400 Seventh Street, S.W.
Washington, D.C. 20590

U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

Dear Crash Data Researchers/Users:

Thank you for choosing crash data from the National Highway Traffic Safety Administration (NHTSA) for your research or other use. The information contained in this motor vehicle crash report is collected, maintained and distributed in accordance with Public Law 89-564. In accordance with this Public Law, NHTSA is required not to release any case information until completion of quality control procedures. These procedures include a review of the case material to extract all names, licenses and registration numbers, non-coded interview material, non-research related researcher comments in the margins, non-factual data, and the production number portion of the vehicle identification number (VIN).

If you requested NHTSA to query its database files in order to identify a specific crash, then that query was made using non-personal descriptors you provided for use in our search. This motor vehicle crash may have been identified from a data search and matches the general, non-personal descriptors you provided, but we cannot confirm that this is the specific crash report you requested.

If you have any questions with regard to the above procedures, please contact the Field Operations Branch, Crash Investigation Division, National Center for Statistics and Analysis at 202-366-4820. Again, please be advised that we cannot confirm that this is the case that you have specifically requested nor can we certify the information to be correct.

*** *** ***

TRANSPORTATION RESEARCH CENTER

Indiana University
Bloomington, Indiana 47403-1599

REMOTE AIR BAG REPORT

CASE NO. - 95-02
FLEET - PRIVATE VEHICLE
LOCATION [redacted] NORTH CAROLINA
ACCIDENT DATE - [redacted] 1994

Submitted By:

[redacted]
Senior Staff Associate

[redacted] 1995

Contract Number: DTNH22-94-D-17058

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
National Center for Statistics and Analysis
Washington, D.C. 20590

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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.

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
TRC/IU Case No. 95-02		

4. Title and Subtitle	5. Report Date
Remote Air Bag Investigation Private Vehicle Location - [redacted] North Carolina	[redacted] 1995
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
[redacted]	TRC/IU 95-02, Task 9510
9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
Indiana University Transportation Research Center [redacted] Indiana [redacted]	11. Contract or Grant No. DTNH22-94-D-17058
	13. Type of Report and Period Covered
12. Sponsoring Agency Name and Address	[redacted] 1994
U.S. Department of Transportation (NRD-32) National Highway Traffic Safety Administration National Center for Statistics and Analysis Washington, D.C. 20590	14. Sponsoring Agency Code

15. Supplementary Notes

Remote air bag investigation involving a 1991 Dodge Spirit, 4-door sedan, with manual belts and driver's air bag

16. Abstract

This report covers a remote investigation of an air bag deployment crash that involved a 1991 Dodge Spirit and two deer. The Spirit was exiting a left-hand curve and was traveling east in the eastbound lane of a two-lane, undivided, U.S. highway. The two deer were traveling north to south across the eastbound lane of the roadway. The front right of the Spirit (case vehicle) impacted the right trunk of the two deer causing the case vehicle's driver side supplemental restraint system (air bag) to deploy. The case vehicle continued eastward in its original travel lane after impact and travelled approximately 122 meters (400 feet) before coming to rest on the south shoulder heading east. Both deer continued southward after impact; one was found on the south shoulder, and the other departed the scene. The case vehicle's driver (46 year-old female) was also restrained by the available, active, three-point, lap and shoulder belt and sustained, according to her interview, minor injuries which included: abrasions *{friction burns}* ([redacted]) to both forearms, contusions ([redacted]) to her chest and abdomen, and a cervical strain ([redacted]). The other three passengers (65 year-old female--right front, 16 year-old female--rear left, and 68 year-old male--rear right) were restrained by their available, active belts (i.e., three-point lap and shoulder in front and two-point lap in rear). The right front and left rear passengers were uninjured. According to the driver, the right rear passenger allegedly sustained, two weeks post-crash, a "chemical induced" pneumonia ([redacted]) as a result of the air bag's deployment.

17. Key Words	18. Distribution Statement
Motor Vehicle Traffic Accident Air Bag Deployment Injury Severity	General Public

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	67	$3,500

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

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TABLE OF CONTENTS

TRC/IU REMOTE AIR BAG REPORT

TRC/IU CASE NO. 95-02

FLEET - PRIVATE VEHICLE
LOCATION [redacted] NORTH CAROLINA

SUMMARY

This report concerns a motor vehicle crash involving an air bag equipped 1991 Dodge Spirit, four-door sedan and two deer occurring on [redacted] 1994 at [redacted], near [redacted] North Carolina on a U.S. highway. This crash is of special interest because the deployment of the case vehicle's driver side air bag is alleged to have caused respiratory problems for the passenger seated in the right rear position.

The Spirit was exiting a left-hand curve and was traveling east in the eastbound lane of a two-lane, undivided, U.S. highway when it impacted the deer which were traveling across (i.e., north to south) the same roadway. The Spirit continued eastward in its original travel lane after impact and travelled approximately 122 meters (400 feet) before coming to rest on the south shoulder heading east. Both deer continued southward after impact; one was found on the south shoulder of the U.S. highway, and the other departed the scene.

The front right of the Spirit impacted the right trunk of the two deer. With no available vehicle photographs, the CDCs are not estimable for the Spirit. No reconstruction program was used on this crash because the NASS, CDS, CRASH3PC protocol requires that actual vehicular crush measurements be obtained.

The 1991 Dodge Spirit was equipped with a driver supplemental restraint system (air bag) which deployed as a result of the frontal impact. The driver of the Spirit (46 year-old female) was also restrained by the available, active, three-point, lap and shoulder belt. She sustained, according to her interview, minor injuries which included: abrasions *{friction burns}* (AIS-1) to both arms, contusions (AIS-1) to her chest and abdomen, and a cervical strain (AIS-1). The driver of the Spirit was listed on the Police Accident Report as not sustaining any injury as a result of this crash. All three of the other passengers in the Spirit (65 year-old female--right front; 16 year-old female--left rear; and 68 year-old male--right rear) were also listed on the Police Accident Report as not sustaining any injury as a result of this crash. The other three passengers were restrained by their available, active belts (i.e., three-point lap and shoulder in front and two-point lap in rear). According to the interview with the Spirit's driver, the right front and left rear passengers were uninjured, and the right rear passenger allegedly sustained, two weeks post-crash, a "chemical induced" pneumonia (AIS-7) as a result of the air bag's deployment.

TRC/IU REMOTE AIR BAG REPORT

TRC/IU CASE NO. 95-02

FLEET - PRIVATE VEHICLE
LOCATION [redacted] NORTH CAROLINA

ACCIDENT DATA

Location/Street:	U.S. Highway
City/Township:	[redacted] County, near [redacted] North Carolina
Area/Type:	Rural, undeveloped
Accident Date/Time:	[redacted] 1994, @ [redacted] .m.
Investigating Police Agency:	[redacted] Highway Patrol
Accident Type:	Car / Deer - right angle
Occupant Injury Severity (air bag vehicle):	Bilateral friction burns to forearms (AIS-1)

AMBIENT CONDITIONS

Light Conditions:	Dark, not lighted
Weather Condition:	Clear
Precipitation:	None
Road Surface:	Dry

ROADWAY

Case Vehicle

Location:	U.S. highway
Number of Travel Lanes:	Two-lanes, undivided
Width:	3.7 meters (12.0 feet)
Surface Type:	Asphalt, smooth
Vertical alignment:	Level
Horizontal alignment:	Straight
Traffic Density:	Light

ROADWAY (CONTINUED)

	Case Vehicle
Speed Limit:	89 k.p.h. (55 m.p.h.)
Traffic Controls:	CURVE warning sign

VEHICLES

	Case Vehicle
Year:	1991
Make:	Dodge
Model:	Spirit
Body Type:	Four-door sedan
V.I.N.:	3B3XA46K0MT------
Mileage:	Unknown, parents car
Securiflex windshield:	None
Windshield damage/source:	None
Active Restraints:	3-point, manual, lap and shoulder belts in front outboard seating positions; lap belt only at rear outboard and center positions
Passive Restraints:	Factory installed driver supplemental restraint system (air bag)
Fleet:	Private vehicle
Tow status:	Driven from scene
Reported Defects:	None

VEHICLE DAMAGE

	Case Vehicle
DEPLOYMENT IMPACT[1]	
Event number:	First[1]
Object struck:	Deer

[1] Because there are no photographs available of the damage to the case vehicle, it is not known for sure which deer impact caused the deployment of the case vehicle's driver side supplemental restraint system (air bag). Therefore, it is assumed that the first impact deployed the air bag.

VEHICLE DAMAGE (CONTINUED)[2]

Case Vehicle

Damage location:	Front[2]
CDC:	Unknown[2]
Estimated maximum crush:	Unknown
Damaged components:	Unknown[2]
Repair estimate:	Unknown[2]
Interior damage:	Unknown

NONDEPLOYMENT IMPACT

Event number:	Second
Object struck:	Deer
Damage location:	Front[2]
CDC:	Unknown[2]
Estimated maximum crush:	Unknown
Damaged components:	Unknown[2]
Interior damage:	Unknown

COLLISION SEQUENCE

PRE-CRASH: The case vehicle (Spirit) was exiting a left-hand curve and was traveling east in the eastbound lane of a two-lane, undivided, U.S. highway and was attempting to continue in its direction of travel. According to the driver of the case vehicle, she attempted to brake. The case vehicle continued straight ahead prior to impact. According to the Police Accident Report, the crash occurred in the eastbound lane when the case vehicle impacted the deer which were traveling across (i.e., north to south) the same roadway.

CRASH: According to the Police Accident Report, the front right of the case vehicle impacted the right trunk of the two deer causing the driver side supplemental

---

[2] The [redacted] was fortunate to obtain a partial interview with the driver involved in this crash. Since the partial interview was obtained, the case vehicle's driver has subsequently referred our follow-up questions to her and her father's attorney (i.e., Father was the right rear passenger whose respiratory system was allegedly affected by the air bag's deployment). Initially, the attorney indicated his cooperation. He indicated that this contractor would be able to obtain photographs of the damaged case vehicle and an estimate of the repair cost. When the promised materials were not forthcoming, this contractor made several attempts to determine the reason for the delay. This contractor's phone calls were not returned; finally, the attorney's secretary told this contractor that no cooperation would be forthcoming. In addition, the case vehicle's driver also indicated that she could not cooperate on advice of attorney.

COLLISION SEQUENCE (CONTINUED)

CRASH: (Continued)

restraint system (air bag) to deploy. According to the case vehicle's driver, the case vehicle continued eastward in its original travel lane after impact and travelled approximately 122 meters (400 feet) before coming to rest on the south shoulder heading east. According to the Police Accident Report and the case vehicle driver, both deer continued southward after impact; one was found on the south shoulder of the U.S. highway, and the other departed the scene.

DRIVER DATA[3,4]

	Case Vehicle
Age:	46[3]
Sex:	Female
Height:	160 centimeters (63 inches)
Weight:	91 kilograms (200 pounds)
Occupation:	Auditor[4]
Active Restraint System/Usage:	3-point lap and shoulder/used
Usage Source:	Driver interview, Police Accident Report
Eye glasses/contacts:	Eyeglasses
Vehicle Familiarity:	~ 800 kilometers (500 miles)
Route Familiarity:	Very infrequently ("once every couple of months")
Trip Plan:	Parent's house to home
Manner of Leaving Scene:	Drove vehicle from scene
Type of Medical Treatment:	Treatment following day: treated and released

[3] A descrepancy exits between the ages reported on the Police Accident Report and by the case vehicle driver. The driver indicated her age was 45. According to the date of birth listed on the Police Accident Report, the driver is 46. The case vehicle driver indicated that the ages of the rear occupants are 15 and 69. The Police Accident Report indicates the ages as 16 and 68, respectively.

[4] According to the case vehicle driver, she had to give up her job post-crash in order to transport and/or care for her father's *"crash-related injuries"*, which are discussed below.

DRIVER DATA (CONTINUED)

Right front Passenger:	**Case Vehicle**
Age:	65
Sex:	Female
Height:	173 centimeters (68 inches)
Weight:	91 kilograms (200 pounds)
Active Restraint System/Usage:	3-point lap and shoulder/Used
Usage Source:	Interviewee, Police Accident Report
Eye glasses/contacts:	Unknown
Manner of Leaving Scene:	Driven from scene by driver
Type of Medical Treatment:	None
Left Rear Passenger:	**Case Vehicle**
Age:	16
Sex:	Female
Height:	170 centimeters (67 inches)
Weight:	59 kilograms (130 pounds)
Active Restraint System/Usage:	2-point lap/Used
Usage Source:	Interviewee, Police Accident Report
Eye glasses/contacts:	Unknown
Manner of Leaving Scene:	Driven from scene by driver
Type of Medical Treatment:	None
Right Rear Passenger:	**Case Vehicle**
Age:	68
Sex:	Male
Height:	173 centimeters (68 inches)
Weight:	100 kilograms (220 pounds)
Active Restraint System/Usage:	2-point lap/Used

DRIVER DATA (CONTINUED)

Right Rear Passenger: (Continued)	**Case Vehicle**
Usage Source:	Interviewee, Police Accident Report
Eye glasses/contacts:	Unknown
Manner of Leaving Scene:	Driven from scene by driver
Type of Medical Treatment:	Unknown

DRIVER INJURIES[5]

Description of Injury[5]	A.I.S.	Source of Data	Injury Mechanism	Certainty
Contusion chest	490402.1,4	7	Steering wheel hub/spokes and rim	{Possible}
Contusion abdomen	590402.1,7	7	Steering wheel hub/spokes and rim	{Possible}
Abrasion *{friction burns}* right arm	790202.1,1	7	Air bag[5], driver side	{Probable}
Abrasion *{friction burns}* left arm	790202.1,2	7	Air bag[5], driver side	{Probable}
Strain, cervical	640278.1,6	7	Air bag, driver side	{Possible}

RIGHT FRONT PASSENGER INJURIES

Description of Injury	A.I.S.	Source of Data	Injury Mechanism	Certainty
Not injured	0	7	Not applicable	Not applicable

[5] In our interview with the case vehicle driver, she indicated that the driver's side air bag ruptured as she loaded the bag. She further indicated that the manager of the body shop where her parent's vehicle was repaired would confirm the bag's rupture. This contractor contacted the manager of the repair facility. The manager indicated that he does not recall the air bag in question having ruptured, and he added that he would have notice a ruptured air bag. In addition, the manager indicated he heard that the case vehicle's driver was suing (i.e., presumably, the manufacturer) alleging that she sustained an asthmatic condition as a result of the air bag's deployment. Since the case vehicle driver made no specific mention of this condition (i.e., other than her vague reference to a *"burning throat"*) during her interview, this contractor has chosen not to include any respiratory problems for the driver.

LEFT REAR PASSENGER INJURIES

Description of Injury	A.I.S.	Source of Data	Injury Mechanism	Certainty
Not injured	0	7	Not applicable	Not applicable

RIGHT REAR PASSENGER INJURIES[6]

Description of Injury	A.I.S.	Source of Data	Injury Mechanism	Certainty
Unknown if injured[6]	9	7	Unknown	Unknown

[6] According to the case vehicle driver, the right rear passenger allegedly sustained, two weeks post-crash, a *"chemical induced"* pneumonia (AIS-7) which resulted from the deployment of the driver side air bag. According to the information available to this contractor, this allegation is most likely not true because pneumonia is caused by bacteria and, in our opinion, it is highly unlikely that the nitrogen gas or the talcum powder (or other by-products used) was contaminated with bacteria.

In addition, the failure on the part of the case vehicle driver to provide her initially promised signed medical releases is construed by this contractor as a further reason to doubt the credibility of the alleged injury.

This contactor contacted an internal medicine specialist regarding the issue of *"talcum powder"* as a respiratory irritant. A copy of his response and a pertinent medical journal article, provided by the doctor, are found in APPENDIX J.

Appendix A:

POLICE ACCIDENT REPORT

BEST AVAILABLE COPY

DMV-349 (Rev. 7/93)

1 No. of Units Involved

☐ Supplemental Report

THIS REPORT IS FOR THE USE OF THE DIVISION OF MOTOR VEHICLES. THE DATA IS COLLECTED FOR STATISTICAL ANALYSIS AND SUBSEQUENT HIGHWAY SAFETY PROGRAMMING. DETERMINATIONS OF "FAULT" ARE THE RESPONSIBILITY OF INSURERS OR OF THE STATE'S COURTS.

[redacted]

Date (MONTH DAY YEAR)	Day of Week	County	Time (24 Hour Clock)	Local Use / Patrol Area
[redacted] 94	[redacted]	[redacted]	1915	[redacted]

LOCATION

Collision occurred: ☒ Near N [redacted] (Municipality) 5.10 Miles ☐ N ☐ S ☐ E ☒ W

on US [redacted] (R.R. Crossing # ___) (Highway Number, or Highway Street; if ramp or service road, indicate on line) 0.20 Miles ft. ☐ N ☐ S ☐ E ☒ W (0 ft. - intersection)

at or from RP [redacted] ☐ N ☐ S ☐ E ☒ W toward RP [redacted]

(Use Highway Number, Street Name or Adjacent County or State Line)

☒ VEHICLE 1 ☐ HIT & RUN	☐ VEHICLE 2 ☐ PEDESTRIAN ☐ HIT & RUN ☐ OTHER
Driver 1 [redacted] (First, Middle, Last)	Driver 2 ___ (First, Middle, Last)
Address [redacted]	Address ___
City [redacted] State NC Zip [redacted]	City ___ State ___ Zip ___
Same Address on Driver's License? ☒ Yes ☐ No — Driver's Phone No. W/H [redacted]	Same Address on Driver's License? ☐ Yes ☐ No — Driver's Phone No. W( ) H( )
D.L.# [redacted] (46) State NC DOB [redacted]	D.L.# ___ State ___ DOB ___
Vision 1. Obstruction 1 · Physical 2. Condition 1 · 3. Intoxication 1 · Restrictions 0	Vision 1. Obstruction ___ · Physical 2. Condition ___ · 3. Intoxication ___ · Restrictions ___
Owner [redacted]	Owner ___
Address [redacted]	Address ___
City [redacted] State NC Zip [redacted]	City ___ State ___ Zip ___
VIN 3B3XA46R0MT [redacted]	VIN ___
Plate # [redacted] State NC Year 95	Plate # ___ State ___ Year ___
Veh. Year 91 Veh. Make Dodge Veh. Type Code P	Veh. Year ___ Veh. Make ___ Veh. Type Code ___
Commercial Vehicle ☐ Yes ☒ No — Trailer Type Code —	Commercial Vehicle ☐ Yes ☐ No — Trailer Type Code ___
Air Bag ☒ Yes ☐ No — 1st Trailer No. of Axles —	Air Bag ☐ Yes ☐ No — 1st Trailer No. of Axles ___
Deployed ☒ Yes ☐ No — Width ___ inches	Deployed ☐ Yes ☐ No — Width ___ inches
Vehicle Drivable ☒ Yes ☐ No — Length ___ feet	Vehicle Drivable ☐ Yes ☐ No — Length ___ feet
Post Crash Fire ☐ Yes ☒ No — 2nd Trailer No. of Axles ___	Post Crash Fire ☐ Yes ☐ No — 2nd Trailer No. of Axles ___
Rollover ☐ Yes ☒ No — Width ___ inches	Rollover ☐ Yes ☐ No — Width ___ inches
Hazardous Cargo ☐ Yes ☒ No — Length ___ feet	Hazardous Cargo ☐ Yes ☐ No — Length ___ feet
Spilled ☐ Yes ☒ No — TAD FR-2 RD-1	Spilled ☐ Yes ☐ No — TAD ___
Crossed Median ☐ Yes ☒ No — Est. Damage $ 1200.00	Crossed Median ☐ Yes ☐ No — Est. Damage $ ___
Removed to RESIDENCE	Removed to ___
By DRIVER Authority DRIVER	By ___ Authority ___

Other Property Damaged ___ Estimated Damage $ ___ Owner Name ___ Address ___

OCCUPANT SECTION INSTRUCTIONS: Give Injury Class, Belt/Helmet Usage, Race/Sex and Age of all occupants in the space corresponding to the seat occupied (see codes at top). Names and addresses are necessary for all occupants.

Seat	4. Inj. Class	5. Belt /Hel.	Race /Sex	Age	Injured Names and Addresses (First Name, Last Name)
Left Front	0	3	W/F	45	DRIVER 1
Center Front					
Right Front	0	3	W/F	65	[redacted] NC [redacted]
Left Rear	0	2	W/F	16	[redacted] NC
Center Rear					
Right Rear	0	2	W/M	68	[redacted] NC

Seat	4. Inj. Class	5. Belt /Hel.	Race /Sex	Age	Injured Names and Addresses (First Name, Last Name)
Left Front					DRIVER 2, PEDESTRIAN, OTHER
Center Front					
Right Front					
Left Rear					
Center Rear					
Right Rear					

Total Number Occupants 4 Total Number Injured ___ Total Number Occupants ___ Total Number Injured ___

Ambulance Requested ☐ Yes ☒ No If yes, Ambulance Arrived At [redacted] (24 Hour Clock)

Injured Taken To NA (Treatment Facility and City or Town)

[redacted] COLLISION REPORT FORM

22)

N

< ADDED BY ___ (Initial)

MARKS >

BEST AVAILABLE COPY

POINTS OF INITIAL CONTACT: Veh 1: 1, 20 | Veh 2:

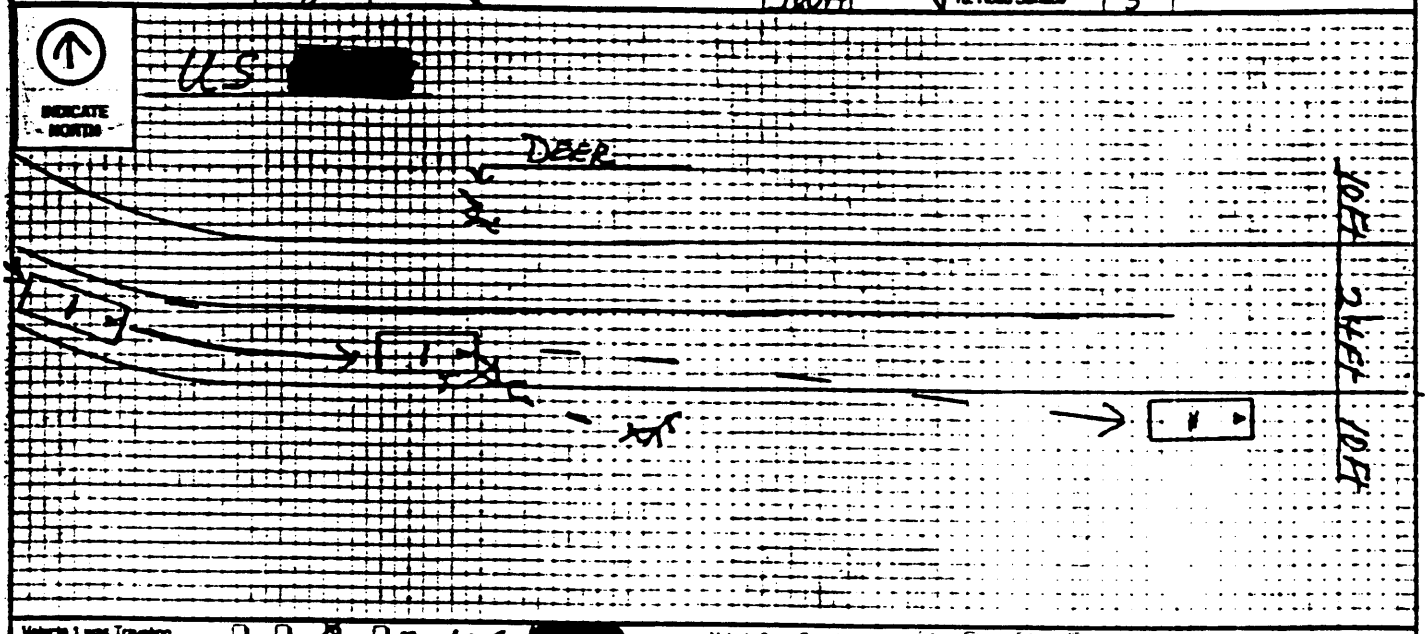
Passenger Cars/Small Trucks | Tractor-Trailers | Motorcycle, Bicycle or Moped

ACCIDENT SEQUENCE	Veh. 1	Veh. 2 or Ped.
6. Veh. Maneuver/Ped. Action	4	
7. First Harmful Event	11	
7. Most Harmful Event	11	
8. Object Struck	5	
9. Distance to Object Struck	1	
10. Vehicle Defects	8	

UNDERNEATH: 0. No Contact 22. Front 23. Center 25. Rollover 24. Rear 26. Unknown	Veh. 1	Veh. 2 or Ped.
Speed Limit (for each vehicle)	55	
Estimated Original Traveling Speed	55	
Estimated Speed at Impact	55	
Tire Impressions Before Impact (ft.)	0 Ft	
Distance Traveled After Impact (ft.)	400A	

ROADWAY INFORMATION (See Front)			
11. Locality	1	19. Road Defects	1
12. Development Type	1	20. Road Condition	1
13. Road Feature	14	21. Light Condition	5
14. Road Character	1	22. Weather	1
15. Road Class	3	23. Traffic Control	11
16. Number of Lanes	2	Operating ☐ Yes ☐ No	
17. Road Configuration	2	Visible ☐ Yes ☐ No	
18. Road Surface	3		

INDICATE NORTH



Vehicle 1 was Traveling ☐ N ☐ S ☒ E ☐ W on US [redacted] Vehicle 2 was Traveling ☐ N ☐ S ☐ E ☐ W on

DESCRIBE WHAT HAPPENED: Veh No1 was traveling EAST on US [redacted] and a DEER ran into its path. Veh No1 struck the DEER and came to REST in the south shoulder of US [redacted]. The DEER came to REST on the south shoulder of US [redacted]

CIRCUMSTANCES CONTRIBUTING TO THE COLLISION (Check as many as apply)

	DRIVER 1	DRIVER 2
1. None	☒	☐
2. Alcohol use	☐	☐
3. Drug use	☐	☐
4. Yield	☐	☐
5. Stop sign	☐	☐
6. Traffic signal	☐	☐
7. Exceeding speed limit	☐	☐
8. Exceeding safe speed	☐	☐
9. Failure to reduce speed	☐	☐
10. Pass stopped school bus	☐	☐
11. Passing on hill	☐	☐
12. Passing on curve	☐	☐
13. Other improper passing	☐	☐
14. Improper lane change	☐	☐
15. Use of improper lane	☐	☐
16. Improper turn	☐	☐
17. Improper or no signal	☐	☐
18. Improper vehicle equipment	☐	☐
19. Safe movement violation	☐	☐
20. Following too closely	☐	☐
21. Improper backing	☐	☐
22. Improper parking	☐	☐
23. Unable to determine	☐	☐
24. Left of center	☐	☐
25. Right turn on red	☐	☐
26. Other	☐	☐

RESERVED FOR CITY OR OTHER USE: [redacted] 44

RESERVED FOR STATE USE

	Driver 1	Driver 2
24. Direction	E 1	
25. Violation	1	
26. Misc. Action		
27. Charges	N	
28. Investigating Agency	4	

WITNESSES: Name _____ Address _____ Phone No. ( ) _____

WITNESSES: Name _____ Address _____ Phone No ( ) _____

ARRESTS: Name _____ Charge(s) _____

Name _____ Charge(s) _____

Sign Here Tofp [redacted] Officer's Rank and Name [redacted] Number [redacted] Department [redacted] Date/Report 1994

1. VISION OBSTRUCTION
1. None
2. Vehicle window(s) obscured
3. Trees, crops, brush, etc.
4. Building(s)
5. Embankment
6. Sign(s)
7. Hillcrest
8. Parked vehicle(s)
9. Moving vehicle(s)
10. Blinded, headlights
11. Blinded, sunlight
12. Blinded, other lights
13. Other (write in narrative)
14. Unknown

2. PHYSICAL CONDITION
1. Normal
2. Ill
3. Fatigued
4. Asleep
5. Impairment due to medicine, alcohol or drugs
6. Other physical impairment
7. Restriction not complied with
8. Condition not known

3. INTOXICATION
1. Had not been drinking
2. Drinking—test given
3. Drinking—test refused
4. Unknown
5. Drinking—no test

4. Injury Class
K—Killed
A—Incapacitating
B—Nonincapacitating
C—No visible-But complaint of pain
O—No injury

5. Belt/Helmet
1. None or not used
2. Lap only
3. Lap *and* shoulder
4. Child restraint system
7. If motorcycle, Helmet in use
9. Unable to determine

(See Reverse)

11. LOCALITY
1. Rural (<30% developed)
2. Mixed (30% to 70% developed)
3. Urban (>70% developed)

12. PREDOMINANT DEVELOPMENT TYPE
1. Farms, woods, pastures
2. Residential
3. Commercial
4. Institutional
5. Industrial

13. ROAD FEATURE
1. Bridge
2. Underpass
3. Driveway, public
4. Driveway, private
5. Alley intersection
6. Intersection of roadways
7. Non-intersection median crossing
8. End or beginning of divided highway
9. Interchange ramp
10. Interchange service road
11. Railroad crossing
12. Tunnel
13. Other (write in narrative)
14. No special feature

14. ROAD CHARACTER
1. Straight, level
2. Straight, hillcrest
3. Straight, grade
4. Straight, bottom (sag)
5. Curve, level
6. Curve, hillcrest
7. Curve, grade
8. Curve, bottom (sag)

15. ROAD CLASS
1. Interstate
2. U. S. route
3. N. C. route
4. State secondary route
5. Local street
6. Public vehicular area
7. Private road, property or driveway

16. NUMBER OF LANES
Enter "O" if parking lot

17. ROAD CONFIGURATION
1. Undivided, one-way
2. Undivided, two-way
3. Divided

18. ROAD SURFACE
1. Concrete
2. Grooved concrete
3. Smooth asphalt
4. Coarse asphalt
5. Gravel
6. Sand
7. Soil
8. Other (write in narrative)

19. ROAD DEFECTS
1. Loose material on surface
2. Holes, deep ruts
3. Low shoulders
4. Soft shoulders
5. Other defects
6. Under construction with defects
7. No defects
8. Under construction no defects

20. ROAD CONDITION
1. Dry
2. Wet
3. Muddy
4. Snowy
5. Icy
6. Other (write in narrative)

21. LIGHT CONDITION
1. Daylight
2. Dusk
3. Dawn
4. Darkness (street lighted)
5. Darkness (street not lighted)

22. WEATHER
1. Clear
2. Cloudy
3. Raining
4. Snowing
5. Fog, smog, smoke, dust
6. Sleet or hail

23. TRAFFIC CONTROL
1. Stop sign
2. Yield sign
3. Stop and go signal
4. Flashing signal with stop sign
5. Flashing signal without stop sign
6. RR gate and flasher
7. RR flasher
8. RR crossbucks only
9. Human control
10. Other (write in narrative)
11. No control present

ACCIDENT SEQUENCE CODES

6. VEHICLE MANEUVER/ PEDESTRIAN ACTION: VEHICLE
1. Stopped in travel lane
2. Parked out of travel lanes
3. Parked in travel lanes
4. Going straight ahead
5. Changing lanes or merging
6. Passing
7. Making right turn
8. Making left turn
9. Making U turn
10. Backing
11. Slowing or stopping
12. Starting in roadway
13. Parking
14. Leaving parked position
15. Avoiding object in road
16. Other (describe)

PEDESTRIAN
17. Crossing at intersection
18. Crossing not at intersection
19. Coming from behind parked vehicle
20. Walking with traffic
21. Walking against traffic
22. Getting on or off vehicle
23. Standing in road
24. Working in road
25. Playing in road
26. Lying in road
27. Other in road
28. Not in road

7. FIRST/MOST HARMFUL EVENT: RAN OFF ROAD
1. Right
2. Left
3. Straight ahead

NON-COLLISION
4. Overturn
5. Other

COLLISION OF MOTOR VEHICLE WITH
6. Pedestrian
7. Parked vehicle
8. Train
9. Bicycle
10. Moped
11. Animal
12. Fixed object
13. Other object

COLLISION OF MOTOR VEHICLE WITH ANOTHER MOTOR VEHICLE
14. Rear end, slow or stop
15. Rear end, turn
16. Left turn, same roadway
17. Left turn, different roadways
18. Right turn, same roadway
19. Right turn, different roadways
20. Head on
21. Sideswipe
22. Angle
23. Backing

8. OBJECT STRUCK (excluding another motor vehicle in traffic)
1. None
2. Parked vehicle
3. Bicycle, moped
4. Pedestrian
5. Animal
6. Tree
7. Utility pole (with or without light)
8. Luminaire pole (non-breakaway)
9. Luminaire pole (breakaway)
10. Official highway sign (non-breakaway)
11. Official highway sign (breakaway)
12. Commercial sign
13. Guardrail end on shoulder
14. Guardrail face on shoulder
15. Guardrail end in median
16. Guardrail face in median
17. Shoulder barrier end } Non-Guardrail
18. Shoulder barrier face } Non-Guardrail
19. Median barrier end } Non-Guardrail
20. Median barrier face } Non-Guardrail
21. Bridge rail end
22. Bridge rail face
23. Overhead part of underpass
24. Pier on shoulder of underpass
25. Pier in median of underpass
26. Abutment (supporting wall of underpass)
27. Curb, median or traffic island
28. Catch basin or culvert on shoulder
29. Catch basin or culvert in median
30. Ditch bank
31. Mailbox
32. Fence or fence post
33. Construction barrier
34. Crash cushion
35. Other object (write in narrative)

9. DISTANCE TO OBJECT STRUCK
1. In road
2. Right of road, 0-10 ft.
3. Right of road, 11-30 ft.
4. Right of road, over 30 ft.
5. Left of road, 0-10 ft.
6. Left of road, 11-30 ft.
7. Left of road, over 30 ft.
8. None or N/A
9. Straight ahead, 0-10 ft.
10. Straight ahead, 11-30 ft.
11. Straight ahead, over 30 ft.

10. VEHICLE DEFECTS
1. Defective brakes
2. Defective headlights
3. Defective rear lights
4. Defective steering
5. Defective tires
6. Other defects
7. Not known if defective
8. No defects detected

Appendix B:

NASS CDS Accident Form

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

ACCIDENT FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9502

IDENTIFICATION

3. Number of General Vehicle Forms Submitted: 01
4. Date of Accident (Month,Day,Year): [redacted] 94 9 5
5. Time of Accident: 1915

Code reported military time of accident.

NOTE: Midnight = 2400
Unknown = 9999

SPECIAL STUDIES - INDICATORS

Check (✓) each special study (SS15-SS18 below) that has been completed; code 1 for the checked special studies and 0 for the special studies not checked.

6. ___ SS15 Administrative Use: 0
7. ___ SS16 Pedestrian Crash Data Study: 0
   (Data for this special study available in a separate file.)
8. ___ SS17 Impact Fires: 0
9. ___ SS18 Unsafe Driver Actions: 0
10. ___ SS19 _____: 0

NUMBER OF EVENTS

11. Number of Recorded Events in This Accident: 02

Code the number of events which occurred in this accident.

ACCIDENT EVENTS

For each event that occurred in the accident, code the lowest numbered vehicle in the left columns and the other involved vehicle or object in the right columnns.

Accident Event Sequence Number	Vehicle Number	Class Of Vehicle	General Area of Damage	Vehicle Number or Object Contacted	Class Of Vehicle	General Area of Damage
12. 01	13. 01	14. 02	15. F	16. 76	17. 00	18. 0
19. 02	20. 01	21. 02	22. F	23. 76	24. 00	25. 0
26. 03	27. ___	28. ___	29. ___	30. ___	31. ___	32. ___
33. 04	34. ___	35. ___	36. ___	37. ___	38. ___	39. ___
40. 05	41. ___	42. ___	43. ___	44. ___	45. ___	46. ___

IF GREATER THAN FIVE EVENTS, CONTINUE CODING ON THE ACCIDENT EVENT SUPPLEMENT

CODES FOR CLASS OF VEHICLE

(00) Not a motor vehicle
(01) Subcompact/mini (wheelbase < 254 cm)
(02) Compact (wheelbase ≥ 254 but < 265 cm)
(03) Intermediate (wheelbase ≥ 265 but < 278 cm)
(04) Full size (wheelbase ≥ 278 but < 291 cm)
(05) Largest (wheelbase ≥ 291 cm)
(09) Unknown passenger car size
(14) Compact utility vehicle
(15) Large utility vehicle (≤ 4,500 kgs GVWR)
(16) Utility station wagon (≤ 4,500 kgs GVWR)
(19) Unknown utility type
(20) Minivan (≤ 4,500 kgs GVWR)
(21) Large van (≤ 4,500 kgs GVWR)
(24) Van Based school bus (≤ 4,500 kgs GVWR)
(28) Other van type (≤ 4,500 kgs GVWR)
(29) Unknown van type (≤ 4,500 kgs GVWR)
(30) Compact pickup truck (≤ 4,500 kgs GVWR)
(31) Large pickup truck (≤ 4,500 kgs GVWR)
(38) Other pickup truck (≤ 4,500 kgs GVWR)
(39) Unknown pickup truck type (≤ 4,500 kgs GVWR
(45) Other light truck (≤ 4,500 kgs GVWR)
(48) Unknown light truck type (≤ 4,500 kgs GVWR)
(49) Unknown light vehicle type
(50) School bus (excludes van based)(> 4,500 kgs GVWR)
(58) Other bus (> 4,500 kgs GVWR)
(59) Unknown bus type
(60) Truck (> 4,500 kgs GVWR)
(67) Tractor without trailer
(68) Tractor-trailer(s)
(78) Unknown medium/heavy truck type
(79) Unknown light/medium/heavy truck type
(80) Motored cycle
(90) Other vehicle
(99) Unknown

103.3" → 262

CODES FOR GENERAL AREA OF DAMAGE (GAD)

CDS APPLICABLE AND OTHER VEHICLES

(0) Not a motor vehicle
(N) Noncollision
(F) Front
(R) Right side
(L) Left side
(B) Back
(T) Top
(U) Undercarriage
(9) Unknown

TDC APPLICABLE VEHICLES

(0) Not a motor vehicle
(N) Noncollision
(F) Front
(R) Right side
(L) Left side
(B) Back of unit with cargo area (rear of trailer or straight truck)
(D) Back (rear of tractor)
(C) Rear of cab
(V) Front of cargo area
(T) Top
(U) Undercarriage
(9) Unknown

CODES FOR VEHICLE NUMBER OR OBJECT CONTACTED

(01-30) — Vehicle Number

Noncollision
(31) Overturn — rollover (excludes end-over-end)
(32) Rollover — end-over-end
(33) Fire or explosion
(34) Jackknife
(35) Other intraunit damage (specify):

(36) Noncollision injury
(38) Other noncollision (specify):

(39) Noncollision — details unknown

Collision With Fixed Object
(41) Tree (≤ 10 cm in diameter)
(42) Tree (> 10 cm in diameter)
(43) Shrubbery or bush
(44) Embankment
(45) Breakaway pole or post (any diameter)

Nonbreakaway Pole or Post
(50) Pole or post (≤ 10 cm in diameter)
(51) Pole or post (> 10 cm but ≤ 30 cm in diameter)
(52) Pole or post (> 30 cm in diameter)
(53) Pole or post (diameter unknown)

(54) Concrete traffic barrier
(55) Impact attenuator
(56) Other traffic barrier (includes guardrail) (specify):
(57) Fence
(58) Wall
(59) Building
(60) Ditch or culvert
(61) Ground
(62) Fire hydrant
(63) Curb
(64) Bridge
(68) Other fixed object (specify):

(69) Unknown fixed object

Collision with Nonfixed Object
(70) Passenger car, light truck, van, or other vehicle not in-transport
(71) Medium/heavy truck or bus not in-transport
(72) Pedestrian
(73) Cyclist or cycle
(74) Other nonmotorist or conveyance

(75) Vehicle occupant
(76) Animal
(77) Train
(78) Trailer, disconnected in transport
(79) Object fell from vehicle in-transport
(88) Other nonfixed object (specify):

(89) Unknown nonfixed object

(98) Other event (specify):

(99) Unknown event or object

Appendix C:

NASS CDS General Vehicle Form: Case Vehicle

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

GENERAL VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9502
3. Vehicle Number: 01

VEHICLE IDENTIFICATION

4. Vehicle Model Year: 91
   Code the last two digits of the model year
   (99) Unknown

5. Vehicle Make (specify): DODGE: 07
   Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.
   (99) Unknown

6. Vehicle Model (specify): SPIRIT: 019
   Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.
   (999) Unknown

7. Body Type: 04
   Note: Applicable codes may be found on the back of this page.

8. Vehicle Identification Number

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
3	B	3	X	A	4	6	K	Ø	M	I						[redacted]

   Left justify; Slash zeros and letter Z (Ø and ~~Z~~)
   No VIN—Code all zeros Unknown—Code all nines

9. Vehicle Special Use (This Trip): 0
   (0) No special use
   (1) Taxi
   (2) Vehicle used as school bus
   (3) Vehicle used as other bus
   (4) Military
   (5) Police
   (6) Ambulance
   (7) Fire truck or car
   (8) Other (specify): _____
   (9) Unknown

OFFICIAL RECORDS

10. Police Reported Vehicle Disposition: 1
    (0) Not towed due to vehicle damage
    (1) Towed due to vehicle damage
    (9) Unknown

11. Police Reported Travel Speed: 089
    Code to the nearest kmph (NOTE: 000 means less than 0.5 kmph)
    (160) 159.5 kmph and above
    (999) Unknown
    55 mph X 1.6093 = 089 kmph

12. Speed Limit: 089
    (000) No statutory limit
    Code posted or statutory speed limit in kmph
    (999) Unknown
    55 mph X 1.6093 = 88.5 kmph

13. Police Reported Alcohol Presence For Driver: 0
    (0) No alcohol present
    (1) Yes alcohol present
    (7) Not reported
    (8) No driver present
    (9) Unknown

14. Alcohol Test Result For Driver: 96
    Code actual value (decimal implied before first digit—0.xx)
    (95) Test refused
    (96) None given
    (97) AC test performed, results unknown
    (98) No driver present
    (99) Unknown
    Source: PAR

15. Police Reported Other Drug Presence For Driver: 0
    (0) No other drug(s) present
    (1) Yes other drug(s) present
    (7) Not reported
    (8) No driver present
    (9) Unknown

16. Other Drug Specimen Test Result For Driver: 0
    (0) No specimen test given
    (1) Drug(s) not found in specimen
    (2) Drug(s) found in specimen, (specify): _____
    (3) Specimen test given, results unknown or not obtained
    (8) No driver present
    (9) Unknown if specimen test given

17. Driver's Zip Code: [redacted]
    (00001) Driver not a resident of U.S. or territories
    _____ Code actual 5-digit zip code
    (99998) No driver present
    (99999) Unknown

18. Driver's Race/Ethnic Origin: 1
    (1) White (non-Hispanic)
    (2) Black (non-Hispanic)
    (3) White (Hispanic)
    (4) Black (Hispanic)
    (5) American Indian, Eskimo or Aleut
    (6) Asian or Pacific Islander
    (7) Other (specify): _____
    (8) No driver present
    (9) Unknown

CODES FOR BODY TYPE

CDS APPLICABLE VEHICLES

Automobiles

(01) Convertible (excludes sun-roof, t-bar)
(02) 2-door sedan, hardtop, coupe
(03) 3-door/2-door hatchback
(04) 4-door sedan, hardtop
(05) 5-door/4-door hatchback
(06) Station wagon (excluding van and truck based)
(07) Hatchback, number of doors unknown
(08) Other automobile type (specify): _____
(09) Unknown automobile type

Automobile Derivatives

(10) Auto based pickup (includes El Camino, Caballero, Ranchero, Brat, and Rabbit pickup)
(11) Auto based panel (cargo station wagon, auto based ambulance/hearse)
(12) Large limousine - more than four side doors or stretched chassis
(13) Three-wheel automobile or automobile derivative

Utility Vehicles (≤ 4,500 kgs GVWR)

(14) Compact utility (Jeep CJ-2 - CJ-7, Scrambler, Golden Eagle, Renegade, Laredo, Wrangler, Cherokee [84 and after], Dispatcher, Raider, Bronco II, Bronco [76 and before], Explorer, S-10 Blazer, Geo Tracker, Bravada, S-15 Jimmy, Thing, Pathfinder, Trooper, Trooper II, Rodeo, Amigo, Navajo, 4-Runner, Montero, Passport, Samurai, Sidekick, Rocky)
(15) Large utility (includes Jeep Cherokee [83 and before], Ramcharger, Trailduster, Bronco-fullsize [78 and after], fullsize Blazer, fullsize Jimmy, Hummer, Landcruiser, Rover, Scout, Yukon)
(16) Utility station wagon (Chevy Suburban, GMC Suburban, Travelall, Grand Wagoneer, includes suburban limousine)
(19) Utility, unknown body type

Van Based Light Trucks (≤ 4,500 kgs GVWR)

(20) Minivan (Town and Country, Caravan, Grand Caravan, Voyager, Grand Voyager, Mini-Ram, Vista, Aerostar, Windstar, Villager, Lumina APV, Trans Sport, Silhouette, Astro, Safari, Toyota Van, Toyota Minivan, Previa, Nissan Minivan, Quest, Mitsubishi Minivan, Expo Wagon, Vanagon/Camper.)
(21) Large van (B150-B350, Sportsman, Royal, Maxiwagon, Ram, Tradesman, Voyager [83 and before], E150-E350, Econoline, Clubwagon, Chateau, G10-G30, Chevy Van, Beauville, Sport Van, G15-G35, Rally Van, Vandura.)
(22) Step van or walk-in van (≤ 4,500 kgs GVWR)
(23) Van based motorhome (≤ 4,500 kgs GVWR)
(24) Van based school bus (≤ 4,500 kgs GVWR)
(25) Van based other bus (≤ 4,500 kgs GVWR)
(28) Other van type (Hi-Cube Van, Kary) (specify): _____
(29) Unknown van type

Light Conventional Trucks (Pickup style cab, ≤ 4,500 kgs GVWR)

(30) Compact pickup (D50, Colt P/U, Ram 50, Dakota, Arrow Pickup [foreign], Ranger, Courier, S-10 , T-10, LUV, S-15, T-15, Sonoma, Datsun/Nissan Pickup, P'up, Mazda Pickup, Toyota Pickup, Mitsubishi Pickup)
(31) Large Pickup (Jeep Pickup, Comanche, Ram Pickup, D100-D350, W100-W350, F100-F350, C10-C35, K10-K35, R10-R35, V10-V35, Silverado, Sierra, R100-R500, T100)
(32) Pickup with slide-in camper
(33) Convertible pickup
(39) Unknown pickup style light conventional truck type

Other Light Trucks (≤ 4,500 kgs GVWR)

(40) Cab chassis based (includes rescue vehicles, light stake, dump, and tow truck)
(41) Truck based panel
(42) Light truck based motorhome (chassis mounted)
(45) Other light conventional truck type
(48) Unknown light truck type
(49) Unknown light vehicle type (automobile, utility, van, or light truck)

OTHER VEHICLES

Buses (Excludes Van Based)

(50) School bus (designed to carry students, not cross country or transit)
(58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify): _____
(59) Unknown bus type

Medium/Heavy Trucks (> 4,500 kgs GVWR)

(60) Step van (> 4,500 kgs GVWR)
(61) Single unit straight truck (4,500 kgs < GVWR ≤ 8,850 kgs)
(62) Single unit straight truck (8,850 kgs < GVWR ≤ 12,000 kgs)
(63) Single unit straight truck (> 12,000 kgs GVWR)
(64) Single unit straight truck, GVWR unknown
(65) Medium/heavy truck based motorhome
(67) Truck-tractor with no cargo trailer
(68) Truck-tractor pulling one trailer
(69) Truck-tractor pulling two or more trailers
(70) Truck-tractor (unknown if pulling trailer)
(78) Unknown medium/heavy truck type
(79) Unknown truck type (light/medium/heavy)

Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

(80) Motorcycle
(81) Moped (motorized bicycle)
(82) Three-wheel motorcycle or moped
(88) Other motored cycle (minibike, motorscooter) (specify): _____
(89) Unknown motored cycle type

Other Vehicles

(90) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
(91) Snowmobile
(92) Farm equipment other than trucks
(93) Construction equipment other than trucks
(97) Other vehicle type
(99) Unknown body type

PRECRASH ENVIRONMENTAL DATA

19. Relation To Interchange Or Junction — 0
(0) Non-interchange area and non-junction
(1) Interchange area related

Non-Interchange junctions
(2) Intersection related
(3) Driveway, alley access related
(4) Other junction (specify)
_____
(5) Unknown type of junction

(9) Unknown

20. Trafficway Flow — 0
(0) Not physically divided (two way traffic)
(1) Divided trafficway-median strip without positive barrier
(2) Divided trafficway-median strip with positive barrier
(3) One way traffic
(9) Unknown

21. Number Of Travel Lanes — 2
(1) One
(2) Two
(3) Three
(4) Four
(5) Five
(6) Six
(7) Seven or more
(9) Unknown

22. Roadway Alignment — 1
(1) Straight
(2) Curve right
(3) Curve left
(9) Unknown

23. Roadway Profile — 1
(1) Level
(2) Uphill grade (>2%)
(3) Hill crest
(4) Downhill grade (>2%)
(5) Sag
(9) Unknown

24. Roadway Surface Type — 2
(1) Concrete
(2) Bituminous (asphalt)
(3) Brick or block
(4) Slag, gravel, or stone
(5) Dirt
(8) Other (specify): _____
(9) Unknown

25. Roadway Surface Condition — 1
(1) Dry
(2) Wet
(3) Snow or slush
(4) Ice
(5) Sand, dirt, or oil
(8) Other (specify): _____
(9) Unknown

26. Light Conditions — 2
(1) Daylight
(2) Dark
(3) Dark, but lighted
(4) Dawn
(5) Dusk
(9) Unknown

27. Atmospheric Conditions — 0
(0) No adverse atmospheric-related driving conditions
(1) Rain
(2) Sleet/hail
(3) Snow
(4) Fog
(5) Rain and fog
(6) Sleet and fog
(7) Other (e.g., smog, smoke, blowing sand or dust, etc.) (specify):
_____
(9) Unknown

28. Traffic Control Device — 6
(0) No traffic control(s)
(1) Traffic control signal (not RR crossing)

Regulatory
(2) Stop sign
(3) Yield sign
(4) School zone sign
(5) Other regulatory sign (specify):
_____
(6) Warning sign (not RR crossing)
(7) Unknown sign
(8) Miscellaneous/other controls including RR controls (specify):
_____
(9) Unknown

29. Traffic Control Device Functioning — 0
(0) No traffic control device
(1) Traffic control device not functioning (specify):_____
(2) Traffic control device functioning properly
(9) Unknown

PRECRASH DRIVER RELATED DATA

30. Driver's Distraction/Inattention To Driving (Prior To Recognition Of Critical Event) 01
(00) No driver present
(01) Attentive or not distracted
(02) Looked but did not see

Distractions
(03) By other occupant(s), (specify):
(04) By moving object in vehicle (specify):
(05) While talking or listening to cellular phone (specify location and type of phone):
(06) While dialing cellular phone (specify location and type of phone):
(07) While adjusting climate controls
(08) While adjusting radio, cassette, CD (specify):
(09) While using other device/object in vehicle (specify):
(10) Sleepy or fell asleep
(11) Distracted by outside person, object, or event (specify):
(12) Eating or drinking
(13) Smoking related
(97) Distracted/inattentive, details unknown
(98) Other, distraction (specify):
(99) Unknown

31. Pre-Event Movement (Prior to Recognition of Critical Event) 14
(00) No driver present
(01) Going straight
(02) Decelerating in traffic lane
(03) Accelerating in traffic lane
(04) Starting in traffic lane
(05) Stopped in traffic lane
(06) Passing or overtaking another vehicle
(07) Disabled or parked in travel lane
(08) Leaving a parking position
(09) Entering a parking position
(10) Turning right
(11) Turning left
(12) Making a U-turn
(13) Backing up (other than for parking position)
(14) Negotiating a curve
(15) Changing lanes
(16) Merging
(17) Successful avoidance maneuver to a previous critical event
(97) Other (specify):
(99) Unknown

32. Critical Precrash Event 87
This Vehicle Loss of Control Due To:
(01) Blow out or flat tire
(02) Stalled engine
(03) Disabling vehicle failure (e.g., wheel fell off) (specify):
(04) Non-disabling vehicle problem (e.g., hood flew up) (specify):
(05) Poor road conditions (puddle, pot hole, ice, etc.) (specify):
(06) Traveling too fast for conditions
(08) Other cause of control loss (specify):
(09) Unknown cause of control loss

This Vehicle Traveling
(10) Over the lane line on left side of travel lane
(11) Over the lane line on right side of travel lane
(12) Off the edge of the road on the left side
(13) Off the edge of the road on the right side
(14) End departure
(15) Turning left at intersection
(16) Turning right at intersection
(17) Crossing over (passing through) intersection
(18) This vehicle decelerating
(19) Unknown travel direction

Other Motor Vehicle In Lane
(50) Other vehicle stopped
(51) Traveling in same direction with lower steady speed
(52) Traveling in same direction while decelerating
(53) Traveling in same direction with higher speed
(54) Traveling in opposite direction
(55) In crossover
(56) Backing
(59) Unknown travel direction of other motor vehicle in lane

Other Motor Vehicle Encroaching Into Lane
(60) From adjacent lane (same direction)—over left lane line
(61) From adjacent lane (same direction)—over right lane line
(62) From opposite direction—over left lane line
(63) From opposite direction—over right lane line
(64) From parking lane
(65) From crossing street, turning into same direction
(66) From crossing street, across path
(67) From crossing street, turning into opposite direction
(68) From crossing street, intended path not known
(70) From driveway, turning into same direction
(71) From driveway, across path
(72) From driveway, turning into opposite direction
(73) From driveway, intended path not known
(74) From entrance to limited access highway
(78) Encroachment by other vehicle—details unknown

Pedestrian, Pedalcyclist, or Other Nonmotorist
(80) Pedestrian in roadway
(81) Pedestrian approaching roadway
(82) Pedestrian—unknown location
(83) Pedalcyclist or other nonmotorist in roadway (specify):
(84) Pedalcyclist or other nonmotorist approaching roadway, (specify):
(85) Pedalcyclist or other nonmotorist—unknown location (specify):

Object or Animal
(87) Animal in roadway
(88) Animal approaching roadway
(89) Animal—unknown location
(90) Object in roadway
(91) Object approaching roadway
(92) Object—unknown location
(98) Other critical precrash event (specify):
(99) Unknown

33. Attempted Avoidance Maneuver 04
(00) No driver present
(01) No avoidance maneuver
(02) Braking (no lockup)
(03) Braking (lockup)
(04) Braking (lockup unknown)
(05) Releasing brakes
(06) Steering left
(07) Steering right
(08) Braking and steering left
(09) Braking and steering right
(10) Accelerating
(11) Accelerating and steering left
(12) Accelerating and steering right
(98) Other action (specify): _____
(99) Unknown

34. Pre-Impact Stability 1
(0) No driver present
(1) Tracking
(2) Skidding longitudinally—rotation less than 30 degrees
(3) Skidding laterally—clockwise rotation
(4) Skidding laterally—counterclockwise rotation
(7) Other vehicle loss-of-control (specify): _____
(9) Precrash stability unknown

35. Pre-Impact Location 1
(0) No driver present
(1) Stayed in original travel lane
(2) Stayed on roadway but left original travel lane
(3) Stayed on roadway, not known if left original travel lane
(4) Departed roadway
(5) Remained off roadway
(6) Returned to roadway
(7) Entered roadway
(9) Unknown

36. Accident Type 13
(Note: Applicable codes on back of this page)
(00) No impact
Code the number of the diagram that best describes the accident circumstance
(98) Other accident type (specify): _____
(99) Unknown

STOP HERE IF GV07 DOES NOT EQUAL 01 - 49

Category	Configuration	ACCIDENT TYPES (Includes Intent)				
I Single Driver	A Right Roadside Departure	01 DRIVE OFF ROAD	02 CONTROL/ TRACTION LOSS	03 AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN
	B Left Roadside Departure	06 DRIVE OFF ROAD	07 CONTROL/ TRACTION LOSS	08 AVOID COLLISION WITH VEH., PED., ANIM.	09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN
	C Forward Impact	11 PARKED VEH.	12 STA. OBJECT	13 PEDESTRIAN/ ANIMAL	14 END DEPARTURE	15 SPECIFICS OTHER / 16 SPECIFICS UNKNOWN
II Same Trafficway Same Direction	D Rear-End	20 STOPPED 21, 22, 23	24 SLOWER 25, 26, 27	28 DECEL. 29, 30, 31	(EACH • 32) SPECIFICS OTHER	(EACH • 33) SPECIFICS UNKNOWN
	E Forward Impact	34 CONTROL/ TRACTION LOSS	36 CONTROL/ TRACTION LOSS	38 AVOID COLLISION WITH VEH.	40 AVOID COLLISION WITH OBJECT	(EACH • 42) SPECIFICS OTHER / (EACH • 43) SPECIFICS UNKNOWN
	F Sideswipe Angle	44 45	46 47	(EACH • 48) SPECIFICS OTHER		(EACH • 49) SPECIFICS UNKNOWN
III Same Trafficway Opposite Direction	G Head-On	50 51 LATERAL MOVE	(EACH • 52) SPECIFICS OTHER	(EACH • 53) SPECIFICS UNKNOWN		
	H Forward Impact	54 CONTROL/ TRACTION LOSS	56 CONTROL/ TRACTION LOSS	58 AVOID COLLISION WITH VEH.	60 AVOID COLLISION WITH OBJECT	(EACH • 62) SPECIFICS OTHER / (EACH • 63) SPECIFICS UNKNOWN
	I Sideswipe Angle	64 65 LATERAL MOVE	(EACH • 66) SPECIFICS OTHER	(EACH • 67) SPECIFICS UNKNOWN		
IV Change Trafficway Vehicle Turning	J Turn Across Path	68 69 INITIAL OPPOSITE DIRECTIONS	70 71 INITIAL SAME DIRECTIONS	72 73	(EACH • 74) SPECIFICS OTHER	(EACH • 75) SPECIFICS UNKNOWN
	K Turn Into Path	76 77 TURN INTO SAME DIRECTION	78 79	80 81 TURN INTO OPPOSITE DIRECTIONS	82 83	(EACH • 84) SPECIFICS OTHER / (EACH • 85) SPECIFICS UNKNOWN
V Intersecting Paths (Vehicle Damage)	L Straight Paths	86 87	88 89	(EACH • 90) SPECIFICS OTHER		(EACH • 91) SPECIFICS UNKNOWN
VI Miscellaneous	M Backing Etc	92 BACKING VEH.	93 OTHER VEH. OR OBJECT	98 Other Accident Type 99 Unknown Accident Type 00 No Impact		

OCCUPANT RELATED

37. Driver Presence in Vehicle — 1
(0) Driver not present
(1) Driver present
(9) Unknown

38. Number of Occupants This Vehicle — 04
(00-96) Code actual number of occupants for this vehicle
(97) 97 or more
(99) Unknown

39. Number of Occupant Forms Submitted — 04

AIR BAG RELATED

40. Is this an AOPS Vehicle? — 1
(0) No (includes unknown)
(1) Yes - researcher determined
(2) VIN determined air bag system
(3) VIN determined automatic (passive) belts
(4) VIN determined air bag and automatic (passive) belts

41. Air Bag(s) Deployment, First Seat Frontal — 2
(0) Not equipped or not available
(1) No air bags deployed

Single Air Bag Vehicle
(2) Driver air bag deployed
(3) Driver air bag, unknown if deployed

Multiple Air Bag Vehicle
(4) Driver side only deployed
(5) Passenger side only deployed
(6) Driver and passenger side deployed
(7) Driver and passenger side unknown if deployed
(8) Air bag(s) deployed, details unknown
(9) Unknown

42. Air Bag(s) Deployment, Other Than First Seat Frontal — 0
(0) Not equipped with an "other" air bag
(1) Deployed during accident (as a result of impact)
(2) Deployed inadvertently just prior to accident
(3) Deployed, details unknown
(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(5) Unknown if deployed
(7) Nondeployed
(9) Unknown

Specify type of "other" air bag present: _____

VEHICLE WEIGHT ITEMS

43. Vehicle Curb Weight — 1,270
____ Code weight to nearest 10 kilograms.
(045) Less than 450 kilograms
(610) 6,100 kilograms or more
(999) Unknown
2,801 lbs X .4536 = 1,271 kgs

Source: [redacted]

44. Vehicle Cargo Weight — 0,020
____ Code weight to nearest 10 kilograms.
(000) Less than 5 kilograms
(450) 4,500 kilograms or more
(999) Unknown
50 lbs X .4536 = 22.68 kgs

Source: _____

ROLLOVER DATA

45. Rollover — 00
(00) No rollover (no overturning)

Rollover (primarily about the longitudinal axis)
(01-16) Code the number of quarter turns
(17) Rollover, 17 or more quarter turns (specify): _____
(98) Rollover--end-over-end (i.e., primarily about the lateral axis)
(99) Rollover (overturn), details unknown

46. Rollover Initiation Type — 00
(00) No rollover
(01) Trip-over
(02) Flip-over
(03) Turn-over
(04) Climb-over
(05) Fall-over
(06) Bounce-over
(07) Collision with another vehicle
(08) Other rollover initiation type specify):
(98) Rollover--end-over-end
(99) Unknown rollover initiation type

47. Location of Rollover Initiation — 0
(0) No rollover
(1) On roadway
(2) On shoulder—paved
(3) On shoulder—unpaved
(4) On roadside or divided trafficway median
(8) Rollover--end-over-end
(9) Unknown

48. Rollover Initiation Object Contacted — 00
(Note: Applicable codes on back of page)

49. Location on Vehicle Where Initial Principal Tripping Force Is Applied — 0
(0) No rollover
(1) Wheels/tires
(2) Side plane
(3) End plane
(4) Undercarriage
(5) Other location on vehicle (specify):
(6) Non-contact rollover forces (specify):
(8) Rollover--end-over-end
(9) Unknown

50. Direction of Initial Roll — 0
(0) No rollover
(1) Roll right - primarily about the longitudinal axis
(2) Roll left - primarily about the longitudinal axis
(8) Rollover--end-over-end
(9) Unknown roll direction

OVERRIDE/UNDERRIDE (THIS VEHICLE)

51. Front Override/Underride (this Vehicle) 0

52. Rear Override/Underride (this Vehicle) 0
(0) No override/underride, or not an end-to-end impact between two CDS applicable vehicles, and no medium/heavy truck or bus underride

Override (see specific CDC)
[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]
(1) 1st CDC
(2) 2nd CDC
(3) Other not automated CDC (specify):

Underride (see specific CDC)
[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]
(4) 1st CDC
(5) 2nd CDC
(6) Other not automated CDC (specify):

(7) Medium/heavy truck or bus override (of any configuration)
(9) Unknown

HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V

Values: (000)-(359) Code actual value
(997) Noncollision
(998) Impact with object
(999) Unknown

53. Heading Angle For This Vehicle 0 0 0

54. Heading Angle For Other Vehicle 3 0 5

RECONSTRUCTION DATA

55. Towed Trailing Unit 0
(0) No towed unit
(1) Yes—towed trailing unit
(9) Unknown

56. Documentation of Trajectory Data for This Vehicle 0
(0) No
(1) Yes

57. Post Collision Condition of Tree or Pole (For Highest Delta V) 0
(0) Not collision (for highest delta V) with tree or pole
(1) Not damaged
(2) Cracked/sheared
(3) Tilted <45 degrees
(4) Tilted ≥45 degrees
(5) Uprooted tree
(6) Separated pole from base
(7) Pole replaced
(8) Other (specify):

(9) Unknown

ACCIDENT RECONSTRUCTION PROGRAMS HIGHEST DELTA V

58. Basis for Total (Resultant) Delta V (highest) 09

(00) No vehicle inspection

Delta V Calculated
(01) Reconstruction program -damage only routine
(02) Reconstruction program -damage and trajectory routine
(03) Missing vehicle algorithm

Delta V Not Calculated
(04) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.

All vehicles within scope (CDC applicable) of reconstuction program but one of the collision conditions is beyond the scope of the reconstruction program or other acceptable reconstruction technique, regardless of adequacy of damage data.

(05) Rollover
(06) Other non-horizontal forces
(07) Sideswipe type damage
(08) Severe override
(09) Yielding object
(10) Overlapping damage
(11) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available, (specify):

(98) Other, (specify):

COMPUTER GENERATED CRASH SEVERITY

59. Total Delta V 999

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)
(160)159.5 kmph and above
(999)Unknown

60. Longitudinal Component of Delta V (Highest) ± 999

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: _000 means greater than −0.5 kmph and less than +0.5 kmph)
(±160) ±159.5 kmph and above
(_999) Unknown

61. Lateral Component of Delta V (Highest) ± 999

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: _000 means greater than −0.5 kmph and less than +0.5 kmph)
(±160) ±159.5 kmph and above
(_999) Unknown

62. Energy Absorption 9999.00

_____ Nearest 100 joules (highest)

_____ Nearest 100 joules (secondary)

(NOTE: 0000 means less than 50 joules)
(9997) 999,650 joules or more
(9999) Unknown

63. Impact Speed (Highest) 999

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)
(160) 159.5 kmph and above
(998) Trajectory algorithm not run
(999) Unknown

DELTA V CONFIDENCE LEVEL

64. Confidence In Reconstruction Program Results (For Highest Delta V) 0
(0) No reconstruction
(1) Collision fits model — results appear reasonable
(2) Collision fits model — results appear high
(3) Collision fits model — results appear low
(4) Borderline reconstruction — results appear reasonable

OTHER SPEED ESTIMATE

65. Barrier Equivalent Speed (Highest) 999

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)
(160) 159.5 kmph and above
(999) Unknown

IS MISSING VEHICLE ALGORITHM APPLICABLE FOR THIS VEHICLE? [ ] YES [✓] NO

IF YES: IS A COMPLETED PROGRAM SUMMARY INCLUDED? [ ] YES [ ] NO

ESTIMATED DELTA V

66. Estimated Highest Delta V (Researcher Determined) 9
    (0) Reconstruction Delta V coded

    Estimated Delta V
    (1) Less than 10 kmph
    (2) ≥ 10 kmph but < 25 kmph
    (3) ≥ 25 kmph but < 40 kmph
    (4) ≥ 40 kmph but < 55 kmph
    (5) ≥ 55 kmph

    Other estimates of damage severity
    (6) Minor
    (7) Moderate
    (8) Severe

    (9) Unknown

VEHICLE INSPECTION

67. Type of Vehicle Inspection 0
    (0) No inspection
    (1) Vehicle fully repaired-no damage evident
    (2) Partial inspection (specify): _____
    (3) Complete inspection

***** IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV67=0), *****

DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS

***** IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE *****

THE EXTERIOR VEHICLE, INTERIOR VEHICLE,

OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.

Appendix D:

NASS CDS Interview Forms:

Case Vehicle Driver

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

INTERVIEW FORM (A)

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9502
3. Vehicle Number: 01

Interviewee(s) Role or Name(s): DRIVER

Review all available information and interview questions prior to conducting interview(s) to ensure the acquisition of all pertinent data.

If the driver was not the person interviewed, was an appointment made for a follow-up interview?

DRIVER'S DESCRIPTION OF ACCIDENT EVENTS

I WAS ON A 2 LANE HIGHWAY EB COMING AROUND CORNER HIT 2 DEER DRIVER AIR BAG EXPLODED SEAT BELT DIDN'T HOLD ME, I HIT STEERING WHEEL AFTERWARDS WHEN I CAME TO STOP THE BELTS WHERE SO TIGHT MY MOM & NIECE GOT OUT DAD WAS NEXT (AGE SLOWER) WHEN MY DOOR OPENED MY BELT LOOSENED THEN I WAS ABLE TO GET OUT

OCCUPANT'S DESCRIPTION OF ACCIDENT EVENTS

AUDITOR - HAD TO QUIT JOB

STATE POLICE HWY PATROL

SPECIFIC QUESTIONS TO ASK INTERVIEWEE

BAG EXPLODED - 1 BAG RUPTURED

DATE [redacted]

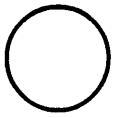
1991 DODGE SPIRIT

FAMILIARITY WITH ROAD 1 EVERY COUPLE MONTHS

CAR 500 miles PARENTS CAR

ACCIDENT DIAGRAM

The use of this diagram is optional. It may serve to aid in relating interviewee accident trajectory data (i.e., pre-impact to FRP orientations) to identifiable objects in the environment.



NORTH

CRASH DATA INFORMATION

IF POSSIBLE OBTAIN THIS INFORMATION FROM THE DRIVER:

SOURCE OF INFORMATION:	[X] Driver [ ] Other occupant [ ] Relative/friend
In which direction were you traveling?	[ ] North [ ] South [ ] East [ ] West coming home, Rt (Or where were they coming from or going to?) [redacted]
What lane were you in?	[X] 1 [ ] 2 [ ] 3 [ ] 4 [ ] Other **Note: lane 1 is the right curb lane**
What was the condition of the roadway?	[X] Dry [ ] Wet [ ] Snow [ ] Slush [ ] Ice [ ] Sand, dirt, oil [ ] Other (specify)
What was the weather like? (Check all that apply)	[X] No adverse conditions [ ] Rain [ ] Fog [ ] Sleet [ ] Hail [ ] Snow [ ] Other (specify)
Was there any type of sign or signal present? **(check all that apply)**	[ ] Traffic control signal (includes flashing beacons, lane control signals, and green / amber / red signal) [ ] Stop sign [ ] Yield sign [ ] School zone sign [ ] Other regulatory sign (No "U" turn, left turn only, wrong way, etc.) specify: _____ [X] Warning sign (Winding road sign, stop ahead, intersection signs, etc.) specify: CURVE WARNING SIGN [ ] Miscellaneous control (including railroad controls) specify: _____ [ ] None [ ] Unknown
If a traffic control device was present, was it functioning properly at the time of the crash?	[X] No traffic control device present [ ] Not functioning properly (includes defaced, badly worn, covered with snow, rotated etc.) specify: [ ] Functioning properly [ ] Unknown
Can you estimate your travel speed before the crash? (in mph)	[ ] Stopped [ ] 11-20 [ ] 31-40 [X] 51-60 [ ] 70+ [ ] 1-10 [ ] 21-30 [ ] 41-50 [ ] 61-70 [ ] Unknown
Just before the crash, what were you doing or intending to do? **(check all that apply)**	[X] Going straight [ ] Stopped [ ] Turning left [ ] Turning right [ ] Slowing [ ] Accelerating [ ] Backing [ ] Changing lanes to right [ ] Other (specify): [ ] Changing lanes to left NEG CURVE (L)
Did vehicle lose control due to weather or mechanical problems?	[X] No [ ] Unknown [ ] Yes (describe)
Did driver take avoidance actions? **[X] Yes (Check all that apply) →** **[ ] No [ ] Unknown**	[ ] Braking with lock-up [ ] Accelerating [ ]Other (specify): [X] Braking without lock-up [ ] Steering left [ ] Releasing brakes [ ] Steering right
Where was vehicle at time of collision?	[X] Original travel lane [ ] Different travel lane [ ] In intersection [ ] Off roadway to right [ ] Off roadway to left [ ] Other (specify): _____
Can you estimate your travel speed at the time of collision? (in mph)	[ ] Stopped [ ] 11-20 [ ] 31-40 [ ] 51-60 [ ] 70+ [ ] 1-10 [ ] 21-30 [ ] 41-50 [ ] 61-70 [X] Unknown
Describe all the impacts to the vehicle, including what the vehicle contacted) and how this vehicle moved to its stopped position, after the collision?	Hit Both DEER
What race does the driver consider themself?	[X] White [ ] American Indian, Eskimo or Aleut, Asian or Pacific Islander [ ] Black [ ] Other (specify): _____ [ ] Unknown
Is the driver of Hispanic origin?	[X] No [ ] Yes [ ] Unknown

VEHICLE INFORMATION

ROLLOVER DATA

DID THIS VEHICLE ROLL OVER DURING THE CRASH?

[ ] YES - - ASK THE FOLLOWING QUESTIONS
[X] NO - - SKIP TO "FIRE DATA" BELOW
[ ] UNKNOWN - - SKIP TO "FIRE DATA" BELOW

Describe where the rollover began	[ ] On roadway [ ] On shoulder [ ] On roadside or median [ ] Unknown
What caused the vehicle to roll over?	[ ] Other vehicle (specify vehicle number) ____ [ ] Contact to object (specify):_____ [ ] Other cause (specify):_____ [ ] Unknown
Which direction did the vehicle roll?	[ ] Toward the right (passenger side) [ ] Toward the left (driver side) [ ] End-over-end [ ] Unknown
Estimate the number of quarter turns (each side) or complete turns (4 quarter turns) the vehicle did	____ Number of **quarter turns** [ ] Unknown ____ Number of **complete turns**
When the vehicle stopped rolling over, which side was in contact with the ground?	[ ] Left side [ ] Top [ ] Right side [ ] Wheels [ ] Unknown

FIRE DATA

DID THIS VEHICLE EXPERIENCE A FIRE?

[ ] YES - - ASK THE FOLLOWING QUESTIONS
[X] NO - - SKIP THIS SECTION
[ ] UNKNOWN - - SKIP THIS SECTION

Describe where the fire started, or where the smoke was first seen	[ ] Under the hood [ ] In the trunk/cargo area [ ] Behind the instrument panel [ ] Under the vehicle [ ] In the passenger compartment [ ] From other involved vehicle [ ] Unknown
Did the fire start with the electrical system?	[ ] No [ ] Yes (specify): [ ] Unknown
Did the fire start with the fuel system?	[ ] No [ ] Yes (specify): [ ] Unknown
ASK IF THE FIRE INVOLVED THE FUEL SYSTEM **Which part of the fuel system may have been involved?**	[ ] **Fuel tank** [ ] **Fuel lines** [ ] **Engine compartment (specify component if known)** [ ] **Unknown**

Describe any additional rollover or fire information here:

ADDITIONAL VEHICLE INFORMATION

IF THIS VEHICLE HAS NOT BEEN INSPECTED ASK THIS QUESTION: **What is the year, make and model of your vehicle?**	Year: 19 91 Make: Dodge Model: Spirit
Was there any damage to the vehicle that is not related to this crash?	[X] No [ ] Yes - describe: [ ] Unknown
Did any of the doors or hatch come open during the crash?	[X] No [ ] Yes - describe: [ ] Unknown
Did any of the windows break during the crash?	[X] No [ ] Yes - describe: [ ] Unknown
Were any windows open (O) or partially open (P) prior to the crash?	[X] No [ ] Yes* * "O" = open "P" = partially open [ ] WS [ ] LF [ ] RF [ ] LR [ ] RR [ ] BL [ ] Roof [ ] Other [ ] Unknown
Did the glove compartment door come open during the crash?	[X] No [ ] Yes - describe: [ ] Unknown
Was there any cargo in the vehicle at the time of the crash?	[ ] No [X] Yes - describe: Approximate weight - 50 pounds [ ] Unknown
Approximate mileage on the vehicle?	_____ miles [X] Unknown
[illegible]	[illegible]

Detail any notes, questions to ask interviewee (i.e., rescue personnel damage to vehicle) or directions to vehicle location here:

OCCUPANT DATA QUESTIONS

How many people were in your vehicle at the time of the crash? _____

	DRIVER	OCCUPANT # 2	OCCUPANT # 3
Where was this person sitting in the vehicle? Front Left (FL) — Second Left (2L) Front Middle (FM) — Second Middle (2M) Front Right (FR) — Second Right (2R) Third Left (3L) — Other (SPECIFY in block) Third Middle (3M) Third Right (3R)	**FRONT LEFT**	FR	2L
What is the Sex, Height, Weight, and Age of each occupant?	[ ] M [X] F - Not pregnant [ ] F - Pregnant - # of months ____ [ ] F - Unk. if pregnant HEIGHT: 5'3" WEIGHT: 200 AGE: 45	[ ] M [X] F - Not pregnant [ ] F - Pregnant - # of months ____ [ ] F - Unk. if pregnant HEIGHT: 5'8" WEIGHT: 200 AGE: 65	[ ] M [X] F - Not pregnant [ ] F - Pregnant - # of months ____ [ ] F - Unk. if pregnant HEIGHT: 5'7" WEIGHT: 130 AGE: 15
Describe how occupant was seated A) Kneeling or standing on seat B) Lying on or across seat C) Kneeling, standing or sitting in front of seat D) Sitting sideways, turned to side or back E) Sitting on console F) Lying back in reclined position G) Other (specify) H Unknown	[ ] Leaning to left [ ] Leaning to right [X] Sitting upright [ ] Unknown Indicate all letters that apply and describe if other than above	[ ] Leaning to left [ ] Leaning to right [X] Sitting upright [ ] Unknown Indicate all letters that apply and describe if other than above	[ ] Leaning to left [ ] Leaning to right [ ] Sitting upright [X] Unknown Indicate all letters that apply and describe if other than above
Describe feet and hands/arms location just prior to impact (indicate all that apply) **FEET** A) On floor or foot controls B) One or both on dash C) One or both on seat D) Other (specify) E) Unknown **HANDS / ARMS** F) Both hands on steering wheel G) One on wheel, other hand resting or adjusting a control (specify hand on wheel and control involved) H) Dialing a cellular phone (specify location and type of phone) I) Holding a cellular phone (specify location and type of phone) J) Bracing with one or both hands K) On lap L) One or both out of window (specify) M) Other (specify) N) Unknown	Indicate all letters that apply and further describe as needed (R) on GAS (L) on floor F	Indicate all letters that apply and further describe as needed Both on floor UNK	Indicate all letters that apply and further describe as needed Both on floor UNK

Describe any additional information here:

OCCUPANT DATA CONTINUED ON NEXT PAGE

OCCUPANT DATA QUESTIONS (continued)

	DRIVER	OCCUPANT # 2	OCCUPANT # 3
Was your / their back up against the seat back?	[ ] No (describe) [X] Yes [ ] Unknown	[ ] No (describe) [X] Yes [ ] Unknown	[ ] No (describe) [X] Yes [ ] Unknown
Does this seat position have an adjustable seat ***track***, if so where was the seat located prior to impact?	[ ] Not adjustable [ ] Seat all the way forward [X] Between forward and middle [ ] At middle position [ ] Between middle and rear position [ ] Seat all the way rearward [ ] Unknown	[ ] Not adjustable [ ] Seat all the way forward [X] Between forward and middle [ ] At middle position [ ] Between middle and rear position [ ] Seat all the way rearward [ ] Unknown	[X] Not adjustable [ ] Seat all the way forward [ ] Between forward and middle [ ] At middle position [ ] Between middle and rear position [ ] Seat all the way rearward [ ] Unknown
Does this seat position have an adjustable seat ***back***, if so where was the seat ***back*** located prior to impact?	[X] Not adjustable [ ] Completely upright [ ] Slightly reclined [ ] Completely reclined	[X] Not adjustable [ ] Completely upright [ ] Slightly reclined [ ] Completely reclined	[X] Not adjustable [ ] Completely upright [ ] Slightly reclined [ ] Completely reclined
If this seat position has an adjustable seat ***back***, where was the seat ***back*** located after impact?	[X] Not adjustable [ ] Did not move (retained original position) [ ] Completely reclined [ ] Slightly reclined [ ] Completely upright [ ] Slightly forward of upright [ ] Completely forward [ ] Unknown	[X] Not adjustable [ ] Did not move (retained original position) [ ] Completely reclined [ ] Slightly reclined [ ] Completely upright [ ] Slightly forward of upright [ ] Completely forward [ ] Unknown	[X] Not adjustable [ ] Did not move (retained original position) [ ] Completely reclined [ ] Slightly reclined [ ] Completely upright [ ] Slightly forward of upright [ ] Completely forward [ ] Unknown

Did this vehicle have a cellular phone in it during the crash?

[X] No
[ ] Yes - describe type: ______________________
(e.g., portable, mounted in vehicle, flip phone, etc.)
[ ] Unknown

(Note to researcher: try to determine any driver distractions without implying fault)

Was the driver doing any of the following? **(check all that apply - and specify)**

[X] Talking to or listening to another occupant (specify):
[ ] Was there a moving object in vehicle (specify):
[ ] Talking or listening on a cellular phone (specify):
[ ] Dialing a cellular phone (specify):
[ ] Adjusting climate control (specify):
[ ] Adjusting radio, CD or cassette player (specify):
[ ] Using other device or object in vehicle (specify):
[ ] Sleepy / asleep (specify):
[ ] Distracted by outside person, object, or event (specify):
[ ] Eating or drinking (specify):
[ ] Smoking related (specify):
[ ] Other (specify):
[ ] Unknown

Describe any additional information here:

RESTRAINT INFORMATION

	DRIVER	OCCUPANT # 2	OCCUPANT # 3
Describe the seat belt available for the seat position **NOTE: If a belt is not available for a seat position – describe if removed or not functional.**	[ ] Unknown [ ] Lap belt [ ] Shoulder belt [X] Lap & Shoulder [ ] Not available * * Describe:	[ ] Unknown [ ] Lap belt [ ] Shoulder belt [X] Lap & Shoulder [ ] Not available * * Describe:	[ ] Unknown [X] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Not available * * Describe:
SKIP THESE QUESTIONS FOR REAR SEATING **Do any of the belts move along a motorized track for this seat?**	[ ] Unknown [X] No [ ] Yes * * **If "Yes", were they working properly?** [ ] Yes [ ] No (describe):	[ ] Unknown [X] No [ ] Yes * * **If "Yes", were they working properly?** [ ] Yes [ ] No (describe):	[ ] Unknown [ ] No [ ] Yes * * **If "Yes", were they working properly?** [ ] Yes [ ] No (describe):
Do any of the belts attach to the door such that when the door is opened the belt travels with the door?	[ ] Unknown [X] No [ ] Yes * * **If "Yes", does it cross:** ___ Chest ___ Lap ___ Both	[ ] Unknown [X] No [ ] Yes * * **If "Yes", does it cross:** ___ Chest ___ Lap ___ Both	[ ] Unknown [ ] No [ ] Yes * * **If "Yes", does it cross:** ___ Chest ___ Lap ___ Both
Were you [and other occupant(s)] wearing a seat belt during the accident?	[ ] No [X] Yes [ ] Unknown	[ ] No [X] Yes [ ] Unknown	[ ] No [X] Yes [ ] Unknown
SKIP THE FOLLOWING IF NO SEAT BELT WAS WORN			
What type of belt were you and other occupant(s) wearing?	[ ] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Unknown	[ ] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Unknown	[X] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Unknown
How was the lap belt situated?	[ ] Low on lap [ ] Across stomach [ ] Other (specify): [ ] Unknown	[ ] Low on lap [ ] Across stomach [ ] Other (specify): [ ] Unknown	[ ] Low on lap [ ] Across stomach [ ] Other (specify): [ ] Unknown
How was the shoulder belt situated?	[ ] Over shoulder [ ] Under the arm [ ] Behind back [ ] Behind seat [ ] Other (specify):	[ ] Over shoulder [ ] Under the arm [ ] Behind back [ ] Behind seat [ ] Other (specify):	[ ] Over shoulder [ ] Under the arm [ ] Behind back [ ] Behind seat [ ] Other (specify):

Describe any breaks, tears, or failures to any of the seat belts:

EJECTION, ENTRAPMENT, MOBILITY INFORMATION

	DRIVER	OCCUPANT # 2	OCCUPANT # 3
Was any part of your body thrown outside the vehicle during the crash?	[X] No [ ] Yes * [ ] Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.	[X] No [ ] Yes * [ ] Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.	[X] No [ ] Yes * [ ] Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.
Was anyone pinned in the vehicle?	[X] No [ ] Yes ___ physically pinned ___ jammed doors ___ fire, etc. [ ] Unknown Detail any entrapment	[X] No [ ] Yes ___ physically pinned ___ jammed doors ___ fire, etc. [ ] Unknown Detail any entrapment	[X] No [ ] Yes ___ physically pinned ___ jammed doors ___ fire, etc. [ ] Unknown Detail any entrapment
How did you [and other occupant(s)] exit the vehicle?	[ ] Fatal before removed [ ] Removed while unconscious or disoriented [ ] Removed due to injuries [ ] Exited with some assistance [X] Exited under own power [ ] Fully ejected [ ] Unknown	[ ] Fatal before removed [ ] Removed while unconscious or disoriented [ ] Removed due to injuries [ ] Exited with some assistance [X] Exited under own power [ ] Fully ejected [ ] Unknown	[ ] Fatal before removed [ ] Removed while unconscious or disoriented [ ] Removed due to injuries [ ] Exited with some assistance [X] Exited under own power [ ] Fully ejected [ ] Unknown

Further describe any ejection, entrapment, or mobility information here:

AIR BAG INFORMATION

WAS THIS VEHICLE EVER EQUIPPED WITH AN AIR BAG?

[X] YES (IF "YES" COMPLETE THIS SECTION)

[ ] NO [ ] UNKNOWN (IF "NO" OR "UNKNOWN" SKIP THIS SECTION)

	"OTHER" AIR BAG SPECIFY: ______ OCCUPANT # 1	"OTHER" AIR BAG SPECIFY: ______ OCCUPANT # __	"OTHER" AIR BAG SPECIFY: ______ OCCUPANT # __
Had this vehicle been in any previous crashes? [X] NO [ ] YES - continue to right [ ] UNKNOWN - go to box below	[ ] Prior crash without deployment [ ] One prior crash with deployment [ ] >1, with at least one deployment [ ] Previous accident(s) unknown if deployed IF PRIOR DEPLOYMENT [ ] CHECK IF NOT REINSTALLED	[ ] Prior crash without deployment [ ] One prior crash with deployment [ ] >1, with at least one deployment [ ] Previous accident(s) unknown if deployed IF PRIOR DEPLOYMENT [ ] CHECK IF NOT REINSTALLED	[ ] Prior crash without deployment [ ] One prior crash with deployment [ ] >1, with at least one deployment [ ] Previous accident(s) unknown if deployed IF PRIOR DEPLOYMENT [ ] CHECK IF NOT REINSTALLED
Type of air bag?	[X] Original equipment [ ] Retrofitted [ ] Replacement [ ] Unknown	[ ] Original equipment [ ] Retrofitted [ ] Replacement [ ] Unknown	[ ] Original equipment [ ] Retrofitted [ ] Replacement [ ] Unknown
Had any prior maintenance / service been performed on the air bag system?	[X] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:
Did the air bag inflate during this crash?	[X] Yes [ ] Unknown [ ] No BAG Ruptured If "NO" was the wiring disconnected prior to the crash? [ ] Yes [ ] No [ ] Unk	[ ] Yes [ ] Unknown [ ] No If "NO" was the wiring disconnected prior to the crash? [ ] Yes [ ] No [ ] Unk	[ ] Yes [ ] Unknown [ ] No If "NO" was the wiring disconnected prior to the crash? [ ] Yes [ ] No [ ] Unk
Was the person in this position wearing any type of eye-wear? (Eyeglasses, sunglasses, contact lenses)	[ ] No [ ] Unknown [X] Yes - Specify: Eyeglasses	[ ] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:
Was the air bag in this position contacted by another occupant?	[X] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:

Describe any additional information here:

[redacted]

will confirm Rupture

* [redacted]95 talked to SERV MGR who said he could not confirm AIR bag Rupture because he didn't see the Reported Rupture. If it was he said he would have noticed it. He also SAid that he had not heard of the fathers chemically induced pnuemonia but had heard the case vehicle driver was sueing for chemically induced asthma.

CHILD SAFETY SEAT INFORMATION

WAS THERE A PERSON IN A CHILD SAFETY SEAT IN THIS VEHICLE?

[ ] YES (IF "YES" COMPLETE THIS SECTION)

[X] NO [ ] UNKNOWN (IF "NO" OR "UNKNOWN" SKIP THIS SECTION)

	DRIVER	OCCUPANT # ___	OCCUPANT # ___
Manufacturer and model of the safety seat?			
Type of safety seat?		[ ] Infant [ ] Toddler [ ] Convertible [ ] Booster [ ] Integral [ ] Other Specify: _____ [ ] Unknown	[ ] Infant [ ] Toddler [ ] Convertible [ ] Booster [ ] Integral [ ] Other Specify: _____ [ ] Unknown
What direction was it facing prior to the crash?		[ ] Front [ ] Rearward [ ] Unknown	[ ] Front [ ] Rearward [ ] Unknown
Was a seat belt used to hold the seat in place?		[ ] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown
How was the seat belt secured to the child seat?		[ ] Looped through designated rear framing studs [ ] Looped through arm rest slots [ ] Belt across safety shield [ ] Looped through rear frame outside the designated framing struts [ ] Other (specify): _____ [ ] Unknown	[ ] Looped through designated rear framing studs [ ] Looped through arm rest slots [ ] Belt across safety shield [ ] Looped through rear frame outside the designated framing struts [ ] Other (specify): _____ [ ] Unknown
What was the safety seat equipped with at time of purchase?		[ ] Harness [ ] Shield [ ] Tether [ ] Unknown	[ ] Harness [ ] Shield [ ] Tether [ ] Unknown
Were any of these added after they owned the safety seat?		[ ] Harness [ ] Shield [ ] Tether [ ] None [ ] Unknown	[ ] Harness [ ] Shield [ ] Tether [ ] None [ ] Unknown

Describe any additional information here:

INJURY INFORMATION

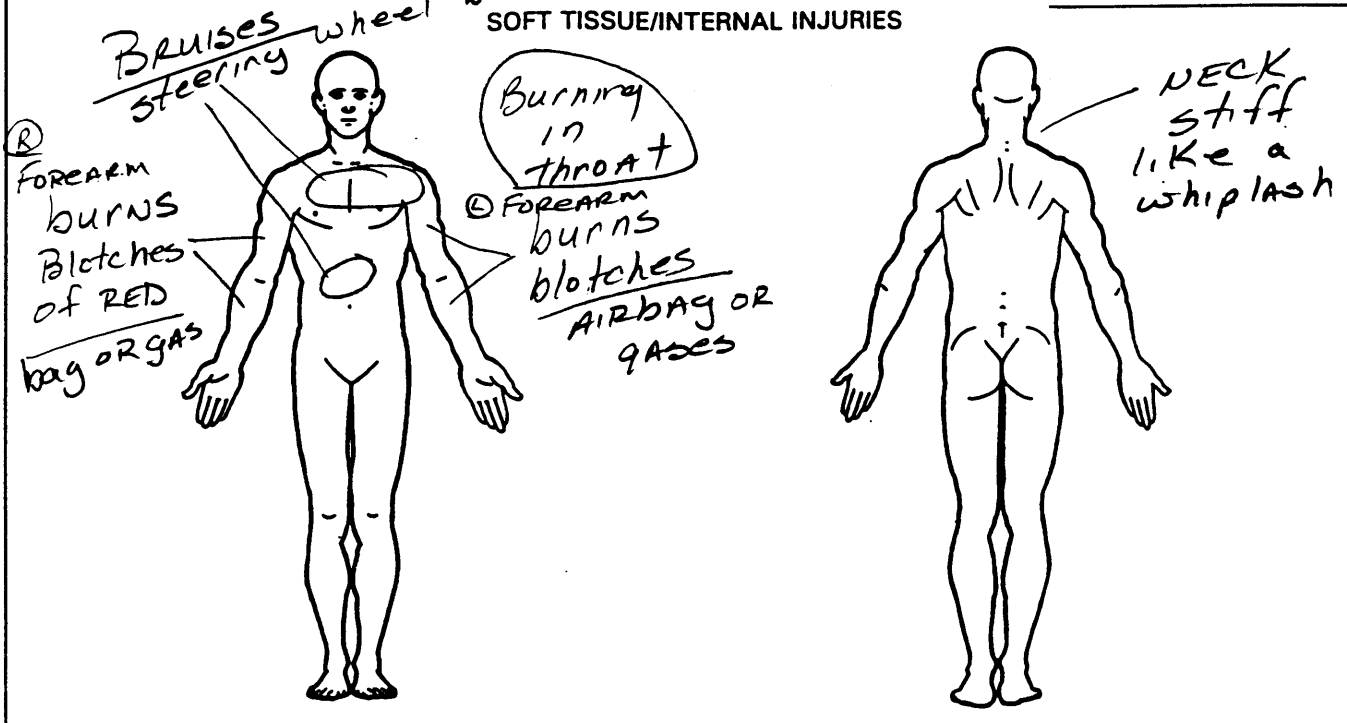
	DRIVER	OCCUPANT # 2	OCCUPANT # 3
Were you (or any other occupants) injured? ▸ *If "YES" go to manikin page and record injuries in detail* ▸ *If "NO" ask next questions*	[ ] No [X] Yes [ ] Unknown	[X] No [ ] Yes [ ] Unknown	[X] No [ ] Yes [ ] Unknown
Did you (or any other occupants) receive any of the following: *(If any injuries are checked, go to the manikin page and record location, lesion, and source)*	[ ] Cuts [X] Abrasions [X] Bruises [ ] Broken bones [ ] Head, skull, brain [ ] Internal injury [X] Sprains, strains [ ] Other (specify):	[ ] Cuts [ ] Abrasions [ ] Bruises [ ] Broken bones [ ] Head, skull, brain [ ] Internal injury [ ] Sprains, strains [ ] Other (specify):	[ ] Cuts [ ] Abrasions [ ] Bruises [ ] Broken bones [ ] Head, skull, brain [ ] Internal injury [ ] Sprains, strains [ ] Other (specify):
IF OCCUPANT'S INJURIES (BOXES CHECKED) RECORD INJURY LOCATION, LESION, AND SOURCE ON THE MANIKIN PAGE(S)			
Did you (or any other occupants) receive any medical treatment? (check all that apply)	[X] Hospital NEXT DAY [ ] Medical clinic [ ] Paramedics at scene [ ] Doctor's office [ ] Treated by self [ ] Unknown	[ ] Hospital [ ] Medical clinic [ ] Paramedics at scene [ ] Doctor's office [ ] Treated by self [ ] Unknown	[ ] Hospital [ ] Medical clinic [ ] Paramedics at scene [ ] Doctor's office [ ] Treated by self [ ] Unknown
Were you (or any other occupants) hospitalized?	[X] No [ ] Yes - number of days ____ [ ] Unknown	[ ] No [ ] Yes - number of days ____ [ ] Unknown	[ ] No [ ] Yes - number of days ____ [ ] Unknown
Were you (or any other occupants) treated and released from the emergency room?	[ ] No [X] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown
Name of medical treatment facility?	General		
Have you (or any other occupants) received any follow-up treatment?	[ ] No [ ] Yes - describe: _____ _____ [ ] Unknown	[ ] No [ ] Yes - describe: _____ _____ [ ] Unknown	[ ] No [ ] Yes - describe: _____ _____ [ ] Unknown
Have you (or any other occupants) lost any days from work or school (college) due to the crash?	[ ] No [ ] Not working prior to crash [X] Yes - number of days 8 initially [ ] Unknown 18 total	[ ] No [ ] Not working prior to crash [ ] Yes - number of days ____ [ ] Unknown	[ ] No [ ] Not working prior to crash [ ] Yes - number of days ____ [ ] Unknown
IF REQUIRED: Will you sign a medical release? * *If not an in-person interview, make appointment to have release signed*	[ ] No [X] Yes* [ ] Unknown DATE: _____ TIME: _____ PLACE: _____	[ ] No [ ] Yes* [ ] Unknown DATE: _____ TIME: _____ PLACE: _____	[ ] No [ ] Yes* [ ] Unknown DATE: _____ TIME: _____ PLACE: _____

PSU Number 10 Case Number–Stratum 9502 Vehicle Number 01 Occupant Number 01

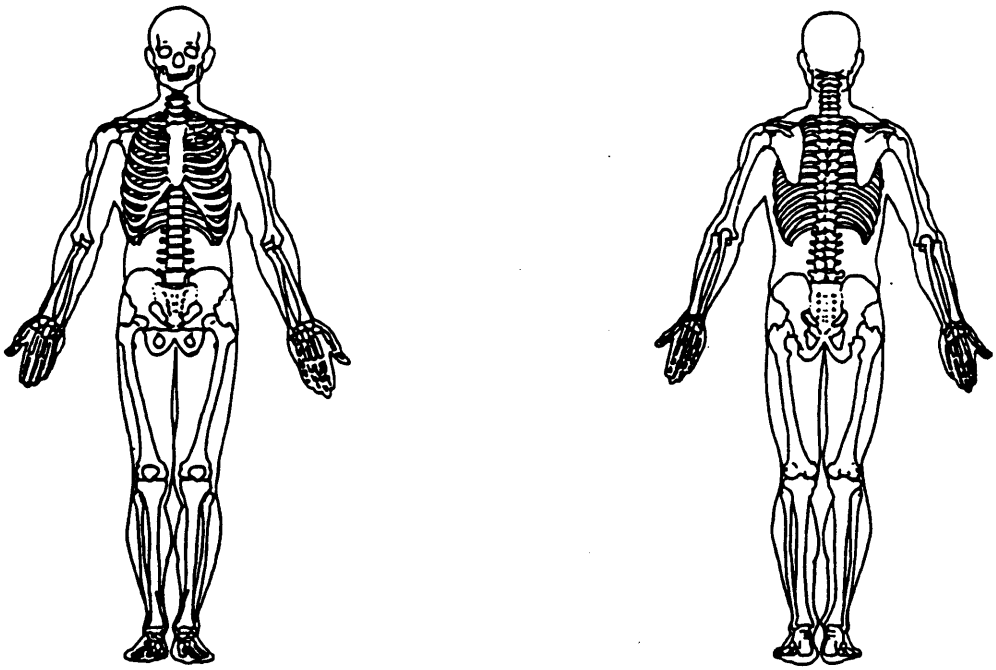
INJURY DATA FROM INTERVIEWEE(S)

Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): DRIVER

SOFT TISSUE/INTERNAL INJURIES



SKELETAL INJURIES



The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

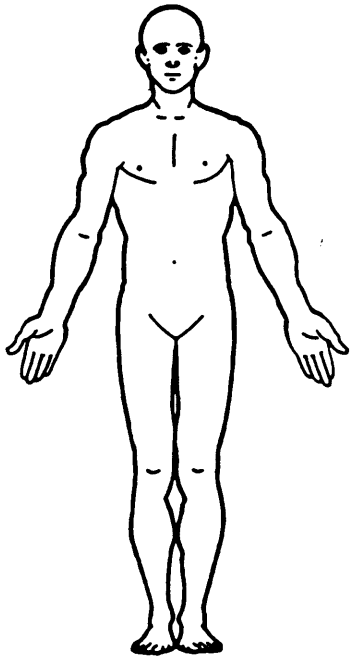
PSU Number 10 Case Number—Stratum 9502 Vehicle Number 01 Occupant Number 02

INJURY DATA FROM INTERVIEWEE(S)

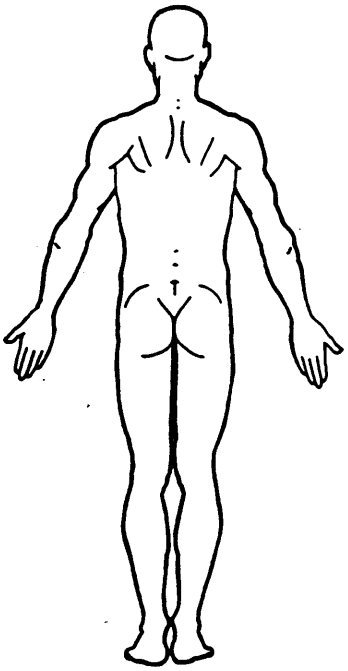
Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): _____

_____

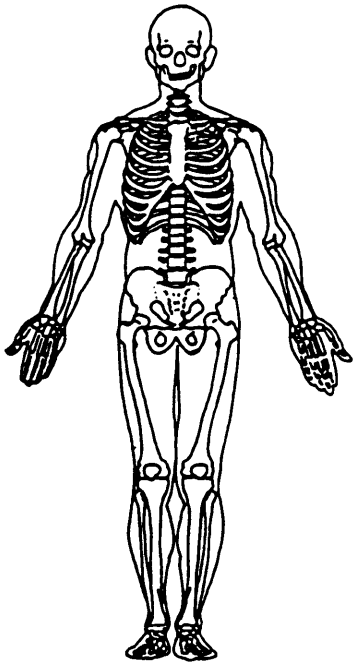
SOFT TISSUE/INTERNAL INJURIES

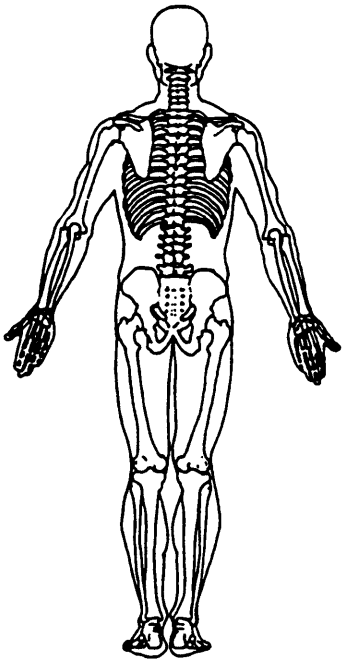


NONE



SKELETAL INJURIES





The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

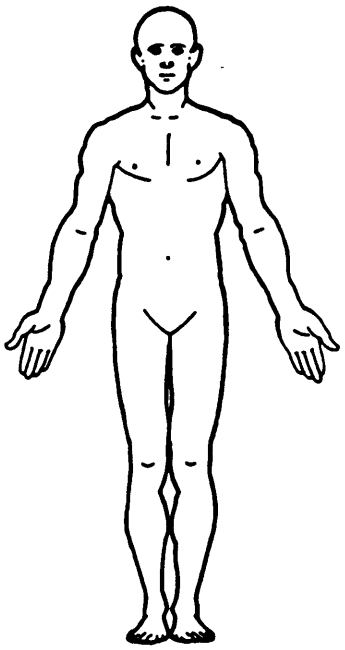
PSU Number 10 Case Number–Stratum 9502 Vehicle Number 01 Occupant Number 03

INJURY DATA FROM INTERVIEWEE(S)

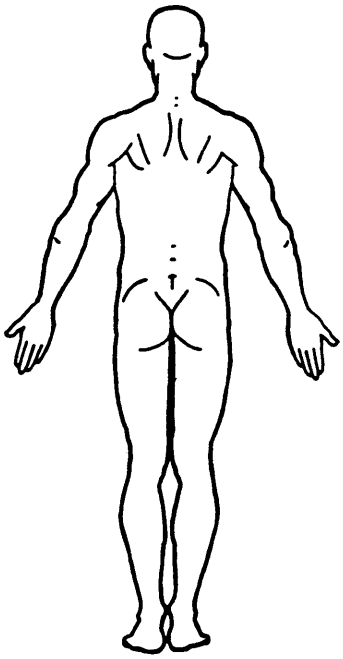
Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): _____

_____

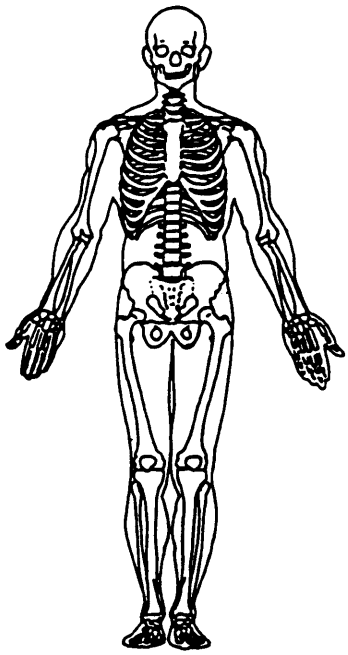
SOFT TISSUE/INTERNAL INJURIES

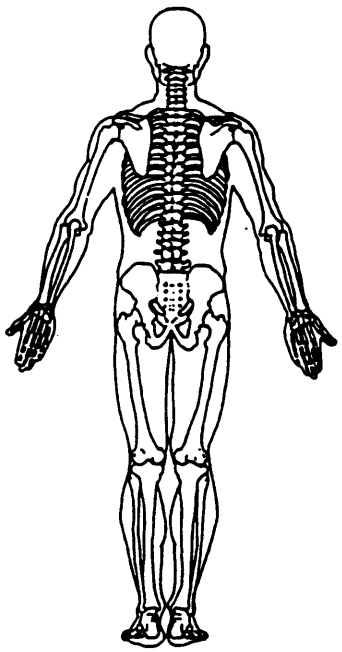


NONE



SKELETAL INJURIES





The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

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

INTERVIEW FORM SUPPLEMENT

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9502
3. Vehicle Number: 01

Interviewee(s) Role or Name(s): DRIVER / Daughter of this occup

OCCUPANT DATA QUESTIONS

	OCCUPANT # 4	OCCUPANT # ___	OCCUPANT # ___
Where was this person sitting in the vehicle? **Front Left (FL)** **Second Left (2L)** **Front Middle (FM)** **Second Middle (2M)** **Front Right (FR)** **Second Right (2R)** **Third Left (3L)** **Other:** **Third Middle (3M)** **(SPECIFY in block)** **Third Right (3R)**	2R		
What is the Sex, Height, Weight, and Age of each occupant?	[X] M [ ] F - Not pregnant [ ] F - Pregnant - # of months ___ [ ] F - Unk. if pregnant HEIGHT: 5'8" WEIGHT: 220 AGE: 69	[ ] M [ ] F - Not pregnant [ ] F - Pregnant - # of months ___ [ ] F - Unk. if pregnant HEIGHT: ___ WEIGHT: ___ AGE: ___	[ ] M [ ] F - Not pregnant [ ] F - Pregnant - # of months ___ [ ] F - Unk. if pregnant HEIGHT: ___ WEIGHT: ___ AGE: ___
Describe how occupant was seated **A) Kneeling or standing on seat** **B) Lying on or across seat** **C) Kneeling, standing or sitting in front of seat** **D) Sitting sideways, turned to side or back** **E) Sitting on console** **F) Lying back in reclined position** **G) Other (specify)** **H Unknown**	[ ] Leaning to left [ ] Leaning to right [ ] Sitting upright [X] Unknown Indicate all letters that apply and describe if other than above	[ ] Leaning to left [ ] Leaning to right [ ] Sitting upright [ ] Unknown Indicate all letters that apply and describe if other than above	[ ] Leaning to left [ ] Leaning to right [ ] Sitting upright [ ] Unknown Indicate all letters that apply and describe if other than above

Describe any additional information here:

OCCUPANT DATA QUESTIONS (continued)

	OCCUPANT # 4	OCCUPANT # ___	OCCUPANT # ___
Describe feet and hands/arms location just prior to impact (indicate all that apply) **FEET** A) On floor or foot controls B) One or both on dash C) One or both on seat D) Other (specify) E) Unknown **HANDS / ARMS** F) Both hands on steering wheel G) One on wheel, other hand resting or adjusting a control (specify hand on wheel and control involved) H) Dialing a cellular phone (specify location and type of phone) I) Holding a cellular phone (specify location and type of phone) J) Bracing with one or both hands K) On lap L) One or both out of window (specify) M) Other (specify) N) Unknown	Indicate all letters that apply and further describe as needed Both on floor N	Indicate all letters that apply and further describe as needed	Indicate all letters that apply and further describe as needed
Was your / their back up against the seat back?	[ ] No (describe) [X] Yes [ ] Unknown	[ ] No (describe) [ ] Yes [ ] Unknown	[ ] No (describe) [ ] Yes [ ] Unknown
Does this seat position have an adjustable seat *track*, if so where was the seat located prior to impact?	[X] Not adjustable [ ] Seat all the way forward [ ] Between forward and middle [ ] At middle position [ ] Between middle and rear position [ ] Seat all the way rearward [ ] Unknown	[ ] Not adjustable [ ] Seat all the way forward [ ] Between forward and middle [ ] At middle position [ ] Between middle and rear position [ ] Seat all the way rearward [ ] Unknown	[ ] Not adjustable [ ] Seat all the way forward [ ] Between forward and middle [ ] At middle position [ ] Between middle and rear position [ ] Seat all the way rearward [ ] Unknown
Does this seat position have an adjustable seat *back*, if so where was the seat *back* located prior to impact?	[X] Not adjustable [ ] Completely upright [ ] Slightly reclined [ ] Completely reclined	[ ] Not adjustable [ ] Completely upright [ ] Slightly reclined [ ] Completely reclined	[ ] Not adjustable [ ] Completely upright [ ] Slightly reclined [ ] Completely reclined
If this seat position has an adjustable seat *back*, where was the seat *back* located after impact?	[X] Not adjustable [ ] Did not move (retained original position) [ ] Completely reclined [ ] Slightly reclined [ ] Completely upright [ ] Slightly forward of upright [ ] Completely forward [ ] Unknown	[ ] Not adjustable [ ] Did not move (retained original position) [ ] Completely reclined [ ] Slightly reclined [ ] Completely upright [ ] Slightly forward of upright [ ] Completely forward [ ] Unknown	[ ] Not adjustable [ ] Did not move (retained original position) [ ] Completely reclined [ ] Slightly reclined [ ] Completely upright [ ] Slightly forward of upright [ ] Completely forward [ ] Unknown

RESTRAINT INFORMATION

	OCCUPANT # 4	OCCUPANT # ___	OCCUPANT # ___
Describe the seat belt available for the seat position **NOTE: If a belt is not available for a seat position -- describe if removed or not functional.**	[ ] Unknown [X] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Not available * * Describe:	[ ] Unknown [ ] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Not available * * Describe:	[ ] Unknown [ ] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Not available * * Describe:
** SKIP THESE QUESTIONS FOR REAR SEATED OCCUPANTS ** **Do any of the belts move along a motorized track for this seat?**	[ ] Unknown [ ] No [ ] Yes * * **If "Yes", were they working properly?** [ ] Yes [ ] No (describe):	[ ] Unknown [ ] No [ ] Yes * * **If "Yes", were they working properly?** [ ] Yes [ ] No (describe):	[ ] Unknown [ ] No [ ] Yes * * **If "Yes", were they working properly?** [ ] Yes [ ] No (describe):
Do any of the belts attach to the door such that when the door is opened the belt travels with the door?	[ ] Unknown [ ] No [ ] Yes * * **If "Yes", does it cross:** ___ Chest ___ Lap ___ Both	[ ] Unknown [ ] No [ ] Yes * * **If "Yes", does it cross:** ___ Chest ___ Lap ___ Both	[ ] Unknown [ ] No [ ] Yes * * **If "Yes", does it cross:** ___ Chest ___ Lap ___ Both
Were you [and other occupant(s)] wearing a seat belt during the accident?	[ ] No [X] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown
SKIP THE FOLLOWING IF NO SEAT BELT WAS WORN			
What type of belt were you [and other occupant(s)] wearing?	[X] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Unknown	[ ] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Unknown	[ ] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Unknown
How was the lap belt situated?	[ ] Low on lap [X] Across stomach [ ] Other (specify): _____ _____ [ ] Unknown	[ ] Low on lap [ ] Across stomach [ ] Other (specify): _____ _____ [ ] Unknown	[ ] Low on lap [ ] Across stomach [ ] Other (specify): _____ _____ [ ] Unknown
How was the shoulder belt situated?	[ ] Over shoulder [ ] Under the arm [ ] Behind back [ ] Behind seat [ ] Other (specify): _____ _____	[ ] Over shoulder [ ] Under the arm [ ] Behind back [ ] Behind seat [ ] Other (specify): _____ _____	[ ] Over shoulder [ ] Under the arm [ ] Behind back [ ] Behind seat [ ] Other (specify): _____ _____

Describe any breaks, tears, or failures to any of the seat belts:

EJECTION, ENTRAPMENT, MOBILITY INFORMATION

	OCCUPANT # 4	OCCUPANT # ___	OCCUPANT # ___
Was any part of your body thrown outside the vehicle during the crash?	[X] No [ ] Yes * [ ] Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.	[ ] No [ ] Yes * [ ] Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.	[ ] No [ ] Yes * [ ] Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.
Was anyone pinned in the vehicle?	[X] No [ ] Yes ___ physically pinned ___ jammed doors ___ fire, etc. [ ] Unknown Detail any entrapment	[ ] No [ ] Yes ___ physically pinned ___ jammed doors ___ fire, etc., [ ] Unknown Detail any entrapment	[ ] No [ ] Yes ___ physically pinned ___ jammed doors ___ fire, etc. [ ] Unknown Detail any entrapment
How did you [and other occupant(s)] exit the vehicle?	[ ] Fatal before removed [ ] Removed while unconscious or disoriented [ ] Removed due to injuries [ ] Exited with some assistance [X] Exited under own power [ ] Fully ejected [ ] Unknown	[ ] Fatal before removed [ ] Removed while unconscious or disoriented [ ] Removed due to injuries [ ] Exited with some assistance [ ] Exited under own power [ ] Fully ejected [ ] Unknown	[ ] Fatal before removed [ ] Removed while unconscious or disoriented [ ] Removed due to injuries [ ] Exited with some assistance [ ] Exited under own power [ ] Fully ejected [ ] Unknown

Further describe any ejection, entrapment, or mobility information here:

AIR BAG INFORMATION

WAS THIS VEHICLE EVER EQUIPPED WITH AN AIR BAG?

[X] YES (IF "YES" COMPLETE THIS SECTION)

[ ] NO [ ] UNKNOWN (IF "NO" OR "UNKNOWN" SKIP THIS SECTION)

	"OTHER" AIR BAG SPECIFY: ______ OCCUPANT # __	"OTHER" AIR BAG SPECIFY: ______ OCCUPANT # __	"OTHER" AIR BAG SPECIFY: ______ OCCUPANT # __
Had this vehicle been in any previous crashes? [ ] NO [ ] YES - continue to right [ ] UNKNOWN - go to box below	[ ] Prior crash without deployment [ ] One prior crash with deployment [ ] >1, with at least one deployment [ ] Previous accident(s) unknown if deployed IF PRIOR DEPLOYMENT [ ] CHECK IF NOT REINSTALLED	[ ] Prior crash without deployment [ ] One prior crash with deployment [ ] >1, with at least one deployment [ ] Previous accident(s) unknown if deployed IF PRIOR DEPLOYMENT [ ] CHECK IF NOT REINSTALLED	[ ] Prior crash without deployment [ ] One prior crash with deployment [ ] >1, with at least one deployment [ ] Previous accident(s) unknown if deployed IF PRIOR DEPLOYMENT [ ] CHECK IF NOT REINSTALLED
Type of air bag?	[ ] Original equipment [ ] Retrofitted [ ] Replacement [ ] Unknown	[ ] Original equipment [ ] Retrofitted [ ] Replacement [ ] Unknown	[ ] Original equipment [ ] Retrofitted [ ] Replacement [ ] Unknown
Had any prior maintenance / service been performed on the air bag system?	[ ] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:
Did the air bag inflate during this crash?	[ ] Yes [ ] Unknown [ ] No If "NO" was the wiring disconnected prior to the crash? [ ] Yes [ ] No [ ] Unk	[ ] Yes [ ] Unknown [ ] No If "NO" was the wiring disconnected prior to the crash? [ ] Yes [ ] No [ ] Unk	[ ] Yes [ ] Unknown [ ] No If "NO" was the wiring disconnected prior to the crash? [ ] Yes [ ] No [ ] Unk
Was the person in this position wearing any type of eye-wear? (Eyeglasses, sunglasses, contact lenses)	[ ] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:
Was the air bag in this position contacted by another occupant?	[ ] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:	[ ] No [ ] Unknown [ ] Yes - Specify:

Describe any additional information here:

CHILD SAFETY SEAT INFORMATION

WAS THERE A PERSON IN A CHILD SAFETY SEAT IN THIS VEHICLE?

[ ] YES (IF "YES" COMPLETE THIS SECTION)

[X] NO [ ] UNKNOWN (IF "NO" OR "UNKNOWN" SKIP THIS SECTION)

	OCCUPANT # __	OCCUPANT # __	OCCUPANT # __
Manufacturer and model of the safety seat?			
Type of safety seat?	[ ] Infant [ ] Toddler [ ] Convertible [ ] Booster [ ] Integral [ ] Other Specify: ________ [ ] Unknown	[ ] Infant [ ] Toddler [ ] Convertible [ ] Booster [ ] Integral [ ] Other Specify: ________ [ ] Unknown	[ ] Infant [ ] Toddler [ ] Convertible [ ] Booster [ ] Integral [ ] Other Specify: ________ [ ] Unknown
What direction was it facing prior to the crash?	[ ] Front [ ] Rearward [ ] Unknown	[ ] Front [ ] Rearward [ ] Unknown	[ ] Front [ ] Rearward [ ] Unknown
Was a seat belt used to hold the seat in place?	[ ] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown
How was the seat belt secured to the child seat?	[ ] Looped through designated rear framing studs [ ] Looped through arm rest slots [ ] Belt across safety shield [ ] Looped through rear frame outside the designated framing struts [ ] Other (specify): ________ [ ] Unknown	[ ] Looped through designated rear framing studs [ ] Looped through arm rest slots [ ] Belt across safety shield [ ] Looped through rear frame outside the designated framing struts [ ] Other (specify): ________ [ ] Unknown	[ ] Looped through designated rear framing studs [ ] Looped through arm rest slots [ ] Belt across safety shield [ ] Looped through rear frame outside the designated framing struts [ ] Other (specify): ________ [ ] Unknown
What was the safety seat equipped with at time of purchase?	[ ] Harness [ ] Shield [ ] Tether [ ] Unknown	[ ] Harness [ ] Shield [ ] Tether [ ] Unknown	[ ] Harness [ ] Shield [ ] Tether [ ] Unknown
Were any of these added after they owned the safety seat?	[ ] Harness [ ] Shield [ ] Tether [ ] None [ ] Unknown	[ ] Harness [ ] Shield [ ] Tether [ ] None [ ] Unknown	[ ] Harness [ ] Shield [ ] Tether [ ] None [ ] Unknown

Describe any additional information here:

INJURY INFORMATION

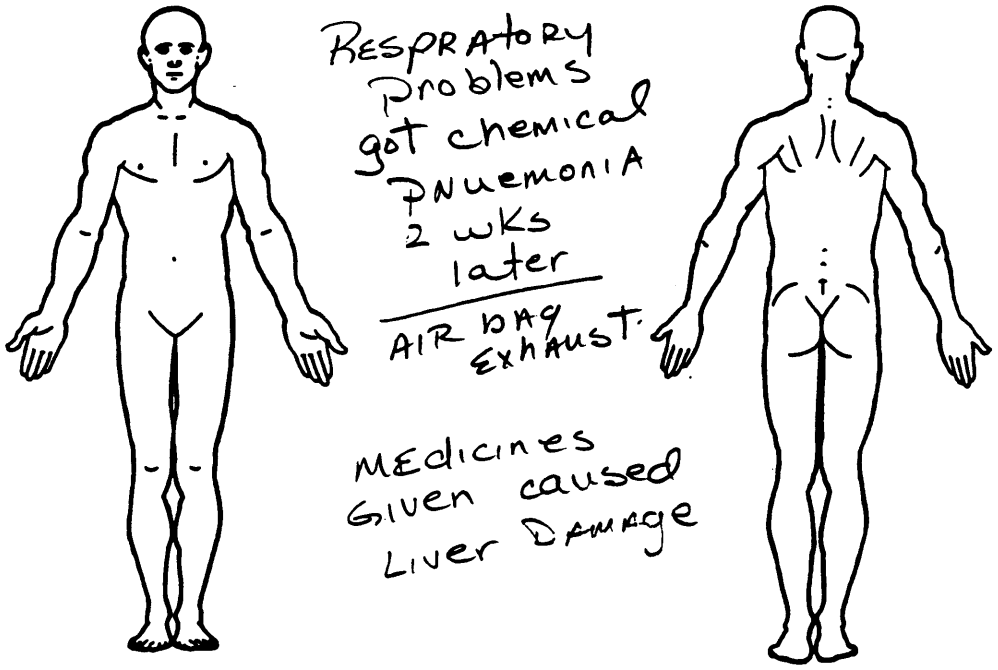
	OCCUPANT # 4	OCCUPANT # ___	OCCUPANT # ___
Were you (or any other occupants) injured? ▸ *If "YES" go to manikin page and record injuries in detail* ▸ *If "NO" ask next questions*	[ ] No [X] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown
Did you (or any other occupants) receive any of the following: *(If any injuries are checked, go to the manikin page and record location, lesion, and source)*	[ ] Cuts [ ] Abrasions [ ] Bruises [ ] Broken bones [ ] Head, skull, brain [ ] Internal injury [ ] Sprains, strains [X] Other (specify): Respiratory Problems	[ ] Cuts [ ] Abrasions [ ] Bruises [ ] Broken bones [ ] Head, skull, brain [ ] Internal injury [ ] Sprains, strains [ ] Other (specify):	[ ] Cuts [ ] Abrasions [ ] Bruises [ ] Broken bones [ ] Head, skull, brain [ ] Internal injury [ ] Sprains, strains [ ] Other (specify):
IF OCCUPANT(S) SUSTAINED ANY INJURIES (ANY BOXES CHECKED): DETAIL INJURY LOCATION, LESION, AND SOURCE ON THE MANIKIN PAGE(S)			
Did you (or any other occupants) receive any medical treatment? (check all that apply)	[X] Hospital 2 wks later [ ] Medical clinic [ ] Paramedics at scene [ ] Doctor's office [ ] Treated by self [ ] Unknown	[ ] Hospital [ ] Medical clinic [ ] Paramedics at scene [ ] Doctor's office [ ] Treated by self [ ] Unknown	[ ] Hospital [ ] Medical clinic [ ] Paramedics at scene [ ] Doctor's office [ ] Treated by self [ ] Unknown
Were you (or any other occupants) hospitalized?	[ ] No [X] Yes - number of days [ ] Unknown	[ ] No [ ] Yes - number of days [ ] Unknown	[ ] No [ ] Yes - number of days [ ] Unknown
Were you (or any other occupants) treated and released from the emergency room?	[X] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown
Name of medical treatment facility?	[redacted] Hosp.		
Have you (or any other occupants) received any follow-up treatment?	[ ] No [X] Yes - describe: couple weeks later MEDICation for Respiratory prob. [ ] Unknown	[ ] No [ ] Yes - describe: [ ] Unknown	[ ] No [ ] Yes - describe: [ ] Unknown
Have you (or any other occupants) lost any days from work or school (college) due to the crash?	[X] No Retired [ ] Not working prior to crash [ ] Yes - number of days [ ] Unknown	[ ] No [ ] Not working prior to crash [ ] Yes - number of days [ ] Unknown	[ ] No [ ] Not working prior to crash [ ] Yes - number of days [ ] Unknown
IF REQUIRED: Will you sign a medical release? * *If not an in-person interview, make appointment to have release signed*	[ ] No [X] Yes* [ ] Unknown DATE: ___ TIME: ___ PLACE: ___	[ ] No [ ] Yes* [ ] Unknown DATE: ___ TIME: ___ PLACE: ___	[ ] No [ ] Yes* [ ] Unknown DATE: ___ TIME: ___ PLACE: ___

PSU Number 10 Case Number—Stratum 9502 Vehicle Number 01 Occupant Number 04

INJURY DATA FROM INTERVIEWEE(S)

Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): DRIVER/ DAUGHTER

SOFT TISSUE/INTERNAL INJURIES

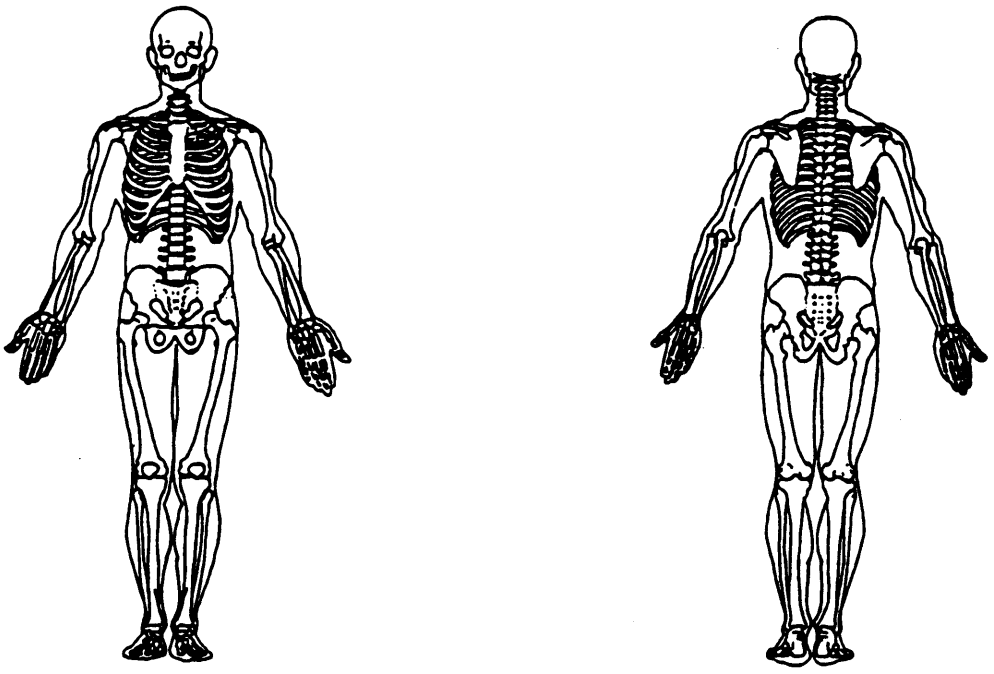


RESPIRATORY Problems got chemical PNUEMONIA 2 wks later

AIR BAG EXHAUST

MEDICINES GIVEN CAUSED LIVER DAMAGE

SKELETAL INJURIES



The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

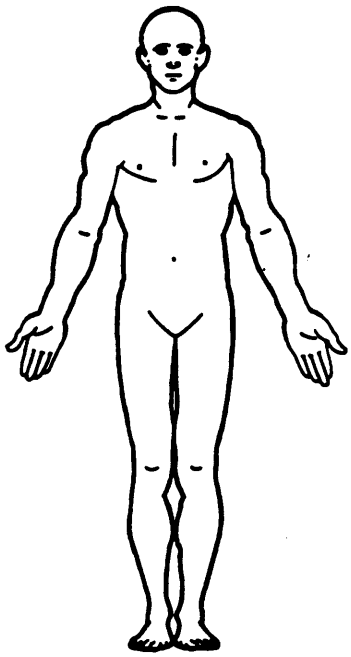
PSU Number 10 Case Number—Stratum 9502 Vehicle Number 01 Occupant Number NA

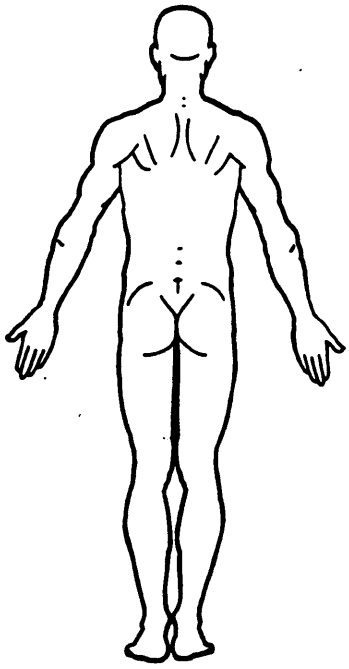
INJURY DATA FROM INTERVIEWEE(S)

Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): _____

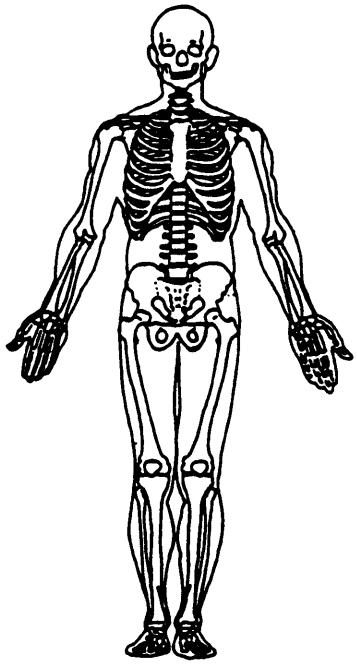
_____

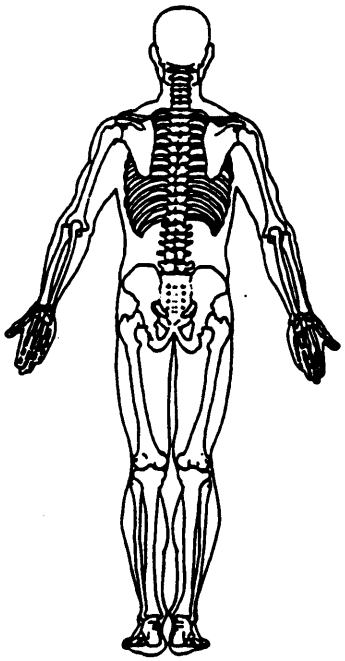
SOFT TISSUE/INTERNAL INJURIES





SKELETAL INJURIES





The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

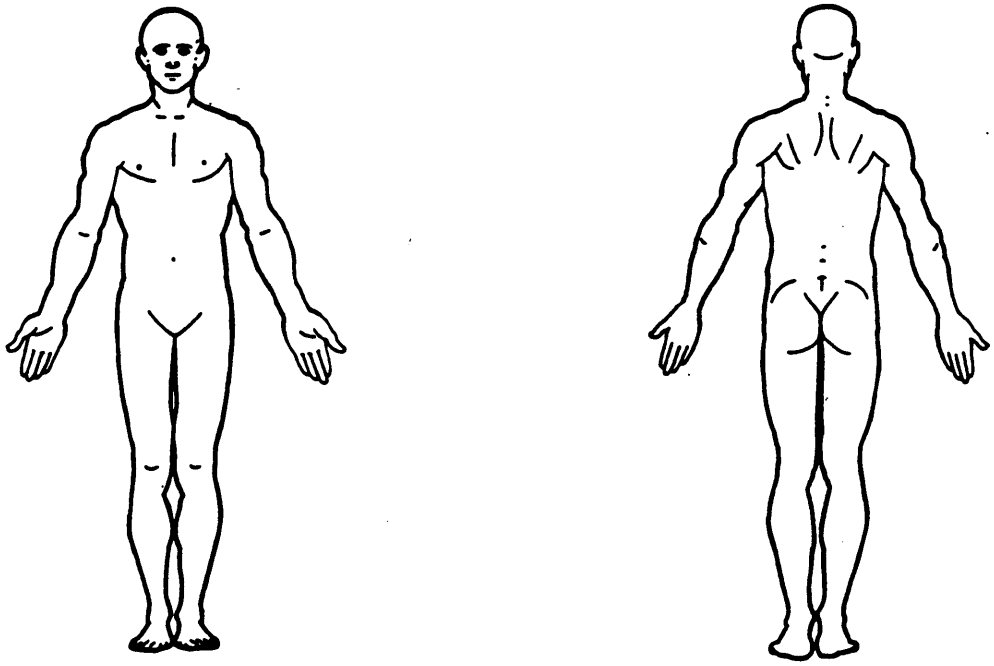
PSU Number 10 Case Number—Stratum 9502 Vehicle Number 01 Occupant Number NA

INJURY DATA FROM INTERVIEWEE(S)

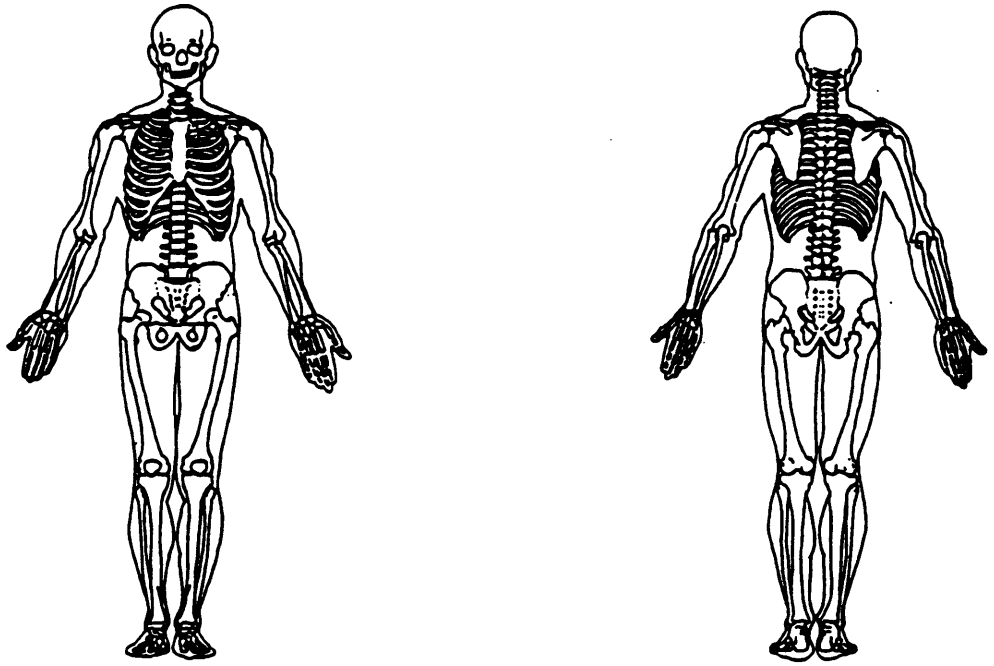
Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): _____

_____

SOFT TISSUE/INTERNAL INJURIES



SKELETAL INJURIES



The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

Appendix E:

NASS CDS Occupant Assessment Form:

Case Vehicle Driver

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

OCCUPANT ASSESSMENT FORM

Form Approved
O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9502
3. Vehicle Number: 01
4. Occupant Number: 01

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age: PAR 46
   Code actual age at time of accident.
   (00) Less than one year old (specify by month): _____
   (97) 97 years and older
   (99) Unknown

6. Occupant's Sex: 2
   (1) Male
   (2) Female-not reported pregnant
   (3) Female-pregnant-1st trimester(1st-3rd month)
   (4) Female-pregnant-2nd trimester(4th-6th month)
   (5) Female-pregnant-3rd trimester(7th-9th month)
   (6) Female-pregnant-term unknown
   (9) Unknown

7. Occupant's Height: 160
   Code actual height to the nearest centimeter.
   (999) Unknown
   63 inches X 2.54 = 160 centimeters

8. Occupant's Weight: 091
   Code actual weight to the nearest kilogram.
   (999)Unknown
   200 pounds X .4536 = 90.72 kilograms

9. Occupant's Role: 1
   (1) Driver
   (2) Passenger
   (9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position: 11
   Front Seat
   (11) Left side
   (12) Middle
   (13) Right side
   (14) Other (specify): _____
   (15) On or in the lap of another occupant

   Second Seat
   (21) Left side
   (22) Middle
   (23) Right side
   (24) Other (specify): _____
   (25) On or in the lap of another occupant

   Third Seat
   (31) Left side
   (32) Middle
   (33) Right side
   (34) Other (specify): _____
   (35) On or in the lap of another occupant

   Fourth Seat
   (41) Left side
   (42) Middle
   (43) Right side
   (44) Other (specify): _____
   (45) On or in the lap of another occupant

   (97) In or on unenclosed area
   (98) Other seat (specify): _____
   (99) Unknown

11. Occupant's Posture: 0
   (0) Normal posture

   Abnormal posture
   (1) Kneeling or standing on seat
   (2) Lying on or across seat
   (3) Kneeling, standing or sitting in front of seat
   (4) Sitting sideways or turned to talk with another occupant or to look out a rear window
   (5) Sitting on a console
   (6) Lying back in a reclined seat position
   (7) Bracing with feet or hands on a surface in front of seat
   (8) Other abnormal posture (specify): _____
   (9) Unknown

EJECTION/ENTRAPMENT

12. Ejection 0
    (0) No ejection
    (1) Complete ejection
    (2) Partial ejection
    (3) Ejection, unknown degree
    (9) Unknown

13. Ejection Area 0
    (0) No ejection
    (1) Windshield
    (2) Left front
    (3) Right front
    (4) Left rear
    (5) Right rear
    (6) Rear
    (7) Roof
    (8) Other area (e.g., back of pickup, etc.)
    (specify):_____
    (9) Unknown

14. Ejection Medium 0
    (0) No ejection
    (1) Door/hatch/tailgate
    (2) Nonfixed roof structure
    (3) Fixed glazing
    (4) Nonfixed glazing (specify):
    _____
    (5) Integral structure
    (8) Other medium (specify):
    _____
    (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0
    (0) No ejection
    (1) Open
    (2) Closed
    (3) Integral structure
    (9) Unknown

16. Entrapment 0
    (0) Not entrapped/exit not inhibited
    (1) Entrapped/pinned - mechanically restrained
    (2) Could not exit vehicle due to jammed doors, fire, etc.
    (specify):_____
    _____
    (9) Unknown

17. Occupant Mobility 4
    (0) Occupant fatal before removed from vehicle
    (1) Removed from vehicle while unconscious or disoriented
    (2) Removed from vehicle due to injuries
    (3) Exited vehicle with some assistance
    (4) Exited vehicle under own power
    (5) Occupant fully ejected
    (9) Unknown

BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability 4
(0) None available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown

Integral Belt Partially Destroyed
(6) Shoulder belt (lap belt destroyed/removed)
(7) Lap belt (shoulder belt destroyed/removed)
(8) Other belt (specify): _____
(9) Unknown

19. Manual (Active) Belt System Use 04
(00) None used, not available, or belt removed/destroyed
(01) Inoperative (specify): _____
(02) Shoulder belt
(03) Lap belt
(04) Lap and shoulder belt
(05) Belt used—type unknown
(08) Other belt used (specify): _____
(12) Shoulder belt used with child safety seat
(13) Lap belt used with child safety seat
(14) Lap and shoulder belt used with child safety seat
(15) Belt used with child safety seat—type unknown
(18) Other belt used with child safety seat (specify): _____
(99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 1
(0) None used or not available
(1) Belt used properly
(2) Belt used properly with child safety seat

Belt Used Improperly
(3) Shoulder belt worn under arm
(4) Shoulder belt worn behind back or seat
(5) Belt worn around more than one person
(6) Lap belt worn on abdomen
(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): _____
(8) Other improper use of manual belt system (specify): _____
(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 9
(0) No manual belt used or not available
(1) No manual belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify): _____
(6) Broken retractor
(7) Combination of above (specify): _____
(8) Other manual belt failure (specify): _____
(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment 9
(0) No shoulder belt
(1) No upper anchorage adjustment for shoulder belt

Adjustable shoulder Belt Upper Anchorage
(2) In full up position
(3) In mid position
(4) In full down position
(5) Position unknown
(9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/ Function 0
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

24. Automatic (Passive) Belt System Use 0
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): _____
(3) Automatic belt use unknown
(9) Unknown

25. Automatic (Passive) Belt System Type 0
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): _____
(8) Other improper use of automatic belt system (specify): _____
(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify): _____
(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify): _____
(9) Unknown

POLICE REPORTED RESTRAINT USE

28. Police Reported Belt Use 4
    (0) None used
    (1) Police did not indicate belt use
    (2) Shoulder belt
    (3) Lap belt
    (4) Lap and shoulder belt
    (5) Belt used, type not specified
    (6) Child safety seat
    (7) Automatic belt
    (8) Other type belt, (specify): _____
    (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 1
    (0) No air bag available
    (1) Police did not indicate air bag availability/function
    (2) Deployed
    (3) Not deployed
    (4) Unknown if deployed
    (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

[ ] Not equipped/not available/destroyed or rendered inoperative
[ ] Vehicle inspection
[ ] Official injury data
[X] Driver/occupant interview
[ ] Other (specify): _____
[ ] Unknown if belt used

AIR BAG SYSTEM FUNCTION

30. Frontal Air Bag System Availability/Function (This Occupant Position) 1
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 1
    (0) Not equipped/not available
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown
    Specify type of "other" air bag present: _____

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0
    (0) Not equipped with an "other" air bag
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) 1
    (0) Not equipped/not available
    (1) No — Per Service Manager
    (2) Yes (specify): Rupture — Driver
    (9) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 1
(0) Not equipped/not available
(1) No previous accidents

Yes
(2) Previous accident(s) without deployment(s)
(3) One previous accident with deployment
(4) More than one previous accident with at least one deployment
(8) Previous accidents, unknown deployment status
(9) Unknown

36. Type of Air Bag 1
(0) Not equipped/not available
(1) Original manufacturer installed system
(2) Retrofitted air bag
(3) Replacement air bag
(8) Unknown type of air bag
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 1
(0) Not equipped/not available
(1) No prior maintenance
(2) Yes, prior maintenance (specify): _____
(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 01
(00) Not equipped/not available
_____ Code the accident event sequence number that initiated the air bag deployment
(96) Deployed, unknown event
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

39. CDC For Air Bag Deployment Impact 1
(0) Not equipped/not available
(1) Highest delta V
(2) Second highest delta V
(3) Other non-coded delta V (specify): _____
(6) Deployed, unknown event
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

40. Longitudinal Component of Delta V For Air Bag Deployment Impact +/- 999
(_000) Not equipped/not available
Code the value of the delta V for the impact that initiated the air bag deployment
(_996) Deployment, unknown longitudinal Delta V
(_997) Not deployed
(_998) Unknown if deployed
(_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 9
(0) Not equipped/not available
(1) No
(2) Yes
(3) Deployed, unknown if flap(s) opened at designated tear points
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 9
(0) Not equipped/not available
(1) No
(2) Yes (specify): _____
(3) Deployed, unknown if air bag module cover flap(s) damaged
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

43. Was There Damage To The Air Bag? 01
(00) Not equipped/not available
(01) Not damaged — Per Service Manager

Yes - Air Bag Damage
(02) Ruptured — Driver
(03) Cut
(04) Torn
(05) Holed
(06) Burned
(07) Abraded
(88) Other damage (specify): _____
(95) Damaged, details unknown
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION *continued*

44. Source of Air Bag Damage 01
(00) Not equipped/not available
(01) Not damaged
(02) Object worn by occupant, (specify):
(03) Object carried by occupant, (specify):
(04) Adaptive/assistive controls, (specify):
(05) Fire in vehicle
(06) Thermal burns
(07) Rescue or emergency efforts
(88) Other damage source (specify):
(95) Damaged, unknown source
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

45. Was The Air Bag Tethered? 9
(0) Not equipped/not available
(1) No
(2) Yes (specify number of tether straps):
(3) Deployed, unknown if tethered
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

46. Did The Air Bag Have Vent Ports? 9
(0) Not equipped/not available
(1) No
(2) Yes (specify number of vent ports):
(3) Deployed, unknown if vent ports present
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 1
(0) Not equipped/not available
(1) No
(2) Yes (specify):
(3) Deployed, unknown if other occupant contact to air bag
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

48. Was This Occupant Wearing Eye-wear? 2
(0) Not equipped/not available
(1) No
(2) Eyeglasses/sunglasses
(3) Contact lenses
(4) Deployed, unknown if eyewear worn
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION

49. Head Restraint Type/Damage by Occupant at This Occupant Position 9
(0) No head restraints
(1) Integral—no damage
(2) Integral—damaged during accident
(3) Adjustable—no damage
(4) Adjustable—damaged during accident
(5) Add-on—no damage
(6) Add-on—damaged during accident
(8) Other (specify):
(9) Unknown

50. Seat Type (this Occupant Position) 99
(00) Occupant not seated or no seat
(01) Bucket
(02) Bucket with folding back
(03) Bench
(04) Bench with separate back cushions
(05) Bench with folding back(s)
(06) Split bench with separate back cushions
(07) Split bench with folding back(s)
(08) Pedestal (i.e., column supported)
(09) Box mounted seat (i.e., van type)
(10) Other seat type (specify):
(99) Unknown

51. Seat Orientation (this Occupant Position) 9
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
(9) Unknown

52. Seat Track Adjusted Position Prior To Impact 3
(0) Occupant not seated or no seat
(1) Non-adjustable seat track

Adjustable Seat Track
(2) Seat at forward most track position
(3) Seat between forward most and middle track positions
(4) Seat at middle track position
(5) Seat between middle and rear most track positions
(6) Seat at rear most track position
(9) Unknown

PER interviewee

HEAD RESTRAINT AND SEAT EVALUATION *continued*

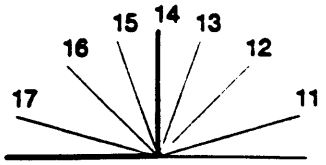
53. Seat Back Incline Prior and Post Impact 01
    (00) Occupant not seated or no seat
    (01) Not adjustable

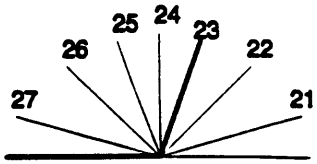
    Upright prior to impact
    (11) Moved to completely rearward position
    (12) Moved to rearward midrange position
    (13) Moved to slightly rearward position
    (14) Retained pre-impact position
    (15) Moved to slightly forward position
    (16) Moved to forward midrange position
    (17) Moved to completely forward position

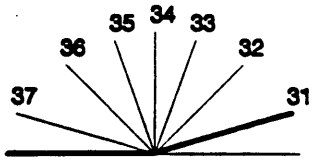
    Slightly reclined prior to impact
    (21) Moved to completely rearward position
    (22) Moved to rearward midrange position
    (23) Retained pre-impact position
    (24) Moved to upright position
    (25) Moved to slightly forward position
    (26) Moved to forward midrange position
    (27) Moved to completely forward position

    Completely reclined prior to impact
    (31) Retained pre-impact position
    (32) Moved to rearward midrange position
    (33) Moved to slightly rearward position
    (34) Moved to upright position
    (35) Moved to slightly forward position
    (36) Moved to forward midrange position
    (37) Moved to completely forward position

    (99) Unknown







54. Seat Performance (this Occupant Position) 9
    (0) Occupant not seated or no seat
    (1) No seat performance failure(s)
    (2) Seat adjusters failed
    (3) Seat back folding locks or "seat back" failed (specify):_____
    (4) Seat track/anchors failed
    (5) Deformed by impact of occupant
    (6) Deformed by passenger compartment intrusion, (specify):_____
    _____
    (7) Combination of above (specify):
    _____
    (8) Other (specify): _____
    (9) Unknown

CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 0 0 0
(000) No child safety seat
Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
(950) Built-in child safety seat
(997) Other make/model (specify):
_____
(998) Unknown make/model
(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat - with shield
(5) Booster seat - without shield
(7) Other type child safety seat (specify):
_____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 0 0
(00) No child safety seat

Designed for Rear Facing for This Age/Weight
(01) Rear facing
(02) Forward facing
(08) Other orientation (specify):
_____
(09) Unknown orientation

Designed For Forward Facing for This Age/Weight
(11) Rear facing
(12) Forward facing
(18) Other orientation (specify):
_____
(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
(21) Rear facing
(22) Forward facing
(28) Other orientation (specify):
_____
(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 0 0

59. Child Safety Seat Shield Usage 0 0

60. Child Safety Seat Tether Usage 0 0

Note: Options below applicable to Variables OA58-OA60.
(00) No child safety seat

Not Designed With Harness/Shield/Tether
(01) After market harness/shield/tether added, not used
(02) After market harness/shield/tether used
(03) Child safety seat used, but no after market harness/shield/tether added
(09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether
(11) Harness/shield/tether not used
(12) Harness/shield/tether used
(19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether
(21) Harness/shield/tether not used
(22) Harness/shield/tether used
(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES

61. Injury Severity (Police Rating) 0

(0) O - No injury
(1) C - Possible injury
(2) B - Nonincapacitating injury
(3) A - Incapacitating injury
(4) K - Killed
(5) U - Injury, severity unknown
(6) Died prior to accident
(9) Unknown

62. Treatment - Mortality 6

(0) No treatment
(1) Fatal
(2) Fatal - ruled disease (specify):

_____

Nonfatal
(3) Hospitalization
(4) Transported and released
(5) Treatment at scene - nontransported
(6) Treatment later
(7) Treatment - other (specify):

_____

(8) Transported to a medical facility-unknown if treated
(9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 2

(0) Not treated at a medical facility
(1) Trauma center
(2) Hospital
(3) Medical clinic
(4) Physician's office
(5) Treatment later at medical facility
(8) Other (specify):

_____

(9) Unknown

64. Hospital Stay 0 0

(00) Not Hospitalized
____Code the number of days (up through 60) that the occupant stayed in hospital.
(61) 61 days or more
(99) Unknown

65. Working Days Lost 1 8

____Code the number of days (up through 60) that the occupant lost from work due to the accident
(00) No working days lost
(61) 61 days or more
(62) Fatally injured
(97) Not working prior to accident
(99) Unknown

STOP WORK HERE

VARIABLES 66-74

TO BE CODED BY THE ZONE CENTER

TO BE CODED BY THE ZONE CENTER

INJURY CONSEQUENCES

66. Time to Death 0 0
_____Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 +n up through 30 days = 60)
(00) Not fatal
(96) Fatal - ruled disease
(99) Unknown

67. 1st Medically Reported Cause of Death 0 0

68. 2nd Medically Reported Cause of Death 0 0

69. 3rd Medically Reported Cause of Death 0 0
_____Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
(00) Not fatal or no additional causes
(96) Mode of death given but specific injuries are not linked to cause of death. (specify):
_____
(97) Other result (includes fatal ruled disease) (specify):
_____
(99) Unknown

70. Number of Recorded Injuries for This Occupant 0 5
_____Code the actual number of injuries recorded for this occupant.
(00) No recorded injuries
(97) Injured, details unknown
(99) Unknown if injured

TRAUMA DATA

71. Glasgow Coma Scale (GCS) Score (at Medical Facility) 0 2
(00) Not injured
(01) Injured - not treated at medical facility
(02) No GCS Score at medical facility
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.
(97) Injured, details unknown
(99) Unknown if injured

72. Was the Occupant Given Blood? 1
(1) No - blood not given
(2) Yes - blood given
(specify units):_____
(9) Unknown if blood given

73. Arterial Blood Gases (ABG) - HCO_3 0 1
(00) Not injured
(01) Injured, ABGs not measured or reported
(02-50) Code the actual value of the HCO_3
(96) ABGs reported , HCO_3 unknown
(97) Injured, details unknown
(99) Unknown if injured

BELT USE DETERMINATION

74. Primary Source of Belt Use Determination 3
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Vehicle inspection
(2) Official injury data
(3) Driver/occupant interview
(8) Other (specify):_____
(9) Unknown if belt used

Appendix F:

NASS CDS Occupant Injury Form:

Case Vehicle Driver

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

OCCUPANT INJURY FORM

Form Approved
O.M.B. No. 2127-0021
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	10	3. Vehicle Number	01
2. Case Number - Stratum	9502	4. Occupant Number	01

INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Data	A.I.S. - 90 Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
1st	5. 7	6. 4	7. 9	8. 04	9. 02	10. 1	11. 4	12. 006	13. 3	14. 1	15. 99
2nd	16. 7	17. 5	18. 9	19. 04	20. 02	21. 1	22. 7	23. 006	24. 3	25. 1	26. 99
3rd	27. 7	28. 7	29. 9	30. 02	31. 02	32. 1	33. 1	34. 170	35. 2	36. 1	37. 00
4th	38. 7	39. 7	40. 9	41. 02	42. 02	43. 1	44. 2	45. 170	46. 2	47. 1	48. 00
5th	49. 7	50. 6	51. 4	52. 02	53. 78	54. 1	55. 6	56. 170	57. 3	58. 1	59. 00
6th	60. __	61. __	62. __	63. __	64. __	65. __	66. __	67. ____	68. __	69. __	70. __
7th	71. __	72. __	73. __	74. __	75. __	76. __	77. __	78. ____	79. __	80. __	81. __
8th	82. __	83. __	84. __	85. __	86. __	87. __	88. __	89. ____	90. __	91. __	92. __
9th	93. __	94. __	95. __	96. __	97. __	98. __	99. __	100. ____	101. __	102. __	103. __
10th	104. __	105. __	106. __	107. __	108. __	109. __	110. __	111. ____	112. __	113. __	114. __

OCCUPANT INJURY DATA

	Source of Injury Data	A.I.S. - 90					Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
		Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity					
11th	—	—	—	— —	— —	—	—	— — —	—	—	— —
12th	—	—	—	— —	— —	—	—	— — —	—	—	— —
13th	—	—	—	— —	— —	—	—	— — —	—	—	— —
14th	—	—	—	— —	— —	—	—	— — —	—	—	— —
15th	—	—	—	— —	— —	—	—	— — —	—	—	— —
16th	—	—	—	— —	— —	—	—	— — —	—	—	— —
17th	—	—	—	— —	— —	—	—	— — —	—	—	— —
18th	—	—	—	— —	— —	—	—	— — —	—	—	— —
19th	—	—	—	— —	— —	—	—	— — —	—	—	— —
20th	—	—	—	— —	— —	—	—	— — —	—	—	— —
21st	—	—	—	— —	— —	—	—	— — —	—	—	— —
22nd	—	—	—	— —	— —	—	—	— — —	—	—	— —
23rd	—	—	—	— —	— —	—	—	— — —	—	—	— —
24th	—	—	—	— —	— —	—	—	— — —	—	—	— —
25th	—	—	—	— —	— —	—	—	— — —	—	—	— —

OCCUPANT INJURY CLASSIFICATION

Body Region

(1) Head
(2) Face
(3) Neck
(4) Thorax
(5) Abdomen
(6) Spine
(7) Upper Extremity
(8) Lower Extremity
(9) Unspecified

Type of Anatomic Structure

(1) Whole Area
(2) Vessels
(3) Nerves
(4) Organs (includes Muscles/ligaments)
(5) Skeletal (includes joints)
(6) Head - LOC
(9) Skin

Specific Anatomic Structure

Vessels, Nerves, Organs. Bones, Joints are assigned consecutive two digit numbers beginning with 02.

The exceptions to this rule apply to:

Whole Area
(02) Skin - Abrasion
(04) Skin - Contusion
(06) Skin - Laceration
(08) Skin - Avulsion
(10) Amputation
(20) Burn
(30) Crush
(40) Degloving
(50) Injury - NFS
(90) Trauma, other than mechanical

Head - LOC
(02) Length of LOC

(04) Level
(06) of
(08) Consciousness

(10) Concussion

Spine
(02) Cervical
(04) Thoracic
(06) Lumbar

Level of Injury

Specific injuries are assigned consecutive two-digit numbers beginning with 02.

To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.

Abbreviated Injury Scale

(1) Minor Injury
(2) Moderate Injury
(3) Serious Injury
(4) Severe Injury
(5) Critical Injury
(6) Maximum (untreatable)
(7) Injured, unknown severity

Aspect

(1) Right
(2) Left
(3) Bilateral
(4) Central
(5) Anterior
(6) Posterior
(7) Superior
(8) Inferior
(9) Unknown
(0) Whole region

SOURCE OF INJURY DATA

OFFICIAL RECORDS
(1) Autopsy records with or without hospital/medical records
(2) Hospital/medical records other than emergency room (e.g., discharge summary)
(3) Emergency room records only (including associated X-rays or other lab reports)
(4) Private physician, walk-in or emergency clinic

UNOFFICIAL RECORDS
(5) Lay coroner report
(6) E.M.S. personnel
(7) Interviewee
(8) Other source (specify): _____
(9) Police

INJURY SOURCE CONFIDENCE LEVEL

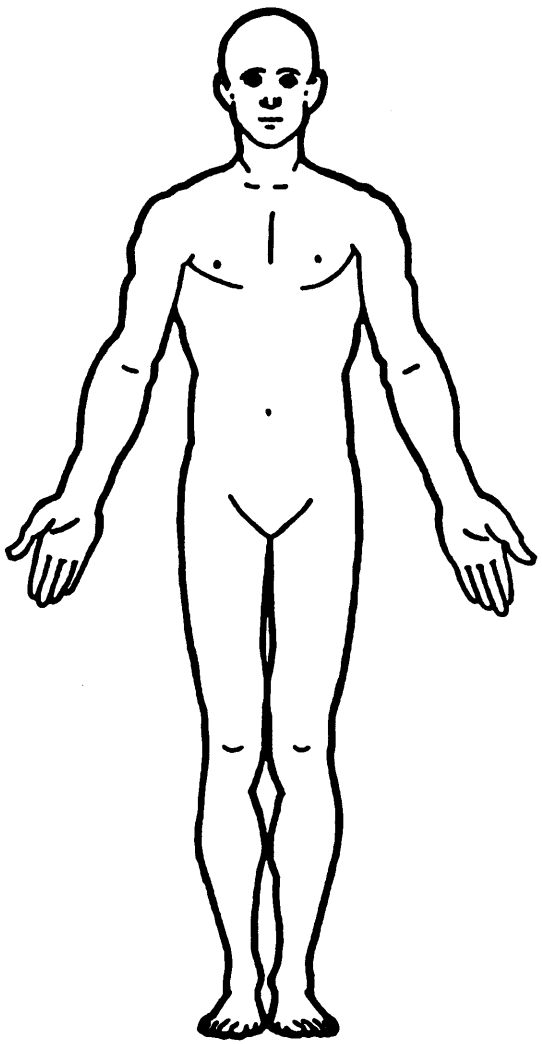
(1) Certain
(2) Probable
(3) Possible
(9) Unknown

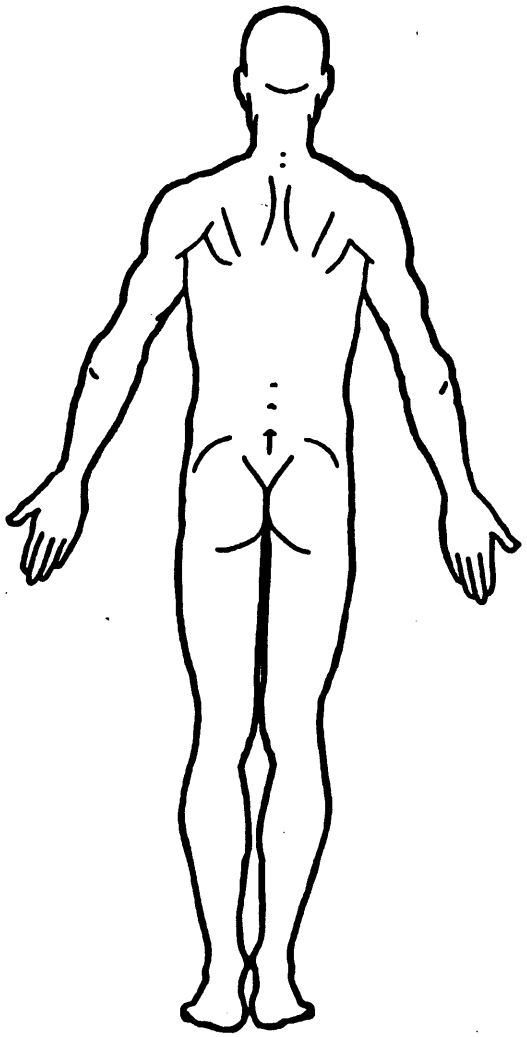
DIRECT/INDIRECT INJURY

(1) Direct contact injury
(2) Indirect contact injury
(3) Noncontact injury
(7) Injured, unknown source

OFFICIAL INJURY DATA — SOFT TISSUE INJURIES

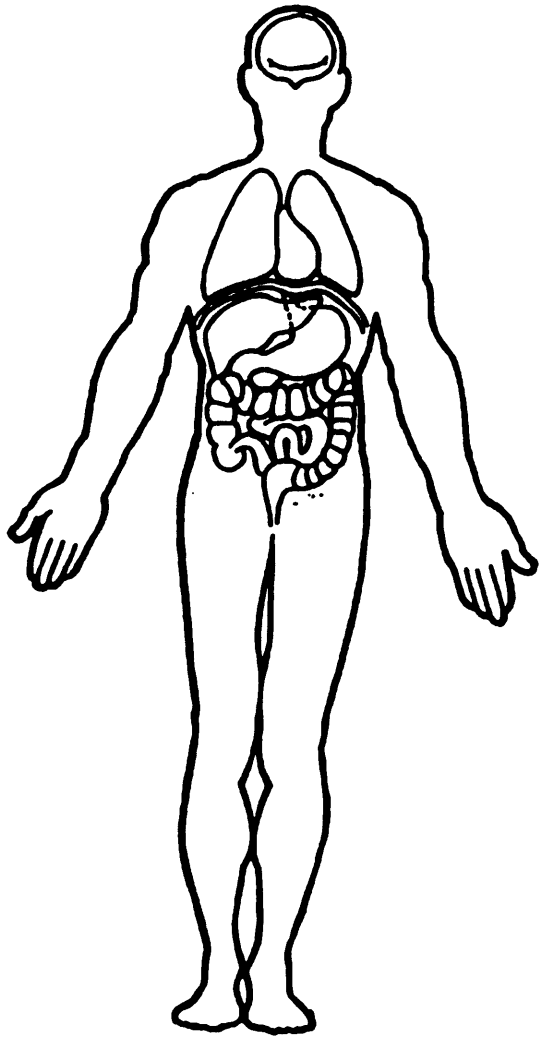
Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

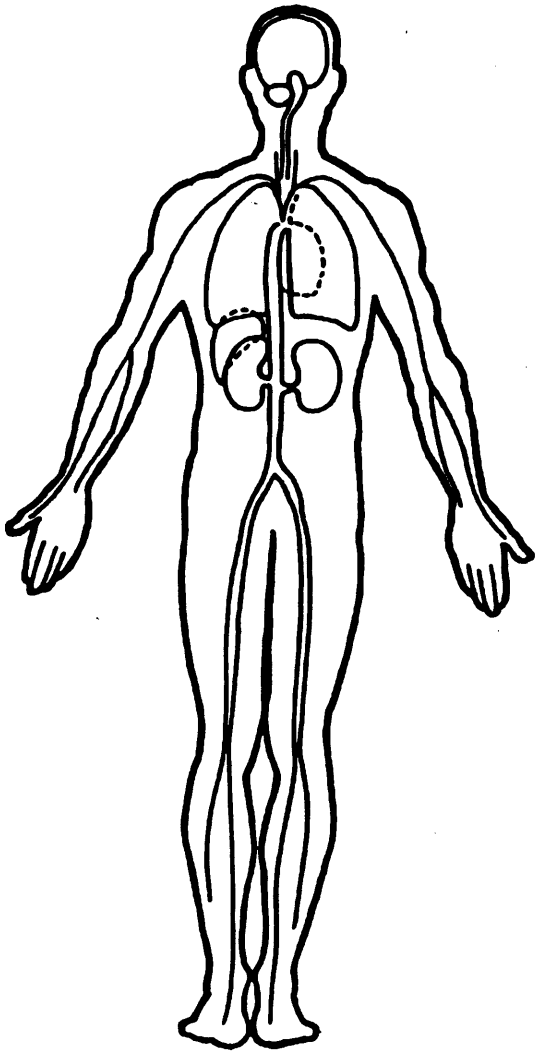




OFFICIAL INJURY DATA – INTERNAL INJURIES

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)





INJURY SOURCES

FRONT
(001) Windshield
(002) Mirror
(003) Sunvisor
(004) Steering wheel rim
(005) Steering wheel hub/spoke
(006) Steering wheel (combination of codes 004 and 005)
(007) Steering column, transmission selector lever, other attachment
(008) Cellular telephone or CB radio
(009) Add on equipment (e.g., tape deck, air conditioner)
(010) Left instrument panel and below
(011) Center instrument panel and below
(012) Right instrument panel and below
(013) Glove compartment door
(014) Knee bolster
(015) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
(016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
(017) Windshield reinforced by exterior object (specify)

(019) Other front object (specify):

LEFT SIDE
(051) Left side interior surface, excluding hardware or armrests
(052) Left side hardware or armrest
(053) Left A (A1/A2)-pillar
(054) Left B-pillar
(055) Other left pillar (specify):

(056) Left side window glass
(057) Left side window frame
(058) Left side window sill
(059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(060) Other left side object (specify):

RIGHT SIDE
(101) Right side interior surface, excluding hardware or armrests
(102) Right side hardware or armrest
(103) Right A (A1/A2)-pillar
(104) Right B-pillar
(105) Other right pillar (specify):

(106) Right side window glass
(107) Right side window frame
(108) Right side window sill
(109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(110) Other right side object (specify):

INTERIOR
(151) Seat, back support
(152) Belt restraint webbing/buckle
(153) Belt restraint B-pillar or door frame attachment point
(154) Other restraint system component (specify):

(155) Head restraint system
(160) Other occupants (specify):

(161) Interior loose objects
(162) Child safety seat (specify):

(163) Other interior object (specify):

AIR BAG
(170) Air bag-driver side
(171) Air bag-driver side and eyewear
(172) Air bag-driver side and jewelry
(173) Air bag-driver side and object held
(174) Air bag-driver side and object in mouth
(175) Air bag compartment cover-driver side
(176) Air bag compartment cover-driver side and eyewear
(177) Air bag compartment cover-driver side and jewelry
(178) Air bag compartment cover-driver side and object held
(179) Air bag compartment cover-driver side and object in mouth
(180) Air bag-passenger side
(181) Air bag-passenger side and eyewear
(182) Air bag-passenger side and jewelry
(183) Air bag-passenger side and object held
(184) Air bag-passenger side and object in mouth
(185) Air bag compartment cover-passenger side
(186) Air bag compartment cover-passenger side and eyewear
(187) Air bag compartment cover-passenger side and jewelry
(188) Air bag compartment cover-passenger side and object held
(189) Air bag compartment cover-passenger side and object in mouth
(190) Other air bag (specify)

(195) Other air bag compartment cover (specify)

ROOF
(201) Front header
(202) Rear header
(203) Roof left side rail
(204) Roof right side rail
(205) Roof or convertible top

FLOOR
(251) Floor (including toe pan)
(252) Floor or console mounted transmission lever, including console
(253) Parking brake handle
(254) Foot controls including parking brake

REAR
(301) Backlight (rear window)
(302) Backlight storage rack, door, etc.
(303) Other rear object (specify):

ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT
(401) Hand controls for braking/acceleration
(402) Steering control devices (attached to OEM steering wheel)
(403) Steering knob attached to steering wheel
(405) Replacement steering wheel (i.e., reduced diameter)
(406) Joy stick steering controls
(407) Wheelchair tie-downs
(408) Modification to seat belts, (specify):
(409) Additional or relocated switches, (specify):

(410) Raised roof
(411) Wall mounted head rest (used behind wheel chair)
(412) Other adaptive device (specify):

EXTERIOR of OCCUPANT'S VEHICLE
(451) Hood
(452) Outside hardware (e.g., outside mirror, antenna)
(453) Other exterior surface or tires (specify):

(454) Unknown exterior objects

EXTERIOR OF OTHER MOTOR VEHICLE
(501) Front bumper
(502) Hood edge
(503) Other front of vehicle (specify):

(504) Hood
(505) Hood ornament
(506) Windshield, roof rail, A-pillar
(507) Side surface
(508) Side mirrors
(509) Other side protrusions (specify):

(510) Rear surface
(511) Undercarriage
(512) Tires and wheels
(513) Other exterior of other motor vehicle (specify):

(514) Unknown exterior of other motor vehicle

OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT
(551) Ground
(598) Other vehicle or object (specify):

(599) Unknown vehicle or object

NONCONTACT INJURY
(601) Fire in vehicle
(602) Flying glass
(603) Other noncontact injury source (specify):
(604) Air bag exhaust gases
(697) Injured, unknown source

OFFICIAL INJURY DATA — SKELETAL INJURIES

Restrained?

___ No

___ Yes

Blood Alcohol Level (mg/dl)

BAL = ____

Glasgow Coma Scale Score

GCSS = ____

Units of Blood Given

Units = ____

Arterial Blood Gases

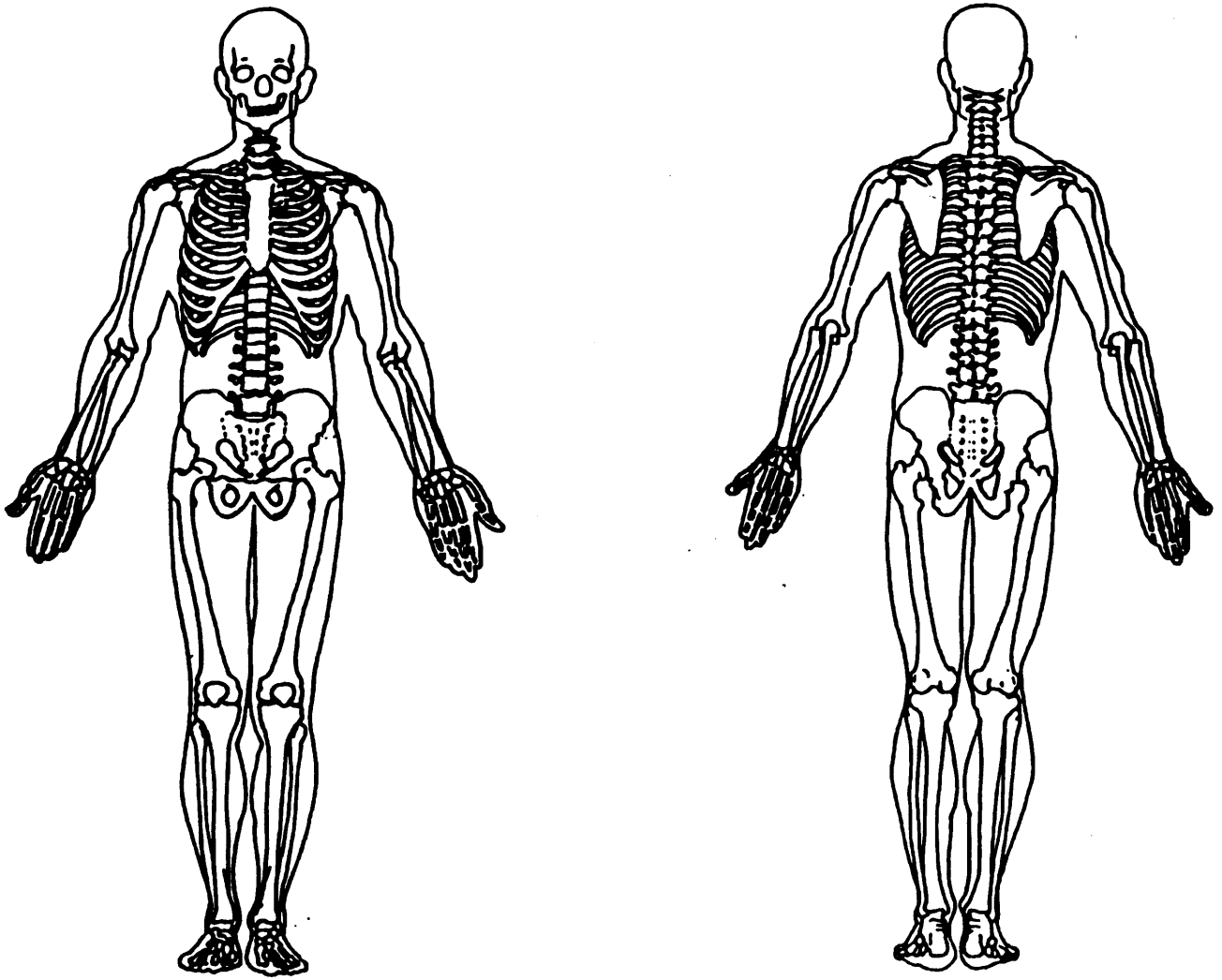
pH = _.__

PO_2 = ____

PCO_2 ____

HCO_3 ____

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)



CAUSE OF DEATH

Not Applicable

ICD-9-CM

No medical records

OTHER DRUGS (GV16)

Specimen Test Type	Drug(s)	Drug Type
___ Blood and urine tests ___ Blood test only ___ Urine test only ___ Other test ___ Unspecified	No medical records	

MEDICAL RECORD ABBREVIATIONS

Symbol	Record Type Description
A	Autopsy--medical information based upon an invasive examination of a body
ME	Medical examiner's record--where the information reported on the patient is based on a non-invasive examination of the body
AR	Admission record/summary--any medical information on this record should be considered as post-ER since it summarizes the patient's admission; these records are common in short hospitalizations and usually only contain: admission DX(s), final DX(s), and a listing of surgical treatments; ICD-9-CM codes are frequently available.
FS	Admission/discharge face sheet--face sheets are essentially the same as admission record/summaries and contain the same types of information as discussed above
DS	Discharge summary--shorten history of a patient's hospitalization highlighting the patient's major injuries; this record is often written from the perspective of its author which in many cases is a consultant
OS	Operative record--summary of a performed surgical operation often providing detailed information about a specific trauma; patients who survive the surgery are normally admitted; thus, this record is normally considered post-ER; however, if this record results from an outpatient surgery, then treat it as emergency-room related
PX	Radiographic records--taken after the patient has been admitted, or while in surgery or intensive care
PN	Patient progress notes--supplemental record containing additional nurses notes taken after the patient's admission
HP	History and physical exam--medical history and the results of the physical exam obtained by the emergency room physician assigned to the patient upon arrival at the emergency room
CN	Consultation record--consultations are in essence additional history and physicial exams performed by doctors whose expertise was requested by the emergency room physician; the consultation may occur during the emergency room visit or after admission
ER	Emergency room report--where the author of this information is undefined
EN	Emergency room nurse--"nurse/complaint of" section on the emergency room report
ED	Emergency room doctor--"objective/physical exam" section plus "diagnosis and treatment" sections (i.e., doctor portion of emergency room report)
NN	Nurse notes--supplemental record containing additional notes taken by the emergency room nurse(s)
EX	Radiographic records--taken during the patients stay in the emergency room
CV	Coroner's verdict--statement of cause of death for legal specific regarding injuries; care must be exercised to ascertain the credentials of the verdict's author.
CR	Coroner's report--medical information based upon a noninvasive examination performed by a person who is not a doctor but who has the title of a coroner
ET	Emergency medical technician--report by a person who qualifies as an emergency medical services technician (EMS or EMT)
O	Other source--medical information based on an other source (e.g., newspaper, DVM--Doctor of Veterinary Medicine)

Appendix G:

NASS CDS Occupant Assessment Form:

Case Vehicle Right Front Passenger

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

OCCUPANT ASSESSMENT FORM

Form Approved
O.M.B. No. 2127-0021
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9502
3. Vehicle Number: 01
4. Occupant Number: 02

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age: 65
Code actual age at time of accident.
(00) Less than one year old (specify by month): _____
(97) 97 years and older
(99) Unknown

6. Occupant's Sex: 2
(1) Male
(2) Female-not reported pregnant
(3) Female-pregnant-1st trimester(1st-3rd month)
(4) Female-pregnant-2nd trimester(4th-6th month)
(5) Female-pregnant-3rd trimester(7th-9th month)
(6) Female-pregnant-term unknown
(9) Unknown

7. Occupant's Height: 173
Code actual height to the nearest centimeter.
(999) Unknown
68 inches X 2.54 = 172.72 centimeters

8. Occupant's Weight: 091
Code actual weight to the nearest kilogram.
(999)Unknown
200 pounds X .4536 = 90.72 kilograms

9. Occupant's Role: 2
(1) Driver
(2) Passenger
(9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position: 13
Front Seat
(11) Left side
(12) Middle
(13) Right side
(14) Other (specify): _____
(15) On or in the lap of another occupant

Second Seat
(21) Left side
(22) Middle
(23) Right side
(24) Other (specify): _____
(25) On or in the lap of another occupant

Third Seat
(31) Left side
(32) Middle
(33) Right side
(34) Other (specify): _____
(35) On or in the lap of another occupant

Fourth Seat
(41) Left side
(42) Middle
(43) Right side
(44) Other (specify): _____
(45) On or in the lap of another occupant

(97) In or on unenclosed area
(98) Other seat (specify): _____
(99) Unknown

11. Occupant's Posture: 9
(0) Normal posture

Abnormal posture
(1) Kneeling or standing on seat
(2) Lying on or across seat
(3) Kneeling, standing or sitting in front of seat
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window
(5) Sitting on a console
(6) Lying back in a reclined seat position
(7) Bracing with feet or hands on a surface in front of seat
(8) Other abnormal posture (specify): _____
(9) Unknown

EJECTION/ENTRAPMENT

12. Ejection 0
    (0) No ejection
    (1) Complete ejection
    (2) Partial ejection
    (3) Ejection, unknown degree
    (9) Unknown

13. Ejection Area 0
    (0) No ejection
    (1) Windshield
    (2) Left front
    (3) Right front
    (4) Left rear
    (5) Right rear
    (6) Rear
    (7) Roof
    (8) Other area (e.g., back of pickup, etc.)
    (specify):_____
    (9) Unknown

14. Ejection Medium 0
    (0) No ejection
    (1) Door/hatch/tailgate
    (2) Nonfixed roof structure
    (3) Fixed glazing
    (4) Nonfixed glazing (specify):
    _____
    (5) Integral structure
    (8) Other medium (specify):
    _____
    (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0
    (0) No ejection
    (1) Open
    (2) Closed
    (3) Integral structure
    (9) Unknown

16. Entrapment 0
    (0) Not entrapped/exit not inhibited
    (1) Entrapped/pinned - mechanically restrained
    (2) Could not exit vehicle due to jammed doors, fire, etc.
    (specify):_____
    _____
    (9) Unknown

17. Occupant Mobility 4
    (0) Occupant fatal before removed from vehicle
    (1) Removed from vehicle while unconscious or disoriented
    (2) Removed from vehicle due to injuries
    (3) Exited vehicle with some assistance
    (4) Exited vehicle under own power
    (5) Occupant fully ejected
    (9) Unknown

BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability 4
(0) None available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown

Integral Belt Partially Destroyed
(6) Shoulder belt (lap belt destroyed/removed)
(7) Lap belt (shoulder belt destroyed/removed)
(8) Other belt (specify):

(9) Unknown

19. Manual (Active) Belt System Use 04
(00) None used, not available, or belt removed/destroyed
(01) Inoperative (specify):

(02) Shoulder belt
(03) Lap belt
(04) Lap and shoulder belt
(05) Belt used—type unknown
(08) Other belt used (specify):

(12) Shoulder belt used with child safety seat
(13) Lap belt used with child safety seat
(14) Lap and shoulder belt used with child safety seat
(15) Belt used with child safety seat—type unknown
(18) Other belt used with child safety seat (specify):
(99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 1
(0) None used or not available
(1) Belt used properly
(2) Belt used properly with child safety seat

Belt Used Improperly
(3) Shoulder belt worn under arm
(4) Shoulder belt worn behind back or seat
(5) Belt worn around more than one person
(6) Lap belt worn on abdomen
(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of manual belt system (specify):

(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 9
(0) No manual belt used or not available
(1) No manual belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):

(6) Broken retractor
(7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment 9
(0) No shoulder belt
(1) No upper anchorage adjustment for shoulder belt

Adjustable shoulder Belt Upper Anchorage
(2) In full up position
(3) In mid position
(4) In full down position
(5) Position unknown
(9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/ Function 0
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

24. Automatic (Passive) Belt System Use 0
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):
(3) Automatic belt use unknown
(9) Unknown

25. Automatic (Passive) Belt System Type 0
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of automatic belt system (specify):
(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):

(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify):

(9) Unknown

POLICE REPORTED RESTRAINT USE

28. Police Reported Belt Use 4
    (0) None used
    (1) Police did not indicate belt use
    (2) Shoulder belt
    (3) Lap belt
    (4) Lap and shoulder belt
    (5) Belt used, type not specified
    (6) Child safety seat
    (7) Automatic belt
    (8) Other type belt, (specify): _____
    (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 1
    (0) No air bag available
    (1) Police did not indicate air bag availability/function
    (2) Deployed
    (3) Not deployed
    (4) Unknown if deployed
    (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

[ ] Not equipped/not available/destroyed or rendered inoperative
[ ] Vehicle inspection
[ ] Official injury data
[✓] Driver/occupant interview
[ ] Other (specify): _____
[ ] Unknown if belt used

AIR BAG SYSTEM FUNCTION

30. Frontal Air Bag System Availability/Function (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown
    Specify type of "other" air bag present:

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0
    (0) Not equipped with an "other" air bag
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) 0
    (0) Not equipped/not available
    (1) No
    (2) Yes (specify): _____
    (9) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 1
(0) Not equipped/not available
(1) No previous accidents

Yes
(2) Previous accident(s) without deployment(s)
(3) One previous accident with deployment
(4) More than one previous accident with at least one deployment
(8) Previous accidents, unknown deployment status
(9) Unknown

36. Type of Air Bag 0
(0) Not equipped/not available
(1) Original manufacturer installed system
(2) Retrofitted air bag
(3) Replacement air bag
(8) Unknown type of air bag
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 0
(0) Not equipped/not available
(1) No prior maintenance
(2) Yes, prior maintenance (specify): _____
(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 00
(00) Not equipped/not available
_____ Code the accident event sequence number that initiated the air bag deployment
(96) Deployed, unknown event
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

39. CDC For Air Bag Deployment Impact 0
(0) Not equipped/not available
(1) Highest delta V
(2) Second highest delta V
(3) Other non-coded delta V (specify): _____
(6) Deployed, unknown event
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

40. Longitudinal Component of Delta V For Air Bag Deployment Impact +/- 000
(_000) Not equipped/not available
Code the value of the delta V for the impact that initiated the air bag deployment
(_996) Deployment, unknown longitudinal Delta V
(_997) Not deployed
(_998) Unknown if deployed
(_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 0
(0) Not equipped/not available
(1) No
(2) Yes
(3) Deployed, unknown if flap(s) opened at designated tear points
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify): _____
(3) Deployed, unknown if air bag module cover flap(s) damaged
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

43. Was There Damage To The Air Bag? 00
(00) Not equipped/not available
(01) Not damaged

Yes - Air Bag Damage
(02) Ruptured
(03) Cut
(04) Torn
(05) Holed
(06) Burned
(07) Abraded
(88) Other damage (specify): _____
(95) Damaged, details unknown
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION *continued*

44. Source of Air Bag Damage 00
(00) Not equipped/not available
(01) Not damaged
(02) Object worn by occupant, (specify):
(03) Object carried by occupant, (specify):
(04) Adaptive/assistive controls, (specify):
(05) Fire in vehicle
(06) Thermal burns
(07) Rescue or emergency efforts
(88) Other damage source (specify):
(95) Damaged, unknown source
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

45. Was The Air Bag Tethered? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify number of tether straps):
(3) Deployed, unknown if tethered
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

46. Did The Air Bag Have Vent Ports? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify number of vent ports):
(3) Deployed, unknown if vent ports present
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify):
(3) Deployed, unknown if other occupant contact to air bag
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

48. Was This Occupant Wearing Eye-wear? 0
(0) Not equipped/not available
(1) No
(2) Eyeglasses/sunglasses
(3) Contact lenses
(4) Deployed, unknown if eyewear worn
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION

49. Head Restraint Type/Damage by Occupant at This Occupant Position 9
(0) No head restraints
(1) Integral—no damage
(2) Integral—damaged during accident
(3) Adjustable—no damage
(4) Adjustable—damaged during accident
(5) Add-on—no damage
(6) Add-on—damaged during accident
(8) Other (specify):
(9) Unknown

50. Seat Type (this Occupant Position) 99
(00) Occupant not seated or no seat
(01) Bucket
(02) Bucket with folding back
(03) Bench
(04) Bench with separate back cushions
(05) Bench with folding back(s)
(06) Split bench with separate back cushions
(07) Split bench with folding back(s)
(08) Pedestal (i.e., column supported)
(09) Box mounted seat (i.e., van type)
(10) Other seat type (specify):
(99) Unknown

51. Seat Orientation (this Occupant Position) 9
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
(9) Unknown

52. Seat Track Adjusted Position Prior To Impact 3
(0) Occupant not seated or no seat
(1) Non-adjustable seat track

Adjustable Seat Track
(2) Seat at forward most track position
(3) Seat between forward most and middle track positions
(4) Seat at middle track position
(5) Seat between middle and rear most track positions
(6) Seat at rear most track position
(9) Unknown

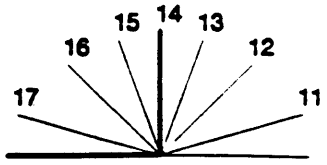
PER DRIVER

HEAD RESTRAINT AND SEAT EVALUATION *continued*

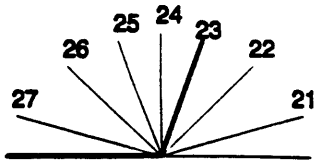
53. Seat Back Incline Prior and Post Impact 01

(00) Occupant not seated or no seat
(01) Not adjustable

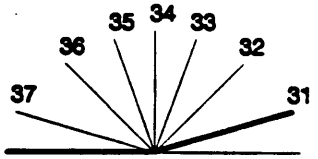
Upright prior to impact
(11) Moved to completely rearward position
(12) Moved to rearward midrange position
(13) Moved to slightly rearward position
(14) Retained pre-impact position
(15) Moved to slightly forward position
(16) Moved to forward midrange position
(17) Moved to completely forward position



Slightly reclined prior to impact
(21) Moved to completely rearward position
(22) Moved to rearward midrange position
(23) Retained pre-impact position
(24) Moved to upright position
(25) Moved to slightly forward position
(26) Moved to forward midrange position
(27) Moved to completely forward position



Completely reclined prior to impact
(31) Retained pre-impact position
(32) Moved to rearward midrange position
(33) Moved to slightly rearward position
(34) Moved to upright position
(35) Moved to slightly forward position
(36) Moved to forward midrange position
(37) Moved to completely forward position



(99) Unknown

54. Seat Performance (this Occupant Position) 9

(0) Occupant not seated or no seat
(1) No seat performance failure(s)
(2) Seat adjusters failed
(3) Seat back folding locks or "seat back" failed (specify):_____
(4) Seat track/anchors failed
(5) Deformed by impact of occupant
(6) Deformed by passenger compartment intrusion, (specify):_____
_____
(7) Combination of above (specify):
_____
(8) Other (specify): _____
(9) Unknown

CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 0 0 0
(000) No child safety seat
Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
(950) Built-in child safety seat
(997) Other make/model (specify):
_____
(998) Unknown make/model
(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat - with shield
(5) Booster seat - without shield
(7) Other type child safety seat (specify):
_____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 0 0
(00) No child safety seat

Designed for Rear Facing for This Age/Weight
(01) Rear facing
(02) Forward facing
(08) Other orientation (specify):
_____
(09) Unknown orientation

Designed For Forward Facing for This Age/Weight
(11) Rear facing
(12) Forward facing
(18) Other orientation (specify):
_____
(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
(21) Rear facing
(22) Forward facing
(28) Other orientation (specify):
_____
(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 0 0

59. Child Safety Seat Shield Usage 0 0

60. Child Safety Seat Tether Usage 0 0

Note: Options below applicable to Variables OA58-OA60.
(00) No child safety seat

Not Designed With Harness/Shield/Tether
(01) After market harness/shield/tether added, not used
(02) After market harness/shield/tether used
(03) Child safety seat used, but no after market harness/shield/tether added
(09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether
(11) Harness/shield/tether not used
(12) Harness/shield/tether used
(19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether
(21) Harness/shield/tether not used
(22) Harness/shield/tether used
(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES

61. Injury Severity (Police Rating) 0

(0) O - No injury
(1) C - Possible injury
(2) B - Nonincapacitating injury
(3) A - Incapacitating injury
(4) K - Killed
(5) U - Injury, severity unknown
(6) Died prior to accident
(9) Unknown

62. Treatment - Mortality 0
(0) No treatment
(1) Fatal
(2) Fatal - ruled disease (specify):

_____

Nonfatal
(3) Hospitalization
(4) Transported and released
(5) Treatment at scene - nontransported
(6) Treatment later
(7) Treatment - other (specify):

_____

(8) Transported to a medical facility-unknown if treated
(9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 0
(0) Not treated at a medical facility
(1) Trauma center
(2) Hospital
(3) Medical clinic
(4) Physician's office
(5) Treatment later at medical facility
(8) Other (specify):

_____

(9) Unknown

64. Hospital Stay 00
(00) Not Hospitalized
____Code the number of days (up through 60) that the occupant stayed in hospital.
(61) 61 days or more
(99) Unknown

65. Working Days Lost 97
____Code the number of days (up through 60) that the occupant lost from work due to the accident
(00) No working days lost
(61) 61 days or more
(62) Fatally injured
(97) Not working prior to accident
(99) Unknown

STOP WORK HERE

VARIABLES 66-74

TO BE CODED BY THE ZONE CENTER

TO BE CODED BY THE ZONE CENTER

INJURY CONSEQUENCES

66. Time to Death 0 0
_____Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 +n up through 30 days = 60)
(00) Not fatal
(96) Fatal - ruled disease
(99) Unknown

67. 1st Medically Reported Cause of Death 0 0

68. 2nd Medically Reported Cause of Death 0 0

69. 3rd Medically Reported Cause of Death 0 0
_____Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
(00) Not fatal or no additional causes
(96) Mode of death given but specific injuries are not linked to cause of death. (specify):
_____
(97) Other result (includes fatal ruled disease) (specify):
_____
(99) Unknown

70. Number of Recorded Injuries for This Occupant 0 0
_____Code the actual number of injuries recorded for this occupant.
(00) No recorded injuries
(97) Injured, details unknown
(99) Unknown if injured

TRAUMA DATA

71. Glasgow Coma Scale (GCS) Score (at Medical Facility) 0 0
(00) Not injured
(01) Injured - not treated at medical facility
(02) No GCS Score at medical facility
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.
(97) Injured, details unknown
(99) Unknown if injured

72. Was the Occupant Given Blood? 1
(1) No - blood not given
(2) Yes - blood given
(specify units):_____
(9) Unknown if blood given

73. Arterial Blood Gases (ABG) – HCO_3 0 0
(00) Not injured
(01) Injured, ABGs not measured or reported
(02-50) Code the actual value of the HCO_3
(96) ABGs reported , HCO_3 unknown
(97) Injured, details unknown
(99) Unknown if injured

BELT USE DETERMINATION

74. Primary Source of Belt Use Determination 3
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Vehicle inspection
(2) Official injury data
(3) Driver/occupant interview
(8) Other (specify):_____
(9) Unknown if belt used

Appendix H:

NASS CDS Occupant Assessment Form:

Case Vehicle Left Rear Passenger

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

OCCUPANT ASSESSMENT FORM

Form Approved
O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9502
3. Vehicle Number: 01
4. Occupant Number: 03

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age: PAR 16
Code actual age at time of accident.
(00) Less than one year old (specify by month): _____
(97) 97 years and older
(99) Unknown

6. Occupant's Sex: 2
(1) Male
(2) Female-not reported pregnant
(3) Female-pregnant-1st trimester(1st-3rd month)
(4) Female-pregnant-2nd trimester(4th-6th month)
(5) Female-pregnant-3rd trimester(7th-9th month)
(6) Female-pregnant-term unknown
(9) Unknown

7. Occupant's Height: 170
Code actual height to the nearest centimeter.
(999) Unknown

67 inches X 2.54 = 170 centimeters

8. Occupant's Weight: 059
Code actual weight to the nearest kilogram.
(999)Unknown

130 pounds X .4536 = 58.96 kilograms

9. Occupant's Role: 2
(1) Driver
(2) Passenger
(9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position: 21

Front Seat
(11) Left side
(12) Middle
(13) Right side
(14) Other (specify): _____
(15) On or in the lap of another occupant

Second Seat
(21) Left side
(22) Middle
(23) Right side
(24) Other (specify): _____
(25) On or in the lap of another occupant

Third Seat
(31) Left side
(32) Middle
(33) Right side
(34) Other (specify): _____
(35) On or in the lap of another occupant

Fourth Seat
(41) Left side
(42) Middle
(43) Right side
(44) Other (specify): _____
(45) On or in the lap of another occupant

(97) In or on unenclosed area
(98) Other seat (specify): _____
(99) Unknown

11. Occupant's Posture: 9
(0) Normal posture

Abnormal posture
(1) Kneeling or standing on seat
(2) Lying on or across seat
(3) Kneeling, standing or sitting in front of seat
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window
(5) Sitting on a console
(6) Lying back in a reclined seat position
(7) Bracing with feet or hands on a surface in front of seat
(8) Other abnormal posture (specify): _____
(9) Unknown

EJECTION/ENTRAPMENT

12. Ejection 0
    (0) No ejection
    (1) Complete ejection
    (2) Partial ejection
    (3) Ejection, unknown degree
    (9) Unknown

13. Ejection Area 0
    (0) No ejection
    (1) Windshield
    (2) Left front
    (3) Right front
    (4) Left rear
    (5) Right rear
    (6) Rear
    (7) Roof
    (8) Other area (e.g., back of pickup, etc.)
    (specify):_____
    (9) Unknown

14. Ejection Medium 0
    (0) No ejection
    (1) Door/hatch/tailgate
    (2) Nonfixed roof structure
    (3) Fixed glazing
    (4) Nonfixed glazing (specify):
    _____
    (5) Integral structure
    (8) Other medium (specify):
    _____
    (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0
    (0) No ejection
    (1) Open
    (2) Closed
    (3) Integral structure
    (9) Unknown

16. Entrapment 0
    (0) Not entrapped/exit not inhibited
    (1) Entrapped/pinned - mechanically restrained
    (2) Could not exit vehicle due to jammed doors, fire, etc.
    (specify):_____
    _____
    (9) Unknown

17. Occupant Mobility 4
    (0) Occupant fatal before removed from vehicle
    (1) Removed from vehicle while unconscious or disoriented
    (2) Removed from vehicle due to injuries
    (3) Exited vehicle with some assistance
    (4) Exited vehicle under own power
    (5) Occupant fully ejected
    (9) Unknown

BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability 3
(0) None available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown

Integral Belt Partially Destroyed
(6) Shoulder belt (lap belt destroyed/removed)
(7) Lap belt (shoulder belt destroyed/removed)
(8) Other belt (specify): _____
(9) Unknown

19. Manual (Active) Belt System Use 03
(00) None used, not available, or belt removed/destroyed
(01) Inoperative (specify): _____
(02) Shoulder belt
(03) Lap belt
(04) Lap and shoulder belt
(05) Belt used—type unknown
(08) Other belt used (specify): _____
(12) Shoulder belt used with child safety seat
(13) Lap belt used with child safety seat
(14) Lap and shoulder belt used with child safety seat
(15) Belt used with child safety seat—type unknown
(18) Other belt used with child safety seat (specify): _____
(99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 1
(0) None used or not available
(1) Belt used properly
(2) Belt used properly with child safety seat

Belt Used Improperly
(3) Shoulder belt worn under arm
(4) Shoulder belt worn behind back or seat
(5) Belt worn around more than one person
(6) Lap belt worn on abdomen
(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): _____
(8) Other improper use of manual belt system (specify): _____
(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 9
(0) No manual belt used or not available
(1) No manual belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify): _____
(6) Broken retractor
(7) Combination of above (specify): _____
(8) Other manual belt failure (specify): _____
(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment 0
(0) No shoulder belt
(1) No upper anchorage adjustment for shoulder belt

Adjustable shoulder Belt Upper Anchorage
(2) In full up position
(3) In mid position
(4) In full down position
(5) Position unknown
(9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/ Function 0
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

24. Automatic (Passive) Belt System Use 0
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): _____
(3) Automatic belt use unknown
(9) Unknown

25. Automatic (Passive) Belt System Type 0
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): _____
(8) Other improper use of automatic belt system (specify): _____
(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify): _____
(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify): _____
(9) Unknown

POLICE REPORTED RESTRAINT USE

28. Police Reported Belt Use 3
    (0) None used
    (1) Police did not indicate belt use
    (2) Shoulder belt
    (3) Lap belt
    (4) Lap and shoulder belt
    (5) Belt used, type not specified
    (6) Child safety seat
    (7) Automatic belt
    (8) Other type belt, (specify): _____
    (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 1
    (0) No air bag available
    (1) Police did not indicate air bag availability/function
    (2) Deployed
    (3) Not deployed
    (4) Unknown if deployed
    (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

[ ] Not equipped/not available/destroyed or rendered inoperative
[ ] Vehicle inspection
[ ] Official injury data
[✓] Driver/occupant interview
[ ] Other (specify): _____
[ ] Unknown if belt used

AIR BAG SYSTEM FUNCTION

30. Frontal Air Bag System Availability/Function (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown
    Specify type of "other" air bag present: _____

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0
    (0) Not equipped with an "other" air bag
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) 0
    (0) Not equipped/not available
    (1) No
    (2) Yes (specify): _____
    (9) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? Ø
- (0) Not equipped/not available
- (1) No previous accidents

Yes
- (2) Previous accident(s) without deployment(s)
- (3) One previous accident with deployment
- (4) More than one previous accident with at least one deployment
- (8) Previous accidents, unknown deployment status
- (9) Unknown

36. Type of Air Bag 0
- (0) Not equipped/not available
- (1) Original manufacturer installed system
- (2) Retrofitted air bag
- (3) Replacement air bag
- (8) Unknown type of air bag
- (9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 0
- (0) Not equipped/not available
- (1) No prior maintenance
- (2) Yes, prior maintenance (specify): _____
- (9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 0 0
- (00) Not equipped/not available
- _____ Code the accident event sequence number that initiated the air bag deployment
- (96) Deployed, unknown event
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

39. CDC For Air Bag Deployment Impact 0
- (0) Not equipped/not available
- (1) Highest delta V
- (2) Second highest delta V
- (3) Other non-coded delta V (specify): _____
- (6) Deployed, unknown event
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

40. Longitudinal Component of Delta V For Air Bag Deployment Impact + – 0 0 0
- (_000) Not equipped/not available
  Code the value of the delta V for the impact that initiated the air bag deployment
- (_996) Deployment, unknown longitudinal Delta V
- (_997) Not deployed
- (_998) Unknown if deployed
- (_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 0
- (0) Not equipped/not available
- (1) No
- (2) Yes
- (3) Deployed, unknown if flap(s) opened at designated tear points
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 0
- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____
- (3) Deployed, unknown if air bag module cover flap(s) damaged
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

43. Was There Damage To The Air Bag? 0 0
- (00) Not equipped/not available
- (01) Not damaged

Yes - Air Bag Damage
- (02) Ruptured
- (03) Cut
- (04) Torn
- (05) Holed
- (06) Burned
- (07) Abraded
- (88) Other damage (specify): _____
- (95) Damaged, details unknown
- (96) Deployed, unknown if damaged
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION *continued*

44. Source of Air Bag Damage 0 0
(00) Not equipped/not available
(01) Not damaged
(02) Object worn by occupant, (specify):
_____
(03) Object carried by occupant, (specify):
_____
(04) Adaptive/assistive controls, (specify):
_____
(05) Fire in vehicle
(06) Thermal burns
(07) Rescue or emergency efforts
(88) Other damage source (specify):
_____
(95) Damaged, unknown source
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

45. Was The Air Bag Tethered? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify number of tether straps):
_____
(3) Deployed, unknown if tethered
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

46. Did The Air Bag Have Vent Ports? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify number of vent ports):
_____
(3) Deployed, unknown if vent ports present
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify):
_____
(3) Deployed, unknown if other occupant contact to air bag
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

48. Was This Occupant Wearing Eye-wear? 0
(0) Not equipped/not available
(1) No
(2) Eyeglasses/sunglasses
(3) Contact lenses
(4) Deployed, unknown if eyewear worn
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION

49. Head Restraint Type/Damage by Occupant at This Occupant Position 9
(0) No head restraints
(1) Integral—no damage
(2) Integral—damaged during accident
(3) Adjustable—no damage
(4) Adjustable—damaged during accident
(5) Add-on—no damage
(6) Add-on—damaged during accident
(8) Other (specify):
_____
(9) Unknown

50. Seat Type (this Occupant Position) 9 9
(00) Occupant not seated or no seat
(01) Bucket
(02) Bucket with folding back
(03) Bench
(04) Bench with separate back cushions
(05) Bench with folding back(s)
(06) Split bench with separate back cushions
(07) Split bench with folding back(s)
(08) Pedestal (i.e., column supported)
(09) Box mounted seat (i.e., van type)
(10) Other seat type (specify):
_____
(99) Unknown

51. Seat Orientation (this Occupant Position) 9
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
_____
(9) Unknown

52. Seat Track Adjusted Position Prior To Impact 1
(0) Occupant not seated or no seat
(1) Non-adjustable seat track

Adjustable Seat Track
(2) Seat at forward most track position
(3) Seat between forward most and middle track positions
(4) Seat at middle track position
(5) Seat between middle and rear most track positions
(6) Seat at rear most track position
(9) Unknown

PER
DRIVER

HEAD RESTRAINT AND SEAT EVALUATION *continued*

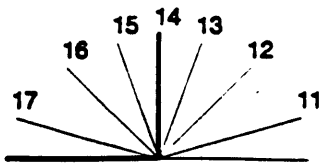
53. Seat Back Incline Prior and Post Impact 01
    (00) Occupant not seated or no seat
    (01) Not adjustable

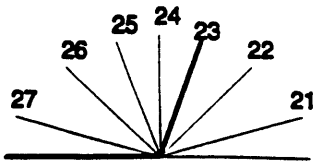
    Upright prior to impact
    (11) Moved to completely rearward position
    (12) Moved to rearward midrange position
    (13) Moved to slightly rearward position
    (14) Retained pre-impact position
    (15) Moved to slightly forward position
    (16) Moved to forward midrange position
    (17) Moved to completely forward position

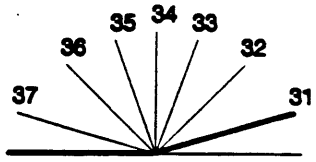
    Slightly reclined prior to impact
    (21) Moved to completely rearward position
    (22) Moved to rearward midrange position
    (23) Retained pre-impact position
    (24) Moved to upright position
    (25) Moved to slightly forward position
    (26) Moved to forward midrange position
    (27) Moved to completely forward position

    Completely reclined prior to impact
    (31) Retained pre-impact position
    (32) Moved to rearward midrange position
    (33) Moved to slightly rearward position
    (34) Moved to upright position
    (35) Moved to slightly forward position
    (36) Moved to forward midrange position
    (37) Moved to completely forward position

    (99) Unknown







54. Seat Performance (this Occupant Position) 9
    (0) Occupant not seated or no seat
    (1) No seat performance failure(s)
    (2) Seat adjusters failed
    (3) Seat back folding locks or "seat back" failed (specify):_____
    (4) Seat track/anchors failed
    (5) Deformed by impact of occupant
    (6) Deformed by passenger compartment intrusion, (specify):_____
    (7) Combination of above (specify):_____
    (8) Other (specify): _____
    (9) Unknown

CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 0 0 0
(000) No child safety seat
Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
(950) Built-in child safety seat
(997) Other make/model (specify):
_____
(998) Unknown make/model
(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat - with shield
(5) Booster seat - without shield
(7) Other type child safety seat (specify):
_____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 0 0
(00) No child safety seat

Designed for Rear Facing for This Age/Weight
(01) Rear facing
(02) Forward facing
(08) Other orientation (specify):
_____
(09) Unknown orientation

Designed For Forward Facing for This Age/Weight
(11) Rear facing
(12) Forward facing
(18) Other orientation (specify):
_____
(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
(21) Rear facing
(22) Forward facing
(28) Other orientation (specify):
_____
(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 0 0

59. Child Safety Seat Shield Usage 0 0

60. Child Safety Seat Tether Usage 0 0

Note: Options below applicable to Variables OA58-OA60.
(00) No child safety seat

Not Designed With Harness/Shield/Tether
(01) After market harness/shield/tether added, not used
(02) After market harness/shield/tether used
(03) Child safety seat used, but no after market harness/shield/tether added
(09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether
(11) Harness/shield/tether not used
(12) Harness/shield/tether used
(19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether
(21) Harness/shield/tether not used
(22) Harness/shield/tether used
(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES

61. Injury Severity (Police Rating) 0

(0) O - No injury
(1) C - Possible injury
(2) B - Nonincapacitating injury
(3) A - Incapacitating injury
(4) K - Killed
(5) U - Injury, severity unknown
(6) Died prior to accident
(9) Unknown

62. Treatment - Mortality 0

(0) No treatment
(1) Fatal
(2) Fatal - ruled disease (specify):

_____

Nonfatal
(3) Hospitalization
(4) Transported and released
(5) Treatment at scene - nontransported
(6) Treatment later
(7) Treatment - other (specify):

_____

(8) Transported to a medical facility-unknown if treated
(9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 0

(0) Not treated at a medical facility
(1) Trauma center
(2) Hospital
(3) Medical clinic
(4) Physician's office
(5) Treatment later at medical facility
(8) Other (specify):

_____

(9) Unknown

64. Hospital Stay 00

(00) Not Hospitalized
_____Code the number of days (up through 60) that the occupant stayed in hospital.
(61) 61 days or more
(99) Unknown

65. Working Days Lost 97

_____Code the number of days (up through 60) that the occupant lost from work due to the accident
(00) No working days lost
(61) 61 days or more
(62) Fatally injured
(97) Not working prior to accident
(99) Unknown

STOP WORK HERE

VARIABLES 66-74

TO BE CODED BY THE ZONE CENTER

TO BE CODED BY THE ZONE CENTER

INJURY CONSEQUENCES

66. Time to Death 00
_____Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 +n up through 30 days = 60)
(00) Not fatal
(96) Fatal - ruled disease
(99) Unknown

67. 1st Medically Reported Cause of Death 00

68. 2nd Medically Reported Cause of Death 00

69. 3rd Medically Reported Cause of Death 00
_____Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
(00) Not fatal or no additional causes
(96) Mode of death given but specific injuries are not linked to cause of death. (specify):
_____
(97) Other result (includes fatal ruled disease) (specify):
_____
(99) Unknown

70. Number of Recorded Injuries for This Occupant 00
_____Code the actual number of injuries recorded for this occupant.
(00) No recorded injuries
(97) Injured, details unknown
(99) Unknown if injured

TRAUMA DATA

71. Glasgow Coma Scale (GCS) Score (at Medical Facility) 00
(00) Not injured
(01) Injured - not treated at medical facility
(02) No GCS Score at medical facility
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.
(97) Injured, details unknown
(99) Unknown if injured

72. Was the Occupant Given Blood? 1
(1) No - blood not given
(2) Yes - blood given
(specify units):_____
(9) Unknown if blood given

73. Arterial Blood Gases (ABG) – HCO_3 00
(00) Not injured
(01) Injured, ABGs not measured or reported
(02-50) Code the actual value of the HCO_3
(96) ABGs reported , HCO_3 unknown
(97) Injured, details unknown
(99) Unknown if injured

BELT USE DETERMINATION

74. Primary Source of Belt Use Determination 3
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Vehicle inspection
(2) Official injury data
(3) Driver/occupant interview
(8) Other (specify):_____
(9) Unknown if belt used

Appendix I:

NASS CDS Occupant Assessment Form:

Case Vehicle Right Rear Passenger

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

OCCUPANT ASSESSMENT FORM

Form Approved
O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9502
3. Vehicle Number: 01
4. Occupant Number: 04

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age: PAR 68
Code actual age at time of accident.
(00) Less than one year old (specify by month): _____
(97) 97 years and older
(99) Unknown

6. Occupant's Sex: 1
(1) Male
(2) Female-not reported pregnant
(3) Female-pregnant-1st trimester(1st-3rd month)
(4) Female-pregnant-2nd trimester(4th-6th month)
(5) Female-pregnant-3rd trimester(7th-9th month)
(6) Female-pregnant-term unknown
(9) Unknown

7. Occupant's Height: 173
Code actual height to the nearest centimeter.
(999) Unknown
68 inches X 2.54 = 172.72 centimeters

8. Occupant's Weight: 100
Code actual weight to the nearest kilogram.
(999)Unknown
220 pounds X .4536 = 099.79 kilograms

9. Occupant's Role: 2
(1) Driver
(2) Passenger
(9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position: 23
Front Seat
(11) Left side
(12) Middle
(13) Right side
(14) Other (specify): _____
(15) On or in the lap of another occupant

Second Seat
(21) Left side
(22) Middle
(23) Right side
(24) Other (specify): _____
(25) On or in the lap of another occupant

Third Seat
(31) Left side
(32) Middle
(33) Right side
(34) Other (specify): _____
(35) On or in the lap of another occupant

Fourth Seat
(41) Left side
(42) Middle
(43) Right side
(44) Other (specify): _____
(45) On or in the lap of another occupant

(97) In or on unenclosed area
(98) Other seat (specify): _____
(99) Unknown

11. Occupant's Posture: 9
(0) Normal posture

Abnormal posture
(1) Kneeling or standing on seat
(2) Lying on or across seat
(3) Kneeling, standing or sitting in front of seat
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window
(5) Sitting on a console
(6) Lying back in a reclined seat position
(7) Bracing with feet or hands on a surface in front of seat
(8) Other abnormal posture (specify): _____
(9) Unknown

EJECTION/ENTRAPMENT

12. Ejection 0
    (0) No ejection
    (1) Complete ejection
    (2) Partial ejection
    (3) Ejection, unknown degree
    (9) Unknown

13. Ejection Area 0
    (0) No ejection
    (1) Windshield
    (2) Left front
    (3) Right front
    (4) Left rear
    (5) Right rear
    (6) Rear
    (7) Roof
    (8) Other area (e.g., back of pickup, etc.)
    (specify):_____
    (9) Unknown

14. Ejection Medium 0
    (0) No ejection
    (1) Door/hatch/tailgate
    (2) Nonfixed roof structure
    (3) Fixed glazing
    (4) Nonfixed glazing (specify):
    _____
    (5) Integral structure
    (8) Other medium (specify):
    _____
    (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0
    (0) No ejection
    (1) Open
    (2) Closed
    (3) Integral structure
    (9) Unknown

16. Entrapment 0
    (0) Not entrapped/exit not inhibited
    (1) Entrapped/pinned - mechanically restrained
    (2) Could not exit vehicle due to jammed doors, fire, etc.
    (specify):_____
    _____
    (9) Unknown

17. Occupant Mobility 4
    (0) Occupant fatal before removed from vehicle
    (1) Removed from vehicle while unconscious or disoriented
    (2) Removed from vehicle due to injuries
    (3) Exited vehicle with some assistance
    (4) Exited vehicle under own power
    (5) Occupant fully ejected
    (9) Unknown

BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability — 3
(0) None available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown

Integral Belt Partially Destroyed
(6) Shoulder belt (lap belt destroyed/removed)
(7) Lap belt (shoulder belt destroyed/removed)
(8) Other belt (specify): _____
(9) Unknown

19. Manual (Active) Belt System Use — 03
(00) None used, not available, or belt removed/destroyed
(01) Inoperative (specify): _____
(02) Shoulder belt
(03) Lap belt
(04) Lap and shoulder belt
(05) Belt used—type unknown
(08) Other belt used (specify): _____
(12) Shoulder belt used with child safety seat
(13) Lap belt used with child safety seat
(14) Lap and shoulder belt used with child safety seat
(15) Belt used with child safety seat—type unknown
(18) Other belt used with child safety seat (specify): _____
(99) Unknown if belt used

20. Proper Use of Manual (Active) Belts — 1
(0) None used or not available
(1) Belt used properly
(2) Belt used properly with child safety seat

Belt Used Improperly
(3) Shoulder belt worn under arm
(4) Shoulder belt worn behind back or seat
(5) Belt worn around more than one person
(6) Lap belt worn on abdomen
(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): _____
(8) Other improper use of manual belt system (specify): _____
(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident — 9
(0) No manual belt used or not available
(1) No manual belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify): _____
(6) Broken retractor
(7) Combination of above (specify): _____
(8) Other manual belt failure (specify): _____
(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment — 0
(0) No shoulder belt
(1) No upper anchorage adjustment for shoulder belt

Adjustable shoulder Belt Upper Anchorage
(2) In full up position
(3) In mid position
(4) In full down position
(5) Position unknown
(9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/ Function — 0
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

24. Automatic (Passive) Belt System Use — 0
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): _____
(3) Automatic belt use unknown
(9) Unknown

25. Automatic (Passive) Belt System Type — 0
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

26. Proper Use of Automatic (Passive) Belt System — 0
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): _____
(8) Other improper use of automatic belt system (specify): _____
(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident — 0
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify): _____
(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify): _____
(9) Unknown

POLICE REPORTED RESTRAINT USE

28. Police Reported Belt Use 3
    (0) None used
    (1) Police did not indicate belt use
    (2) Shoulder belt
    (3) Lap belt
    (4) Lap and shoulder belt
    (5) Belt used, type not specified
    (6) Child safety seat
    (7) Automatic belt
    (8) Other type belt, (specify): _____
    (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 1
    (0) No air bag available
    (1) Police did not indicate air bag availability/function
    (2) Deployed
    (3) Not deployed
    (4) Unknown if deployed
    (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

[ ] Not equipped/not available/destroyed or rendered inoperative
[ ] Vehicle inspection
[ ] Official injury data
[✓] Driver/occupant interview
[ ] Other (specify): _____
[ ] Unknown if belt used

AIR BAG SYSTEM FUNCTION

30. Frontal Air Bag System Availability/Function (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown

    Specify type of "other" air bag present: _____

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0
    (0) Not equipped with an "other" air bag
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) 0
    (0) Not equipped/not available
    (1) No
    (2) Yes (specify): _____
    (9) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 0
(0) Not equipped/not available
(1) No previous accidents

Yes
(2) Previous accident(s) without deployment(s)
(3) One previous accident with deployment
(4) More than one previous accident with at least one deployment
(8) Previous accidents, unknown deployment status
(9) Unknown

36. Type of Air Bag 0
(0) Not equipped/not available
(1) Original manufacturer installed system
(2) Retrofitted air bag
(3) Replacement air bag
(8) Unknown type of air bag
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 0
(0) Not equipped/not available
(1) No prior maintenance
(2) Yes, prior maintenance (specify): _____
(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 00
(00) Not equipped/not available
_____ Code the accident event sequence number that initiated the air bag deployment
(96) Deployed, unknown event
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

39. CDC For Air Bag Deployment Impact 0
(0) Not equipped/not available
(1) Highest delta V
(2) Second highest delta V
(3) Other non-coded delta V (specify): _____
(6) Deployed, unknown event
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

40. Longitudinal Component of Delta V For Air Bag Deployment Impact + - 000
(_000) Not equipped/not available
Code the value of the delta V for the impact that initiated the air bag deployment
(_996) Deployment, unknown longitudinal Delta V
(_997) Not deployed
(_998) Unknown if deployed
(_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 0
(0) Not equipped/not available
(1) No
(2) Yes
(3) Deployed, unknown if flap(s) opened at designated tear points
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify): _____
(3) Deployed, unknown if air bag module cover flap(s) damaged
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

43. Was There Damage To The Air Bag? 00
(00) Not equipped/not available
(01) Not damaged

Yes - Air Bag Damage
(02) Ruptured
(03) Cut
(04) Torn
(05) Holed
(06) Burned
(07) Abraded
(88) Other damage (specify): _____
(95) Damaged, details unknown
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION *continued*

44. Source of Air Bag Damage 00
(00) Not equipped/not available
(01) Not damaged
(02) Object worn by occupant, (specify):
_____
(03) Object carried by occupant, (specify):
_____
(04) Adaptive/assistive controls, (specify):
_____
(05) Fire in vehicle
(06) Thermal burns
(07) Rescue or emergency efforts
(88) Other damage source (specify):
_____
(95) Damaged, unknown source
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

45. Was The Air Bag Tethered? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify number of tether straps):
_____
(3) Deployed, unknown if tethered
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

46. Did The Air Bag Have Vent Ports? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify number of vent ports):
_____
(3) Deployed, unknown if vent ports present
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify):
_____
(3) Deployed, unknown if other occupant contact to air bag
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

48. Was This Occupant Wearing Eye-wear? 0
(0) Not equipped/not available
(1) No
(2) Eyeglasses/sunglasses
(3) Contact lenses
(4) Deployed, unknown if eyewear worn
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION

49. Head Restraint Type/Damage by Occupant at This Occupant Position 9
(0) No head restraints
(1) Integral—no damage
(2) Integral—damaged during accident
(3) Adjustable—no damage
(4) Adjustable—damaged during accident
(5) Add-on—no damage
(6) Add-on—damaged during accident
(8) Other (specify):
_____
(9) Unknown

50. Seat Type (this Occupant Position) 99
(00) Occupant not seated or no seat
(01) Bucket
(02) Bucket with folding back
(03) Bench
(04) Bench with separate back cushions
(05) Bench with folding back(s)
(06) Split bench with separate back cushions
(07) Split bench with folding back(s)
(08) Pedestal (i.e., column supported)
(09) Box mounted seat (i.e., van type)
(10) Other seat type (specify):
_____
(99) Unknown

51. Seat Orientation (this Occupant Position) 9
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
_____
(9) Unknown

52. Seat Track Adjusted Position Prior To Impact 1
(0) Occupant not seated or no seat
(1) Non-adjustable seat track

Adjustable Seat Track
(2) Seat at forward most track position
(3) Seat between forward most and middle track positions
(4) Seat at middle track position
(5) Seat between middle and rear most track positions
(6) Seat at rear most track position
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION *continued*

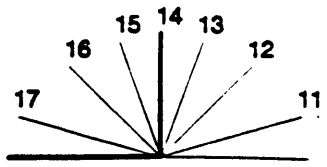
53. Seat Back Incline Prior and Post Impact 0 1
    (00) Occupant not seated or no seat
    (01) Not adjustable

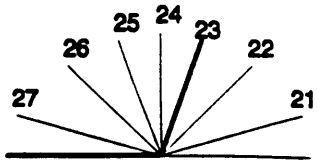
    Upright prior to impact
    (11) Moved to completely rearward position
    (12) Moved to rearward midrange position
    (13) Moved to slightly rearward position
    (14) Retained pre-impact position
    (15) Moved to slightly forward position
    (16) Moved to forward midrange position
    (17) Moved to completely forward position

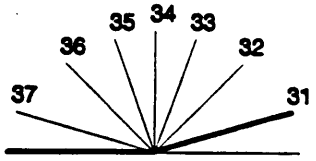
    Slightly reclined prior to impact
    (21) Moved to completely rearward position
    (22) Moved to rearward midrange position
    (23) Retained pre-impact position
    (24) Moved to upright position
    (25) Moved to slightly forward position
    (26) Moved to forward midrange position
    (27) Moved to completely forward position

    Completely reclined prior to impact
    (31) Retained pre-impact position
    (32) Moved to rearward midrange position
    (33) Moved to slightly rearward position
    (34) Moved to upright position
    (35) Moved to slightly forward position
    (36) Moved to forward midrange position
    (37) Moved to completely forward position

    (99) Unknown







54. Seat Performance (this Occupant Position) 9
    (0) Occupant not seated or no seat
    (1) No seat performance failure(s)
    (2) Seat adjusters failed
    (3) Seat back folding locks or "seat back" failed (specify):_____
    (4) Seat track/anchors failed
    (5) Deformed by impact of occupant
    (6) Deformed by passenger compartment intrusion, (specify):_____
    _____
    (7) Combination of above (specify):
    _____
    (8) Other (specify): _____
    (9) Unknown

CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 0 0 0
(000) No child safety seat
Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
(950) Built-in child safety seat
(997) Other make/model (specify):
_____
(998) Unknown make/model
(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat - with shield
(5) Booster seat - without shield
(7) Other type child safety seat (specify):
_____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 0 0
(00) No child safety seat

Designed for Rear Facing for This Age/Weight
(01) Rear facing
(02) Forward facing
(08) Other orientation (specify):
_____
(09) Unknown orientation

Designed For Forward Facing for This Age/Weight
(11) Rear facing
(12) Forward facing
(18) Other orientation (specify):
_____
(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
(21) Rear facing
(22) Forward facing
(28) Other orientation (specify):
_____
(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 0 0

59. Child Safety Seat Shield Usage 0 0

60. Child Safety Seat Tether Usage 0 0

Note: Options below applicable to Variables OA58-OA60.
(00) No child safety seat

Not Designed With Harness/Shield/Tether
(01) After market harness/shield/tether added, not used
(02) After market harness/shield/tether used
(03) Child safety seat used, but no after market harness/shield/tether added
(09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether
(11) Harness/shield/tether not used
(12) Harness/shield/tether used
(19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether
(21) Harness/shield/tether not used
(22) Harness/shield/tether used
(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES

61. Injury Severity (Police Rating) 0

(0) O - No injury
(1) C - Possible injury
(2) B - Nonincapacitating injury
(3) A - Incapacitating injury
(4) K - Killed
(5) U - Injury, severity unknown
(6) Died prior to accident
(9) Unknown

62. Treatment - Mortality 9

(0) No treatment
(1) Fatal
(2) Fatal - ruled disease (specify):

_____

Nonfatal
(3) Hospitalization
(4) Transported and released
(5) Treatment at scene - nontransported
(6) Treatment later
(7) Treatment - other (specify):

_____

(8) Transported to a medical facility-unknown if treated
(9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 9

(0) Not treated at a medical facility
(1) Trauma center
(2) Hospital
(3) Medical clinic
(4) Physician's office
(5) Treatment later at medical facility
(8) Other (specify):

_____

(9) Unknown

64. Hospital Stay 99

(00) Not Hospitalized
____Code the number of days (up through 60) that the occupant stayed in hospital.
(61) 61 days or more
(99) Unknown

65. Working Days Lost 97

____Code the number of days (up through 60) that the occupant lost from work due to the accident
(00) No working days lost
(61) 61 days or more
(62) Fatally injured
(97) Not working prior to accident
(99) Unknown

STOP WORK HERE

VARIABLES 66-74

TO BE CODED BY THE ZONE CENTER

DRIVER said her father was hospitalized 10 days later fo 11 days due to chemical induced Pneumonia

TO BE CODED BY THE ZONE CENTER

INJURY CONSEQUENCES

66. Time to Death 00
_____Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 +n up through 30 days = 60)
(00) Not fatal
(96) Fatal - ruled disease
(99) Unknown

67. 1st Medically Reported Cause of Death 00

68. 2nd Medically Reported Cause of Death 00

69. 3rd Medically Reported Cause of Death 00
_____Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
(00) Not fatal or no additional causes
(96) Mode of death given but specific injuries are not linked to cause of death. (specify):
_____
(97) Other result (includes fatal ruled disease) (specify):
_____
(99) Unknown

70. Number of Recorded Injuries for This Occupant 97
_____Code the actual number of injuries recorded for this occupant.
(00) No recorded injuries
(97) Injured, details unknown
(99) Unknown if injured

TRAUMA DATA

71. Glasgow Coma Scale (GCS) Score (at Medical Facility) 97
(00) Not injured
(01) Injured - not treated at medical facility
(02) No GCS Score at medical facility
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.
(97) Injured, details unknown
(99) Unknown if injured

72. Was the Occupant Given Blood? 9
(1) No - blood not given
(2) Yes - blood given
(specify units):_____
(9) Unknown if blood given

73. Arterial Blood Gases (ABG) – HCO_3 97
(00) Not injured
(01) Injured, ABGs not measured or reported
(02-50) Code the actual value of the HCO_3
(96) ABGs reported , HCO_3 unknown
(97) Injured, details unknown
(99) Unknown if injured

BELT USE DETERMINATION

74. Primary Source of Belt Use Determination 3
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Vehicle inspection
(2) Official injury data
(3) Driver/occupant interview
(8) Other (specify):_____
(9) Unknown if belt used

Appendix J:

Response from Internal Medicine Doctor and Medical Journal Article

[redacted] 1995

Internal Medicine
& Diagnosis
M.D.
M.D.
M.D.

[redacted]
[redacted] IN

Dear Mr. [redacted]

I have received your letter of [redacted] I have enclosed a copy of an article that may be pertinent.

Cardiology
M.D.
M.D.
M.D.
M.D.
M.D.

As I am sure you are aware the majority of problems associated with the deployment of air bags are with localized facial injuries with driver side air bags. It is of interest that the information enclosed from [redacted] suggests that air bag deployment poses no respiratory system hazard to asthmatics. I believe this probably references a study reported in 1991. However, these same investigators recently reported a repeat of this study and did in fact show that aerosols generated by air bag deployment can evoke significant asthmatic reactions in certain individuals. I have enclosed a copy of that article which was published in [redacted] 1994. It is the general consensus that the precipitation of these bronchospastic reactions is due to a chemical gases rather than the inhalation of talc.

Gastroenterology
M.D.
M.D.

From a standpoint of talc itself the majority of problems related to talc are found in intravenous drug abusers who use talc to cut their drug, which leads to significant problems. Inhaling talc particularly in an acute situation is less well described to cause significant problems. There is some suggestion of chronic talc inhalation leading to a pneumoconiosis, but this would certainly not be pertinent to the case that you mentioned. I suppose that in high concentrations the inhalation of talc could lead to an acute irritant or bronchospastic reaction if this patient was susceptible. From a review of literature over the last five years I could not find any cases of an acute pneumonitis related to deployment of an air bag. The case in question apparently is a claim that a gentleman seated in the right rear position and that he suffered pneumonia from the deployment of the driver side air bag. "Pneumonia" is somewhat of a generic term. It would seem to me highly unlikely if not impossible for a gentleman to develop a bacterial infectious process from this type exposure. Whether or not he has underlying bronchospastic lung disease and may have developed an episode of bronchospasm and was given a clinical diagnosis of pneumonia or perhaps developed some irritant type symptoms and was told he had pneumonia without really definitive x-ray and other studies, I could not be certain.

Pulmonary Diseases
M.D.
M.D.

Infectious Disease

I hope that in some way this information is useful in your research. If I could provide anything else or give any further assistance to you please let me know.

Sincerely

M.D., [redacted].

[redacted]

enclosure

ACUTE PULMONARY RESPONSE OF ASTHMATICS TO AEROSOLS AND GASES GENERATED BY AIRBAG DEPLOYMENT

The purpose of this study was to determine whether the aerosols and gases that vent into an automobile's passenger compartment after airbag deployment pose a risk to the asthmatic population. After baseline pulmonary function measurements were taken, 24 diagnosed asthmatic subjects were placed in the rear seat of an automobile, and a driver-passenger airbag system was deployed. Subjects remained in the vehicle with the windows closed and no ventilation for 20 min or until they perceived or demonstrated signs of chest tightness and bronchoconstriction. They then exited the vehicle and were retested immediately after exposure and 2 and 4 h after exposure. Ten of the 24 subjects demonstrated clinically significant bronchoconstrictive episodes, three of which required medical intervention. These three events were quickly reversed by β-agonist therapy. When eight of the responding subjects were reexposed at later dates to the same supplemental inflatable restraints emissions while wearing a high-efficiency particulate absolute respirator, which prevented inhalation of the particles but allowed passage of the gases, the pulmonary response was essentially eliminated. We conclude that the aerosols generated by deployment of automotive driver-passenger airbag systems can induce significant asthmatic reactions in some individuals

Automotive airbags, also known as supplemental inflatable restraints (SIR), are designed to act in concert with safety belts by absorbing energy and reducing injurious loads on automobile occupants during moderate to severe frontal collisions. One analysis suggests a reduction in traffic fatalities by 8.2% if all automobiles had airbags used in conjunction with a 54% lap-shoulder belt use rate (1). Injuries from airbag deployment have been reported, such as thermal burns, abrasions, and chemical keratitis from airbag discharge of alkaline dusts, and heart trauma associated with the blunt impact to the chest (2, 3). These resultant complications have been argued as a justifiable trade-off for potential reductions in serious injuries or fatalities (4). The airbag will soon become standard equipment for both driver and passenger on most cars sold in the United States. The current technology involves the pyrotechnic oxidation of sodium azide by various oxidizing agents to produce mostly nitrogen gas which inflates the bag. The major by-product of this reaction is a metallic sodium aerosol, which quickly reacts with water vapor and carbon dioxide to produce sodium hydroxide, which in turn quickly converts to sodium carbonate (5). The aerosol also contains by-products of chemicals added to the sodium azide to initiate and control its oxidation. Along with gases generated in this process, the aerosol vents into the passenger compartment during the deflation of the airbag. It is estimated that the frequency with which an asthmatic could be trapped in a car for 20 min or more after airbag deployment with the windows closed, before exiting the vehicle, will likely exceed 100 cases/million cars/yr (6). The purpose of this study was to determine whether inhalation of the effluents from a deployed airbag system could precipitate an asthmatic attack in this population.

Previous work in this laboratory indicated that this would not likely be a problem (7). In that study, asthmatic subjects inhaled the aerosol captured and resuspended from a driver-side only airbag module at concentrations as high as 166 mg/m³ for 20 min, without production of any clinically significant changes in ventilatory function. However, there were certain aspects of that study which suggested the results may not be representative of the actual exposure environment for a real-world driver-passenger airbag deployment. The particulate concentrations inhaled by the asthmatic subjects ranged from 88 to 166 mg/m³ and were substantially below the levels subsequently found with a driver-passenger airbag system (200 to 300 mg/m³). Secondly, the chemical technology for passenger-side airbag modules (which must give off gases to inflate an airbag approximately three times the size of the driver-side bag, but in the same amount of time) has been modified from that of driver-side modules and may produce different chemicals after deployment. Thirdly, in the previously published study the aerosols were captured and held in a mixing chamber which allowed the aerosol to age for as much as an hour, possibly resulting in the loss of some volatile components from the particles before inhalation. Lastly, the subjects were not in an

(*Received in original form* *1993 and in revised form* *1994*)
Correspondence and requests for reprints should be addressed to MI
Vol 150. pp 408–414, 1994

automobile during and after airbag deployment, and therefore additional emotional and stress factors, suggested to exacerbate responses in some asthmatics (8), were absent. For these reasons, the current study was undertaken in which the pulmonary responses of volunteer asthmatic subjects seated in the rear seat of an automobile were evaluated during and after the deployment of a driver-passenger airbag system.

METHODS

The protocol employed was approved by the [redacted] Written informed consent was obtained from all participants.

Subjects

Twenty-four volunteers (21 male, three female) were recruited through advertisements in local newspapers. All subjects were between the ages of 18 and 45 yr, and met our criteria for asthma, which included (1) a previous diagnosis of asthma by a physician; (2) a history of reversible chest tightness, shortness of breath, and wheezing; and (3) a provocative concentration resulting in a 100% increase over baseline specific airway resistance (PC_{100}sRaw) for methacholine ≤ 1.5 mg/ml. All subjects' asthma had to be stable enough that they could withhold inhalation therapy for 12 h and oral medications for 24 h before airbag exposure. This was done in order to provide a worst case scenario and to eliminate the potentially confounding influence that the various drug regimens might have on the asthmatic response. In addition, all female subjects provided urine samples within 72 h previous to each airbag exposure, in order to test for the possibility of pregnancy. A positive result would have eliminated the subject from the study.

Methacholine Challenge

Baseline specific airway resistance (sRaw) was measured in each subject. While seated, as the subject inhaled from functional residual capacity (FRC) to total lung capacity (TLC), a 1-s burst of saline aerosol from a nebulizer ([redacted], PA) pressurized at 20 psi was administered. After five breaths of the saline, sRaw was measured again. Next, methacholine chloride in saline was administered in 5 breaths at 0.064 mg/ml and then in subsequent doubling concentrations with sRaw measured between each increasing concentration. Concentrations of methacholine were doubled until the sRaw had increased at least 100% over baseline value or until a 2 mg/ml concentration was reached. The PC_{100} was calculated by interpolation of the log-transformed methacholine concentrations.

Airbag Exposure

Subjects were seated in the back seat of a full size four-door sedan. Back seat occupancy was chosen because preliminary measurements (not presented) showed that the gas and aerosol exposure for people sitting in the back or front was quite similar, and it avoided the physical interaction of the subject with the forcefully inflating airbag. Ear plugs and ear muffs were worn for hearing protection. A Plexiglas face shield was also worn as a precaution against the unlikely possibility of flying debris. The driver-passenger airbag system was deployed, and the subject immediately removed the face shield and hearing protection. The subject remained in the vehicle, with windows closed and no ventilation, for 20 min, or until signs and symptoms consistent with bronchospasm (e.g., chest tightness, wheezing, dyspnea, tachypnea, tachycardia) occurred. During this time, the subject was visually observed by a physician, and constant communication was maintained through an intercom. Heart rate and electrocardiogram were continuously monitored (Model 7000-D ECG Nonfade Monitorscope; [redacted] CA). Respiratory rate and pattern were visually monitored.

Eight of the 10 subjects who had significant clinical responses to the airbag effluents were asked to return for a second test in which they were exposed to the gases but not the aerosols from the airbags. These subjects were tested no sooner than 2 wk after the previous exposure. For this second protocol, subjects sat in the vehicle with airbag deployment as before but wore a high-efficiency particulate absolute (HEPA) filtered respirator that essentially removes all particles while allowing the gases to flow through (9). The first two subjects wore passive filtering respirators with which they had to inhale against a slightly negative pressure (Model 7800 Easi-Air Full Face Air Purifying Respirator; 3M Corp., [redacted] MN). All others used a battery-powered air purifying respirator that continually pumped passenger compartment air through the filters to the face at 140 L/min so that no excess effort was required on the part of the subjects during inhalation (Model W3200; 3M Corp., [redacted] MN).

Symptoms Evaluation

Subjects filled out a symptoms questionnaire before entering the vehicle, at 2, 4, 8, 12, and 19 min after the airbag deployment, and immediately after the postexposure pulmonary function tests. Numbers from zero to 5 were circled by the subject according to his evaluation of each symptom: 0 = none, 1 = just perceptible, 2 = distinctly perceptible, 3 = nuisance, 4 = offensive, 5 = unbearable. The symptoms cited in the questionnaire are listed in Table 1.

Pulmonary Function Testing

Pulmonary function tests consisted of sRaw and FRC measurement by plethysmography and forced expiratory flow–volume curves. These tests were performed before airbag exposure, immediately after exiting the car, and 2 and 4 h after airbag exposure. All tests were administered by the same individual (KBG) using computer-based instrumentation with heated pneumotachographs for flow and volume measurements (Systems 1070 and 1085; [redacted] MN). All testing adhered to the American Thoracic Society guidelines and recommendations (10). Predicted spirometric values were based on the work of Crapo and coworkers (11).

Exposure Characterization

Aerosol concentrations were determined gravimetrically by drawing sequential filter samples from a central location inside the vehicle at the rate of 4 L/min through 47-mm filters ([redacted] CA) during the 20-min exposure. The size distribution of the aerosols was determined with an eight-stage multi-orifice uniform deposit impactor (MOUDI) with particle cut sizes of 10, 5, 2.5, 1.03, 0.3, 0.1, 0.072, and 0.058 mm (12). Preweighed 47-mm polyvinyl chloride (PVC) membrane filters were used as impaction substrates and the backup filter. The data were processed using an algorithm developed by Knutson (13).

In addition, carbon dioxide (CO_2) and carbon monoxide (CO) concentrations in the passenger compartment were continually measured. Because some of the pyrolytic products produced by the airbag deployment

TABLE 1

SYMPTOM SCORES OF NONRESPONDER SUBJECTS EXPOSED TO AIRBAG EFFLUENT (n = 14)*

Symptom	Preexposure Mean	Mean of Highest Score Reported by Each Subject
Itching or burning of the eyes	0.00 (0)	0.86 (0.23)
Itching or burning of the nose	0.07 (0.07)	2.1 (0.43)
Dryness of mouth or throat	0.29 (0.13)	1.6 (0.29)
Burning of throat	0.00 (0)	2.4 (0.37)
Production of tears	0.00 (0)	0.71 (0.22)
Urge to cough	0.43 (0.17)	3.1 (0.34)
Shortness of breath	0.29 (0.13)	1.7 (0.37)
Chest tightness	0.36 (0.13)	1.3 (0.29)
Chest burning or discomfort	0.07 (0.07)	1.7 (0.35)
Difficulty taking a deep breath	0.14 (0.10)	2.4 (0.40)
Runny nose	0.07 (0.07)	1.4 (0.42)
Nausea	0.00 (0)	0.07 (0.07)
Headache	0.07 (0.07)	0.43 (0.23)
Dizziness	0.00 (0)	0.50 (0.17)
General discomfort	0.00 (0)	1.36 (0.36)

* Symptom scores: 0 = none, 1 = just perceptible, 2 = distinctly perceptible, 3 = nuisance, 4 = offensive, 5 = unbearable. Values in parentheses are standard error of the mean.

TABLE 2

CHARACTERISTICS OF SUBJECTS

Subject No.	Sex	Age (yr)	Ht (cm)	Wt (kg)	FVC (% pred)	FEV (% pred)	Baseline sRaw (cm H_2O/L/s)(L)	PC_{100} sRaw (mg/ml)	Known Allergies	Medications
Responders										
1	M	31	175	66.7	103	106	6.15	1.21	Mold, dust mite	Corticosteroid inhaler, prn
6	M	20	178	74.4	99	99	6.18	0.11	Pollen, dust, molds	β-agonist inhaler, prn
7	M	24	178	68.9	94	74	16.83	0.66	Dust mite, weeds, animals	Theophylline; β-agonist inhaler, prn; corticosteroid inhaler, prn
10	M	31	180	99.8	109	106	4.61	< 0.064	Animals, dust mite, pollen, grass	Theophylline; β-agonist inhaler, prn
11	M	35	178	81.7	66	49	16.50	0.074	Dust, animal dander, nuts	Theophylline; β-agonist inhaler, tid
12	M	42	168	72.6	53	59	13.97	0.16	Dust, grass	Theophylline; β-agonist inhaler, qid; corticosteroid inhaler, tid
13	M	39	185	158.8	68	60	9.07	0.53	Iodine	Theophylline; β-agonist inhaler, qid; ipratropium inhaler, tid
17	M	23	178	69.0	100	77	19.94	0.52	Animals, pollen, ragweed	Theophylline; β-agonist inhaler, prn; ipratropium inhaler, bid; corticosteroid inhaler, bid
18	M	21	175	95.3	115	105	7.11	0.14	Mites, dogs, cats, corn	Oral β-agonists; β-agonist inhaler, prn; corticosteroid inhaler
21	F	32	168	122.5	72	62	11.48	0.15	Molds, fish, nuts, pollen	Theophylline; β-agonist inhaler, prn; oral β-agonist
Nonresponders										
2	M	26	191	79.4	111	88	10.03	1.17	None	β-agonist inhaler, prn
3	M	18	170	63.5	88	57	11.61	0.75	None	None
4	M	24	185	97.5	110	99	8.01	0.71	Grass, animals, dust	β-agonist inhaler, prn
5	M	37	163	77.1	95	78	7.15	0.83	Mold, dust	None
8	M	23	173	72.6	95	87	12.60	0.07	Trees, grass, molds, animals	β-agonist inhaler, prn
9	M	30	173	72.6	110	72	14.43	0.10	Dust mite, some trees	Theophylline; corticosteroid inhaler; β-agonist inhaler, prn; β-agonist tablets, prn;
14	M	27	170	63.5	110	93	9.35	0.086	None known	β-agonist inhaler, prn
15	M	33	193	115.7	106	106	4.31	0.52	None	None
16	M	38	180	87.1	112	98	8.02	< 0.064	Dust, feathers, hay fever	Theophylline; β-agonist inhaler, prn
19	M	21	170	62.1	82	74	9.14	1.04	Pollen, grasses, dogs, cats, eggs, milk, corn oil, soybean oil	β-agonist inhaler, prn
20	M	24	168	72.6	105	99	9.43	1.13	Cats, birds, dust, straw	β-agonist inhaler, prn
22	M	28	178	97.5	89	76	18.57	0.74	Dust	β-agonist inhaler, prn; Cromolyn inhaler
23	F	26	165	47.6	107	110	7.41	1.33	Dust, pollen, animals	None
24	F	20	160	55.8	108	110	6.96	1.30	Cats, dogs, pollen grass	β-agonist inhaler, prn

Definition of abbreviations: sRaw = specific airway resistance; PC_{100} sRaw = provocative concentration resulting in a 100% increase over baseline sRaw; prn = as the occasion arises; tid = three times daily; qid = four times daily; bid = twice a day.

were found to interfere with the CO sensor during the second half of the exposure, the CO concentrations are reported as the mean for the first 10 min only. CO_2 was monitored with a portable analyzer (Model 3252; [redacted] CA) calibrated at 2,000 ppm. The CO was monitored with a portable monitor (Ecolyzer Model 411; [redacted], PA) calibrated at 46 ppm.

Statistical Evaluation

Data statistically evaluated were first submitted to the Shapiro-Wilk statistic for normality (14). The test could not reject the hypothesis that the data were normally distributed and accordingly were evaluated as such. Differences were evaluated using the one-tailed Student's *t* test (15). P values of 0.05 or less were accepted as indicating statistical significance. Data are reported as means ± standard error of the mean (SEM).

RESULTS

Subject Characteristics

Characteristics of the subject population are presented in Table 2. None of the subjects had a history of regular smoking except for Subject 7 who had a 14 pack-year history of cigarette use but quit 7 yr prior to this study. Only one subject (Subject 6) had been hospitalized for his asthma in the 12 mo prior to this study.

Exposure Conditions

The average particulate concentration for the 20-min exposure for all 24 subjects was 221 ± 8.2 (SEM) mg/m³, with a range of 175 to 306 mg/m³. The average particulate concentration for the

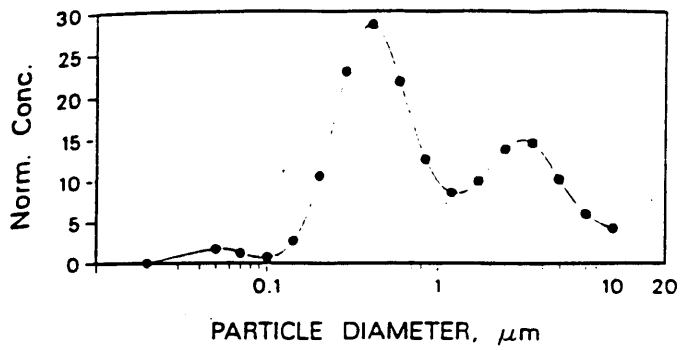


Figure 1. Size distribution of the aerosols from a driver-passenger SIR system as sampled in the passenger compartment. The normalized concentration is particulate mass expressed as a function of the aerodynamic median diameter determined by a micro-orifice uniform deposit impactor [redacted]

10 responding subjects was 225 ± 11.29 mg/m³, with a range of 178 to 297 mg/m³. The particulate concentration in the passenger compartment was not constant over the exposure period. Concentrations tended to be highest immediately after airbag deployment and decreased through the exposure period as some of the aerosol settled or deposited on surfaces. The particle size was bimodally distributed with nodes at 0.5 and 3.5 mm (Figure 1).

Pulmonary Function

Fourteen of the 24 subjects tested showed little discernible or clinically important response to the 20-min experimental exposure. The forced expiratory volume in one second (FEV_1) and sRaw for these subjects are graphically presented in Figures 2A and B. Immediately after airbag exposure these subjects averaged a 6% increase in sRaw and a 3% decrease in FEV_1. One subject's FEV_1 improved 11.5% after the airbag exposure compared with his morning baseline and at the 2-h postexposure time point it increased to 17% above baseline. This subject suffered from nocturnal asthma, with a typical pattern of greatest airway constriction in the morning hours and subsequent steady improvement as the day progressed. The subject arrived in the morning feeling tight and showing bronchoconstriction by the pulmonary function testing. As the day progressed the effects of the nocturnal episode wore off in spite of the airbag exposure. The greatest sRaw increase in the nonresponders occurred in Subject 24 who had a 44% increase after exposure, and her FEV_1 decreased 9%. Clinical symptoms did not exceed "distinctly perceptible" for this subject, and no medication was administered.

Subjects were classified as having had a significant clinical response to the airbag exposure if they met both of the following two criteria: (*1*) when compared with their preexposure baseline data, the airbag exposure resulted in either a 50% or greater increase in sRaw, or a 15% or greater decline in FEV_1, and (*2*) subjects experienced symptoms consistent with previous episodes of bronchospasm. Ten of the 24 subjects met these criteria. Their pulmonary function data are shown in Figures 2A and B. Immediately after airbag exposure, the responders' sRaw increased an average of 202%, and their FEV_1 decreased by 24%. Two of the subjects' reactions (Subjects 11 and 21) were so severe that medical judgment required them to exit the vehicle and terminate the exposure before the full 20 min of exposure had occurred. One of these subjects (Subject 21) exited the vehicle after approximately 7 min but was able to perform the full plethysmographic and spirometric testing (sRaw↑156%, FEV_1↓ 28%). No medication was given,

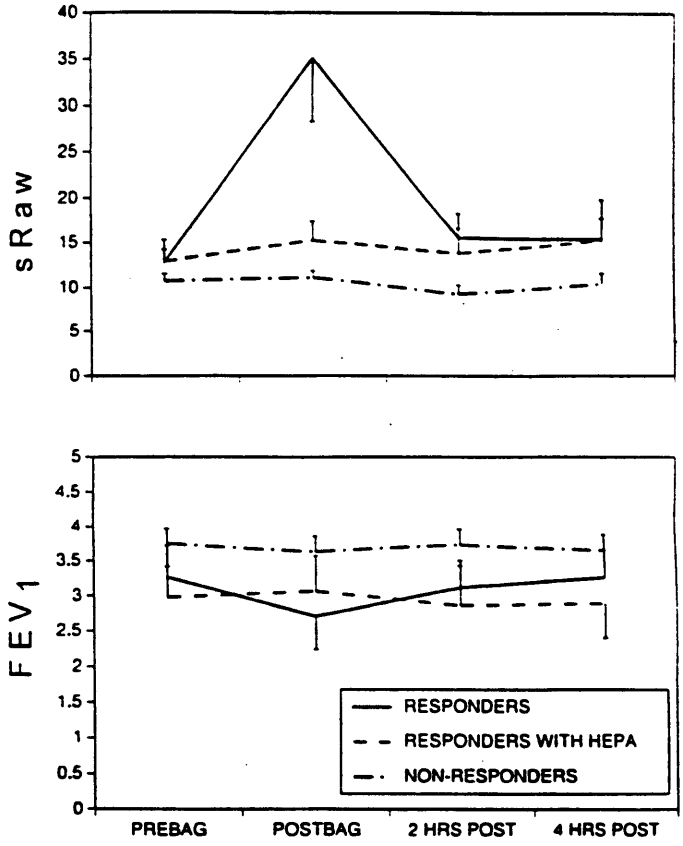


Figure 2. Effect of the inhalation of airbag effluents on (*A*) sRaw, and (*B*) FEV_1 in 14 nonresponding asthmatics, 10 responding asthmatics, and eight of the 10 responding asthmatics wearing HEPA filter masks. Data are presented with SEM.

and symptoms started to alleviate spontaneously approximately 10 min after termination of the exposure. The other subject (Subject 11) exited the vehicle after 10.5 min of exposure and performed the plethysmographic tests for resistance measurement (sRaw↑ 146%), but was so distressed at this point that he had to be medically treated without performing the spirometry. This subject's spirometry is therefore not reported in the data at the "postbag" time-point or the two succeeding test time points. Subject 7 went through the entire exposure but his reaction was so severe that therapy was given immediately without postexposure testing. This subject came back several months later for another testing. This time he again went through the entire 20-min exposure, but was able to perform the pulmonary function testing without bronchodilator therapy. It is this second test that is reported in the data (sRaw↑633%, FEV_1↓63%). A fourth subject (Subject 10) went through the entire 20-min exposure and had a significant reaction (sRaw↑335%). Although he did not immediately require medication, his condition continued to deteriorate, and by 2.5 h after termination of the exposure he required therapy. His data are not reported at the 4 h postbag time point. The pre- and postexposure flow volume loops of two subjects who responded to the airbag effluents are shown in Figure 3 as visual examples of the induced changes in ventilatory function.

Subject 21 exited the vehicle after 7 min of exposure because of the significant clinical signs and symptoms of bronchospasm she exhibited. This subject and the other three responders, who remained in the vehicle for the full 20 min, did not require ther-

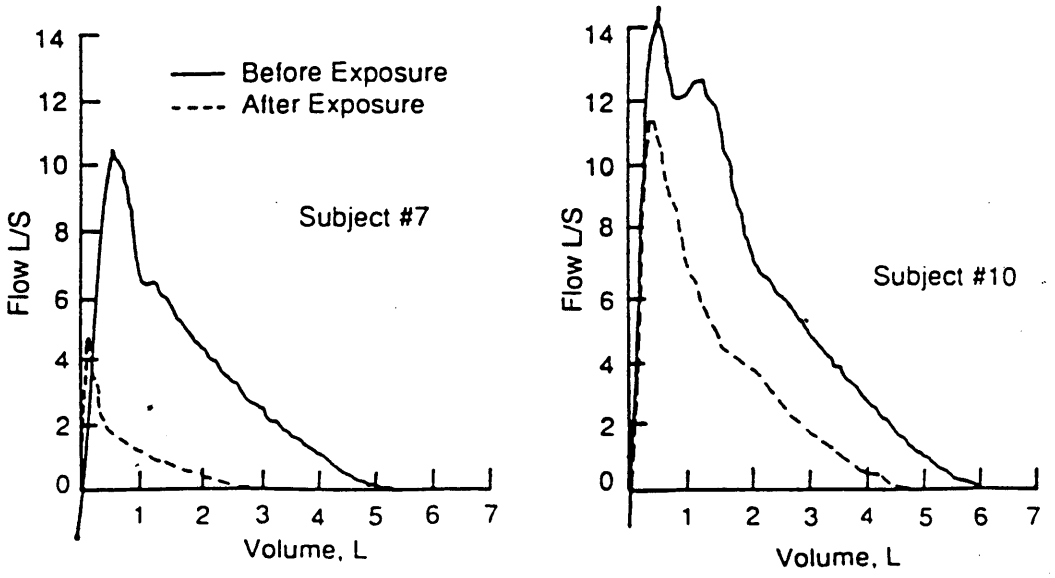


Figure 3. Flow–volume curves for two of the subjects (7 and 10) who showed clinically significant responses to the inhalation of the airbag effluent.

apy, and generally felt an alleviation of symptoms within 15 min after exiting the car.

In all cases where medical intervention was necessary, pharmacologic therapy consisted of treatment with metaproterenol sulfate (0.6%, 2.5 ml), administered by updraft nebulizer. In each instance, most of the symptoms resolved promptly. In general, clinical signs of the bronchospasm induced by the airbags in the responder population included signs of wheezing, tachypnea, tachycardia, and nasal flaring.

The results of filtering particles out while allowing the responders (eight of the 10) to inhale the airbag effluent gases are also shown in Figure 2A and B. With the HEPA filter masks worn during exposure, sRaw and FEV_1 immediately after exposure increased by only 14 and 3%, respectively, compared with a 237% increase and 30% decrease when exposures were performed without filtering out the SIR aerosols. The greatest response in a HEPA-filtered exposure was for Subject 11, whose sRaw went from a baseline of 10.4 to a postexposure level of 19.1, an 84% increase. This is still dramatically less than his non-HEPA-filtered response in which his sRaw went from 24.8 to 61.0 cm $H_2O/L/s \cdot L$, a 146% increase, and required urgent bronchodilator treatment.

Figure 4 displays the FVC, FEV_1, and FEV_1/FVC data obtained during subject characterization as a percentage of predicted for responders and nonresponders. The means for each group are displayed by a horizontal bar. The predicted FVC significantly lower for the responders.

Symptoms Reporting

Table 1 shows the highest symptom reporting during the airbag exposures for the 14 nonresponders. The highest symptom scores reported during the exposure were related to the urge to cough, difficulty in taking a deep breath, and itching or burning of the throat and nose. These symptoms were likely related to the very large amounts of particulate being inhaled, and apparently not related to acute bronchospasm, since airway constriction was not apparent in these nonresponders.

Four of the symptoms that might be expected to be indicative of an asthmatic attack are reported in Figure 5 as means of the nonresponders (n = 14) and responders with (n = 8) and without (n = 10) use of the HEPA filter respirators. The responders show a distinct increase in these four symptoms in comparison with the nonresponders. Use of the HEPA filter respirators essentially eliminated symptomatic response by the responders.

DISCUSSION

Ten of 24 asthmatic subjects who were exposed to the aerosols and gases in the passenger compartment resulting from the deployment of a driver-passenger airbag system had clinically significant bronchospasm. Four of these responses required terminating the exposure before the intended 20 min had been reached. Urgent bronchodilator therapy with only β-agonist inhalation rapidly improved the acute symptomatology without recurrence.

HEPA filter masks effectively diminished the bronchospastic provocation in prior responders. These masks were employed to remove the effect of the aerosols although the subjects were still exposed to the gases. Subjects reported that use of the masks eliminated the development of chest tightness, burning or discomfort, and difficulty in taking a deep breath, but eye and upper airway irritation were still noticed. This suggests that the substances responsible for the induced bronchospasm appear to lie in the particulate, although the SIR gases are not totally innocuous.

Some asthmatics are known to have an emotional component to their asthma. We do not believe the acute bronchospastic episodes observed in these tests were initiated by stress or emotional factors for several reasons. Subject 7 who was tested on two different occasions with the same airbag system had qualitatively similar responses, even though he was familiar with the testing protocol the second time and therefore might have been expected to be calmer. Conversely, one could argue that once a responder had a significant reaction to the airbag exposure protocol, he would emotionally react on subsequent exposures because he knew what happened previously. However, several of the responders had additional tests of an identical protocol performed at later dates (not reported) in which they were exposed to airbag systems that used various prototype technologies that are not currently used in production. The noise and violence of the deployments were nominally the same as the previous exposures. The particulate levels

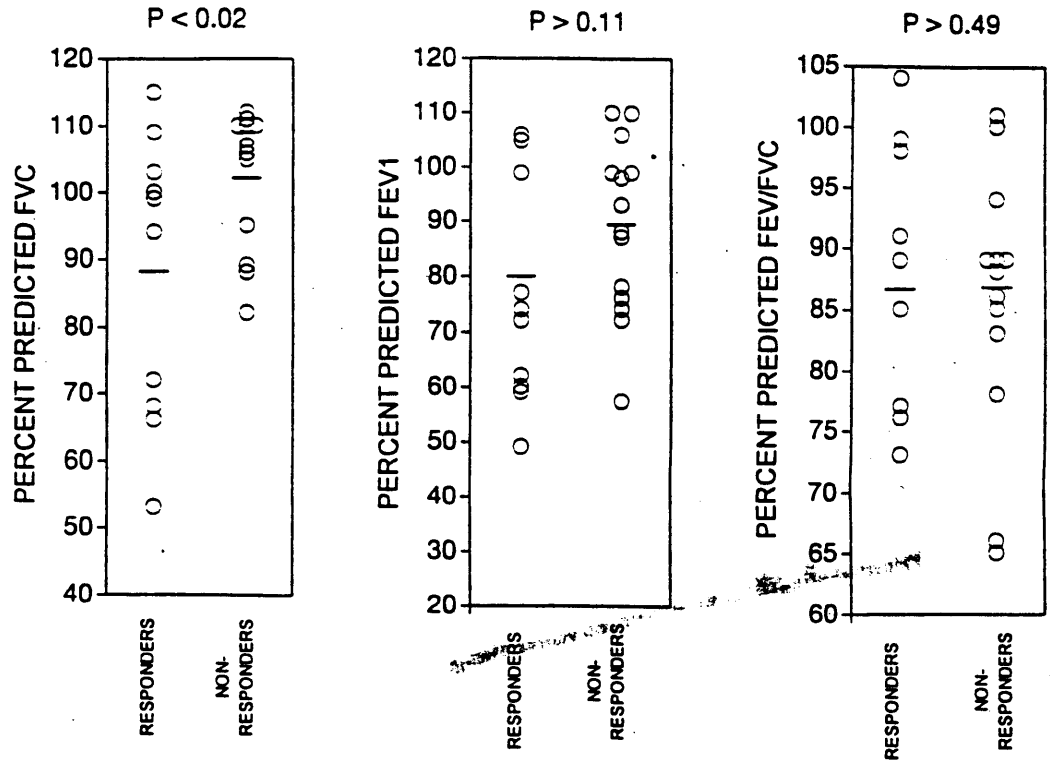


Figure 4. Percentage of predicted values for FVC, FEV_1, and FEV_1/FVC ratio in responders and nonresponders to the airbag effluents. Data were obtained during the subject characterization phase of the study. P values were obtained by Student's *t* test.

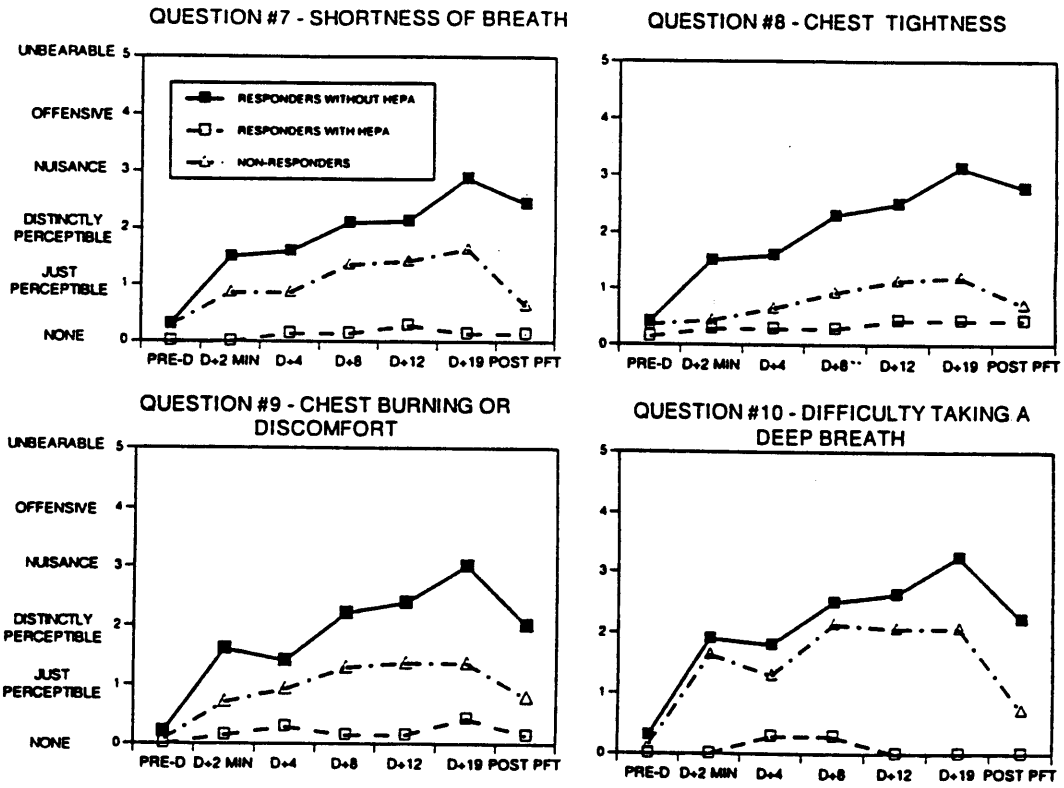


Figure 5. Scores for four of the symptoms scored during airbag effluent inhalation. The averages of the 14 nonresponders, 10 responders, and eight responders wearing HEPA-filtered masks are given. For the responders, because the exposure was terminated early for two of the subjects, the last several scores consist of an n less than 10.

were generally lower, though the difference was not visually discernible. Yet, the responses in these cases were generally less or absent when compared with the production airbag systems. For example, Subject 21 had a 156% increase in sRaw in response to the production airbag system, and a 3% increase with one of the prototype systems. Subject 17, who had a 160% increase in sRaw with the production system, responded to a prototype system with a 2% decrease in sRaw. In addition, several of the responders reported that they did not start to feel their symptoms until 8 or 10 min after airbag deployment. If their pulmonary reaction was purely an emotional response to the "stress" of the airbag deployment, we would not have expected to see this delay in onset of symptoms. Lastly, if the responses were emotional, we might have expected at least one of the subjects to become nervous about wearing the rather cumbersome and awkward HEPA filter masks, and subsequently have a pulmonary response. This did not occur.

Although the percentage predicted FVC is significantly lower in the responder group (Figure 4), there is still much overlap in the data between the two groups. This suggests that it would be difficult to attempt to predict who might respond to the airbag effluents. Similarly, the PC_{100} data and known allergies information (Table 2) do not appear to offer predictive information.

This study was not designed to identify the chemical or chemicals responsible for the bronchoconstriction. There are a number of different vendors supplying the auto industry with airbags. All currently use the oxidation of sodium azide as the primary gas generant, which results in the formation of alkaline carbonates. However, there are numerous other chemicals added by each manufacturer, such as metal oxides, chlorates, nitrates, or sulfides which serve as oxidizing agents. The airbag systems used in this study employed sulfide and iron based oxidants for the airbag inflation systems. These were chosen because they are both systems with widespread current and projected future use in the U.S. market. Thus, in addition to the alkaline carbonate salts that make up the bulk of the aerosol produced by mass (4), lesser quantities of other chemicals, such as sulfurous and iron compounds must also be considered suspect as possible initiators of the observed bronchoconstriction. It is also conceivable that the pulmonary reaction is in response to significant irritation caused by an overwhelming deposition of particles in the airways, rather than to some specific chemical property possessed by them.

Responders to the airbag effluent were not more likely, as a group, to have more significant obstruction, as indicated by their lower FEV_1 and FEV_1/FVC (Figure 4). Airway hyperreactivity, as reflected by PC_{100}, and known allergy information did not segregate responders. Usual asthma medications were withheld in order to eliminate the confounding effect that medications would have on the interpretation of data and to create a worst case scenario, in the belief that if a response was not seen while withholding medication, other variations of the protocol would not be necessary. It is possible that asthmatics taking their normal medications would not respond to the degree these 10 subjects did, especially since prompt symptomatic response to bronchodilator therapy was noted in the severe responders. On the other hand, it is generally held that a significant proportion of the asthmatic population does not comply with their prescribed medication regimen, and the subjects in this study had stable asthma, mild enough that medication could be withheld. A person with moderate to severe asthma could conceivably experience a more dramatic deterioration that may not respond well to bronchodilators.

The epidemiologic implications of this study are necessarily limited by the small number of subjects. The 95% confidence interval for a binomial distribution with an event occurring 10 of 24 times (42%) is 26 to 63%, and it is likely that the true percentage of responders lies in this range. Even if the true number of responders in the asthmatic population approaches the lower limit of 26%, the acute pulmonary responses that we observed in asthmatics will likely occur regularly since approximately 4% of the population is asthmatic (16), and millions of airbag systems will be in use in the coming years.

In summary, the effluents discharged into an automobile passenger compartment after deployment of the driver-passenger airbag system, albeit a worst-case scenario, are capable of inducing clinically significant asthmatic attacks in some individuals. The aerosols generated are likely responsible for this response. The acute reaction appears to be readily treatable with standard bronchodilator therapy. The possibility of bronchospasm precipitated by airbag effluents should be considered in the differential diagnosis of acute respiratory symptomatology in victims of automobile accidents where such devices have been deployed.

References