Statement of Clarence M. Ditlow
Executive Director, Center for Auto Safety
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On Vehicle Electronic Controls and Sudden Unintended Acceleration
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Mr. Chairman, members of the Committee, thank you for the opportunity to appear before you on vehicle electronic controls and sudden unintended acceleration. Sudden unintended acceleration has always been recognized as a serious safety hazard. The very first recall obtained by NHTSA's Office of Defects Investigation (ODI) was on a throttle sticking open in Chrysler vehicles (ODI Investigation 003). The first large and still the fourth largest recall ever was for 6.7 million 1965-70 Chevrolets with defective engine mounts (71V-235). Early sudden acceleration recalls involved mechanical failures that were easy to detect and remedy. Beginning in the late 1970's, electronic controls began to be introduced in vehicles which made it difficult to detect the cause of a sudden acceleration event.

In the mid-1970's NHTSA anticipated the increased use of electronics in vehicles and potential hazards associated with their use beginning with the use of electronic ignitions in 1975. Lacking resources and personnel to adequately evaluate electronic controls, the agency contracted with the Institute for Telecommunications Sciences to assess the potential and methods for electronic magnetic interference (EMI) to cause malfunctions in the electronic controls in vehicles.[1] In a second research phase, the Institute produced Guidelines for Electromagnetic Compatibility (EMC).[2] Although the agency intended to develop safety standards for electronic controls, no standards were issued.

With the advent of electronic ignition systems and cruise control systems in the late 1970's and early 1980's sudden acceleration complaints without clear mechanical failures began to appear. NHTSA opened more and more sudden acceleration investigation. Some resulted in recalls for electronic control failures. The first two Toyota sudden acceleration recalls were for replacement of the cruise control computer which could cause sudden acceleration on start up (86V-132, 90V-040). CAS filed a defect petition (DP86-08) on the vehicles recalled in 1990 which was denied because there wasn't a "reasonable possibility" that a recall order would issue. More complaints occurred and led to a new investigation (PE90-021) and a recall.

The early Toyota investigation showed the problems and the luck associated with SUA investigations. NHTSA randomly two vehicles that repeatedly demonstrated SUA. NHTSA knew the problem was in the cruise control computer because if they moved the computer from

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[1] "Investigation of Electromagnetic Interference Effects on Motor Vehicle Electronic Control and Safety Devices" - Oct. 1975

[2] "Electromagnetic Interference Effects on Motor Vehicle Electronic Control and Safety Devices, Volume I - Summary" ; NHTSA Study: "Electromagnetic Interference Effects on Motor Vehicle Electronic Control and Safety Devices, Volume II - Measurements, Analysis and Testing"; NHTSA Study: "Electromagnetic Interference Effects on Motor Vehicle Electronic Control and Safety Devices, Volume III - Automotive EMC Guidelines" - Nov. 1976.

the bad Toyota that had SUA to a good Toyota that did not have SUA, the good Toyota developed SUA. When NHTSA tested the vehicles at VRTC, it could not find a failure mode.[3] Ultimately, NHTSA gave the computers to Toyota to take to Japan and test. Although Toyota found a failure mode in the printed circuit board, details of the findings were kept confidential. Public materials from this investigation are at http://www.autosafety.org/ea08-045-documents. The limited SUA cruise control computer recall covered only 2 out of 54 complaints cited by NHTSA in the investigation. When asked why the recall wasn't larger, Toyota said it couldn't find a problem.

With SUA, one is hunting the proverbial needle in a haystack. The FARS database is virtually useless except to find Toyota crashes in which there was a death. FARS does not pinpoint defects or failure modes. The best example is that FARS often fails to record that there was a fire involved in a crash, much less that fire was the Most Harmful Event.

The EWR death and injury database has potential but it's not used by NHTSA. It consists of a summary listing M/M/Y, partial VIN, state and date of crash along with the possible component involved. Because there are only 22 components for passenger vehicles, it's impossible to tell what the defect involved is. Although NHTSA has the authority to get the underlying documents, it seldom does so. Out of 301 EWR summary reports that could be linked to Toyota SUA through 2009, NHTSA requested records on only 16 cases.

NHTSA has its EDR database on 58 Toyota SUA incidents but how they were selected is unknown and come nowhere close to representing a valid sample. For example the sample includes no 2002-06 Toyota Camry's which have twice as many reports of deaths linked to SUA as the post-2006 Camrys. Unlike the Special Crash Investigation database, the EDR database has no in-depth crash investigation information. There are four Toyota SUA cases in SCI including two that could not find any driver error.

SUA has always been a problem area for NHTSA - it requires significant resources the agency doesn't have. Only a concerted effort that looks into every source of information can get the job done. It's not enough to conclude as the agency did in 1989 that if a vehicle failure mode cannot be found, it must be driver error.

[3] 1st Recall Request & VRTC Test - 2-28-86