

## **TOYOTA – SUDDEN ACCELERATION IS NOT A MYTH**

Like everyone else in the world I am watching with morbid interest the unfolding story of Toyota and its attempts to place blame for the tragic events caused by their vehicles taking off on the drivers. The floor mat and accelerator pedal stories are beyond ridiculous. In my over twenty years of researching and investigating sudden acceleration events it is clear that the auto industry is more interested in covering up the problem than in solving it.

For anyone to believe that an accelerator that is stuck in place at a set speed would meet the criteria of an accident that has the vehicle continuing to accelerate is absurd. The aftermarket floor mat that requires the accelerator pedal to already be to the floor then catch in a small groove of plastic material and not bounce out represents a mythological story. The slowly returning accelerator pedal is another myth that Toyota wants the public to believe as opposed to the truth of the matter. The manufacturer of the accelerator pedal, CTS, has denounced it as being any part of the Toyota sudden acceleration problem. CTS had only three reports of the pedal slowly returning and has taken steps to repair the pedal. A slowly returning accelerator pedal will not cause a vehicle to continue to accelerate when it is released.

Historically, sudden accelerations have been occurring since the advent of the fuel injected engine. All vehicles have had some level of reported sudden acceleration events. These events and their escalation in number can be traced back to the use of the cruise control. NHTSA and auto manufacturer's data all confirm that there were no reportable sudden acceleration events in which the vehicle continued to accelerate uncontrollably. There were incidents of stuck throttles in moving vehicles that would fail to decelerate but did not accelerate further. A basic fact of the operation of a vehicle is that only mechanisms which can operate

the throttle valve can make the vehicle accelerate. For years the only two mechanisms were the operator and the cruise control. With the advent of the drive-by-wire system this moved into a realm where one mechanism is the operator and the other is the electronic controller of the vehicle. Having a throttle that is controlled by a small motor attached to the throttle arm, and which gets its operating signal from the electronic controller means that it is no longer only the malfunction of the cruise control electronics which can make a vehicle accelerate uncontrollably. The driving electronics can also suddenly accelerate the vehicle.

The number of electrical and electronic components in a car has grown exponentially since the 1980's. They have grown out of control with no regard for how these components will interact in an operating vehicle. This exponential growth led to an exponential growth in the electromagnetic interference that is generated in the interconnected components in the vehicle. The use of common positive buss and common negative buss connections intimately ties conductive EMI between the components. The use of the common harness bundles for the wiring intimately ties all of the radiated EMI together. Although there is some filtration included in the design of the electronic controller it is not sufficient to eliminate the nearly infinite number of EMI signal combinations that can enter the unit. There is no protection of the wiring between components, such as coaxial cable. The problems associated with EMI have been known, documented, written about and studied for many years prior to the electronic revolution in vehicles.

It is interesting to note that the most common concern in a vehicle regarding EMI is the protection of the audio components from interference. The attitude of auto manufacturers regarding the effects of EMI on operating systems is best summed up by a Failure Modes and Effects Analysis done by Ford. In it Ford engineers determined that EMI or the loss of Electromagnetic

Compatibility could cause the cruise control to go to wide open throttle. The determined action to take was that since it was a random event that left no footprint and therefore no root cause could be determined, no further action would be taken.

The auto industry does follow a set of test guidelines for EMI that are contained in the Society of Automotive Engineers standards. These guidelines are for the bombarding of the vehicle externally with various signal frequencies and strengths and for testing a component on a bench top. There is no testing done on the entire operating vehicle. ISO, the European standards group, has recently recognized this lack of necessary testing.

For further discussion and information on Sudden Acceleration please visit my web site at [www.forensicfacts.com](http://www.forensicfacts.com), email me at [reneng@msn.com](mailto:reneng@msn.com) or phone 412-321-5423.

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