

# Coke never put you in jail for blowing on their bottle

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Here's a few tekkie bites regarding the nuts and bolts of our current problem. The information is not perfect, but I'd say its mostly correct and may assist getting pointed in the right direction vis a vis technology. A computer expert would be a must-have for any hearings.

Source code is the programming language underlying any application. The source code may be written in any one of a thousand possible computer languages including Java, C++, Pascal, Basic or even Unix. Typically in proprietary software the source code is compiled (converted into machine language) and distributed as binary software. End-users are not able to view the original program, nor are they able to alter it. Technically it can be reverse engineered, but that is a prohibitively costly pain in the ass. A great deal of the original programmer's instructions, including commentary, notations, and specifications, are not included in the translation from source to object code (the assembly or compilation).

EPROM is an acronym for erasable programmable read-only memory, and pronounced ee-prom. Attached are pictures of an EPROM on two chips and three chips respectively - the EPROMs are to the right, just under the ribbon cable. EPROM is a special type of memory that retains its contents until it is exposed to ultraviolet light. The ultraviolet light clears its contents, making it possible to reprogram the memory. The special EPROM transistors are individually programmed by an electronic device that supplies higher voltages than those normally used in electronic circuits — a special device called a PROM programmer or PROM burner — though many modern EPROMs can be erased and reprogrammed via computer instructions without removing them from the device in which they are installed (see below). An EPROM differs from a PROM in that a PROM can be written to only once and cannot be erased. EPROMs are used widely in personal computers because they enable the manufacturer to change the contents of the PROM before the computer is actually shipped. This means that bugs can be removed and new versions installed shortly before delivery. EPROMs on the 8000 can be and are modified by CMI over the internet – the 5000 may have some way of connecting through modem, phone line, or other means.



To give an example of an EPROM that has been in common usage - all computers are driven by their BIOS (Basic Input/Output System) — programs stored in the EPROMs (they are more and more using EEPROM or flash memory, which is electrically erasable). BIOS refers to the software code run by a computer when first powered on. The primary function of BIOS is to

prepare the machine so other software programs stored on various media (such as hard drives, floppies, and CDs) can load, execute, and assume control of the computer. The BIOS is built-in software that determines what a computer can do without accessing programs from a disk. On PCs, the BIOS contains all the code required to control the keyboard, display screen, disk drives, serial communications, and a number of miscellaneous functions. BIOS normally reside within flash EPROM chips. An improperly executed or aborted BIOS update can render the computer or device inoperable.

EPROMs are driven by software. What we are seeking is the EPROM software, produced in a manner that it can be understood exactly what the software is doing - the source code. Only by reviewing the source code can a defendant accurately understand and cross-examine the "marching orders" given to the Intoxilyzer computer(s).

The microprocessors either are the EPROMs or draw their programming from the EPROMs. The microprocessors have the ability to control or alter the control limits. This type of controller uses algorithms (a programmed procedure for solving a problem) to control thousands or more likely millions of processes. Algorithms are written to provide the microprocessor with a logical sequence of events for solving a problem. Alternatively, or additionally, the EPROMs could be programmed with certain fixed-limit controls, absolute limits for processing and reporting breath tests, SQAPs or COBRA data. In short, the prosecutor, law enforcement, the courts and the defendant have no clue as to the nature of the programming or the programmed directives in place for operating these machines. We have been operating on blind faith that the reported results bear some similarity to the truth.

Of serious concern is whether or not the Intox devices are actually self-contained and controlling themselves. The size of the computer needed for control depends upon the number of loops to be controlled and whether the system is set up as an independent (each control system is self standing), centralized (one computer controls all), or a distributed system (two or more computers talking to each other). Are the Intoxilyzers updated so frequently that they are, in effect, run from CMI headquarters through a mainframe computer? No one really knows.

And think, these updated versions are installed on the EPROMs to alter the process or result because some aspect of the machine performance was undesirable, unreliable, incorrect or inadequate. Changes are not made because a machine is operating at its optimal level. And, CMI is benchmarking for profit, not for accurate, fair results - an algorithm leveraged by the microprocessor that runs 100,000 quick process loops for a stress-test of one kind or another can make a slight adjustment to the result which may ultimately be significant after 100,000 passes. Or, a learning algorithm may self-correct certain bugs to cover up detection - a computer program that covers up its own screw-ups.

So, to boil this down . . . let's say we have a calculator, and let's say we put in 7x5 which should equal 35. If the calculator is correctly programmed (source code), the result will be 35. If not correctly programmed, the result would be something else. The problem we face is we don't know 7, we don't know x, we don't know 5, and we certainly don't know how the answer is calculated or if the answer that we are reading was accurately calculated. In short, we don't know

squat.

If Coca-Cola has to turn over their secret formulas, by order of the court and under protective order, a smaller business such as CMI can surely turn over their "secret formula." In 1985, Federal District Court in Delaware ordered that the Company produce the complete formulae for diet Coke, new Coke, old Coke, caffeine-free Coke and certain experimental low-fat colas. Coca-Cola Bottling Co. of Shreveport, Inc. v. Coca-Cola Co., 107 F.R.D. 288, 296-300 (D.C.Del.,1985)

And . . . Coke never put you in jail for blowing on their bottle.