

## **NHTSA 1989 An Examination of Sudden Acceleration Refuted**

The final opinion of this study was that sudden acceleration incidents are a result of operator error. This study was initiated in 1987 by the Administrator of NHTSA because of the thousands of reports regarding sudden acceleration on all makes of vehicles NHTSA was receiving. Because of this initiation date the latest model included in the study was 1986 Mercedes 300E. This study was completed and published in 1989. It was never subjected to any peer review. The following are some of the shortcomings of this investigation. For a more in depth study of sudden acceleration and the shortcomings of this study see --- A Timeline of Sudden Acceleration and McMath Denial Rebuttal.

The panel staff includes three members who work for a company that has as its primary function research for the automotive industry, and two members who have done significant amounts of consulting to the automotive industry. The NHTSA administrator at the time of this study is now a highly paid PR consultant to the automotive industry. A simple internet search will reveal the real affiliations of these investigators.

The study involved the evaluation of ten vehicles, with above average SAI reports (whatever this means, one of many unexplained or undocumented statements), ranging in age from 1983 to 1986 models. The comment is made that one thing these vehicles have in common is an automatic transmission. They also have electronic fuel injection and cruise controls in common. It is hard to imagine that the use of 10 vehicles to represent millions is a representative sample.

The definition given for SAI in this report is "...unintended, unexpected, high-power accelerations from a stationary position or very low initial speed accompanied by an apparent loss of braking effectiveness ..." This is actually a good definition of a stop to sudden acceleration event. However, the study tended to make the aspect of the "... apparent loss of braking effectiveness..." equal to some form of actual loss of or malfunctioning of the brakes, and, therefore, another thing that must go wrong in an SAI. This feeds into the multiple fault fallacy. The brake effectiveness testing that was done under wide open throttle (WOT ) conditions was extremely limited in its scope and without real incident conditions value, or even within the discussion of how braking operates as given in the document. The discussion of braking acknowledges the effect of brake pumping on the power assist systems and pedal reaction or feel and even of power assist leakage for a sitting vehicle, but never tests these conditions in relation to braking effectiveness. Instead, the worse test case done is the application of the brake after 2 seconds of accelerator application, and the accelerator engagement maintained. The result was that the vehicles were brought to a stop over a longer distance and time span. The vast majority of defined SAI events last ten seconds or less before impact. The condition of the power assist at the beginning of the event and any pumping during the short time span will drastically effect braking. In fact, if the brake is on at the time of start up and not released until after shifting the power assist will be depleted. All of these facts show the inadequacy of the tests that were done by NHTSA. It should be pointed out that whether or not the brakes can stop a car with the accelerator engaged is not at issue, since a SAI should not occur in a "safe" vehicle under any circumstances. Also, no vehicle was designed with brakes that will stop it while the accelerator is still being applied; this was never a design consideration because under normal circumstances a driver would not deliberately depress both pedals. Finally, in tests that have been conducted where the accelerator is held on for three seconds and then the brake is applied it was impossible to stop rear wheel drive vehicles; it was only possible to reduce their speed.

The discussion and testing of EMI is limited and flawed. The testing actually done was nothing more than a continuation of some initial testing previously done by TSC on four Audi cruise control units. There was no actual testing done on any complete vehicle with due consideration for the interaction of operating components under the hood and connected together, the compound signal conditions that this creates, and those that exist in the normal external environment. The closest that this testing came to any replication of the EMI problem was that the data recording equipment was reacting to the EMI and malfunctioning which is a perfect example of EMI effects due to a combination of signals. Even the sources which are quoted as reference to other testing are single, isolated signals on either a full car or only on a device under test on a bench. The notion that an EMI related SAI would have symptoms prior to its occurrence is also wrong. Symptoms as stated of motor problems, dimming lights or nonfunctioning accessories are indicative of devices which are generating more EMI, not of reacting to it. Millions of vehicles have these types of problems and never have a SAI. The simple fact is that there are billions of signal combinations that could occur in any instant of a vehicles operation. Given the right combination any piece of electronic circuitry will react. It is not a simple task for even the most elaborately equipped laboratory to duplicate a transient electronic event with so many possibilities. The aircraft industry was never able to duplicate the interference events which occurred when testing was done, but it still occurred. The EMI evaluation which this study undertook was woefully inadequate and did not produce any meaningful data from which any conclusion could be drawn other than: Nothing happened with the few devices we tested under limited conditions.

The entire ergonomic or human factors aspect of this study of SAI, as defined, must answer the question: What would cause a driver operating a stopped or standing vehicle to want to feel the need to panic stop and violently depress the brake, but then miss the brake pedal and slam on and hold the accelerator pedal down? Without this answer any discussion of pedal misapplication under the defined SAI parameters is without merit. The claims of the use of the BTSI, brake transmission shift interlock, being the cause of the reduction in number of events reported for vehicles employing said device are unfounded. Any vehicle which employed a BTSI also changed other wiring and cruise control aspects at the same time. To attribute any effect to the BTSI, or even any of these other changes is without merit since you can't change several variables in an equation at the same time and attribute any effect to any one of them. Further, time has shown that vehicles with BTSI's have and are experiencing SAI's.

If the investigators had truly studied the electronic schematic drawings and vehicle wiring drawings associated with the cruise control operations of the vehicles that they evaluated they would not have made the claims of switches and protections in the circuitry. The true on/off switch only works if people really turn the cruise off all of the time. As GM learned, nobody who used a cruise control ever turned the device off, but relied on the brake deactivation switch, which only places the device in standby and does not remove the source of voltage from the unit, to stop the cruise operation. Further, Ford, for example, does not have any such on/off switch. Ford's on/off switch, as in many other vehicles, is simply a memory clearing switch which erases the set speed. The cruise control is supplied positive battery voltage at the moment of start up.

The vacuum dump valve concept was never questioned as to why it exists in the vehicle at all. Its sole purpose is the mitigating of the consequences of a run away cruise control, this testified to by Ford expert Victor Declerq. If this is the case, then does it not speak to the potential hazard of the cruise control? It certainly is not a fail safe device as none of the means used by the manufacturers removes permanently the source of voltage from the cruise system. The mechanical and the electrical devices will only function as long as the operator maintains their foot on the brake - a fact not brought out in the document. These devices do not need to malfunction in any fashion. Rather, they are simply operating under a condition that should not occur in a car and reacting to this atypical operation the best that they can.

One can only wonder at the fact that thousands of reports were made to NHTSA and the auto manufacturers and only 100 were investigated. What were these hundred? What were the recalls which were generated? These were investigated since 1980, therefore they include the carburetor equipped vehicles which had linkage problems for both the accelerator and the cruise chain. To blatantly make a statement that there were found as many non-cruise as cruise vehicles with SAI events is fallacious and intentionally misleading. This contradicts the entire data base that NHTSA has in place, and contradicts the thousands of reports by applying only the data from a hundred. This is bad scientific method at the very least.

NHTSA sent out requests for information from the manufacturers in regards to this investigation. From Ford documents it is known that the Updegrave study was begun prior to the issuance of this study. Updegrave studied 2877 vehicles, this fact was never revealed to NHTSA for this study. In fact, it appears that none of the documents dealing with EMI dating back to 1969 and delineated in the Renaissance Engineering time line were given to NHTSA in regards to this study. One can only wonder what and how much information was held back by the manufacturers.

Nothing is really known about the 10 vehicles used to represent millions. How often and how long were they driven? Where were they driven and by whom? Where did they come from? What was their history? To take ten vehicles over a short period of time and drive them and have no SAI occur is proof of nothing.

The only legitimate final statement that could have been made as a result of this study was that none of the vehicles experienced a SAI while under observation. No data was found to rule out EMI as a cause of SAI, nor to attribute SAI to operator error. The results given are purely speculation.

A Canadian Study was done in the same time frame as the NHTSA study and parroted the NHTSA. However, a Japanese Study done in the same time frame did not conclude operator error, could not find any common mechanical causation, and recommended more study of the electronic elements including the electromagnetic and environmental effects on these elements.