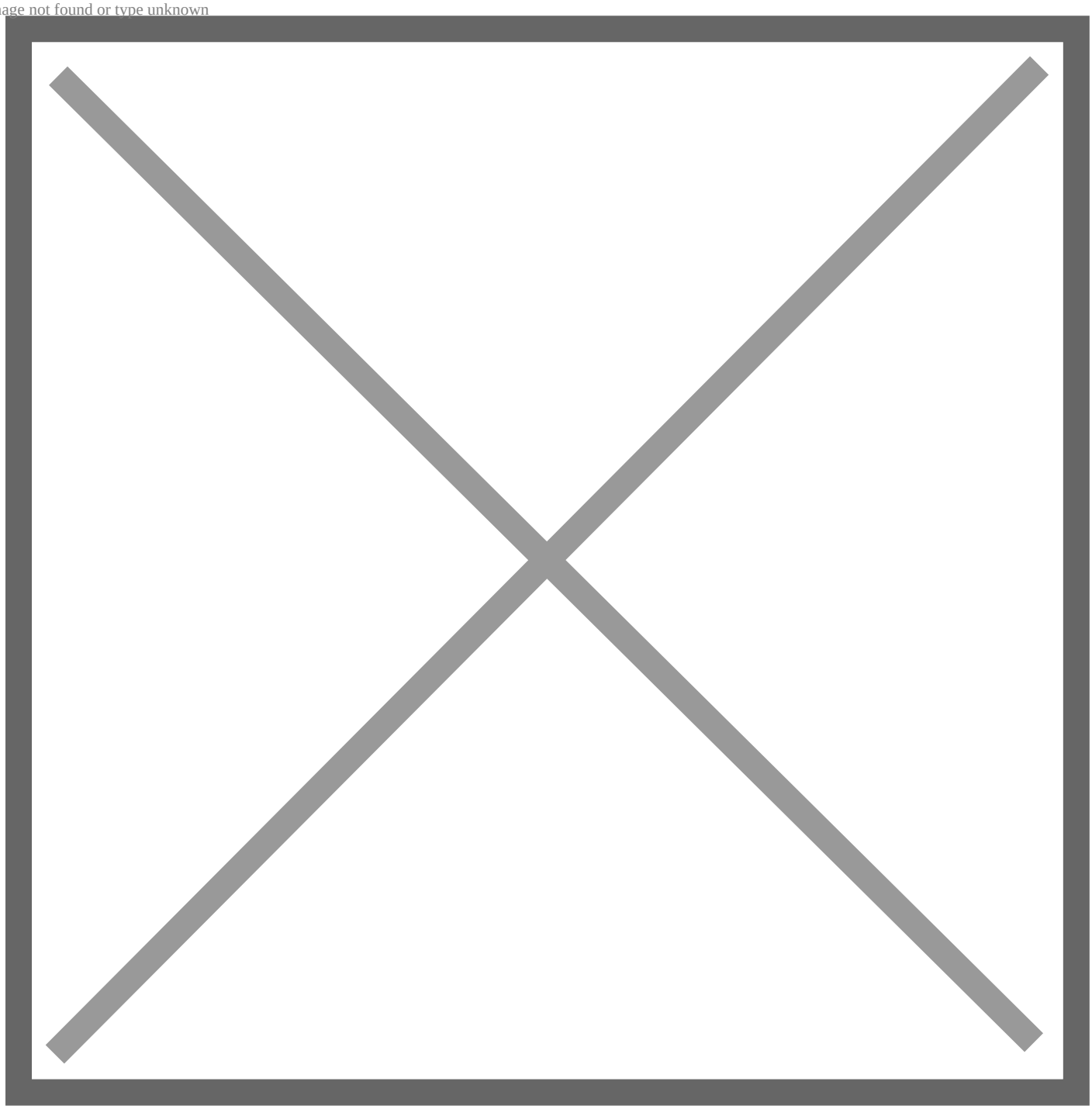
Comprehensive Analysis Raises Concerns About Gilbert Congressional Testimony, ABC News Segment

March 08, 2010

Image not found or type unknown



2010 Toyota Electronic Throttle Control 004

Click here to watch the March 8 webcast (viewers will need to register)

Sequence and Nature of Artificially Manipulated Faults Unrealistic,
Televised "Unintended Acceleration" Staged With Virtual Remote Throttle Control

TORRANCE, Calif., March 8, 2010 — Today, during a live webcast, Toyota raised serious concerns about the validity, methodology and credibility of a demonstration of alleged “unintended acceleration” in a Toyota Avalon by Professor David Gilbert of Southern Illinois University and depicted in ABC News broadcasts and on-line segments.

A comprehensive analysis conducted by a world renowned engineering group, as well as testing by Toyota, has concluded the following about Professor Gilbert’s demonstration:

• The vehicle’s electronics were rewired and reengineered in multiple ways, in a specific sequence, and under conditions that are virtually impossible to occur in real-world conditions without visible evidence
• Toyota vehicle electronic systems were actively manipulated to mimic a valid full-throttle condition
• Substantially similar results were successfully created in vehicles made by other manufacturers.

In the demonstration dramatized by ABC on February 22, Professor Gilbert, assisted by segment reporter Brian Ross, asserted that he had detected a “dangerous” flaw in the Toyota electronic control system that he alleged could lead to unintended acceleration.

The following day, Professor Gilbert offered a preliminary report of his findings in testimony to the U.S. House of Representatives Energy and Commerce Subcommittee on Oversight and Investigations.

Engineers at Exponent, one of the country's leading engineering and scientific consulting firms, as well as Toyota engineers, have reviewed and recreated Gilbert’s demonstration with substantially similar results in representative vehicles of other makes.

Separately, at Toyota’s request, Dr. J. Christian Gerdes, associate professor of mechanical engineering at Stanford University and the director of the Center for Automotive Research at Stanford (CARS), conducted an independent review of Professor Gilbert’s testimony and the preliminary report presented to Congress.

Their findings were demonstrated today at a news conference during which the accelerator circuitry of a Toyota Avalon, as well as a sampling of well-regarded and popular competitive makes, was rewired and manipulated as Gilbert did in his demonstration.

Kristen Tabar, general manager of electronics systems, Toyota Technical Center, summarizes three of the major concerns with the artificial nature of Professor Gilbert’s demonstration.

“First, an electrical circuit that has been reengineered and rewired will not behave as it was originally designed and engineered,” said Tabar.

“Second, no automaker can or should be expected to design detection strategies for artificially created events in the absence of any evidence that such an event can occur in the real world.

"Third, if the artificial condition created by Professor Gilbert had occurred in the real world, it would have left readily detectable fingerprints."

Exponent and Toyota engineers have found no evidence to suggest that any of the steps of Professor Gilbert's demonstration exists in the real world. Thus, the fact that the Toyota Avalon used by Professor Gilbert did not show a Diagnostic Trouble Code after his demonstration does not indicate an undetectable safety defect. The same is true of the representative vehicles of other manufacturers tested by Exponent and Toyota.

Professor Gilbert's reengineering and rewiring of the vehicle's electrical system involves the following manipulations in a specific sequence. First, the protective insulation on two separate wires that carry the accelerator pedal position signals to the Engine Control Module must be individually cut or breached. Next, these wires are connected to each other through a 200 Ohm resistor.

This contrivance, by itself, did not cause an increase in engine speed. To cause an increase in engine speed, it is necessary to cut the insulation on a third wire, the 5-volt power supply to the accelerator pedal, and force a low resistance connection between the power supply and the secondary signal wire.

The resulting increase in engine speed is a result of the subsequent artificial and sudden application of the 5-volt power supply to this signal line with the rewired circuit. When subjected to similar unrealistic reengineering and rewiring, the competitive vehicles evaluated by Exponent and Toyota achieved substantially similar results with varying levels of resistances.

This manipulation of electrical components and a power source created artificial voltages that the engine control module, or ECM, would interpret as valid accelerator pedal signals. In essence, this test created a virtual, remote control accelerator pedal that replicated the vehicle's own normally functioning accelerator pedal.

Also contrary to statements made in the ABC News story, had short circuits of the kind artificially created by Professor Gilbert occurred in real-world driving conditions, they would have left visible evidence such as damage or deterioration of the wiring and components.

As revealed in their testimony before Congress, Professor Gilbert's Preliminary Report was commissioned by Sean Kane, a paid advocate for trial lawyers involved in litigation against Toyota and other automakers. Mr. Kane also appeared on the ABC News broadcast in support of the claim that Professor Gilbert's demonstration revealed a flaw in the electronic throttle control system that could lead to "runaway" Toyota and Lexus vehicles. The relationship between Mr. Kane, Professor Gilbert and the trial lawyers who support Mr. Kane's advocacy was not revealed by ABC News during the newscast, nor was Toyota offered an opportunity to view the demonstration or given time to respond.

Toyota believes that the public and Congressional committees have been misled by Professor Gilbert's demonstration and the dramatization of it by ABC News. This has cast unwarranted doubt on the safety of Toyota and Lexus vehicles. Toyota remains confident in the integrity of the electronic throttle control system in its vehicles and there has been no reliable evidence of any kind to the contrary presented to the media or to Congress. Toyota's electronic systems have multiple fail-safe mechanisms to shut off or reduce engine power in the event of a system failure. Extensive testing of this system by Toyota has not found any sign of a malfunction that could lead to unintended acceleration.

Toyota has commissioned Exponent to conduct a comprehensive analysis of the electronic throttle control systems in Toyota and Lexus vehicles. No limitations of any kind were imposed on Exponent by Toyota. This evaluation is ongoing. An interim report of Exponent's findings has been provided to Congress and establishes the functionality of the electronic throttle control fail-safe systems. The final results of Exponent's exhaustive

analysis will be made public when completed. As with all such reliable engineering analyses, Exponent's final results will provide the data and information necessary for others to validate Exponent's conclusions.

# # #

Exponent, Inc. is a leading engineering and scientific consulting firm with expertise in over 90 technical disciplines. Exponent has a full-time staff of over 900 located in 23 international offices. Exponent's multidisciplinary organization of engineers, scientists, physicians and business consultants, addresses complicated issues facing industry and government today. The firm's consultants provide product design analysis, development, and testing; analyze failures and accidents to determine their cause and prevent their recurrence; and evaluate environmental and human health concerns to find cost-effective solutions. Exponent is certified to ISO 9001 and is authorized by the General Services Administration (GSA) to provide professional engineering services.

For information about Exponent capabilities and credentials visit www.exponent.com

MEDIA CONTACTS:
Toyota Motor Sales, Corporate Communications
310 468-5297
310 468-7359

Video of March 8 Webcast (viewers will need to register)

Exponent: Evaluation of Dr. Gilbert's Demonstration

Exponent: Evaluation of Dr. Gilbert's Demonstration (PowerPoint)

TMC Report: Duplication of Manipulated Faults in ETCS

Manipulations Used to Create a Fault Condition

Biographies:

Dr. Matthew Schwall, Managing Engineer of Exponent's Vehicle Engineering

Dr. Shukri Souri, Principal of Exponent's Electrical and Semiconductors practice and Office Director, New York

Kristen Tabar, Toyota Technical Center

Related Links:

Toyota Update Regarding Dr. Chris Gerdes (March 11, 2010)

Toyota Statement on Rebuttal of Professor Gilbert's 'Unintended Acceleration' Demonstration (March 5, 2010)

Toyota Update: Our Work With Exponent (Feb. 23, 2010)

Exponent's Letter to Congress (Feb. 23, 2010)

Toyota's Statement Regarding ABC News Broadcast Simulating Electronic Engine Controls (Feb. 22, 2010)

2010 Toyota Electronic Throttle Control Webinar (Feb. 22, 2010)

Toyota Update: Exponent Report on the Company’s Electronic Throttle Control System (Feb. 13, 2010)

Exponent's Statement of Qualifications (February 2010)