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Volkswagen's Diesel Fraud Makes Critic of Secret Code a Prophet

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About New York

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A Columbia University law professor stood in a hotel lobby one morning and noticed a sign apologizing for an elevator that was out of order. It had dropped unexpectedly three stories a few days earlier. The professor, Eben Moglen, tried to imagine what the world would be like if elevators were not built so that people could inspect them.

Mr. Moglen was on his way to give a talk about the dangers of secret code, known as proprietary software, that controls more and more devices every day.

“Proprietary software is an unsafe building material,” Mr. Moglen had said. “You can’t inspect it.”

That was five years ago. On Tuesday, Volkswagen admitted it had rigged the proprietary software on 11 million of its diesel cars around the world so that they would pass emissions tests when they were actually spreading smog.

The breadth of the Volkswagen scandal should not obscure the broader question of how vulnerable we are to software code that is out of sight and beyond oversight.

Here is how the Volkswagen scheme worked, according to the federal Environmental Protection Agency: The cars' software turned on the pollution-control equipment only during inspections. No human intervention needed. The software could silently deduce that an inspection was taking place based on the position of the steering wheel (cars hooked up to emissions meters don't make turns), the speed of the vehicle, how long the engine had been running and barometric pressure. The driver and the inspector were none the wiser.

When the test was done and the car was on the road, the pollution controls shut off automatically, apparently giving the car more pep, better fuel mileage or both, but letting it spew up to 35 times the legal limit of nitrogen oxide.

This cheating was not discovered by the E.P.A., which sets emissions standards but tests only 10 to 15 percent of new cars annually, relying instead on "self certification" by auto manufacturers. The scam came to light when engineers at West Virginia University road-tested Volkswagen cars that had passed emission inspections. The cars, the engineers discovered, actually pumped out more pollutants when they were in the real world. Far from trying to make trouble for Volkswagen, the engineers had been hired by the International Council on Clean Transportation, a clean-air advocacy group that hoped to use Volkswagens to show European regulators how efficiently diesel cars could meet the strict emissions limits set by the United States.

After months of denials, Volkswagen admitted it had programmed cheating into the software.

Mr. Moglen, a lawyer, technologist and historian who founded the Software Freedom Law Center, has argued for decades that software ought to be transparent. That would best serve the public interest, he said in his 2010 speech.

"Software is in everything," he said, citing airplanes, medical devices and cars.

“We shouldn’t use it for purposes that could conceivably cause harm, like running personal computers, let alone should we use it for things like anti-lock brakes or throttle control in automobiles.”

On Tuesday, Mr. Moglen recalled the elevator in his hotel.

“Intelligent public policy, as we all have learned since the early 20th century, is to require elevators to be inspectable, and to require manufacturers of elevators to build them so they can be inspected,” he said. “If Volkswagen knew that every customer who buys a vehicle would have a right to read the source code of all the software in the vehicle, they would never even consider the cheat, because the certainty of getting caught would terrify them.”

That is not how carmakers or even the E.P.A. see things. The code in automobiles is tightly protected under the Digital Millennium Copyright Act. Last year, several groups sought to have the code made available for “good-faith testing, identifying, disclosing and fixing of malfunctions, security flaws or vulnerabilities,” as Alex Davies reported last week in Wired.

A group of automobile manufacturers said that opening the code to scrutiny could create “serious threats to safety and security.” And two months ago, the E.P.A. said it, too, opposed such a move because people might try to reprogram their cars to beat emission rules.

The penalties that Volkswagen faces have not yet been toted. On Monday, a federal judge sentenced the former head of a peanut company to 28 years in prison for knowingly shipping peanuts with salmonella, causing or contributing to nine deaths.

Poisoned peanut butter and poisoned air are different injuries to public welfare, but both ought to be caught long before they can kill people.

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