

CL-10489781-4521

DEC 14 2012

To: US Department of Transportation

NHTSA

Office of Defect Investigation (NVS-210)

1200 New Jersey Avenue SE

Washington, D. C. 20590

From:

[REDACTED]

Graysville, TN [REDACTED]

Case #48170

INFORMATION Redacted PURSUANT TO THE FREEDOM OF
INFORMATION ACT (FOIA), 5 U.S.C. 552(B)(6)

To Whom It May Concern,

Along with this correspondence you will find a copy of the information provide to us by Toyota Motor Sales , U.S.A. ,Inc. This information was retrieved from a flash drive sent to us by Toyota on October 18, 2012 and the written report was received on December 3, 2012.

We request that the information provide to you be reviewed for accuracy as we have no way of knowing how to interpret such data. All of this has been provided by Toyota and its representatives so we do not know how to determine accuracy or if data can be manipulated.

What we do know is this—the steering wheel air bag did not deploy until after [REDACTED] smashed her chest against the steering wheel—the seat belt did not prevent her from smashing her chest against the steering wheel—nor did the knee air bag deploy until after he knees were smashed against the lower dash. She suffered severe bruising but did not have to be hospitalized.

Please let us know your results—email [REDACTED] mobile. If a written report is provided, please mail to address listed above.

Thank you for your attention to this matter as we wish no one else to experience what happened to my wife.

[REDACTED]

12/5/2012

NH
12/17/12
pm

TOYOTA

Sandee Estrada

Direct Phone: (310) 468-3100

Fax: (310) 381-6000

Toyota Motor Sales, U.S.A., Inc.
19301 South Western Avenue
Torrance, CA 90501

November 27, 2012

[REDACTED]
Graysville, TN [REDACTED]

RE: Date of Loss: September 8, 2012
Vehicle: 2012 Toyota Prius
VIN #: JTDKN3DU9C5 [REDACTED]

Dear [REDACTED]

This letter is in response to your communication with Toyota's Customer Experience Center in regards to the above referenced incident.

It is our understanding that you reported your wife was involved in an accident and you expressed concern that the front and knee air bags deployed late and that the seatbelt did not restrain her properly in the seat, resulting in injuries.

The vehicle was inspected on September 25, 2012 in regards to your concerns. The inspection determined that the Supplemental Restraint System air bags performed as designed. Please be advised that air bags deploy in 1/30th of a second, which is literally faster than the blink of an eye and they inflate very rapidly. The impact and the deployment would occur simultaneously, hence cannot readily be observed, especially during the confusion of the collision. From the inspection it has been determined that the SRS air bags in your vehicle deployed properly in this incident. The driver side seat belt was thoroughly inspected and found to be operating as designed. The pretensioner had properly deployed and locked the seat belt in place at the time of the impact.

We are very sorry to hear about this unfortunate incident; however, there is no evidence of any manufacturing or design defect with the SRS air bags or seatbelt. Thank you for allowing us to address your concerns.

Very truly yours,



Sandee Estrada

Legal Claims Administrator

Toyota Motor Sales, U.S.A., Inc.

To: Sandee Estrada

19001 South Western Avenue

Torrance, CA 90501

From:

Graysville, TN

Subj: Letter dated November 27, 2012/Case number 1209100761

Case number for NHTSA/48170

Date: December 4, 2012

On September 8, 2012 [REDACTED] was involved in an accident with our 2012 Toyota Prius 3. The car received severe front-end damage to the extent of almost \$12,000.00. When her car was struck by an on-coming driver, her seatbelt did not prevent her from crashing her chest into the steering wheel nor did the air bag deploy in time to prevent her from crashing into the steering wheel. Result—severe bruising, severe pain and discomfort, and stress. Also, the lower dash knee air bag failed to deploy in time to prevent severe bruising to her knees. Fortunately for her, even though these safety devices did not perform appropriately, she was not injured to the point of hospital admission.

On September 25, 2012 a Toyota factory representative performed a vehicle inspection and we finally received the written report on Monday, December 3, 2012. Over two months is not the timeline we expected and were told issues on Toyota's part resulted in this long wait.

As we expected, information collected from the "black box" in our car along with the visual inspection performed by someone from Toyota indicated that all safety equipment designed to protect as it should and in conclusion, there was no evidence of any manufacturing defect with the air bags or seatbelt. However, what the "black box" could not sense apparently or did not see is that yes, the air bags deployed BUT only after my wife hit the steering wheel with her chest and the lower dash with her knees. What the seat belt could not tell anyone is that the force of my wife's body moving forward pulled out the seat belt enough that it allowed her to hit the steering wheel and then, the seat belt stretched out and left hanging, and when she opened the door, the seat belt fell on to the ground as witnessed by the Deputy Sheriff.

Since we are not qualified to inspect or read computer data regarding this issue, we are forwarding the results to the NHTSA—the report from Bosch and the Crash Data Retrieval—and a copy of this

correspondence. We are confident that they can interpret said data. WE have no idea if any of this can be manipulated but they can provide the necessary feedback.

We also have concern with the length of time it took to make this inspection, the length of time it took for us to see the results and the length of time it took to get necessary parts to repair our car. Toyota of Murfreesboro had our car in their possession by Tuesday of the following week (9/11/2012) and we did not get our car back until Monday, October 8, 2012—the estimate date to deliver our car was 13 days to repair—part of the problem—EVIDENTLY, IN ALL OF THE USA THERE WAS NO KNEE AIR BAG AVAILABLE AND ONE NEEDED TO BE MADE IN JAPAN—SHIPPED TO LA—SENT TO THE DEALER . I WAS ALSO TOLD BY YOUR PARTS “BOSS” JAY--IN LA THAT HE WOULD OVERNITE THE PART—BUT HE COULD NOT AS THIS WAS CONSIDERED HAZARDOUS MATERIAL AND COULD ONLY BE SHIPPED VIA GROUND.

As you can see the 13 day repair window closed. Our car was at the dealership 20 work days++++

Not having our car for this long was a severe hardship. The only other transportation we had available was a collector car and it cost us money and miles on this vehicle. We spent over 300.00 dollars on gas that would not have been necessary if our car had been fixed in 13 days.

We love our Prius but not the nightmare caused and honestly, it is hard to believe that my wife would have been so severely beaten and bruised if the air bags and seatbelt had performed as expected.

Does Toyota also know that this accident and repair done by the body shop from whom we bought our car caused us to lose over 8000 dollars in diminished value even though the car was less than a month old—current value now 18,000 dollars and not 26,500*****



F H I

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

CDR File Information

User Entered VIN	JTDKN3DU9C5 [REDACTED]
User	Stefanos Stathos
Case Number	1209100761
EDR Data Imaging Date	09/25/2012
Crash Date	09/08/2012
Filename	JTDKN3DU9C5 [REDACTED].ACM.CDRX
Saved on	Tuesday, September 25 2012 at 11:13:50
Collected with CDR version	Crash Data Retrieval Tool 8.0
Reported with CDR version	Crash Data Retrieval Tool 8.0
EDR Device Type	Airbag Control Module
Event(s) recovered	Front/Rear (1)

Comments

out of vehicle

Data Limitations

CDR Record Information:

- Due to limitations of the data recorded by the airbag ECU, such as the resolution, data range, sampling interval, time period of the recording, and the items recorded, the information provided by this data may not be sufficient to capture the entire crash.
- Pre-Crash data is recorded in discrete intervals. Due to different refresh rates within the vehicle's electronics, the data recorded may not be synchronous to each other.
- Airbag ECU data should be used in conjunction with other physical evidence obtained from the vehicle and the surrounding circumstances.
- If the airbags did not deploy or the pretensioners did not operate during an event that meets a specified recording threshold, it is called a Non-Deployment Event. Data from a Non-Deployment Event can be overwritten by a succeeding event that meets the specified recording threshold. If the airbag(s) deploy or the pretensioners are operated, it is called a Deployment Event. Deployment Event data cannot be overwritten or deleted by the airbag ECU following that event.
- If power supply to the airbag ECU is lost during an event, all or part of the data may not be recorded.
- "Diagnostic Trouble Codes" are information about faults when a recording trigger is established. Various diagnostic trouble codes could be set and recorded due to component or system damage during an accident.
- The airbag ECU records only diagnostic information related to the airbag system. It does not record diagnostic information related to other vehicle systems.
- The TaSCAN, Global TechStream, or Intelligent Tester II devices (or any other Toyota genuine diagnostic tool) can be used to obtain detailed information on the diagnostic trouble codes from the airbag system, as well as diagnostic information from other systems. However, in some cases, the diagnostic trouble codes of the airbag system recorded by the airbag ECU when the event occurred may not match the diagnostic trouble codes read out when the diagnostic tool is used.

General Information:

- The data recording specifications of Toyota's airbag ECUs are divided into the following six categories. The specifications for 12EDR are designed to be compatible with NHTSA's 49CFR Part 563 rule.
 - 00EDR / 02EDR / 04EDR / 06EDR / 10EDR / 12EDR
- The airbag ECU records data for all or some of the following accident types: frontal crash, rear crash, side crash, and rollover events. Depending on the installed airbag ECU, data for side crash and/or rollover events may not be recorded.
- This airbag ECU records post-crash data, and depending on the airbag ECU, may record pre-crash data.
 - If a single event occurs independently, the data for that event is recorded on a one-to-one basis.
 - If multiple events occur successively (within a period of approximately 500ms), the establishment of the recording trigger for the first event is defined as the "pre-crash recording trigger". Pre-crash data for the first event and post-crash data for each successive event is then recorded.
- The airbag ECU has two recording pages (memory maps) to store pre-crash data. Additionally, to store post-crash data, the airbag ECU has two recording pages for each accident type: two pages for frontal and rear crash, two pages for a side crash, and two pages for rollover event.
- The data recorded by the airbag ECU includes correlating information between each previously occurring event (i.e., information that clarifies the collision event sequence. This correlation information consists of the following items.
 - Time from Previous Pre-Crash TRG
 - Linked Pre-Crash Page
 - Time from Pre-Crash TRG
 - TRG Count
 - Previous Crash Type

- The point in time at which the recording trigger is established is regarded as time zero for the recorded data.
- The recording trigger judgment threshold value differs depending on the collision type (i.e., frontal crash, rear crash, side crash, or rollover event).
- Time series data for side crash may have 24 or 25 sampling points.
- Some of the data recorded by the airbag ECU is transmitted to the airbag ECU from various vehicle control modules by the vehicle's Controller Area Network (CAN).
- In some cases, the airbag ECU part number printed on the ECU label may not match the airbag ECU part number that the CDR tool reports. The part number retrieved by the CDR tool should be considered as the official ECU part number.

Data Definitions:

- The "ON" setting for the "Freeze Signal" indicates a state in which the non-volatile memory can not be overwritten or deleted by the airbag ECU. After "Freeze Signal" has been turned ON, subsequent events will not be recorded.
- "Recording Status" indicates a state in which all recorded event data has been written into the non-volatile memory, or a state in which this process was interrupted and not fully written into the non-volatile memory. If "Recording Status" is "Incomplete", recorded event data may not be valid.
- "Time to Deployment Command" indicates the time between recording trigger establishment and the determination of airbag deployment. This value may differ from the actual time it takes for the airbag to fully deploy.
- Even if an airbag/pretensioner did not deploy due to the "front passenger airbag disable switch and/or "RSCA Disable Switch" in the ON position or other disabling criteria are met, the "Time to deployment command" data element for that airbag/pretensioner may still be recorded.
- "Engine RPM" indicates the number of engine revolutions, not the number of motor revolutions. The recorded value has an upper limit of 5,200 rpm. Resolution is 400 rpm and the value is rounded down and recorded. For example, if the actual engine speed is 799 rpm, the recorded value will be 400 rpm.
- The upper limit for the recorded "Vehicle Speed" value is 122 km/h (75.8mph). Resolution is 2km/h (1.2mph) and the value is rounded down and recorded. The accuracy of the "Vehicle Speed" value can be affected by various factors. These include, but not limited to, the following.
 - Significant changes in the tire's rolling radius
 - Wheel lock and wheel slip
- "Accelerator Rate" has two recording specifications. Both the recorded value increases as the driver depresses the accelerator.
 - Percentage of accelerator pedal depressed (recorded as 0-100(%)).
 - Output voltage of accelerator pedal module (recorded as 0-5(V)).
- The "Drive" setting for the "Shift Position" value indicates the shift position state is other than "R,"(Reverse), "N" (Neutral), or "P" (Park).
- Depending on the type of occupant sensor installed in the vehicle, one of the following four recording formats for "Occupancy Status, Passenger" will be utilized.
 - Occupied / Not Occupied
 - Adult / Child / Not Occupied
 - AM50 / AF05 / Child / Not Occupied
 - AM50 / AF05 / Child or Not Occupied
- Resolution of the "Air Bag Warning Lamp ON Time Since DTC was Set" is 15 minutes, and the value is rounded down and recorded.
- "Longitudinal Delta-V" indicates the change in forward speed after establishment of the recording trigger. This does not refer to vehicle speed, and it does not include the change in speed during the period from the start of the actual collision to establishment of the recording trigger. If frontal crash, "Longitudinal Delta-V" is negative.
- "Roll Angle peak" may not always match the peak value within the "Roll Angle" sampling points due to differences in data calculation method.
- For "Lateral Delta-V , B-Pillar Sensor" and "Lateral Delta-V , C-Pillar Sensor", the polarity depends on the direction of impact, and the direction from the outside to the inside of the vehicle is shown as a positive value.
- For "Lateral Delta-V, Airbag ECU Sensor", while sitting in the driver's seat the direction from left to right from the viewpoint of the driver facing in the forward direction is shown as a positive value.
- For "Lateral Delta-V", the sensor location (B-pillar, front door, C-pillar, and slide door) shows the outline of a typical sensor position. Sensory location can be confirmed using the repair manual.
- For "Lateral Acceleration", the direction from right to left from the viewpoint of the driver facing in the forward direction of the vehicle while sitting in the driver's seat is shown as a positive value.
- "Time from Previous Pre-Crash TRG" indicates the time between the establishment of an event's pre-crash recording trigger to the establishment of a more recent event's pre-crash recording trigger. The upper limit for the recorded value is 16,381 milliseconds. In the event of establishment of the first pre-crash recording trigger after the ignition is switched ON, the upper limit value(max value) is recorded.
- "TRG Count" indicates a calculated value of the number of times recording triggers have been established for all crash types. The sequence in which each event occurred can be verified from the "TRG Count". The smaller the "TRG Count" value, the older the data. The upper limit for the recorded value is 65,533 times. When more than one event reaches the upper limit, the actual "TRG Count" may be greater than what is displayed for that event.
- "Linked Pre-Crash Page" is used to link "paged" pre-crash data with "paged" post-crash data. When old pre-crash data is overwritten by new pre-crash data, the "Linked Pre-Crash Page" value may record a page number that is not actually linked.
- Resolution of the "Time from Pre-Crash to TRG" is 100 [ms], and the value is rounded down and recorded.

05006_ToyotaDENSO_r014

System Status at Time of Retrieval

ECU Part Number	89170-47081
ECU Generation	06EDR
Recording Status, All Pages	Complete
Freeze Signal	ON
Freeze Signal Factor	Front Airbag Deployment
Diagnostic Trouble Codes Exist	Front Pretensioner Deployment
Time from Previous Pre Crash TRG (msec)	No
Latest Pre-Crash Page	16381 or greater
Contains Unlinked Pre-Crash Data	0
	No

Event Record Summary at Retrieval

Events Recorded	TRG Count	Crash Type	Time (msec)	Pre-Crash & DTC Data Recording Status	Event & Crash Pulse Data Recording Status
Most Recent Event	1	Front/Rear Crash	0	Complete (Page 0)	Complete (Front/Rear Page 0)

System Status at Event (Most Recent Event, TRG 1)

Recording Status, Front/Rear Crash Info.

Crash Type

TRG Count (times)

Previous Crash Type

Time from Pre-Crash TRG (msec)

Linked Pre-Crash Page

Time to Deployment Command, Front Airbag, Driver (msec)

Time to Deployment Command, Front Airbag, Passenger (msec)

Event Severity Status, Driver

Event Severity Status, Passenger

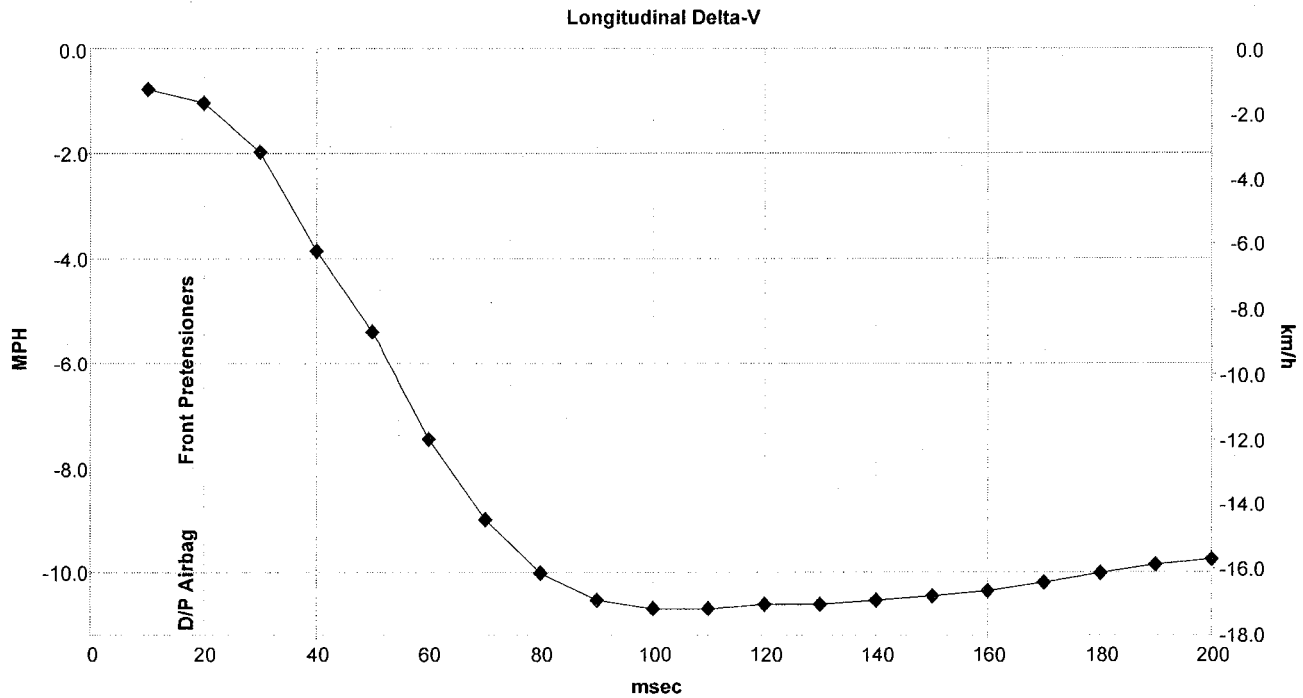
Time to Deployment Command, Pretensioner (msec)

Complete	
Front/Rear Crash	1
No Event	0
	0
	18
	18
Level 1	
	N/A
	18

Longitudinal Crash Pulse (Most Recent Event, TRG 1 - table 1 of 2)

Recording Status, Time Series Data
Max Longitudinal Delta-V (MPH [km/h])

Complete
-10.7 [-17.2]



Longitudinal Crash Pulse (Most Recent Event, TRG 1 - table 2 of 2)

Time (msec)	Longitudinal Delta-V (MPH [km/h])
10	-0.8 [-1.2]
20	-1.0 [-1.7]
30	-2.0 [-3.2]
40	-3.9 [-6.2]
50	-5.4 [-8.7]
60	-7.5 [-12.0]
70	-9.0 [-14.5]
80	-10.0 [-16.1]
90	-10.5 [-17.0]
100	-10.7 [-17.2]
110	-10.7 [-17.2]
120	-10.6 [-17.1]
130	-10.6 [-17.1]
140	-10.5 [-17.0]
150	-10.5 [-16.8]
160	-10.4 [-16.7]
170	-10.2 [-16.4]
180	-10.0 [-16.1]
190	-9.9 [-15.9]
200	-9.8 [-15.7]

DTCs Present at Time of Event (Most Recent Event, TRG 1)

Recording Status, Diagnostic	Complete
Ignition Cycle Since DTC was Set (times)	0
Airbag Warning Lamp ON Time Since DTC was Set (min)	0
Diagnostic Trouble Codes	None

Pre-Crash Data, 1 Sample (Most Recent Event, TRG 1)

Recording Status, Pre-Crash/Occupant	Complete
Time from Pre-Crash to TRG (msec)	600
Buckle Switch, Left Seat	Buckled
Buckle Switch, Right Seat	Unbuckled
Occupancy Status, Passenger	Not Occupied
Seat Position, Driver	Rearward
Shift Position	Drive

Pre-Crash Data, -5 to 0 seconds (Most Recent Event, TRG 1)

	-4.6	-3.6	-2.6	-1.6	-0.6	0 (TRG)
Time (sec)						
Vehicle Speed (MPH [km/h])	29.8 [48]	24.9 [40]	21.1 [34]	17.4 [28]	9.9 [16]	2.5 [4]
Brake Switch	ON	ON	ON	OFF	ON	ON
Accelerator Rate (V)	0.78	0.78	0.78	0.78	0.78	0.78
Engine RPM (RPM)	0	0	0	0	0	0

Hexadecimal Data

Data that the vehicle manufacturer has specified for data retrieval is shown in the hexadecimal data section of the CDR report. The hexadecimal data section of the CDR report may contain data that is not translated by the CDR program. The control module contains additional data that is not retrievable by the CDR system.

PIDs	PID	Data
	00	BC 60 00 01
	01	00
	03	34 37 30 38 31 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
		30 30 30 30 30 30 30 30 30 30 30 30 30 30
	04	FF FF FF FF
	05	01
	06	16
	0A	01
	0B	00
	20	80 00 00 01
	21	00 31
	40	00 00 00 01
	60	00 00 00 01
	80	00 00 00 01
	A0	00 00 00 01
	C0	00 00 00 01
	E0	C0 10 00 00
	E1	14 14
	E2	00 5B 19 11 00
	EC	FF

EEPROM	Address	Data (-- = data not imaged from ECU) (** = no response from ECU)
	0	-- -- -- -- -- -- -- -- -- -- -- -- -- -- --
	10	-- -- -- -- -- -- -- -- -- -- -- -- -- -- --
	20	-- -- -- -- -- -- -- -- -- -- -- -- -- -- 00 00
	30	00 00 00 00 3F FD 00 00 A5 03 00 16 00 00 -- --
	40	-- -- -- -- -- -- -- -- -- -- -- -- -- -- --
	50	-- -- 10 01 01 09 14 00 21 14 00 38 14 00 45 14
	60	51 14 61 14 06 00 00 55 00 00 00 00 00 00 00
	70	00 00 00 00 00 00 00 00 00 00 55 00 00 00 00
	80	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	90	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	A0	00 00 -- -- 09 03 0B 16 12 18 12 0C 06 02 00 FF
	B0	00 FF FF FF FE FE FE FF 01 D9 00 55 00 01 E0 00
	C0	12 12 10 55 00 00 00 00 00 00 00 00 00 00 00
	D0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	E0	00 00 00 00 -- -- 00 00 00 00 00 00 00 00 00
	F0	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	100	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	110	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	120	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	130	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	140	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	150	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	160	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	170	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	180	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
	190	00 00

Disclaimer of Liability

The users of the CDR product and reviewers of the CDR reports and exported data shall ensure that data and information supplied is applicable to the vehicle, vehicle's system(s) and the vehicle ECU. Robert Bosch LLC and all its directors, officers, employees and members shall not be liable for damages arising out of or related to incorrect, incomplete or misinterpreted software and/or data. Robert Bosch LLC expressly excludes all liability for incidental, consequential, special or punitive damages arising from or related to the CDR data, CDR software or use thereof.

Event Data Recorder - Reference Document

An Event Data Recorder (EDR) is a part of the Supplemental Restraint System (SRS) ECU that records data for some types of collision events for future safety research or analysis. The EDR will record data when the vehicle experiences a rapid change in speed that exceeds a specified threshold. The threshold to start recording is above changes in speeds that are considered normal driving use. For example, stopping hard with the brakes would not cause a recording, but hitting a curb may. EDRs were installed on Toyota/Lexus/Scion vehicles because they have the capability to serve several purposes, such as assisting in vehicle development, quality control and/or safety research. An EDR is also helpful in determining the circumstances that caused an airbag to be deployed or not deployed.

EDR Generations

Starting with the 2001 Lexus LS400, EDRs were incorporated into to all Toyota, Lexus and Scion vehicles by 2007. SRS ECUs with EDRs were typically installed at full model change years, which generally occur every 4 to 6 years, depending on the model. The chart below outlines the three generations of EDRs installed on Toyota, Lexus, and Scion vehicles and what each EDR generation is capable of recording.

01MY	02MY	03MY	04MY	05MY	06MY
Gen 1		Gen 2		Gen 3	
EDR		★		★	
Frontal		Frontal Roll Over		Current EDR	
				Frontal Rollover Side Impact Multiple Events	

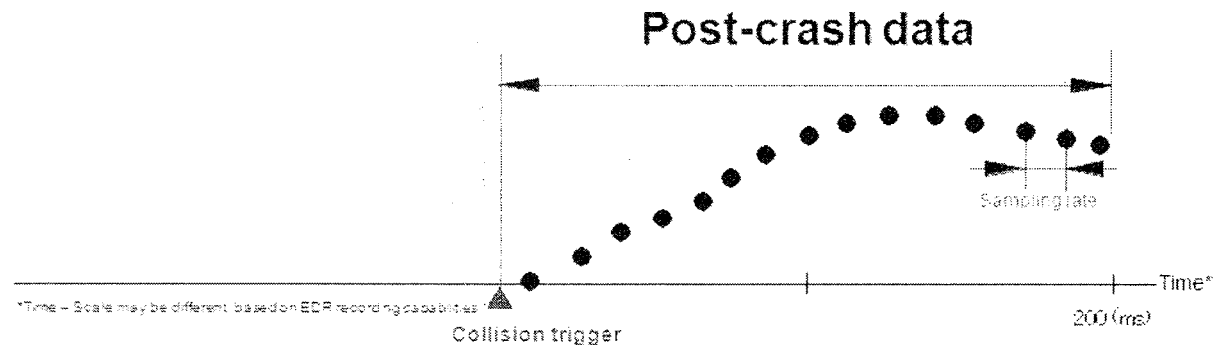
Note: MY stands for model year

Post-Crash & Pre-Crash data

Post-Crash Data - All vehicles equipped with an EDR will record post-crash data

If an impact occurs that has exceeded the rapid change in speed threshold, the EDR system will begin to record data for varying lengths of time depending on the parameters it is capable of recording. Figure 1 shows a collision 'trigger' and the data sampling rate recorded in the EDR.

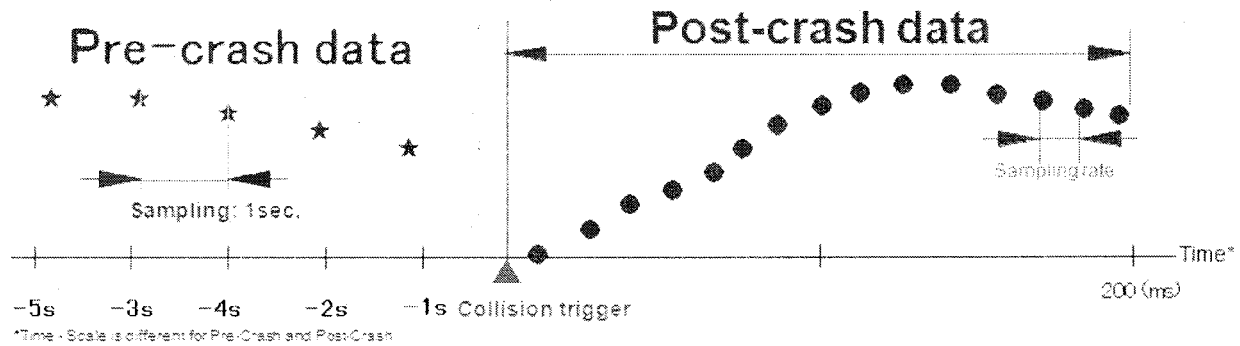
Figure 1



Pre-Crash Data - Not all models have an EDR capable of recording pre-crash data

As explained in the Post-crash section, the EDR System begins recording data when an impact exceeds the rapid change in speed threshold. On certain models, the EDR will also record about 5 seconds of data that took place before the impact. Figure 2 shows the sampling rate of Pre-Crash data is different than Post-Crash data.

Figure 2



Post Crash & Pre-Crash Applicability Chart

The chart below provides EDR capability of each model and the corresponding calendar year (CY) it was built. Vehicles and the corresponding year that have a yellow bar are equipped with EDR that have the ability to record post-crash data only. Vehicles and the corresponding year that have a red bar, are equipped with EDRs capable of pre & post-crash data recording.

		Post-crash data only Pre- & Post-crash data										
	Model Name	2000CY	2001CY	2002CY	2003CY	2004CY	2005CY	2006CY	2007CY	2008CY	2009CY	2010CY
Lexus	LS											
	LS HV											
	GS											
	GS HV											
	SC											
	ES											
	LX											
	GX											
	Rx											
	Rx HV											
	IS											
	IS-F											
	IS-C											
	HS											
	CT											
LFA												
Toyota	Avalon											
	Camry											
	Camry Solara											End of Production
	Corolla											
	Echo											
	4Runner											
	Land Cruiser											
	RAV4											
	Sienna											
	Pro											
	Highlander											
	Highlander HV											
	Tacoma											
	Tundra											
	SEQUOIA											
	Yaris											
	Yaris Sedan											
	FJ Cruiser											
Venza												
Matrix												
SCION	IC											
	xA											End of Production
	xB											
	xD											

EDR - Frequently Asked Questions

What is an EDR? An Event Data Recorder (EDR) is part of the Supplemental Restraint System (SRS) ECU that records data for some types of collision events for future safety research or analysis. An event is a change in vehicle speed that is more than typical of everyday use. For example, stopping hard with the brakes would not cause a recording, but hitting a curb may cause the EDR to record an event.

Are EDRs required in cars? They are currently not required.

Is the EDR a black box? No, the EDR is not a black box like on an airplane. It does not record sounds or conversations and does not have the capacity like an airplane blackbox. The EDR is simply part of the Supplemental Restraint System (SRS) ECU that only records certain vehicle data for a short period of time before or during a collision.

What causes the EDR to record? The EDR starts to record when the vehicle experiences a rapid change in speed (like acceleration or deceleration) that exceeds a specified threshold higher than normal use. Hard braking will not cause an EDR to record, because that may be considered normal use. Impacting a curb hard may cause a recording as the vehicle body may change speed much quicker than normal use.

Why were EDRs installed in Toyota/Lexus/Scion vehicles? EDRs have the capability to serve several purposes, such as assisting in vehicle development, quality control or safety research. Airbag deployment occurs very rapidly and it may be difficult to determine exactly what occurred during a collision. Although indirect methods may be used to determine airbag deployment circumstances, an EDR is a more direct method to understand airbag deployment circumstances.

Do all EDRs record the same information? No. Due to different vehicle designs and changes in equipment, the information recorded varies by model and model year.

Were there other recording systems before EDR in Toyota vehicles? Yes, some vehicles in the past had some impact recording capabilities, but these were not considered reliable for field use. There is no current capability to read these predecessors to EDRs.

How accurate is the EDR data? The accuracy of the data from the EDR depends on the collision and the EDR capabilities. Government studies of Toyota EDRs indicate that Toyotas EDRs have similar capabilities to other vehicle manufacturers.

What has Toyota done to validate its EDRs and EDR tools? Toyota has been analyzing data from vehicles since they were first introduced to ensure the reliability of the EDR technology. Toyota performs imaging of our own vehicles as part of crash testing. Toyota also performs EDR imaging from U.S. Government crash testing and investigations, and when requested, in law enforcement investigations.

How does the EDR record information? During a collision, the EDR calculates the delta V based on accelerometer data every 10 milliseconds and puts it into the permanent memory. During the intervals, other data is also placed into memory. If all the data is not transferred into the permanent memory, a writing flag is put on the report. If all data is successfully transferred, the report states 'Finished writing'. In some very severe impacts, electrical connections or internal EDR components may be damaged, resulting in incomplete data transfer to the permanent memory.

How long is an event stored in the EDR? If the airbags are deployed in a collision, the EDR data is locked and cannot be erased or overwritten. If the airbags have not been deployed in previous EDR events, an event that causes the vehicle to experience a rapid change in speed (example: hitting a curb) that exceeds a specified threshold will overwrite previous EDR events.

Why is a signed consent form required before performing imaging? Various states have privacy regulations that require consent before performing an EDR image.

How is EDR data retrieved and does the retrieval process affect/change the data contained in the EDR? Depending on the vehicle's condition, data can be imaged in one of two ways. The EDR tool is either connected through the vehicle's DLC port, or the EDR is removed from the vehicle and the EDR tool is connected directly to the SRS ECU. Neither method alters or erases EDR data during the process. In some rare circumstances such as water immersions- the EDR data may not be able to be imaged.

What will I receive after the EDR image process has taken place on my vehicle? After the imaging has been completed, the EDR report and other reference documents will be provided.

What is the difference between vehicle speed and delta V? Vehicle speed is how fast the vehicle moves relative to the ground - usually in miles per hour. It is understood that vehicle speed is the straight line speed of the entire vehicle. Delta V is the change in vehicle speed over milliseconds and is usually discussed as longitudinal, lateral or total delta V.

Is there more than one deltaV? In some EDR reports there are longitudinal and lateral delta V data.

Why can't the EDR tool operator just tell the customer what the report says? Crashes can be very complex events. The EDR report is just one piece of information and without knowing other critical crash information, the EDR data could be misinterpreted with the context for the overall crash.

Can the EDR tell me the date and time of collision? No, the EDR does not have a time stamp function.

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stefanos stathos
Toyota Motor Sales, USA
4550 Creek Rd

cincinnati, OH 45242

Origin ID: OXDA

FedEx
Express



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Act/Wgt: 1.0 LB
CAD: 9837557/INET3300

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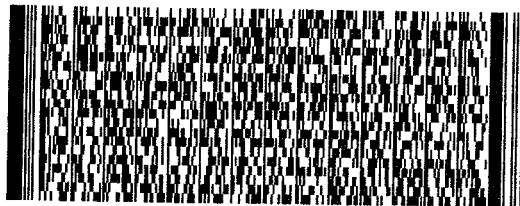
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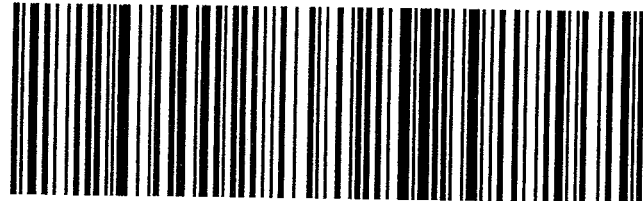
Ref # EDR request Anderson
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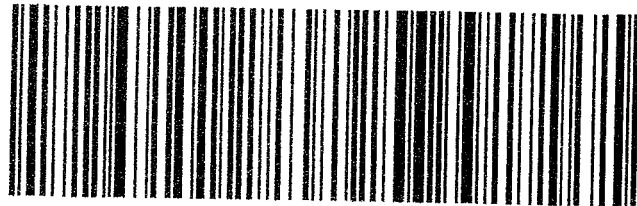
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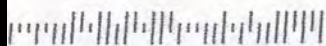
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