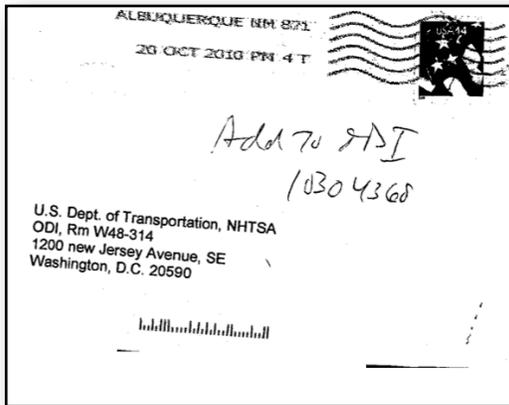


Consumer Complaints and Warranty Repairs in NASA-NHTSA's Toyota Study of Unintended Acceleration

July 21, 2011

Report by Quality Control Systems Corp. • www.quality-control.us



TQCN DOOR	ALBUQU	Dept.	Dealer Code	#ref	Date
TQCN_DPR-052050026	SET	QAElectrical	09190	92310849	08/19/2009
Dealer Name	Dealer City	State	Region	Source	
DAYTONA TOYOTA	DAYTONA BEACH	FL	SET	TECH	
Primary Model	Model Year	Production Date	Odometer	VIN	
Tundra	2008	22-OCT-07	31700 mi	5TBR754158S	
Part # 1	Part # 2	Part # 3	Parts Destination	Parts Available	Repair Date
8463208021			CQE	Available upon request	7/24/2009
Condition Title	Applicable OTC Code(s)				
Cruise Control Switch					
Condition Description					
Customer stated that while using the cruise control the vehicle would continue to accelerate. This would typically occur after cruise was set, applied brakes, and reset speed using resume feature. Problem was duplicated					
Diagnostic Steps:					
Test drove vehicle and performed steps according to customers description. When attempting to reset speed using resume, scan tool data showed that resume signal was on continuously. It did not happen every time and speed was not a factor.					
Probable Cause					
Circuit malfunction in cruise control main switch.					
Repair Process					
Replaced cruise control switch and retested system. No failure found.					

Report for
Safety Research
& Strategies, Inc.

Consumer Complaints and Warranty Repairs in NASA-NHTSA's Toyota Study of Unintended Acceleration

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We have attempted to replicate and better understand the statistical analyses of the National Highway Traffic Safety Administration's (NHTSA's) consumer complaint data, known as Vehicle Owner Questionnaires (VOQ), and Toyota's warranty repair data which are presented in the "Technical Assessment of Toyota Electronic Throttle Control (ETC) Systems [Full Report]."¹

These same data were also analyzed in the NASA Engineering and Safety Center's (NESC) "Technical Support to the National Highway Traffic Safety Administration (NHTSA) on the Reported Toyota Motor Corporation (TMC) Unintended Acceleration (UA) Investigation [Full Report]."²

A review of scientific research generally works best when there is a channel of communication with the authors of the original research. However, the leader of the NESC team, Mr. Michael T. Kirsch, did not respond to invitations by telephone and email to discuss their report.

In April 2010, NHTSA engaged NESC to conduct a study into potential electronic causes of unintended acceleration (UA) in Toyota vehicles. While consumers have lodged complaints with NHTSA describing a variety of unintended acceleration scenarios, NESC largely focused on a single UA scenario: large throttle openings in which the brakes were reportedly ineffective. The resulting report considered the narrow question of how Toyota's Electronic Throttle Control System-intelligent (ETCS-i) could open the throttle without driver input and without setting a Diagnostic Trouble Code (DTC). NESC concluded that ETCS-i electronics were not the "likely cause of large throttle openings as described in

¹ accessed on April 28, 2011 from the Agency's website at <<http://www.nhtsa.gov/UA>>

² accessed on April 28, 2011 from the Agency's website at <<http://www.nhtsa.gov/UA>>

the VOQs,”³ although the research team conceded that “proof that the ETCS-i caused the reported UAs was not found does not mean it could not occur.”⁴ The consumer complaint, or VOQ data, considered in conjunction with Toyota’s warranty repair data provided the support for this conclusion. Specifically, NASA and NHTSA relied upon these data to indicate “whether electronics failures occur in large enough quantities to corroborate an electronics cause of [unintended acceleration events].”⁵ Further, these data were crucial to NHTSA’s and NASA’s refutation of the likely importance of Professor David Gilbert’s and Mr. Omar Trinidad’s investigation of Toyota’s ETCS-i, which questioned “the integrity and consistency of Toyota ECMs to detect potential ETC system circuit malfunctions.”⁶ Gilbert and Trinidad demonstrated how double faults within the circuitry of the accelerator pedal position sensor, which conveys the driver’s desired speed and opens and closes the throttle, could result in a UA, without setting a Diagnostic Trouble Code. The same data were used by these agencies to dismiss the potential threat to safety which was brought to light by NASA’s own discovery of tin whiskers in critical throttle control circuitry.⁷

NHTSA/NASA’s Interpretation of the Complaint and Warranty Data

To interpret the complaint and warranty data, the agencies established a remarkable decision rule in their statistical analyses:

“Warranty repair records can provide data indicating whether electronics failures occur in large enough quantities to corroborate an electronics cause of UAs. A dual failure is postulated to cause a condition that can result in unintended larger than >25 degrees relative throttle openings as described in [Section 6.5.2 of the NASA Report]. This postulated condition would require two single failures therefore warranty records should contain a higher incidence of these single failures.”³

This rule may be characterized as follows:

³ NASA report, page 17

⁴ NASA report, page 17

⁵ NASA report, page 36

⁶ Pg. 14; Toyota Electronic Throttle Control Investigation Preliminary Report; David Gilbert and Omar Trinidad; Feb. 21, 2010

⁷ NASA report, page 112

If the total summary count of a particular class of accelerator pedal warranty repair claims (representing single faults in the control system) reported by Toyota was larger than the summary count of NHTSA VOQs in which the vehicle experienced UA and the brakes were degraded or impaired (representing double faults in the system), this fact would be regarded as evidence of an electrical cause of unintended acceleration.

Conversely, if the summary count of the VOQ data exceeded the total summary count of the appropriate warranty repair data, it would be regarded as a lack of corroboration for an electronics cause of UA.

Using this rule, NASA arrived at the following conclusions:

- “Review of VOQs and warranty data during the first 36,000 miles involving accelerator pedal circuits indicates there are fewer reported warranty repairs than reported UA incidents consistent with large postulated >25 degrees relative throttle openings with degraded braking.”⁸
- “VOQ analysis described in Section 6.2.4 [of the NASA Report] indicates a total of 540 VOQs might be caused by electronics if the failures result in large throttle openings greater than 25 degrees above idle. Figure 6.2.5-1 [of the NASA Report] shows most of these reported incidents, with mileage noted, 132 occurred in the first 10,000 miles of vehicle operation with 305 occurring within a nominal 36,000 warranty period. Of the 404 accelerator pedal warranty returns, 249 occurred within the first 36,000 miles.”⁹

Under NHTSA-NASA’s approach, because the number of VOQs with large throttle openings and degraded or impaired braking within the nominal 36,000 mile warranty period (305 complaints) is greater than the number of “accelerator pedal warranty returns” (249 repair claims) in the first 36,000 miles with specific diagnostic trouble codes set, NASA concluded there was not a “large enough” quantity of warranty repairs with DTCs to corroborate an electronics cause of unintended acceleration in the Camrys studied. This is the only direct comparison of the VOQ data to the warranty data to corroborate an electronics cause of UA that controls for mileage. Presumably, if 57 fewer consumers had complained (305 - 57 = 248) in the first 36,000 miles of operation, there might have been an

⁸ NASA report, page 36

⁹ NASA report, page 36

appropriate number of complaints in comparison to the warranty claims for NASA to find support for an electronics cause of UAs.

The potential problem of NASA's tin whisker discovery is similarly dismissed by comparing a count of warranty repair claims with specific DTCs to a count of a particular class of consumer complaints. However, in this case, the comparison is made without any control for mileage related to warranty coverage:

"If electronics were the cause, then it would be expected to have far more DTCs set by single faults, than by dual faults. There are 348 [sic] pedal and ECM-related DTCs (1120, 1121 and 2121), as shown in Table 6.2.5-1, and 540 VOQs which might be caused by electronics, as described in Section 6.2.4. While not proof, warranty data does not indicate an elevated occurrence of pedal or ECM-related DTCs with respect to the number of VOQs."¹⁰

The throttle opening threshold is further described as, "those with the potential to create greater than 25 degrees unintended relative throttle openings that could impair power braking if the brakes were pumped."¹¹ The rationale for this choice is explained as: "At the request of the NESC team, NHTSA evaluated a MY 2005 Camry V6 to characterize vehicle deceleration as a function of throttle opening with a depleted vacuum system. NHTSA's testing indicates that the MY 2005 Camry vehicle with depleted vacuum could be decelerated at 0.25 g with 112 lbf on the brake pedal, with a throttle opening of less than 30 degrees above idle, or less than 24 degrees above idle while at worst case gross vehicle weight rating. Therefore, a relative throttle opening of 25 degrees above idle or 35 degrees absolute is used for characterizing the amount of throttle opening necessary to match the reported symptoms of large acceleration with impaired braking ability."¹²

The Underlying Assumptions

We question the foundation of this novel method of assessing evidence based on relative counts of VOQ and warranty data. The NASA Report itself recognizes that the incidence of UA can't be directly inferred from consumer complaints to NHTSA: "...it is difficult to extrapolate from the frequency of events reported to

¹⁰ NASA report, page 112

¹¹ NASA report, page 17

¹² NASA report, page 59

the total number of events that occurred in the entire population. While it is unlikely that reporters are fabricating events, the larger concern is that a substantial, but unquantifiable number of events go unreported.”¹³ That is, the rate at which UA events, or UA events with impaired braking, are reported to NHTSA once they occur is altogether unknown. Yet, any interpretation of the relative counts of consumer complaints and warranty repair counts requires prior knowledge about the underlying reporting rates.

Similarly, the rate at which single faults occur in accelerator pedal sensor circuits, are recognized by the consumer, set the malfunction indicator light (MIL), set specific diagnostic trouble codes, and then result in accelerator pedal repair claims to Toyota is also unknown. Such “missing data” would include consumers who experience single faults which may not set the MIL, or which set no diagnostic trouble codes, or which are not repaired.

For example, we are aware of a single fault condition in an accelerator pedal sensor circuit that did not result in a repair because Toyota did not have an appropriate repair available. This was seen in a “TMS Market Impact Summary” concerning the 2004 and 2005 Toyota Prius.¹⁴ The summary notes a “loss of accelerator pedal response and MIL ‘ON’ P2128 (Throttle/Pedal Position Sensor/Switch E Circuit High Input).” When this occurred the “vehicle goes into limp mode and loses accelerator response until power status is cycled Ready ‘OFF’ and then ‘ON’ again.” This summary notes that there are no recovered parts and “No repair is available at this time” despite 29 warranty claims. Presumably, similar claims in the Camry, had they occurred, would not have been included in the warranty repairs counted by NASA.

It is not clear that the “limp-home” fail-safe mode associated with single faults is generally recognized by consumers as anything other than a temporary loss of power incident that does not necessitate a repair or that may be impossible to repair if it is intermittent. For example, one consumer in a 2001 Prius complained that, “While driving vehicle lost power. The warning light illuminated on the dash[b]oard. However, the problem had not been resolved.”¹⁵ Or the problem may appear to be intermittent: “When driving my 2005 Toyota Solara, the accelerator stops responding. No matter the pedal position, the vehicle will only idle.

¹³ NASA report, page 26

¹⁴ See TOY-TQ001-04B-00000001P. pdf in NHTSA Investigation TQ10-001

¹⁵ ODINO 10089612

This has happened 4 times in the last two months and is entirely unpredictable as to when it will occur.”¹⁶ We note also NASA’s observation (O-3) that “...only a generic, multi-purpose check engine light occurs for off-nominal ETC conditions.”¹⁷ It may well be true that the check engine light accompanying a loss of power is confused by consumers as an indication of a fault in the emissions control system or a loose gas cap. This might be confirmed in consumers’ minds if the light goes away without a repair. Such “single miss” events are missing from the warranty repair data, but at a rate which is unknown. The fact that this reporting rate is unknown makes it problematic to conclude anything about corroboration of an electronic cause of UA that depends on counts of warranty repair claims in relation to the counts of consumer complaints.

A necessary corollary to NHTSA and NASA’s decision rule is the extraordinary position that, given any count of warranty repair claims, if only a very few consumers had complained to NHTSA about UA events with impaired braking *or if no consumer had ever complained*, an electronics cause of UAs would have been corroborated. Neither NHTSA nor NASA cited any empirical study supporting this novel interpretation of relative counts of warranty repairs in comparison to consumer complaints. Neither agency discusses available evidence that undercuts this logic.¹⁸

NASA never justified their decision to exclude from their consideration of warranty claims those involving the engine control module, the throttle position sensors, and other components of the electronic throttle control system beyond this “postulation:” “Detailed examination of Camry warranty repair items centered around [diagnostic trouble codes] and repair items involving the accelerator pedal circuits because system analysis and testing indicated a postulated cause of >35 degrees (absolute) throttle increase (>25 degrees relative) UA involved dual accelerator pedal sensor failures and/or their interface electronics to the ECM.”¹⁹

NASA never justified their further postulation that: “The majority of reported VOQs had an unknown cause... They are characterized by postulated UA large

¹⁶ ODINO 10304598

¹⁷ NASA report, page 173

¹⁸ Haiyu Qi, Sanka Ganesan, and Michael Pecht, “No-fault-found and intermittent failures in electronic products,” in *Microelectronics Reliability*, 48 (2008) 663–674.

¹⁹ NASA report, page 37

acceleration with a >25 degree-throttle increase above idle.”²⁰ Yet we are not aware of any creditable research which holds that all large acceleration, hard-to-control events from “unknown causes” must be related to the vehicle’s electronics. NASA might just as well have postulated that half of the complaints could be postulated as having a > 25 degree-throttle increase above idle. If they had done so, the logic of their decision rule would have pointed to the corroboration of an electronics cause of UA, since the resulting count of consumer complaints would then have been less than the warranty repair count.

Problems with NASA’s and NHTSA’s Classifications of the Consumer Complaint Data

In attempting to replicate the counts of consumer complaints, we were found it difficult to accept the agencies’ justification for characterizing precise degrees of throttle opening based on consumers’ narrative descriptions. To arrive at their summary counts, NHTSA and NASA coded VOQ data under a set of criteria which considered several elements: the driving scenario during the UA event; the braking condition, and a precise degree of throttle opening inferred from the VOQ narrative. Ultimately, the agencies’ VOQ dataset was classified by precise throttle openings inferred from the consumer complaint data that were related to impaired or degraded braking. Our analysis of the coding identified two problems:

- The throttle opening criterion was applied in a contradictory fashion and,
- VOQs were included in the dataset which should have been excluded because they did not meet the braking criteria.

We did not attempt to examine all of the complaints to determine whether the apparent miscoding was widespread. Even so, it is clear that NHTSA and NASA included VOQs that did not fit the study’s stated braking criteria. We found that the coding of “>25 degrees relative throttle opening and degraded or ambiguous braking” did not strictly depend on degraded braking. Some VOQs clearly describe large throttle openings and effective braking. Even according to NASA, driving conditions characterized as starting or stopping and at lower vehicle speeds included the following: “Engine speed increases when/while accelerator is applied, brakes reportedly effective.” and “Driver states high engine power while foot is on the brake, vehicle remains stationary or is highly re-

²⁰ NASA report, page 33

strained, and brakes are fighting the acceleration/engine power output.”²¹ The specific language used in the narrative portion of some VOQs confirms this is true:

“WHILE DRIVING 5 MPH AND PULLING INSIDE OF A PARKING LOT VEHICLE SUDDENLY ACCELERATED. CONSUMER WAS ABLE TO MAINTAIN CONTROL OF THE VEHICLE BY APPLYING THE BRAKES... [According to NASA, if electronics were the cause, this must be due to a greater than 35° throttle opening].”²²

“THE CONTACT OWNS A 2009 TOYOTA CAMRY. WHILE THE CONTACT WAS DRIVING 5 MPH, THE VEHICLE HAD SUDDENLY SURGED FORWARD WITHOUT WARNING. THE CONTACT WAS ABLE TO STOP THE ACCELERATION BY APPLYING PRESSURE TO THE BRAKES... [According to NASA, if electronics were the cause, this must be due to a greater than 35° throttle opening].”²³

“THE CONTACT OWNS A 2005 TOYOTA CAMRY. THE CONTACT STATED AS SHE WAS DRIVING 12 MPH APPROACHING THE RED LIGHT, THE VEHICLE ACCELERATED ALMOST HITTING TWO OTHER VEHICLES IN FRONT OF HER. AS SHE SWERVED THE VEHICLE AND DEPRESSED THE BRAKES THE VEHICLE STOPPED... [According to NASA, if electronics were the cause, this must be due to a greater than 35° throttle opening].”²⁴

In the category, “driving at roadway speeds,” VOQs can also be identified which were characterized by NHTSA and NASA to have “degraded braking” in cases where the driver states that there was effective braking. For example:

“THE CONTACT OWNS 2005 TOYOTA CAMRY. WHILE DRIVING 50 MPH, THE ACCELERATOR PEDAL BECAME STUCK TWICE. THE FAILURE OCCURRED ONE TIME IN THE FALL AND AGAIN WHILE DRIVING 45 MPH IN THE SUMMER. WHEN THE CONTACT TAPPED THE BRAKES, THE VEHICLE STARTED TO DECREASE IN SPEED EACH TIME... [According to NASA, if

²¹ NASA report, page 33

²² ODINO 10061716

²³ ODINO 10316861

²⁴ ODINO 10311913

electronics were the cause, this must be due to a throttle opening of greater than 25 degrees above idle]."²⁵

"THE CONTACT OWNS A 2010 TOYOTA CAMRY. WHILE DRIVING 25 MPH THE VEHICLE RAPIDLY ACCELERATED TO 45 MPH. THE CONTACT APPLIED THE BRAKES IN ORDER TO STOP THE VEHICLE. THE CONTACT HAS NOT TAKEN THE VEHICLE TO THE DEALER. THE CONTACT STATED WHEN THE VEHICLE ACCELERATED IT COULD HAVE CAUSED A CRASH. THE FAILURE MILEAGE WAS 7,800 [According to NASA, if electronics were the cause, this must be due to a throttle opening of greater than 25 degrees above idle]."²⁶

"THE CONTACT OWNS A 2005 TOYOTA CAMRY. THE CONTACT STATED WHILE DRIVING AT 25 MPH THE VEHICLE SUDDENLY ACCELERATED. THE CONTACT SLAMMED THE BRAKES TO BRING THE VEHICLE TO A COMPLETE STOP... [According to NASA, if electronics were the cause, this must be due to a throttle opening of greater than 25 degrees above idle]."²⁷

In conditions of "highway merging, passing, [or] accelerating at road speed," it is also possible to find at least one case in which the consumer does not indicate a problem with the brakes:

"DRIVING THROUGH TOWN IN MY '08 CAMRY AT ROUGHLY 35-40 MPH. I RELEASED MY FOOT OFF THE ACCELERATOR, AND NOTICED THAT MY CAR WAS NOT SLOWING DOWN. I DID NOT HAVE THE CRUISE ON... NORMALLY WHEN I RELEASE MY FOOT OFF THE GAS, THE SPEED DECREASES QUITE RAPIDLY. I THOUGHT NOTHING OF IT, AND LET IT CRUISE, AT THE SAME SPEED, FOR ABOUT ONE MILE, UNTIL I APPROACHED A STOP SIGN. I PRESSED THE BRAKE, AND EVERYTHING SEEMED NORMAL AFTER THAT... [According to NASA, if electronics were the cause, this must be due to a throttle opening of greater than 25 degrees above idle]."²⁸

²⁵ ODINO 10314540

²⁶ ODINO 10316902

²⁷ ODINO 10312707

²⁸ ODINO 10308564

In some cases it is difficult to understand how the degree of the throttle opening could possibly be characterized in the absence of any reference to the brakes or braking or the length of time of the UA event. For example:

“WHILE PARKING VEHICLE ACCELERATED AND CRASHED INTO A WALL. UPON IMPACT, AIR BAGS DID NOT DEPLOY. NO INJURIES REPORTED [According to NASA, if electronics were the cause, this must be due to a greater than 35° throttle opening].”²⁹

“WHILE PULLING INTO A PARKING SPACE, THE VEHICLE SUDDENLY ACCELERATED AND HIT A WALL. THE CAUSE OF THE SUDDEN ACCELERATION WAS UNDETERMINED [According to NASA, if electronics were the cause, this must be due to a greater than 35° throttle opening].”³⁰

“THE CONTACT OWNS A 2005 TOYOTA CAMRY. WHILE MAKING A LEFT TURN THE VEHICLE BEGAN TO ACCELERATE. AS A CONSEQUENCE SHE CRASHED INTO A PARKED VEHICLE. THE VEHICLE WAS COMPLETELY DESTROYED... [According to NASA, if electronics were the cause, this must be due to a greater than 35° throttle opening].”³¹

We do not now know the actual extent to which NHTSA and NASA’s inexplicable characterizations of the consumer VOQs result from changes in the VOQ data since their review or from mistaken, or even baseless, characterizations of the throttle openings. Because NHTSA did not maintain their original source data, there is no way for the public to know. (See Replication of Statistical Analyses by NHTSA and NASA below.)

Toyota/Exponent’s Secret, Warranty Data

We have even less knowledge about Toyota/Exponent’s source warranty repair data. It is of interest that, even though Toyota’s attorney offered to “consent to the public release of a statistically valid, random sample of the warranty database, up to 1% of the records contained in the database,”³² NHTSA has contin-

²⁹ ODINO 10094284

³⁰ ODINO 10065475

³¹ ODINO 10296353

³² Memorandum from Erika Z. Jones to Kevin Vincent, February 17, 2011, Subject: Toyota: Request for Review of NHTSA-NASA Report.

ued to keep even this small amount of data secret. The Secretary of Transportation, Mr. Ray LaHood, who proclaimed that “We enlisted the best and brightest engineers to study Toyota’s electronics systems, and the verdict is in,”³³ has the statutory authority to release all of the warranty data.³⁴ He has never done so.

Replication of Statistical Analyses by NHTSA and NASA

We filed Freedom of Information Act requests for the foundational source data used by both NASA and NHTSA in their analyses of VOQ and warranty data. Despite NASA’s assertion that “analyses and tests characterizing all identified areas of concern were performed and the NASA Engineering and Safety Center (NESC) team documented their findings, observations, and NESC recommendations in this report,”³⁵ NASA surprisingly responded to our FOIA request that the requested source data documenting their findings were “not an Agency record of NASA. Rather all items related to the report are an Agency record of the NHTSA.”³⁶

Our FOIA request to NHTSA sought “all of the underlying VOQ data necessary to replicate the summaries in [specific] tables and figures [in the NHTSA report], including the original raw data...” Remarkably, NHTSA responded that it had not retained all of the original raw data in the dataset it compiled to base its report:

“It was unnecessary for the agency to separately maintain each ODI identification number supporting [Figures 1 and 2 of the NASA report]... The agency cannot simply search the complaint database with the same search criteria used to generate figures 1 and 2 and produce the exact same complaint data because the agency’s complaint database is not static... Please note that complaint identification numbers were neither used nor maintained to generate [Figure 3]... For tables 2 through 6... we note that because NHTSA’s consumer complaint database is dynamic, as explained above, the underlying consumer complaints may have been modified due to additional information or quality control... With respect to

³³ “NASA’s Toyota Study Released by Dept. of Transportation,” <<http://www.nasa.gov/topics/nasalife/features/nesc-toyota-study.html>>, accessed July 15, 2011.

³⁴ 49 U.S.C. § 30167 and its implementing regulation, 49 CFR 512.23.

³⁵ NASA report, page 9

³⁶ FOIA response from Langley Research Center to Quality Control Systems Corp., June 28, 2011

table 2, the agency did not maintain a record of the 426,911 ODI identification numbers in the first row..."³⁷

In responding to our FOIA, NHTSA did make a serious effort to recreate the source data from a version of the consumer complaint database contemporaneous with our request. While this effort was very helpful to us and we are grateful for it, it should be recognized that the VOQ data we report here may differ from the source data which were originally reviewed by NHTSA and NASA. *Even though these two studies were published only five months ago, NASA and NHTSA cannot now reproduce the exact source data they actually relied upon to dismiss potential safety problems in Toyota's fail-safe strategies or those that may be posed by tin whiskers in the safety-critical throttle control circuitry.*

According to the NHTSA report, "In May 2010, NHTSA made a request for warranty data on all ETCS-i equipped vehicles sold in the U.S., asking Toyota to provide details for any claim involving, a) one of the primary ETC hardware components, the ECM, the throttle actuator, the accelerator pedal, and any related wiring or harness connectors, or b) any of the diagnostic trouble codes (DTCs) that relate to a potential failure of the hardware or ETC system. Toyota provided its response in June 2010..."³⁸ We filed a FOIA request for these data. Through our FOIA request, we discovered that the warranty data that were part of "Toyota's response" came not from Toyota, but from Toyota's litigation experts, Exponent. Unfortunately, the Agency decided to accede to Toyota's desire to keep these warranty data secret. Therefore, our request was denied and we are presently unable to review the actual source data.

Because of this secrecy, we are not in the best position to fully understand the coverage and relevance of the warranty data to the consumer complaints. For example, we were struck that NASA's analysis covers diagnostic trouble codes P1120 ("All others"), P2123 ("VPA1 High"), and P2138 ("VPA1 VPA2 Short") even though these were not included in NHTSA's request for data. We are unable to determine whether the inclusion of some repairs with these codes in Table 6.2.5-1 of the NASA report³⁹ may be due to chance (e.g., from multiple codes listed in the same repair) or from a systematic query for these specific codes. If queries for repairs with these specific codes were not systematic, then the related

³⁷ FOIA response from NHTSA to Quality Control Systems Corp., April 6, 2011

³⁸ NHTSA report, page 32

³⁹ NASA report, page 38

accelerator pedal warranty repairs are undercounted, which might affect NASA's conclusion that an electronics cause of large, hard-to-control UAs could not be corroborated.

It is also of interest that warranty repairs with codes P0121, P0123, and P2135 are not included in NASA's analysis, since such data were actually supplied by Toyota/Exponent to NHTSA⁴⁰ and because we're aware of foreign warranty repairs involving the accelerator pedal sensor assembly that were actually performed when these specific codes were discovered.⁴¹

Conclusion

NHTSA's and NASA's analytical approach to the consumer complaint and warranty repair data cannot be accepted as authoritative. This is true if for no other reason than it relies on secret, warranty data as well as consumer complaint data that can't be produced in response to FOIA requests.

NHTSA's and NASA's analytical approach is also radically anti-consumer. Consider the example of the following consumer complaint:

"ON NOV 23, MY WIFE HAD AN ACCIDENT IN HER 2009 CAMRY. SHE WAS PULLING INTO A PARKING SPACE WHEN THE CAR ACCELERATED. THE CAR CONTINUED TO ACCELERATE WITH THE BRAKE ON. THE CAR HAS BEEN COSMETICALLY FIXED (\$9500). WE HAVE NO FAITH IN THIS RECALL FOR GAS PEDAL. THERE IS MUCH MORE HERE, A SENSOR OR COMPUTER FAILURE. TOYOTA HAS STILL NOT FIXED OUR CAR BECAUSE THEY DO NOT HAVE RECALL PARTS YET. THEY ALSO SAID THEY WERE GOING TO INSTALL BREAK OVER-RIDE SOFTWARE WHEN THAT BECOMES READY. PLEASE CONTINUE YOUR INVESTIGATION. I FEEL WE HAVE NOT HEARD THE LAST ABOUT THIS ISSUE."⁴²

By NHTSA and NASA's extraordinary logic, this consumer's plea to "PLEASE CONTINUE YOUR INVESTIGATION" into Toyota Unintended Acceleration was

⁴⁰ Memorandum from Subbaiah V. Malladi, Exponent, Inc. to Jeff Quandt, NHTSA, June 28, 2010, Subject: ETCSi Warranty Data.

⁴¹ See <<http://www-odi.nhtsa.dot.gov/acms/docservlet/Artemis/Public/Pursuits/2010/RQ/INRD-RQ10003-46280P.mdb>>, claims 910251877754, 910252637627, 941110500205, 946517253951, 960420840736)

⁴² ODINO 10304488

considered and counted in such a way that the complaint directly contributed to NHTSA's decision to close its investigation.

This is not to say that all consumer complaints should be accepted uncritically, or automatically trigger investigations and recalls. There are certainly legitimate instances in which NHTSA may consider a consumer complaint, and for many reasons, decide not to take action – for example, because the defect is not actually safety-related.

NHTSA's and NASA's approach to potential problems in Toyota's electronic throttle control system is fundamentally different. Given the number of warranty claims secretly reported by the manufacturer's litigation experts, this remarkable methodology necessarily counts each and every consumer's complaint of hard-to-control, unintended acceleration as additional evidence against an electronic causation for these events – even when consumers state a definite belief that electronics are the cause. The more these consumers complain, the more their reports are discounted.

While posing as scientific, such a practice belittles and punishes consumers for complaining to NHTSA. This dangerously degrades NHTSA's ability to detect motor vehicle safety defects in the future.

It is also extraordinary that the NASA-NESC team, as safety experts, would look upon secret warranty data reported by a manufacturer's litigation experts as evidence of the lack of corroboration of an electronics cause of unintended acceleration. This is especially true because the compromised, safety-critical, electronic circuitry was discovered in an accelerator pedal sensor assembly examined in a NASA laboratory. In addition, the problem discovered in the NASA lab is closely related to a demonstrated problem in the integrity of Toyota electronic control modules to detect potential electronic throttle control system circuit malfunctions. The NASA-NESC team themselves independently replicated this demonstration. Only NASA's and NHTSA's analysis of the complaint data in relation to the secret, warranty data is cited to support the lack of relevance of these findings to public health and safety. It is very remarkable that NHTSA will not allow the warranty data to be reviewed by the public and did not even reveal the actual source of these data, Exponent, Inc., in its report.

It is difficult to imagine NASA itself accepting assurances from a manufacturer of its own spacecraft that similar problems in important safety systems should be

regarded as inconsequential. Yet it is the NASA-NESC report on which NHTSA relied to close its investigation.