U.S. Department of Transportation
National Highway Traffic Safety Administration

NHTSA

DOT HS 812 618

September 2018

Special Crash Investigations Non-Traffic Surveillance Remote Hyperthermia Fatality Investigation Vehicle: 2004 Chevrolet TrailBlazer Location: Georgia Crash Date: May 2014

DISCLAIMER

This document is disseminated under the sponsorship of the Department of Transportation in the interest of information exchange. The United States Government assumes no responsibility for the contents or use thereof.

The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the National Highway Traffic Safety Administration.

The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicles or their safety systems.

This report and associated case data are based on information available to the Special Crash Investigation team on the date this report was published.

Suggested APA Format Citation:

Crash Research & Analysis, Inc. (2018, September). *Special Crash Investigations Non-Traffic Surveillance Remote Hyperthermia Fatality Investigation; Vehicle: 2004 Chevrolet TrailBlazer; Location: Georgia; Crash Date: May 2014* (Report No. DOT HS 812 618). Washington, DC: National Highway Traffic Safety Administration.

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. DOT HS 812 618	*2. Government Accession No.*	*3. Recipient's Catalog No.*	
4. Title and Subtitle Special Crash Investigations Non-Traffic Surveillance Remote Hyperthermia Fatality Investigation Vehicle: 2004 Chevrolet TrailBlazer Location: Georgia Crash Date: May 2014		*5. Report Date*: September 2018 *6. Performing Organization Code*	
7. Author Crash Research & Analysis, Inc.		*8. Performing Organization Report No.: CR16037*	
9. Performing Organization Name and Address Crash Research & Analysis, Inc. P.O. Box 302 Elma, NY 14059		*10. Work Unit No.* *11. Contract or Grant No.* DTNH22-12-C-00269	
12. Sponsoring Agency Name and Address National Highway Traffic Safety Administration 1200 New Jersey Avenue SE. Washington, D.C. 20590		*13. Type of Report and Period Covered* Technical Report Incident Date: May 2014 *14. Sponsoring Agency Code*	
15. Supplementary Note An investigation of the circumstances surrounding the hyperthermia fatality of a 2-year-old child in a 2004 Chevrolet TrailBlazer.			
16. Abstract This report documents the remote investigation and the circumstances surrounding the hyperthermia-related fatality of a 27-month-old female who was found inside a 2004 Chevrolet TrailBlazer sport utility vehicle (SUV). The Chevrolet was parked on an asphalt parking lot of an apartment complex. The child's mother returned home with the Chevrolet after transporting the child and her twin sibling. The mother alleged that she removed the sibling from the vehicle and left the 2-year-old outside under the supervision of a family member. She further stated to the police that she left one of the vehicle doors open. The 2-year-old child apparently climbed back into the Chevrolet and the door closed. She was later found in the closed vehicle unconscious. Police and emergency medical services responded to the scene and initiated cardiopulmonary resuscitation. The child was transported by ambulance to a pediatric trauma center where she was pronounced deceased. The police investigation found the vehicle doors, windows, and locking systems to be in proper working order.			
17. Key Words hyperthermia rocker switch door release lever door detent		*18. Distribution Statement* This document is available to the public through the National Technical Information Service, www.ntis.gov.	
19. Security Classif. (of this report) Unclassified	*20. Security Classif. (of this page)* Unclassified	*21. No. of Pages* 22	*22. Price*

TABLE OF CONTENTS

Non-Traffic Surveillance
Special Crash Investigations
Case No. CR16037
Remote Hyperthermia Fatality Investigation
Vehicle: 2004 Chevrolet Trailblazer
Location: Georgia
Incident Date: May 2014

BACKGROUND

This report documents the remote investigation and the circumstances surrounding the hyperthermia-related fatality of a 2-year-old (27 months) female who was found inside a 2004 Chevrolet TrailBlazer sport utility vehicle (SUV) **(Figure 1)**. The Chevrolet was parked on an asphalt parking lot of an apartment complex. The child's mother returned home with the Chevrolet after transporting the child and her twin sibling. The mother alleged that she removed the sibling from the vehicle and left the 2-year-old outside under the supervision of a family member. She further stated to the police that she left one of the vehicle doors open. The 2-year-old apparently climbed back in the Chevrolet and the door closed. She was later found in the closed vehicle unconscious. Police and emergency medical services (EMS) responded to the scene and initiated cardiopulmonary resuscitation. The child was transported by ambulance to a pediatric trauma center where she was pronounced deceased. The police investigation found the vehicle doors, windows, and locking systems to be in proper working order.

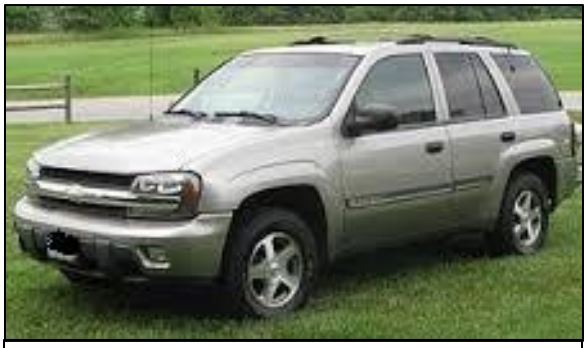


Figure 1: Exemplar 2004 Chevrolet TrailBlazer. (Image obtained from the Internet.)

The incident was identified by the National Highway Traffic Safety Administration and assigned to the Special Crash Investigations group for further research in November 2016. This research was aimed to chronicle the circumstances of these types of incidents and provide direction to potential countermeasures. Approximately 700 children have died due to hyperthermia over a 19-year period (1998 – 2016) with 28 percent of these deaths attributed to children playing in unattended vehicles.[1]

The SCI team contacted the involved police agency and interviewed the investigating officer to obtain the circumstances of the incident. This interview, an exemplar vehicle inspection, supplemental internet research and the police incident report provided the basis for this remote investigation.

[1] Null, J. (2016) Heatstroke Deaths of Children in Vehicles [Web page]. San Jose, CA: Department of Meteorology and Climate Science, San Jose State University. Retrieved from http://noheatstroke.org

INCIDENT SITE

This incident occurred during midafternoon hours in the parking lot of an apartment complex **(Figure 2)**. At the time of the incident, the National Weather Service reported the skies as clear with a temperature of 30.6 ºC (87.1 ºF), heat index of 30.5 ºC (87 ºF), 41 percent humidity and south/southwesterly winds of 13 km/h (8.1 mph). The child's family resided in a two-story apartment building oriented primarily in a north/south direction. Several large trees shaded the southwest corner of the multi-unit building. The parking lot for this apartment was located to the east of the building and was surfaced with asphalt with delineated parking spaces. The parking lot had full exposure to the sun and sky as there were no trees to shade the lot.

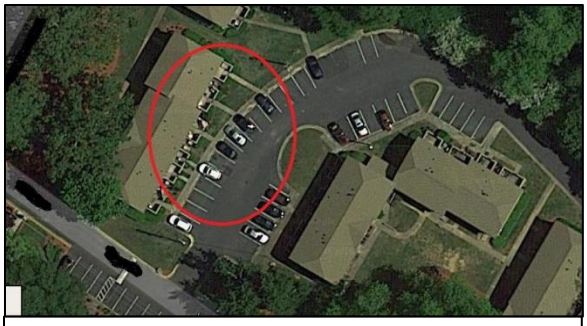


Figure 2. Satellite image of the incident site. North lies at the top of the image.

2004 CHEVROLET TRAILBLAZER

Description

The 2004 Chevrolet TrailBlazer was a 4-door SUV with the LS trim level. **Figure 3** is an exterior view of an exemplar 2004 Chevrolet TrailBlazer. The Chevrolet was identified by Vehicle Identification Number (VIN) 1GNDS13S342xxxxxx. Although there were no images available for this vehicle, the VIN decoding identified the platform as rear-wheel drive, powered by a 4.2-liter, V-6 gasoline engine linked to a 4-speed automatic transmission. The police incident report listed the exterior color as black. The interior color is unknown. Standard features included front bucket seats with adjustable head restraints, a split second-row bench seat with adjustable head restraints in the left and right positions.

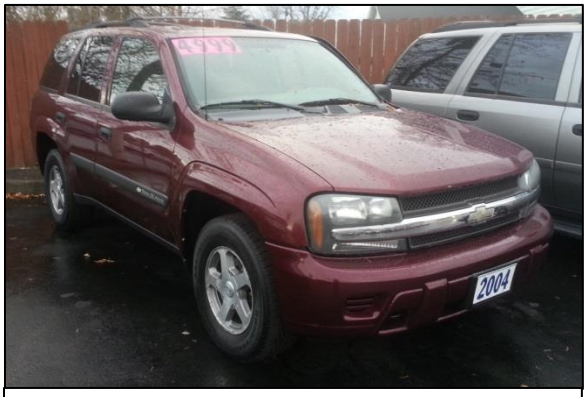


Figure 3. Exterior view of an exemplar 2004 Chevrolet TrailBlazer.

Glazing

The Chevrolet was equipped as standard with an AS1 laminated windshield, AS2 tempered front door glazing, AS3 second-row doors and rear quarter windows, and an AS3 backlight incorporated into the lift gate. Due to the lack of police images, it is unknown if the Chevrolet had aftermarket deep window tint on the front door glazing or a roof window.

Power Windows

The Chevrolet was configured with power door windows as standard equipment. The driver's position contained a master console to control the operation of all four door windows. A cluster of four rocker switches were positioned on the horizontal and forward aspect of the driver's door panel. The forward two switches operated the front row door windows while the aft two switches operated the second-row doors. The front row switches were configured with the auto-down feature that required a single push of the switch to fully lower the front door windows. The forward aspect of the longitudinally mounted switches controlled the down mode while the aft aspect of the switch controlled the power up mode. A separate lockout rocker switch was positioned forward of the window switch cluster and provided the driver the ability to lock out the functionality of the front row right and second row power door windows.

The front row right and both second row door panels were configured with horizontally-mounted rocker switches that controlled the power window for that specific door. The power windows only operated with the key in the ignition and the ignition switch rotated to the accessory or run positions.

Door Locking System

As standard equipment, the 2004 Chevrolet TrailBlazer was equipped with a remote key fob to lock and unlock the vehicle's doors and rear lift gate. The key fob was configured with a lock button that locked all doors on a single push of the button. The unlock feature required one push of the button to unlock the driver's doors and two pushes of the button to unlock the remaining doors and the lift gate. It is unknown if the mother engaged the remote lock feature after she removed the children from the vehicle. This locking feature can still be enabled if a door is in the open position.

The Chevrolet's interior power locking system consisted of front door panel-mounted rocker switches **(Figure 4)**. The switches were 4 x 2 cm (1.5 x 0.75 in) in dimension and were horizontally mounted on the forward extension of the armrest and the integrated door close pull handle. A door image with a key icon identified the power locking rocker switch. The outer aspect (with respect to the vehicle interior) of the switch provided the locking mode while the inner aspect of the rocker provided the unlock mode. It should be noted that the power lock feature remained active and fully functional without the ignition energized. The second-row doors were not equipped with power lock switches. Due to the location of the power locking switches on the front door panels, a child could inadvertently

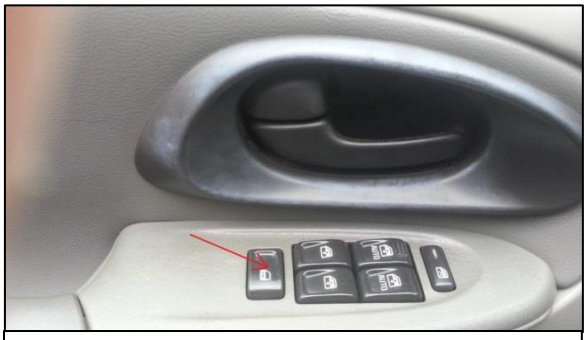


Figure 4. Exemplar vehicle driver's power door lock switch (arrow).

lock the vehicle when playing in the vehicle by kneeling on the armrest-mounted switch and engaging the lock function.

Manual locking/unlocking of the vehicle was achievable by rotating the locking levers that were positioned directly above the hinge aspect of the door release levers on the interior door panels. These locking levers were color-matched (gray) to the door release levers and the trim pocket. The leading edge of the lever displayed a high visibility orange bar when rotated to the unlocked position **(Figure 5)**. When rotated to the locked position, this orange highlight was concealed in the trim pocket for the door release lever. These levers also rotated to the respective positions by the activation of the power locking system. Manually rotating the locking lever would only unlock the respective door when all four doors were in the locked mode. In the locked mode, none of the doors would unlock by pulling on the interior door release levers. The locking levers had to be rotated to the unlock position to open the doors.

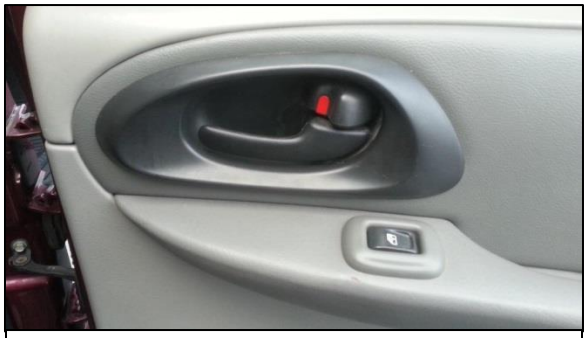


Figure 5. Unlocked position of the manual rotating lock lever of an exemplar vehicle.

Exterior Door Handles

The exterior door handles of the Chevrolet were flush mounted in the upper aft aspect of the doors and required a vertical pull to open. The top-hinged handles were of polymer composition. Based on the SCI inspection of an exemplar vehicle, the front door handles were 97 cm (38.25 in) above the pavement while the rear door handles were 102 cm (40.0 in) above the ground surface. A vertical pull force was required to unlatch the door latch with 3 cm (1 in) of vertical movement of the handle. A horizontal pull force is then required to open the doors. The driver's door was equipped with a keyed door lock in the aft aspect of the door handle. **Figures 6 and 7** are images of the exterior door handle from an exemplar vehicle.

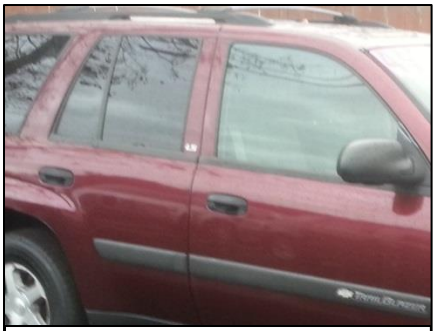


Figure 6. Exterior door handles of an exemplar vehicle.

Figure 7. Exemplar vehicle exterior door handle in the open/unlatched position.

The doors were configured with detents to hold the doors open at various positions. Based on the exemplar vehicle inspection, all four doors of the TrailBlazer were configured with three detent positions. These were measured from the outside edge of the seat cushion to the centerline of the horizontal pull handle on the interior door panels. The horizontal measurements of the three front door detent positions were 50 cm (19.5 in), 72 cm (28.5 in), and 91 cm (36 in). The rear door measured detent positions were 36 cm (14 in), 53 cm (21 in) and 61 cm (24 in).

Interior Door Release Levers

The interior door release levers of the Chevrolet were recessed into the door panels and positioned at the forward upper quadrant of the door panels. The levers required a horizontal pull force to unlatch the door latch mechanism. **Figures 8 and 9** depict the interior door release levers, front row and second row respectively.

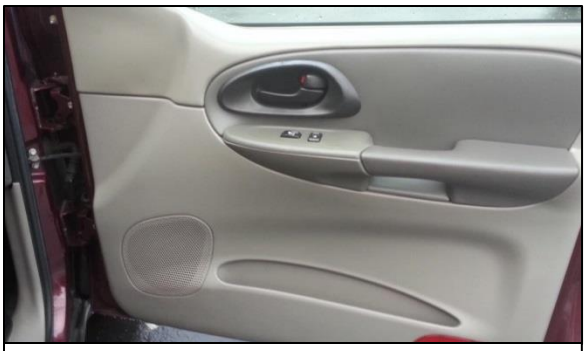


Figure 8. Front row right interior door release lever of an exemplar vehicle.

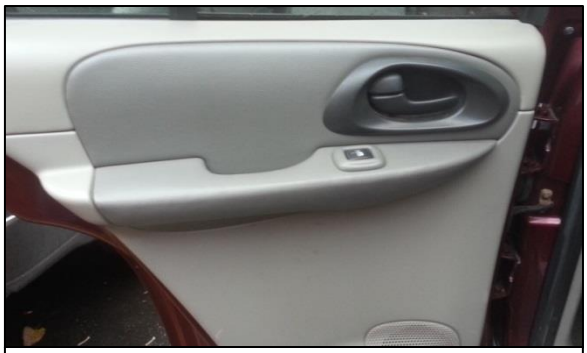


Figure 9. Second row left interior door release lever of an exemplar vehicle.

INCIDENT

The police investigation for this hyperthermia death was limited as they classified the incident as a tragic event. There were no images and the reporting was sparse. This narrative is therefore based on the limited information available to the SCI team.

The owner and operator of the Chevrolet TrailBlazer was the child's mother. She was driving with the child and her twin and returned to the apartment complex between 1300 and 1400 hours. The driver parked the Chevrolet in a designated parking space with the front of the vehicle facing in a northwesterly direction. As she exited the vehicle, she reportedly removed the twin children from the Chevrolet and left one of the doors open. The mother instructed a family member to watch the child as she carried the other child into the apartment to change her diaper.

The child apparently returned to the vehicle and entered through the open door. The door was closed either by the child or it self-closed. The measured detents of the exemplar doors would have made it difficult for this 2-year-old to reach and close the door without falling out of the vehicle. The mother stated that at least an hour had passed since she returned home and realized that the child was missing. The mother and the other adult in the apartment began to look for the

child and found her in an unconscious state in the Chevrolet. The doors and windows of the vehicle were closed. The mother retrieved the child from the Chevrolet and carried her into the apartment. She placed her on the floor in a face-down position and called the emergency response system and reported an unresponsive child.

The first police officer arrived on-scene at 1454 hours. He located the apartment and found the child lying on the floor. He rolled the child over and determined that she was unconscious and hot to the touch. The police officer did not find a pulse and initiated CPR. Paramedics arrived on-scene, continued the CPR activities and placed the child on a cot for ambulance transport to a pediatric trauma center. While waiting for the ambulance to depart the scene, the mother informed another police officer that the child was found in the Chevrolet. The child was evaluated at the trauma facility and was pronounced deceased at 1538 hours.

The police conducted an inspection of the locking system and door handles of the Chevrolet TrailBlazer and determined that all systems were fully operational. No charges were filed against the mother.

Based on the inspection of the exemplar 2004 Chevrolet TrailBlazer, the documented detent positions of the doors, it is doubtful that this child was physically able to close an open door once inside the vehicle. Second, the height of the exterior door handles would have prevented the child from opening the doors unassisted. The mother's statement of taking one child into the apartment and leaving the child unaccounted for, for over an hour creates the possibility that the child was left unattended in the Chevrolet for the duration of the event.

CHILD DEMOGRAPHICS

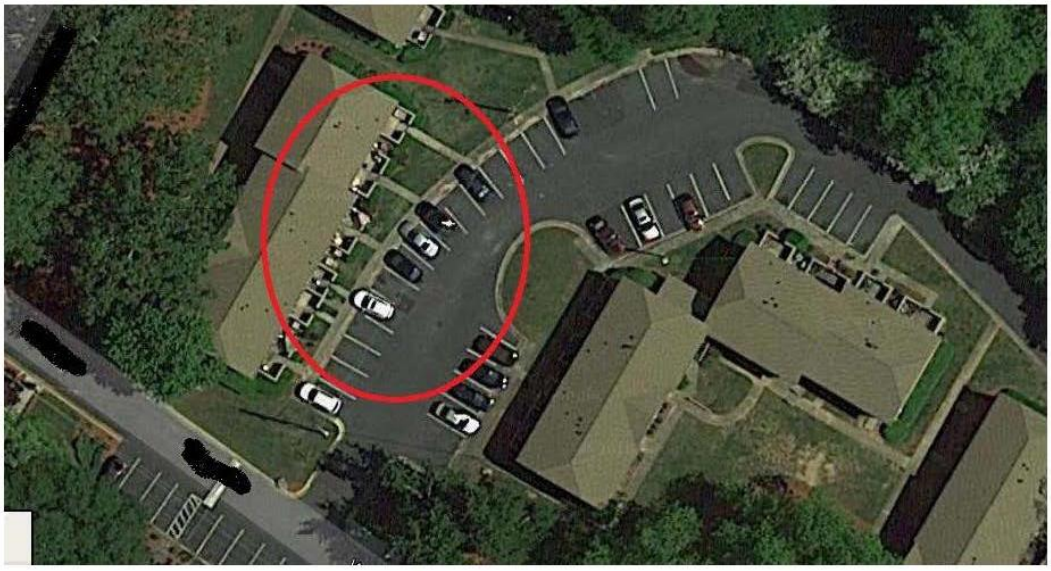
The child involved in this hyperthermia fatality investigation was a 2-year-old (27 months) female. Her height and weight were not reported. The child was wearing a diaper; however, her clothing worn at the time of the incident is unknown. CPR efforts were performed at the scene of the incident by the responding firefighters. She was transported by ambulance to a local hospital where she expired due to the complications of hyperthermia.

CHILD INJURIES

Injury No.	Injury	AIS 2015	Involved Physical Component (IPC)	IPC Confidence Level
1	Hyperthermia	010200.1	Vehicle entrapment	Certain

Source – Police Incident Report

INCIDENT SITE DIAGRAM



Incident Site:
Apartment Complex Parking Lot

V1: 2004 Chevrolet Trailblazer

	NHTSA www.nhtsa.gov
Case Number:	CR16037

APPENDIX:

Non-Traffic Surveillance Forms

Not Applicable ☐ | Reset Values | Print Forms

U.S. Department of Transportation
National Highway Traffic Safety Administration

SCENE FORM

Special Crash Investigations
Non-Traffic Surveillance

1. Case Number

C R 1 6 0 3 7

IDENTIFICATION

2. Date of Crash 0 5 / x x / 1 4

3. Time of Crash 1 4 5 4

Code reported military time of crash.

NOTE: Midnight = 2400
Unknown = 9999

AMBIENT CONDITIONS

4. Light Conditions

- ◉ Daylight
- ☐ Dark
- ☐ Dark but lighted
- ☐ Dawn
- ☐ Dusk
- ☐ Unknown

5. Atmospheric Conditions
(Select all that apply)

- ◉ Clear-No adverse conditions
- ☐ Cloudy
- ☐ Rain
- ☐ Snow
- ☐ Fog, Smog, Smoke
- ☐ Sleet, Hail (freezing rain or drizzle)
- ☐ Blowing Snow
- ☐ Severe Crosswinds
- ☐ Blowing Sand, Soil, Dirt
- ☐ Other (specify): _____
- ☐ Unknown

6. Temperature

- ☐ Below 0 degrees Celsius (Below 32 F)
- ☐ 1-10 degrees Celsius (33-50 F)
- ☐ >10-24 degrees Celsius (51-75 F)
- ◉ Over 24 degrees Celsius (Over 75 F)
- ☐ Unknown

SCENE INFORMATION

7. Type of area in which crash occurred
(Select all that apply)

- ☐ Single family residential
- ☐ Row houses/townhouses
- ◉ Multi family housing
- ☐ Commercial
- ☐ Industrial
- ☐ Rural
- ☐ Unknown

8. Driver exterior sightline obstructions
(Select all that apply)

- ☐ None
- ☐ Other vehicles
- ☐ Building
- ☐ Trees
- ☐ Shrubbery
- ◉ Other (specify) N/A
- ☐ Utility poles
- ☐ Signs
- ☐ Glare
- ☐ Unknown
- ☐ No driver present

9. Crash location

- ☐ Driveway
- ☐ Parking Lot
- ☐ Sidewalk
- ☐ Alley
- ☐ Intersection of driveway and sidewalk
- ☐ Road / street
- ☐ Roadside / shoulder
- ◉ Other (specify) N/A
- ☐ Unknown

10. Non motorist sightline obstructions
(Select all that apply)

- ☐ None
- ☐ Other vehicles
- ☐ Building
- ☐ Trees
- ☐ Shrubbery
- ☐ Utility poles
- ☐ Signs
- ☐ Glare
- ◉ Other (specify) N/A
- ☐ Unknown

11. Grade at parked position + / - 9 9 9 %

12. Estimated distance from parked position to impact

0 0 0 . 0 m

13. Estimated speed at impact 0 0 0 kmph

14. Grade at impact +/ - 9 9 9 %

15. Estimated distance from impact to vehicle final rest

0 0 0 . 0 m

Unknown = 999 Reference Items 11,12, 13, 14, 15

Revised January 2018

Not Applicable ☐

Reset Values

U.S. Department of Transportation
National Highway Traffic Safety Administration

VEHICLE FORM

Special Crash Investigations
Non-Traffic Surveillance

1. Case Number C R 1 6 0 3 7

VEHICLE IDENTIFICATION

2. VIN 1 G N D S 1 3 S 3 4 2 X X X X X X

3. Model Year 2 0 0 4

4. Vehicle Make (specify): Chevrolet

5. Vehicle Model (specify): Trailblazer

GLAZING

Location	Presence (check)	Status (select)	Clarity (select)	Tint (check)	Glazing Obstructions (specify if present)
Windshield	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	Not inspected
LF	☑	☐ Fixed / ☑ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	Tint Unknown
RF	☑	☐ Fixed / ☑ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	
2nd Left	☑	☐ Fixed / ☑ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	
2nd Right	☑	☐ Fixed / ☑ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	
3rd Left	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	
3rd Right	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	
Backlight	☑	☑ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☑ Unknown	☐	
Left Backlight	☐	☐ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☐	
Right Backlight	☐	☐ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☐	
Roof	☐	☐ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☐	
Other (specify)	☐	☐ Fixed / ☐ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☐ Clear / ☐ Hazy / ☐ Very Dirty / ☐ Unknown	☐	

TIRE DATA

6. Vehicle Manufacturer Recommended Tire Size Unknown

7. LF Tire Size Unknown

8. LR Tire Size Unknown

9. RF Tire Size Unknown

10. RR Tire Size Unknown

Revised January 2018

Seats / Head Restraint Data

Seat Position	Seat Type (Select from below)	Head Restraint (Check if available)	Head Restraint Adjustment (select)	NOTES:
Front Left	1	☑	Full Down / Mid / Full Up	Not inspected by SCI team. Head restraint adjutment unknown.
Front Middle	0	☐	Full Down / Mid / Full Up	
Front Right	1	☑	Full Down / Mid / Full Up	
2nd Left	4	☑	Full Down / Mid / Full Up	
2nd Middle	4	☐	Full Down / Mid / Full Up	
2nd Right	4	☑	Full Down / Mid / Full Up	
3rd Left		☐	Full Down / Mid / Full Up	
3rd Middle		☐	Full Down / Mid / Full Up	
3rd Right		☐	Full Down / Mid / Full Up	

Seat Type codes:

0 = No seat or seat folded down
1 = Bucket
2 = Bucket w/ folding back
3 = Bench
4 = Bench with folding back cushions
5 = Bench w/ folding back
6 = Split bench w/ separate back cushions
7 = Split bench w/ separate folding back
8 = Pedestal (i.e. column supported)
9 = Box mounted (i.e. van type)
10= Other seat type (specify)
99= Unknown seat type

VEHICLE MEASUREMENTS

Clearance Heights		Measurements (all from ground, and in centimeters	NOTES
Beltline			Not inspected by SCI team.
Top of trunk/tailgate			
Bottom of bumper			
Trailer hitch (if applicable)			
Undercarriage			
	Sway bar		
	Axle		
	Differential		
	Other (specify):		
Sensor Height (if equipped)			
Camera Height (if equipped)			

Revised January 2018

Not Applicable ☑

Undo Not Applicable

Reset Values

U.S. Department of Transportation
National Highway Traffic Safety Administration

Back Up / Parking Aid Form

Special Crash Investigations
Non-Traffic Surveillance

1. Case Number

C R 1 6 0 3 7

PARKING AID PRESENCE

2. Type of backing/parking aid present

- ☐ OEM camera
- ☐ OEM ultrasonic/radar sensor
- ☐ OEM combination camera-ultrasonic/radar sensor
- ☐ OEM Fresnel lens
- ☐ OEM interior mirrors
- ☐ Aftermarket camera
- ☐ Aftermarket ultrasonic/radar sensor
- ☐ Aftermarket combination camera-ultrasonic radar sensor
- ☐ Aftermarket Fresnel lens
- ☐ Aftermarket interior mirrors
- ☐ Other (specify): _____

CAMERA INFORMATION

Specify field of view measurements on diagram

3. System make/model

_____

4. Video monitor type

- ☐ None present
- ☐ LCD (color)
- ☐ CRT (black & white)
- ☐ Unknown

5. Video display size _____ cm
(Diagonal)

6. Camera location

- ☐ None present
- ☐ Bumper
- ☐ License plate
- ☐ Tailgate/Hatch/Trunk
- ☐ Other (specify): _____

7. Video image quality under scene lighting conditions

- ☐ None present
- ☐ Good
- ☐ Average
- ☐ Poor (specify): _____
- ☐ Unknown

8. Was the camera functioning properly

- ☐ None present
- ☐ Yes
- ☐ No, poor image quality due to glare
- ☐ No, poor image quality due to atmospheric conditions
- ☐ No, camera turned off
- ☐ No, camera inoperable
- ☐ Unknown

ULTRASONIC/RADAR SENSOR

Specify object detection range on diagram

9. System make/model

_____

10. Auditory warning illumination

- ☐ No sensor present
- ☐ Yes
- ☐ No
- ☐ Unknown

11. Number of sensors ____

12. Sensor locations
(Select all that apply)

- ☐ No sensor present
- ☐ Left bumper
- ☐ Center bumper
- ☐ Right bumper
- ☐ License plate area
- ☐ Tailgate/Hatch/Trunk

13. Was warning system functioning properly

- ☐ No sensor present
- ☐ Yes, system alerted driver
- ☐ No, system did not alert driver
- ☐ No, system turned off
- ☐ No, system inoperable
- ☐ Unknown

Revised January 2018

14. Did driver react to warning

- ☐ No sensor present
- ☐ Yes
- ☐ No
- ☐ Unknown
- ☐ Sensor present, did not sound

15. Did driver report common false warnings

- ☐ No sensor present
- ☐ Yes
- ☐ No
- ☐ Unknown

Not Applicable

Revised January 2018

No Driver Present ☑

Undo Not Applicable

Reset Values

U.S. Department of Transportation
National Highway Traffic Safety Administration

DRIVER FORM

Special Crash Investigations
Non-Traffic Surveillance

1. Case Number

C R 1 6 0 3 7

DRIVER PROFILE

2. Driver's Age ____ ____
   99 = Unknown

3. Driver's Sex
   - ☐ Male
   - ☐ Female
   - ☐ Unknown

4. Driver's Height ____ ____ ____ cm
   999 = Unknown

5. Driver's Weight ____ ____ ____ kg
   999 = Unknown

6. Driver eyewear worn
   (Select all that apply)
   - ☐ None
   - ☐ Eyeglasses
   - ☐ Sunglasses
   - ☐ Contacts
   - ☐ Unknown

7. Driver vision deficiency condition
   (Select all that apply)
   - ☐ None
   - ☐ Near sighted
   - ☐ Far sighted
   - ☐ Astigmatism
   - ☐ Other (Specify) _____
   - ☐ Unknown

8. Non motorist's relationship to driver
   - ☐ No relationship
   - ☐ Child
   - ☐ Grandchild
   - ☐ Sibling
   - ☐ Neighbor
   - ☐ Friend
   - ☐ Other (specify): _____
   - ☐ Unknown

DRIVER ACTIONS

9. Driver approach to vehicle for entry
   - ☐ From left front
   - ☐ From left
   - ☐ From left rear
   - ☐ From right rear
   - ☐ From right front
   - ☐ Circled vehicle
   - ☐ Return trip (backing into driveway/lot)
   - ☐ Other (specify): _____
   - ☐ N/A
   - ☐ Unknown

10. Driver entry interruption
    (Select all that apply)
    - ☐ Direct trip from building to vehicle
    - ☐ Loaded items into vehicle
    - ☐ Spoke with family
    - ☐ Spoke with neighbors
    - ☐ Spoke with contacted nonmotorist
    - ☐ Return trip (backing into driveway/lot)
    - ☐ Other (specify): _____
    - ☐ N/A
    - ☐ Unknown

11. Purpose of backing
    - ☐ Leaving parking space in parking lot
    - ☐ Backing onto roadway from driveway
    - ☐ Entering parking space in parking lot
    - ☐ Backing into driveway from roadway
    - ☐ Other (specify): _____
    - ☐ N/A
    - ☐ Unknown

12. Where was driver going
    Description:

    _____

    _____

13. Driver in a hurry
    - ☐ Yes
    - ☐ No
    - ☐ N/A
    - ☐ Unknown

14. How did driver check behind (rear area of vehicle) after vehicle entry
    (Select all that apply)
    - ☐ Did not look
    - ☐ Checked mirrors
    - ☐ Turned right and looked back
    - ☐ Turned left and looked back
    - ☐ Viewed Camera
    - ☐ Listened for auditory/visual warning from system
    - ☐ Other (specify): _____
    - ☐ N/A
    - ☐ Unknown

15. Estimated time between vehicle entry and start of backing
    - ☐ 0-10 Seconds
    - ☐ 11-30 Seconds
    - ☐ 31-60 Seconds
    - ☐ Over 60 Seconds
    - ☐ N/A
    - ☐ Unknown

Revised January 2018

16. What direction was the driver looking during backing maneuver
(Select all that apply)

- ☐ Straight ahead
- ☐ Right
- ☐ Left
- ☐ Rearward
- ☐ At object inside the car
- ☐ At mirrors
- ☐ Other (specify): _____
- ☐ N/A
- ☐ Unknown

17. Was the driver distracted during back up maneuver
(Select all that apply)

- ☐ No non-driving activities

External

- ☐ Looking at other vehicles
- ☐ Looking at other non motorist
- ☐ Looking at intended turn destination
- ☐ External focus, not specified
- ☐ Other external focus (specify): _____

Internal

- ☐ Looking at other occupant
- ☐ Talking to passenger
- ☐ Dialing phone
- ☐ Talking on phone
- ☐ Listening to radio/cd/portable playback device
- ☐ Adjusting radio/cd player
- ☐ Adjusting climate controls
- ☐ Using a device/controls integral to vehicle (specify): _____
- ☐ Reading/adjusting navigation system
- ☐ Eating or drinking
- ☐ Smoking related
- ☐ Retrieving fallen object (specify): _____
- ☐ Internal focus, not specified
- ☐ Focused on other internal object (specify): _____
- ☐ N/A
- ☐ Unknown

18. Driver avoidance actions prior to impact
(Select all that apply)

- ☐ None
- ☐ Braking
- ☐ Steering left
- ☐ Steering right
- ☐ Accelerating
- ☐ Other (specify): _____
- ☐ N/A
- ☐ Unknown

19. Did driver see struck non motorist prior to impact
(Select all that apply)

- ☐ No, never saw non motorist
- ☐ Saw non motorist prior to entering vehicle
- ☐ Saw non motorist after entering vehicle
- ☐ Other (specify): _____
- ☐ N/A ☐ Unknown

20. Est time between start of backing and impact

- ☐ <2 or = 1 second
- ☐ 2-5 seconds
- ☐ 6-10 seconds
- ☐ > 10 seconds
- ☐ N/A ☐ Unknown

21. Driver interior sightline obstructions
(Select all that apply)

- ☐ Pillar
- ☐ Headrest
- ☐ Cargo
- ☐ Other occupant
- ☐ Other (specify) _____
- ☐ Unknown
- ☐ None

22. Recent experience driving this vehicle

- ☐ More than 10 times the last three months
- ☐ 6-10 times the last three months
- ☐ 2-5 times the last three months
- ☐ Less than 2 times the last three months
- ☐ First time driving this vehicle
- ☐ N/A
- ☐ Unknown

23. Frequency of driving in this parking lot/driveway

- ☐ Daily
- ☐ Weekly
- ☐ Several times a month
- ☐ Monthly
- ☐ Rarely
- ☐ First time in lot/driveway
- ☐ N/A ☐ Unknown

24. Driver Impairment
(Select all that apply)

- ☐ No drugs or alcohol present
- ☐ Alcohol present (specify BAC): _____
- ☐ Drugs present (specify):_____
- ☐ Unknown

25. Source of alcohol/drug results

- ☐ Police reported
- ☐ Medical record
- ☐ Other (specify)_____
- ☐ Not Tested
- ☐ Unknown if tested

Revised January 2018

Not Applicable ☐

U.S. Department of Transportation
National Highway Traffic Safety Administration

Non Motorist Form

Reset Values

Special Crash Investigations
Non-Traffic Surveillance

1. Case Number
C R 1 6 0 3 7

NON-MOTORIST PROFILE

2. Non-motorist's Age — 2 7 ◉ Months ☐ Years
99 = Unknown

3. Non-motorist's Sex
☐ Male
◉ Female
☐ Unknown

4. Non-motorist's Height — 9 9 9 cm
999 = Unknown

5. Non-motorist's Weight — 0 1 4 kg
999 = Unknown

6. Medical outcome
☐ Not injured
☐ ER only
☐ Hospitalized 1-4 days
☐ Hospitalized 5 days or more
☐ Treatment later
◉ Fatal
☐ Unknown

7. Source of most severe injury
☐ Bumper
☐ Tire
☐ Undercarriage
◉ Other Specify: Hyperthermia
☐ Ground
☐ N/A
☐ Unknown

8. Non-motorist impairment
(Select all that apply)
◉ No drugs or alcohol present
☐ Positive for alcohol (specify BAC): _____
☐ Positive for drugs (specify): _____
☐ Unknown

9. Source of alcohol/drug results
☐ Police reported
☐ Medical Report
☐ Other (specify) _____
◉ Not Tested
☐ Unknown if tested

NON-MOTORIST ACTIONS

10. Non-motorist attitude
☐ Standing
☐ Bending at waist
☐ Sitting
☐ Crouching
☐ Kneeling
☐ On skates/skateboard
☐ On bike/scooter
◉ Other (specify) N/A
☐ Unknown

11. Non-motorist motion
☐ Not moving
☐ Walking slowly
☐ Walking rapidly
☐ Running or jogging
☐ Skipping/Hopping/Jumping
☐ Falling/Stumbling/Rising
☐ On skates/skateboard
☐ On bike/scooter
◉ Other (specify): N/A
☐ Unknown

12. Non-motorist approach relative to rear of vehicle
☐ Stationary
☐ From left
☐ From right
☐ From behind
◉ Other (specify): N/A
☐ Unknown

13. Non-motorist first avoidance action
☐ No avoidance actions
☐ Stopped
☐ Accelerated pace
☐ Ran away (along vehicle path)
☐ Jumped
☐ Turned away from vehicle
☐ Turned toward vehicle and braced
☐ Dove or fell away from vehicle
◉ Other (specify): N/A
☐ Unknown

14. Non-motorist primary focus of attention
☐ Striking vehicle
☐ Play object
☐ Person
☐ Surrounding traffic
☐ Animal
☐ Handheld electronic (phone, MP3 player, etc.)
◉ Other Object (specify) N/A
☐ Unknown

15. Were any other Non-motorists present?
(Select all that apply)
◉ Alone
☐ One adult present
☐ One other child present
☐ Multiple adults present
☐ Multiple children present
☐ Unknown

Revised January 2018

NON MOTORIST CLOTHING

NOTES:

- Specify Color, Fabric and Texture/Weight for outermost layer only
- Indicate "*NONE*" if applicable
- Available codes:

Colors		***Fabrics***	***Textures***	***Weights***
Black	Charcoal gray	Natural	Soft	Heavy
Lt gray/silver	Brown	Synthetic	Slick	Medium
Gold/tan	Purple	Blend	Coarse	Light
Dark blue	Light blue			
Dark green	Light green			
Maroon	Red			
Orange	Yellow			
White	Other (specify)			
Pink				

	Clothing	Color	Fabric	Texture	Weight
HEADWEAR	Hat				
	Helmet				
	Hood				
	Other (specify): _____				
	Unknown				
UPPER BODY	Short Sleeve				
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify): _____				
	Unknown	Unknown	Unknown	Unknown	Unknown
LOWER BODY	Shorts				
	Pants				
	Shoes				
	Other (specify): _____				
	Unknown	Unknown	Unknown	Unknown	Unknown

Revised January 2018

DOT HS 812 618
September 2018

U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

13913-090518-v1a