Bosch's popular diesel engine software was not preprogrammed to cheat

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DETROIT/WASHINGTON (Reuters) -- A popular diesel engine management program used by several top automakers, including Volkswagen AG, was not preprogrammed to detect when a vehicle was undergoing laboratory emissions testing, according to the U.S. Environmental Protection Agency and a former EPA official.

Instead, VW had the engine software modified to turn on the vehicle's emission control system when it was being tested in the lab, on a rolling test bed called a dynamometer, then turn it off when the vehicle was on the road, the EPA said.

Daimler AG's Mercedes-Benz, which uses the same engine management system made by German supplier Robert Bosch GmbH,

said late Tuesday that its diesel cars "are not fitted with software that can tell that the vehicle is on a test rig."

BMW AG, also a customer of Bosch's engine software, said on Wednesday that its emissions control systems are active both on the test bench and on the road.

Volkswagen has acknowledged that it modified the engine software to circumvent U.S. emissions standards. On Wednesday, the company did not respond immediately to a request for comment.

Because Bosch provides the engine control module, called EDC17, and basic software for nearly all the four-cylinder diesel cars sold in North America, lawmakers probing the Volkswagen scandal have raised concerns that it would be easy for other manufacturers to also circumvent state and federal emissions rules.

Evidence that basic software such as that supplied by Bosch could be easily modified by an automaker to detect lab testing conditions could also raise questions about whether the U.S. needs to change its lab-based emissions testing regime, according to a congressional aide close to the House Energy and Commerce Subcommittee on Oversight and Investigations.

A spokesperson for the U.S. Environmental Protection Agency said: "It is not true that standard automotive software detects when a vehicle is on a dynamometer."

Bosch said in a statement on Tuesday that it supplies components such as engine management systems to automakers' specifications, and that "how these components are calibrated and integrated into complete vehicle systems is the responsibility of each automaker."

It is not clear exactly what role Bosch played, how closely it worked with Volkswagen to modify the engine management software, and

how much it knew about Volkswagen's intentions to use software in order to cheat on emissions standards.

Bosch declined to comment on the questions, saying its business relationships with customers were confidential and it could not divulge details.

Bosch also warned VW in 2007 that it would be illegal to use its basic engine management software for other than testing purposes, the German newspaper *Bild am Sonntag* reported last week.
The EPA on Sept. 18 disclosed VW's scheme to illegally circumvent federal emission standards with the special software. VW eventually admitted that the software was installed on 11 million vehicles from 2008-2015, including nearly 500,000 in the U.S. and more than 8 million in Europe.

Additional software
Experts said that a basic engine control module and software would not manipulate the vehicle's emission controls, without additional software code of the kind VW is believed to have employed as part of its cheat strategy.

A vehicle manufacturer "has to write additional software code" to determine when the vehicle is being tested for specific emission levels, said John German, a former EPA official and a senior fellow at the International Council on Clean Transportation, which commissioned the 2013 U.S. study that called VW's diesel emissions into question.

"It is highly unlikely that this additional software is in any computer that does not have a defeat device, as the code requires significant additional resources to write and it would be of no use unless a defeat device was being used," German said.

Regulatory concern about defeat devices dates back to the Nixon administration, when the EPA notified automakers in 1972 that they

should not use "sensors and devices" that could compromise a vehicle's emission control system and the EPA would not certify vehicles equipped with such devices.

Detecting road conditions

Software that can automatically detect road conditions to adapt engine performance and fuel consumption is common in today's cars, said Jim Freudenberg, director of the University of Michigan's automotive engineering program.

For example, if a fuel control sensor breaks, "you don't want your car to shut down in the middle of the road," Freudenberg said. Instead, the software switches to a mode that errs on the side of injecting more fuel. "You run in a suboptimal mode to not compromise the engine," he said.

This kind of flexibility has allowed carmakers to drastically improve fuel efficiency and decrease emissions, Freudenberg said. "But apparently it can also let you do something like cheating the EPA," he said.

U.S. lawmakers will want answers when they question VW's U.S. boss Michael Horn on Thursday. Two senior EPA officials also will testify at the congressional hearing.