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ON-SITE NOT-IN-TRAFFIC SURVEILLANCE BACK OVER INVESTIGATION

CASE NUMBER - IN-07-012

LOCATION - MICHIGAN

VEHICLE - 2006 CHEVROLET MALIBU LS

INCIDENT DATE - March 2007

Submitted:

May 24, 2007

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Contract Number: DTNH22-07-C-00044

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
National Center for Statistics and Analysis
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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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15. <i>Supplementary Notes</i> On-site not-in-traffic surveillance back over investigation involving a 2006 Chevrolet Malibu LS and a pedestrian.					
16. <i>Abstract</i> This report covers an on-site not-in-traffic surveillance back over investigation involving a 2006 Chevrolet Malibu LS (case vehicle) and a pedestrian (1-year-old, male). The case vehicle was parked heading into the driveway of a residence. The driver entered the vehicle, started the engine and conversed with friends near the vehicle for 3-4 minutes. The driver stated she checked the rearview and side view mirrors then looked over her right shoulder out of the backlite and started to back out of the driveway. As the driver backed up, the right portion of the vehicle's back bumper impacted the pedestrian and knocked him to the ground. The pedestrian came to rest under the back end of the vehicle and was not struck by the right rear wheel. The pedestrian was transported by ambulance to a hospital and was treated and released. Due to the uncertainty regarding the location and motion of pedestrian just prior to the driver backing up, it could not be determined if visibility was a factor in this incident.					
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This incident was brought to NHTSA's attention on or before April 4, 2007 by NASS/GES sampling activities. This incident involved a 2006 Chevrolet Malibu LS (case vehicle) and a pedestrian. The incident occurred in March 2007 at 6:30 p.m., in Michigan and was investigated by the applicable city police department. The police completed a standard "State of Michigan Traffic Crash Report" for this incident. A copy of the report was retained at the police department but was not submitted to the state. This incident is of special interest because the Chevrolet's driver backed over a pedestrian [14-month-old, male], who sustained a police reported "C" (possible) injury. This contractor inspected the scene and the Chevrolet April 24, 2007. Interviews were also conducted with the case vehicle's driver, a witness and the owner of the residence where the incident occurred on April 24, 2007. This report is based on the police crash report, scene and vehicle inspections, interviews with the case vehicle's driver, a witness and the owner of the residence where the incident occurred, and this contractor's evaluation of the evidence.

SUMMARY

The Chevrolet Malibu was parked heading south into the driveway of a residence. The driver entered the vehicle, started the engine and conversed with friends near the vehicle for 3-4 minutes. The driver stated she checked the rearview and both side view mirrors, then looked over her right shoulder out of the backlight and started to back out of the driveway. As the driver backed up, the right portion of the vehicle's back bumper impacted the pedestrian and knocked him to the ground. The pedestrian came to rest under the back end of the vehicle and was not struck by the right rear wheel. The pedestrian was transported by ambulance to a hospital and was treated and released. A visibility study was conducted during the vehicle inspection, and the blind zone behind the vehicle and the visibility zones of the side view and rearview mirrors were documented. The possible location of the pedestrian relative to these zones when the driver began to back up was considered and specified. Due to the uncertainty regarding the location and motion of the pedestrian just prior to the driver backing up, it could not be determined if visibility was a factor in this incident

CRASH CIRCUMSTANCES

Crash Environment: This incident occurred in a residential neighborhood. The Chevrolet Malibu was initially parked heading uphill in a one-lane driveway, which traversed in a north-south direction. The Chevrolet's driver was visiting with friends in a residence on the south side of the street. The grade of the driveway in the direction the Chevrolet was backing was 12.5% negative transitioning to 1.8% negative at the intersecting sidewalk. The driveway was 2.5 meters (8.2 feet) in width. The sidewalk was 1.6 meters (5.2 feet) in width. The distance from the back of the Chevrolet to the sidewalk was approximately 3.4 meters (11.2 feet). At the time of the incident, the light condition was daylight, the atmospheric condition was clear, and the driveway pavement was dry concrete. There was no other traffic present, and the site of the incident was residential. See the Crash Diagram at end of this report.

Pre-Crash: The Chevrolet Malibu was parked heading south into the driveway (**Figure 1**). The driver approached the vehicle from the front left, entered the vehicle and started the engine. According to the driver, she conversed with friends that were outside the vehicle for 3-4 minutes. During this time, the driver put her foot on the brake and shifted the vehicle's transmission into reverse as she was getting ready to back out of the driveway. Meanwhile, according to the driver, there were several youths playing ball in the street as well as other adults in the area. Just prior to backing out of the driveway, another child appeared to the driver on the right side of the case vehicle. The driver stated she told the child to get to the porch so that he would not be backed over. Once the child was on the porch, the driver stated she checked the rearview and both side view mirrors, then looked over her right shoulder out of the backlight and started to back out of the driveway. Meanwhile, the pedestrian was either standing on the sidewalk behind the vehicle's back right corner, or was walking east along the sidewalk approaching the path of the vehicle as the driver began to back up (i.e., there was conflicting information regarding the status of the pedestrian). Based on the reported parked location of the Chevrolet and approximate location of impact, the Chevrolet traveled backwards approximately 3.9 meters (12.8 feet) to impact in the intersection of the sidewalk and driveway (**Figure 2**).



Figure 1: View south into driveway, arrow shows approximate location of the back end of the Chevrolet Malibu before backing maneuver

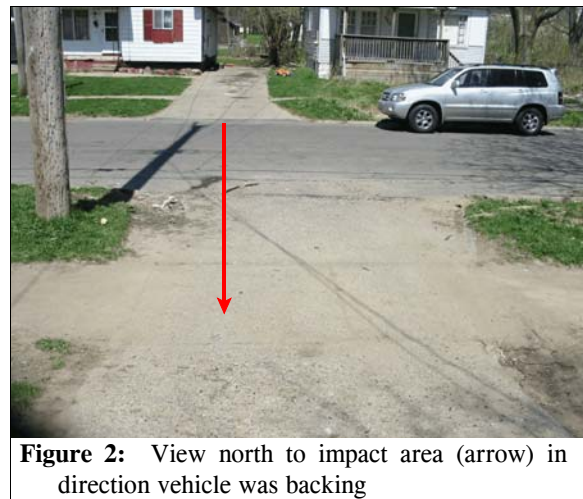


Figure 2: View north to impact area (arrow) in direction vehicle was backing

Crash: Based on the available information, as the driver backed up, the right portion of the Chevrolet's back bumper impacted the pedestrian and knocked him to the ground. The impact location on the pedestrian's body is not known. The driver stated that immediately the youths and other adults near the scene yelled at her to stop. The driver estimated the time between the start of the backing maneuver and impact was 2-5 seconds. The distance the Chevrolet traveled from impact to final rest was approximately 1 meter (~3 feet). Considering a one second reaction time for the driver and the distance traveled from impact to final rest, the impact speed was estimated to have been approximately 3 km.p.h (~2 m.p.h.).

Post-Crash: Upon hearing the yells to stop, the driver stated she immediately stopped the Chevrolet and got out. She discovered the pedestrian in a prone position under the back end of the case vehicle. The pedestrian had not been struck by the right rear wheel. The pedestrian was transported by ambulance to a hospital and was treated and released.

The 2006 Chevrolet Malibu LS (**Figures 3 and 4**) was a front wheel drive, four-door sedan (VIN: 1G1ZT51866F-----) equipped with a 1.8 liter, four-cylinder engine and automatic transmission. The Chevrolet was not equipped with any after-market equipment, and was not equipped with any backup/parking aid. In addition, none of the case vehicle's windows were tinted. The Chevrolet was equipped with back seat head restraints in the outboard seating positions. The back right head restraint was in the full up position while the back left head restraint was in the full down position. The case vehicle's wheelbase was measured as 270 centimeters (106.3 inches). The specification rear overhang was 108 centimeters (42.5 inches), and the specification overall length was 478 centimeters (188.3 inches). The distance from the ground to the bottom of the back bumper was 39 centimeters (15.3 inches).



Figure 3: Overview of Chevrolet from front right



Figure 4: Overview of Chevrolet from back right

CASE VEHICLE DAMAGE

There was no evidence of pedestrian contact to the case vehicle's back bumper (**Figure 4**), undercarriage, or right rear tire. However, based on the descriptions of the events, a Collision Deformation Classification was estimated to be: **06-BRLU-1 (180 degrees)** for the back bumper impact. The Chevrolet was driven from the scene.

CASE VEHICLE DRIVER

The Chevrolet's driver was a 55-year-old female. She was 165 centimeters (65 inches) tall and weighed 78 kilograms (172 pounds). She indicated she drives the Chevrolet daily. The driver also indicated that she drives on the roadway where the incident occurred 3 or 4 times a week and had visited the residence where the incident occurred on numerous occasions. The driver was not wearing eyeglasses at the time of the incident.

CASE VEHICLE VISIBILITY STUDY

A visibility study was conducted during the Chevrolet Malibu inspection in order to determine the nominal blind zone behind the Chevrolet as well as the right "C" pillar blind zone. In addition, the approximate field of view through the side view and rearview mirrors was assessed. The assessments were made with the Chevrolet parked in the driveway of the owner's

residence. The driveway grade was approximately level. The visibility assessments were made with the Chevrolet's driver looking over her right shoulder as she did at the time of the incident, as well as through the subject mirrors. The Chevrolet driver's eye height was 118 centimeters (46.5 inches) above the ground as she sat in the driver's seat. The driver's seat was adjusted to the middle track position, which was the driver's normal position. Please refer to the Nominal Visibility Diagrams at the end of this report when reading the following discussion.



Figure 5: Arrow shows location target first came into driver's view as she looked over her right shoulder out of backlight

In order to determine the blind zone behind the Chevrolet, the standard 71 centimeters (28 inches) high target was positioned at the center of the back of the Chevrolet and moved rearward until the target came into the driver's view (**Figure 5**) as she looked over her right shoulder. It was necessary to move the target rearward 3.4 meters (11.2 feet) before the driver could see it. The target was then moved to the right from the case vehicle's approximate centerline 2.4 meters (7.9 feet) where it became obstructed by the back right head restraint. The target was not visible to the driver again until it was moved to the right an additional 1.7 meters (5.6 feet) where it became visible on the right side of the right "C"-pillar. With the target returned to 3.4 meters (11.2 feet) behind the vehicle, it had to be moved only 30 centimeters (12 inches) to the left from the centerline where it became obstructed by the back left head restraint. The driver could not see beyond the back left head restraint because she could not turn her head that far to the right and her own head restraint blocked her view.

The extent of the blind zone behind the back right head restraint was also determined. The target was placed at the back of the Chevrolet where it was obscured by the back right head restraint and moved rearward until it came into the driver's view. The target had to be moved rearward from the back of the vehicle 10.6 meters (34.8 feet) before the driver could see it. The target was then positioned at the vehicle's approximate centerline 10.6 meters (34.8 feet) from the back of the vehicle and moved to the right 7.4 meters (24.3 feet) where it became obstructed by the right "C"-pillar. The target had to be moved to the right an additional 1.9 meters (6.2 feet) before the driver could see it again on the right side of the "C"-pillar.

The driver was then asked to view behind the Chevrolet through the rearview mirror. The target did not become visible to the driver until it was moved rearward from the back of the vehicle approximately 3.3 meters (10.8 feet). The target was then moved to the right from the Chevrolet's centerline 1.2 meters (3.9 feet) before becoming obstructed by the back right head restraint. When moved further to the right, the target went out of the rearview mirror's field of view. When moved to the left from the centerline, the target was visible for only 60 centimeters (23.6 inches) before being obstructed by the back left head restraint, and did not come back into view when moved further to the left. Both side view mirror visibility zones were also assessed and are included in the visibility diagrams at the end of this report.

The driver stated in her interview that before backing the case vehicle, she checked her rearview and both side view mirrors, thought the way was clear and then turned and looked over her right shoulder and began backing up. She stated she never saw the pedestrian. There was conflicting information regarding the position of the pedestrian. He was either standing on the sidewalk behind the vehicle's back right corner, or was walking east along the sidewalk approaching the path of the vehicle as the driver began to back up. Based on scaled diagrams of the Chevrolet, the visibility measurements, and considering the approximate distance to impact [3.9 meters (12.8 feet)], the visibility study indicated the following two possible visibility scenarios: First, if the pedestrian was approaching the path of the Chevrolet from the right, it was possible that he could have been just within the visibility zone when the driver looked through her right side view mirror or over her right shoulder. However, the pedestrian would have most likely been within the rearview mirror's blind zone. Second, if the pedestrian had been standing in the path of the vehicle behind the back right corner, he would have been in the right side view mirror's blind zone. He also would have been just within the visibility zone behind the vehicle as the driver looked through the rearview mirror or over her right shoulder. However, once the driver began to back up, the pedestrian would have immediately been within the blind zone behind the case vehicle.


PEDESTRIAN


The pedestrian [14-month-old, male; 51 centimeters and 12.7 kilograms (20 inches, 28 pounds)] was reportedly wearing a brown coat and blue jeans. The type of shoes the pedestrian was wearing is unknown. He was transported from the scene by ambulance to a hospital and was treated and released. The police crash report narrative indicated that the pedestrian had no visible injuries and reported him as sustaining a "C" (possible) injury.

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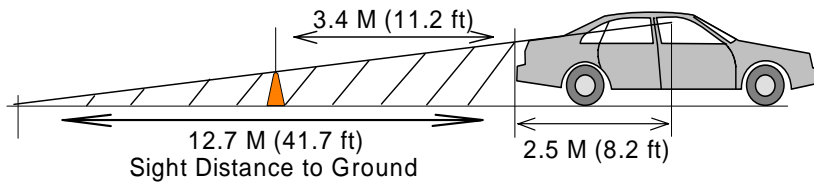
Nominal Visibility Diagram
Case Vehicle = 2006 Chevrolet Malibu LS

Chevrolet Driver's Eye Height From Ground = 118 cm (46.5 in)

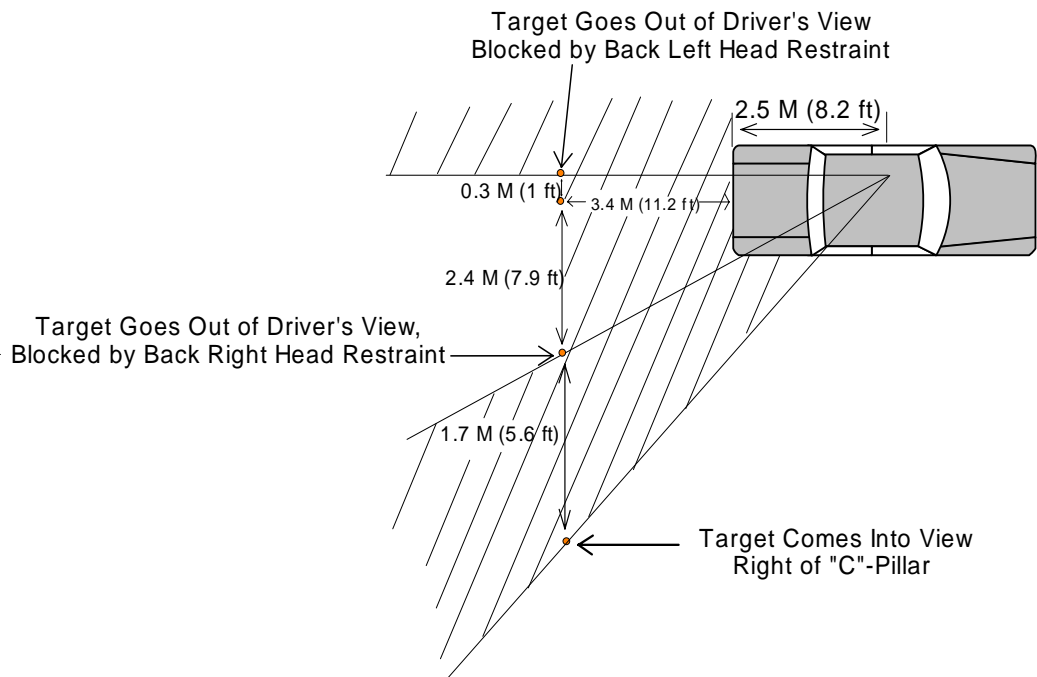
 = Chevrolet's Blind Zones

 = 71 cm (28 in) High Target

1. Distance Back of Chevrolet
To Point a 71 cm (28 in) High Reference Target
Comes Into Driver's View as She Looks Over Right Shoulder







2. Blind Zone Behind Chevrolet, Driver Looking Over Right Shoulder



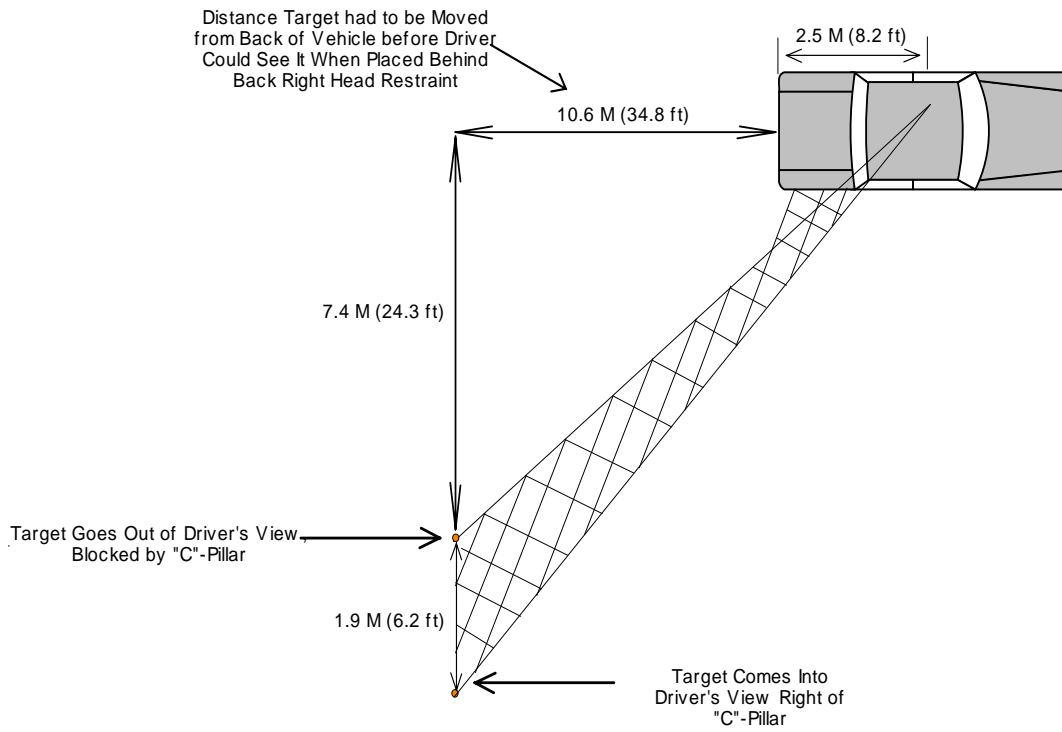
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Nominal Visibility Diagram Continued
Case Vehicle = 2006 Chevrolet Malibu LS

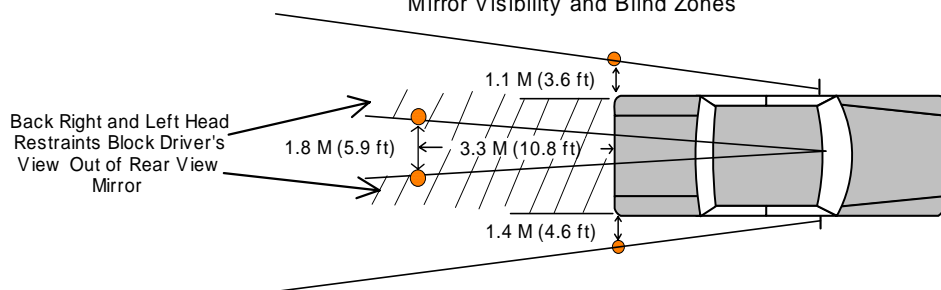
Chevrolet Driver's Eye Height From Ground = 118 cm (46.5 in)

-  = "C"-Pillar Blind Zone
-  = Rearview Mirror Blind Zone
-  = Side View and Rearview Mirror Visibility Zone
-  = 71 cm (28 in) High Target

3. "C"-Pillar Blind Zone, Driver Looking Over Right Shoulder



4. Side View Mirror and Rearview Mirror Visibility and Blind Zones





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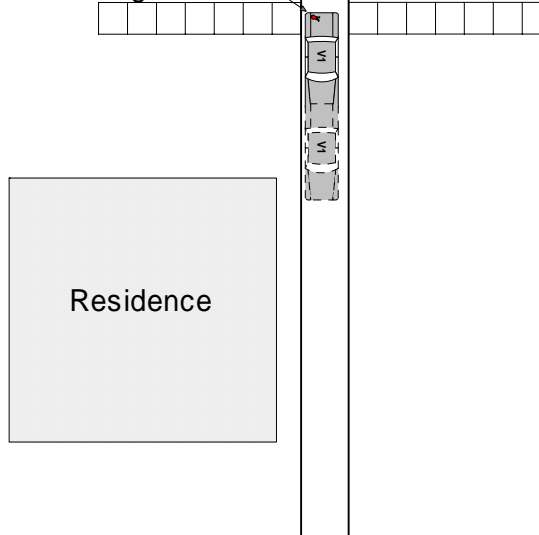
Clear, Daylight
Dry, Concrete Driveway
Grade in Direction Backing: 12.5% Negative
Grade at Sidewalk: 1.8% Negative
Estimated Coefficient of Friction: 0.75

V1 = 2006 Chevrolet Malibu LS



Scale

Pedestrian Reportedly Under Back
of Case Vehicle Following Incident





1. Case Number

IDENTIFICATION

2. Date of Crash ____ / ____ / ____

3. Time of Crash _____

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
- Shrubby
- 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
- Shrubby
- Utility poles
- Signs
- Glare
- Other (specify) _____
- Unknown

11. Grade at parked position \pm 7 %

12. Estimated distance from parked position to impact

_____ m

13. Estimated speed at impact _____ kmph

\pm 5

14. Grade at impact _____ %

15. Estimated distance from impact to vehicle final rest

_____ m

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



1. Case Number _____

VEHICLE IDENTIFICATION

2. VIN _____

3. Model Year _____

4. Vehicle Make (specify): _____

5. Vehicle Model (specify): _____

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		
2 nd Left		Fixed / Closed / Open / Partially Open / Unknown	Clear / Hazy / Very Dirty / Unknown		
2 nd Right		Fixed / Closed / Open / Partially Open / Unknown	Clear / Hazy / Very Dirty / Unknown		
3 rd Left		Fixed / Closed / Open / Partially Open / Unknown	Clear / Hazy / Very Dirty / Unknown		
3 rd 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 _____

7. LF Tire Size _____

9. RF Tire Size _____

8. LR Tire Size _____

10. RR Tire Size _____

Seats / Head Restraint Data

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

Seat Type codes:

- | | |
|---|--------------------------------------|
| 0 = No seat or seat folded down | 8 = Pedestal (i.e. column supported) |
| 1 = Bucket | 9 = Box mounted (i.e. van type) |
| 2 = Bucket w/ folding back | 10= Other seat type (specify) |
| 3 = Bench | 99= Unknown seat type |
| 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 | |

VEHICLE MEASUREMENTS

Clearance Heights	Measurements (all from ground, and in centimeters)	NOTES
Beltline		
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)		



1. Case Number

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

15. Did driver report common false warnings

- No sensor present
- Yes
- No
- Unknown



DRIVER FORM

1. Case Number

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 N/A
 No Unknown
 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 Over 60 Seconds
 11-30 Seconds N/A
 31-60 Seconds 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



Non Motorist Form

1. Case Number

NON-MOTORIST PROFILE

2. Non-motorist's Age _____ Months
_____ Years
99 = Unknown

3. Non-motorist's Sex
 Male
 Female
 Unknown

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

5. Non-motorist's Weight _____ 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: _____
 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) _____
 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): _____
 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:

	<u>Colors</u>		<u>Fabrics</u>		<u>Textures</u>		<u>Weights</u>
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)						

	Clothing	Color	Fabric	Texture	Weight
H E A D W E A R	Hat				
	Helmet				
	Hood				
	Other (specify): _____				
U P P E R B O D Y	Short Sleeve				
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify): _____				
L O W E R B O D Y	Shorts				
	Pants				
	Shoes				
	Other (specify): _____				