safercar.gov

JAN 24 2013

Complaints - Search Results

1 Record(s) Displayed.

Report Date : January 15, 2013 at *02:57 PM*
ODI Numbers Searched : **10492235**

Make : CADILLAC **Model :** CTS **Year :** 2012

Manufacturer : General Motors LLC

Crash : Yes **Fire :** No **Number of Injuries:** 1

ODI ID Number : 10492235 **Number of Deaths:** 0

Date Complaint Filed: January 11, 2013 **Date of Incident:** October 24, 2012

VIN : 1G6DW6ED7B0...

Component: SEAT BELTS

Summary:
TL- THE CONTACT OWNS A 2012 CADILLAC CTS. WHILE TRAVELING APPROXIMATELY 40 MPH, THE DRIVER CRASHED INTO THE FRONT PASSENGER'S SIDE OF ANOTHER VEHICLE. THE FRONT PASSENGER SEAT BELT AND SHOULDER ATTACHMENT DEVICE SEPARATED WHICH CAUSED THE OCCUPANT TO MOVE FORWARD INTO THE DEPLOYED AIR BAG. THE PASSENGER SUSTAINED A BROKEN RIGHT ANKLE. THE VEHICLE WAS COMPLETELY DAMAGED AND TOWED TO A SAVAGE FACILITY. THE MANUFACTURER WAS NOT NOTIFIED OF THE PROBLEM. THE FAILURE MILEAGE WAS UNAVAILABLE. RVK

1200 New Jersey Avenue, SE, West Building Washington DC 20590 USA
1.888.327.4236 TTY 1.800.424.9153

USA.gov

(1) THE VEHICLE WAS A 2011 CADILLAC.

(2) CONTACT IS NOT THE OWNER, BUT AN INVESTIGATOR WITH THE CALIFORNIA HIGHWAY PATROL.

SL-42-12

California Highway Patrol
Newhall Area

MAIT SUPPLEMENTAL

This investigation was conducted by the California Highway Patrol (CHP) Southern Division Multidisciplinary Accident Investigation Team (MAIT).

MAIT PERSONNEL
Officer S. Taggart, ID 15589, Southern Division MAIT Investigator*
Officer T. Bomar, ID 17217, Southern Division MAIT Investigator
*Denotes primary investigator

SUBPOENAS FOR MAIT PERSONNEL SHOULD BE DIRECTED TO:

California Highway Patrol
Southern Division Investigative Services Unit/MAIT
437 North Vermont Avenue
Los Angeles, California 90004
Attention: Sergeant K. Miller

INTRODUCTION

Notification

On Wednesday, October 24, 2012, at approximately 1815 hours, officers from the California Highway Patrol (CHP) Newhall Area responded to an injury traffic collision involving a 2009 GMC Sierra 2500 Pickup (Vehicle #1) and a 2011 Cadillac STS (Vehicle #2). The collision occurred at the intersection of The Old Road and southbound Interstate 5 on ramp from The Old Road within an unincorporated area of Los Angeles County. The driver of Vehicle #2 ([redacted] was traveling in the #1 lane, northbound The Old Road approaching southbound Interstate 5 from The Old Road. The driver of Vehicle #1 ([redacted] was traveling southbound The Old Road, intending to turn left onto southbound Interstate 5 from The Old Road. [redacted] failed to yield the right of way to [redacted] and turned left into the path of Vehicle #2. The front of Vehicle #2 collided with the right front of Vehicle #1. As a result of the collision, [redacted] and Vehicle #2's right front passenger ([redacted]) suffered severe injuries. The Newhall CHP investigating officer (Officer Teddleton, ID 18589) observed indications that [redacted] lap shoulder belt may have failed during the collision.

Officers from the CHP Newhall Area photographed Vehicle #2, collected evidence and conducted the collision investigation, generating collision investigation report #2012100163. On October 30, 2012, the Southern Division Multidisciplinary Accident Investigation Team (MAIT) was requested to assist with the investigation by inspecting Vehicle #2's restraint systems.

As a part of MAIT's investigation, the following material was provided by the CHP Newhall Area:

1. Collision Investigation report #2012100163.
2. Photographs taken of Vehicle #2 by Newhall CHP personnel.

Issues

Southern Division MAIT involvement in this investigation was limited to imaging the ACM within Vehicle #2, and an inspection of Vehicle #2's restraint system. To accomplish these tasks, MAIT will conduct the following:

1. Airbag Control Module image and analysis
2. Restraint System Inspection

AIRBAG CONTORL MODULE

Airbag Control Module Image

Vehicle #2 (Cadillac STS) was equipped with a Sensing and Diagnostic Module (SDM). The term SDM, is a manufacturer specific term for an Air Bag Control Module (ACM). Henceforth in this report, Vehicle #2's SDM will be referred to as an ACM. The ACM is responsible for analyzing real-time driving conditions and other related variables to perform necessary safety measures in protecting occupants of the vehicle. These safety measures include decisions on whether or not to activate the vehicle's supplemental inflatable restraints (e.g., the front/side driver's and/or passenger airbags) and seatbelt pre-tensioners (if equipped). In addition, the ACM communicates with and records data from internal and external sensors that provide data related to the collision that may include engine RPM, throttle position, brake switch status, steering wheel angle data and vehicle speed. The information is accessed and imaged through proprietary hardware and software and is manufacturer dependent.

On Wednesday, October 31, 2012, Mr. Ed Steinbrecher (attorney representing [redacted] provided written authorization to Southern Division MAIT to perform a seatbelt inspection and image Vehicle #2's ACM.

On Thursday, November 1, 2012, Officer Taggart utilized a Crash Data Retrieval (CDR) tool to access the data contained within the ACM, via the Data Link Connecter (DLC) after power from the vehicles service battery was restored. The data imaged from within Vehicle #2's ACM indicated a Deployment was recorded. The complete report is attached as Annex A.

Airbag Control Module

Data Analysis

The image of Vehicle #2's ACM indicated that the Deployment event was recorded on the 4,534th ignition cycle. The ignition cycles at investigation were reported as 4,534. The supplemental inflatable restraints (SIR) warning lamp status was reported OFF.

The driver's seatbelt and right front passenger seatbelt status were both reported as BUCKLED. The passenger side airbag was NOT SUPPRESSED. The maximum longitudinal velocity change recorded by the ACM during the deployment event was -29.82 miles per hour. The maximum lateral velocity change recorded by the ACM during the deployment event was +9.49 miles per hour.

The image of Vehicle #2's ACM also reported vehicle speed, engine speed, brake switch circuit state, steering angle, yaw rate and accelerator pedal percentage for Vehicle #2 for five seconds prior to Algorithm Enable (AE). Algorithm Enable is the point in time when the ACM begins assessing the need for air bag deployment or seatbelt pre-tensioner activation. Algorithm Enable occurred 42 milliseconds before the airbag deployment command was sent. The following is a summary of the pre-collision data contained within the ACM report for Vehicle #2.

- Vehicle #2's speed ranged between 46 and 48 miles per hour for the five seconds prior to AE.
- Between 5 and 2 seconds prior to AE, Vehicle #2's brake switch circuit was reported as OFF, the accelerator pedal percentage was reported at 24-25 percent and the steering wheel angle was reported at 0 degrees.
- Between 1 and 0 second prior to AE, Vehicle #2's brake switch circuit was reported as ON, the accelerator pedal percentage was reported at 0 percent, the steering wheel angle was reported at between 32 and 47 degrees to the right and a clockwise yaw rate of 9 degrees per second was recorded.

Based on the physical evidence located at the collision scene, vehicle damage and the collision dynamics it was determined that the pre-impact speed data and the Deployment event velocity change were consistent with and related to this collision event.

DIGITAL FILE LOG

63 digital color photographs were taken during the course of this investigation. The following table illustrates which photographs were taken by the following personnel, with the corresponding digital photograph file number, the number of photographs taken, and the subject matter.

DATE	PHOTOGRAPHER	FILE NUMBER	NUMBER	SUBJECT
10/30/2012	S. Taggart	DSC_0001-DSC_0021	21	Vehicle #2 damage
11/1/2012	S. Taggart	DSC_0001-DSC_0042	42	Vehicle #2 damage, seatbelt inspection and ACM Image.

Restraint System Inspection (continued)

Component Nomenclature

This restraint inspection involved an analysis of restraint components of which individual nomenclature was not determined. The following section defines terms for various restraint components that will be used in the subsequent analysis section of this report.

The diagram depicted in Figure 1 is a parts diagram[1] listing replacement restraint system components for Vehicle #2.

Item A is commonly referred to as a Guide Loop. The guide loop provides an anchor location for the belt at the B-pillar.

The parts diagram in Figure 1, describes Item 1 as an "Adjuster/shoulder belt/Guide." Item 1 consisted of a track section which was mounted to the B-pillar structure of the vehicle (Figure 2, Item B) and a locking mechanism which slid along the track section to allow adjustment of the guide loop height (Figure 2, Item C). For the purposes of this report, the track section (Figure 2, Item B) will be referred to as the Guide Loop Track. The component depicted in Figure 2, Item C will be referred to as the Guide Loop Adjustment Mechanism.

Item 8 (Figure 1) will be referred to as the Upper Trim Section.

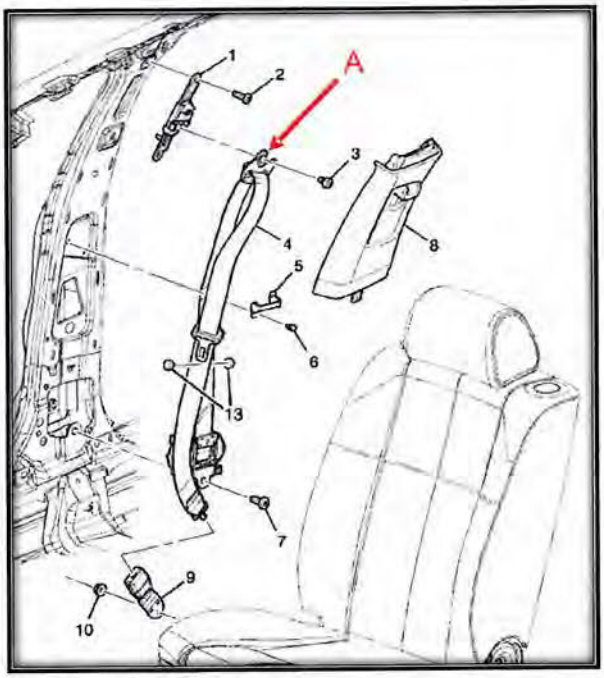


Figure 1: Parts diagram

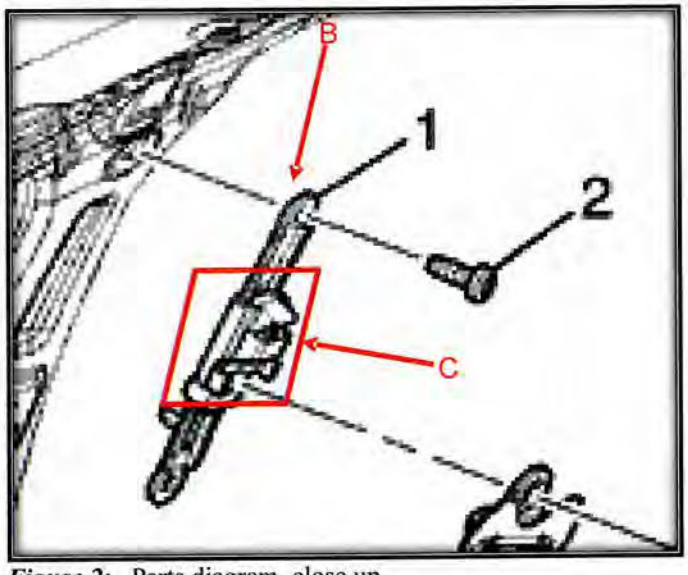


Figure 2: Parts diagram, close up

[1] www.GMpartseast.com

Restraint System Inspection (continued)

Left Front Seat (Driver)

The left front seat restraint was found in the retracted position with the latch plate hanging alongside the B-pillar (Figure 3). The latch plate was in good condition and showed no deformations. The latch plate moved freely along the restraint webbing. The plastic covering the latch plate showed an imprint consistent with occupant loading of the seatbelt webbing. When extended, the seatbelt webbing showed signs of occupant loading.

Figure 3: Left front restraint

The upper trim panel was removed from the B-pillar to expose the driver seat restraint guide loop anchor point. The guide loop track was mounted to the B-pillar structure (Figure 4, number 1). The guide loop was attached to the guide loop adjustment mechanism to allow vertical adjustment of the guide loop by depressing a button (Figure 4, number 2). By depressing the button, a locking pin disengaged from the guide loop track allowing for adjustment of the guide loop to four distinct locations along the track. At each of the four adjustment locations, an audible click was heard and the Guide loop was securely locked in position.

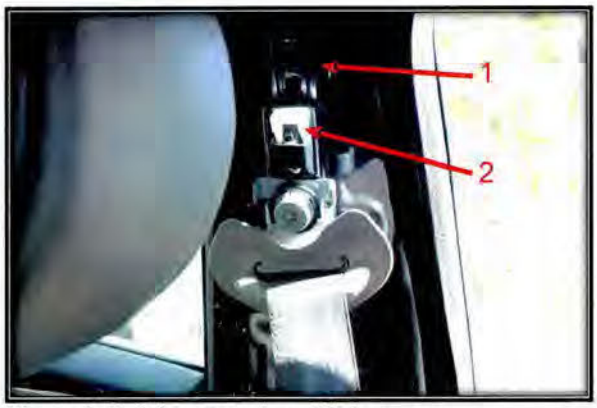


Figure 4: Left front restraint guide loop.

With the button depressed and the guide loop moved to the lowest possible position, the audible click was not consistently heard without manipulating the guide loop upward to engage the locking device.

Restraint System Inspection (continued)

Right Front Seat (Passenger)

The right front seat restraint was found in the extended position. The B-pillar guide loop and upper trim panel were found detached from the B-pillar (Figure 5). The B-pillar guide loop track was still mounted on the B-pillar (Figure 5, arrow)

Figure 5: Right side B-pillar

The right front seat restraint webbing was looped through the guide loop and through the upper trim panel. The guide loop and B-pillar upper trim panel were located on the right front seat cushion (Figure 6). The guide loop adjustment mechanism (Figure 6, arrow) was detached from the guide loop track but still attached to the guide loop.

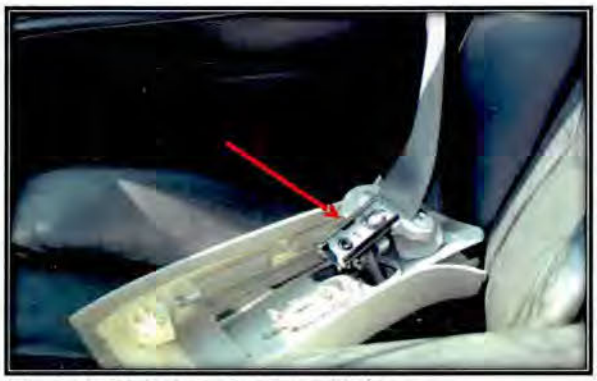


Figure 6: Right front restraint guide loop

White plastic transfer was located on the webbing of the right front restraint near the retractor (Figure 7, circle). This plastic transfer was consistent with the plastic guide which surrounded the belt as it entered the retractor (Figure 7, arrow).

The plastic covering the latch plate showed an imprint consistent with occupant loading of the seatbelt webbing.

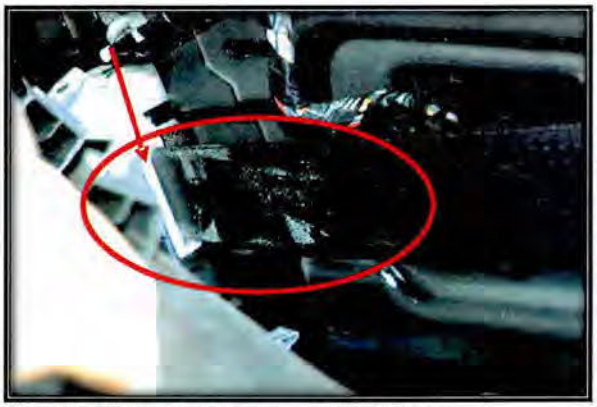


Figure 7: Right front seat restraint webbing

Restraint System Inspection (continued)

Right Front Seat (continued)

The guide loop adjustment mechanism contained a sliding pin (locking pin) which appeared to be designed to engage with corresponding holes in the guide loop track. The locking pin moved freely from the extended position to the retracted position (Figure 8, number 1). The button which was observed on the undamaged driver side guide loop adjustment mechanism was not located on the passenger side guide loop adjustment mechanism. Additionally no tension spring or other device was present to provide a positive force to engage the locking pin into the guide loop track.

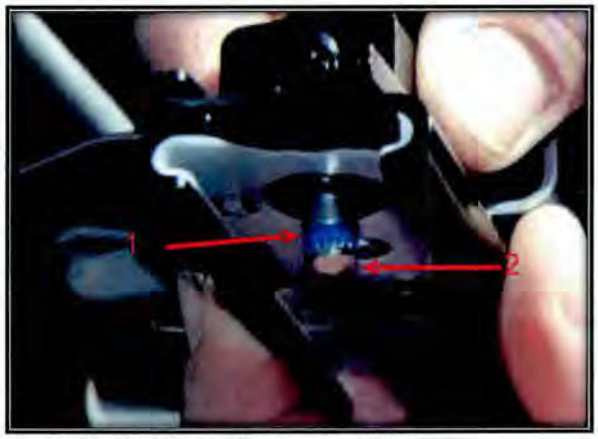


Figure 8: Guide loop adjustment mechanism

Wear marks were visible on the end of the locking pin (Figure 8, number 2).

A section of the plastic casing of the guide loop adjustment mechanism, outboard of the locking pin, was broken outward and away from the locking bolt (Figure 9).

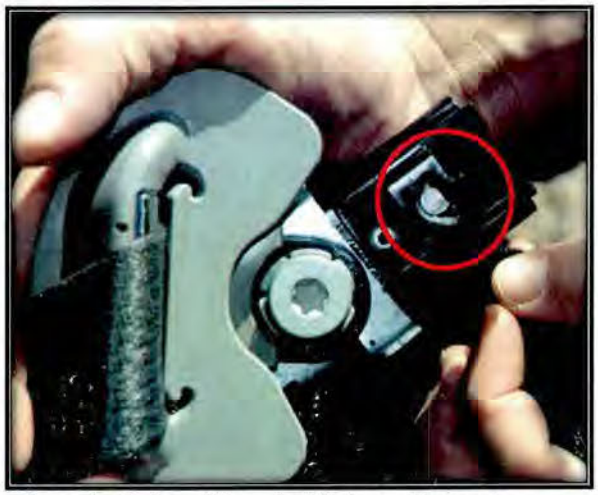


Figure 9: Outboard face of guide loop adjustment

Scoring was noted to the outboard face of the guide loop adjustment mechanism. The scoring was located near the end of the fastener which attached the guide loop and the guide loop adjustment mechanism (Figure 10).

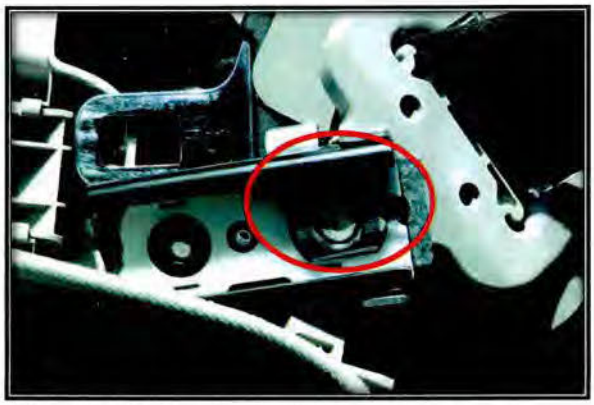


Figure 10: Outboard face of guide loop adjustment mechanism

Restraint System Inspection (continued)

Right Front Seat (continued)

Score marks were visible on the lower end of the guide loop track and the head of the lower fastener connecting the guide loop track to the B-pillar (Figure 11).

These score marks were consistent with the damage to the outboard face of the guide loop adjustment mechanism (page 10, Figure 10) and were likely caused when the guide loop adjustment mechanism slid downward and off the guide loop track during the collision.

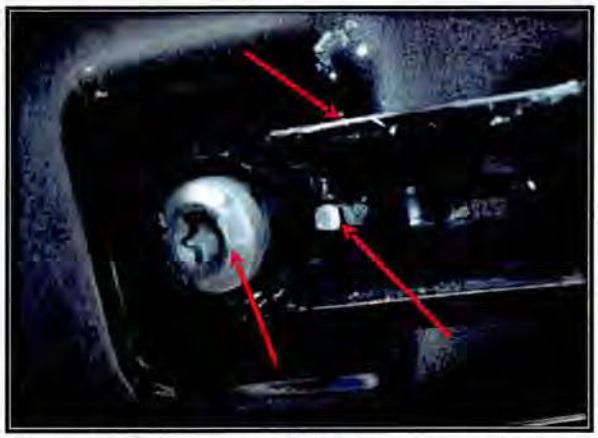


Figure 11: Lower section of guide loop track and bolt

The guide loop track showed marking between the four adjustments slots due to contact with the locking pin (Figure 12, number 1).

Contact marks were also visible below the lowest adjustment position in the guide loop track, indicating that locking bolt had previously been adjusted below the lowest adjustment slot (Figure 12, number 2).

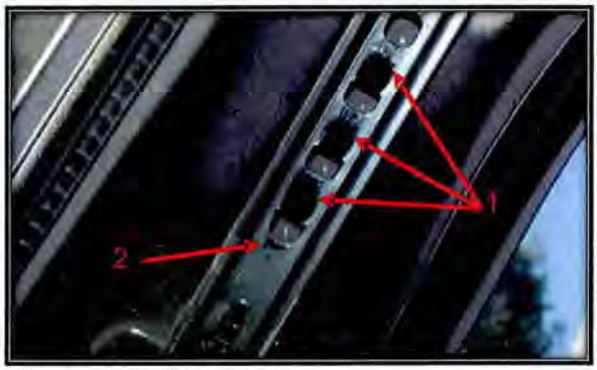


Figure 12: Guide loop track

Based on the score marks on the head of the guide loop track lower fastener and lower section of the guide loop track (Figure 11) and scoring to the outboard face of the guide loop adjustment mechanism (page 10, Figure 10), it appeared that the guide loop adjustment mechanism slid off the lower end of the guide loop track. As the guide loop adjustment mechanism slid down the guide loop track, interaction between the end of the locking pin (page 10, Figure 8) and the head of the loop guide track lower fastener (Figure 11) likely pushed the locking pin outboard causing the damage to the plastic casing of the guide loop adjustment mechanism (page 10, Figure 9) and detachment of the adjustment button and tension spring.

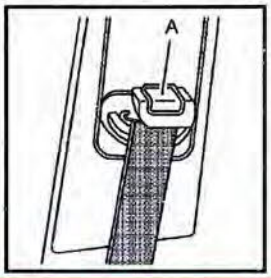
Restraint System Inspection (continued)

Evidence suggests that the front passenger shoulder belt height adjuster (attached to the B-pillar guide loop) was moved to a location below the lowest adjustment position without the locking pin secured in one of the four available adjustment slots. An excerpt from the 2011 Cadillac STS owner's manual[2] (Figure 13) states, "*After you move the height adjuster to where you want it, try to move it down without pressing the release button to make sure it has locked into position.*"

Shoulder Belt Height Adjuster

Your vehicle has a shoulder belt height adjuster for the driver and right front passenger position.

Adjust the height so the shoulder portion of the belt is on the shoulder and not falling off of it. The belt should be close to, but not contacting, the neck. Improper shoulder belt height adjustment could reduce the effectiveness of the safety belt in a crash. See *How to Wear Safety Belts Properly on page 2-19*.



To move it down, press the release button (A) and move the height adjuster to the desired position. You can move the height adjuster up just by pushing up on the shoulder belt guide.

Safety Belt Pretensioners

Your vehicle has safety belt pretensioners for front outboard occupants. Although you cannot see them, they are part of the safety belt assembly. They can help tighten the safety belts during the early stages of a moderate to severe frontal and near frontal crash if the threshold conditions for pretensioner activation are met. And, if your vehicle has side impact airbags, safety belt pretensioners can help tighten the safety belts in a side crash.

Pretensioners work only once. If they activate in a crash, you will need to get new ones, and probably other new parts for your safety belt system. See *Replacing Restraint System Parts After a Crash on page 2-73*.

After you move the height adjuster to where you want it, try to move it down without pressing the release button to make sure it has locked into position.

2-30

Figure 13: Page 2-30 of the 2011 Cadillac STS owner's manual

With the shoulder belt height adjuster positioned below the lowest adjustment slot, "trying to move it *down*" as recommended in the owner's manual may not necessarily engage the locking pin into an adjustment slot, resulting in a condition where the B-pillar guide loop and guide loop adjustment mechanism could slide off the bottom of the guide loop track during a collision.

No recalls, service bulletins or complaints were found during a search of the National Highway Traffic Safety Administration (NHTSA) website[3].

[2] http://www.cadillac.com
[3] http://www.nhtsa.gov/Vehicle+Safety/Recalls

CONCLUSIONS

1. Vehicle #2 (Cadillac STS) was traveling between 46 and 48 miles per hour 1 to 5 seconds prior to the collision.

2. Between 0 and 1 second prior to impact, [redacted] steered Vehicle #2 to the right, released the accelerator pedal and applied Vehicle #2's brakes.

3. Both the driver and right front passenger seatbelts were reported as buckled at the time of the collision and both restraints showed signs of use. Both front supplemental inflatable restraints deployed.

4. At impact, Vehicle #2 underwent a negative 29.82 miles per hour longitudinal speed change and a positive (left to right) 9.49 mile per hour lateral speed change. This change in speed is consistent with this collision.

5. The right front shoulder belt height adjuster was likely adjusted to the bottom of the guide loop track, with the locking pin disengaged in a position below the lowest adjustment slot. During the collision, force applied to the utilized right front seatbelt caused the guide loop mechanism to slide downward and off the guide loop track. This separation would cause significant slack in the right front passenger's seatbelt webbing resulting in inadequate restraint of the right front passenger. The right front passenger would likely continue to move forward with respect to Vehicle #2's interior as the vehicle slowed.

6. The 2011 Cadillac STS owner's manual suggests that occupants should attempt to move the shoulder belt height adjuster *down* after adjusting the height of the seatbelt. Even though the owner's manual indicated that some action should be performed to "*make sure it is locked into position,*" moving the height adjuster down may not secure the locking pin in all instances.

ANNEX A

Control Module Download

The data contained within this Annex was generated by the Airbag Control Module from the Cadillac STS.

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	1G6DW6ED7B0[redacted]
User	S. TAGGART, 15589
Case Number	SL-42-12
EDR Data Imaging Date	11/01/2012
Crash Date	10/24/2012
Filename	1G6DW6ED7B0[redacted] ACM SL-42-12.CDRX
Saved on	Thursday, November 1 2012 at 13:07:12
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	Deployment

Comments

ACM image at Semper Fi Towing for a suspected seatbelt failure. Authorization signed by registered owners attorney on 10/31/12. Officer Bomar present during inspection. Attempt DLC image with vehicles battery power restored. Stock tire size, P235/50/R17. Same tires installed

Data Limitations

Recorded Crash Events:

There are two types of recorded crash events. The first is the Non-Deployment Event. A Non-Deployment Event records data but does not deploy the air bag(s). The minimum SDM Recorded Vehicle Velocity Change, that is needed to record a Non-Deployment Event, is five MPH. A Non-Deployment Event may contain Pre-Crash and Crash data. The SDM can store up to one Non-Deployment Event. This event can be overwritten by an event that has a greater SDM recorded vehicle velocity change. This event will be cleared by the SDM, after approximately 250 ignition cycles. This event can be overwritten by a second Deployment Event, referred to as Deployment Event #2, if the Non-Deployment Event is not locked. The data in the Non-Deployment Event file will be locked, if the Non-Deployment Event occurred within five seconds of a Deployment Event. A locked Non Deployment Event cannot be overwritten or cleared by the SDM.
The second type of SDM recorded crash event is the Deployment Event. It also may contain Pre-Crash and Crash data. The SDM can store up to two different Deployment Events. If a second Deployment Event occurs any time after the Deployment Event, the Deployment Event #2 will overwrite any non-locked Non-Deployment Event. Deployment Events cannot be overwritten or cleared by the SDM. Once the SDM has deployed an air bag, the SDM must be replaced.

Data:

-SDM Recorded Vehicle Velocity Change reflects the change in velocity that the sensing system experienced during the recorded portion of the event. SDM Recorded Vehicle Velocity Change is the change in velocity during the recording time and is not the speed the vehicle was traveling before the event, and is also not the Barrier Equivalent Velocity. For Deployment Events, the SDM can record up to 220 milliseconds of data after Deployment criteria is met and up to 70 milliseconds before Deployment criteria is met. For Non-Deployment Events, the SDM can record up to the first 300 milliseconds of data after algorithm enable. Velocity Change data is displayed in SAE sign convention.

-The CDR tool displays time from Algorithm Enable (AE) to time of Deployment command in a Deployment event and AE to time of maximum SDM recorded vehicle velocity change in a Non-Deployment event. Time from AE begins when the first air bag system enable threshold is met and ends when Deployment command criteria is met or at maximum SDM recorded vehicle velocity change. Air bag systems such as frontal, side, or rollover, may be a source of an enable. The time represented in a CDR report can be that of the enable of one air bag system to the Deployment time of another air bag system.

-Maximum Recorded Vehicle Velocity Change is the maximum square root value of the sum of the squares for the vehicle's combined "X" and "Y" axis change in velocity.

-Event Recording Complete will indicate if data from the recorded event has been fully written to the SDM memory or if it has been interrupted and not fully written.

-SDM Recorded Vehicle Speed accuracy can be affected by various factors, including but not limited to the following:
- -Significant changes in the tire's rolling radius
- -Final drive axle ratio changes
- -Wheel lockup and wheel slip

-Brake Switch Circuit Status indicates the open/closed state of the brake switch circuit.

-Pre-Crash data is recorded asynchronously.
-Pre-Crash Electronic Data Validity Check Status indicates "Data Invalid" if:
-The SDM receives a message with an "invalid" flag from the module sending the pre-crash data
-No data is received from the module sending the pre-crash data
-No module is present to send the pre-crash data
-Driver's and Passenger's Belt Switch Circuit Status indicates the status of the seat belt switch circuit, except: The Passenger Belt Switch Circuit Status for 2005 vehicles is available only on the Cadillac STS. The Passenger Belt Switch Circuit Status for 2006 Chevrolet Cobalt Sport Coupe (AP) model vehicles, with the option package that includes Recaro brand seats (RPO ALV), always reports a default value of "Buckled," because there is no passenger belt switch with the Recaro seat option.
-The Time Between Non-Deployment to Deployment Events is displayed in seconds. If the time between the two events is greater than five seconds, "N/A" is displayed in place of the time. If the value is negative, then the Deployment Event occurred first. If the value is positive, then the Non-Deployment Event occurred first.
-If power to the SDM is lost during a crash event, all or part of the crash record may not be recorded.
-The ignition cycle counter relies upon the transitions through OFF->RUN->CRANK power-moding messages, on the GMLAN communication bus, to increment the counter. Applying and removing of battery power to the module will not increment the ignition counter.
-Steering Wheel Angle data is displayed as a positive value when the steering wheel is turned to the right and a negative value when the steering wheel is turned to the left, except for Cadillac STS model vehicles with StabiliTrak 3.0 systems (RPO JL7). For Cadillac STS model vehicles with StabiliTrak 3.0 systems (RPO JL7), when the steering wheel is turned to the right, a negative value will be displayed and when the steering wheel is turned to the left, a positive value will be displayed. The Steering Wheel Angle data is reported in 16 degree increments.

Data Source:
All SDM recorded data is measured, calculated, and stored internally, except for the following:
-Vehicle Status Data (Pre-Crash) is transmitted to the SDM, by various vehicle control modules, via the vehicle's communication network.
-The Belt Switch Circuit is wired directly to the SDM.

01016_SDMEps_r004

Multiple Event Data

Associated Events Not Recorded	0
An Event(s) Preceded the Recorded Event(s)	No
An Event(s) was in Between the Recorded Event(s)	No
An Event(s) Followed the Recorded Event(s)	No
The Event(s) Not Recorded was a Deployment Event(s)	No
The Event(s) Not Recorded was a Non-Deployment Event(s)	No

System Status At AE

Vehicle Identification Number	**6DW6ED*B* [redacted]
Low Tire Pressure Warning Lamp (If Equipped)	OFF
Vehicle Power Mode Status	Run
Remote Start Status (If Equipped)	Inactive
Run/Crank Ignition Switch Logic Level	Active
Brake System Warning Lamp (If Equipped)	OFF

System Status At 1 second

Transmission Range (If Equipped)	Sixth Gear
Transmission Selector Position (If Equipped)	Sixth Gear
Traction Control System Active (If Equipped)	No
Service Engine Soon (Non-Emission Related) Lamp	OFF
Service Vehicle Soon Lamp	OFF
Outside Air Temperature (degrees F) (If Equipped)	70
Left Front Door Status (If Equipped)	Closed
Right Front Door Status (If Equipped)	Closed
Left Rear Door Status (If Equipped)	Closed
Right Rear Door Status (If Equipped)	Closed
Rear Door(s) Status (If Equipped)	Closed

Pre-crash data

Parameter	-2 sec	-1 sec
Reduced Engine Power Mode	OFF	OFF
Cruise Control Active (If Equipped)	No	No
Cruise Control Resume Switch Active (If Equipped)	No	No
Cruise Control Set Switch Active (If Equipped)	No	No

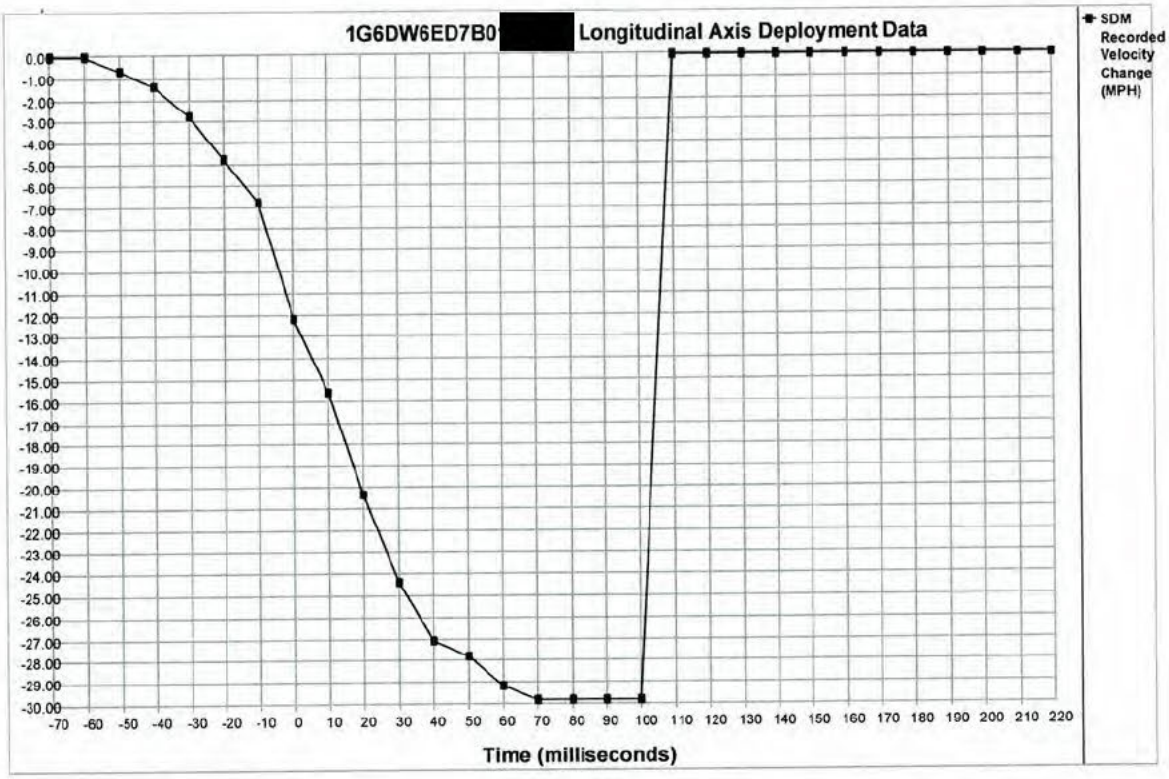
Pre-Crash Data

Parameter	-5 sec	-4 sec	-3 sec	-2 sec	-1 sec
Vehicle Speed (MPH)	46	47	47	48	47
Engine Speed (RPM)	1280	1280	1344	1344	1280
Percent Throttle	31	31	31	32	14
Brake Switch Circuit State	OFF	OFF	OFF	OFF	ON
Accelerator Pedal Position (percent)	24	24	24	25	0
Antilock Brake System Active (If Equipped)	No	No	No	No	No
Lateral Acceleration (feet/s²)(If Equipped)	0.00	0.82	0.82	0.82	9.84

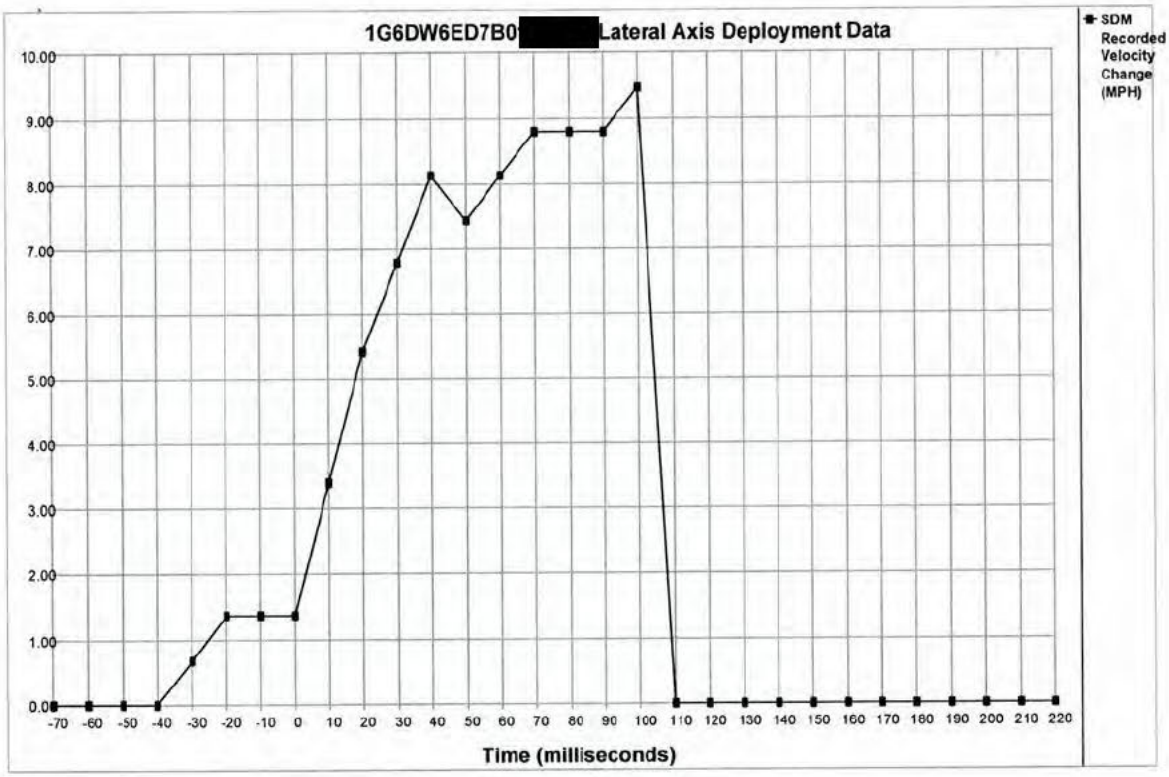
Parameter	-5 sec	-4 sec	-3 sec	-2 sec	-1 sec
Yaw Rate (degrees per second) (If Equipped)	0	0	0	0	9
Steering Wheel Angle (degrees) (If Equipped)	0	0	0	0	32
Vehicle Dynamics Control Active (If Equipped)	No	No	No	No	No

System Status At Deployment

Ignition Cycles At Investigation	4534
SIR Warning Lamp Status	OFF
SIR Warning Lamp ON/OFF Time (seconds)	655200
Number of Ignition Cycles SIR Warning Lamp was ON/OFF Continuously	4533
Ignition Cycles At Event	4534
Ignition Cycles Since DTCs Were Last Cleared	254
Driver's Belt Switch Circuit Status	BUCKLED
Passenger Belt Switch Circuit Status (If Equipped)	BUCKLED
Diagnostic Trouble Codes at Event, fault number: 1	N/A
Diagnostic Trouble Codes at Event, fault number: 2	N/A
Diagnostic Trouble Codes at Event, fault number: 3	N/A
Diagnostic Trouble Codes at Event, fault number: 4	N/A
Diagnostic Trouble Codes at Event, fault number: 5	N/A
Diagnostic Trouble Codes at Event, fault number: 6	N/A
Automatic Passenger SIR Suppression System Validity Status at AE	Valid
Automatic Passenger SIR Suppression System Status at AE	Air Bag Not Suppressed
Automatic Passenger SIR Suppression System Validity Status at First Deployment Command	Valid
Automatic Passenger SIR Suppression System Status at First Deployment Command	Air Bag Not Suppressed
Driver 1st Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	42
Driver 2nd Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	42
Passenger 1st Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	42
Passenger 2nd Stage Time From Algorithm Enable to Deployment Command Criteria Met (msec)	42
Driver Side or Roof Rail/Head Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	N/A
Passenger Side or Roof Rail/Head Curtain Time From Algorithm Enable to Deployment Command Criteria Met (msec)	N/A
Time Between Events (sec)	0
Driver First Stage Deployment Loop Commanded	Yes
Driver Second Stage Deployment Loop Commanded	Yes
Driver Side Deployment Loop Commanded	No
Driver Pretensioner Deployment Loop Commanded	Yes
Driver (Initiator 1) Roof Rail/Head Curtain Loop Commanded	No
Driver (Initiator 2) Roof Rail/Head Curtain Loop Commanded	No
Driver Knee Deployment Loop Commanded	No
Passenger First Stage Deployment Loop Commanded	Yes
Passenger Second Stage Deployment Loop Commanded	Yes
Passenger Side Deployment Loop Commanded	No
Passenger Pretensioner Deployment Loop Commanded	Yes
Passenger (Initiator 1) Roof Rail/Head Curtain Loop Commanded	No
Passenger (Initiator 2) Roof Rail/Head Curtain Loop Commanded	No
Passenger Knee Deployment Loop Commanded	No
Driver Anchor Pretensioner Deployment Loop Commanded (If Equipped)	No
Second Row Left Pretensioner Deployment Loop Commanded	No
Third Row Left Roof Rail/Head Curtain Loop Commanded	No
Passenger Anchor Pretensioner Deployment Loop Commanded (If Equipped)	No
Second Row Right Pretensioner Deployment Loop Commanded	No
Third Row Right Roof Rail/Head Curtain Loop Commanded	No
Second Row Center Pretensioner Deployment Loop Commanded	No
Driver 2nd Stage Deployment Loop Commanded for Disposal	No
Passenger 2nd Stage Deployment Loop Commanded for Disposal	No
Crash Record Locked	Yes
Vehicle Event Data (Pre-Crash) Associated With This Event	Yes
Deployment Event Recorded in the Non-Deployment Record	No
Event Recording Complete	Yes



Time (milliseconds)	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70
SDM Longitudinal Axis Recorded Velocity Change (MPH)	0.00	0.00	-0.68	-1.36	-2.71	-4.74	-6.78	-12.20	-15.59	-20.33	-24.40	-27.11	-27.79	-29.14	-29.82
Time (milliseconds)	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220
SDM Longitudinal Axis Recorded Velocity Change (MPH)	-29.82	-29.82	-29.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



Time (milliseconds)	-70	-60	-50	-40	-30	-20	-10	0	10	20	30	40	50	60	70
SDM Lateral Axis Recorded Velocity Change (MPH)	0.00	0.00	0.00	0.00	0.68	1.36	1.36	1.36	3.39	5.42	6.78	8.13	7.45	8.13	8.81
Time (milliseconds)	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220
SDM Lateral Axis Recorded Velocity Change (MPH)	8.81	8.81	9.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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.

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$43   00 00 8E 80
$44   C6 00 00 FC 80 C0
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$46   00 14 14 64 64
$47   0A 64 02 04 04 05 0A 06 04 0A 00 00 FA 00 00 FF 04 64
$48   18 08 08
$B0   58
$B1   FD FE 00
$B2   FF FF FF FF FF
$B4   41 53 36 31 38 30 32 33 30 33 57 36 20 20 20 20
$B7   50 AA 01 02 07
$B8   44 45 84 02 12
$C1   30 32 30 37
$CA   30 32 30 37
$CB   01 89 EC 74
$CC   01 89 EC 74
$D1   00 00
$DB   00 00
$DC   00 00
```

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California Highway Patrol
Commercial Services Unit
437 N. Vermont Avenue
Los Angeles, CA 90004

CRD

U.S. DOT
NHTSA / ODI (#10492235)
OFFICE OF DEFECT INVESTIGATION (NVS
1299 NEW JERSEY AVE. SE., W.
WASHINGTON DC.
20590