

## McMath Petition to NHTSA to Reopen Sudden Acceleration Study — Comments on Denial

The major reason put forth by NHTSA for the denial to reopen the study is the 1989 NHTSA study itself. Why this study has no merit has been covered in the Renaissance Engineering NHTSA 1989 Study Rebuttal.

These are some specific aspects of the denial which need to be addressed:

- 1) Mr. Young of NHTSA contacted neither Mr. McMath nor Mr. Sero to discuss any aspect of the claims being made. Had he done so he would have been supplied with testing data and Ford documents that refute the 1989 Study and that support the request for reopening the study of sudden acceleration causation.
- 2) Mr. Young has accepted without question the information from the manufacturers concerning the degree to which the throttle can be pulled open by the cruise control. He goes so far as to assert that there is some mechanical stop of the cable at 80%. Quite evidently he has never really examined or tested any cruise control, let alone a vacuum based unit. RE has done so. There is no mechanical stop. Even without testing it should be obvious that a mechanical stop on the cruise control cable would also limit the extension of the accelerator cable. They are tied together at the throttle arm. This is why the accelerator pedal moves when the cruise is in use. The 80% limitation only exists in the software of the cruise system, not even in the servo.
- 3) Mr. Young has confused the requirement of normal operating parameters with safety issues. It is true that for a cruise control to function normally the brake must be off, otherwise the vehicle would not be moving; and the vehicle must be going faster than 26 mph. Without this operating parameter, city driving would constantly turn the cruise control off and on with repeated braking cycles. The system must also be turned on and receive sufficient power to activate it. The last condition has been given a spin that is reprehensible. Mr. Young has in his possession the true description of what the Ford on/off switch actually does. He is mincing words to take the focus off the aspect of the cruise control. There is no “power” delivered to the servo at this time since power consumption by the servo only occurs when the servo ground connection is made. The servo is however supplied voltage to the positive connection of the servo the moment that the ignition is turned on. This condition is an economics decision on the part of the manufacturer. The ground connections to the Vac and Vent solenoids are controlled by a common switching transistor on the speed amplifier printed circuit board. Given this condition it simply takes the firing of this transistor to activate the servo and pull the throttle to WOT. With a firing at the output side of the IC any input signal from the brake or any other input is moot. A studied review of the electronic schematics of the cruise control will reveal this condition.
- 4) Instead of trying to classify the dump valve as something it is not, a “fail safe” device, Mr. Young should be asking why the dump valve even exists. It has only one purpose in life, which is to mitigate the consequences of an unwanted acceleration. This has been admitted to by Ford’s own expert Mr. Declerq. The dump valve is not “fail safe” since it

requires that the operator have input to stop the hazard and, even worse, that the operator know to hold the brake on at all times to keep the dump valve engaged. There is no information, let alone warning, to the operator of the existence of the dump or its use. Further, a true “fail safe” device would totally remove the source of energy until such time as the cause of the malfunction is corrected. The dump valve does not do this, it has no ability to electrically disconnect the cruise control and the BOO input does not function under an EMI condition of activation. The MVDV fails miserably as any form of safety device.

- 5) Mr. Young has intentionally incorrectly stated Mr. Sero’s theory concerning sudden acceleration. Mr. Young, NHTSA, and the manufacturers want sudden acceleration to include some form of brake failure. Mr. Sero has never stated that there must be a simultaneous brake failure. He has stated that hard wire faults can cause the servos to operate, but, more importantly, that a single electromagnetic interference can cause the output of the cruise control to fire. He has also stated and tested that brake performance under an unwanted cruise operation is directly affected. This is simply because no braking system was ever designed to operate while the throttle was still open. Mr. Young goes to considerable lengths to address the whole matter of braking even attacking the videos of Mr. Sero and Dateline. In his attack he conveniently ignores the explanations of the various braking functions tested. Namely, full vacuum assist, depleted vacuum assist, and pumped brake vacuum depletion. All of these tests have proven that braking effectiveness is diminished considerably with a loss or decrease in vacuum assist. Also conveniently, he ignores the finding in the 1989 NHTSA Study that agree that under loss of vacuum assist extreme force is required on the brake pedal to achieve “normal” braking and that a large percentage of women and elderly drivers could not achieve these forces. Mr. Young should watch the Sixty Minutes tape of the brake testing by Ford in which Ford provided the tape without sound and contended that the brake force was less than 50 pounds to stop the vehicle. When the tape sound was brought out by sound technicians it was found that Mr. Declerq was shouting over 175 pounds to stop the vehicle. This is an inexcusable omission by Ford.
- 6) In discussing the EMI faulting Mr. Young relies heavily on the 1989 Study. This is foolhardy since this study did not accurately test EMI in a vehicle. In fact, this study only proved that a combination of EMI signals could disrupt their recording equipment.
- 7) It is true that numerous environmental conditions were discussed by Mr. Sero which could influence EMI. However, this is a situation that has been known in the EMI field since the advent of electromagnetic field study.
- 8) Mr. Sero’s contention was and still is that EMI radiated, conducted, or induced on and into the wiring of the harnesses in the vehicle can and will create conditions which will activate the cruise control, and for that matter will interfere with other electronically controlled devices and systems in the vehicle. This is not just Mr. Sero’s contention; it is also that of the auto manufacturers and the entire electronics/electromagnetics industry. Mr. Young has twisted the facts and bought into the lie from Ford regarding this condition in his discussion of the stand alone versus the IVSC cruise system. The story

given by Ford regarding the need for connections on the EEC and therefore returning to the stand alone from the IVSC can be readily disproved by simply looking at the wiring drawings for the makes and model years involved. One such comparison is included here.

#### Standalone to IVSC to Standalone:

In 1988 Ford Motor Company changed their cruise control system to what they called the Integrated Variable Speed Control ( IVSC ) system. This was a change from the vacuum based standalone style, which had its own VSS ( Variable speed sensor) and TPS ( throttle position sensor), and incorporated the cruise control electronics into the electronic engine control (EEC) unit and tapping the VSS and TPS outputs used by the EEC. This achieved an overall savings of eight dollars per car. This change lasted for 2-1/2 years and then the system was changed back to the standalone type. The vehicles equipped with IVSC had a sharp increase in the number of reported unwanted acceleration events. The one major difference between the systems during this transition period was going from a cruise module using just 12 wires (standalone) to connect to the EEC to one using 48 wires (IVSC) to connect to the EEC, and then back to the original 12 wire connection. This 4 times wire number connection closely matches the increase in the number of events that occurred under the IVSC system. Cannot use linear relationship here since the number of combinations of signals does not increase linearly! Following the change to the IVSC the so equipped models showed a 400% to 600% increase in the number of reported events. The number dropped when the IVSC was discontinued.

Ford has made the statement that the reason for going back to the standalone from the IVSC was that changes in the vehicle required the use of the pin locations on the EEC that were used by the cruise wires. One need only look at the pin tables for one of the vehicles involved to realize that this is not the truth of the matter. By way of example, the connector tables for the 1990 Lincoln Town Car with IVSC, and the 1991 Town Car with standalone, are given here. In 1990 the EEC/IVSC had 12 unused pin locations. In 1991, changed back to the standalone type, the EEC had 14 unused pin locations.

The Updegrave Study was initiated because of the extreme upsurge in the number of sudden acceleration events being reported to Ford. Had Mr. Young taken the time to really evaluate this study he would have found that Updegrave found that less than 1% of the claims might have some operator error. The rest were evaluated and, like all EMI associated events in Ford and other vehicles, became Trouble Not Identified (TNI) incidents. The switch to the IVSC gave rise to more reported incidents for the simple reason that the number of wires capable of delivering disruptive EMI to the cruise control went from 12 to 48. Had Mr. Young taken the time to go through the NHTSA data base and compile the data on IVSC versus stand alone models he would have found the real reason for the jump in incidents that compelled Ford to do the Updegrave Study. Ford didn't like the answer that came out of the study: that Ford couldn't blame the operator and knew that if it wasn't the operator and wasn't something mechanical then it must be electronic. This is from Ford's own documents. The Updegrave Study also proved, and this has been attested to by Mr. Updegrave, that age and newness of vehicle are not contributing demographics to the condition. **Basically, the Updegrave study proved that**

**operator error was not the cause of the vast majority of incidents.**

- 9) Any claim that the incorporation of the BTSI into the vehicles reduced the number of recorded instances is without merit. When the BTSI was installed the cruise control systems were also changed as were the wiring harnesses. Three variables being changed at one time cannot allow drawing any conclusions regarding the efficacy of any one of them. In fact, if anything is proven it is the fact that the BTSI had no effect whatever on sudden acceleration, time has shown that BTSI vehicles continue to have SAI's; and that utilizing fewer wires interconnecting the cruise with other components in the vehicle does decrease the incident rate.
- 10) Mr. Young has misunderstood what happens when the cruise servo pulls open the throttle. Because it takes up to a second and a half to pull the throttle to wide open under a malfunction the vehicles will start out at a slow speed and then build up. This is the same thing that occurs when one gradually pushes the accelerator to the floor. Since all vehicles equipped with an automatic transmission will creep when placed into gear from startup they begin to roll forward or backward slowly upon release of the brakes. This then would not be seen by a driver as an immediate hazard and the driver would not then apply the brake. This is especially true if it is the intention of the driver to move the vehicle somewhere. Startle reaction comes after the speed has built up to a recognized hazardous level without the driver's foot on the accelerator. Mr. Sero's brake testing in which the cruise servo was intentionally wired to have the ability to simulate a cruise malfunction, is not unlike what the VRTC did. There was no intention in any of the tests to evaluate anything other than the braking effectiveness under various conditions of booster depletion. This is a test that is closer to reality than those done by NHTSA.
- 11) Admittedly both the US and the Canadian Sudden Acceleration studies blame the driver, the Japanese would only conclude that no mechanical reason could be found and that further study of malfunction of electronic elements should be done. Chapters 6 and 7 of the Japanese Study delineate these findings and needs for further tests. They also point out the problem of the effect of high engine speed on vacuum brake assist and the relationship between electromagnetic noise and the environment of the device.
- 12) Mr. Young has freely taken out of context items from the Jarvis vs. Ford trial. In doing so he has twisted the following facts. Judge Buchwald's ruling in this trial was overturned by the Second Circuit Court of Appeals and Judge Buchwald was determined to be wrong in her rulings regarding testimony. Mr. Sero's background, education and working experience is substantially greater than having worked for a power company for twelve years. As of 2007 Mr. Sero has been a practicing electrical engineer for 40 years. His diverse background and working experience is delineated in his CV which would have been readily available to Mr. Young and was available to Judge Buchwald.
- 13) It needs to be pointed out to Mr. Young that it doesn't really matter if the dump valve works or not. It doesn't really matter whether or not the brakes will stop the vehicle. Sudden acceleration just should not occur. A manufacturer knowing a hazardous condition of their product has a duty to design it out, protect against it, and/or warn the

consumer of it. None of this was done by Ford. Ford's own documents and actions reveal that they knew about this problem and chose to ignore it for economic reasons.