

sheets at the end of the documentation.

And here's a handful more of horror stories; little things that make computers seem much more frustrating than they need be. Like the un-numbered pages in so many instruction manuals. The *IMS PIO board* manual is completely unpaginated. Since I've mentioned this manual, let me show you how a bit of thoughtlessness on the part of the writers cost me a few hours. On page 12 (if you write in the page numbers yourself) you are told how to wire the address jumper sockets. Good. There are two, the one on top is called C8, and the one on the bottom, B9. I must be dumb, because I wired the top socket on the board as shown for C8, and the bottom socket as shown for B9. Wrong. The diagram is schematic in nature, and the sockets are not that way at all. If I had bothered to check my assembly drawing or memorized the labels for each IC position I would not have been so harried. B9, shown on the bottom in the illustration is, of course, *above* C8 on the board.

I think these problems stem from this: the people who know best what their equipment is intended to do seem to know it so well that they can't tell new users what is going on. Certainly Mr. Tarbell designed his board with the idea that a code of 3C was required to get it started. But the sentence that would have made this knowledge public: "The board must be sent a byte containing 3C (in hex) to start it and then a byte E6 (in hex) to synchronize it before sending data.", does not occur. Similarly, if the PT "3P+S" board advertisements and manual stated, "This board contains the hardware for one serial port and two parallel ports with a separate status and control port for them," I would have had fewer complaints. If the manufacturers would *test their assembly and user manuals on a few people not familiar with the design of the module*, they would quickly find out how to improve their style. And, if we users would stop buying badly kitted equipment, and demand well-written manuals, we'd get improved kits and better written manuals.

The current software situation is even worse. But that is a topic for another time.

A WORD ABOUT THE AUTHOR

Jef Raskin has been playing with computers since late in grammar school. Not that he was often late. He has been Director of a small computer center at U.C., San Diego, and taught such courses as computer programming, computer animation, computer music at San Diego, as well as a number of other colleges, universities, and in his basement where he has had both an Altair and an IMSAI running. He is well known for his heretical belief that people are more important than computers, and that computer systems should be designed to alleviate human frailties, rather than have the human succumb to the needs of the machine.

Editor's Note: Further lurid comments by Jef may be found on page 8 of August, 1976, *Datamation*.

A TIP ON SOLDERING FROM JIM DAY

A new type of solder, designed to prevent the dissolving of printed circuit traces during soldering, has been developed by Multicore Solders, Westbury, NY 11590. Called Ersin SAVBIT, this copper-loaded alloy also reduced the pitting of copper soldering iron tips. As every computer hobbyist knows, it can be a real nuisance to have to file a soldering iron tip every few minutes. (Iron-plated tips don't pit as easily, but cost more.)

IMSAI OWNERS - BEWARE OF THE MEMORY CLOBBERING PHANTOM!

You're perking along and suddenly the machine blows up. Careful autopsy of the wreckage reveals that a string of memory locations has been zapped to 00 or 02 or 06. And this is happening several times a week. The phantom strikes! I have spent nearly a month chasing this bug and have found that the culprit is the deposit one-shot (U-17) on the front panel. It gets triggered while the machine is running by noise on the power line which passes right by the one-shot timing capacitors - a major design boo-boo. There are several approaches to fixing this bug: You can disconnect the power switch somewhere else. This may still leave you vulnerable to really large noise spikes. You can install a pi filter on the power line (two 8 uH 5 amp inductors in series with each side with two .03 uF capacitors across) or you can disconnect the A input of the one-shot and connect it instead to the Q output of the Run/Stop flip-flop. That is, clip pin 9 of U-17 from ground and jumper it to pin 5 of U-22. This effectively inhibits the one-shot by holding the A input high while the machine is running. This last seems to work for me.

Let me know how yours is doing.

Pete Cornell

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BIBLICAL MATHEMATICS

We hear that Noah told the animals in his ark to multiply, and two snakes refused to do so because they were adders. Noah overcame this objection, however. He quickly placed the snakes on a rough-hewn wooden table and told them to follow his command, for, as we all know, adders can multiply by using a log table.

-Snickered around PCC