Take your switch from your parts pile. If you are not sure exactly which connections on the switch to use, refer to the diagram on the back of the switch's package, or follow the instructions below on how to identify which connections to use.

SWITCH BASICS

[] Take your voltmeter and turn its selector to OHMS Rx100. Now take any two leads on the switch and hook them up to the meter. When you push the switch, you should see the needle on the meter rise toward zero. If it only goes close, that's OK too. Mark these two leads somehow. These are the ones that you will be using.

INSTALLATION

[] Install the switch to the top half of the computer if you haven't already done so.

[] Now solder the two wires from your computer that you have just installed to the two leads on the switch that you have just marked.

WRAP UP

[] If you are sure everything is OK, and that your job was successful, lets put your C64 back together now.

[] Plug the power LED back in.

[] Plug the keyboard connector back in.

[] Put the piece of foil back over the components. (This thing can be left out since it is used to dampen the interference to your TV screen from the computer. If you are using a monitor, leave the foil out. You should have no problems. I have a TV and I left mine out, and haven't had any problems so far....

[] Screw the keyboard top piece back to the bottom piece.

[] You are finished!

[] Unplug your iron.

USE

[] With your power supply cable plugged back in, and your monitor or TV hooked up, turn on the power and wait for the C64 Basic V2 screen to come up. If it doesn't after 5 seconds, TURN THE POWER OFF! You have made an error some where. Some possible sources of error:

1. Switch
2. Soldered to wrong hole at the user port

With the screen intact, and everything seeming to run OK, push the reset button. You should see the screen shrink, cursor stop flashing, and the ready prompt come up in about 2 seconds.

Well, I believe I have covered all of the steps necessary to install your own RESET. If you seem to have trouble with the electronics aspect, ask a friend who might know. And again, its important to stress that doing modifications of this sort voids your warranty, and puts your computer in jeopardy if you don't really know enough about electronics to do a good job. Just take your time, and your RESET will work.

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DIAGRAM #1

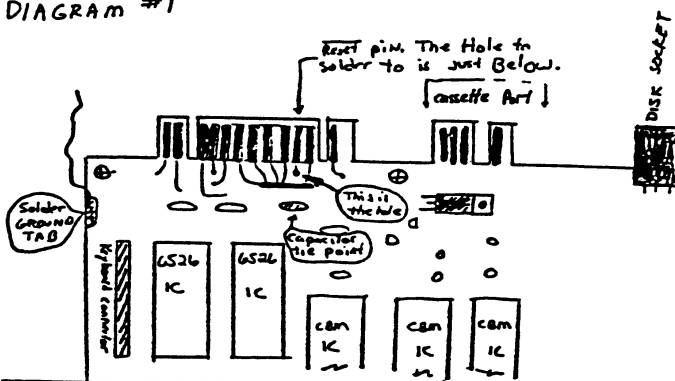


Diagram #2



Diagram #3

