
Missing Facts in the NHTSA/General Motors Ignition Switch Scandal

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Report by Quality Control Systems Corp.

Abstract

The National Highway Traffic Safety Administration (NHTSA) declined to open investigations into airbag non-deployments in crashes of General Motors (GM) vehicles based in major part on two statistical analyses of consumer complaints it performed in 2007 and 2010. NHTSA's decisions were made despite evidence it had previously derived from warranty claims made to GM that were suggestive of a potential motor vehicle defect. The Agency even ignored evidence from its own crash reconstructions because it found its statistical analyses of consumers' complaints about airbag non-deployments so persuasive.

Four years later, NHTSA's deputy administrator testified to Congress about the important role of these statistical analyses, adding the new claim that NHTSA's statistical studies of consumer complaints demonstrated the culpability of GM, rather than any problem with the Agency, other than lack of funding and weak regulatory authority.

In this paper, we examine NHTSA's claims about its statistical analyses of airbag non-deployments in injury crashes. We show that the Agency's current narrative of non-accountability lacks crucial supporting evidence in the public record.

Introduction

By the spring of 2014, the GM ignition switch safety scandal had become well known. To date, this matter has involved investigations by two Congressional

committees¹ and is currently the subject of a criminal investigation by the U. S. Justice Department.²

An important part of the scandal's embarrassing history was an earlier, secret decision in 2007 by NHTSA not to initiate a formal investigation of "frontal airbag non-deployment in the 2003-2006 Chevrolet Cobalt/Saturn Ion." This decision was made despite the Agency's recognition of "a pattern of reported non-deployments in [Vehicle Owner Questionnaire] complaints that was first observed in early 2005."³ In fact, years before this knowledge became widely known to the public, the Chief of the Defects Assessment Division had observed that "Notwithstanding GM's indications that they see no specific problem pattern, DAD perceives a pattern of non-deployments in these vehicles that does not exist in their peers . . ." ⁴

Nevertheless, according to testimony by NHTSA's (then) Acting Administrator, Mr. David Friedman, "A defects assessment panel convened in 2007 to review the available information on non-deployment of airbags in the Cobalt and Ion, considering vehicle owner questionnaire (VOQ) complaints reporting non-deployments, early warning data, SCI investigations, and the circumstances of the crashes. The data available at the time of this evaluation did not indicate a safety defect or defect trend that would warrant the Agency opening a formal investigation. In particular, the available data did not indicate that the Cobalt or

¹ U. S. House of Representatives Committee on Energy and Commerce and the U. S. Senate Committee on Commerce, Science, and Transportation

² "Documents Show General Motors Kept Silent on Fatal Crashes," The New York Times, July 15, 2014, accessed on August 8, 2014 at <http://www.nytimes.com/2014/07/16/business/documents-show-general-motors-kept-silent-on-fatal-crashes.html?_r=0>

³ For timeline, see Memorandum to Members, Subcommittee on Oversight and Investigations, March 30, 2014, from the Committee Majority Staff, accessed on August 11, 2014 at <<http://docs.house.gov/meetings/IF/IF02/20140401/102033/HHRG-113-IF02-20140401-SD002-U2.pdf>>, p. 8

⁴ Memorandum, September 5, 2007, available at: <<http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/Hearings/OI/20140915GMFootnotes/footnote79.pdf>>, accessed September 16, 2014.

Ion were overrepresented compared to other peer vehicles with respect to injury-crash incident rates..."⁵

The (now public) record through 2007, therefore, reflects the viewpoint of one of office of NHTSA which perceived a "pattern," at odds with the manufacturer's reported opinion that it could see no "specific problem pattern." These opposing beliefs were ultimately weighed by NHTSA's expert panel. This panel decided secretly in GM's favor that there was no indication of a "trend" [emphases supplied] principally on the basis of a statistical analysis of Chevrolet Cobalt/Saturn Ion and peer vehicle airbag non-deployment injury crash rates.⁶

The issue of airbag non-deployments in crashes of Model Year 2005 and 2006 Chevrolet Cobalts apparently returned to the attention of NHTSA's Defects Assessment and the Vehicle Integrity Divisions in 2010. Unfortunately, the majority staff of the House Energy and Commerce Committee investigating this issue were unable to determine why. According to the staff report: "There is no documentation to demonstrate what prompted this review, who participated, or what it involved."⁷

Mr. Friedman's testimony presents this 2010 analysis in the context of decision-making regarding the advisability of further investigating airbag non-deployments in crashes of 2005 and 2006 Chevrolet Cobalts. According to Mr. Friedman, such an investigation was determined to be unwarranted: "The data showed that the injury-crash incident rate ... had decreased by nearly half since the 2007 review and did not provide a basis for a formal investigation."⁸

⁵ "STATEMENT OF THE HONORABLE DAVID FRIEDMAN ACTING ADMINISTRATOR, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION Before the COMMITTEE ON ENERGY AND COMMERCE SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS U.S. HOUSE OF REPRESENTATIVES Hearing on The GM Ignition Switch Recall: Why Did It Take So Long? April 1, 2014," accessed on April 15, 2015 at: <<http://docs.house.gov/meetings/IF/IF02/20140401/102033/HHRG-113-IF02-Wstate-FriedmanD-20140401.pdf>>, p. 12. (hereinafter Friedman Statement to House Committee).

⁶ *ibid.*, p. 12.

⁷ See "Staff Report on the GM Ignition Switch Recall: Review of NHTSA," U.S. House of Representatives Committee on Energy and Commerce, accessed on September 16, 2014 at: <<http://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/Hearings/OI/20140915GMFootnotes/NHTSAreportfinal.pdf>>, p. 30.

⁸ Friedman Statement to House Committee, p. 12.

We have attempted to replicate NHTSA's statistical analyses of its consumer complaint data. We focussed on two of NHTSA's claims: 1) that the consumer complaint data analyzed by NHTSA in 2007 did not indicate that the Cobalt or Ion were overrepresented compared to other peer vehicles with respect to injury-crash incident rates; and 2) that the injury-crash incident rates for Model Year 2005 and 2006 Cobalts decreased by nearly half after the 2007 review through the time it was re-analyzed in 2010 because of the introduction of a redesigned ignition switch to these vehicle fleets.

Source Materials

Following Mr. Friedman's testimony to the House Subcommittee on Oversight and Investigations, we filed a Freedom of Information Act request for some of the source data used by NHTSA in their analyses. Our FOIA request to NHTSA sought "all of the underlying VOQ and exposure data necessary to replicate "Figure 2. 2007 NHTSA Chart of Airbag Non-Deployment Injury-Crash Incident Rates"⁹ as well as "all of the underlying VOQ and exposure data necessary to replicate "Figure 3. 2010 NHTSA Chart of Airbag Non-Deployment Injury-Crash Rates."¹⁰ We are grateful to NHTSA for complying with our request.

The 2007 Analysis

Mr. Friedman's written testimony to the Subcommittee on Oversight and Investigations presents a chart of rates for Airbag Non-Deployment Injury Crashes by fleet. These rates were calculated from the VOQ data (supplemented by NHTSA's estimate of "exposure-years"). However, the rates were presented without the underlying summary data from which the rates were calculated.¹¹ We replicated NHTSA's analysis based on the data we obtained through our FOIA request. Table 1 shows our reconstruction of NHTSA's 2007 analysis including the missing summary data. (**N.B.** We have not attempted to make any corrections to NHTSA's data. See also the Appendix to this report.)

⁹ Friedman Statement to House Committee, p. 12.

¹⁰ *ibid.*, p. 13.

¹¹ *ibid.*, p. 12.

Table 1. Cobalt & Peer Vehicle Airbag Non-Deployment Injury Crash Rates.

FLEET	ABND INJURY CRASHES	ESTIMATED EXPOSURE YEARS	RATE (PER 100K)
ECHO 2005	1	25655.0	3.90
OPTIMA 2003	4	105637.5	3.79
ACCENT 2004	5	158690.0	3.15
AVEO 2005	5	161200.0	3.10
SPECTRA 2005	4	133785.0	2.99
ELANTRA 2003	15	576432.0	2.60
AVEO 2004	5	193203.5	2.59
ACCENT 2003	6	233163.0	2.57
SPECTRA 2004	4	156240.0	2.56
OPTIMA 2005	2	78190.0	2.56
COBALT 2006	7	344364.0	2.03
COBALT 2005	7	352437.5	1.99
NEON 2004	8	409629.5	1.95
ELANTRA 2004	7	366677.5	1.91
ECHO 2003	3	158004.0	1.90
Cobalt/Ion Average	31	1647535.0	1.88
ELANTRA 2005	6	334305.0	1.79
NEON 2003	10	578398.5	1.73
ION 2005	3	178930.0	1.68
ION 2004	7	421988.0	1.66
ION 2003	7	433453.5	1.61
SPECTRA 2003	5	322092.0	1.55

FLEET	ABND INJURY CRASHES	ESTIMATED EXPOSURE YEARS	RATE (PER 100K)
RIO 2004	2	139779.5	1.43
CIVIC 2004	13	1017450.0	1.28
Peer Vehicle Average	166	13563830.0	1.22
CIVIC 2005	8	722642.5	1.11
COROLLA 2005	10	921860.0	1.08
COROLLA 2004	9	953053.5	0.94
CIVIC 2003	12	1351345.5	0.89
NEON 2005	3	386897.5	0.78
ACCENT 2005	1	137280.0	0.73
COROLLA 2003	9	1486890.0	0.61
CAVALIER 2003	5	982768.5	0.51
RIO 2003	1	210325.5	0.48
CAVALIER 2004	3	750893.5	0.40
CAVALIER 2005	0	239595.0	0.00
ECHO 2004	0	19939.5	0.00
OPTIMA 2004	0	235312.0	0.00
RIO 2005	0	67420.0	0.00

The highest calculated rate of “Airbag Non-Deployment (ABND) Injury-Crash Incident Rates” among the subject population was the 2006 Chevrolet Cobalt at 2.03 per 100,000 “exposure-years” (7 crashes in 344,364 exposure-years). In NHTSA’s analysis ten peer vehicles had higher ABND injury crash rates.

Referring to these data, Mr. Friedman’s testimony to the House Oversight and Investigations Subcommittee was that, “... the Cobalt did not stand out. It was a little bit above average, but there were several vehicles that were significantly

higher... ”¹² Accordingly, we tested the null hypothesis that there is no statistically significant difference in the calculated ABND injury crash rates between the 2006 Cobalt and each of the ten peer vehicles with higher ABND injury crash rates. If Mr. Friedman’s testimony were correct, we would expect to reject this null hypothesis for “several” of the comparisons based on sufficiently large sample sizes and an appropriate test of statistical significance. Alternatively, acceptance of the null hypothesis would not support Mr. Friedman’s testimony.

We performed Fisher’s exact test for each of these ten comparisons. The appropriate p-value of statistical significance associated with each comparison is shown below in the column labelled “Comparison Set 1” in Table 2.

Table 2. Results of Fisher’s Exact Test (2-Tailed) for Comparisons of Subject and Peer Fleets (p-values).

FLEET	COMPARISON SET 1 2006 COBALT	COMPARISON SET 2 2005 COBALT	COMPARISON SET 3 COBALT /ION AVERAGE
ECHO 2005	0.4372	0.4300	0.3901
OPTIMA 2003	0.2983	0.2908	0.1576
ACCENT 2004	0.5357	0.5330	0.2422
AVEO 2005	0.5378	0.5347	0.2487
SPECTRA 2005	0.5139	0.5081	0.3319
ELANTRA 2003	0.6648	0.6633	0.3134
AVEO 2004	0.7658	0.7643	0.4217
ACCENT 2003	0.7794	0.7783	0.4530
SPECTRA 2004	0.7485	0.7461	0.5413
OPTIMA 2005	0.6760	0.6710	0.6609
COBALT 2006	N.A.	1.0000	N.A.
COBALT 2005	N.A.	N.A.	N.A.

¹² See “Full House Oversight & Investigations Subcommittee General Motors Hearing,” April 1, 2014, available at: <https://www.youtube.com/watch?v=Susm_sfAlyE>, testimony at 2:45:15, accessed September 30, 2014.

FLEET	COMPARISON SET 1 2006 COBALT	COMPARISON SET 2 2005 COBALT	COMPARISON SET 3 COBALT /ION AVERAGE
NEON 2004	N.A.	N.A.	0.8433
ELANTRA 2004	N.A.	N.A.	1.0000
ECHO 2003	N.A.	N.A.	1.0000
Cobalt/Ion Average	N.A.	N.A.	N.A.

These results show that in every single comparison of set 1, the null hypothesis of no significant statistical difference would be accepted at the traditional 0.05 level. Acceptance of the null hypothesis of no statistically significant difference for comparisons of each peer vehicle with the 2006 Cobalt does not support Mr. Friedman’s testimony that there was a significant difference.

Similarly, comparison set 2 in Table 2 shows the results of Fisher’s exact test for comparisons of the 2005 Cobalt relative to each of the ten non-Cobalt vehicles with higher calculated rates. These comparisons, too, show that for all of the possible comparisons, the null hypothesis of no significant statistical difference would be accepted at the traditional 0.05 level. Therefore, Mr. Friedman’s testimony does not have appropriate statistical support with respect to the 2005 Cobalt.

Lastly in comparison set 3 of Table 2, we show the results of Fisher’s exact test for comparisons of the combined pool of model year 2003, 2004 and 2005 Saturn Ions together with model year 2005 and 2006 Chevrolet Cobalts. These comparisons also show that for every possible comparison in the set, the null hypothesis of no significant statistical difference would be accepted at the traditional 0.05 level.

Thus the results in Table 2 do not sustain Mr. Friedman’s testimony regarding injury crash airbag non-deployment complaint rates that, “... there were several vehicles that were significantly higher,” insofar as that conclusion does not rest on evidence from an appropriate test of statistical significance.

We also compared the calculated ABND injury crash complaint rate of the combined pool of the model year 2003, 2004 and 2005 Saturn Ions together with model year 2005 and 2006 Chevrolet Cobalts against all other peer vehicles combined in NHTSA’s 2007 analysis. The related null hypothesis, that there is no sta-

tistically significant difference in the calculated rates between the Cobalt/Ion average and the Peer Vehicle average, 1.88 per 100,000 exposure-years vs. 1.22 per 100,000 exposure-years, yields a p-value based on Fisher's two-tailed exact test of 0.0379. Therefore, this null hypothesis would be rejected at the traditional level.

The average rate for the Cobalt/Ion is 54% higher than the rate for the peer vehicles. This actual difference gives perspective to Mr. Friedman's verbal statement to the committee that the difference was "a little bit above average." Also, Mr. Friedman's written testimony that "the available data did not indicate that the Cobalt or Ion were overrepresented compared to other peer vehicles with respect to injury-crash incident rates..."¹³ is not validated by the percentage difference in the complaint rates or by the critical test statistic demonstrating the statistical significance of the difference.

The 2010 Analysis

In Mr. Friedman's written testimony of April, 2014 to the Subcommittee on Oversight and Investigations he stated that, "The data showed that the injury-crash incident rate for Model Year 2005 and 2006 Cobalts had decreased by nearly half since the 2007 review and did not provide a basis for a formal investigation."¹⁴ Writing on September 16, 2014 to USA Today, Mr. Friedman stated the reason for this decline as follows: "As to the GM ignition switch, NHTSA looked into this problem twice in the years leading up to the recall. At that time, the data did not support a recall. In fact, the number of related complaints were going down, not up, when we reviewed the case. Now we know why.

GM knew the switch was defective and could prevent air bags from functioning. Rather than reporting the defect, as required by law, GM changed the part without notifying NHTSA, which is why complaints declined."¹⁵

Based on their own analyses, we believe that NHTSA accurately concluded that there was a large decline in injury crash airbag non-deployment rates based on VOQ and exposure data between 2007 and 2010. (Note that we have not attempted to correct the data in their analyses, but see the Appendix to this report).

¹³ Friedman Statement to House Committee, p. 12.

¹⁴ *ibid.*, p. 12.

¹⁵ David Friedman, "NHTSA: We've instituted reforms," September 16, 2014, available at: <<http://www.usatoday.com/story/opinion/2014/09/16/david-friedman-national-highway-traffic-safety-administration-editorials-debates/15745881/>>.

Nevertheless, a more informative analysis comes from considering the incident rates through the date of the 2007 review compared to the rates following the 2007 review.

Information provided by NHTSA pursuant to our FOIA request showed that the cumulative rate of ABND injury-crash complaint rates for the 2005 Chevrolet Cobalt was 2.3 per 100,000 exposure years as of September, 2007 (based on 8 complaints over 352,437.5 exposure years) dropping to 1.2 as of February, 2010 (based on a total of 9 complaints over 775,362.5 exposure years).

However, considering only the cumulative rate masks the fact that in the period following the 2007 review, there had been only a single complaint in 422,925 exposure years. Thus the risk of injury crash airbag non-deployments reflected by consumer complaints for the 2005 Cobalt through September, 2007, fell by nearly 90% (RR = 0.104; 95%CI = 0.0026-0.5804).¹⁶

For the 2006 Cobalt, NHTSA found the rates were almost identical to the 2005 Cobalt: 8 complaints in 344,364 exposure years in 2007 dropping to 12 complaints in 1,033,092 exposure years in 2010. Here again, the cumulative rates mask an impressive difference in the complaint incident rates considered in the two time periods before and after the 2007 review. Based on the data produced pursuant to our FOIA request, in the period following the review through February, 2010, there had been only 4 complaints of non-deployment in injury crashes in 688,728 exposure years. Thus the risk for the 2006 Cobalt, fell by 75% following the first review in 2007 (RR = 0.25; 95%CI = 0.0681-0.6401).¹⁷

Discussion of the 2010 Analysis

Using the data we received pursuant to our FOIA request, we found the decrease in the ABND injury-crash complaint rates in the MY 2005 and 2006 Cobalts between September, 2007 and February, 2010 was dramatic and statistically significant. Yet Mr. Friedman's belief that, "Now we know why," is difficult to accept without sufficient evidence. Certainly this position contradicts related assertions

¹⁶ Based on SISA, Rate Ratio/SMR Exact, available at: <<http://www.quantitativeskills.com/sisa/statistics/smr.htm>>.

¹⁷ *ibid.*

about the use of the redesigned switch in MY 2005 and 2006 Chevrolet Cobalts which are found in the “Valukas Report.”¹⁸

According to this GM-commissioned, official history of the scandal: “Delphi documents suggest that the new Ignition Switch went into production sometime after June 26, 2006.”¹⁹ However, the report notes that: “the hidden implementation of a solution to the problem addressed the issue for drivers of MY 2008-2010 Cobalts (and some MY 2007 Cobalts) ... *drivers of earlier model year Cobalts and other vehicles continued to drive cars with safety defects* [emphasis supplied]”²⁰ In addition, the Valukas Report states: “Although the change effectively cured the problem of low rotational torque in the Ignition Switch and addressed the safety problem in future cars, *it did nothing for cars built prior to the breakpoint* [emphasis supplied].”²¹

We recognize that it may be possible that redesigned switches were widely used as replacement parts on 2005 and 2006 Cobalts before February 2010. But if that were so, it would be difficult to understand General Motor’s related, supplemental recall²² pertaining to defective ignition switches of the older design that had potentially been used in MY 2008-2010 Cobalts as *replacement parts*.

We also recognize that there are a number of alternative explanations for the dramatic decline in the ABND injury-crash complaint rates per “exposure year” for the MY 2005 and MY 2006 Chevrolet Cobalts between 2007 and 2010. These could include a decreased likelihood to report potential safety issues to NHTSA for vehicles that are no longer under warranty or for which owners are no longer making loan payments. The difference might also be due to a change in reporting procedures at NHTSA. Alternatively, there could have been an extraordinary rate of scrappage of these vehicles by their owners between 2007 and 2010 or to a

¹⁸ Anton R. Valukas, Jenner & Block, REPORT TO BOARD OF DIRECTORS OF GENERAL MOTORS COMPANY REGARDING IGNITION SWITCH RECALLS, May 29, 2014 <<http://www.nhtsa.gov/staticfiles/nvs/pdf/Valukas-report-on-gm-redacted.pdf>>, accessed September 16, 2014 (hereinafter, the Valukas Report).

¹⁹ *ibid.*, p. 99.

²⁰ *ibid.*, p. 96.

²¹ *ibid.*, p. 101.

²² April 11, 2014, Defect Notice(Part 573) Supplemental <<http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM453829/RCDNN-14V047-2110.pdf>> accessed September 29, 2014.

marked decline in vehicle miles travelled per exposure year or both. With the appropriate data and methods, these alternatives are testable to some degree. Any of these possible explanations seem more plausible than the one NHTSA currently presents to the public, that the decline in the complaint rates was caused by retrofitting the 2005 and 2006 Chevrolet Cobalt fleets with the redesigned switch between 2007 and 2010.

Unless NHTSA's conclusion can be supported by additional evidence, it is important to investigate alternative explanations for the decline in the complaint rates for injury crash, airbag non-deployments in the subject vehicles. This is necessary both to understand the reasons for the decline in these rates and to be certain that all of the root causes of the original problem have been identified.

Conclusion

NHTSA continues to represent its 2007 decision not to undertake an investigation of airbag non-deployments in certain GM vehicles as the only reasonable choice the Agency could have made, given the data that it had at the time. In fact, our analysis of the actual, underlying statistical data shows that, if very long-established, standard, statistical practices had been followed in 2007, the scandal could have been averted.

The publicly available record does not reflect that the Agency employed the most basic, commonly accepted, scientific techniques for the interpretation of statistical data: no hypotheses concerning the data are clearly and unambiguously stated; and no critical test statistics are calculated or assessed for their likelihood in a known statistical distribution. Indeed, there are not any standard, working definitions of the terms, "patterns," "trends," or a minimum threshold "basis for a formal investigation."²³

We do not dispute in any way General Motor's position that the original ignition switch had an important safety defect.²⁴ However, consideration must also be given to the possibility that the decline in ABND injury crash complaint rates in

²³ See documents referenced in "SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS DOCUMENT BINDER INDEX," accessed on April 15, 2014 at: <<http://docs.house.gov/meetings/IF/IF02/20140401/102033/HHRG-113-IF02-20140401-SD009.pdf>>.

²⁴ February 7, 2014, Defect Notice(Part 573) <<http://www-odi.nhtsa.dot.gov/acms/cs/jaxrs/download/doc/UCM450012/RCDNN-14V047-1347P.pdf>> accessed September 29, 2014.

the 2005 and 2006 Cobalt between 2007 and 2010 is not adequately explained by the introduction of redesigned ignition switches, as NHTSA currently believes.

Leaving these facts unaddressed will only add to the case that the Agency has learned little from its involvement in the GM ignition switch scandal since 2007. Without necessary changes in the statistical methods NHTSA employs in its decisions to initiate defect investigations, neither increased funding nor greater regulatory authority for the Agency will serve to better protect consumers.

Appendix

The comments in this Appendix are based on our comparison of the data we received from our FOIA request with NHTSA's consumer complaint database.²⁵

Consumer Complaints Mischaracterized as Non-deployments

NHTSA's Airbag Non-deployment Peer Study included a number of consumer complaints that should not have been classified as non-deployments because the complaint records that the airbags did deploy.

10100207 HYUNDAI ACCENT 2004 2003 [sic] ACCENT WENT OVER RAILROAD TRACKS HIT A BUMP AND AIRBAGS DEPLOYED, WENT TO DEALER HE SAID THE SENSOR ON BOTTOM OF CAR GOT SCRAPED THAT IS WHY THEY DEPLOYED, FACE, ARM AND CHEST BRUISES.

10114187 HONDA CIVIC 2005 AUTOMOBILE ACCIDENT OCCURRED ON DECEMBER 27, 2004 FOR FAILURE OF BRAKES, ON IMPACT EXCESSIVE FORCE OF DEPLOYED AIRBAG CAUSED HAND INJURY. BRAKE PEDAL FADE WHEN CAR WAS IN IDLE, CLICKING SOUND OF BRAKE LINE WHEN STEPPING ON BRAKE PEDAL. CAR WAS SERVICED FOR A FAULTY GEAR POSITIONING SENSOR AS WELL.

10116136 HYUNDAI ELANTRA 2005 CAR INVOLVED IN A LOW SPEED (20-25MPH) COLLISION. FRONT LEFT QUARTER PANEL ENGAGED REAR RIGHT OF PICKUP BED. NO HOOD DAMAGE OCCURED, MINOR BUMPER DAMAGE BUT EXTENSIVE DAMAGE TO FRONT LEFT AXLE ASSEMBLY WHEN IT WAS BROKE LOOSE FROM MOUNTINGS. AIR BAG DEPLOYED ON DRIVERS SIDE. THE DRIVERS SIDE SEATBELT FAILED TO ANCHOR ON HARD BRAKE OR ON IMPACT CAUSING THE DRIVER TO BE FLUNG FORWARD INJURING THE DRIVERS LEFT SHOULDER AND CAUSING THE DRIVERS HAND TO HIT THE WINDSHIELD HARD ENOUGH TO BREAK THE WINDSHIELD. IT IS UNCLEAR WHETHER THE AIR BAG DEPLOYMENT CAUSED THE ARM TO HIT THE WINDSHIELD. SEATBELT JAMED IN EXTENDED POSITION RAISING CONCERN BY THE BODY REPAIR SHOP AND REPLACEMENT OF THE ENTIRE SEATBELT UNIT. FURTURE THE BODY REPAIR SHOP SAID THAT THE "BURN RING" WAS NOT BURNT INDICATING THE FORCE RETRACT NEVER ENGAGED UPON AIR BAG DEPLOYMENT AND SEATBELT WAS NOT EVER RETRACTED AFTER THE ACCIDENT -- MEANING THE WAY IT WAS EXTENDED IS THE WAY IT WAS AT THE TIME THE AIR BAG DEPLOYED.

²⁵ "FLAT FILE COPIES OF NHTSA/ODI DATABASES," <http://www-odi.nhtsa.dot.gov/downloads/folders/Complaints/FLAT_CMPL.zip> downloaded on September 18, 2007.

BODY REPAIR SHOP HAS BEEN INSTRUCTED TO RETURN THE BROKED SEATBELT ASSEMBLE TO ME UP ON COMPLETION OF THE REPAIRS TO THE CAR.

10130809 HYUNDAI ELANTRA 2003 CONTACT STATED ON 10-16-2002 HIS WIFE WAS DRIVING AT 20 MPH AND WAS INVOLVED IN AN ACCIDENT. SOMEONE HIT THE CONTACTS VEHICLE ON THE LEFT FRONT WHEEL ON THE DRIVER'S SIDE, BUT IT ALSO AFFECTED THE PASSENGER'S SIDE WHICH WAS WHERE THEIR HANDICAPPED SON WAS SITTING AND WAS INJURED. THE PASSENGER SIDE AIR BAG CAME OUT, BUT IT WAS NOT INFLATED, IT WAS TORN. HYUNDAI SAID THEY WERE NOT RESPONSIBLE. EVERYONE WAS WEARING A SEAT BELT AT THE TIME OF THE COLLISION. THERE WERE PICTURES, AND A POLICE REPORT. *AK THE AIR BAG DISPLAYED A 4-5 INCH GASH. IT DEPLOYED BUT IT WAS FLAT. THE VEHICLE WAS A TOTAL LOSS.

10131710 SATURN ION 2004 3 VEHICLE ACCIDENT. I COLLIDED WITH ANOTHER VEHICLE AND MY AIR BAGS DEPLOYED. HOWEVER, MY DRIVER'S SIDE AIR BAG DEPLOYED INCORRECTLY. RATHER THEN ONE LARGE AIR BAG, IT CAME OUT IN TWO PIECES DUE TO A FAILURE IN THE STEERING WHEEL "OPENING" COMPLETELY TO RELEASE THE ENTIRE AIR BAG. THIS LEFT THE TOP PORTION OF THE STEERING WHEEL EXPOSED.

Airbag Injury Crash Non-deployment Complaints Not Counted by NHTSA

The NHTSA consumer complaint database records two injury crashes related to the ABND Peer Study vehicle population of airbag non-deployments that were not counted by NHTSA in its analysis:

10081954 HONDA CIVIC 2004 WHEN DRIVING AT LOW SPEEDS VEHICLE SURGED FORWARD. THE VEHICLE SUDDENLY ACCELERATED , BRAKES FAILED AND VEHICLE HIT BRICK WALL HEAD ON. UPON IMPACT, BOTH FRONTAL AIR BAGS DID NOT DEPLOY. CONSUMER HAD THE VEHICLE TOWED TO THE DEALER FOR INSPECTION.

10134061 KIA SPECTRA 2005 WE BOUGHT A KIA SPECTRA 5 ON 06/18/2005, A 2005 MODEL. ON 06/19/05 THE TRANSMISSION WENT OUT (WE WERE THE FIRST OWNERS, LESS THAN 100 MILES) OUR KIA DEALERSHIP REPLACED THE CAR AFTER TWO WEEKS OF TRYING TO REPAIR THE PROBLEM, ON 07/27/05, MY HUSBAND STOPPED AT A STOP SIGN AND TURNED RIGHT, THE CAR WOULD NOT COME OUT OF THE TURN (HUSBAND SAID NOTHING ON THE CAR WOULD WORK, STEERING FROZE AND BRAKES FAILED) HE THEN RAN UP ON A CURVE

CAR SUSTAINED OVER 2800.00 DOLLARS WORTH OF DAMAGE TO UNDERCARRIAGE, WHEELS, DRIVE SHAFT ETC. HUSBAND SUFFERED BRUISES AND CONCUSSION (I AM AN RN HE DID NOT SEE PHYSICIAN) REPORTED TO INSURANCE CO, INSURANCE APPRAISER ALSO AWARE OF CIRCUMSTANCES AND DEALER NOTIFIED, NOTHING WAS DONE. NONE OF THE AIRBAGS DEPLOYED.

Airbag Fatal Crash Non-deployment Complaints Not Counted by NHTSA

The NHTSA consumer complaint database records three fatal crashes related to the ABND Peer Study vehicle population of airbag non-deployments that were not counted by NHTSA in its analysis **of injury crashes**:

10128142 KIA SPECTRA 2004 DT: THE CONSUMER'S ATTORNEY STATED THAT DURING A FRONTAL CRASH THE AIRBAGS DID NOT DEPLOY. THERE WAS A FRONT END COLLISION INTO THREE CEMENT CULVERTS. THERE WAS A POLICE REPORT FILED. THE CONSUMER'S SON WAS DRIVING AND HE PASSED AWAY. A LAWSUIT WAS FILED AGAINST THE MANUFACTURER, BUT THEY DID NOT HAVE ANY INFORMATION AS TO WHY THE AIRBAGS DID NOT DEPLOY.*AK

10164949 CHEVROLET CAVALIER 2003 DT*: THE CONTACT STATED WHILE DRIVING 100 MPH CONTROL OF THE VEHICLE WAS LOST RESULTING IN A CRASH INTO AN EMBANKMENT AND THE VEHICLE FLIPPED OVER. ALTHOUGH SEAT BELTS WERE WORN, THE DRIVER WAS EJECTED FROM THE VEHICLE WHICH RESULTED IN A FATALITY. THE AIR BAGS DID NOT DEPLOY. A POLICE REPORT WAS FILED. SINCE THE CONTACT WAS NOT THE OWNER OF THE VEHICLE, NO OTHER INFORMATION WAS AVAILABLE. THE DEALER HAS NOT BEEN ALERTED.

10171219 CHEVROLET AVEO 2004 MY DAUGHTER LOST CONTROL OF HER 2004 AVEO. THE STATE POLICE OFFICER SAID THAT THE FRONT OF THE CAR HIT THE TREE A HIGH SPEED AND THAT THE AIR BAGS DID NOT DEPLOY. *NM

Airbag Injury Crash Non-deployment Complaints Counted Multiple Times by NHTSA in its 2007 Analysis

10074115	ELANTRA	2003	Counted twice
10100943	COROLLA	2004	Counted twice
10149068	CIVIC	2004	Counted three times

Failure to Include Airbag Injury Crash Non-deployment Complaints of the Honda Civic Hybrid

NHTSA's ABND Peer Study analysis presents complaint rates for model year 2003-2005 Honda Civics with airbag injury crash non-deployments. Information we received from our FOIA request shows that the denominator for this rate is based on production data for all models of the Honda Civic, including the hybrid. This necessitates using a numerator that includes all Honda Civic models. However, we found two complaints which were not included in NHTSA's Peer Study of Honda Civic Hybrids for airbag injury crash non-deployments.

10066671 HONDA CIVIC - HYBRID 2004 WHILE DRIVING AT 20 MPH AND CROSSING A STOP LIGHT THE CONSUMER WAS T-BONED ON THE DRIVERS SIDE BY ANOTHER VEHICLE. THE SIDE AIR BAGS DID NOT DEPLOY. THE CONSUMER SUFFERED BACK INJURIES.

10177886 HONDA CIVIC-HYBRID 2003 THE CONTACT CALLED IN FOR HIS CLIENT, STATES THAT THE CLIENT WAS DRIVING HER 2003 HONDA CIVIC HYBRID ON 10/12/06. THE DRIVER WAS SITTING AT A STOP SIGN AND A SEMI TRUCK HIT THE CLIENT'S VEHICLE. THE ATTORNEY STATES THAT THE TRUCK HIT THE CLIENT'S VEHICLE AT 40-50 MPH. THE IMPACT CAUSE DTHE CLIENT TO HIT ANOTHER VE- HICLE WHICH CAUSED A 5 VEHICLE CRASH. THE ATTORNEY WAS CONCERNED THAT THE AIRBAGS DIDN'T DEPLOY, AND THE CLIENT SUSTAINED FACIAL INJURIES. THE DRIVER DID HAVE ON THE SEAT BELT AND IT DID RESTRAIN HER. THE DRIVER HAD TO BE CUT OUT OF VEHICLE BY THE FIRE DEPARTMENT. THE POLICE RE- PORT AND PHOTOS OF THE CRASH WERE AVAILABLE.

Acknowledgement

We note for the record that Quality Control Systems Corp. has undertaken research projects sponsored by law firms representing plaintiffs in litigation with General Motors. We note also that we have undertaken research projects sponsored by attorneys representing auto manufacturers in litigation as well as the manufacturers' insurers.

This research project has not been sponsored by any outside source.