

VW discloses origin of diesel deception: Meeting U.S. NOx rules was initially 'impossible'



Automotive News

December 10, 2015

WASHINGTON -- Volkswagen said today that engineers installed illegal emissions software in 2.0-liter diesels sold in the U.S. after finding it initially "impossible" to meet tough U.S. limits on nitrogen oxide emissions legally.

The disclosure, made early today by VW Chairman Hans Dieter Poetsch in a press conference in Wolfsburg, Germany, marks the first time the company has explained the origins of the emissions crisis that has upended the company and prompted investigations by legal and regulatory authorities worldwide hundreds of U.S. lawsuits.

Poetsch said the company still believes a "comparatively small" number of employees were directly responsible for the emissions conceit. **In a statement**, VW said it had suspended nine managers who "may" have been involved in the emissions manipulations.

Poetch also blamed process failures and noted that some parts of the company tolerated rule violations that allowed the conceit to continue.

“The key finding is that we are not talking about a one-off mistake but a whole chain of mistakes that was not interrupted at any point along the timeline,” Poetsch said through an interpreter at the press conference.

The illegal 2.0-liter software’s roots traced back to 2005, when VW made a “strategic decision to launch a large-scale promotion” of diesel vehicles in the U.S. market, according to a VW statement.

At that time, U.S. regulations limiting the amount of nitrogen oxide emissions were far more stringent than those in Europe. Engineers were working to develop a new 2.0-liter diesel engine for the U.S. market, dubbed the EA 189, but were unable to engineer an emissions system that could comply with the stringent NOx requirements that also achieved cost and timing targets, Poetsch said.

In turn, the engineers developed software that contained two emissions strategies: one to yield low NOx in lab tests and another for real-world driving that produced significantly higher NOx levels.

“Looking back, we regrettably have to recognize that the developers involved in the EA 189 project quite simply could not find a way to meet the tougher NOx limits in the United States by permissible means, or at least they could not find a way they felt at the time to be meaningful and that fitted the timeframe and the budget they had been given,” Poetsch said.

Roots of the scandal

Early on, the deceit worked.

The first U.S. vehicle to go on sale with the EA 189 engine containing illegal emissions software was the 2009 Jetta and Jetta Sportwagen. Volkswagen press releases heralded the model’s arrival as a silver bullet -- a compact car with almost hybrid-like fuel economy that was still fun to drive and less expensive than a hybrid.

The Jetta TDI won scores of accolades and “green car” honors and helped to carve out a niche for Volkswagen in the U.S. auto market. Volkswagen soon deployed its “clean diesel” technology to the Golf, Beetle and Passat in the years that followed and before the EPA announced the illegal software in September, diesels had accounted for more than 20 percent of VW’s 2015 U.S. sales.

And even after switching to more effective emissions control technologies, VW continued to use the software.

The original EA 189 diesel used a “lean NOx trap” exhaust system to reduce NOx tailpipe emissions.

It was a novel approach. Other competitors readying clean diesels for the U.S. market used a urea-based selective catalytic reduction after treatment system to reduce NOx. The systems were proven by competitors to be effective in reducing NOx to permissible levels, but were more expensive than the lean NOx trap used on the first-generation EA 189 engine.

Later generations

VW changed course, launching the 2012 Passat TDI with the second generation of VW’s EA 189 engine with its own SCR exhaust aftertreatment system. VW later equipped the technology on all of its 2.0-liter diesel models in U.S. by the 2015 model year when its third-generation diesel engine arrived.

Yet the software that calibrated one emission setting for the lab and another for the road continued to be used, and the new SCR systems weren’t used to their full NOx-reduction potential. All the while, VW’s TDI owners regularly reported real-world fuel economy far in excess of the already high EPA label values.

“Later down the line, when the effective technical solutions to reduce NOx became available, these solutions were not in fact used as they should have been done, apparently in the mistaken interest of customers,” Poetsch said.

Poetsch said the software could “vary” the amount of urea injected into the SCR system to clean NOx.

In general, injecting lower amounts of urea would yield better fuel economy, but higher NOx emissions. Higher “doses” would have cut NOx, but lowered fuel economy.

“As a result NOx levels on the test bench were particularly low but they were significantly higher on the road,” Poetsch said. “With hindsight, this all sounds almost a little banal, but that is perhaps why we find the whole thing so painful.”

Poetsch said the actions go against the values of Volkswagen and its 600,000 employees.

“We still do not know what these people involved in this issue from 2005 to the present day were fully aware of the risks they were taking and of the potential damage they could expose the company to,” said Poetsch, “but that’s something else that we’re going to find out.”