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JEEP SUDDEN ACCELERATION INCIDENTS

The classic description of a sudden acceleration incident (SAI), as defined by the National Highway Traffic Safety Administration (NHTSA), involves an unexpected increase in engine speed to wide-open throttle, typically near the time that the operator places the transmission in gear. In such events, the operator often will describe the decreased effectiveness of braking, due to operation against the pulling engine, as a loss of braking. NHTSA received such complaints as early as the 1970s, but it was not until the rash of complaints associated with the Audi 5000 that the general public became aware of the occurrence of such events. Public awareness in this particular instance was raised by a segment on CBS' *60 Minutes* program in which owners described their experiences and an engineer suggested that the cause may be related to the design of the vehicle.

Under the pressure of public concern, NHTSA commissioned a study of the phenomenon of SAI in the Audi, as well as 9 other vehicles produced by various manufacturers. Because a wide-open throttle condition can occur only in one of two ways—an operator depressing the accelerator or the cruise control system activating the throttle—the study focused on these two possibilities. With respect to an intermittent failure causing a cruise control system malfunction, it was assumed that such a failure should be readily reproducible, regardless of the frequency of its occurrence. Since the cruise control systems used by various manufacturers differed in design, and no single fault could be induced in laboratory testing that would readily cause the



**1991 - 1995 JEEP CHEROKEES
AND GRAND CHEROKEES**

cruise control to activate the throttle, the authors of the study concluded that the cause of SAI must be operator error. With respect to the wide variation in the reporting rates of SAIs among different models of vehicles equipped with automatic transmissions, the authors of the study suggested that the difference in reporting rates was likely due to variations in brake and accelerator pedal placements.

Despite the fact that additional studies, one of which was funded by NHTSA, indicated that pedal placement within the cockpit did not affect the rate of pedal error, NHTSA has steadfastly stood by the key finding of the 1989 study that the likely cause of SAI is operator error. Automobile manufacturers have cited the NHTSA study and similar studies conducted by the agencies of other national governments as clear evidence that SAI is not related to any particular design or manufacturing defect. However, manufacturers have routinely rejected the study's conclusion that differences in reporting rates among vehicles may be related to the placement of the brake and accelerator pedals, since this might suggest pedal placement is a design defect. Finally, despite their use of the NHTSA study to defend their products, manufacturers, such as Chrysler, did

not immediately respond to the study's recommendation that vehicles be equipped with a brake/transmission shift interlock (BTSI) to prevent operators from shifting into gear without first placing their foot on the brake. For example, Chrysler did not institute the BTSI on the Jeep Cherokee and Grand Cherokee until the 1996 model year.

During the early 1990s, Chrysler began to receive an increasing number of customer complaints of sudden acceleration in Jeep Cherokees. These reports prompted Chrysler to open an internal investigation, whose scope was widened to include the Grand Cherokee, which was introduced in January 1992. Unable to reproduce sudden acceleration and apparently unable to define any commonalities among these reports, Chrysler concluded that the proximate cause of all these events was operator error, even though descriptions of the events clearly would indicate that all could not be operator error.

In early 1995, Romualdi, Davidson & Associates began analysis of several local accidents in which operators of Jeep Grand Cherokees alleged that the vehicle accelerated from a stop without the driver depressing the accelerator pedal. Over the next 27 months, we documented 9 SAIs in the Pittsburgh area—all involving 1993-1995 Jeep Grand Cherokees. Our research during this time frame involved examination of several Jeeps that had been involved in such accidents, as well as several on-vehicle diagnostic tests to assess the possibility of an intermittent electrical malfunction. Based upon this research, we concluded that these events were caused by one or more defects associated with the design of the cruise control system electronics and/or hardware.

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In early 1998, we teamed with Mr. Walter Salyer of Infospace, Inc. in Damon, Texas, who had been independently examining the issue of sudden acceleration in Jeep Cherokees and Grand Cherokees. His analysis of customer complaints—collected from NHTSA, Chrysler and independent sources—clearly indicated that the affected population of vehicles was 1991-1995 Cherokees and 1993-1995 Grand Cherokees. The common feature of these vehicles was the same powertrain electronics and cruise control system. Reports had indicated that such events would occur with the cruise control system in the OFF position, as well as the ON position. Since our preliminary analysis suggested that the malfunction would only occur with the cruise switch in the ON position, a new series of laboratory and on-vehicle tests were performed, in addition to more detailed analyses of the electronics used to control operation of the engine and cruise control. Much of this work was directed to the evaluation of an accident in Seattle, Washington in which a 1993 Grand Cherokee suddenly accelerated from a stopped position at a bank drive-through window, traveled across a busy street and collided into a gasoline station, causing serious injury to a person within the station.

After considerable testing and analysis and examination of 18 vehicles involved in sudden acceleration accidents, we concluded that the Seattle accident was precipitated by one or more defects in the vehicle electronics and/or in the mating of the main wiring harness to the powertrain control module. We opined that these defects, in the presence of moisture contamination at one or more locations in the cruise control circuitry, would cause the cruise control servo to activate. While the precise circumstances under which such an event might occur were not reproduced, our analysis allowed us to exclude all other possibilities, including operator error. With regard to the latter, Mr. Salyer’s analysis of SAI reports indicated that there were 27 vehicles that had experienced at least two SAIs, each time with a different driver. Assuming random human error to be the cause of SAI, the occurrence of errors by two different drivers in these 27 vehicles is as unlikely as a person winning the multi-state PowerBall Lottery 8 times in 8 consecutive lottery drawings!

The trial in the Seattle, Washington accident concluded in April 2001, and the jury concluded that the proximate cause of the accident was one or more defects in the vehicle. The jury further determined that our client, the operator of the vehicle, bore no responsibility

for the accident. This verdict was significant because it clearly illustrated that our research and analyses of the issue of sudden acceleration in this population of vehicles demonstrated that historical analysis of the problem—whether the NHTSA study or other studies in which operator error was concluded to be the cause—was not applicable in this accident. The results of previous studies generally were not applicable, because the cruise control system in the model year 1991 to 1995 Jeeps is significantly different than the cruise control systems in the 1980s vintage vehicles examined by NHTSA. More importantly, previous studies have neglected to consider low-probability failures. Because a problem is not readily reproducible does not imply that a problem does not exist, nor does it imply that an adequate technical analysis cannot be performed to determine the probable root cause.

Based upon our extensive analysis of the sudden acceleration phenomena in model year 1991 to 1995 Jeeps, Infospace and Romualdi Davidson submitted a formal defect petition to NHTSA in April 2002. This petition requested that a defect investigation be undertaken by the government to determine whether a safety recall of the affected vehicles should be instituted.

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