Remote Not In Traffic Surveillance Hyperthermia Investigation
Dynamic Science, Inc. (DSI), Case Number DS08010
2005 Saturn Ion
Arizona
March 2008

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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 in order 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 vehicle(s) or their safety systems.

Technical Report Documentation Page

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16. Abstract

This remote investigation focused on the circumstances surrounding the death of a 4-month-old male who was left unattended in a 2005 Saturn Ion Quad Coupe Red Line. The child had been placed in a rear facing Graco SnugRide Infant Car Seat in the second row right position of the vehicle during a family trip. When the father and child returned home, the father exited the vehicle, entered the residence, and left the child in the vehicle. The incident occurred between 1300 and 1609 hours. During those hours the father was inside the residence and had forgotten his son was in the vehicle. At approximately 1609 hours, the father went outside and observed the child in the vehicle. He removed the child from the vehicle and observed that the child was not breathing. The child was carried into the residence and placed on a sofa, where another adult began administering cardiopulmonary resuscitation (CPR) to the child. Paramedics were called and arrived at the scene and transported the child to a local hospital. The child was treated in the hospital emergency room for a short time and then was declared deceased. An autopsy was performed and the pathological diagnosis was listed as hyperthermia.

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Dynamic Science, Inc.
Crash Investigation
Case Number: DS08010

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BACKGROUND

Figure 1. Subject vehicle, 2005 Saturn Ion Quad Coupe Red Line.

This remote investigation focused on the circumstances surrounding the death of a 4-month old male who was left unattended in a 2005 Saturn Ion Quad Coupe Red Line (**Figure 1**). The child had been placed in a rear facing Graco SnugRide Infant Car Seat in the second row right position of the vehicle during a family trip. When the father and child returned home, the father exited the vehicle, entered the residence, and left the child in the vehicle. The incident occurred between 1300 and 1609 hours. During those hours the father was inside the residence and had forgotten his son was in the vehicle. At approximately 1609 hours, the father went outside and observed the child in the vehicle. He removed the child from the vehicle and observed that the child was not breathing. The child was carried into the residence and placed on a sofa, where another adult began administering cardiopulmonary resuscitation (CPR) to the child. Paramedics were called and arrived at the scene and transported the child to a local hospital. The child was treated in the hospital emergency room (ER) for a short time and then was declared deceased. An autopsy was performed and the pathological diagnosis was listed as hyperthermia.

This incident was investigated and reported by a county sheriff's department. The type of record was a "Detail Incident Report". This incident was not reported to the state because the scene was located on private property. The report was forwarded to other county agencies such as the courts because criminal charges were filed against the father of the child.

This Remote Not In Traffic Surveillance (NITS) Hyperthermia Investigation was initiated by the National Highway Traffic Safety Administration (NHTSA) in response to a news article that reported the death of a 4-month-old male child who was left unattended in a vehicle. On March 25, 2008, DSI was forwarded the article and assigned the case with instructions to conduct a remote investigation. DSI obtained the incident report, the on-scene photographs, and the autopsy report. This report is based on those reports and photographs.

SUMMARY

Incident Site

The incident occurred between in March 2008 in a sand, dirt and gravel parking area near the driver's residence. The residence was a mobile home that was oriented generally northwest/southeast on the property. The building's exterior height measured 3.2 m (10.4 ft). The subject vehicle was parked on the west side and parallel to the building, heading southeast. The vehicle was located approximately 6.6 m (21.5 ft) from the building (**Figure 2**). Another vehicle was parked between the subject vehicle and the building.

The 4-month-old child was left unattended in the subject vehicle during the afternoon from approximately 1300 - 1600 hours. The ambient temperature during this period ranged from 75.2 - 76.3 degrees F (24.0 - 24.6 C). The weather was sunny, the wind speed ranged from 3 - 8 mph (4.8 - 2.9 km/h). The subject vehicle's exterior was medium blue in color; its interior was medium to dark blue-gray.

Figure 2. Aerial view of scene, arrow shows location of subject vehicle at time of incident.

The causes for the rapid rise in a vehicle's internal temperature on a clear sunny day are due to the vehicle's heating dynamics. The sun's shortwave radiation generally passes through the atmosphere and vehicle's glazing, and warms whatever non-transparent objects it strikes. Previous studies have shown that a dark colored dash has the potential to reach a temperature of 180 degrees F (82.2 C). As objects such as a steering wheel, dashboard and child safety seat absorb shortwave energy, they heat the adjacent air by conduction and convection, and also give off longwave radiation, which is very efficient in warming the air trapped inside a closed vehicle.

Vehicle Data

The subject vehicle was identified by Vehicle Identification Number (VIN): G8AY14P85Zxxxxxx. The vehicle was described by the manufacturer as a 4-door coupe. The vehicle was equipped with second row doors that opened on rear-mounted hinges. The second row doors were designed without exterior handles, and there were no B-pillars between the front and rear doors. The vehicle was equipped with a 4-cylinder, 2.0 liter engine, manual 5-speed transmission, front wheel drive, and a sun roof. The vehicle's exterior was blue in color. The vehicle's seats were covered in blue colored fabric with dark blue vinyl trim. The dash and side door panels were covered in dark colored vinyl.

Figure 3. Tint test using Laser Labs Model 100 tint meter.

A stay-in-car base from a Graco SnugRide infant safety seat was anchored by the lap and shoulder belt in the second row right seat.

Investigating law enforcement performed a tint test of the front and rear side window glazing, using a Laser Labs Model 100 tint meter (**Figure 3**). The tint meter measures the Visible Light Transmission (VLT) of a tinted window versus the VLT seen by the human eye. The difference between the two values is given as a percentage. A reading of 54 percent was obtained for both the

front and rear windows. Arizona law requires front row windows to have a VLT of greater than 33 percent. The state has no tint restrictions for rear side windows or back lights. The type of tint meter used in the test measures the darkness of a tinted window and not the reflective qualities. The reflective elements of window glazing and tinting reduce glare and heat generated by visible light.

Window tinting does effect the transmission of shortwave radiation into a vehicle. However, the reflective elements of the subject vehicle's glazing were not determined, and the darkness of the windshield, backlight, and sun roof were not measured due to the limitations of the tint meter used. Due to the southerly orientation of the vehicle, the time of year, the time of day, and reflective properties of the surrounding environment, an optimal amount of shortwave radiation was allowed to enter the vehicle's interior. Therefore, the child was probably exposed to direct shortwave radiation for much of the time he was left unattended, which was approximately three hours.

Non-Motorist Data

Age/Sex:	4 months/Male
Height:	42 cm (17 in)
Weight:	5.05 kg (11.1 lbs)
Seat type:	Bench with separate back cushions
Seat track position:	Not adjustable
Manual restraint usage:	Lap and shoulder belt used with child safety seat base
Usage source:	Law enforcement vehicle inspection (photographs only)
Type of medical treatment:	Transported by ground, pronounced deceased in ER

The child was wearing a green and white striped Onesie[1] outfit (**Figure 4**) and a diaper. In the ER, the child had a postmortem temperature of 106 degrees F (41.1 C). An investigating sheriff examined the child's body in the ER and noted the following: the child's eyes were partially open and appeared very dry; there was a small abrasion on the right abdomen, and a small abrasion on the right testicle.

The child's height was 42 cm (17.0 in) and his weight was 5.05 kg (11.1 lbs). The autopsy reported the cause of death as hyperthermia, based on the following diagnosis:

a) Body temperature of 106 degrees F (41 C) in the emergency room
b) Infant was left in a car on sunny day
c) Sunken anterior fontanelle

[1] A one-piece garment for an infant or small child, generally worn over a diaper.

The fontanelle at the top of the head usually closes within 7-19 months after birth[2]. The fontanel should feel firm and should curve inward slightly to the touch. A noticeably sunken fontanel is a sign that the infant does not have enough fluid in his or her body. The exact time of death was not known; however, the child had been pronounced deceased sometime prior to 1715 hours, approximately one hour after he was found in the vehicle.

Figure 4. Clothing worn by non-motorist.

Incident

On the day of the incident, the child was placed in the infant safety seat within the vehicle prior to 1100 hours. The seat was a rear facing only Graco SnugRide infant safety seat with a stay-in-vehicle base. The SnugRide was equipped with an adjustable base, a 5-point harness, expanded polystyrene (EPS) energy absorbing foam, and a removable head support. The base was later observed in police photos to be secured by the vehicle's manual lap and shoulder belt in the second row right position (**Figure 5**). A small blanket was placed between the infant seat base and the vehicle's seat back. Photos of the child seat were taken within the residence.

Figure 5. View showing Graco SnugRide stay-in-car base, secured in subject vehicle.

The driver of the vehicle was a 19-year-old male who was the child's father. The child's mother occupied the front row right seat. The family traveled first to visit another family member, and then traveled to the mother's place of employment. The father dropped the mother off at her place of employment at approximately 1200 hours, then returned to the residence. The distances traveled are unknown.

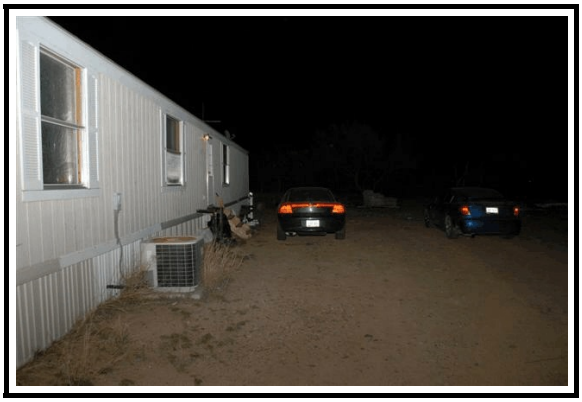


Figure 6. View of west side of residence, facing southeast. The subject vehicle is on the far right.

The father and child arrived at the residence at approximately 1300 hours (**Figure 6**). The father reported that when he arrived at the residence he noticed a door to the residence was open, and that he exited the vehicle and went to find out why the

[2] Fontanelles - bulging, MedicinePlus Encyclopedia, http://www.nlm.nih.gov/medicineplus/ency/article003310.htm

door was open. Once inside the residence, the father began working to build speaker cabinets, and interacting with other people in the residence. At approximately 1600 hours, the father received a phone call from the mother, who asked to be picked up from work. It was at that time when the father recalled that the child was still in the vehicle. The father then went outside and observed the child in the vehicle.

Figure 7. Graco SnugRide infant safety seat, without base attached.

The child was in the infant seat (**Figure 7**). The father removed the child from the vehicle and shouted to the people inside the residence. One adult came outside and told the father to bring the child inside so that he could administer CPR, for which he had been trained. The child was carried inside and placed on a sofa, and one adult began performing CPR on the child. The father dialed 911 on a cellular phone. Sheriffs were dispatched at 1610 hours and the first officer arrived at 1614 hours. Between 1614 and 1615 hours, the fire department arrived, placed the child in an ambulance, and transported him by ground to a local hospital. The paramedics reported that, during transport, the child was without cardiac rhythm or pulse. The paramedics reported that the child's skin appeared blue in color and the child was warm to the touch. The child was treated for a short time, and then was declared deceased in the hospital ER.

It was reported by on-scene investigating law enforcement that one of the child's eyes was observed to be partly open and appeared dry, which was indicative of severe dehydration.

The subject vehicle was towed and held in evidence by investigating law enforcement. The father submitted to a blood test, was charged with homicide and was taken into custody.

During the police investigation, the father reported that he had been arguing with the mother recently and there were domestic issues which were troubling him. The driver later stated that he had been depressed and had once attempted suicide. The father also reported that on two other occasions he and/or the child's mother had forgotten about the child and had left him unattended in the vehicle. The driver reportedly described one such instance as when they arrived at a restaurant, exited the vehicle, and then remembered the child was still in the vehicle just before they entered the restaurant. Another occasion was approximately two weeks prior to the incident date, when the father and child arrived home after dark. The father exited the vehicle and went inside the residence. He was preparing a beverage when he remembered the child was in the vehicle.

Hyperthermia Discussion

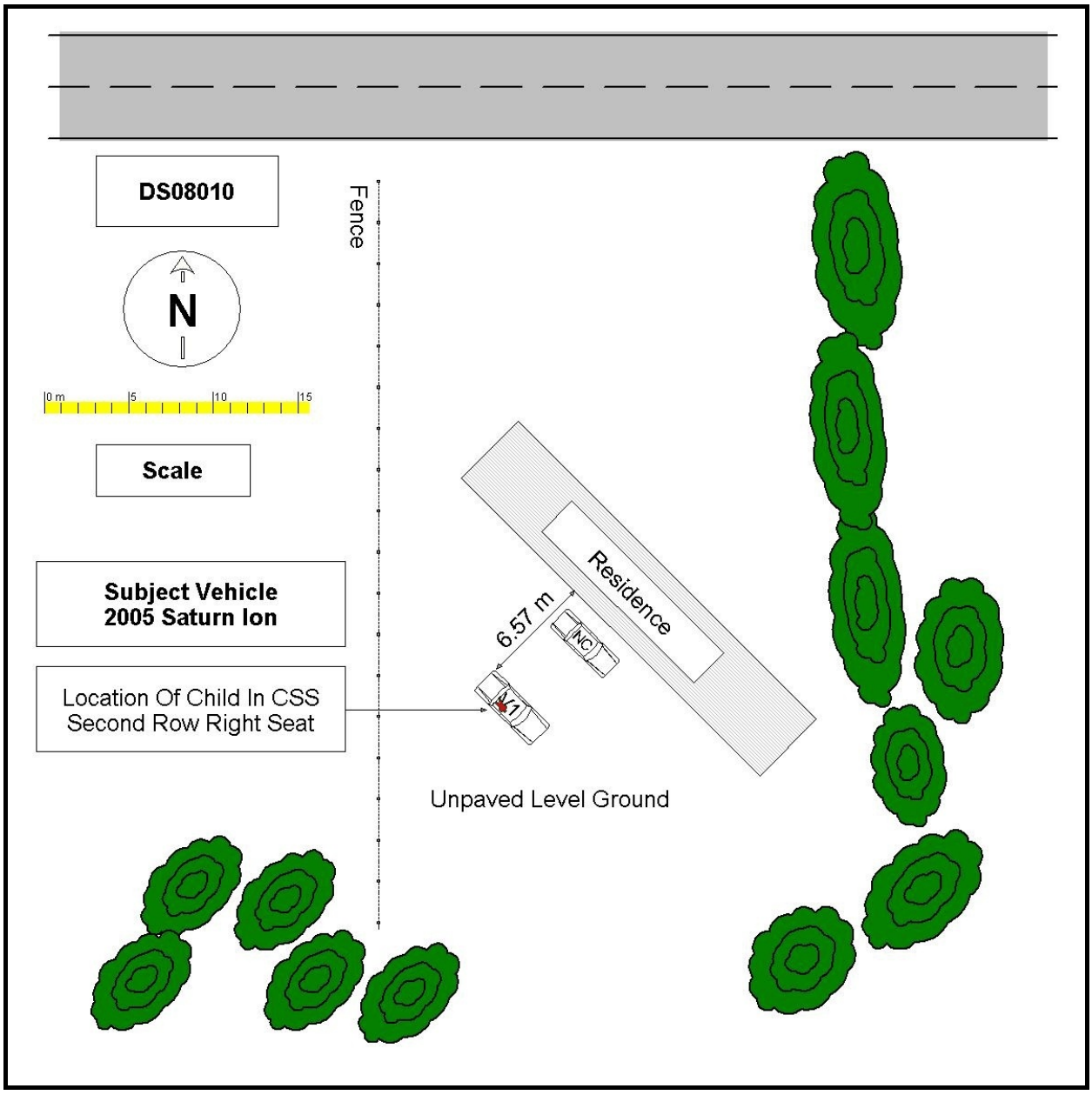
Hyperthermia is defined as an increase in body temperature. A child's thermoregulatory system is not as efficient as an adult's and a child's body warms at a rate 3 to 5 times faster than an adult's[3].

[3] Jan Null, Hyperthermia Deaths of Children in Vehicles, http://www.ggweather.com/heat

Heatstroke occurs when a person's temperature exceeds 104 degrees F (40 C) and the thermoregulatory system is overwhelmed[4]. Heatstroke symptoms include: dizziness, disorientation, agitation, confusion, sluggishness, seizure, hot dry skin that is flushed but not sweaty, loss of consciousness, rapid heart beat, and hallucinations. A core body temperature of 107 degrees F (41.7 C) is considered lethal as cells are damaged and internal organs shut down. The 4-month-old child's core body temperature in the ER was 106.5 degrees F (41.4 C).

[4] Hyperthermia and Heat-Related Illness, http://www.medicinenet.com/hyperthermia/article.htm#1during

Attachment 1. Scene Diagram



Attachment 2. Data Forms

Not Applicable ☐

Reset Values | Print Forms

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

SCENE FORM

Special Crash Investigations
Not In Traffic Surveillance

1. Case Number

D S 0 8 0 1 0

IDENTIFICATION

2. Date of Crash 0 3 / X X / 0 8

3. Time of Crash 1 6 0 0

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)_____
- [ ] 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)_____
- [ ] Unknown

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

- [•] None
- [ ] Other vehicles
- [ ] Building
- [ ] Trees
- [ ] Shrubbery
- [ ] Utility poles
- [ ] Signs
- [ ] Glare
- [ ] Other (specify) _____
- [ ] Unknown

11. Grade at parked position + / - 0 0 0 %

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 +/ - 0 0 0 %

15. Estimated distance from impact to vehicle final rest

0 0 0 . 0 m

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

Not Applicable ☐

Reset Values

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

VEHICLE FORM

Special Crash Investigations
Not In Traffic Surveillance

1. Case Number D S 0 8 0 1 0

VEHICLE IDENTIFICATION

2. VIN 1 G 8 A Y 1 4 P 8 5 Z x x x x x x

3. Model Year 2 0 0 5

4. Vehicle Make (specify): Saturn

5. Vehicle Model (specify): Ion

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	☐	
LF	☑	☐ Fixed / ☑ Closed / ☐ Open / ☐ Partially Open / ☐ Unknown	☑ Clear / ☐ Hazy / ☐ Very Dirty / ☐ 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 P215/45R17

7. LF Tire Size Unknown

8. LR Tire Size Unknown

9. RF Tire Size Unknown

10. RR Tire Size Unknown

Seats / Head Restraint Data

Seat Position	Seat Type (Select from below)	Head Restraint (Check if available)	Head Restraint Adjustment (select)
Front Left	1	☑	☐ ☐ ☐ Full Down / Mid / Full Up
Front Middle	0	☐	☐ ☐ ☐ Full Down / Mid / Full Up
Front Right	1	☑	☐ ☐ ☐ Full Down / Mid / Full Up
2nd Left	7	☑	☐ ☐ ☐ Full Down / Mid / Full Up
2nd Middle	0	☐	☐ ☐ ☐ Full Down / Mid / Full Up
2nd Right	7	☑	☐ ☐ ☐ Full Down / Mid / Full Up
3rd Left	0	☐	☐ ☐ ☐ Full Down / Mid / Full Up
3rd Middle	0	☐	☐ ☐ ☐ Full Down / Mid / Full Up
3rd Right	0	☐	☐ ☐ ☐ Full Down / Mid / Full Up

NOTES:

Front row head restraints position unknown

Second row head restraints integral

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		N/A	Partial vehicle inspection; photographs only
Top of trunk/tailgate		N/A	
Bottom of bumper		N/A	
Trailer hitch (if applicable)		N/A	
Undercarriage			
	Sway bar	N/A	
	Axle	N/A	
	Differential	N/A	
	Other (specify): _____	N/A	
Sensor Height (if equipped)		N/A	
Camera Height (if equipped)		N/A	

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
Not In Traffic Surveillance

1. Case Number

D S 0 8 0 1 0

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

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

No Driver Present ✔

Undo Not Applicable

Reset Values

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

DRIVER FORM

Special Crash Investigations
Not In Traffic Surveillance

1. Case Number

D S 0 8 0 1 0

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
   - ☐ Nea sighted
   - ☐ Far ighted
   - ☐ st ma ism
   - ☐ O r (s ecify) ____
   - ☐ 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 ☐ N/A
    - ☐ No ☐ Unknown

Not Applicable

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

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

Not Applicable ☐

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

Non Motorist Form

Reset Values

Special Crash Investigations
Not In Traffic Surveillance

1. Case Number
D S 0 8 0 1 0

NON-MOTORIST PROFILE

2. Non-motorist's Age — 0 4 ◉ Months ☐ Years
99 = Unknown

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

4. Non-motorist's Height — 0 4 2 cm
999 = Unknown

5. Non-motorist's Weight — 0 0 5 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) Autopsy
☐ 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) in a CSS
☐ 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): _____
☐ 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): _____
☐ 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) _____
◉ 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

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	Light green	Blend	Soft	Medium
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify): _____				
	Unknown				
LOWER BODY	Shorts				
	Pants	Light green	Blend	Soft	Medium
	Shoes				
	Other (specify): _____				
	Unknown				