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U.S. Department
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**National Highway
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ACCIDENT RESEARCH GROUP

Calspan Corporation
[redacted]

CALSPAN ON-SITE AIR BAG DEPLOYMENT/ PEDESTRIAN CRASH INVESTIGATION

CALSPAN CASE NO. 94-17

VEHICLE #1 - 1993 SATURN SR2 (AIR BAG-EQUIPPED)

LOCATION - [redacted], NEW YORK

CRASH DATE - [redacted], 1993

Contract No. DTNH22-94-D-07058

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
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 are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

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

TECHNICAL REPORT STANDARD TITLE PAGE

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15. *Supplementary Notes*
On-site investigation of an air bag deployment crash involving an 82 year pedestrian who sustained fatal injuries.

16. *Abstract*

A 1993 Saturn SL2 (Vehicle #1), equipped with a driver side air bag was traveling west on a two lane, undivided, wet asphalt rural road with a posted speed limit of 89 km/h (55 mph) at a police estimated travel speed of 72-84 km/h (45-52 mph) and struck an 82 year old female pedestrian who was crossing the roadway in a northerly direction (left to right across Vehicle #1's path) with her right side exposed to the approaching vehicle. The pedestrian was contacted by the front bumper and wrapped onto the hood with her right side. She continued rearward along the vehicle surface and struck the windshield and right A-pillar with the right side of her head. This contact halted her rearward movement. Her body then rotated in a clockwise direction and dismounted the right side of the vehicle as the vehicle was rotating in a counterclockwise direction. The pedestrian landed on the ground (lawn) 22.1 m (73.7') from the point of impact and 5.3 m (17.4') north of the north road edge line. She subsequently tumbled and rolled another 11.6 m (38.1') to her final rest position on the lawn. The pedestrian sustained injuries of the skull, brain, spinal column/cord, sternum, ribs, lungs, aorta, diaphragm, mesentery, lower legs, right arm, and face which were attributed to contact with the vehicle. The air bag deployed during the pedestrian impact sequence.

17. *Key Words* Supplemental Inflatable Restraint (SIR) System Air bag module cover Right frontal impact 82 year old female pedestrian Impact speed of 69.0 km/h (42.9 mph) AIS-5 level injury	18. *Distribution Statement* General Public

19. *Security Classif. (of this report)* Unclassified	20. *Security Classif. (of this page)* Unclassified	21. *No. of Pages*	22. *Price*

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CALSPAN PEDESTRIAN/AIR BAG DEPLOYMENT INVESTIGATION

CALSPAN CASE NO. 94-17

PEDESTRIAN - 82 YEAR OLD FEMALE

VEHICLE - 1993 SATURN SL2

LOCATION - [redacted], NEW YORK

SUMMARY

This on-site investigation was conducted in support of the Pedestrian Crash Data System for the National Accident Sampling System and the Special Crash Investigation programs. The primary objects were to determine pedestrian kinematics, identify and correlate pedestrian contact points with vehicle damage patterns, ascertain vehicle impact speed, and determine the air bag initiation mechanism.

A 1993 Saturn SL2 (Vehicle #1), equipped with a driver side air bag was traveling west on a two lane, undivided, wet asphalt rural road with a posted speed limit of 89 km/h (55 mph) at a police estimated travel speed of 72-84 km/h (45-52 mph) and struck an 82 year old female pedestrian who was crossing the roadway in a northerly direction (left to right across Vehicle #1's path) with her right side exposed to the approaching vehicle. The pedestrian was contacted by the front bumper and wrapped onto the hood with her right side. She continued rearward along the vehicle surface and struck the windshield and right A-pillar with the right side of her head. This contact halted her rearward movement. Her body then rotated in a clockwise direction and dismounted the right side of the vehicle as the vehicle was rotating in a counterclockwise direction. The pedestrian landed on the ground (lawn) 22.1 m (73.7') from the point of impact and 5.3 m (17.4') north of the north road edge line. She subsequently tumbled and rolled another 11.6 m (38.1') to her final rest position on the lawn. The pedestrian sustained injuries of the skull, brain, spinal column/cord, sternum, ribs, lungs, aorta, diaphragm, mesentery, lower legs, right arm, and face which were attributed to contact with the vehicle. The air bag deployed during the impact sequence with the pedestrian.

Prior to the crash, the 22 year old female driver negotiated a right curved segment of the road and was proceeding along the straight horizontally aligned roadway segment unaware of the pedestrian's presence in the roadway. The right front occupant warned the driver on two occasions of the impending danger before the driver was able to comprehend the presence of the pedestrian. The driver attempted a left steer avoidance maneuver which caused the vehicle to rotate in a counterclockwise direction. The driver stated she initiated a right counter

steering maneuver to avoid traveling in the opposite travel lane and departing the left side of the roadway. The vehicle responded and began to travel back toward the right shoulder. The driver saw the pedestrian near the right shoulder and attempted to steer back to the left.

The right front bumper contacted the pedestrian's legs which were slightly apart with the left leg forward leading and weight bearing. Her right hip, right elbow and right lower torso subsequently wrapped onto the right hood surface resulting in a large indentation pattern which comprised of three distinct contact points with the deepest depression measuring 3.20 cm (1.25"). The pedestrian then contacted the right windshield wiper arm with her right shoulder which was displaced rearward into the windshield. She continued rearward on the vehicle and subsequently struck the windshield and right A-pillar with her head. The pedestrian's left chest contacted the radio antenna located along the top surface of the right front fender resulting in a rearward bending of the mast (refer to photographs #29-#32, #35, #36). The pedestrian was carried for approximately 11.8 m (38.7') where she separated from the vehicle and struck the ground. Contact with the ground was denoted by a 2.0 m (6.6') x 0.7 m (2.3') brushed grass mark in the direction of the pedestrian's trajectory within which a 0.3 m (1.0') gouge mark was present. The pedestrian came to the final rest position perpendicular to the roadway with her head pointing away from the roadway.

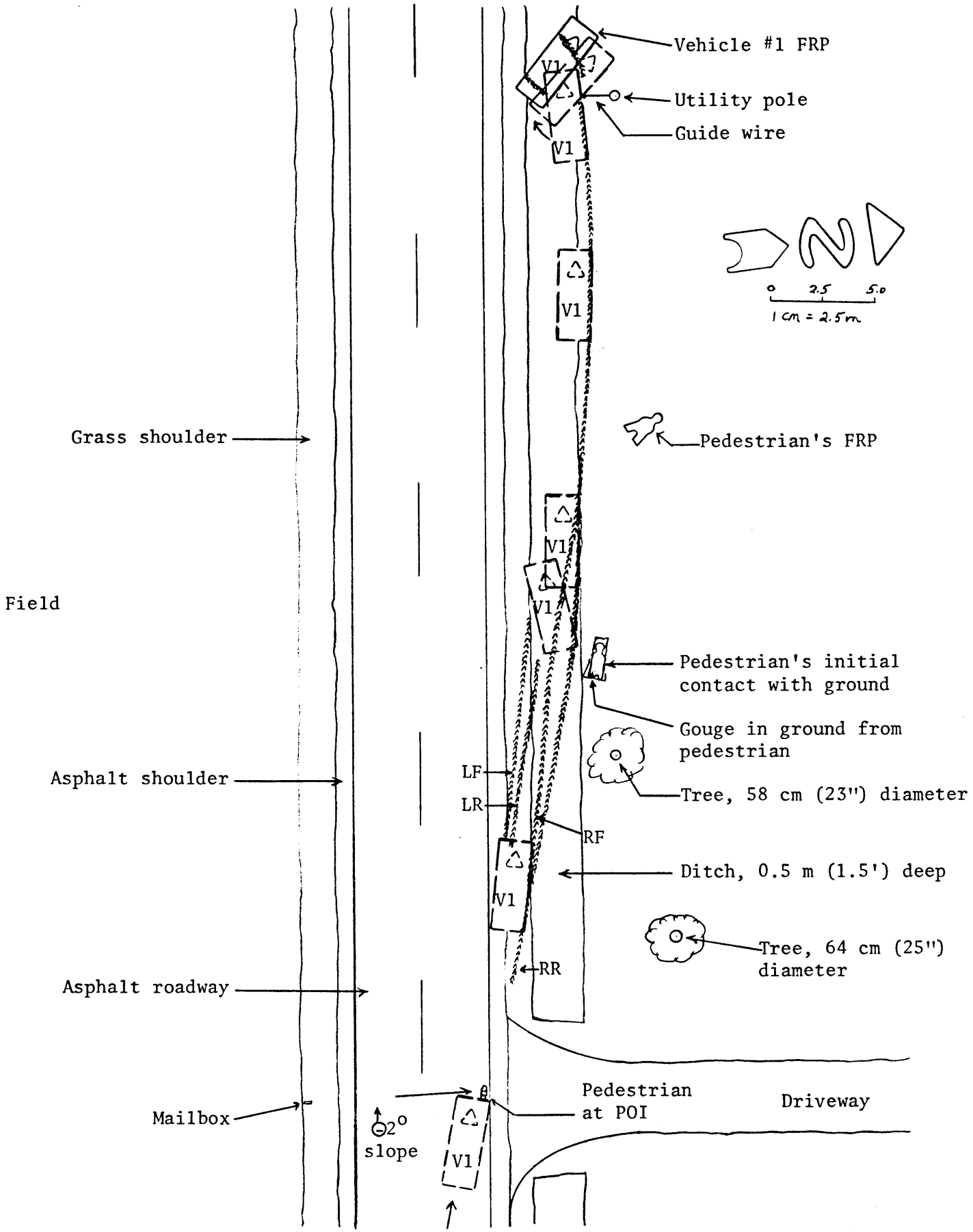
The vehicle exited the right shoulder in a counterclockwise rotation after the impact with the pedestrian and struck the ditch with its right side. Heavy contact at the right front and right rear tires halted the vehicle's counterclockwise rotational pattern. The vehicle continued along the ditch for 21.0 m (68.9') and traveled back toward the roadway in a counterclockwise travel path when it struck a utility pole guy wire with its right side plane. The wire contact began 35.6 cm (14.0") rearward of the right front wheel and continued rearward 125.7 cm (49.5") where the leading edge of the right rear door hinge snagged the wire and was deformed rearward 3.8 cm (1.5"). The vehicle subsequently rotated in a clockwise direction and came to final rest 1.0 m (3.3') west of this impact heading in a northwesterly direction.

The top surface of the radiator support bracket 33 cm (13") right of the vehicle centerline was deformed downward 1.3 cm (0.5") as the result of the impact with the pedestrian. This deformation was adjacent to the air bag discriminating sensor which was located 44.5 cm (17.5") right of the centerline. The yellow warning label attached to the upper radiator support (refer to photograph #34) exhibited a rub mark from hood compression during the pedestrian contact sequence. This mark was located 46.0 cm (18.1") right of the vehicle centerline. It appears likely the discriminating sensor sustained an energy pulse from the pedestrian strike which was sufficient to initiate the air bag deployment sequence and deploy the driver side air bag.

Both the driver and right front occupant were wearing the motorized 2-point automatic shoulder belt and the 2-point manual lap belt at the time of the crash. Neither occupant sustained any injury during the crash.

The State Police, the State Park police, and the local police department responded to the crash and determined the pedestrian was deceased at the scene. The Assistant County Medical Examiner arrived on-scene two hours and thirty-one minutes after the crash and officially pronounced the pedestrian deceased. The pedestrian was removed by ambulance and transported to a hospital in a neighboring town where an invasive autopsy was performed. The Medical Examiner listed the cause of death as massive craniocerebral injury and severed aorta.

CRASH SCENE SCHEMATIC
Calspan Case 94-17



CRASH DATA

Location:	2 lane undivided county road
City/Township:	[redacted], New York
Area/Type:	Rural/residential
Investigating Police Agency:	New York State Police
Accident Type:	Vehicle strikes pedestrian in roadway
Air Bag Vehicle Driver Injury Severity:	Not injured (AIS-0)
Pedestrian Injury Severity	Fatal (AIS-5)

AMBIENCE

Viewing Conditions:	Dusk
Weather:	Light rain
Road Surface:	Wet

HIGHWAY

Type:	County road
Number Of Lanes:	2
Width:	6.4 m (21.3')
Surface:	Asphalt
Median:	None
Edge:	North edge - 0.9 m (2.9') South edge - 0.8 m (2.7')
Vertical Alignment:	-3.4 percent (-2^0)
Horizontal Alignment:	Straight
Estimated Coefficient Of Friction:	0.5
Traffic Density:	No other vehicles at time of crash

TRAFFIC CONTROLS

Signals:	None
Signs:	None
Markings:	Broken yellow center lines in new condition and solid white road edge lines in fair condition
Speed Limit:	89 km/h (55 mph)

VEHICLE DESCRIPTION

Description:	1993 Saturn SL2
V.I.N.:	1G8ZJ5574PZ(serial number omitted)
Color:	Red
Odometer:	31,056 km (19,298 miles)
Engine:	4 cylinder, 1.9 L
Transmission:	Manual
Steering:	Variable-effort power steering
Brakes:	Power assisted front disc and rear drum
Padding:	Upper and mid instrument panel, soft edge steering wheel rim and air bag module cover, door panels, door arm rests, seats, roof liner, sunvisor
Active Restraints:	2-point lap belts available for the two front seats, 3-point lap and shoulder belts in the two outboard rear seat positions, 2-point lap belt for the center rear seat position
Passive Restraints:	Driver side air bag Supplemental Inflatable Restraint (SIR) system that deployed as the result of the impact with the pedestrian, passive 2-point motorized torso belts for the two front seat positions
Defects:	None
Tow Status:	Towed due to damage

VEHICLE DAMAGE

Exterior:

The right frontal plane of the 1993 Saturn SL2 impacted an 82 year old, 162.5 cm (64.0"), 93 kg (205 lbs.), female pedestrian who was crossing the roadway in a northern direction. A 10.2 cm (4.0") wide and 17.8 cm (7.0") high light gray fabric transfer mark was noted to the red bumper cover. The transfer was tilted toward the right with the top portion of the transfer beginning 43.8 cm (17.3") right of the vehicle centerline and the bottom portion beginning 39.4 cm (15.5") right of the vehicle centerline (refer to photographs #29, #30 and slide #34). This transfer mark was associated with the pedestrian's left leg and was consistent with the pedestrian's gray sweat pants. The bumper cover directly forward of the right headlight was deformed rearward 1.3 cm (0.5") in an area measuring 19.1 cm (7.5") laterally and beginning 31.1 cm (12.3") right of the vehicle centerline.

The right headlight assembly was displaced downward as the result of the pedestrian contact on the hood surface. The right side of the hood surface was indented over a general area which measured 53.3 cm (21.0") along the hood edge, 76.2 cm (30.0") along the centerline, 61 cm (24") along the right fender, and 35.6 cm (14.0") from the right fender toward the centerline. The maximum vertical crush of 3.18 cm (1.25") was located 24.1 cm (9.5") rearward of the hood edge and 35.6 cm (14.0") right of the centerline. Within this area, there were three distinct pedestrian contact areas observed.

The first was an elliptical pattern which was aligned in a front to rear pattern and measured 22.9 cm (9.0") x 15.2 cm (6.0") and a vertical crush of 3.18 cm (1.25"). The center of the pattern was located 24.1 cm (9.5") rearward of the hood edge and 35.6 cm (14.0") right of the centerline. This deformation was associated with the pedestrian's right hip and right flank. This contact depressed the hood downward onto the upper radiator support bracket in the vicinity of the air bag discriminating sensor which resulted in the initiation of the air bag deployment sequence (refer to photographs #32-#34 and slides #35-#38) The wrap distance from the ground to the center of this contact measured 101.6 cm (40.0").

The second distinct pedestrian contact pattern was 5 cm (2") in diameter and measured 2.5 cm (1.0") vertical indentation. This was located 29.2 cm (11.5") rearward from the hood edge and 24.1 cm (9.5") right of the centerline. This deformation was attributed to contact by the pedestrian's right elbow.

The third distinct pedestrian contact was a continuation of the first contact. This indentation measured 26.7 cm (10.5") in diameter with the center located 47.0 cm (18.5") rearward from the hood edge and 50.8 cm (20.0") right of the centerline. It measured 2.2 cm (0.9") deep and was attributed to contact by the pedestrian's upper torso. Numerous internal injuries were attributed to this contact including: fracture dislocation of the thoracic vertebra with complete severance of the spinal cord; laceration of the mesentery; avulsion of

diaphragm; complete severance of the arch of the aorta; and multiple contusions of both lungs. The wrap distance from the ground to the center of this contact measured 127 cm (50").

The right windshield wiper arm was deformed upward and the right side of the wiper blade was deformed inward toward the windshield. The deformation on the wiper blade measured 17.8 cm (7.0") in length and the center of the deformation was located 61 cm (24") right of the centerline. This deformation was attributed to contact by the pedestrian's right shoulder. The wrap distance from the ground to the center of this contact measured 198.1 cm (78.0"). The radio antenna located at the base of the windshield on the top surface of the right front fender was bent rearward at the base and the mast was deformed in a rearward arc (refer to photographs #35, #38 and slides #41, #43).

The right side of the windshield glazing was holed from pedestrian contact. It experienced a slit which was 61 cm (24") in length and 20.3 cm (8.0") in width. Behind the origin of the slit, tissue and skeletal fragments from the pedestrian's head were imbedded in the metal structure of the right A-pillar. The length of contact measured 12.07 cm (4.75") which was located 33 cm (13") down from the windshield header [113.0 cm (44.5") from the ground] and 70.5 cm (27.8") right of the centerline (refer to photograph #36 and slide #42). The windshield rake angle measured 31.4^0. The wrap distance from the ground to the center of this contact measured 236.2 cm (93.0").

The lower valence panel/air dam, right side plane, all tires/wheels and undercarriage contained grass and dirt residue from contact with the roadside ditch. There was no recordable damage noted. An impact with the utility pole guy wire resulted in fracture/separation of the polymer right side door panels and a 3.8 cm (1.5") rearward displacement of the lower hinge of the right rear door.

Crush values obtained along the front bumper indicated minimal rearward displacement as shown in the crush values listed below:

Bumper Crush:	$C_1 = 0$	$C_4 = 0$
	$C_2 = 0$	$C_5 = 0.9$ cm (0.4")
	$C_3 = 0$	$C_6 = 0.60$ cm (0.25")

CDC:	12-FZHW-6	Impact with the pedestrian
	01-RFEW-1	Impact with the ditch
	12-RZEW-1	Impact with the guy wire

Repair Cost: No repair costs were available.

Interior:

Interior damage to the Saturn SL2 was associated with air bag deployment, occupant contacts, and pedestrian contact. The air bag module cover opened along the predesigned tear seam line in the typical "H" pattern. There was no damage detected to the module cover or air bag. A 1.3 cm (0.5") diameter scuff mark was noted on the driver's knee bolster which was located 38 cm (15") left of the centerline and 11.4 cm (4.5") below the bottom edge of the mid-instrument panel. This mark was attributed to the driver's left knee contact. The steering column remained stationary during the crash with no movement of the shear capsules detected.

A 2.5 cm (1.0") diameter scuff mark on the right side of the lower instrument panel located 31.8 cm (12.5") right of the centerline and 1.3 cm (0.5") below the bottom edge of the mid-instrument panel was attributed to contact by the right front occupant's left knee. A 1.9 cm (0.8") indentation of the lower instrument panel just below the mid-instrument panel adjacent to the right door surface was attributed to contact by the right front occupant's right knee.

The right side of the windshield adjacent to the right A-pillar was torn by the impact with the pedestrian. The tear which began at the base of the windshield was 20.3 cm (8.0") wide and extended vertically 61 cm (24").

Tissue and bodily fluid deposits from the pedestrian were observed on the right front door surface and arm rest. These deposits were broadcasted diagonally over an area 7.6 cm (3.0") wide that began 27.9 cm (11.0") rearward from the instrument panel and extended 26.7 cm (10.5") from the belt line down to the armrest (refer to photographs #43, #44).

Air Bag System:

The 1993 Saturn SL2 was equipped with a driver's side air bag Supplemental Inflatable Restraint (SIR) system that deployed as a result of the impact with the pedestrian. Components of the SIR were not damaged by vehicle deformation or occupant contact.

The air bag module cover opened in the typical "H" configuration during the deployment sequence along the designed tear seam lines. Vertical dimensions for the upper and lower module flaps were the same at 8.9 cm (3.5"). The lateral dimension along the common horizontal seam line measured 18.7 cm (7.4"). Flap thickness measured 3.17 mm (0.125").

The air bag was a tethered design with four tether straps sewed into the driver's side of the bag. The perimeter of the air bag was stitched with a finished seam. Two different materials were used to form the air bag with the typical gray interwoven fabric comprising the driver's side of the bag and a light color (tan) fine mesh fabric making up the instrument panel side of the air bag (refer to photographs #47, #48). Exhaust vent ports located in the 3 o'clock

and 9 o'clock positions measured 1.3 cm (0.5") in diameter and had a ragged edge (i.e., not stitched) around the vent port (refer to photograph #47). The air bag measured 61 cm (24") in diameter with a double stitched center target which measured 17.8 cm (7.0") in diameter.

Vertical black striation marks were observed on the lower portion of the air bag which may have resulted from the interaction of the air bag fabric with the pliable fluted structure of the air bag module cover during the deployment sequence. This area measure 10.2 cm (4.0") wide and 4.4 cm (1.8") high and was located 15.9 cm (6.3") below the air bag center (refer to photograph #47 and slide #54).

Vehicle Velocity Estimates:

Travel Speed:	72 km/h to 83 km/h (45.0 mph to 52.0 mph) estimated by police
Impact Speed	69.0 km/h (42.9 mph)

Impact speed was determined using the throw-off distance table developed for the Pedestrian Injury Causation Study (PICS). Refer to Appendix F.

Collision Sequence:

Pre-Crash:

The 22 year old female driver of the 1993 Saturn SL2 was traveling west on a two lane rural roadway which was posted at 89 km/h (55 mph) enroute to her place of employment. The ambient condition was cloudy and moderately dark (dusk) with light rain fall. The driver indicated the vehicle's headlights were operating at the time of the crash which was verified by police headlamp filament evaluation. An audio tape in the vehicle's tape player was playing at moderately low volume preceding the crash. After traversing a right curved segment of the roadway, the vehicle proceeded at a police estimated travel speed range of 72 km/h to 83 km/h (45 mph to 52 mph) along the straight segment preceding the POI. The roadway was downhill with a -3.4 percent slope.

The 82 year old female pedestrian dressed in gray colored sweat pants, a light blue plaid jacket, dark blue shirt, light blue socks, and brown moccasins had retrieved a newspaper from the paper box located adjacent to her driveway and proceeded to check the mail box on the south side of the road. As the pedestrian approached the mail box, a witness traveling eastbound observed the pedestrian crossing the roadway without concern to the presence of traffic. The witness had to slow and steer into the on-coming lane to avoid contact with the pedestrian.

The pedestrian was walking back across the roadway toward her residence when the right front passenger, a 17 year old male, was first to spot the pedestrian in the roadway and alerted the driver. When the driver did not respond, the passenger yelled again that there was someone in the road. At that time, the driver observed the pedestrian in her travel lane and tried to steer left. As the vehicle began to travel into the east bound lane (i.e.,on-coming lane), the driver felt the vehicle slide toward the left and over corrected the steering to the right. As the vehicle approached the pedestrian, the driver attempted to steer back to the left in an effort to avoid contact with the pedestrian.

Crash:

The vehicle struck the pedestrian with the right frontal area at a computed speed of 69.0 km/h (42.9 mph). The driver reportedly took her foot off the accelerator pedal prior to the impact, but was unsure of whether she applied the brakes. Police investigators were unable to detect the presence of pre-impact skid marks.

The vehicle was approaching the right roadway edge line at a 12^0 departure angle when it impacted the pedestrian. The pedestrian was crossing the vehicle's travel lane in a northerly direction (i.e., left to right across the vehicle's travel path) and was approximately 0.3 m (1.0') south of the roadway edge line at the POI. She was in a walking motion with her left leg forward and load bearing and head facing straight ahead when contacted by the vehicle.

The pedestrian right leg was contacted by the front bumper and pushed laterally to her forward motion. The left leg was subsequently contacted by the bumper and due to the load bearing stance interacted with the roadway resulting in a fracture of the left tibia and fibula. The pedestrian's right hip and right upper torso wrapped onto the hood surface resulting in numerous internal injuries which included: a fracture dislocation of the thoracic vertebra with complete severance of the spinal cord; laceration of the mesentery; avulsion of diaphragm; complete severance of the arch of the aorta; and multiple contusions of both lungs. This contact initiated the air bag deployment sequence.

The pedestrian continued to move rearward with respect to the forward motion of the vehicle and contacted the right windshield wiper arm with her right shoulder. Her head then contacted the right A-pillar and windshield which resulted in a fractured skull and severe brain injuries. This contact was displaced rearward into the windshield and subsequently struck the windshield and right A-pillar with her head. The pedestrian's left chest contacted the radio antenna located along the top surface of the right front fender bending it rearward.

The pedestrian was carried for approximately 11.8 m (38.7') where she separated from the vehicle and struck the ground (lawn) 22.1 m (73.7') from the POI and 5.3 m (17.4') north of the road edge line. Contact with the ground resulted in a 2 m (6.6') x 0.7 m (2.3') brushed grass mark and a 0.3 m (1.0') gouge mark which were aligned in the direction of the pedestrian's trajectory. The pedestrian tumbled and rolled 11.6 m (38.1') to her final rest position.

The vehicle continued along the 12^0 departure angle and exited the right side of the roadway, crossed the asphalt shoulder in a counterclockwise rotation, traveled along the ditch line and struck the north side of the ditch with the right side plane 27.4 m (91.3') from POI. The vehicle's rotational motion was halted with this impact and continued along the ditch for a distance of 21.0 m (68.9') in a tracking motion when it struck a utility pole guy wire with the right side plane. Interaction between the vehicle's door side panels and rear door hinge caused the vehicle to rotate 35^0 in a clockwise direction.

Post Crash:

Final Rest - The vehicle came to the final rest position (FRP) in the ditch with a 315^0 heading angle referenced to magnetic North (i.e.,northwesterly direction) and 1.0 m (3.3') west of the guy wire. The pedestrian came to the final rest position perpendicular to the roadway with her head pointing away from the roadway.

Driver Activities - The driver exited the vehicle through the driver's door and was unaware that the vehicle struck the pedestrian. The right front passenger was first out of the vehicle and informed her that someone was struck. After viewing the FRP of the pedestrian, the driver became emotional and disoriented. However, neither the driver nor the passenger sustained any injuries in the crash.

Pedestrian Activities - The pedestrian was pronounced deceased on scene by the Assistant County Medical Examiner arrived on-scene two hours and thirty-one minutes after the crash.

Police Activities - Three police agencies responded to the scene with the New York State Police assuming primary responsibility for the crash investigation. A detailed investigation was completed with estimated vehicle impact speeds generated and causal factors cited. The objective of this detailed investigation was to determine whether the driver was negligent in the death of the pedestrian. The report cited the combination of poor visibility (rainy weather, dusk lighting conditions, and pedestrian dark clothing) and the inattention of both the pedestrian and driver as the contributing conditions for the crash. The police concluded their investigation by ruling out a charge of criminally negligent homicide.

Rescue Activities - The pedestrian was transported by ambulance to a hospital in a neighboring town where an autopsy was perform.

Scene Clearance - The vehicle was towed from the scene following the investigation by police and the medical examiner to a New York State Police Barracks where it was stored pending this investigation. The vehicle was inspected eleven days after the crash.

Human Factors/Pedestrian, Occupant Data

	Pedestrian	Driver	Right Front Occupant
Age/Sex:	82 year old female	22 year old female	17 year old male
Height:	162.5 cm (64.0"),	Not known	Not known
Weight:	93 kg (205 lbs.),	Not known	Not known
Manual Restraint System Usage:	N/A	Wearing the two point lap belt	Wearing the two point lap belt
Usage Source:	N/A	Vehicle inspection, police report	Vehicle inspection, police report
Eyewear:	Not known	Corrective lens required, contact lens worn	Not known
Vehicle Familiarity:	N/A	Vehicle owned by friend, driven thirty trips	N/A
Route Familiarity:	Long time residence, crash occurred on the roadway at junction with pedestrian's driveway	Daily trips to place of employment	N/A
Trip Plan:	Returning from the mail box	Enroute to place of employment	Accompanying driver to place of employment
Type of Medical Treatment:	Transported to a hospital in a neighboring town where an autopsy was performed	Not injured	Not injured

Injury Data

Following the crash, the pedestrian was transported by ambulance to a hospital in a neighboring town where the County Medical Examiner completed an autopsy. He determined

the cause of death as massive craniocerebral injury and severed aorta. A complete listing of injuries and injury sources are listed below in chronological sequence of occurrence. The driver and right front occupant were not injured in the crash.

PEDESTRIAN INJURIES	SEVERITY (OIC/AIS)	SOURCE
Fracture dislocation of both knees	850806.21, 850806.22	Front bumper
Compound fracture of the distal left tibia/fibula	853422.32 Tibia 851610.22 Fibula	Ground/vehicle
Fracture dislocation of the right elbow	750630.11	Hood with reinforced component
Complete fracture of sternum into two pieces at the midportion	450804.24	Hood with reinforced component
Multiple fracture of ribs bilaterally with 100-150 ml of clotted and unclotted blood in both pleural cavities	450222.33	Hood with reinforced component
Fracture dislocation of the second thoracic vertebra with complete severance of the spinal cord	640468.57	Hood with reinforced component
Small focal laceration of the mesentery	542022.28	Hood with reinforced component
Partial avulsion of diaphragm posteriorly	440604.38	Hood with reinforced component
Arch of the aorta completely severed	420210.54	Hood with reinforced component
Multiple contusions of both lungs	441410.43	Hood with reinforced component
4 cm x 3 cm abrasion of the right cheek	290202.11	Windshield

PEDESTRIAN INJURIES (Continued)	SEVERITY (OIC/AIS) (Continued)	SOURCE (Continued)
Fracture of the right frontoparietal bone where bone was removed through the large scalp laceration and portions of the frontal lobes were absent	150406.41	A-pillar
Gaping laceration of the forehead which extended in an upward arching pattern from 2 cm left of the midline to 1 cm lateral to the outer corner of the right eye	Not coded	Windshield and A-pillar
Extensive laceration of the frontal lobes with portions being absent	140688.49	A-pillar
Epidural hemorrhage	140630.49	A-pillar
Subdural hemorrhage	140650.49	A-pillar
Extensive fracture of the base of the brain especially the frontal and middle cavities fossae causing the right eyeball to be pushed back	150206.48	A-pillar
2 cm deep laceration of the nose located left of the bridge of the nose	290602.14	Windshield
Comminuted fracture nasal bones	251004.21	A-pillar
5 cm deep laceration of the upper portion of the neck just below the chin	390602.15	Windshield
9 cm x 4 cm abrasion of the anterior chest wall	490202.19	Ground

KINEMATIC PATTERNS

Pedestrian

The pedestrian was walking across the roadway in a perpendicular path to the approaching vehicle. At the POI, the pedestrian's left leg was forward leading with her head facing forward and right arm slightly rearward of her torso. The bumper face contacted both legs at knee height resulting in fractures of both knees. Her right leg was contacted first and pushed laterally to the left. The left leg was planted on the ground and load bearing as noted by the heavy gray colored fabric transfer noted on the bumper face and the type if injury pattern. As the bumper displaced the left leg laterally, the left foot became locked in position on the asphalt resulting in a compound fracture of the distal tibia/fibula.

The pedestrian's right hip, right upper torso, and right elbow then wrapped onto the hood surface resulting in numerous internal upper body injuries. Three indentations on the hood surface reflected this contact pattern which collectively cover an area measuring 53.3 cm (21.0") along the hood edge, 76.2 cm (30.0") along the centerline, 61 cm (24") along the right fender, and 35.6 cm (14.0") from the right fender toward the centerline. This contact depressed the hood downward 3.18 cm (1.25") onto the upper radiator support bracket in the vicinity of the air bag discriminating sensor which initiated the deployment sequence of the SIR.

The pedestrian continued rearward along the hood and contacted the right windshield wiper blade with the right shoulder resulting in the rearward displacement of the wiper blade. The right side of her head then struck the windshield glazing which resulted in an abrasion of the right cheek. Her head penetrated the glazing and simultaneously struck the leading edge of the A-pillar. This contact resulted in a gaping laceration of the forehead, fracture of the frontoparietal bone, and laceration and hemorrhage of the brain. As the head continued into the interior of the vehicle, the nose contacted the glazing and A-pillar resulting in a laceration and comminuted fracture of the nasal bones. Simultaneous with the windshield contact, the pedestrian's left shoulder and chest contacted the radio antenna mounted on the top surface of the right front fender, bending it rearward.

Interaction between the pedestrian and the vehicle's greenhouse components (i.e., windshield, and A-pillar) halted the pedestrian's rearward movement along the vehicle. As the vehicle exited the right side of the roadway and began to rotate in counterclockwise direction, the pedestrian separated from vehicle and landed on the ground (lawn) face down in an elongated trajectory 22.1 m (73.7') from the point of impact and 5.3 m (17.4') north of the road edge line. The pedestrian then tumbled and rolled 11.6 m (38.1') to her final rest position on the lawn facing in a northwesterly direction.

Driver

The driver was restrained by the passive shoulder belt and the manual lap belt at the time of the crash. Her seat was adjusted in the mid track position. The air bag deployment sequence initiated upon impact with the pedestrian resulting in no injuries to the driver. The vehicle exited the roadway and struck the ditch in a counterclockwise direction. The driver's body moved forward against the restraint belts during this impact resulting in fabric transfer along the edge of the torso belt. The left knee subsequently contacted the knee bolster as noted by a 1.3 cm (0.5") diameter scuff mark which was located 38 cm (15") left of the centerline and 11.4 cm (4.5") below the bottom edge of the mid-instrument panel. The driver was not injured in the crash and exited the vehicle through the driver's door without rescue assistance.

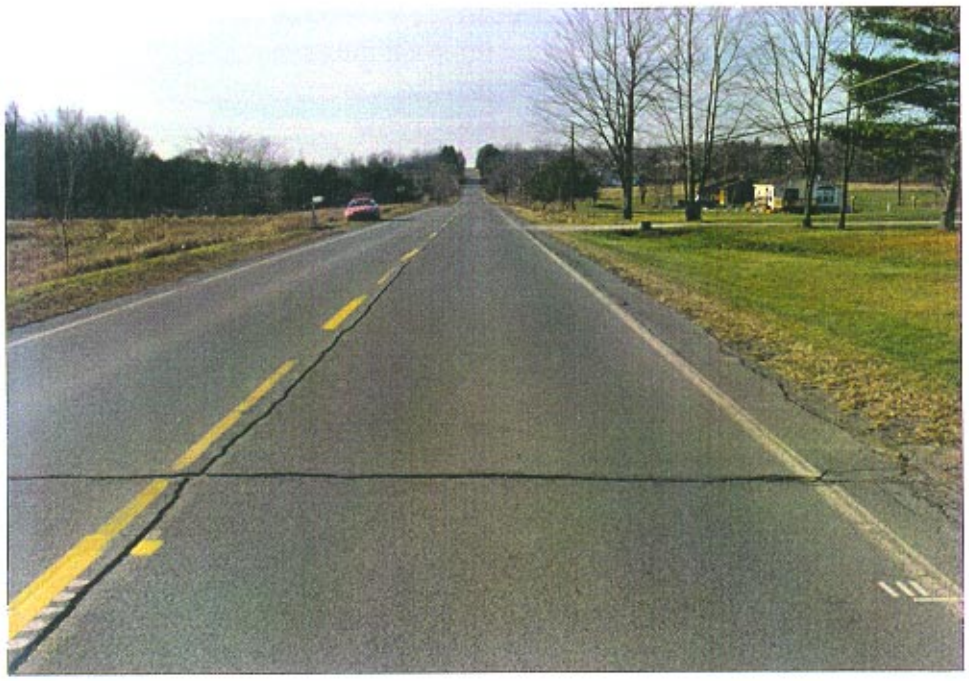
Occupant

The right front passenger was restrained by the passive shoulder belt and the manual lap belt at the time of the crash. During the impact with the ditch, the passenger's body moved forward against the restrain belts. His knees contacted the lower instrument panel resulting in a 2.5 cm (1.0") diameter scuff mark on the right side of the lower instrument panel [31.8 cm (12.5") right of the centerline and 1.3 cm (0.5") below the bottom edge of the mid-instrument panel] and a 1.9 cm (0.8") indentation just below the mid-instrument panel adjacent to the right door surface. The passenger was not injured in the crash and exited the vehicle through the right front door without rescue assistance.

SELECTED PRINTS

1. Approach trajectory of Vehicle #1 (1993 Saturn SL2) approximately 75 m (250') from POI.

2. Approach trajectory approximately 60 m (200') from POI.

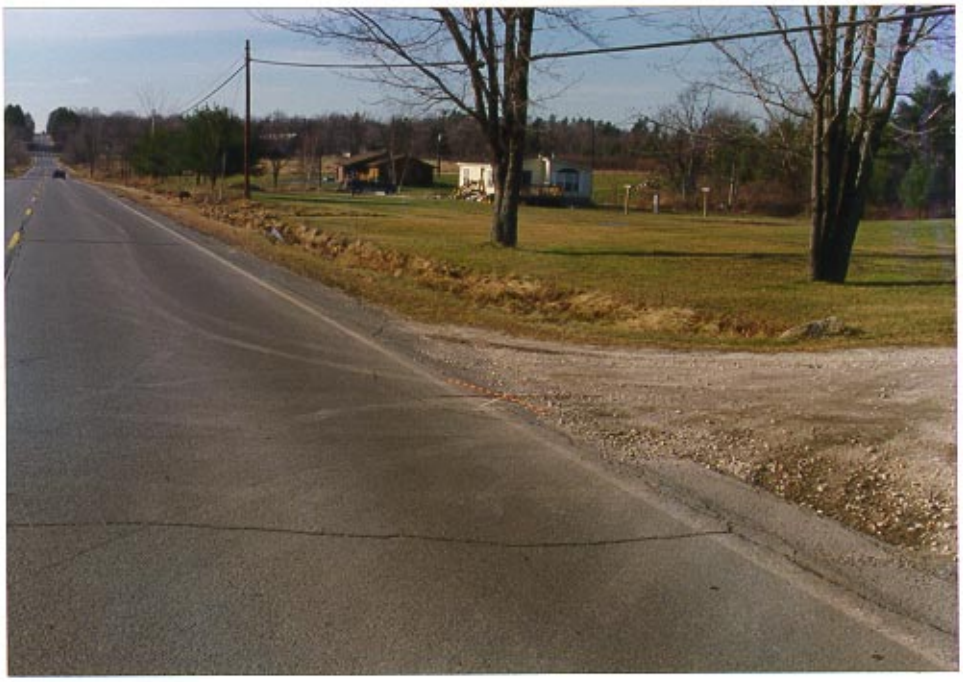


3. Approach trajectory approximately 45 m (150') from POI.

4. Approach trajectory approximately 45 m (150') prior to Point of Impact (POI). This photograph was taken at the same time of day as the day of the crash to illustrate ambient lighting conditions.

5. Approach trajectory approximately 30 m (100') from POI.

6. Approach trajectory approximately 19 m (50') from POI.



7. Approach trajectory at approximately 4.5 m (15') from POI.

8. Location of the POI.

9. Post pedestrian impact trajectory of Vehicle #1, highlighting CCW rotational tire marks

10. Impact with north side of ditch by right side of Vehicle #1.

11. Close-up of lawn contact by pedestrian, with gouging and grass scuffing in the direction of the pedestrian's trajectory.

12. Overhead close-up view of the pedestrian's initial contact with the ground.

13. View of the pedestrian's trajectory from the initial contact with the ground and her final rest position (FRP).

14. Close-up view of pedestrian's FRP.

15. Reverse view from beyond the pedestrian's FRP.

16. Close-up view of the vehicle's right front tire impact with the ditch. This impact reversed the vehicle's CCW rotation.

17. View of the utility pole guy wire struck by the right side of Vehicle #1.

18. Close-up view of contact on the guy wire.

19. The FRP of Vehicle #1 with the left rear tire print noted on the left side of the photograph and the left front indicated by the calibrated rod (right upper portion of the photograph).

20. Reverse view from Vehicle #1's Final Rest Position (FRP).

21. Reverse view of Vehicle #1's trajectory.

22. Reverse view of Vehicle #1's travel lane from POI.

23. Pedestrian's travel path from the mail box to the residence prior to impact.

24. Lookback of the pedestrian's travel path at POI.

25. Frontal view of Vehicle #1 (1993 Saturn SL2) prior to highlighting pedestrian contact points.

26. Close-up view along hood edge line providing more definition on contact points and vertical crush.

27. Overhead view of contact pattern on hood prior to highlighting with calibrated tape.

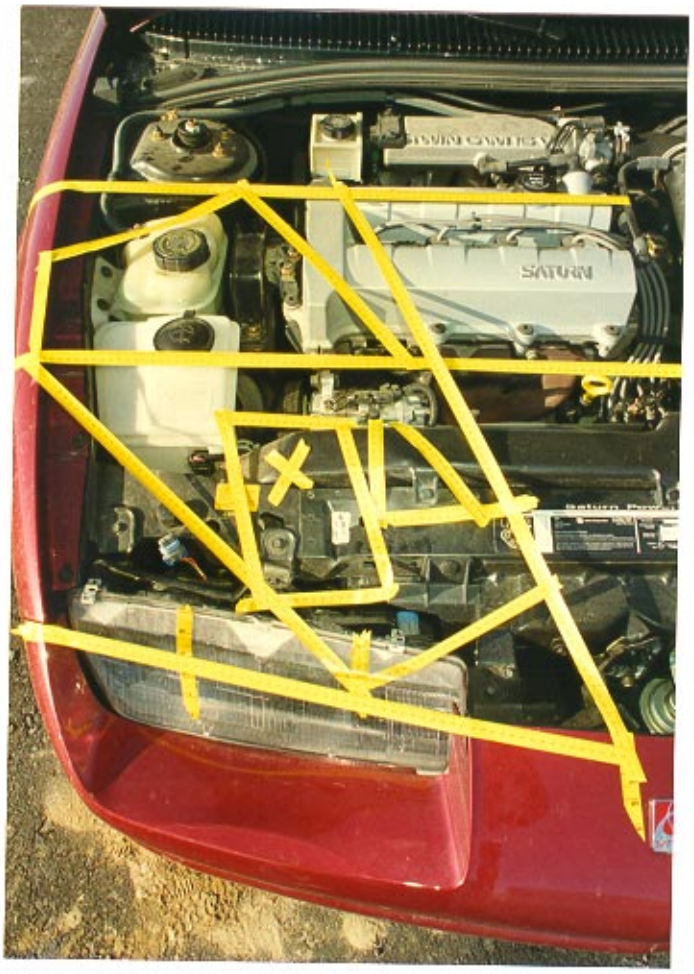
28. Same overhead view as the previous photo, with calibrated tape applied.

29. Frontal view with calibrated tape applied. The box with the "X" indicates a focal point from hip contact while the triangular area highlights the contact point by the pedestrian's right elbow.

30. Close-up view of the right front bumper face highlighting the left leg contact pattern.

31. View of the lower right front valence panel and air dam.

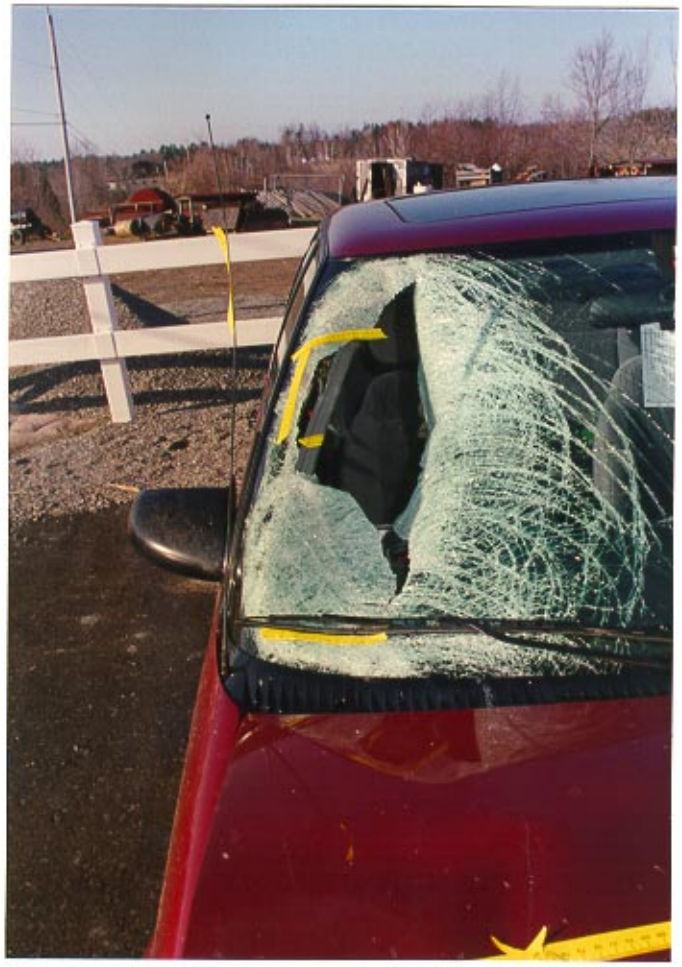
32. Bi-level view of the hood contact pattern and corresponding underhood components.



33. Overhead view of engine compartment components with an overlay mapping of pedestrian contact points.

34. Close-up view of air bag discriminating sensor and radiator support damage.

35. View of windshield showing pedestrian contact points.



36. Close-up view of right A-pillar showing skull fragments from the pedestrian.

37. Lateral view of hood contact evidence showing an overlay mapping of pedestrain contact points with underlying engine compartment components.

38. View of the left front corner and left side plane.

39. View of left rear corner.

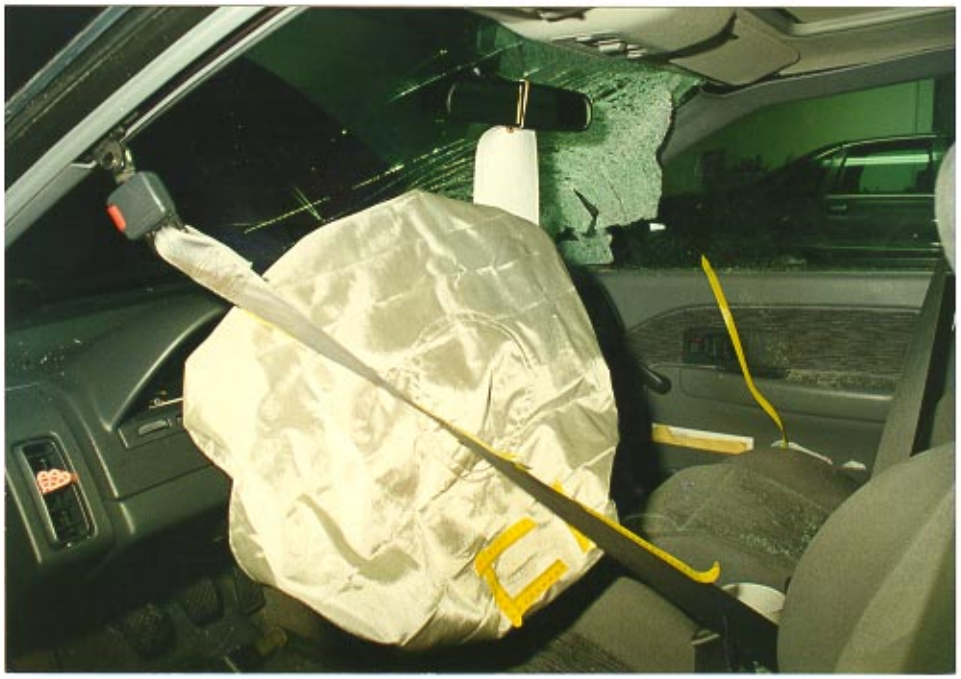
40. View of right rear corner.

41. View of right side plane showing contact damage from utility pole guy wire and ditch.

42. View of right front corner.

43. Lateral view of front seating area taken from the left side of the vehicle showing contact evidence on the shoulder belt and right front door surface.

44. Close-up view of pedestrian's brain matter along the right front door surface.



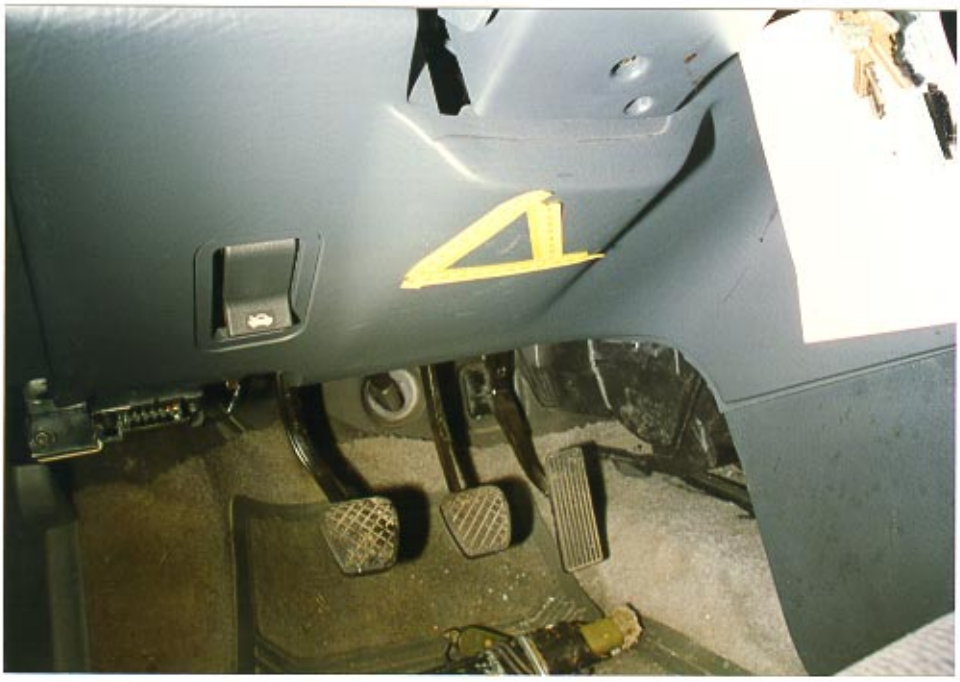
45. Angular view of instrument panel and air bag.

46. Overall view of tethered air bag.

47. View of the air bag left vent port.

48. View of the upper flap of the air bag module cover.

49. View of lower flap of the air bag module cover.



50. Scuff mark on the knee bolster by the driver's left knee.

51. View of the right front instrument panel.

52. Close-up view of contact by the pedestrian's head on the right A-pillar cover.

53. Close-up view of a right knee contact by the right front passenger along the lower edge of the instrument panel

54. Scuff mark from the passenger's left knee.

55. Angular view of the instrument panel from the right side.

56. Lateral view of the front seat area taken from the right side.

57. Lateral view of steering wheel and steering column verifying no rim displacement.

Slide Index

1. Case 94-17 Crash Scene Schematic.
2. Manikin showing the type and location of soft tissue injuries suffered by the pedestrian.
3. Manikin showing the type and location of skeletal injuries suffered by the pedestrian.
4. Manikin showing the type and location of internal injuries suffered by the pedestrian.
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11. Impact with north side of ditch by right side of Vehicle #1.
12. Close-up view of the vehicle's right front tire impact with the ditch. This impact reversed the vehicle's CCW rotation.
13. Continuation of the Vehicle 1's trajectory toward the impact with the utility pole guy wire.
14. View of the utility pole guy wire struck by the right side of Vehicle #1.
15. Close-up view of contact on the guy wire.
16. The FRP of Vehicle #1 with the left rear tire print noted on the left side of the slide and the left front indicated by the calibrated rod (right upper portion of the slide).
17. Reverse view from Vehicle #1's Final Rest Position (FRP).
18. Reverse view of Vehicle #1's trajectory north of the FRP.
19. Reverse view of Vehicle #1's trajectory between the FRP and the POI.
20. Reverse view of Vehicle #1's travel lane from POI.
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23. Location of the pedestrian's POI.
24. Trajectory of the pedestrian from POI to impact with the ground.
25. Close-up of lawn contact by pedestrian, with gouging and grass scuffing in the direction of the pedestrian's trajectory.
26. View of the pedestrian's trajectory from the initial contact with the ground and her final rest position (FRP).
27. Close-up view of pedestrian's FRP.
28. Reverse view from beyond the pedestrian's FRP.
29. Reverse view of the pedestrian's first ground contact.
30. Frontal view of Vehicle #1 (1993 Saturn SL2) prior to highlighting pedestrian contact points.
31. Overhead view of contact pattern on the right front bumper.
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37. Closer view of engine compartment in the area of the pedestrian contact points.
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39. Lateral view of the hood from the right side.
40. Lateral view of hood contact evidence showing an overlay mapping of pedestrian contact points with underlying engine compartment components.
41. View of windshield showing pedestrian contact points.
42. Close-up view of right A-pillar showing skull fragments from the pedestrian.
43. Lateral view of the windshield from the left side.
44. Lateral view of the frontal plane from the right side showing pedestrian contact points and deformation.
45. View of the left front corner and left side plane.
46. View of right rear corner.
47. View of right side plane showing contact damage from utility pole guy wire and ditch.
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50. Close-up view of pedestrian's brain matter along the right front door surface.
51. Angular view of instrument panel and air bag.
52. Contact evidence on driver's torso belt demonstrating usage at the time of the crash.
53. Overall view of tethered air bag.
54. View of the air bag left vent port.
55. Scuff mark on the knee bolster by the driver's.
56. View of the right front instrument panel.'s head on the right A-pillar cover.
57. Scuff mark from the passenger's left knee.
58. Close-up view of contact by the pedestrian left knee.
59. Angular view of the instrument panel from the right side.
60. Lateral view of the front seat area taken from the right side.

APPENDIX A

Police Accident Report

POLICE ACCIDENT REPORT

Page 1 of 1 Pages

MV-104A (2/91) DMV COPY

Local Codes [redacted]

Accident Date Mo / Day / Year	Day of Week	Time	No. of Vehicles	No. Injured	No. Killed	Non-Highway	Not Investigated at Scene	Left Scene	Police Photos
[redacted] 93	FR	4:25 ☒PM ☐AM	1	0	1	☐	☐	☐	☒Yes ☐No

VEHICLE 1

Name — exactly as printed on license [redacted]

Number and Street [redacted]

City [redacted] State [redacted] Zip Code [redacted]

Date of Birth Mo. / Day / Year [redacted] Sex F | Unlicensed ☐ | No. of Occup. 2 | Public Property Damaged ☐ | State of License [redacted]

Name — exactly as printed on registration [redacted]

Number and Street [redacted]

City [redacted] State [redacted] Zip Code [redacted]

Plate Number [redacted] State of Reg [redacted] Yr. & Vehicle Make 4D 93 SATUR Vehicle Type 4DS Ins. Code X

DMV USE

VEHICLE 2 ☐BICYCLIST ☒PEDESTRIAN

Name — exactly as printed on license [redacted]

Number and Street [redacted]

City [redacted] State [redacted] Zip Code [redacted]

Date of Birth Mo. / Day / Year [redacted] Sex F | Unlicensed ☐ | No. of Occup. | Public Property Damaged ☐ | State of License

Name — exactly as printed on registration

Number and Street

City State Zip Code

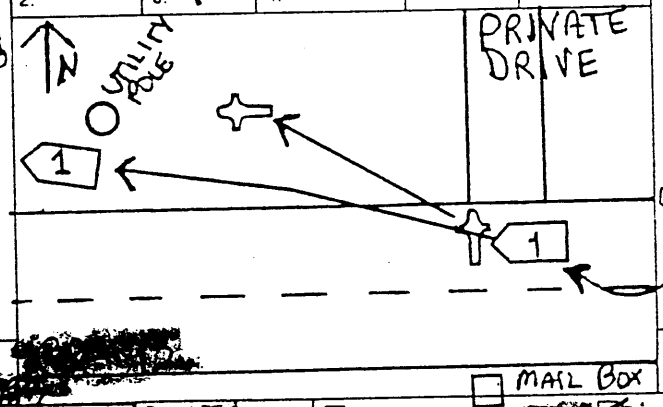
Plate Number | State of Reg | Yr. & Vehicle Make | Vehicle Type | Ins. Code

DMV USE

Check if involved vehicle:
☐is more than 95 inches wide;
☐is more than 34 feet long;
☐was operated with an overweight permit;
☐was operated with an overdimension permit

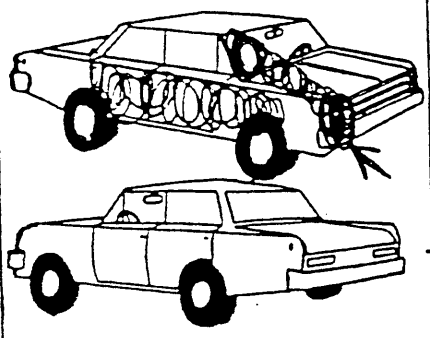
ACCIDENT DIAGRAM

Rear End 1. | Left Turn 3. | Right Angle 4. | Right Turn 5. | Head On 7.
Overtaking 2. | Left Turn 0. | | Right Turn 6. | Sideswipe 8.



Check if involved vehicle:
☐is more than 95 inches wide;
☐is more than 34 feet long;
☐was operated with an overweight permit;
☐was operated with an overdimension permit

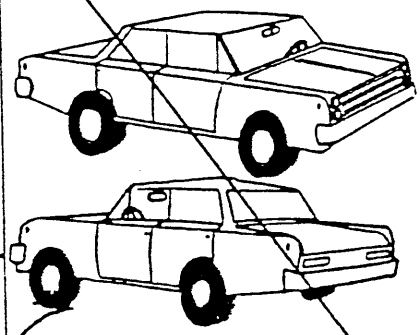
VEHICLE 1 DAMAGE



☐No Damage ☐Undercarriage

Vehicle Towed By [redacted] To [redacted]

VEHICLE 2 DAMAGE



☐No Damage ☐Undercarriage

Vehicle Towed By To

Reference Marker

DMV USE ONLY

County [redacted] ☐City [redacted] ☐Town ☐Village

Route No. and Street Name [redacted]

0.3 ☒Miles ☐Feet ☐N ☐S ☒E ☐W of

☐At Intersection with [redacted]

Nearest Intersecting Route/Street

Ticket/Arrest ☐Other ☐Opr 1 ☐Opr 2 ☐Pedestrian ☐Bicyclist

Ticket/Arrest Number(s)

Violation Section(s)

Accident Description/Officer's Notes [redacted] DIMINISHED LIGHT AND RAIN CAUSED POOR VISIBILITY. [redacted] PED. WALKING NORTH ACROSS ROADWAY. DESC - VEH 1 IS WESTBOUND ON [redacted] AND DUE TO POOR VISIBILITY FAILS TO SEE PEDESTRIAN IN ROADWAY UNTIL THEY ARE VERY CLOSE. OPER 1 ATTEMPTS TO AVOID THE PEDESTRIAN BY SWERVING LEFT BUT LOSES CONTROL ON THE SLIPPERY PAVEMENT AND STRIKES THE PEDESTRIAN, KILLING HER. - NOTE: SOME DRIVER INATTENTION MUST HAVE OCCURED AS PASSENGER VEH 1 STATED HE SAW PEDESTRIAN PRIOR TO THE DRIVER OBSERVING HER.

ALL INVOLVED	8	9	10	11	12	13	14	15	16	17 BY	TO 18	Names - If Deceased Give Date of Death
A	1	1	4	1	22	F						DRIVER [redacted] 1/93
B	1	3	4	1	17	M						
C	P				83	F	12	9	1	7711	2203	
D												
E												
F												
G												

SIGN [redacted]

Officer	Badge No	Department	Precinct/Post Troop/Zone	Station/Boat/ Sector	Reviewing Officer	Date/Time Reviewed
[redacted]						

PEDESTRIAN/BICYCLIST LOCATION
1. Pedestrian/Bicyclist at Intersection
2. Pedestrian/Bicyclist Not at Intersection

1

PEDESTRIAN/BICYCLIST ACTION
1. Crossing, With Signal
2. Crossing, Against Signal
3. Crossing, No Signal, Marked Crosswalk
4. Crossing, No Signal or Crosswalk
5. Riding/Walking Along Highway With Traffic
6. Riding/Walking Along Highway Against Traffic
7. Emerging from in Front of/Behind Parked Vehicle
8. Going To/From Stopped School Bus
9. Getting On/Off Vehicle Other Than School Bus
10. Pushing/Working On Car
11. Working in Roadway
12. Playing in Roadway *
13. Other Actions in Roadway *
14. Not in Roadway (Indicate) *

2

TRAFFIC CONTROL
1. None
2. Traffic Signal
3. Stop Sign
4. Flashing Light
5. Yield Sign
6. Officer/Guard
7. No Passing Zone
8. RR Crossing Sign
9. RR Crossing Flashing Lt.
10. RR Crossing Gates
11. Stopped School Bus-Red Lights Flashing
12. Construction Work Area
13. Maintenance Work Area
14. Utility Work Area
20. Other *

3

LIGHT CONDITIONS
1. Daylight
2. Dawn
3. Dusk
4. Dark-Road Lighted
5. Dark-Road Unlighted

4

ROADWAY CHARACTER
1. Straight and Level
2. Straight and Grade
3. Straight at Hillcrest
4. Curve and Level
5. Curve and Grade
6. Curve at Hillcrest

5

ROADWAY SURFACE CONDITION
1. Dry
2. Wet
3. Muddy
4. Snow/Ice
5. Slush
0. Other *

6

WEATHER
1. Clear
2. Cloudy
3. Rain
4. Snow
5. Sleet/Hail/Freezing Rain
6. Fog/Smog/Smoke
0. Other *

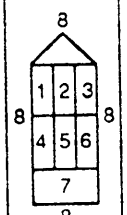
7

WHICH VEHICLE OCCUPIED
1. Vehicle No. 1 B. Bicyclist O. Other *
2. Vehicle No. 2 P. Pedestrian

POSITION IN/ON VEHICLE
1. Driver 2-7. Passengers
8. Riding/Hanging on Outside

SAFETY EQUIPMENT USED
1. None
2. Lap Belt
3. Harness
4. Lap Belt/Harness
5. Child Restraint Only
6. Helmet
7. Air Bag Only
8. Air Bag/Lap Belt
9. Air Bag/Harness
A. Air Bag/Lap Belt/Harness
B. Air Bag/Child Restraint
0. Other *

8



9

10

EJECTION FROM VEHICLE
1. Not Ejected
2. Partially Ejected
3. Ejected

11

AGE

12

SEX M / F

13

APPARENT CONTRIBUTING FACTORS

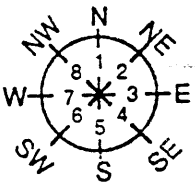
HUMAN
2. Alcohol Involvement
3. Backing Unsafely *
4. Driver Inattention (Indicate) *
5. Driver Inexperience (Indicate)
6. Drugs (Illegal)
7. Failure to Yield Right-of-Way
8. Fell Asleep
9. Following Too Closely
10. Illness
11. Lost Consciousness
12. Passenger Distraction
13. Passing or Lane Usage Improper
14. Pedestrian's/Bicyclist's Error/Confusion
15. Physical Disability
16. Prescription Medication
17. Traffic Control Disregarded
18. Turning Improperly
19. Unsafe Speed
20. Unsafe Lane Changing
40. Other Human *

VEHICULAR
41. Accelerator Defective
42. Brakes Defective
43. Headlights Defective
44. Other Lighting Defects
45. Oversized Vehicle
46. Steering Failure
47. Tire Failure/Inadequate
48. Tow Hitch Defective
49. Windshield Inadequate
60. Other Vehicular *

ENVIRONMENTAL
61. Animal's Action
62. Glare
63. Lane Marking Improper/Inadequate
64. Obstruction/Debris
65. Pavement Defective
66. Pavement Slippery
67. Shoulders Defective/Improper
68. Traffic Control Device Improper/Non-Working
69. View Obstructed/Limited
80. Other Environmental *

Vehicle 1 — 19
Vehicle 1 — 20
Vehicle 2 — 21
Vehicle 2 — 22

DIRECTION OF TRAVEL



Vehicle 1 — 23
Vehicle 2 — 24

New York State
Department of Motor Vehicles

POLICE ACCIDENT REPORT

MV-104A (2/91)

* EXPLAIN IN ACCIDENT DESCRIPTION

If a question DOES NOT APPLY, enter a dash (—).

If an answer is UNKNOWN, enter an "X"

PRE-ACCIDENT VEHICLE ACTION
1. Going Straight Ahead
2. Making Right Turn
16. Making Right Turn on Red
3. Making Left Turn
17. Making Left Turn on Red
4. Making U Turn
5. Starting from Parking
6. Starting in Traffic
7. Slowing or Stopping
8. Stopped in Traffic
9. Entering Parked Position
10. Parked
11. Avoiding Object in Roadway
12. Changing Lanes
13. Overtaking
14. Merging
15. Backing
20. Other *

Vehicle 1 — 25
Vehicle 2 — 26

LOCATION OF FIRST EVENT
1. On Roadway
2. Off Roadway

27

LOCATION OF MOST SEVERE PHYSICAL COMPLAINT
1. Head
2. Face
3. Eye
4. Neck
5. Chest
6. Back
7. Shoulder-Upper Arm
8. Elbow-Lower Arm-Hand
9. Abdomen - Pelvis
10. Hip-Upper Leg
11. Knee-Lower Leg-Foot
12. Entire Body

TYPE OF PHYSICAL COMPLAINT
1. Amputation
2. Concussion
3. Internal
4. Minor Bleeding
5. Severe Bleeding
6. Minor Burn
7. Moderate Burn
8. Severe Burn
9. Fracture - Dislocation
10. Contusion - Bruise
11. Abrasion
12. Complaint of Pain
13. None Visible

14

VICTIM'S PHYSICAL AND EMOTIONAL STATUS
1. Apparent Death
2. Unconscious
3. Semiconscious
4. Incoherent
5. Shock
6. Conscious

15

INJURED TAKEN
17 BY | TO 18

16

TYPE OF ACCIDENT
COLLISION WITH
1. Other Motor Vehicle
2. Pedestrian
3. Bicyclist
4. Animal
5. Railroad Train
10. Other Object (Not Fixed) *

First Event — 28

COLLISION WITH FIXED OBJECT
11. Light Support/Utility Pole
12. Guide Rail
13. Crash Cushion
14. Sign Post
15. Tree
16. Building/Wall
17. Curbing
18. Fence
19. Bridge Structure
20. Culvert/Head Wall
21. Median/Barrier
22. Snow Embankment
23. Earth Embankment/Rock Cut/Ditch
24. Fire Hydrant
30. Other Fixed Object *

SECOND EVENT
Vehicle 1 — 29
Vehicle 2 — 30

NON-COLLISION
31. Overturned
32. Fire/Explosion
33. Submersion
34. Ran Off Roadway Only
40. Other *

CO...
SHEE...
H

APPENDIX B

Air Bag Supplement Form

Dup. Cols. 1-8 from prior card | Module A B | Format Q 1 | AIRBAG SUPPLEMENT | AB-1

ACCIDENT SUMMARY

ACCIDENT DATE [redacted] 193

POLICE INVESTIGATED (1,2,9)* 1

[redacted], New York

City _____ County [redacted]

GENERAL LOCALITY 3
(1) Freeway, Limited Access
(2) Urban (City)
(3) Urban-Rural (mixed)
(4) Rural, Fields

CONFIGURATION (First Harm) 0

(0) Struck Object or Pedestrian
(1) Rear-End
(2) Head-On
(3) Rear-to-Rear
(4) Angle
(5) Sideswipe-Same Direction
(6) Sideswipe-Opposite Direct.
(7) NonColl:eg Fell from Veh
(8) NonImpact Deployment
(9) Unknown

FIRE INVOLVED (0) None 0
(1) AirBag Vehicle
(2) Other Vehicle
(3) Both Vehicles
(9) Unknown

NUMBER: VEHICLES INVOLVED 1
(8)=8 or more
PERSONS INVOLVED 3

INJURED PERSONS 1

MAXIMUM AIS IN ACCIDENT 5

OTHER VEHICLE: MAXIMUM AIS NA

PRIME/DEPLOY IMPACT w AB VEH: NA
EVENT NUMBER

CDC __ __-__ __ __ __-__

TOTAL DELTA-V NA

Model Year, Make, Model, Body Type:

_____

AIRBAG VEHICLE INSPECTION

DATE VEH. INSPECTED [redacted] 19

REASON VEHICLE NOT INSPECTED 1

(0) Not Required
(1) Inspection Completed
(2) Cannot be Located**
(3) Repaired or Destroyed**
(5) Refual or Impounded**
(7) Other*
**Specify: _____

IMPACT DATA OBTAINED 7

(0) No Data Obtained
(1) CDC Only
(2) Crush Profile Only
(3) Trajectory Data Only
(4) CDC and Crush Profile
(5) CDC and Trajectory
(6) Crush and Trajectory
(7) CDC, Crush & Trajectory

BASIS OF DELTA-V 7

(0) Not Computed (Unknown Why)
(1) CRASH - Damage Only
(2) CRASH - Damage+Trajectory
(3) Missing Vehicle Algorithm
(4) Yielding Object Algorithm
(5) Unknown Basis
(6) One Vehicle Beyond Scope
(7) Collision Beyond Scope
(8) Insufficient Data

VEHICLE HISTORY

HAS AIRBAG VEHICLE BEEN IN ANY PRIOR IMPACTS (1,2,9)* 9

HAS ANY PRIOR MAINTENANCE/SERVICE BEEN PERFORMED ON SYSTEM(1,2,9)* 9

*Describe: _____

_____

AIRBAG VEHICLE: FLEET (Serial # omitted)

VIN 1G8ZJ55T4PZ(

MILEAGE 31,056 Km (19,298 m

* (1)=Yes, (2)=No, (9)=Unknown

DRAFT - 09/04/85

SYSTEM READINESS LAMP
(In Instrument Cluster)

PRE-IMPACT LAMP CONDITION

(1) Functioning/ProvedOut
(2) Inoperative
(9) Unknown

9

DRIVER'S REPORT OF
PRE-IMPACT FLASHING

(00) No Flashing Reported
(01) Continuous Flashing
(02)
-- >Number of Flashes
(11)
(12) Constant Light
(19) Flashing, Unkn Number
(88) Not App (system removed)
(99) Unknown

99

PERIOD OF PRE-IMPACT FLASHING

(0) No Flashing
(1) Same Day as Impact
(2) Prior Day
(3) Prior Two Days
(4) Prior Week
(5) Prior Month
(6) Over One Month
(9) Unknown

9

POST-IMPACT LAMP CONDITION

(1) Functioning/ProvedOut
(2) Inoperative
(9) Unknown

2

POST-IMPACT FLASHING

(00) No Flashing
(01) Continuous Flashing
(02)
-- >Number of Flashes
(11)
(12) Constant Light
(19) Flashing, Unkn Number
(88) Not Appl (removed)
(99) Unknown

00

AIRBAG VEHICLE
FIRST HARMFUL EVENT

02

(01) Fire or explosion
(02) Immersion
(03) Gas Inhalation
(04) Fell from vehicle
(05) Injured in vehicle
(06) Other noncollision (specify):
(07) Overturn
(08) Jackknife with intraunit damage
Collision With:
(09) Pedestrian
(10) Pedalcyclist
(11) Railway train
(12) Animal
(13) Motor vehicle in transport (same roadway)
(14) Motor vehicle in transport (other roadway)
(15) Parked motor vehicle
(16) Other type nonmotorist (specify):
(17) Thrown or falling object
(18) Boulder
Collision with Fixed Object:
(20) Building
(21) Impact attenuator/Crash Cushion
(22) Bridge pier or abutment
(23) Bridge parapet end
(24) Bridge rail
(25) Guardrail
(26) Concrete traffic barrier
(27) Median barrier
(28) Other longitudinal barrier (specify):
(29) Highway/Traffic sign post
(30) Overhead sign support
(31) Luminaire/Light support
(32) Utility pole
(33) Other post, pole, or support (specify):
(34) Culvert
(35) Curb
(36) Ditch
(37) Embankment-earth
(38) Embankment-rock, stone or concrete
(39) Fence (wooden, wire, chain link, etc.)
(40) Wall (stone, rock, metal, etc.)
(41) Fire hydrant
(42) Shrubbery
(43) Tree
(44) Other fixed object (specify):
(45) Pavement surface irregularity (pothole, grooved, grates)
(99) Unknown

AIRBAG VEHICLE IMPACT SUMMARY

VEHICLE ROLE: 1

(0) Non-collision
(1) Striking Unit
(2) Struck Unit
(3) Both Striking and Struck
(9) Unknown

MANNER OF LEAVING SCENE: 2

(1) Driven
(2) Towed-due to damage
(3) Towed - not for damage
(4) Towed - details unknown
(5) Abandoned
(9) Unknown

NUMBER OF IMPACT EVENTS: 3
(8) 8 or more, (9) Unknown

ROLLOVER: 0
(0) No Rollover
(1) First Event
(2) Subsequent Event
(3) Yes, Unknown Event
(9) Unknown

OVERRIDE/UNDERRIDE: 1

(1) No over/underride
(1) Override - 1st CDC
(3) - Other CDC
(4) Underride - 1st CDC
(6) - Other CDC
(9) Unknown

AIRBAG VEHICLE DAMAGE

CODES: (1) Yes, DAMAGED
(2) No Damage
(9) Unknown

LEFT FRONT FENDER DAMAGE: 2

RIGHT FRONT FENDER DAMAGE: 1

CENTER TOP OF GRILLE DAMAGE: 1

FRONT BUMPER E.A. STATUS: Left: 9

Right: 9

(1) Normal
(2) Extended
(3) Partial Compression
(4) Complete Compression
(5) Not Applicable
(9) Unknown

FIRST AIRBAG VEHICLE IMPACT:

CONFIGURATION: 0

(0) Struck Object or Pedestrian
(1) Rear-End
(2) Head-On
(3) Rear-to-Rear
(4) Angle
(5) Sideswipe - Same Direction
(6) Sideswipe-Opposite Direct.
(7) NonColl:eg Fell from Veh
(8) NonImpact Deployment
(9) Unknown

CDC 12-FZHW-6

OBJECT CONTACTED: _____

PRIMARY/DEPLOYMENT IMPACT:

EVENT NUMBER: 1

TOTAL DELTA-V: 99

LONGITUDINAL DELTA-V: 99

CONFIGURATION: 0

(0) Struck Object or Pedestrian
(1) Rear-End
(2) Head-On
(3) Rear-to-Rear
(4) Angle
(5) Sideswipe - Same Direction
(6) Sideswipe-Opposite Direct.
(7) NonColl:eg Fell from Veh
(8) NonImpact Deployment
(9) Unkonwn

CDC 12-FZHW-6

OBJECT CONTACTED: _____

NOTES:

AIRBAG SYSTEM DAMAGE

CODES: (1) Yes, Damaged*
(2) No, Intact
(8) Not App. (Removed)
(9) Unknown

AIRBAG MODULE – Deployed	2
SENSORS: Left Front	2
Center Front	8
Right Front	2
Rear, Cowl	2
DIAGNOSTIC MODULE	2
WIRING	2
KNEE DIVERTER	2
INDICATION OF DISCONNECTED OR LOOSE ELECTRICAL CONNECTORS	2

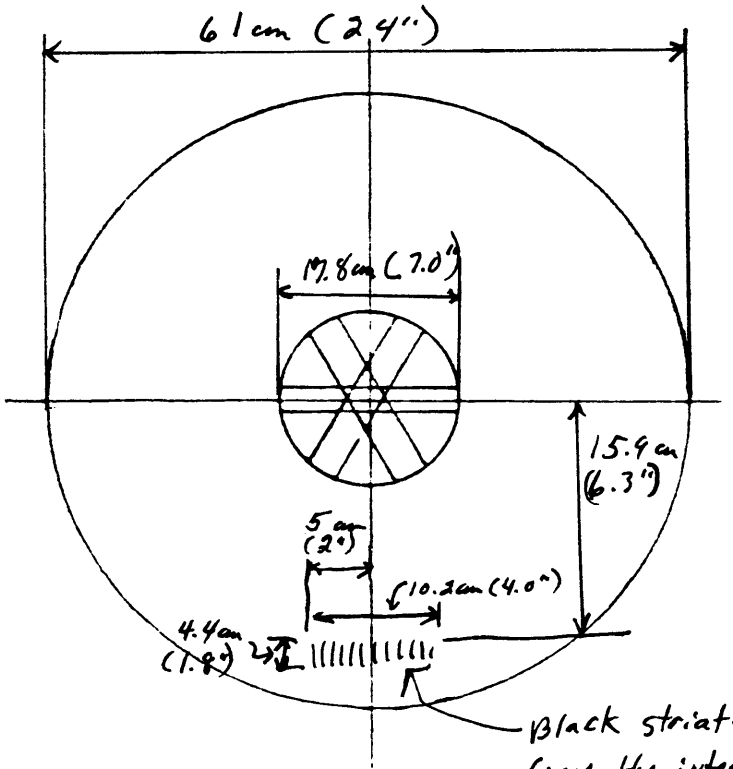
CONDITION OF DEPLOYED BAG 1

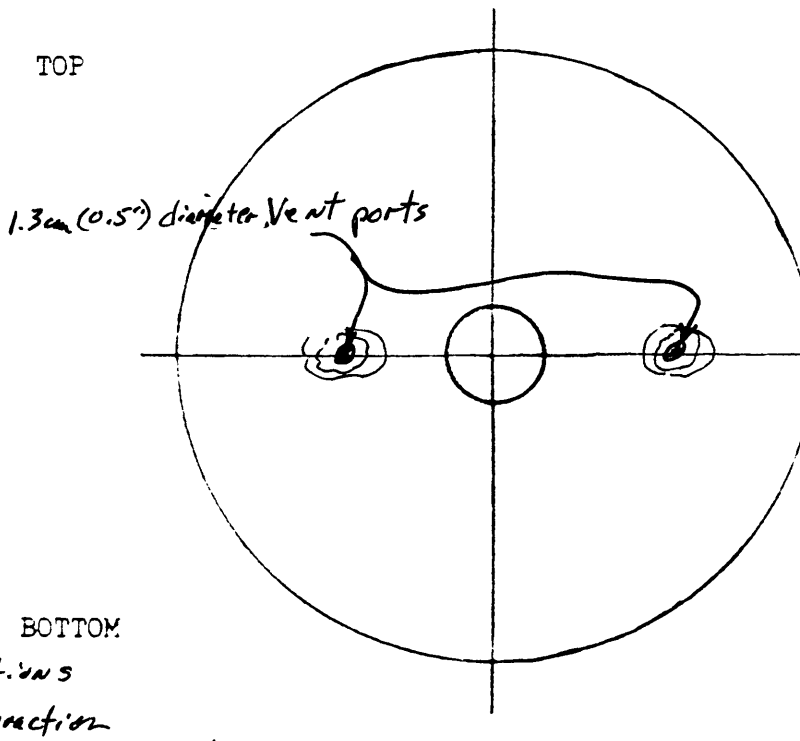
(1) Bag Intact
(2) Split or Torn*
(3) Cut by Object In Impact*
(4) Cut after Accident*
(5) Other (e.g., burned)*
(8) N/A (not deployed)
(9) Unknown

*DESCRIBE System and Bag Damage:

Driver side air bag system which consisted of 2 crash sensors located 33cm (14") either side of & along the upper radiator support bracket, a tethered air bag, and an air bag module cover which opened in the typical "H" configuration.

NOTE DAMAGE AND CONTACT MARKS ON AIRBAG DIAGRAMS BELOW:





OCCUPANTS of AIRBAG CAR

NUMBER OF OCCUPANTS IN VEHICLE (8) 8 or more: 2

NUMBER OF INJURED PERSONS: 0

MAXIMUM AIS IN AIRBAG VEHICLE: 0

(0) No Injury
(1-6) AIS Severity
(7) Injured, Unknown Severity
(9) Unknown

DRIVER AGE 22 SEX F

NUMBER OF DRIVER INJURIES: 0

SOURCE OF BEST INJURY DATA: 0

(0) Not Injured
(1) Autopsy w/wo med. records
(2) Hospital Medical Records
(3) Emergency Room only
(4) Private physician, Clinic
(5) Lay Coroner Report
(6) EMS Personnel
(7) Interviewee
(8) Police
(9) Unknown

MAXIMUM AIS BY BODY REGION

REGION	MAX AIS	CONTACT
Head/Neck/Face		
Chest		
Abdomen		
Leg/Hips		
Other (Arms)		
DRIVER MAXIMUM		

EJECTION: Extent NA

Portal

NOTES:

DRIVER BELT USAGE: (1) Used (2) Not Used (9) Unknown 1

Evidence: Fabric transfers on belt

DRIVER POSTURE: Any Comments Recorded (1) Yes, (2) No 1

Describe driver's posture and position on seat including specific comments on head, torso, buttocks, legs and feet. Also note hand and arm position. Did driver brace before crash? Describe:

Driver was attempting to avoid the pedestrian by first steering to the left, overcorrecting to the right, and steering back to the left

DRIVER FOREIGN OBJECTS: Comments Recorded (1) Yes, (2) No 1

Was driver wearing contact lenses or eyeglasses? Or holding any foreign object at the time of the impact (packages on lap, pipe, food, bottle, cigarette, etc.)? Did any lenses, objects, or jewelry play any role?:

Driver was wearing contact lens at the time of the crash

DRIVER COMMENTS: Comments Recorded (1) Yes, (2) No 2

Was the driver aware that the vehicle was equipped with a supplemental restraint system? Did driver offer any comments on smoke, noise, etc.? Did the driver comment on the airbag as a restraint system? Describe:

PASSENGER-AIRBAG CONTACT (1) Yes, (2) No, (9) Unknown 2

Describe:

APPENDIX C

NASS Vehicle Forms

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~~ ____

2. Case Number - Stratum 94-17

3. Vehicle Number 01

VEHICLE IDENTIFICATION

4. Vehicle Model Year 93
Code the last two digits of the model year
(99) Unknown

5. Vehicle Make (specify): 24
Satural
Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.
(99) Unknown

6. Vehicle Model (specify): 001
SL2
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
1G8ZJ5574PZ (Serial # omitted)
Left justify; Slash zeros and letter Z (Ø and Z)
No VIN—Code all zeros
Unknown—Code all nine's

OFFICIAL RECORDS

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

10. Police Reported Travel Speed 079
Code to the nearest kph (NOTE: 000 means less than 0.5 kph)
(160) 159.5 kph and above
(999) Unknown
45 mph - 52 mph
Av. 49 mph X 1.6093 = 079 kph

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

Note: See variables 37 through 55 (Page 4) for information on Other Drugs

12. 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: ____

ACCIDENT RELATED

13. Speed Limit 089
(000) No statutory limit
Code posted or statutory speed limit in kph
(999) Unknown

55 mph X 1.6093 = ___ kph

14. Attempted Avoidance Maneuver 06
(00) No impact
(01) No avoidance actions
(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
(97) No driver present
(98) Other action (specify):
(99) Unknown

15. Accident Type 13
Applicable codes may be found on the back of page two of this field form
(00) No impact
Code the number of the diagram that best describes the accident circumstance
(98) Other accident type (specify):
(99) Unknown

****** SKIP TO VARIABLE GV37 IF GV07 DOES NOT EQUAL 01-49 ******

OCCUPANT RELATED

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

17. Number of Occupants This Vehicle — 02
(00-96) Code actual number of occupants for this vehicle
(97) 97 or more
(99) Unknown

18. Number of Occupant Forms Submitted — 02

VEHICLE WEIGHT ITEMS

19. Vehicle Curb Weight — 1,100
____Code weight to nearest 10 kilograms.
(045) Less than 450 kilograms
(610) 6,100 kilograms or more
(999) Unknown

2,423 lbs X .4536 = 1,099 kgs

Source: [redacted]

20. Vehicle Cargo Weight — 0,010
____Code weight to nearest 10 kilograms.
(000) Less than 5 kilograms
(450) 4,500 kilograms or more
(999) Unknown

__,__20 lbs X .4536 = 0.009 kgs

RECONSTRUCTION DATA

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

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

23. 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

24. Rollover — 0
(0) No rollover (no overturning)

Rollover (primarily about the longitudinal axis)
(1) Rollover, 1 quarter turn only
(2) Rollover, 2 quarter turns
(3) Rollover, 3 quarter turns
(4) Rollover, 4 or more quarter turns (specify):

(5) Rollover--end-over-end (i.e., primarily about the lateral axis)
(9) Rollover (overturn), details unknown

OVERRIDE/UNDERRIDE (THIS VEHICLE)

25. Front Override/Underride (this Vehicle) — 0

26. Rear Override/Underride (this Vehicle) — 0

(0) No override/underride, or not an end-to-end impact

Override (see specific CDC)
(1) 1st CDC
(2) 2nd CDC
(3) Other not automated CDC (specify):

Underride (see specific CDC)
(4) 1st CDC
(5) 2nd CDC
(6) Other not automated CDC (specify):

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

HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V

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

27. Heading Angle For This Vehicle — 998

28. Heading Angle For Other Vehicle — 998

29. Basis for Total Delta V (highest) 5

Delta V Calculated
(1) CRASH program—damage only routine
(2) CRASH program—damage and trajectory routine
(3) Missing vehicle algorithm

Delta V Not Calculated
(4) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.
(5) All vehicles within scope (CDC applicable) of CRASH program but one of the collision conditions is beyond the scope of the CRASH program or other acceptable reconstruction technique, regardless of adequacy of damage data.
(6) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available.

COMPUTER GENERATED DELTA V

	Secondary	Highest
30. Total Delta V	9 9 9	
____ Nearest kph		

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

	Secondary	Highest
31. Longitudinal Component of Delta V	+ − 9 9 9	
____ Nearest kph		

(NOTE: __000 means greater than −0.5 kph and less than +0.5 kph)
(±160) ±159.5 kph and above
(__999) Unknown

	Secondary	Highest
32. Lateral Component of Delta V	+ − 9 9 9	
____ Nearest kph		

(NOTE: __000 means greater than −0.5 kph and less than +0.5 kph)
(±160) ±159.5 kph and above
(__999) Unknown

33. Energy Absorption 9 9 9 . 9 0 0

____ Nearest 100 joules

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

34. 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

35. Type of Vehicle Inspection 1
(0) No inspection
(1) Complete inspection
(2) Partial inspection (specify):
_____

36. Is this an AOPS Vehicle? 1
(0) No
(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

IS OLDMISS APPLICABLE FOR THIS VEHICLE? [ ] YES [ ] NO

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

37. Police Reported Other Drug Presence 0
(0) No other drugs present
(1) Yes (other drug present)
(7) Not reported
(8) No driver present
(9) Unknown

38. Police Reported Drug Evaluation Classification (DEC) Test For Driver 0
(0) No DEC process available or given
(1) DEC process given, results known
(2) DEC process given, results unknown
(3) DEC process available, unknown if given
(8) No driver present

39. Other Drug Specimen Test Type For Driver 0
(0) No specimen test given
(1) Blood test
(2) Urine test
(3) Other specimen tests (specify): _____
(7) Unspecified specimen test
(8) No driver present
(9) Unknown if specimen test given

DRUG EVALUATION CLASSIFICATION
OTHER DRUGS TEST RESULTS FOR DRIVER

	DEC Test Results	Specimen Test Results
Narcotic Drug	40. 0	41. 0
Depressant Drug	42. 0	43. 0
Stimulant Drug	44. 0	45. 0
Hallucinogen Drug	46. 0	47. 0
Cannabinoid Drug	48. 0	49. 0
Phencyclidine (PCP)	50. 0	51. 0
Inhalant Drug	52. 0	53. 0
Other Drug (Excluding Nicotine, Aspirin, Alcohol, Drugs Administered Post-Crash)	54. 0	55. 0

Codes For DEC Test Results

(0) No DEC test given
(1) Passed DEC test
(2) Failed DEC test
(3) DEC test given—results unknown
(8) No driver present
(9) Unknown if DEC test given

Codes for Specimen Test Results

(0) No specimen test given
(1) Drug not found in specimen
(2) Drug found in specimen
(7) Specimen test given, results unknown or not obtained
(8) No driver present
(9) Unknown if specimen test given

OTHER DATA

56. Driver's Zip Code [redacted]

(00000) Driver not present
(00001) Driver not a resident of U.S. or territories
_____ Code actual 5-digit zip code
(99999) Unknown

57. Driver's Race/Ethnic Origin 9
(0) Driver not present
(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
(8) Other (specify):
_____
(9) Unknown

58. 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

ROLLOVER DATA

If GV07 (Body Type) ≠ 1-49, leave GV59-GV63 blank.
If GV24 (Rollover) = 0, then GV59-GV63 must equal 0.
If GV24 = 9, then GV59-GV63 must equal 9.

59. Rollover Initiation Type 0
(0) No rollover
(1) Trip-over
(2) Flip-over
(3) Turn-over
(4) Climb-over
(5) Fall-over
(6) Bounce-over
(7) Collision with another vehicle
(8) Other rollover initiation type specify):
_____
(9) Unknown rollover initiation type

60. 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
(9) Unknown

61. Rollover Initiation Object Contacted 0 0

62. 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):
_____
(8) Non-contact rollover forces (specify):
_____
(9) Unknown

63. Direction of Initial Roll 0
(0) No rollover
(1) Roll right - primarily about the longitudinal axis
(2) Roll left - primarily about the longitudinal axis
(5) End-over-end (i.e., primarily about the lateral axis)
(9) Unknown roll direction

PRECRASH DATA

64. Pre-Event Movement (Prior to Recognition of Critical Event) 0 1
(01) Going straight
(02) Slowing or stopping in traffic lane
(03) Starting in traffic lane
(04) Stopped in traffic lane
(05) Passing or overtaking another vehicle
(06) Disabled or parked in travel lane
(07) Leaving a parking position
(08) Entering a parking position
(09) Turning right
(10) Turning left
(11) Making a U-turn
(12) Backing up (other than for parking position)
(13) Negotiating a curve
(14) Changing lanes
(15) Merging
(16) Successful avoidance maneuver to a previous critical event
(97) Other (specify):
_____
(98) No driver present
(99) Unknown

PRECRASH DATA (Continued)

65. Critical Precrash Event 80

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
(19) Unknown travel direction

Other Motor Vehicle In Lane
(50) Stopped
(51) Traveling in same direction with lower speed (i.e., lower steady speed or decelerating)
(52) Traveling in same direction with higher speed
(53) Traveling in opposite direction
(54) In crossover
(55) 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 or 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

For Corrective Actions Attempted see variable GV14 (Attemped Avoidance Manuever)

66. Precrash Stability After Avoidance Maneuver 1
(0) No avoidance maneuver
(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): _____
(8) No driver present
(9) Precrash stability unknown

67. Precrash Directional Consequences of Avoidance Maneuver (Corrective Action) 4
(0) No avoidance maneuver
(1) Vehicle stayed in travel lane where avoidance maneuver was initiated
(2) Vehicle stayed on roadway but left travel lane where avoidance maneuver was initiated
(3) Vehicle stayed on roadway, not known if left travel lane where avoidance maneuver was initiated
(4) Vehicle departed roadway
(5) Avoidance maneuver initiated off roadway
(8) No driver present
(9) Directional consequences unknown

***** IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV35=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.

U.S. Department of Transportation

National Highway Traffic Safety Administration

EXTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. ~~Primary Sampling Unit Number~~ ____
2. Case Number - Stratum 94-17
3. Vehicle Number 01

VEHICLE IDENTIFICATION

VIN 1G8ZJ5574PZ (Serial # omitted) Model Year 93

Vehicle Make (specify): Saturn Vehicle Model (specify): SL2 - 4door

LOCATOR

Locate the end of the damage with respect to the vehicle longitudinal center line or bumper corner for end impacts or an undamaged axle for side impacts.

Specific Impact No.	Location of Direct Damage	Location of Field L
1 (Ped)	Begins 30.5cm (12.0") R of ℄ & extends 22.9cm (9") to the corner	Entire frontal plane
2 (Ditch)	Beg. ins @ R front corner & extends 376cm (148") along R side	
3 (Guy wire)	Begins 35.6cm (14.0") rear of right front tire	

CRUSH PROFILE IN CENTIMETERS

NOTES: Identify the plane at which the C-measurements are taken (e.g., at bumper, above bumper, at sill, above sill, etc.) and label adjustments (e.g., free space).

Measure and document on the vehicle diagram the location of maximum crush.

Measure C1 to C6 from driver to passenger side in front or rear impacts and rear to front in side impacts.

Free space value is defined as the distance between the baseline and the original body contour taken at the individual C locations. This may include the following: bumper lead, bumper taper, side protrusion, side taper, etc. Record the value for each C-measurement and maximum crush.

Use as many lines/columns as necessary to describe each damage profile.

Specific Impact Number	Plane of Impact C-Measurements	Direct Damage Width (CDC)	Direct Damage Max Crush	Field L	C_1	C_2	C_3	C_4	C_5	C_6	±D
1	Front bumper	22.9cm (9.0")	7.60cm (2.99")	115.6cm (45.5")	14.0cm (5.5")	7.4cm (2.9")	4.8cm (1.9")	4.1cm (1.6")	8.3cm (3.3")	14.6cm (5.75")	⊕ 41.9cm (16.5")
	Freespace			-	14.0cm (5.5")	7.4cm (2.9")	4.8cm (1.9")	4.8cm (1.9")	7.4cm (2.9")	14.0cm (5.5")	
	Resultant				0	0	0	0	0.9cm (0.4")	0.6cm (0.25")	
2	Right side trim & below	376cm (148")			No recordable damage (crush) noted along side plane from ditch contact						
3	Right side trim	125.7cm (49.5")	2.5cm (1.0") ↑ located forward of right rear axle involving rocker panel	96.5cm (38.0")	Plastic side panels ripped free from super structure						

VEHICLE DAMAGE SKETCH

TIRE—WHEEL DAMAGE

a. Rotation physically restricted		b. Tire deflated	
RF	2	RF	2
LF	2	LF	2
RR	2	RR	2
LR	2	LR	2

(1) Yes (2) No (8) NA (9) Unk.

TYPE OF TRANSMISSION

☑ Manual ☐ Automatic

ORIGINAL SPECIFICATIONS

Wheelbase	(102.4") 260.1	cm
Overall Length	(176.3") 447.8	cm
Maximum Width	(67.6") 171.8	cm
Curb Weight	(2423 lbs) 1099.1	kg
Average Track	(56.4") 143.3	cm
Front Overhang	(39.4") 100.1	cm
Rear Overhang	(34.5") 87.6	cm
Undeformed End Width	(47.0) 119.4	cm
Engine Size: cyl./displ.	4cyl 1.9	L

WHEEL STEER ANGLES
(For locked front wheels or displaced rear axles only)

RF ± ___ ___ °
LF ± ___ ___ °
RR ± ___ ___ °
LR ± ___ ___ °

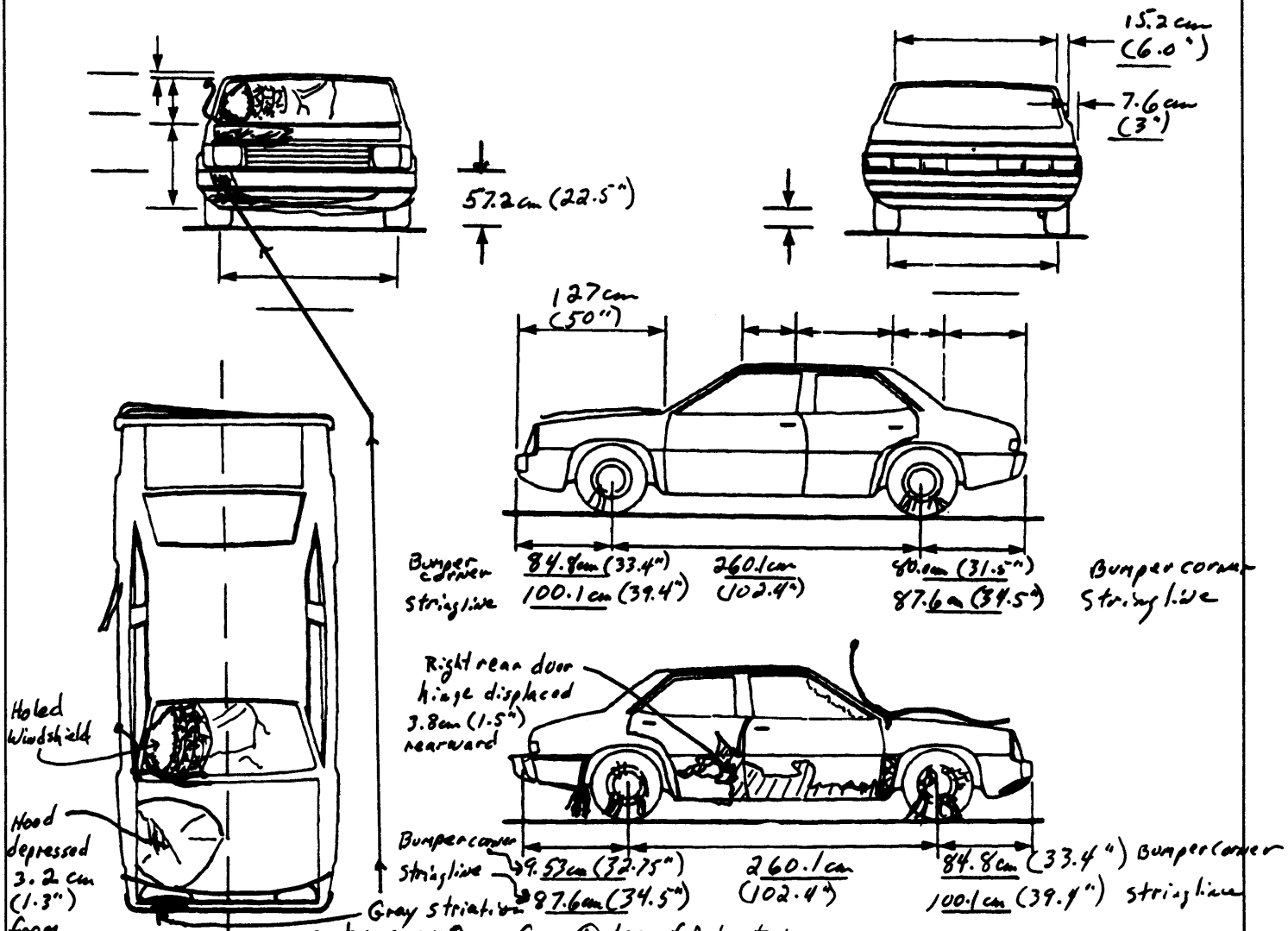
Within ± 5 degrees

DRIVE WHEELS

☑ FWD ☐ RWD ☐ 4WD

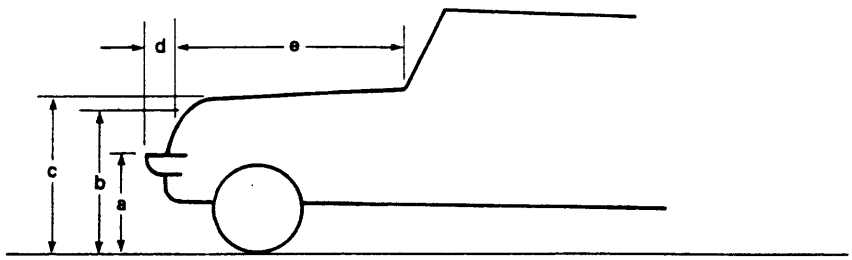
Approximate Cargo Weight (20 lbs) 9.1 kg
Clothes & Military cargo sack

MEASUREMENTS IN CENTIMETERS

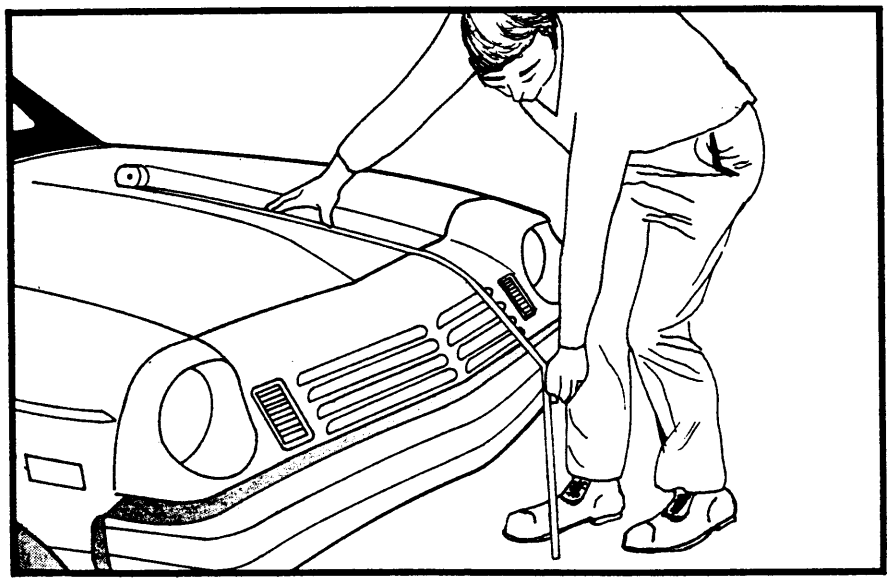


NOTES: Sketch new perimeter and cross hatch direct damage and single hatch induced damage on all views. Annotate observations which might be useful in reconstructing the accident (e.g., grass in tire bead, direction of striations, scuff on sidewalls, etc.). If pulling trailer, sketch type of trailer and damage received on the back of this page.

Annotate any damage caused by extrication such as component removal by torching, prying, or hydraulic shears.



57.2 cm (22.5")	a.	Bumper Height
66 cm (26")	b.	Contact Height - to end of Vertical
66 cm (26")	c.	Hood Height - to Horizontal
15.2 cm (6.0")	d.	Bumper Lead
108.0 cm (42.5")	e.	Hood Length
Right hip 101.6 cm (40.0")	f.	Wrap Distance(s)
Right upper torso 127.0 cm (50.0")		



WRAP DISTANCE MEASUREMENT

☆ U.S. GOVERNMENT PRINTING OFFICE: 1983 - 421-264 - 415/4863

CDC WORKSHEET

CODES FOR OBJECT CONTACTED

(01-30) — Vehicle Number

Noncollision
- (31) Overturn — rollover
- (32) Fire or explosion
- (33) Jackknife
- (34) Other intraunit damage (specify): _____
- (35) 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
- (71) Motor vehicle 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
- (88) Other nonfixed object (specify): _____
- (89) Unknown nonfixed object
- (98) Other event (specify): _____
- (99) Unknown event or object

DEFORMATION CLASSIFICATION BY EVENT NUMBER

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force (degrees)	Incremental Value of Shift	(3) Deformation Location	(4) Specific Longitudinal or Lateral Location	(5) Specific Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
01	72	360	00	F	Z	H	W	06
02	60	020	00	R	F	E	W	01
03	68	010	00	R	Z	E	W	01

COLLISION DEFORMATION CLASSIFICATION

HIGHEST DELTA "V"

Accident Event Sequence Number	Object Contacted	(1) (2) Direction of Force	(3) Deformation Location	(4) Longitudinal or Lateral Location	(5) Vertical or Lateral Location	(6) Type of Damage Distribution	(7) Deformation Extent
4. 02	5. 60	6. 01	7. R	8. F	9. E	10. W	11. 01

Second Highest Delta "V"

12. 03	13. 68	14. 12	15. R	16. Z	17. E	18. W	19. 01

CRUSH PROFILE IN CENTIMETERS

The crush profile for the damage described in the CDC(s) above should be documented in the appropriate space below. (ALL MEASUREMENTS ARE IN CENTIMETERS.)

HIGHEST DELTA "V"

20. L	21. C_1	C_2	C_3	C_4	C_5	C_6	22. ±D
___	___	___	___	___	___	___	+ − ___

Second Highest Delta "V"

23. L	24. C_1	C_2	C_3	C_4	C_5	C_6	25. ±D
___	___	___	___	___	___	___	+ − ___

26. Are CDCs Documented but Not Coded on The Automated File? 1
(0) No
(1) Yes

27. Researcher's Assessment of Vehicle Disposition 1
(0) Not towed due to vehicle damage
(1) Towed due to vehicle damage
(9) Unknown

28. Original Wheelbase 260
Code to the nearest centimeter
(999) Unknown

___.__ inches X 2.54 = ___ centimeters

29. Is This A Multi-Stage Manufactured Vehicle And/Or A Certified Altered Vehicle? 0
    (0) No post manufacturer modifications
    (1) Yes - post manufacturer modifications (specify): _____
    _____
    _____
    (Include photograph of CERTIFICATION PLACARD in case report)
    (9) Unknown if vehicle is modified

30. Fire Occurrence 0
    (0) No fire

    Yes, fire occurred
    (1) Minor
    (2) Major
    (9) Unknown

31. Origin of Fire 0
    (0) No fire
    (1) Vehicle exterior (front, side, back, top)
    (2) Exhaust system
    (3) Fuel tank (and other fuel retention system parts)
    (4) Engine compartment
    (5) Cargo/trunk compartment
    (6) Instrument panel
    (7) Passenger compartment area
    (8) Other location (specify): _____
    (9) Unknown

32. Type of Fuel Tank 2
    (0) No fuel tank (electrical vehicle)
    (1) Metallic
    (2) Non-metallic
    (9) Unknown

*** STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED AND WAS NOT AN AOPS *** (I.E., GV09=0 OR 9 AND GV36=0), DO NOT COMPLETE THE INTERIOR VEHICLE FORM.

U.S. Department of Transportation

National Highway Traffic Safety Administration

INTERIOR VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number ___
2. Case Number - Stratum 94-17
3. Vehicle Number 01

INTEGRITY

4. Passenger Compartment Integrity 01
(00) No integrity loss

Yes, Integrity Was Lost Through
(01) Windshield
(02) Door (side)
(03) Door/hatch (back door)
(04) Roof
(05) Roof glass
(06) Side window
(07) Rear window (backlight)
(08) Roof and roof glass
(09) Windshield and door (side)
(10) Windshield and roof
(11) Side and rear window (side window and backlight)
(12) Windshield and side window
(13) Door and side window
(98) Other combination of above (specify): _____
(99) Unknown

Door, Tailgate or Hatch Opening

5. LF 1 6. RF 1 7. LR 1 8. RR 1 9. TG/H 0

(0) No door/gate/hatch
(1) Door/gate/hatch remained closed and operational
(2) Door/gate/hatch came open during collision
(3) Door/gate/hatch jammed shut
(8) Other (specify): _____
(9) Unknown

Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision. If IV05-IV09 ≠ 2, Then code Ø

10. LF 0 11. RF 0 12. LR 0 13. RR 0 14. TG/H 0

(0) No door/gate/hatch or door not opened

Door, Tailgate or Hatch Came Open During Collision
(1) Door operational (no damage)
(2) Latch/striker failure due to damage
(3) Hinge failure due to damage
(4) Door structure failure due to damage
(5) Door support (i.e., pillar, sill, roof side rail, etc.) failure due to damage
(6) Latch/striker and hinge failure due to damage
(8) Other failure (specify): _____
(9) Unknown

GLAZING

Glazing Damage from Impact Forces

15. WS 3 16. LF 0 17. RF 0 18. LR 0 19. RR 0
20. BL 0 21. Roof 0 22. Other 0

(0) No glazing damage from impact forces
(2) Glazing in place and cracked from impact forces
(3) Glazing in place and holed from impact forces
(4) Glazing out-of-place (cracked or not) and not holed from impact forces
(5) Glazing out-of-place and holed from impact forces
(6) Glazing disintegrated from impact forces
(7) Glazing removed prior to accident
(8) No glazing
(9) Unknown if damaged

Glazing Damage from Occupant Contact

23. WS 0 24. LF 0 25. RF 0 26. LR 0 27. RR 0
28. BL 0 29. Roof 0 30. Other 0

(0) No occupant contact to glazing or no glazing
(1) Glazing contacted by occupant but no glazing damage
(2) Glazing in place and cracked by occupant contact
(3) Glazing in place and holed by occupant contact
(4) Glazing out-of-place (cracked or not) by occupant contact and not holed by occupant contact
(5) Glazing out-of-place by occupant contact and holed by occupant contact
(6) Glazing disintegrated by occupant contact
(9) Unknown if contacted by occupant

If No Glazing Damage *And* No Occupant Contact or No Glazing, Then Code IV31 Through IV46 As Ø

Type of Window/Windshield Glazing

31. WS 1 32. LF 0 33. RF 0 34. LR 0 35. RR 0
36. BL 0 37. Roof 0 38. Other 0

(0) No glazing contact and no damage, or no glazing
(1) AS-1 — Laminated
(2) AS-2 — Tempered
(3) AS-3 — Tempered-tinted
(4) AS-14 — Glass/Plastic
(8) Other (specify): _____
(9) Unknown

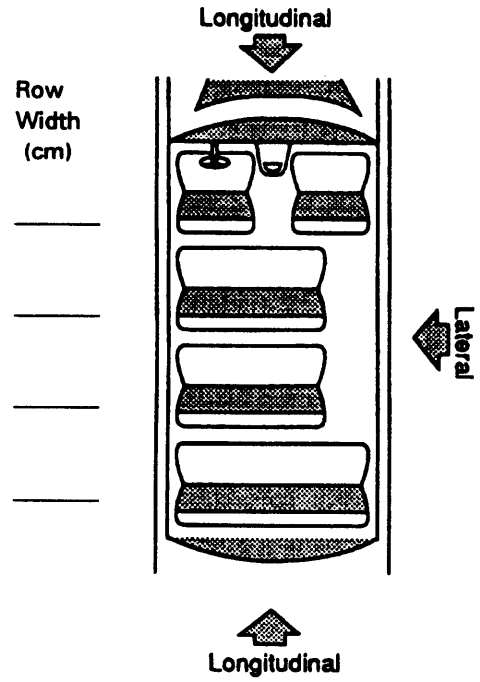
Window Precrash Glazing Status

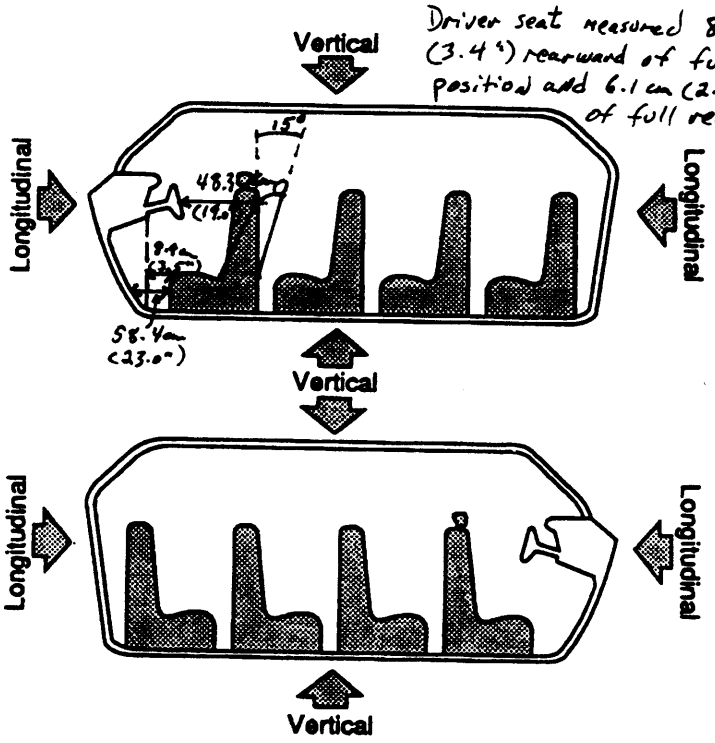
39. WS 1 40. LF 0 41. RF 0 42. LR 0 43. RR 0
44. BL 0 45. Roof 0 46. Other 0

(0) No glazing contact and no damage, or no glazing
(1) Fixed
(2) Closed
(3) Partially opened
(4) Fully opened
(9) Unknown

INTRUSION WORKSHEET

Note: Sketch intruded areas





LOCATION OF INTRUSION	INTRUDED COMPONENT	(All Measurements Are In Centimeters) COMPARISON VALUE	—	INTRUDED VALUE	=	INTRUSION	DOMINANT CRUSH DIRECTION
13	Windshield		—		=	15 cm (6.0")	Long. forward
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
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			—		=		
			—		=		
			—		=		
			—		=		
			—		=		
			—		=		

Document no more than the 15 most severe intrusions

OCCUPANT AREA INTRUSION

Note: If no intrusions, leave variables IV47-IV86 blank.

	Location of Intrusion	Intruding Component	Magnitude of Intrusion	Dominant Crush Direction
1st	47. 1 3	48. 1 4	49. 3	50. 2
2nd	51. ___	52. ___	53. ___	54. ___
3rd	55. ___	56. ___	57. ___	58. ___
4th	59. ___	60. ___	61. ___	62. ___
5th	63. ___	64. ___	65. ___	66. ___
6th	67. ___	68. ___	69. ___	70. ___
7th	71. ___	72. ___	73. ___	74. ___
8th	75. ___	76. ___	77. ___	78. ___
9th	79. ___	80. ___	81. ___	82. ___
10th	83. ___	84. ___	85. ___	86. ___

LOCATION OF INTRUSION

Front Seat
- (11) Left
- (12) Middle
- (13) Right

Second Seat
- (21) Left
- (22) Middle
- (23) Right

Third Seat
- (31) Left
- (32) Middle
- (33) Right

Fourth Seat
- (41) Left
- (42) Middle
- (43) Right

- (97) Catastrophic
- (98) Other enclosed area (specify) _____
- (99) Unknown

INTRUDING COMPONENT

Interior Components
- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A (A1/A2)-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Door panel (side)
- (12) Roof (or convertible top)
- (13) Roof side rail
- (14) Windshield
- (15) Windshield header
- (16) Window frame
- (17) Floor pan (includes sill)
- (18) Backlight header
- (19) Front seat back
- (20) Second seat back
- (21) Third seat back
- (22) Fourth seat back
- (23) Fifth seat back
- (24) Seat cushion
- (25) Back door/panel (e.g., tailgate)
- (26) Other interior component (specify): _____
- (27) Side panel - forward of the A (A2)-pillar
- (28) Side panel - rear of the A (A2)-pillar

Exterior Components
- (30) Hood
- (31) Outside surface of this vehicle (specify): _____
- (32) Other exterior object in the environment (specify): _____
- (33) Unknown exterior object
- (97) Catastrophic
- (98) Intrusion of unlisted component(s) (specify): _____
- (99) Unknown

MAGNITUDE OF INTRUSION
- (1) ≥ 3 centimeters but < 8 centimeters
- (2) ≥ 8 centimeters but < 15 centimeters
- (3) ≥ 15 centimeters but < 30 centimeters
- (4) ≥ 30 centimeters but < 46 centimeters
- (5) ≥ 46 centimeters but < 61 centimeters
- (6) ≥ 61 centimeters
- (7) Catastrophic
- (9) Unknown

DOMINANT CRUSH DIRECTION
- (1) Vertical
- (2) Longitudinal
- (3) Lateral
- (7) Catastrophic
- (9) Unknown

STEERING COLUMN

87. Steering Column Type — 2
(1) Fixed column
(2) Tilt column
(3) Telescoping column
(4) Tilt and telescoping column
(8) Other column type (specify): _____
(9) Unknown

88. Blank — X X
(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.)

89. Blank — X X X
(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.)

90. Blank — X X X
(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.)

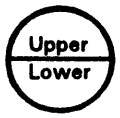
91. Blank — X X X
(This variable is left blank so that numbering consistency can be maintained with the 1988-93 CDS.)

92. Steering Rim/Spoke Deformation — 0 0
_____Code actual measured deformation to the nearest centimeter
(00) No steering rim deformation
(01-14) Actual measured value in centimeters
(15) 15 centimeters or more
(98) Observed deformation cannot be measured
(99) Unknown

93. Location of Steering Rim/Spoke Deformation — 0 0
(00) No steering rim deformation

Quarter Sections
(01) Section A
(02) Section B
(03) Section C
(04) Section D

Half Sections
(05) Upper half of rim/spoke
(06) Lower half of rim/spoke
(07) Left half of rim/spoke
(08) Right half of rim/spoke



(09) Complete steering wheel collapse
(10) Undetermined location
(99) Unknown

INSTRUMENT PANEL

94. Odometer Reading — 3 1,000
_____kilometers—Code to the nearest 1,000 kilometers
(000) No odometer
(001) Less than 1,500 kilometers
(500) 499,500 kilometers or more
(999) Unknown

19,298 miles X 1.6093 = _____ kilometers

Source: Vehicle Inspection

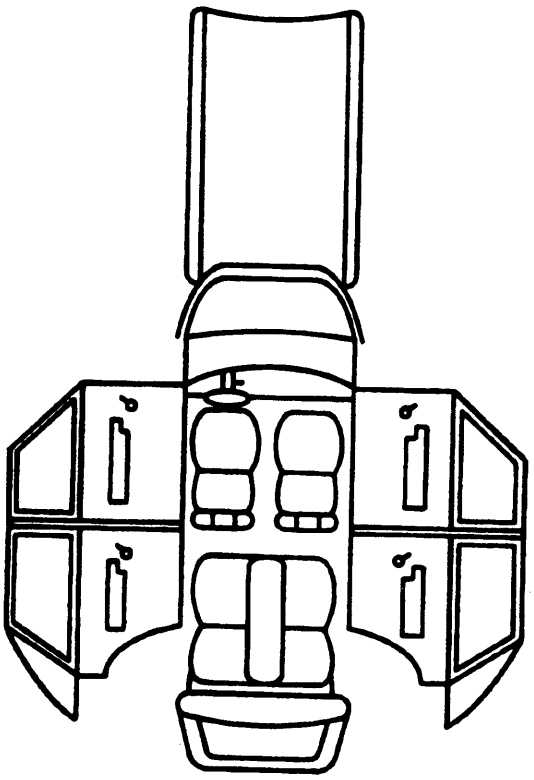
95. Instrument Panel Damage from Occupant Contact? — 0
(0) No
(1) Yes
(9) Unknown

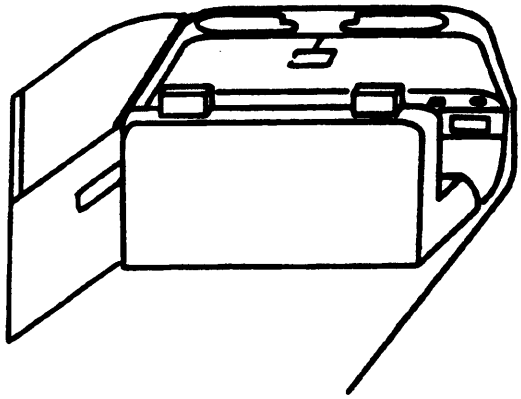
96. Knee Bolsters Deformed from Occupant Contact? — 0
(0) No
(1) Yes
(8) Not present
(9) Unknown

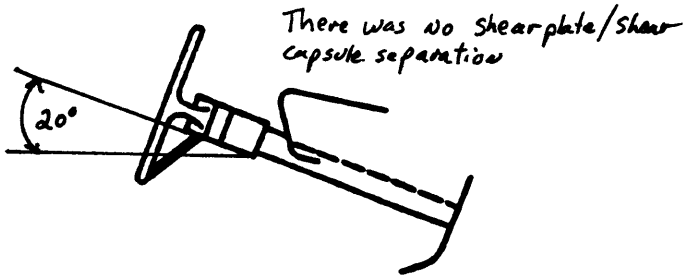
97. Did Glove Compartment Door Open During Collision(s)? — 0
(0) No
(1) Yes
(8) Not present
(9) Unknown

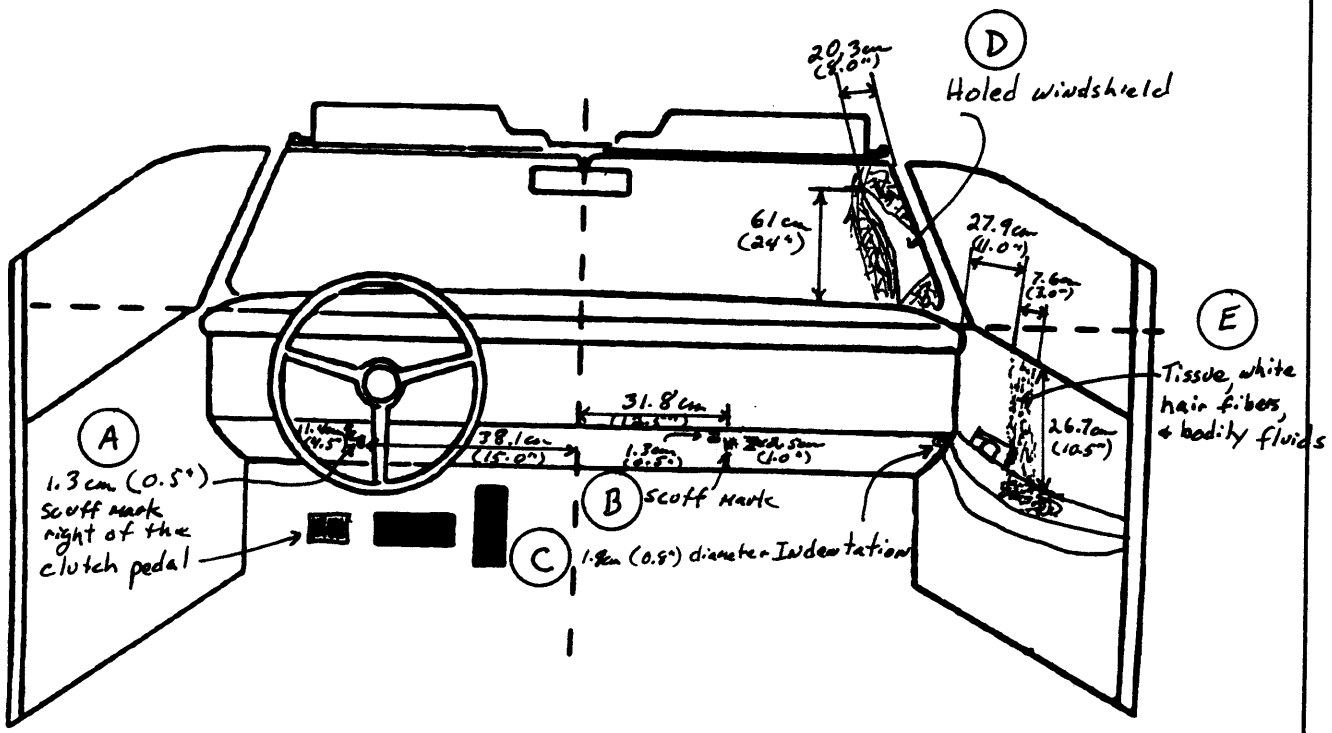
VEHICLE INTERIOR SKETCHES

Note area of ejection/entrapment









Sketch windshield contact(s) and the damaged area(s) on the instrument panel outline (e.g., radio, glove compartment, damage to instrument panel structure.
Cross hatch contact points, draw spider webs or use other annotation as may be appropriate.
Annotate the contacted area with a letter (begin with A) and list on the Points of Occupant Contact page.

POINTS OF OCCUPANT CONTACT

Contact	Interior Component Contacted	Occupant No. If Known	Body Region If Known	Supporting Physical Evidence	Confidence Level of Contact Point
A	13	01	(L) knee	Scuff mark	1
B	11	02	(L) knee	Scuff Mark	1
C	11	02	(R) Knee	Scuff Mark	1
D	01	Pedestrian	Head	Glazing holed, hair, tissue	1
E	30	Pedestrian	Head	Bodily Fluid (Brain matter), tissue, hair fibers	1
F					
G					
H					
I					
J					
K					
L					
M					
N					

CODES FOR INTERIOR COMPONENTS

FRONT
- (01) Windshield
- (02) Mirror
- (03) Sunvisor
- (04) Steering wheel rim
- (05) Steering wheel hub/spoke
- (06) Steering wheel (combination of codes 04 and 05)
- (07) Steering column, transmission selector lever, other attachment
- (08) Add on equipment (e.g., CB, tape deck, air conditioner)
- (09) Left instrument panel and below
- (10) Center instrument panel and below
- (11) Right instrument panel and below
- (12) Glove compartment door
- (13) Knee bolster
- (14) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
- (15) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
- (16) Driver side air bag compartment cover
- (17) Passenger side air bag compartment cover
- (18) Windshield reinforced by exterior object (specify):_____
- (19) Other front object (specify):

LEFT SIDE
- (20) Left side interior surface, excluding hardware or armrests
- (21) Left side hardware or armrest
- (22) Left A (A1/A2)-pillar
- (23) Left B-pillar
- (24) Other left pillar (specify):
- (25) Left side window glass or frame
- (26) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
- (27) Other left side object (specify):
- (28) Left side window sill

RIGHT SIDE
- (30) Right side interior surface, excluding hardware or armrests
- (31) Right side hardware or armrest
- (32) Right A (A1/A2)-pillar
- (33) Right B-pillar
- (34) Other right pillar (specify):
- (35) Right side window glass or frame
- (36) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B pillar, or roof side rail.
- (37) Other right side object (specify):
- (38) Right side window sill

INTERIOR
- (40) Seat, back support
- (41) Belt restraint webbing/buckle
- (42) Belt restraint B-pillar attachment point
- (43) Other restraint system component (specify):_____
- (44) Head restraint system
- (45) Air bag (use codes "16" and "17" for injuries sustained from air bag compartment covers)
- (46) Other occupants (specify):
- (47) Interior loose objects
- (48) Child safety seat (specify):
- (49) Other interior object (specify):

ROOF
- (50) Front header
- (51) Rear header
- (52) Roof left side rail
- (53) Roof right side rail
- (54) Roof or convertible top

FLOOR
- (56) Floor (including toe pan)
- (57) Floor or console mounted transmission lever, including console
- (58) Parking brake handle
- (59) Foot controls including parking brake

REAR
- (60) Backlight (rear window)
- (61) Backlight storage rack, door, etc.
- (62) Other rear object (specify):

CONFIDENCE LEVEL OF CONTACT POINT
- (1) Certain
- (2) Probable
- (3) Possible
- (9) Unknown

AUTOMATIC RESTRAINTS

NOTES: Encode the data for each applicable front seat position. The attribute for the variables may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

AIR BAGS

		Left	Right
FIRST	Availability/Function	1	
	Deployment	1	
	Failure	1	

Air Bag System Availability/Function
- (0) Not equipped/not available
- (1) Air bag

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

Air Bag System Deployment
- (0) Not equipped/not available
- (1) Air bag deployed during accident (as a result of impact)
- (2) Air bag deployed inadvertently just prior to accident
- (3) Air bag deployed, accident sequence undetermined
- (4) Nondeployed
- (5) Unknown if deployed
- (6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
- (9) Unknown

Did Air Bag System Fail?
- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____
- (9) Unknown

AUTOMATIC BELTS

		Left	Right
FIRST	Availability/Function	1	1
	Use	1	1
	Type	2	2
	Proper Use	1	1
	Failure Modes	1	1

Automatic (Passive) Belt System Availability/Function
- (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

Automatic (Passive) Belt System Use
- (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)
- (3) Automatic belt use unknown
- (9) Unknown

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

Proper Use of Automatic (Passive) Belt System
- (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

Automatic (Passive) Belt Failure Modes During Accident
- (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

MANUAL RESTRAINTS

NOTES: Encode the applicable data **for each seat position** in the vehicle. The attribute for the variable may be found below. Restraint systems should be assessed during the vehicle inspection then coded on the Ocupant Assessment Form.

If a Child safety seat is present, encode the data on the back of this page.

If the vehicle has automatic restraints available, encode the appropriate data on the back of the previous page.

		Left	Center	Right
FIRST	Availability	3		3
	Use	03		03
	Failure Modes	1		1
SECOND	Availability	4	3	4
	Use	00	00	00
	Failure Modes	00	00	00
THIRD	Availability			
	Use			
	Failure Modes			
OTHER	Availability			
	Use			
	Failure Modes			

Manual (Active) Belt System Availability
- (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

Manual (Active) Belt System Use
- (00) None used, not available, or belt removed/destroyed
- (01) Inoperable (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

Manual (Active) Belt Failure Modes During Accident
- (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

HEAD RESTRAINTS/SEAT EVALUATION

NOTES: Encode the applicable data for **each seat position** in the vehicle. The attribute for these variables may be found at the bottom of the page. Head restraint type/damage and seat type/performance should be assessed during the vehicle inspection then coded on the Occupant Assessment Form.

		Left	Center	Right
FIRST	Head Restraint Type/Damage	3 (4way)		3 (4way)
	Seat Type	02		02
	Seat Performance	1		1
	Seat Orientation	1		1
SECOND	Head Restraint Type/Damage	1	0	1
	Seat Type	05	05	05
	Seat Performance	1	1	1
	Seat Orientation	1	1	1
THIRD	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			
OTHER	Head Restraint Type/Damage			
	Seat Type			
	Seat Performance			
	Seat Orientation			

Head Restraint Type/Damage by Occupant at This Occupant Position

(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

Seat Type (this Occupant Position)

(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) Other seat type (specify): _____
(10) Box mounted seat (i.e., van type)
(99) Unknown

Seat Performance (this Occupant Position)

(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 tracks/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

Seat Orientation (this Occupant Position)

(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

DESCRIBE ANY INDICATION OF ABNORMAL OCCUPANT POSTURE (I.E., UNUSUAL OCCUPANT CONTACT PATTERN)

EJECTION/ENTRAPMENT DATA

Complete the following if the researcher has any indication that an occupant was either ejected from or entrapped in the vehicle. Code the appropriate data on the Occpant Assessment Form.

EJECTION No [✓] Yes [ ]

Describe indications of ejection and body parts involved in partial ejection(s):

Occupant Number						
Ejection						
(Note on Vehicle Interior Sketch) Ejection Area						
Ejection Medium						
Medium Status						

Ejection
(1) Complete ejection
(1) Partial ejection
(3) Ejection, Unknown degree
(9) Unknown

Ejection Area
(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

Ejection Medium
(1) Door/hatch/tailgate
(2) Nonfixed roof structure
(3) Fixed glazing
(4) Nonfixed glazing (specify): _____
(5) Integral structure
(8) Other medium (specify): _____
(9) Unknown

Medium Status (Immediately Prior to Impact)
(1) Open
(2) Closed
(3) Integral structure
(9) Unknown

ENTRAPMENT No [✓] Yes [ ]

Describe entrapment mechanism: _____

Component(s): _____

(Note in vehicle interior diagram)

APPENDIX D

Occupant Forms

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 ____
2. Case Number - Stratum 94-17
3. Vehicle Number 01
4. Occupant Number 01

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 22
   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
   (9) Unknown

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

   ___ ___ inches X 2.54 = ___ ___ ___ centimeters

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

   ___ ___ ___ pounds X .4536 = ___ ___ ___ 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

This report is authorized by P.L. 89-563; your cooperation is needed to make the

Section 106, 108, and 112. While you are not required to respond, of this data collection effort comprehensive, accurate, and timely.

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
    (NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)
    (0) Not entrapped
    (1) Entrapped
    (9) Unknown

RESTRAINT SYSTEM EVALUATION

17. 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

18. 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

19. 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

20. Manual (Active) Belt Failure Modes During Accident — 1
(0) No manual belt used
(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

21. Air Bag System Availability/Function — 1
(0) Not equipped/not available
(1) Air bag

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

22. Air Bag System Deployment — 1
(0) Not equipped/not available
(1) Air bag deployed during accident (as a result of impact)
(2) Air bag deployed inadvertently just prior to accident
(3) Air bag deployed, accident sequence undetermined
(4) Nondeployed
(5) Unknown if deployed
(6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(9) Unknown

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

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

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

HEAD RESTRAINT AND SEAT EVALUATION

25. Head Restraint Type/Damage by Occupant at This Occupant Position — 3
    (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

26. Seat Type (this Occupant Position) — 02
    (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) Other seat type (specify): _____
    (10) Box mounted seat (i.e., van type)
    (99) Unknown

27. Seat Performance (this Occupant Position) — 1
    (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
    (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

28. Child Safety Seat Make/Model 000
(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

29. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat
(7) Other type child safety seat (specify):
_____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

30. Child Safety Seat Orientation 00
(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

31. Child Safety Seat Harness Usage 00

32. Child Safety Seat Shield Usage 00

33. Child Safety Seat Tether Usage 00

Note: Options below applicable to Variables OA31-OA33.
(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

34. 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

35. 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
(8) Treatment - other (specify):

_____

(9) Unknown

36. 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

37. 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

38. Working Days Lost 00
____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 - GO TO VARIABLE 44 ON PAGE 7

VARIABLES 39 THROUGH 43 ARE COMPLETED BY THE ZONE CENTER

39. 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

40. 1st Medically Reported Cause of Death 00

41. 2nd Medically Reported Cause of Death 00

42. 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
(97) Other result (includes fatal ruled disease) (specify):

_____

(99) Unknown

43. 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

AUTOMATIC BELT SYSTEM

44. Automatic (Passive) Belt System Availability/ Function [1]
(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

45. Automatic (Passive) Belt System Use [1]
(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

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

47. Proper Use of Automatic (Passive Belt System [1]
(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

48. Automatic (Passive) Belt Failure Modes During Accident [1]
(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

49. Seat Orientation (this Occupant Position) [1]
(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

STOP - VARIABLES 50 THROUGH 52 ARE COMPLETED BY THE ZONE CENTER

TRAUMA DATA

50. 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

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

52. 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

ARE ALL APPLICABLE MEDICAL RECORDS INCLUDED WITH INITIAL SUBMISSION? NO [ ] YES [ ]

UPDATE CANDIDATE? NO [ ] YES [ ]

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

OCCUPANT ASSESSMENT LOG

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

TO BE COMPLETED BY TEAM

1. PSU Number ___ ___
2. Case Number—Stratum ___ ___ ___ ___
3. Researcher Completing Form ___
4. Vehicle Number ___ ___
5. Occupant Number ___ ___
6. Interviewer Number ___
7. Date Interview Completed ___ ___/___ ___/___ ___
8. Date Official Medical Data Requested ___ ___/___ ___/___ ___
9. Date Official Medical Data Obtained ___ ___/___ ___/___ ___
10. Occupant's Role ___
    (1) Driver
    (2) Passenger
    (3) Unknown
11. Interviewee For This Occupant ___
    (0) No interview
    (1) Same person

    Surrogate
    (2) Other occupant
    (3) Relative or friend
    (4) Multiple interviewees from above categories (specify):_____
12. Manner Of Interview ___
    (0) No attempt
    (1) Telephone
    (2) In-person
    (3) Questionnaire
    (9) Unknown (for Zone Center use only)
13. Result Of Last Interview Attempt ___ ___
    (01) Unable to contact or locate
    (02) Hit and run
    (03) Fatal—surrogate not available
    (04) In intensive care—surrogate not available
    (05) Out-of-state resident
    (06) Refused interview
    (07) Insurance company refusal
    (08) Attorney refusal or litigation
    (09) No return of questionnaire
    (10) Other (specify): _____
    (11) Return of completed questionnaire
    (12) Partial interview
    (13) Complete interview
14. Was This Occupant Injured? ___
    (0) No
    (1) Yes
    (9) Unknown
15. Status of Medical Release ___
    (0) Occupant not injured
    (1) Medical release not required at medical facility

    Medical Release Required
    (2) Required -- not obtained
    (3) Required -- obtained
16. Injury Treatment Status ___ ___
    (00) Occupant not injured
    (01) No treatment
    (02) Fatal—died before hospitalization
    (03) Fatal—died after hospitalization
    (04) Hospitalization
    (05) Emergency room treatment only
    (06) Treatment at physician's office
    (07) Treatment at scene or self treatment
    (08) Outpatient surgery
    (09) Treatment at medical facility—unknown level of treatment
    (99) Unknown
17. Injury Information

	Form Received	Record Status
Official		
a. Autopsy (invasive examination)	___	___ ___
b. Post-ER medical record which includes information about death based on non-invasive examination	___	___ ___
c. Admission record/summary of admission/discharge face sheet	___	___ ___
d. Discharge summary	___	___ ___
e. Operative report	___	___ ___
f. Radiographic record(s) post ER visit	___	___ ___
g. History and physical examination and/or consultation records	___	___ ___
h. Emergency room records	___	___ ___
i. Radiographic record(s) associated with ER visit	___	___ ___
j. Private physician	___	___ ___
Unofficial		
k. Lay coroner	___	___ ___
l. EMS record	___	___ ___
m. Interviewee	___	___ ___
n. Other source (specify): _____	B	___ ___
o. Police report	B	___ ___

(See reverse side of this page for codes for variable 13)

18. Medical Facility Code ___ ___

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 ____
2. Case Number - Stratum 94-17
3. Vehicle Number 01
4. Occupant Number 02

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age 17
   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
   (9) Unknown

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

   ___ ___ inches X 2.54 = ___ ___ ___ centimeters

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

   ___ ___ ___ pounds X .4536 = ___ ___ ___ 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 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
    (NOTE: Entrapped means that part of the person was in the vehicle and mechanically restrained; jammed doors and immobilizing injuries by themselves are not sufficient to constitute entrapment.)
    (0) Not entrapped
    (1) Entrapped
    (9) Unknown

RESTRAINT SYSTEM EVALUATION

17. 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

18. 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

19. 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

20. Manual (Active) Belt Failure Modes During Accident — 1
(0) No manual belt used
(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

21. Air Bag System Availability/Function — 0
(0) Not equipped/not available
(1) Air bag

Non-functional
(2) Air bag disconnected (specify): _____

(3) Air bag not reinstalled
(9) Unknown

22. Air Bag System Deployment — 0
(0) Not equipped/not available
(1) Air bag deployed during accident (as a result of impact)
(2) Air bag deployed inadvertently just prior to accident
(3) Air bag deployed, accident sequence undetermined
(4) Nondeployed
(5) Unknown if deployed
(6) Air bag deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(9) Unknown

23. Are There Indications of Air Bag System Failure? — 0
(0) Not equipped/not available
(1) No
(2) Yes (specify): _____

(9) Unknown

Note: See Variables 44 through 48 (Page 5) for Information on Automatic Belts

24. Police Reported Restraint Use — 4
(0) None used
(1) Police did not indicate restraint use
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt used, type not specified
(6) Child safety seat
(7) Other or automatic restraint (specify): _____

(8) Restrained, type unknown
(9) Police indicated "unknown"

HEAD RESTRAINT AND SEAT EVALUATION

25. Head Restraint Type/Damage by Occupant at This Occupant Position — 3
    (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

26. Seat Type (this Occupant Position) — 02
    (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) Other seat type (specify): _____
    (10) Box mounted seat (i.e., van type)
    (99) Unknown

27. Seat Performance (this Occupant Position) — 1
    (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
    (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

28. Child Safety Seat Make/Model 000
(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

29. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat
(7) Other type child safety seat (specify):
_____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

30. Child Safety Seat Orientation 00
(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

31. Child Safety Seat Harness Usage 00

32. Child Safety Seat Shield Usage 00

33. Child Safety Seat Tether Usage 00

Note: Options below applicable to Variables OA31-OA33.
(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

34. 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

35. 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
(8) Treatment - other (specify):
_____
(9) Unknown

36. 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

37. 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

38. 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 - GO TO VARIABLE 44 ON PAGE 7

VARIABLES 39 THROUGH 43 ARE COMPLETED BY THE ZONE CENTER

39. 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

40. 1st Medically Reported Cause of Death 00

41. 2nd Medically Reported Cause of Death 00

42. 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
(97) Other result (includes fatal ruled disease) (specify):
_____
(99) Unknown

43. 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

AUTOMATIC BELT SYSTEM

44. Automatic (Passive) Belt System Availability/ Function — 1
(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

45. Automatic (Passive) Belt System Use — 1
(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

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

47. Proper Use of Automatic (Passive Belt System — 1
(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

48. Automatic (Passive) Belt Failure Modes During Accident — 1
(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

49. Seat Orientation (this Occupant Position) — 1
(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

STOP - VARIABLES 50 THROUGH 52 ARE COMPLETED BY THE ZONE CENTER

TRAUMA DATA

50. 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

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

52. 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

ARE ALL APPLICABLE MEDICAL RECORDS INCLUDED WITH INITIAL SUBMISSION? NO [ ] YES [ ]

UPDATE CANDIDATE? NO [ ] YES [ ]

APPENDIX E

Pedestrian Injury Form

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

PEDESTRIAN INJURY FORM

Form NOT Approved
O.M.B. No. ##########
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	
2. Case Number - Stratum	84-17
3. Pedestrian Number	01
4. Blank	XX

INJURY DATA

Record below the actual injuries sustained by this pedestrian in chronological order 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 twenty-five injuries have been documented, encode the balance on the Pedestrian Injury Supplement.

	Source of Injury Data	AIS-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	Striking Profile	Type Of Damage	Damage Depth
Fx, dislocation both Knees	1st	5. 1	6. 8	7. 5	8. 08	9. 06	10. 2	11. 1	12. 700	13. 1	14. 1	15. 2	16. 4	17. 3
fx (L) Tibia	2nd	18. 1	19. 8	20. 5	21. 34	22. 22	23. 3	24. 2	25. 948 Ground	26. 1	27. 2	28. 0	29. 0	30. 0
fx (L) Fibula	3rd	31. 1	32. 8	33. 5	34. 16	35. 10	36. 2	37. 2	38. 948 Ground	39. 1	40. 2	41. 0	42. 0	43. 0
fx Sternum	4th	44. 1	45. 4	46. 5	47. 08	48. 04	49. 2	50. 4	51. 771	52. 1	53. 1	54. 2	55. 4	56. 3
fx ribs bilateral	5th	57. 1	58. 4	59. 5	60. 02	61. 22	62. 3	63. 3	64. 771	65. 1	66. 1	67. 2	68. 4	69. 3
fx, dislocation thoracic Vertebra	6th	70. 1	71. 6	72. 4	73. 04	74. 68	75. 5	76. 2	77. 771	78. 1	79. 1	80. 2	81. 4	82. 3
Lac of Mesentery	7th	83. 1	84. 5	85. 4	86. 20	87. 22	88. 2	89. 8	90. 771	91. 1	92. 1	93. 2	94. 4	95. 3
Avulsion Diaphragm	8th	96. 1	97. 4	98. 4	99. 06	100. 04	101. 3	102. 8	103. 777	104. 1	105. 1	106. 2	107. 4	108. 3
severed Aorta	9th	109. 1	110. 4	111. 2	112. 02	113. 10	114. 5	115. 4	116. 777	117. 1	118. 1	119. 2	120. 4	121. 3
contusions of both Lungs	10th	122. 1	123. 4	124. 4	125. 14	126. 10	127. 4	128. 3	129. 777	130. 1	131. 1	132. 2	133. 4	134. 3

PEDESTRIAN INJURY DATA

	Source of Injury Data	AIS-90 Body Region	AIS-90 Type of Anatomic Structure	AIS-90 Specific Anatomic Structure	AIS-90 Level of Injury	AIS-90 A.I.S. Severity	AIS-90 Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Striking Profile	Type Of Damage	Damage Depth
Abrasion ® cheek	11th	1	2	9	02	02	1	1	775	1	1	2	5	8 Holed glazing
Fx ® frontoparietal	12th	1	1	5	04	06	4	1	742	1	1	5	3	3
Lac of frontal Lobes	13th	1	1	4	06	88	4	9	742	1	1	5	3	3
Epidural hemorrhage	14th	1	1	4	06	30	4	9	742	1	1	5	3	3
Subdural hemorrhage	15th	1	1	4	06	50	4	9	742	1	1	5	3	3
Fx base of brain	16th	1	1	5	02	06	4	8	742	1	1	5	3	3
Lac of nose	17th	1	2	9	06	02	1	4	775	1	1	2	5	8 Holed glazing
fx nasal bones	18th	1	2	5	10	04	2	1	742	1	1	5	3	3
Lac of upper neck	19th	1	3	9	06	02	1	5	775	1	1	2	5	8 Holed glazing
Abrasion of chestwall	20th	1	4	9	02	02	1	9	948 ground	1	1	0	0	0
	21st	—	—	—	— —	— —	—	—	— —	—	—	—	—	—
	22nd	—	—	—	— —	— —	—	—	— —	—	—	—	—	—
	23rd	—	—	—	— —	— —	—	—	— —	—	—	—	—	—
	24th	—	—	—	— —	— —	—	—	— —	—	—	—	—	—
	25th	—	—	—	— —	— —	—	—	— —	—	—	—	—	—

SOURCE OF INJURY DATA

OFFICIAL

(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

(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

STRIKING PROFILE

(0) Injury not from vehicle contact
(1) Flat-Narrow (<15 centimeters)
(2) Flat-Wide (≥ 15 centimeters)
(3) Rounded (contoured)
(4) Rounded edge
(5) Sharp edge
(8) Other (specify): _____
(9) Unknown

TYPE OF DAMAGE

(0) Injury not from vehicle contact
(1) No damage/contact
(2) Scratch
(3) Dent
(4) Large deformation
(5) Cracked, fractured, shattered
(6) Separated from vehicle
(7) Noncontact injury
(8) Other specify: _____
(9) Unknown

DAMAGE DEPTH

(0) Injury not from vehicle contact
(1) No residual damage
(2) Surface only damage
(3) Crush depth >0 to 2 centimeters
(4) Crush depth >2 to 5 centimeters
(5) Crush depth >5 to 10 centimeters
(8) Other specify: _____
(9) Unknown

PEDESTRIAN 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

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, 06, 08) Level of Consciousness
(10) Concussion

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

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

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

INJURY SOURCE

FRONT
700 Front bumper
701 Front lower valance/spoiler
702 Front grille
703 Hood edge and/or trim
704 Hood ornament (fixed)
705 Hood ornament (spring loaded)
706 Headlight
707 Retractable headlight door (Open/Closed)
708 Turn signal/parking lights
718 Other front or add on object (specify): _____
719 Unknown front object

Left Side Components
720 Front fender side surface
721 Front antenna
722 A1 pillar
723 A2 pillar
724 B pillar
725 C pillar
726 D pillar
728 Other pillar (specify): _____
729 Left side roof rail
730 Left side door surface
731 Left side door handle
732 Left side mirror fixed housing
733 Left side folding mirror
734 Left side glazing forward of B pillar
735 Left side glazing rearward of B pillar
736 Left side back fender or quarter panel
737 Rear antenna
738 Other left side object (specify): _____
739 Unknown left side component

Right Side Components
740 Front fender side surface
741 Front antenna
742 A1 pillar
743 A2 pillar
744 B pillar
745 C pillar
746 D pillar
748 Other pillar (specify): _____
749 Right side roof rail
750 Right side door surface
751 Right side door handle
752 Right side mirror fixed housing
753 Right side folding mirror
754 Right side glazing forward of B pillar
755 Right side glazing rearward of B pillar
756 Rear antenna
757 Rear fender or quarter panel
758 Other right side object (specify): _____
759 Unknown right side component

Back Components
760 Rear (back) bumper
761 Tailgate
762 Hatchback, vertical surface
768 Other back component (specify): _____
769 Unknown back component

Top Components
770 Hood surface
771 Hood surface reinforced by under hood component
772 Front fender top surface
773 Cowl area
774 Wiper blade & mountings
775 Windshield glazing
776 Front header
777 Roof surface
778 Backlight glazing
779 Rear header
780 Hatchback
781 Rear trunk lid
788 Other top component (specify): _____
789 Unknown top component

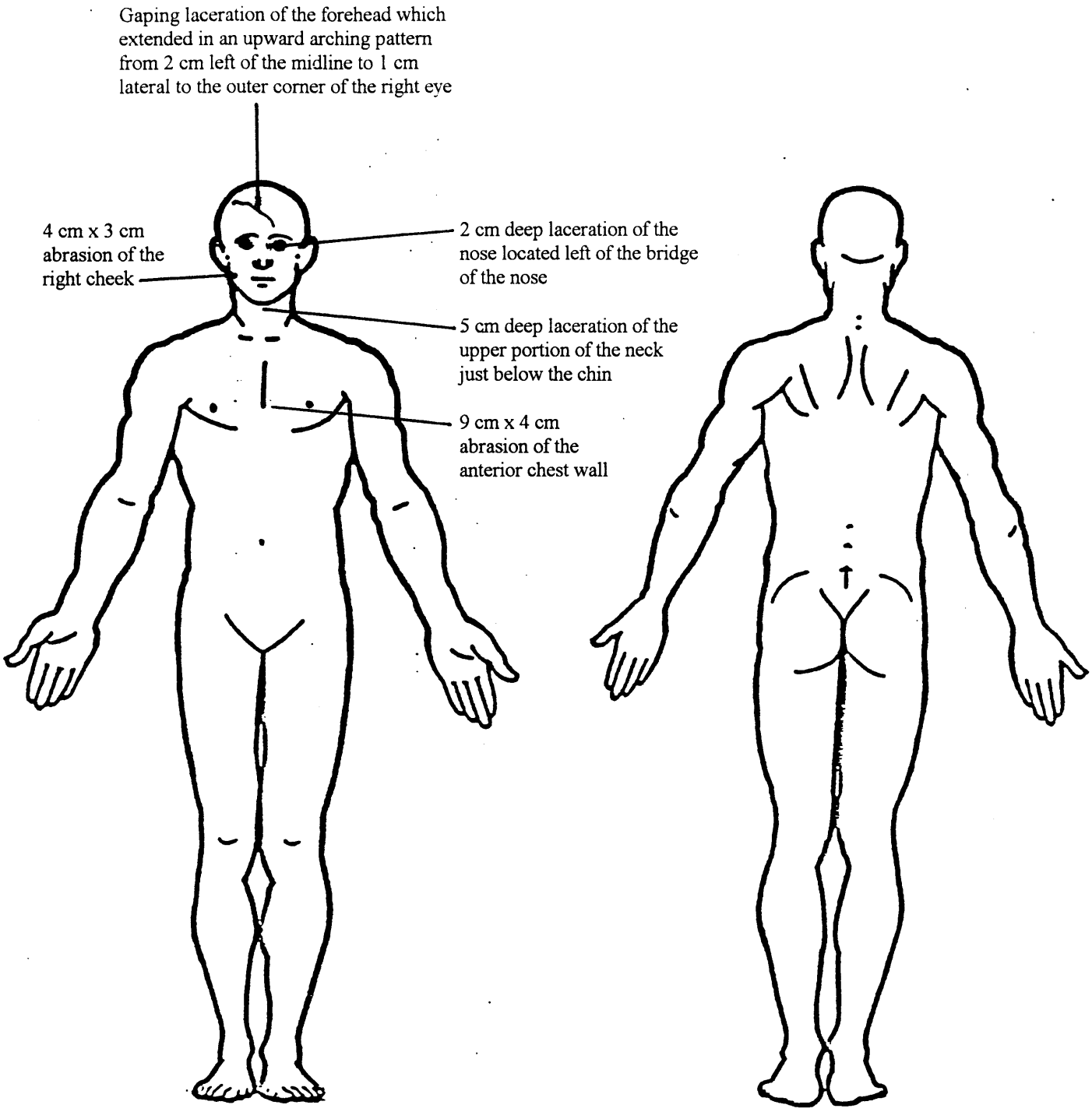
Wheels / tires
790 Left front wheel / tire
791 Right front wheel / tire
792 Left rear wheel / tire
793 Right rear wheel /tire
,798 Other wheel / tire (specify): _____
799 Unknown wheel / tire

Undercarriage components
800 Front crossmember
801 Steering assembly/Front suspension
802 Oil pan
803 Exhaust system pipe
804 Transmission
805 Drive shaft
806 Catalytic converter
807 Muffler
808 Floor pan
809 Fuel tank
810 Rear suspension
818 Other undercarriage component (specify): _____
819 Unknown undercarriage component

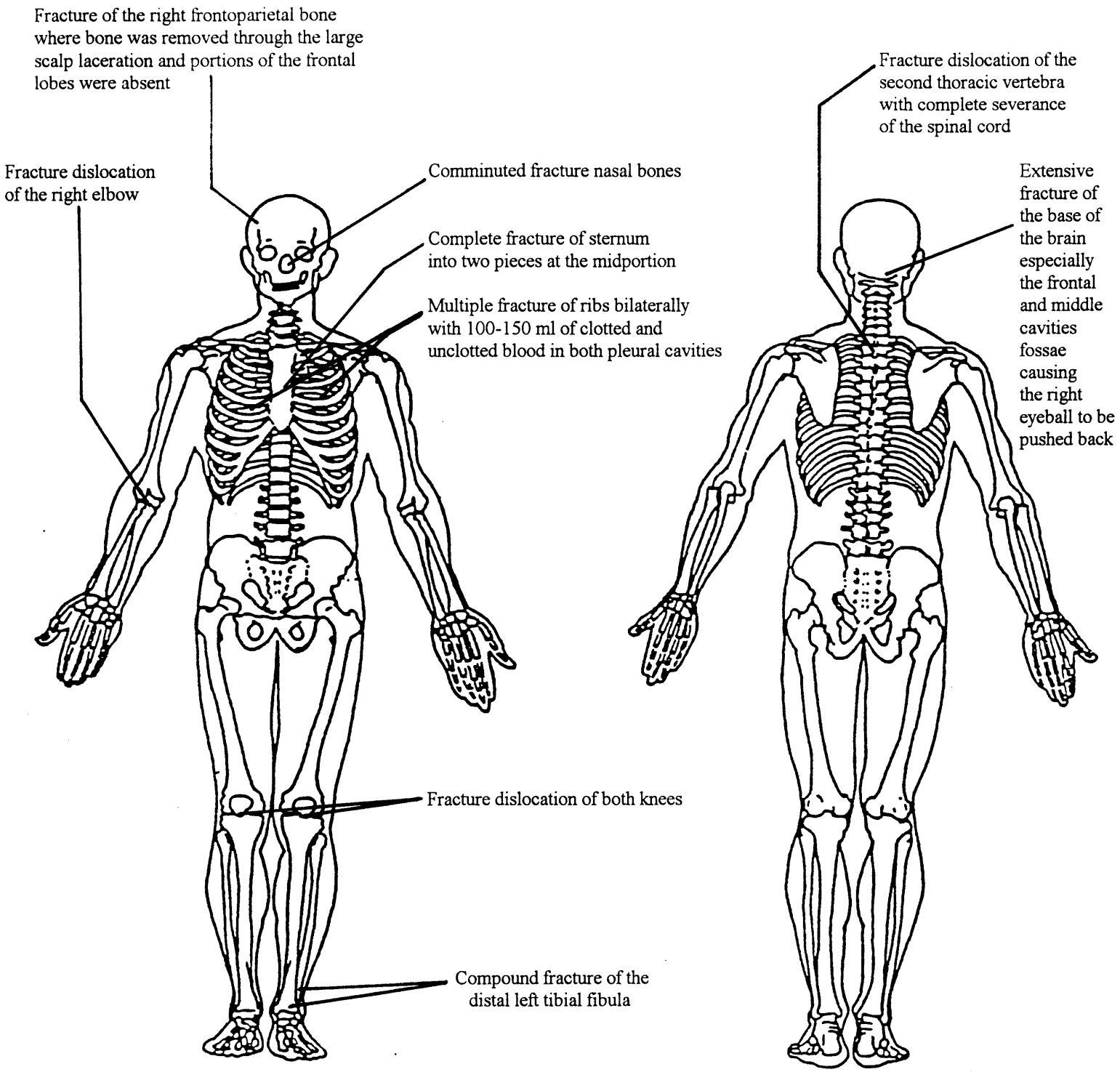
Accessories
820 Air scoop, deflector
821 Cellular or CB radio antenna
822 Emergency lights or bar
823 Fog lights
824 Luggage, ski, or bike rack
825 Cargo (specify): _____
826 Spare tire
827 Spotlight
828 Other accessory (specify): _____

Other Object or Vehicle in Environment
948 Other object in environment (specify): _____
949 Unknown object in environment
959 Unknown object on contacting vehicle
997 Noncontact injury source
999 Unknown injury source

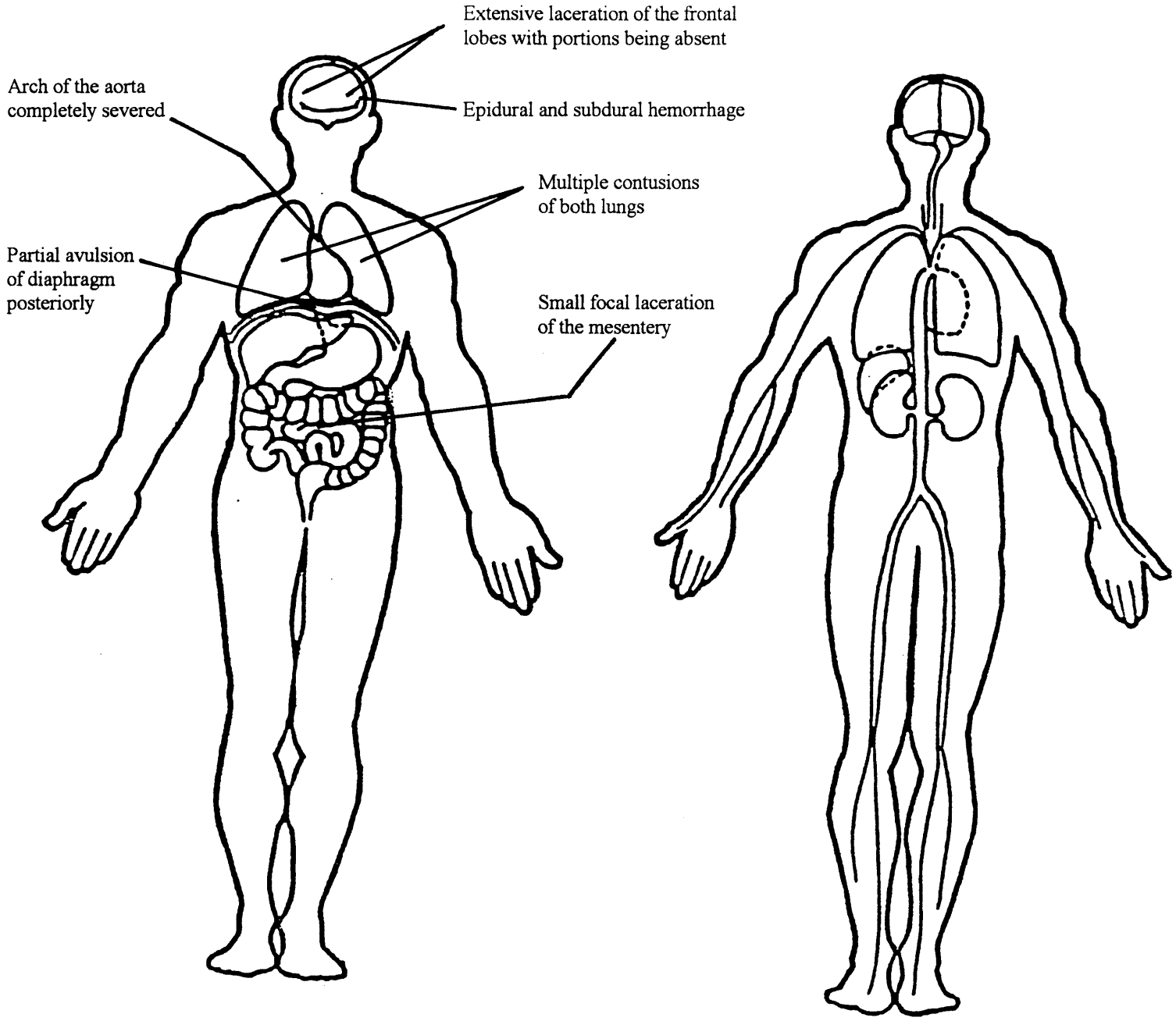
Case 94-17, [redacted], New York
Pedestrian Soft Tissue Injuries



Pedestrian Skeletal Injuries



Pedestrian Internal Injuries



APPENDIX F

Pedestrian Throw-off Distance Table

THROW-OFF DISTANCE VERSUS VEHICLE SPEED FOR ADULTS