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

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

*** *** ***
ON-SITE AIR BAG INVESTIGATION

CASE NO. - 90-01
FLEET - PRIVATE VEHICLE
LOCATION - INDIANA
ACCIDENT DATE - 1990

Submitted By:

1990

Contract Number: DTNH22-87-C-07169

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
National Center for Statistics and Analysis
Washington, D.C. 20590
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"This research was supported (in part) by the National Highway Traffic Safety Administration (NHTSA), U.S. Department of Transportation, under Contract Number DTNH22-87-C-07169. The opinions, findings, and recommendations contained herein are those of the authors, and do not necessarily represent those of the NHTSA".
On-site air bag deployment investigation involving a 1990 Ford Mustang

This report covers an on-site investigation of an air bag deployment collision that involved a 1990 Ford Mustang. The Mustang was traveling east in the center of a two-lane, undivided county roadway. The undercarriage of the case vehicle impacted a drainage ditch located on the northeast corner of a four-leg, offset-cross intersection causing the driver side supplemental restraint system (air bag) to deploy. The Mustang vaulted from the drainage ditch and rolled over. The case vehicle rotated both about its longitudinal and lateral axes, primarily in an end-over-end fashion, and came to rest on its wheels facing southwest. The driver was ejected through the sunroof and sustained fatal injuries which included: bilateral posterior rib fractures with massive hemothorax, lacerated aorta, lacerated left bronchus at the hilum, heart contusion, basilar skull fracture, fracture of the body of the sixth thoracic vertebra, fracture of the cornua of the thyroid cartilage, and fractured left femur.
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The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the National Highway Traffic Safety Administration.

The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator’s expert knowledge and experience of vehicle dynamics and occupant kinematics 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.
This report concerns a motor vehicle accident involving an air bag equipped 1990 Ford Mustang occurring on 20, 1990 at 3:49 a.m. near Indiana on a County Road.

The Mustang was traveling east, while being pursued by the police, in the center of a two-lane, undivided roadway when it entered an offset-cross intersection and failed to negotiate the offset. The Mustang departed the road and impacted a drainage ditch located on the northeast quadrant of the intersection. The Mustang vaulted approximately 73 feet, while rolling approximately 90 degrees counterclockwise, and landed on its left side. The left front bumper corner of the Mustang dug into the ground, causing the vehicle to pitch forward approximately 90 degrees and "stand on its nose". The Mustang vaulted an additional 70 feet--rolling approximately 180 degrees counterclockwise, continuing to pitch forward approximately an additional 180 degrees, and "stand on its tail". The Mustang continued its rotations coming to rest almost 175 feet from the drainage ditch on its wheels pointing approximately southwest.

The front undercarriage of the Mustang impacted the drainage ditch. The CDC was determined to be: 00-UDDW-2 for the impact with the ditch. The CDC for the rollover was determined to be: 00-TDDO-2. No reconstruction program was used on this collision.

The 1990 Ford Mustang was equipped with a driver supplemental restraint system (air bag) which deployed as a result of the undercarriage impact. The driver of the vehicle (33 year-old male) was not wearing the available active three-point lap and shoulder belt. He was ejected through the sunroof and sustained fatal chest injuries. The driver of the Mustang was listed on the Police Accident Report as sustaining a "K" (fatal) injury.
TRC/IU ON-SITE AIR BAG INVESTIGATION

TRC/IU CASE NO. 90-01

FLEET - PRIVATE VEHICLE
LOCATION - INDIANA

ACCIDENT DATA
Location/Street: County Roadway at its offset-cross intersection with another County Roadway
City/Township: Indiana
Area/Type: Rural/Agricultural
Accident Date/Time: 20, 1990 @ 3:49 a.m.
Investigating Police Agency: County Sheriff Department
Accident Type: Car - ran-off-road
Occupant Injury Severity (air bag vehicle): Fatal - Lacerated Aorta (AIS-4)

AMBIENT CONDITIONS
Light conditions: Dark
Weather Condition: Clear
Precipitation: None
Road Surface: Dry

ROADWAY
Location: County road
Number of Travel Lanes: 2-lanes, undivided
Width: 17.5 feet
Surface Type: Asphalt
Median: None
Shoulders: North edge - unimproved, South edge - unimproved
ROADWAY (CONT'D.)

Vertical alignment: Level
Horizontal alignment: Straight
Estimated Coefficient of Friction: .65
Traffic Density: Light

TRAFFIC CONTROLS

Signals: None
Signs: Stop sign
Markings: None
Speed Limit: 55 m.p.h.

VEHICLES

Year: 1990
Make: Ford
Model: Mustang LX
Body Type: 2-door hatchback
V.I.N.: 1FACP41E6LF-------
Color: Red
Mileage: 2,796
Engine: 8 cylinder, 5.0 liter
Transmission: 5-speed manual, console mounted
Steering: Power-assisted rack-and-pinion
Brakes: Power 4-wheel disc
VEHICLES (CONT'D.)

Case Vehicle

Padding: Padded instrument panel with smooth contours, soft-edged steering wheel rim and air bag module cover, soft sunvisor, door panels, door armrests, and adjustable head restraint.

Active Restraints: 3-point lap and shoulder belt in driver, right-front, left-rear, and right-rear positions

Passive Restraints: Factory installed driver supplemental restraint system (air bag).

Defects: None

Fleet: Private vehicle

Tow status: Towed due to damage

VEHICLE DAMAGE

Exterior

Deployment Impact

Event number: 1

Object Struck: Drainage ditch

Damage location

Damaged Plane: Undercarriage

Vertical Location

On Plane: Not applicable

Direct Begins: Not applicable

Length Direct: Not applicable

Field L: Not applicable

C1: Not applicable

C2: Not applicable

C3: Not applicable

C4: Not applicable

C5: Not applicable

C6: Not applicable

D: Not applicable

Maximum Crush: Masked by rollover damage to front plane

Location: Undercarriage

CDC: 00-UDDW-2

Damaged Components: Front splashpan, left-front tire and wheel, left-front wheel well guard, left-front control arm, oil pan, dual exhaust system, bottom of rocker panels, dual mufflers, and gas tank.
VEHICLE DAMAGE (CONT'D.)

Exterior (Cont'd.)

Case Vehicle

Nondeployment Impact

Event number: 2
Object Struck: Ground

Damage location

Damaged Plane: Top
Vertical Location
On Plane: Not applicable
Length Direct: Not applicable
Direct Begins: Not applicable
Field L: Not applicable
C1: Not applicable
C2: Not applicable
C3: Not applicable
C4: Not applicable
C5: Not applicable
C6: Not applicable
D: Not applicable
Maximum Crush: Less than 1.5 inch
Location: Roof (CDC protocol required)

Note: Projected plane of primary contact was to the top, but the majority of damage was on the hood and hatch area.

CDC: 00-TDDO-2
Damaged Components: Windshield; left-front door glass; left-rear window glass; backlight glass; hood; front bumper; front headlights; front grille; left-front: fender, door, outside mirror; sunroof (missing); hatchback; right-front fender; rear spoiler (missing); rear taillights; rear bumper, left-rear quarter panel.

Interior

Damaged Components: Left-side instrument panel, left lower knee bolster, back of driver's bucket seat.

Other Evidence of Occupant Contact: Left-front armrest, left-front window sill, left upper A-pillar, roof near left side of sunroof opening.

Manual Restraint System Failures: None
VEHICLE DAMAGE (CONT'D.)

Interior (Cont'd.)

Seat Performance Failures:
Driver's seat was rotated slightly counterclockwise from collision forces.

Repair
Cost Estimate:
This vehicle was considered a total loss.

VEHICLE VELOCITY ESTIMATES

Highest Delta "V" Case Vehicle
Reconstruction Program: None
Program Algorithm: Not applicable
Travel Speed: Unknown: high rate of speed with police in pursuit.

Total Delta "V": Unknown
Longitudinal Delta "V": Unknown
Lateral Delta "V": Unknown

COLLISION SEQUENCE

Pre-Crash: The case vehicle (Mustang) was traveling east in the center of a two-lane, undivided county road and was attempting to elude a police car and continue in its direction of travel. The vehicle came upon an offset-cross intersection with a north-south county road. The driver of the case vehicle attempted to brake prior to entering the intersection. As a result, the case vehicle rotated in a counterclockwise yaw and continued through the intersection. The case vehicle exited the east road edge of the north-south county road, vaulting approximately fifteen feet, and impacted the drainage ditch located on the northeast quadrant of the intersection.

Crash: The front undercarriage of the case vehicle impacted the drainage ditch causing the driver side supplemental restraint system (air bag) to deploy. The case vehicle vaulted approximately 73 feet, while rolling approximately 90 degrees counterclockwise, and landed on its left side. The left front bumper corner of the Mustang dug into the ground, causing the vehicle to pitch forward approximately 90 degrees and "stand on its nose". The Mustang vaulted an additional 70 feet--rolling approximately 180 degrees counterclockwise, continuing to pitch forward approximately an additional 180 degrees, and "stand on its tail".
COLLISION SEQUENCE (CONT'D.)

The Mustang continued its rotations coming to rest almost 175 feet from the drainage ditch on its wheels pointing approximately southwest.

Post-Crash:

Occupants: The driver of the case vehicle was ejected through the sunroof and was found lying facedown near the right front bumper corner. The driver's head was closest to the corner and the body was angled at approximately 350 degrees relative to the front of the vehicle.

Police: The investigating police agency was in pursuit of the driver when the accident occurred and arrived on-scene within one minute. Traffic control procedures were established and emergency medical and towing services were called to assist.

Rescue: The driver was pronounced dead at the scene and was transported by ambulance to a medical facility where an autopsy was performed.

Removal: Following the police investigation, the case vehicle was towed from the scene.

HUMAN FACTORS/OCCUPANT DATA

<table>
<thead>
<tr>
<th>Case Vehicle</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver:</td>
<td>33 year-old male</td>
</tr>
<tr>
<td>Height:</td>
<td>75 inches</td>
</tr>
<tr>
<td>Weight:</td>
<td>180 pounds</td>
</tr>
<tr>
<td>Occupation:</td>
<td>Carpet layer</td>
</tr>
<tr>
<td>Active Restraint System/Usage:</td>
<td>3-point lap and shoulder/not used</td>
</tr>
<tr>
<td>Usage Source:</td>
<td>Police and vehicle inspection</td>
</tr>
<tr>
<td>Eye glasses/contacts:</td>
<td>Unknown</td>
</tr>
<tr>
<td>Vehicle Familiarity:</td>
<td>Less than 3,000 miles</td>
</tr>
<tr>
<td>Route Familiarity:</td>
<td>Unknown</td>
</tr>
<tr>
<td>Trip Plan:</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
### HUMAN FACTORS/OCCUPANT DATA (CONT'D.)

<table>
<thead>
<tr>
<th>Manner of Leaving Scene</th>
<th>Type of Medical Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambulance</td>
<td>None - Dead at scene</td>
</tr>
</tbody>
</table>

#### DRIVER INJURIES

<table>
<thead>
<tr>
<th>Injury</th>
<th>Severity (OIC/AIS)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laceration of aorta</td>
<td>CCLA-4</td>
<td>Unknown exterior surface of driver’s vehicle</td>
</tr>
<tr>
<td>Contusion base of heart</td>
<td>CCCH-3</td>
<td></td>
</tr>
<tr>
<td>Laceratio left bronchus at hilum</td>
<td>CCLR-3</td>
<td></td>
</tr>
<tr>
<td>Fracture T1</td>
<td>BSFS-2</td>
<td>Roof near sunroof</td>
</tr>
<tr>
<td>Bilateral posterior rib fractures with massive hemotherax</td>
<td>CBFS-4</td>
<td></td>
</tr>
<tr>
<td>Fracture right clavicle at manubrium</td>
<td>SRFS-2</td>
<td></td>
</tr>
<tr>
<td>Dislocation right sterno-clavicular joint</td>
<td>SRDJ-2</td>
<td></td>
</tr>
<tr>
<td>Fracture cornua of thyroid cartilage</td>
<td>NAFR-3</td>
<td></td>
</tr>
<tr>
<td>Contusion left sterno-cleidomastoid muscle</td>
<td>NLCM-1</td>
<td></td>
</tr>
<tr>
<td>Contusion right sterno-cleidomastoid muscle</td>
<td>NRCM-1</td>
<td></td>
</tr>
<tr>
<td>Contusion chest wall</td>
<td>CUCI-1</td>
<td></td>
</tr>
<tr>
<td>Fracture of skull in left posterior cranial fossa</td>
<td>HIFS-3</td>
<td></td>
</tr>
<tr>
<td>Fracture body of T6</td>
<td>BSFS-3</td>
<td>Left side window frame, side rail, or A-pillar</td>
</tr>
<tr>
<td>Fracture left temporal bone</td>
<td>HLFS-2</td>
<td>Driver’s door surface</td>
</tr>
<tr>
<td>Laceration left face</td>
<td>FLLI-1</td>
<td>Ground</td>
</tr>
<tr>
<td>Fracture left distal clavicle</td>
<td>SLFS-2</td>
<td></td>
</tr>
<tr>
<td>Multiple linear abrasions</td>
<td>OAAI-1</td>
<td>Ground</td>
</tr>
<tr>
<td>anterior surface of body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fracture left femur</td>
<td>TLFS-3</td>
<td>Unknown</td>
</tr>
</tbody>
</table>
**DRIVER KINEMATICS**

The driver of the case vehicle was in an unknown posture, but probably was near normally oriented behind the steering wheel. The driver was braking and may have been trying to steer.

The air bag system deployed as a result of the frontal undercarriage impact. The driver moved forward and impacted the deployed air bag probably with his face and chest. The driver's left knee contacted the left instrument panel and knee bolster.

After the vehicle vaulted from its undercarriage impact, the vehicle rolled approximately 90 degrees counterclockwise and dug into the ground with its left-front fender. The driver's air bag had deflated by this time rendering it of no additional use. The driver contacted: (1) the left side door surface and armrest, (2) left roof rail and A-pillar, and (3) probably the windshield. After digging into the ground the vehicle pitched forward 90 degrees "standing-on-its-nose". This action further forced the driver towards the left A-pillar area.

As the vehicle continued to rotate: (1) pitching forward an additional 180 degrees and (2) rolling an additional 180 degrees counterclockwise, it struck the ground "standing-on-its-tail". This impact caused the rear spoiler to bury into the ground and the backlight to disintegrate. At or somewhere prior to this point, the sunroof came open. The driver moved toward the roof and is believed to have been ejected at or near this time.

The vehicle continued to roll and pitch coming to rest facing southwest with the driver lying facedown on the ground. During this final rotation an unidentified exterior surface of the case vehicle struck the driver causing several injuries which resulted in his death.

**AIR BAG SYSTEM**

The driver side air bag deployed as designed. Even though the impact was to the frontal undercarriage, there was still sufficient longitudinal deceleration to cause the air bag to deploy. Thus, the air bag performed as designed in absorbing the initial longitudinal forces to the driver. Although the driver was killed because of the ejection, had the driver also been restrained with the available three-point lap and shoulder belt system, it is likely that this driver would have survived the accident with significantly reduced life-threatening injuries.

No generant residue was noted in the vehicle.
SELECTED PRINTS
# 01 -- 1990
Indiana
TRC/IU: 90-01, Task: 0068
Mustang frontal view

# 02 -- 1990
Indiana
TRC/IU: 90-01, Task: 0068
Across front from left side
# 03 - 1990
Indiana
TRC/IU: 90-01, Task: 0068
Full left side view

# 04 - 1990
Indiana
TRC/IU: 90-01, Task: 0068
Across rear from left side
#. 05 -- 1990
Indiana
TRC/IU: 90-01, Task: 0068
Left rear rearside view

# 06 -- 1990
Indiana
TRC/IU: 90-01, Task: 0068
Damaged rear plane
# 07  ; 1990  
Indiana  
TRC/IU: 90-01, Task: 0068  
Right rear rear side view

# 08 - 1990  
Indiana  
IKC/IU: 90-01, Task: 0068  
Full right side view
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<td>Reverse view of approach, approximately 300 feet west of intersection</td>
<td>West</td>
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<tr>
<td>2-5</td>
<td>Approach views, approximately 300 feet, 250 feet, 100 feet, and 50 feet, respectively, west of intersection. Note: Crash occurred at 0349 hours with light condition being &quot;dark, no lights&quot;.</td>
<td>East</td>
</tr>
<tr>
<td>6-9</td>
<td>Views of reconstruction &quot;I&quot; jig placed on vehicle's brake marks. In slides 5 &amp; 6, jig is at beginning of LR marks. Note slight CCW yaw of vehicle as it crossed the intersection and entered the NE quadrant turn-apron and grass.</td>
<td>East</td>
</tr>
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<td>Vehicle at touchdown area #1. Vehicle vaulted across NE quadrant drainage ditch for approximately 15 feet.</td>
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<td>Farm field gouging from vehicle at touchdown area #2. Vehicle vaulted approximately 73 feet from touchdown area #1 to area #2.</td>
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<td>Views of touchdown area #5. Vehicle's LR corner struck ground first, with top of vehicle facing the ground and the undercarriage facing up. Glass on ground is from backlight.</td>
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<td>View of vehicle's right-half of rear spoiler</td>
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<td>Reverse view of touchdown area #5</td>
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</tr>
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<td>View of vehicle's final rest, looking rear-to-front of vehicle</td>
<td>South</td>
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<td>Reverse view of vehicle's final rest position</td>
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<td>View of vehicle's final rest position, plus driver's final rest position. The red-painted brackets forward of vehicle's RF corner indicate FRP of the head, with the body lying NW-SE, head-to-toe.</td>
<td>Northeast</td>
</tr>
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<td>Exterior damage views of vehicle</td>
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<td>Note nonhorizontal impact to LF wheel well area, downward deflection to front, and debris/dirt in LF forward door seam and LF A-pillar.</td>
<td></td>
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<td>Close-up of deflated LF tire</td>
<td></td>
</tr>
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<td>Close-up of LF headlamp assembly</td>
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<td>Close-up of RF headlamp assembly</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Close-up of RF tire</td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Close-up of RR tire</td>
<td></td>
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<tr>
<td>37-46</td>
<td>Note nonhorizontal impact to hatchback, missing backlight glass, and missing rear spoiler.</td>
<td></td>
</tr>
<tr>
<td>45</td>
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<td></td>
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<td>Aerial views of vehicle's exterior damage</td>
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<td></td>
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<td></td>
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<td></td>
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<tr>
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<td></td>
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<td>View of LR hatchback hinge</td>
<td></td>
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<td>55</td>
<td>View of RR hatchback hinge</td>
<td></td>
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<td>View of LR energy-absorbing bumper shaft; note stroke scratching</td>
<td></td>
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<td>Forward view of vehicle's rear spoiler</td>
<td></td>
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<td>58</td>
<td>Rear view of vehicle's rear spoiler</td>
<td></td>
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<td>59-65</td>
<td>Views of vehicle's sunroof</td>
<td></td>
</tr>
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<td>Description</td>
<td>Direction</td>
</tr>
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<td>---------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>-----------</td>
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<td>View of sunroof rear locking device</td>
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<td></td>
</tr>
<tr>
<td>65</td>
<td>View of sunroof RF bracket</td>
<td></td>
</tr>
<tr>
<td>66-70</td>
<td>Undercarriage views of vehicle</td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>Note frontal debris</td>
<td></td>
</tr>
<tr>
<td>71-78</td>
<td>Interior views of vehicle</td>
<td></td>
</tr>
<tr>
<td>72</td>
<td>Note occupant windshield contact, as well as lower LF door panel.</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Note sunroof edge and upper LF door panel occupant contact points.</td>
<td></td>
</tr>
<tr>
<td>76</td>
<td>Close-up of left-side sunroof edge occupant contact</td>
<td></td>
</tr>
<tr>
<td>77-78</td>
<td>Views of deployed air bag</td>
<td></td>
</tr>
<tr>
<td>79</td>
<td>Note exterior scratching to left of silver bracket.</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>Note unused driver manual belt</td>
<td></td>
</tr>
</tbody>
</table>
Best Available
NASS Accident Collision Measurement Table
## ACCIDENT COLLISION MEASUREMENT TABLE

### NATIONAL ACCIDENT SAMPLING SYSTEM
### CRASHWORTHINESS DATA SYSTEM

<table>
<thead>
<tr>
<th>Primary Sampling Unit Number</th>
<th>Case Number - Stratum</th>
</tr>
</thead>
<tbody>
<tr>
<td>L 0</td>
<td>9 G - 01</td>
</tr>
</tbody>
</table>

### ACCIDENT COLLISION DIAGRAM

**LEVEL I**

**PHYSICAL EVIDENCE ABSENT**

- To be accomplished when physical evidence present at the scene:
  - *approximate vehicle orientation at impact and final rest*
  - *applicable road/roadway delineation (e.g., curbs/edge lines, lane markings, median markings, pavement markings, etc.)*
  - *applicable traffic controls (e.g., speed limit)*
  - *north arrow placed on diagram*
  - *sketch required*

**LEVEL II**

**PHYSICAL EVIDENCE PRESENT**

In addition to the Level I tasks noted above, the following must be accomplished when physical evidence is present:

- *document reference point and reference line relative to physical features present at the scene*
  - *scaled documentation of all accident induced physical evidence*
  - *scaled documentation of all roadside objects contacted*
  - *roadway surface type and condition of applicable roadway*
  - *grade measurements for all applicable roadway*
  - *scaled representations of the vehicles (at pre-impact, impact, and final rest) based upon either:
    - a) physical evidence, or
    - b) reconstructed accident dynamics*

### CRASH DATA

<table>
<thead>
<tr>
<th>VEH. #1</th>
<th>VEH. #2</th>
<th>VEH. #3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Heading Angle**
- **Surface Type**
- **Surface Condition**
- **Grade Measurement (v/h)**

### Reference Point:

**UTILITY POLE ON N5**

### Reference Line:

**NORTH ROAD EDGE OF INTERSECTION**

### Quadrant of Intersection:

**C.R. EAST LEG**

<table>
<thead>
<tr>
<th>Item</th>
<th>Distance and Direction from Reference Point</th>
<th>Distance and Direction from Reference Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCP - <strong>UTILITY POLE</strong></td>
<td>X</td>
<td>6.7'N</td>
</tr>
<tr>
<td>FCP LF</td>
<td>151.9' E</td>
<td>26.5 N</td>
</tr>
<tr>
<td>FCP LR</td>
<td>150.6' E</td>
<td>33.4 N</td>
</tr>
<tr>
<td><strong>DRIVER BODY MASS (CENTER)</strong></td>
<td>146.7' E</td>
<td>17.9 N</td>
</tr>
<tr>
<td>FCP RF</td>
<td>146.4' E</td>
<td>24.7 N</td>
</tr>
<tr>
<td><strong>DRIVER'S HEAD</strong></td>
<td>145.1' E</td>
<td>19.6 N</td>
</tr>
<tr>
<td>FCP RR</td>
<td>144.8' E</td>
<td>32.8 N</td>
</tr>
<tr>
<td><strong>END BAKELITE GLASS DEPOSIT</strong></td>
<td>121.1' E</td>
<td>22.2 to 25.2 N</td>
</tr>
<tr>
<td>RR Divet</td>
<td>119.4' E</td>
<td>26.1</td>
</tr>
<tr>
<td>LR Divet</td>
<td>113.0' E</td>
<td>26.9 N</td>
</tr>
<tr>
<td>BEGIN BAKELITE GLASS DEPOSIT</td>
<td>112.0' E</td>
<td>22.2 to 25.2 N</td>
</tr>
<tr>
<td>BEGIN GOUGE #5 / END GOUGE #5</td>
<td>109.4' E/121.2' E</td>
<td>27.6 N/30.0 N</td>
</tr>
<tr>
<td>Item</td>
<td>Distance and Direction from Reference Point</td>
<td>Distance and Direction from Reference Line</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>END GOUGE #1 / BEGIN GOUGE #4</td>
<td>84.1E/80.4E</td>
<td>19.9N/26.4N</td>
</tr>
<tr>
<td>END GOUGE #3 / BEGIN GOUGE #3</td>
<td>97.3E/59.1E</td>
<td>18.9N/26.1N</td>
</tr>
<tr>
<td>DEP POST Part of Gouge #3 END/END</td>
<td>64.5E/60.1E</td>
<td>19.4N/19.4N</td>
</tr>
<tr>
<td>END GOUGE #2 / BEGIN GOUGE #2</td>
<td>52.3E/40.3E</td>
<td>21.6N/22.2N</td>
</tr>
<tr>
<td>RE CORNER of Gouge #1</td>
<td>32.0 W</td>
<td>18.5N</td>
</tr>
<tr>
<td>LE CORNER of Gouge #1</td>
<td>34.3 W</td>
<td>23.5N</td>
</tr>
<tr>
<td>RE CORNER of Gouge #1</td>
<td>41.1 W</td>
<td>18.6N</td>
</tr>
<tr>
<td>LE CORNER of Gouge #1</td>
<td>43.7 W</td>
<td>23.5N</td>
</tr>
<tr>
<td>STOP SIGN (NE QUAD)</td>
<td>35.1 W</td>
<td>6.2N</td>
</tr>
<tr>
<td>PLAN SIGN (NE QUAD)</td>
<td>46.6 W</td>
<td>8.9N</td>
</tr>
<tr>
<td>END LF V-1</td>
<td>58.9 W</td>
<td>23.4N</td>
</tr>
<tr>
<td>END LC V-1</td>
<td>58.9 W</td>
<td>22.1N</td>
</tr>
<tr>
<td>END LF V-1</td>
<td>58.9 W</td>
<td>19.4N</td>
</tr>
<tr>
<td>END LC V-1</td>
<td>58.9 W</td>
<td>17.3 N</td>
</tr>
<tr>
<td>EAST ROAD SIGN (CR 600E)</td>
<td>73.8 W</td>
<td>X</td>
</tr>
<tr>
<td>BEGIN LF V-1</td>
<td>84.6 W</td>
<td>18.2N</td>
</tr>
<tr>
<td>BEGIN LC V-1</td>
<td>84.6 W</td>
<td>16.6N</td>
</tr>
<tr>
<td>WEST ROAD SIGN (CR 600E)</td>
<td>93.4 W</td>
<td>X</td>
</tr>
<tr>
<td>BEGIN LF V-1</td>
<td>102.1 W</td>
<td>22.9N</td>
</tr>
<tr>
<td>BEGIN LC V-1</td>
<td>108.6 W</td>
<td>20.5N</td>
</tr>
<tr>
<td>STOP SIGN (SW QUAD, WEST)</td>
<td>137.4 W</td>
<td>5.1 N</td>
</tr>
<tr>
<td>ROAD W/TH (CR/16CN)</td>
<td>137.4 W</td>
<td>9.4N to 26.4N</td>
</tr>
<tr>
<td>CENTERLINE (CR 600E)</td>
<td>23.3 W</td>
<td>X</td>
</tr>
</tbody>
</table>
Appendix A:

Police Accident Report
## INDIANA OFFICER'S STANDARD ACCIDENT REPORT

**INDIANA**
**DATE OF ACCIDENT:** 1990
**LOCATION:** CR
**TIME OF ACCIDENT:** Unknown
**WEATHER:** Clear

<table>
<thead>
<tr>
<th>DRIVER 1</th>
<th>DRIVER 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NAME:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>ADDRESS:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>COLOR:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>VEHICLE:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>LICENSE:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TRAILER 1</th>
<th>TRAILER 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LICENSE:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>MADE:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>YEAR:</strong></td>
<td></td>
</tr>
</tbody>
</table>

**DESCRIPTION:**
- **VEHICLE 1:** Red, Ford Mustang
- **VEHICLE 2:** Red, Mustang

**OTHER PROPERTY:**
- **NAME:**
- **ADDRESS:**

**PEDESTRIAN:**
- **NAME:**
- **ADDRESS:**

**TRAFFIC CONTROL:**
- **YES**

**OTHER:**
- **NUMBER:**

**TOTAL:**
- **123**

**SIGNATURE:**
- **K**

**OTHER:**
- **256**
- **31**
NARRATIVE (Refer to Vehicle by Number)

VI WAS BEING PURSUED BY POLICE ON CR \[\text{ERASED}\] EAST BOUND. AS VI WENT THROUGH INTERSECTION AT CR \[\text{ERASED}\], IT LEFT ROADWAY AND ROLLED END OVER END EJECTING AND KILLING DRIVER OF VI.
Appendix B:

NASS Accident Form
# ACCIDENT FORM

**IDENTIFICATION**

| 1. Primary Sampling Unit Number | L 0 |
| 2. Case Number – Stratum | 9 0 0 1 |

**Number of General Vehicle Forms Submitted**

| 3. Number of General Vehicle Forms Submitted | 0 1 |

**Date of Accident**

4. Date of Accident (Month, Day, Year)

| 4. Date of Accident | [ redacted ] |

**Time of Accident**

5. Time of Accident

| 5. Time of Accident | [ redacted ] |

**Code reported military time of accident.**

**NOTE:**
- Midnight - 2400
- Unknown - 9999

**SPECIAL STUDIES INDICATORS**

Check (✓) each special study (SS12-SS16 below) that has been completed; code 1 for the checked special studies and 0 for the special studies not checked.

| 6. SS12 Not Active | 0 |
| 7. SS13 AOPS | C |
| 8. SS14 | O |
| 9. SS15 | O |
| 10. SS16 | O |

**NUMBER OF EVENTS**

11. Number of Recorded Events in This Accident

| 11. Number of Recorded Events | O 2 |

**ACCIDENT EVENTS**

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

<table>
<thead>
<tr>
<th>Accident Event Sequence Number</th>
<th>Vehicle Number</th>
<th>Class of Vehicle</th>
<th>General Area of Damage</th>
<th>Vehicle Number or Object Contacted</th>
<th>Class of Vehicle</th>
<th>General Area of Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>26. 0 3</td>
<td>27.</td>
<td>28.</td>
<td>29.</td>
<td>30.</td>
<td>31.</td>
<td>32.</td>
</tr>
<tr>
<td>33. 0 4</td>
<td>34.</td>
<td>35.</td>
<td>36.</td>
<td>37.</td>
<td>38.</td>
<td>39.</td>
</tr>
<tr>
<td>40. 0 5</td>
<td>41.</td>
<td>42.</td>
<td>43.</td>
<td>44.</td>
<td>45.</td>
<td>46.</td>
</tr>
</tbody>
</table>

**IF GREATER THAN FIVE EVENTS, CONTINUE CODING ON THE ACCIDENT EVENTS SUPPLEMENT**
Appendix C:

NASS Vehicle Forms
**GENERAL VEHICLE FORM**

| 1. Primary Sampling Unit Number | 10 |
| 2. Case Number - Stratum       | 9C01 |
| 3. Vehicle Number              | C1 |

**VEHICLE IDENTIFICATION**

| 4. Vehicle Model Year       | 90 |
| 5. Vehicle Make (specify):  | CDR |
| 6. Vehicle Model (specify): | FCS2 |

**OFFICIAL RECORDS**

| 9. Police Reported Vehicle Disposition | L |
| 10. Police Reported Travel Speed     | 2 |

**ACCIDENT RELATED**

| 11. Police Reported Alcohol or Drug Presence | L |
| 12. Alcohol Test Result for Driver       | 0x |
| 13. Speed Limit                          | 95 |
| 14. Attempted Avoidance Maneuver         | 9 |
| 15. Accident Type                        | 9 |

**STOP HERE IF GV07 DOES NOT EQUAL 01-49**
### OCCUPANT RELATED

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

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

18. Number of Occupant Forms Submitted
   - (0)
   - (1)

### VEHICLE WEIGHT ITEMS

19. Vehicle Curb Weight
   - Code weight to nearest 100 pounds.
   - (00) Less than 1050 pounds
   - (135) 13,500 lbs or more
   - (99) Unknown

20. Vehicle Cargo Weight
   - Code weight to nearest 100 pounds.
   - (00) Less than 50 pounds
   - (97) 9,650 lbs or more
   - (99) Unknown

### OVERRIDE/UNDERRIDE (THIS VEHICLE)

25. Front Override/Underride (this vehicle)
   - (0)

26. Rear Override/Underride (this vehicle)
   - (0)

### RECONSTRUCTION DATA

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

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

23. Post Collision Condition of Tree or Pole (for Highest Delta V)
   - (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

### HEADNG 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
   - 27

28. Heading Angle for Other Vehicle
   - 27
### 29. Basis for Total Delta V (Highest)

- 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 techniques, regardless of adequacy of damage data.
  - (6) All vehicles and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available.

### COMPUTER GENERATED DELTA V

#### 30. Total Delta V

- Nearest mph
  - (NOTE: 00 means less than 0.5 mph)
  - (97) 96.5 mph and above
  - (99) Unknown

#### 31. Longitudinal Component of Delta V

- Nearest mph
  - (NOTE: _00 means greater than -0.5 and less than +0.5 mph)
  - (-97) -96.5 mph and above
  - (-99) Unknown

#### 32. Lateral Component of Delta V

- Nearest mph
  - (NOTE: _00 means greater than -0.5 and less than +0.5 mph)
  - (-97) -96.5 mph and above
  - (-99) Unknown

#### 33. Energy Absorption

- Nearest 100 foot-lbs
  - (NOTE: 0000 means less than 50 Foot-Lbs)
  - (9997) 999,650 foot-lbs or more
  - (9999) Unknown

#### 34. Confidence in Reconstruction Program Results for Highest Delta V

- (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

- (0) No Inspection
  - (1) Complete inspection
  - (2) Partial inspection (specify):

#### 36. Is this an AOPS Vehicle?

- (0) No
  - (1) Yes

---

*** STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E.: GV35 = 0). ***
DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS.
## EXTERIOR VEHICLE FORM

### VEHICLE IDENTIFICATION

VIN: IFA CPHL E L E

Vehicle Make (specify): **Ford**

Vehicle Model (specify): **Mustang**

Model Year: 1990

### 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.

<table>
<thead>
<tr>
<th>Specific Impact No.</th>
<th>Location of Direct Damage</th>
<th>Location of Field L</th>
<th>Location of Maximum Crush</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UNDERCARRIAGE</td>
<td>DAMAGE MASKED BY SPECIFIC IMPACT # 2</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>FRONT</td>
<td>FRONT BUMPER</td>
<td>C1</td>
</tr>
<tr>
<td>3</td>
<td>REAR</td>
<td>REAR BUMPER</td>
<td>C1</td>
</tr>
</tbody>
</table>

### CRUSH PROFILE

**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 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.

<table>
<thead>
<tr>
<th>Specific Impact Number</th>
<th>Plane of C-Measurements</th>
<th>Direct Damage</th>
<th>Field Width (CDC)</th>
<th>Max Crush</th>
<th>C1</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
<th>C5</th>
<th>C6</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>FRONT BUMPER</td>
<td>5.75</td>
<td>5.5</td>
<td>6.0</td>
<td>6.25</td>
<td>5.75</td>
<td>6.75</td>
<td></td>
<td></td>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>BUMPER TAPER</td>
<td></td>
<td></td>
<td></td>
<td>-3.5</td>
<td>-0.88</td>
<td>-0.5</td>
<td>+0.5</td>
<td>-0.88</td>
<td>-3.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BASELINE ADJ.</td>
<td></td>
<td></td>
<td></td>
<td>6.5</td>
<td>0.75</td>
<td>4.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>REAR BUMPER</td>
<td>5.9</td>
<td>5.5</td>
<td>3.0</td>
<td>2.25</td>
<td>1.75</td>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>BUMPER TAPER</td>
<td></td>
<td></td>
<td></td>
<td>2.5</td>
<td>0.25</td>
<td>0.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BASELINE ADJ.</td>
<td></td>
<td></td>
<td></td>
<td>3.0</td>
<td>2.00</td>
<td>1.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 sidewall, 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.
### Codes for Object Contacted

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Vehicle Number</td>
</tr>
<tr>
<td>31</td>
<td>Overturn - rollover</td>
</tr>
<tr>
<td>32</td>
<td>Fire or explosion</td>
</tr>
<tr>
<td>33</td>
<td>Jackknife</td>
</tr>
<tr>
<td>34</td>
<td>Other intraunit damage (specify):</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>Noncollision injury</td>
</tr>
<tr>
<td>36</td>
<td>Other noncollision (specify):</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>39</td>
<td>Noncollision - details unknown</td>
</tr>
</tbody>
</table>

### Collision with Fixed Object

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>Tree (≤4 inches in diameter)</td>
</tr>
<tr>
<td>42</td>
<td>Tree (&gt;4 inches in diameter)</td>
</tr>
<tr>
<td>43</td>
<td>Shrubbery or bush</td>
</tr>
<tr>
<td>44</td>
<td>Embankment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>Breakaway pole or post (any diameter)</td>
</tr>
</tbody>
</table>

### Nonbreakaway Pole or Post

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Pole or post (≤4 inches in diameter)</td>
</tr>
<tr>
<td>51</td>
<td>Pole or post (&gt;4 but ≤12 inches in diameter)</td>
</tr>
<tr>
<td>52</td>
<td>Pole or post (&gt;12 inches in diameter)</td>
</tr>
<tr>
<td>53</td>
<td>Pole or post (diameter unknown)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>54</td>
<td>Concrete traffic barrier</td>
</tr>
<tr>
<td>55</td>
<td>Impact attenuator</td>
</tr>
<tr>
<td>56</td>
<td>Other traffic barrier (specify):</td>
</tr>
</tbody>
</table>

### Deformation Classification by Event Number

<table>
<thead>
<tr>
<th>Accident Event Sequence Number</th>
<th>Object Contacted</th>
<th>(1) (2) Direction of Force (degrees)</th>
<th>Incremental Value of Shift</th>
<th>(3) Specific Deformation Location</th>
<th>(4) Specific Longitudinal or Lateral Location</th>
<th>(5) Specific Vertical or Lateral Location</th>
<th>(6) Type of Damage Distribution</th>
<th>(7) Deformation Extent</th>
</tr>
</thead>
</table>
National Accident Sampling System - Crashworthiness Data System: Exterior Vehicle Form

**COLLISION DEFORMATION CLASSIFICATION**

HIGHEST DELTA "V"

<table>
<thead>
<tr>
<th>Accident Event Sequence Number</th>
<th>Object Contacted</th>
<th>Direction of Force</th>
<th>Deformation Location</th>
<th>Specific Longitudinal or Lateral Location</th>
<th>Specific Vertical or Lateral Location</th>
<th>Type of Damage Distribution</th>
<th>Deformation Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

Second Highest Delta "V"

<table>
<thead>
<tr>
<th></th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>u</td>
<td>d</td>
<td>w</td>
<td>O</td>
<td>Z</td>
</tr>
</tbody>
</table>

**CRUSH PROFILE**

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

HIGHEST DELTA "V"

<table>
<thead>
<tr>
<th></th>
<th>20</th>
<th>21</th>
<th>22</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>C1</td>
<td>D</td>
</tr>
</tbody>
</table>

Second Highest Delta "V"

<table>
<thead>
<tr>
<th></th>
<th>23</th>
<th>24</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L</td>
<td>C1</td>
<td>D</td>
</tr>
</tbody>
</table>

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

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

28. Original Wheelbase

<table>
<thead>
<tr>
<th></th>
<th>28</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L0C5</td>
</tr>
</tbody>
</table>

*** STOP: IF THE CDS APPLICABLE VEHICLE WAS NOT TOWED ***
(i.e., GV09 = 0 OR 9), DO NOT COMPLETE THE INTERIOR VEHICLE FORM.
### INTERIOR VEHICLE FORM

#### GLAZING

**Glazing Damage from Impact Forces**

- 20. BL 21. Roof 22. Other

1. 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 24. LF 25. RF 26. LR 27. RR
- 28. BL 29. Roof 30. Other

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

**Type of Window/Windshield Glazing**

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

1. No glazing contact and no damage, or no glazing
2. AS-1 – Laminated
3. AS-2 – Tempered
4. AS-3 – Tempered-tinted
5. AS-14 – Glass/Plastic
6. Other (specify)

**Window Precrash Glazing Status**

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

1. No glazing contact and no damage, or no glazing
2. Fixed
3. Closed
4. Partially opened
5. Fully opened
6. Unknown

---

**INTEGRITY**

4. Passenger Compartment Integrity

- 00. No integrity loss
- 01. Windshield
- 02. Door (side)
- 03. Door/hatch (rear)
- 04. Roof
- 05. Roof glass
- 06. Side window
- 07. Rear window
- 08. Roof and roof glass
- 09. Windshield and door (side)
- 10. Windshield and roof
- 11. Side and rear window
- 12. Windshield and side window
- 13. Door and side window
- 14. Other combination of above (specify):
- 15. Unknown

**Damage/Failure Associated with Door, Tailgate or Hatch Opening in Collision**

- 16. LF 17. LR 18. RR
- 19. TG/H

1. No door/gate/hatch
2. Door/gate/hatch remained closed and operational
3. Door/gate/hatch came open during collision
4. Door/gate/hatch jammed shut
5. Other (specify):

**Door, Tailgate Or Hatch Opening**

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

1. No door/gate/hatch
2. Door/gate/hatch remained closed and operational
3. Door/gate/hatch came open during collision
4. Door/gate/hatch jammed shut
5. Other (specify):

9. Unknown
# Intrusion Work Sheet

**Top View**

- Longitudinal
- Lateral

**Left Side View**

- Vertical
- Longitudinal

**Right Side View**

- Vertical
- Longitudinal

Note: Sketch intruded areas

<table>
<thead>
<tr>
<th>Location of Intrusion</th>
<th>Intruded Component</th>
<th>Comparison Value</th>
<th>Intruded Value</th>
<th>Intrusion</th>
<th>Dominant Crush Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-1</td>
<td>Toe Pan</td>
<td>20.75</td>
<td>-16.5</td>
<td>4.25</td>
<td>Long</td>
</tr>
<tr>
<td>1-1</td>
<td>Lower A-Pillar</td>
<td>19.25</td>
<td>-16.5</td>
<td>2.75</td>
<td>Lat</td>
</tr>
<tr>
<td>1-1</td>
<td>Floor Pan</td>
<td>23.5</td>
<td>-22.5</td>
<td>1.0</td>
<td>Vert</td>
</tr>
<tr>
<td>1-1</td>
<td>LF DoorSill-Forward</td>
<td>19.25</td>
<td>-19.0</td>
<td>0.25</td>
<td>Lat</td>
</tr>
<tr>
<td>1-1</td>
<td>LF DoorSill-Mid</td>
<td>34.95</td>
<td>-35.0</td>
<td>-0.25</td>
<td>Vert</td>
</tr>
<tr>
<td>1-1</td>
<td>LF DoorSill-Real</td>
<td>28.0</td>
<td>-30.0</td>
<td>-2.0</td>
<td>Vert</td>
</tr>
<tr>
<td>2-1</td>
<td>Lower B-Pillar</td>
<td>25.5</td>
<td>-29.5</td>
<td>-4.0</td>
<td>Vert</td>
</tr>
<tr>
<td>1-1</td>
<td>Upper C-Pillar</td>
<td>25.0</td>
<td>-21.0</td>
<td>-4.0</td>
<td>Vert</td>
</tr>
<tr>
<td>2-1</td>
<td>Floor Pan</td>
<td>43.0</td>
<td>-41.75</td>
<td>1.25</td>
<td>Vert</td>
</tr>
<tr>
<td>2-2</td>
<td>Floor Pan</td>
<td>46.0</td>
<td>-41.25</td>
<td>4.25</td>
<td>Vert</td>
</tr>
</tbody>
</table>

Document no more than the 15 most severe intrusions
### OCCUPANT AREA INTRUSION

**Note:** If no intrusions, leave variables IV 47-IV 88 blank.

<table>
<thead>
<tr>
<th>Location of Intruding Component</th>
<th>Intruding Component</th>
<th>Magnitude of Intrusion</th>
<th>Dominant Crush Direction</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>47.1 48.0 49.2</td>
<td>50.2</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td>51.1 52.0 53.1</td>
<td>54.3</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td>55.1 56.1 57.1</td>
<td>58.1</td>
<td></td>
</tr>
<tr>
<td>4th</td>
<td>59.2 60.1 61.1</td>
<td>62.1</td>
<td></td>
</tr>
<tr>
<td>5th</td>
<td>63.2 64.1 65.2</td>
<td>66.1</td>
<td></td>
</tr>
<tr>
<td>6th</td>
<td>67. 68. 69.</td>
<td>70.</td>
<td></td>
</tr>
<tr>
<td>7th</td>
<td>71. 72. 73.</td>
<td>74.</td>
<td></td>
</tr>
<tr>
<td>8th</td>
<td>75. 76. 77.</td>
<td>78.</td>
<td></td>
</tr>
<tr>
<td>9th</td>
<td>79. 80. 81.</td>
<td>82.</td>
<td></td>
</tr>
<tr>
<td>10th</td>
<td>83. 84. 85.</td>
<td>86.</td>
<td></td>
</tr>
</tbody>
</table>

**LOCATION OF INTRUSION**

<table>
<thead>
<tr>
<th>Front Seat</th>
<th>Fourth Seat</th>
</tr>
</thead>
<tbody>
<tr>
<td>(11) Left</td>
<td>(41) Left</td>
</tr>
<tr>
<td>(12) Middle</td>
<td>(42) Middle</td>
</tr>
<tr>
<td>(13) Right</td>
<td>(43) Right</td>
</tr>
</tbody>
</table>

**Second Seat**

<table>
<thead>
<tr>
<th>Front Seat</th>
<th>Fourth Seat</th>
</tr>
</thead>
<tbody>
<tr>
<td>(21) Left</td>
<td>(97) Catastrophic</td>
</tr>
<tr>
<td>(22) Middle</td>
<td>(98) Other enclosed area (specify):</td>
</tr>
<tr>
<td>(23) Right</td>
<td></td>
</tr>
</tbody>
</table>

**Third Seat**

<table>
<thead>
<tr>
<th>Front Seat</th>
<th>Fourth Seat</th>
</tr>
</thead>
<tbody>
<tr>
<td>(31) Left</td>
<td>(99) Unknown</td>
</tr>
<tr>
<td>(32) Middle</td>
<td></td>
</tr>
<tr>
<td>(33) Right</td>
<td></td>
</tr>
</tbody>
</table>

**INTRUDING COMPONENT**

Interior Components

- (01) Steering assembly
- (02) Instrument panel left
- (03) Instrument panel center
- (04) Instrument panel right
- (05) Toe pan
- (06) A-pillar
- (07) B-pillar
- (08) C-pillar
- (09) D-pillar
- (10) Door panel
- (12) Roof (or convertible top)
- (13) Roof side rail
- (14) Windshield
- (15) Windshield header
- (16) Window frame
- (17) Floor pan
- (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 panel or door surface
- (26) Other interior component (specify):

Exterior Components

- (30) Hood
- (31) Outside surface of 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. $\geq 1$ inch but $< 3$ inches
2. $\geq 3$ inches but $< 6$ inches
3. $\geq 6$ inches but $< 12$ inches
4. $\geq 12$ inches but $< 18$ inches
5. $\geq 18$ inches but $< 24$ inches
6. $\geq 24$ inches
7. Catastrophic
8. Unknown

**DOMINANT CRUSH DIRECTION**

1. Vertical
2. Longitudinal
3. Lateral
4. Catastrophic
5. Unknown
**STEERING COLUMN WORKING DIAGRAMS**

**STEERING COLUMN COLLAPSE**

Steering Column Shear Module Movement

**SHEAR CAPSULE**

Left 

Right 

\[ V = \ldots \]

Direction and Magnitude of Steering Column Movement

Extruder

After Compression

Possible Remaining Starter Grooves At 6 and 12 o'clock

**Extruder**

\[ A = \ldots \]

Compression = Measurement A

**STEERING COLUMN MOVEMENT**

Vertical Movement

Lateral Movement

Longitudinal Movement

**COMPARISON VALUE - DAMAGED VALUE = MOVEMENT**

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
<th>Movement</th>
</tr>
</thead>
<tbody>
<tr>
<td>VERTICAL</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>LATERAL</td>
<td>NONE</td>
<td>-</td>
</tr>
<tr>
<td>LONGITUDINAL</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**STEERING RIM/SPOKE DEFORMATION**

<table>
<thead>
<tr>
<th>Type</th>
<th>Value</th>
<th>DEFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>NONE</td>
<td>-</td>
</tr>
</tbody>
</table>


**VERTICAL**

**LATERAL**

**LONGITUDINAL**
National Accident Sampling System - Crashworthiness Data System: Interior Vehicle Form

### STEERING COLUMN

#### 87. Steering Column Type

- (1) Fixed column
- (2) Tilt column
- (3) Telescoping column
- (4) Tilt and telescoping column
- (8) Other column type (specify):  
- (9) Unknown

If PDOF ≠ 11, 12 or 1, Then Code IV88-IV91 As 96

#### 88. Steering Column Collapse Due to Occupant Loading

13/4 Code actual measured movement to the nearest inch. See coding manual for measurement technique(s).

- (00) No movement, compression, or collapse
- (01-19) Actual measured value
- (20) 20 inches or greater

Estimated movement from observation
- (81) Less than 1 inch
- (82) ≥ 1 inch but < 2 inches
- (83) ≥ 2 inches but < 4 inches
- (84) ≥ 4 inches but < 6 inches
- (85) ≥ 6 inches but < 8 inches
- (86) Greater than or equal to 8 inches
- (96) Not assessed (PDOF ≠ 11, 12, 1)

Apparent movement, value undetermined or cannot be measured or estimated

- (98) Nonspecified type column
- (99) Unknown

Direction And Magnitude of Steering Column Movement

#### 89. Vertical Movement

+ 0 0

#### 90. Lateral Movement

+ 0 0

#### 91. Longitudinal Movement

Code the actual measured movement to the nearest inch. See Coding Manual for measurement technique(s).

- (00) No steering column movement
- (01 - 49) Actual measured value
- (50) 50 inches or greater

Estimated movement from observation
- (81) ≥ 1 inch but < 3 inches
- (82) ≥ 3 inches but < 6 inches
- (83) ≥ 6 inches but < 12 inches
- (84) ≥ 12 inches
- (96) Not assessed (PDOF ≠ 11, 12, 1)
- (97) Apparent movement > 1 inch but cannot be measured or estimated
- (99) Unknown

### INSTRUMENT PANEL

#### 92. Steering Rim/Spoke Deformation

- Code actual measured deformation to the nearest inch.
- (00) No steering rim deformation
- (1-5) Actual measured value
- (6) 6 inches or more
- (8) Observed deformation cannot be measured
- (9) Unknown

#### 93. Location of Steering Rim/Spoke Deformation

- Code actual measured deformation to the nearest inch.
- (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

#### 94. Odometer Reading

2.996 miles - Code mileage to the nearest 1,000 miles

- (00) 0 miles
- (01) 1,000 miles
- (02) 2,000 miles
- (03) 3,000 miles
- (999) Unknown

Source

#### 95. Instrument Panel Damage from Occupant Contact?

- (0) No
- (1) Yes
- (9) Unknown

#### 96. Knee Bolsters Deformed from Occupant Contact?

- (0) No
- (1) Yes
- (8) Not present
- (9) Unknown

#### 97. Did Glove Compartment Door Open During Collision(s)?

- (0) No
- (1) Yes
- (8) Not present
- (9) Unknown
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.
<table>
<thead>
<tr>
<th>Contact</th>
<th>Interior Component Contacted</th>
<th>Occupant No. If Known</th>
<th>Body Region If Known</th>
<th>Supporting Physical Evidence</th>
<th>Confidence Level of Contact Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>01</td>
<td>01</td>
<td>HEAD</td>
<td>SMUDGE</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>54</td>
<td>01</td>
<td>UNK</td>
<td>SMUDGE</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>21</td>
<td>01</td>
<td>UNK</td>
<td>DEPRESSION</td>
<td>1</td>
</tr>
<tr>
<td>D</td>
<td>40</td>
<td>01</td>
<td>UNK</td>
<td>IMPRESSIONS (3)</td>
<td>1</td>
</tr>
<tr>
<td>E</td>
<td>36</td>
<td>01</td>
<td>HEAD</td>
<td>SMUDGE</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>09</td>
<td>01</td>
<td>UNK</td>
<td>DEPRESSION</td>
<td>1</td>
</tr>
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<td>G</td>
<td>13</td>
<td>01</td>
<td>LEFT LEG</td>
<td>IMPRESSION</td>
<td>1</td>
</tr>
<tr>
<td>H</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
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<td>I</td>
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<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

**CODES FOR INTERIOR COMPONENTS**

1. Windshield, including one or more of the following: front header, A-pillar, B-pillar, or roof side rail
2. Right side window glass or frame
3. Right side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail

**CONTACTS**

- A: Occupant
- B: Driver
- C: Passenger
- D: Second passenger
- E: Third passenger
- F: Fourth passenger

**COMPONENTS**

- Windshield
- Mirror
- Sunvisor
- Steering wheel rim
- Steering wheel hub/Spoke
- Steering column/Transmission selector lever, other attachment
- Add on equipment (e.g., CB, tape deck, air conditioner)
- Left instrument panel and below
- Center instrument panel and below
- Right instrument panel and below
- Glove compartment door
- Knee bolster
- Windshield including one or more of the following: front header, A-pillar, B-pillar, or roof side rail
- Right side window glass or frame
- Right side window glass including one or more of the following: frame, window sill, A-pillar, B-pillar, or roof side rail

**LEVELS OF CONTACT**

1. Certain
2. Probable
3. Possible
4. Unknown
### Automatic Restraints

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

<table>
<thead>
<tr>
<th></th>
<th>Left</th>
<th>Center</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>/</td>
<td>♦</td>
<td>♦</td>
</tr>
<tr>
<td>R</td>
<td>♦</td>
<td>♦</td>
<td>♦</td>
</tr>
<tr>
<td>T</td>
<td>/</td>
<td>♦</td>
<td>♦</td>
</tr>
</tbody>
</table>

#### Automatic (Passive) Restraint System Availability

- **(0)** Not equipped/not available
- **(1)** Airbag
- **(2)** Airbag disconnected (specify):
- **(3)** Airbag not reinstalled
- **(4)** 2 point automatic belts
- **(5)** 3 point automatic belts
- **(6)** Automatic belts destroyed or rendered inoperative
- **(9)** Unknown

#### Automatic (Passive) Restraint Function

- **(0)** Not equipped/not available

**Automatic Belt**

- **(1)** Automatic belt in use
- **(2)** Automatic belt not in use
- **(3)** Automatic belt use unknown

**Air Bag**

- **(4)** Airbag deployed during accident
- **(5)** Airbag deployed inadvertently just prior to accident
- **(6)** Deployed, accident sequence undetermined
- **(7)** Nondeployed
- **(8)** Unknown if deployed
- **(9)** Unknown

#### Did Automatic (Passive) Restraint Fail

- **(0)** Not equipped/not available
- **(1)** No
- **(2)** Yes (specify):
- **(9)** Unknown
### MANUAL RESTRAINTS

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

<table>
<thead>
<tr>
<th>F</th>
<th>Availability</th>
<th>Left</th>
<th>Center</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Failure Modes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td>Availability</td>
<td>4</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Use</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td></td>
<td>Failure Modes</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S</td>
<td>Availability</td>
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<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Use</td>
<td>0 0</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td></td>
<td>Failure Modes</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T</td>
<td>Availability</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use</td>
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<tr>
<td></td>
<td>Failure Modes</td>
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<tr>
<td>O</td>
<td>Availability</td>
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</tr>
<tr>
<td></td>
<td>Use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Failure Modes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Manual (Active) Belt System Availability

- **(0)** Not available
- **(1)** Belt removed/destroyed
- **(2)** Shoulder belt
- **(3)** Lap belt
- **(4)** Lap and shoulder belt
- **(5)** Belt available — type unknown
- **(8)** Other belt (specify):

- **(9)** Unknown

### Manual (Active) Belt System Use

- **(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

### 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 attributes 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.

<table>
<thead>
<tr>
<th></th>
<th>Left</th>
<th>Center</th>
<th>Right</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head Restraint Type/Damage</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Seat Type</td>
<td>01</td>
<td>00</td>
<td>02</td>
</tr>
<tr>
<td>Seat Performance</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Second</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head Restraint Type/Damage</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Seat Type</td>
<td>04</td>
<td>00</td>
<td>04</td>
</tr>
<tr>
<td>Seat Performance</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Third</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head Restraint Type/Damage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seat Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seat Performance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head Restraint Type/Damage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seat Type</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seat Performance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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) 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., van type)
- (09) Other seat type (specify): 
- (99) Unknown

**Seat Performance (This Occupant Position)**

- (0) No seat
- (1) No seat performance failure(s)
- (2) Seat adjusters failed
- (3) Seat back folding locks failed
- (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

---

**Describe Any Indication of Abnormal Occupant Posture (i.e., Unusual Occupant Contact Pattern)**

---

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

**EJECTION/ENTRAPMENT DATA**

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

**EJECTION**  No [ ]  Yes [ √ ]

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

---

*EXIT SMUDGES ON LEFT SIDE OF SUNROOF AREA. BODY OF DRIVER FORWARD AND TO RIGHT OF VEHICLE'S FRONT RIGHT CORNER.*

---

<table>
<thead>
<tr>
<th>Occupant Number</th>
<th>01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ejection</td>
<td>I</td>
</tr>
<tr>
<td>(Note on Vehicle Interior Sketch)</td>
<td></td>
</tr>
<tr>
<td>Ejection Area</td>
<td>7</td>
</tr>
<tr>
<td>Ejection Medium</td>
<td>Z</td>
</tr>
<tr>
<td>Medium Status</td>
<td>Z</td>
</tr>
</tbody>
</table>

**Ejection**

(1) Complete ejection
(2) Partial ejection
(3) Ejection, unknown degree
(4) 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
(6) Other medium (specify):

---

(9) Unknown

**Medium Status (Immediately Prior to Impact)**

(1) Open
(2) Closed
(3) Integral structure
(4) Unknown

---

**ENTRAPMENT**  No [ ]  Yes [ ]

Describe entrapment mechanism:

---

Component(s):

---

(Note in vehicle interior diagram)
Appendix D:

NASS Interview Form
INTERVIEW FORM

Primary Sampling Unit Number 10

Interviewee(s) Role(s) or Name(s)

Case Number - Stratum 001

Vehicle Number 01

Review the Interview Cue Sheet prior to conducting interview(s) to ensure the acquisition of all pertinent data.

GENERAL DESCRIPTION OF ACCIDENT SEQUENCE

NO INTERVIEW

SINGLE OCCUPANT FATALITY

WE REFUSE INTERVIEW AND MEDICAL RELEASE

SPECIFIC QUESTIONS

Key to Researcher: Have you obtained the following through the interviewee(s) description and specific questions?

- PRE-CRASH AT IMPACT
  - Vehicle travel, driver intention
  - Direction of travel
  - Avoidance maneuvers
  - Impact description and orientation

- Speed estimates (precrash at impact)
- Post-impact trajectory
- Door status: precrash/postcrash
- Final rest position

- Previous vehicle damage
- Glazing type
- Vehicle glazing status
- PAR clarifications
- Glove box status

- Cargo: Yes
- Description of Cargo

Information collected in this report is used to complete HS Forms 433A and 433B. These reports are authorized by P.L. 89-563, Title 1, Section 106, 106, and 112. While you are not required to respond, your cooperation is needed to make the results of this data collection effort comprehensive, accurate, and timely.
Appendix E:

NASS Occupant Forms
**OCCUPANT ASSESSMENT FORM**

<table>
<thead>
<tr>
<th>1. Primary Sampling Unit Number</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Case Number – Stratum</td>
<td>9001</td>
</tr>
<tr>
<td>3. Vehicle Number</td>
<td>01</td>
</tr>
<tr>
<td>4. Occupant Number</td>
<td>01</td>
</tr>
</tbody>
</table>

### OCCUPANT’S CHARACTERISTICS

<table>
<thead>
<tr>
<th>5. Occupant’s Age</th>
<th>33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code actual age at time of accident.</td>
<td></td>
</tr>
<tr>
<td>(00) Less than one year old (specify by month):</td>
<td></td>
</tr>
</tbody>
</table>

- (97) 97 years and older
- (99) Unknown

<table>
<thead>
<tr>
<th>6. Occupant’s Sex</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Male</td>
<td></td>
</tr>
<tr>
<td>(2) Female</td>
<td></td>
</tr>
<tr>
<td>(9) Unknown</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Occupant’s Height</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code actual height to the nearest inch.</td>
<td></td>
</tr>
<tr>
<td>(99) Unknown</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. Occupant’s Weight</th>
<th>180</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code actual weight to the nearest pound.</td>
<td></td>
</tr>
<tr>
<td>(999) Unknown</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9. Occupant’s Role</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Driver</td>
<td></td>
</tr>
<tr>
<td>(2) Passenger</td>
<td></td>
</tr>
<tr>
<td>(9) Unknown</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10. Occupant’s Seat Position</th>
<th>11</th>
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</thead>
<tbody>
<tr>
<td>Front Seat</td>
<td></td>
</tr>
<tr>
<td>(11) Left side</td>
<td></td>
</tr>
<tr>
<td>(12) Middle</td>
<td></td>
</tr>
<tr>
<td>(13) Right side</td>
<td></td>
</tr>
<tr>
<td>(14) Other (specify):</td>
<td></td>
</tr>
</tbody>
</table>

- Second Seat
- (21) Left side
- (22) Middle
- (23) Right side
- (24) Other (specify): 

- Third Seat
- (31) Left side
- (32) Middle
- (33) Right side
- (34) Other (specify): 

- Fourth Seat
- (41) Left side
- (42) Middle
- (43) Right side
- (44) Other (specify): 

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

### EJECTION/ENTRAPMENT

<table>
<thead>
<tr>
<th>11. Occupant’s Posture</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0) Normal posture</td>
<td></td>
</tr>
<tr>
<td>(1) Abnormal posture (specify):</td>
<td></td>
</tr>
<tr>
<td>(9) Unknown</td>
<td></td>
</tr>
</tbody>
</table>

### Jurassic Park

<table>
<thead>
<tr>
<th>12. Ejection</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0) No ejection</td>
<td></td>
</tr>
<tr>
<td>(1) Complete ejection</td>
<td></td>
</tr>
<tr>
<td>(2) Partial ejection</td>
<td></td>
</tr>
<tr>
<td>(3) Ejection, unknown degree</td>
<td></td>
</tr>
<tr>
<td>(9) Unknown</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>13. Ejection Area</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0) No ejection</td>
<td></td>
</tr>
<tr>
<td>(1) Windshield</td>
<td></td>
</tr>
<tr>
<td>(2) Left front</td>
<td></td>
</tr>
<tr>
<td>(3) Right front</td>
<td></td>
</tr>
<tr>
<td>(4) Left rear</td>
<td></td>
</tr>
<tr>
<td>(5) Right rear</td>
<td></td>
</tr>
<tr>
<td>(6) Rear</td>
<td></td>
</tr>
<tr>
<td>(7) Roof</td>
<td></td>
</tr>
<tr>
<td>(8) Other area (e.g., back of pickup, etc.) (specify):</td>
<td></td>
</tr>
<tr>
<td>(9) Unknown</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>14. Ejection Medium</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0) No ejection</td>
<td></td>
</tr>
<tr>
<td>(1) Door/hatch/tailgate</td>
<td></td>
</tr>
<tr>
<td>(2) Nonfixed roof structure</td>
<td></td>
</tr>
<tr>
<td>(3) Fixed glazing</td>
<td></td>
</tr>
<tr>
<td>(4) Nonfixed glazing (specify):</td>
<td></td>
</tr>
</tbody>
</table>

- (5) Integral structure
- (8) Other medium (specify): 

- (9) Unknown

### Medium Status (Immediately Prior to Impact) | 2 |

<table>
<thead>
<tr>
<th>15. Medium Status (Immediately Prior to Impact)</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>(0) No ejection</td>
<td></td>
</tr>
<tr>
<td>(1) Open</td>
<td></td>
</tr>
<tr>
<td>(2) Closed</td>
<td></td>
</tr>
<tr>
<td>(3) Integral structure</td>
<td></td>
</tr>
<tr>
<td>(9) Unknown</td>
<td></td>
</tr>
</tbody>
</table>

### Entrapment

<table>
<thead>
<tr>
<th>16. Entrapment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(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.)</td>
<td></td>
</tr>
<tr>
<td>(0) Not entrapped</td>
<td></td>
</tr>
<tr>
<td>(1) Entrapped</td>
<td></td>
</tr>
<tr>
<td>(9) Unknown</td>
<td></td>
</tr>
</tbody>
</table>

---

This report is authorized by P.L. 89-563, Title 1, Section 108, 108, and 112. While you are not required to respond, your cooperation is needed to make the results of this data collection effort comprehensive, accurate, and timely.
17. Manual (Active) Belt System Availability

(0) Not available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown
(6) Other belt (specify):

(9) Unknown

18. Manual (Active) Belt System Use

(00) None used, not available, or belt removed/destroyed

(0) Not available
(1) Shoulder belt
(2) Lap belt
(3) Lap and shoulder belt
(4) Belt available—type unknown
(5) 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
(19) Other belt used with child-safety seat (specify):

(99) Unknown if belt used

19. Proper Use of Manual (Active) Belts

(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

(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


(0) Not equipped/not available

(1) Airbag
(2) Airbag disconnected (specify):

(3) Airbag not reinstalled
(4) 2 point automatic belts
(5) 3 point automatic belts
(6) Automatic belts destroyed or rendered inoperative

(9) Unknown

22. Automatic (Passive) Restraint Function

(0) Not equipped/not available

Automatic Belt

(1) Automatic belt in use
(2) Automatic belt not in use
(3) Automatic belt use unknown

Air Bag

(4) Airbag deployed during accident
(5) Airbag deployed inadvertently just prior to accident
(6) Deployed, accident sequence undetermined
(7) Nondeployed
(8) Unknown if deployed
(9) Unknown

23. Did Automatic (Passive) Restraint Fail?

(0) Not equipped/not available

(1) No
(2) Yes (specify):

(9) Unknown

24. Police Reported Restraint Use

(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”

25. 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
### National Accident Sampling System - Crashworthiness Data System: Occupant Assessment Form

#### 26. Seat Type (This Occupant Position)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Occupant not seated or no seat</td>
</tr>
<tr>
<td>01</td>
<td>Bucket</td>
</tr>
<tr>
<td>02</td>
<td>Bucket with folding back</td>
</tr>
<tr>
<td>03</td>
<td>Bench</td>
</tr>
<tr>
<td>04</td>
<td>Bench with separate back cushions</td>
</tr>
<tr>
<td>05</td>
<td>Bench with folding back(s)</td>
</tr>
<tr>
<td>06</td>
<td>Split bench with separate back cushions</td>
</tr>
<tr>
<td>07</td>
<td>Split bench with folding back(s)</td>
</tr>
<tr>
<td>08</td>
<td>Pedestal (i.e., van type)</td>
</tr>
<tr>
<td>09</td>
<td>Other seat type (specify):</td>
</tr>
<tr>
<td>99</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

#### 27. Seat Performance (This Occupant Position)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Occupant not seated or no seat</td>
</tr>
<tr>
<td>01</td>
<td>No seat performance failure(s)</td>
</tr>
<tr>
<td>02</td>
<td>Seat adjusters failed</td>
</tr>
<tr>
<td>03</td>
<td>Seat back folding locks failed</td>
</tr>
<tr>
<td>04</td>
<td>Seat track/anchors failed</td>
</tr>
<tr>
<td>05</td>
<td>Deformed by impact of occupant</td>
</tr>
<tr>
<td>06</td>
<td>Deformed by passenger compartment intrusion (specify):</td>
</tr>
<tr>
<td>07</td>
<td>Combination of above (specify):</td>
</tr>
<tr>
<td>08</td>
<td>Other (specify):</td>
</tr>
<tr>
<td>09</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

#### 30. Child Safety Seat Orientation

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>No child safety seat</td>
</tr>
<tr>
<td>01</td>
<td>Designed for Rear Facing for This Age/Weight</td>
</tr>
<tr>
<td>02</td>
<td>Forward facing</td>
</tr>
<tr>
<td>08</td>
<td>Other orientation (specify):</td>
</tr>
<tr>
<td>09</td>
<td>Unknown orientation</td>
</tr>
<tr>
<td>11</td>
<td>Rear facing</td>
</tr>
<tr>
<td>12</td>
<td>Forward facing</td>
</tr>
<tr>
<td>18</td>
<td>Other orientation (specify):</td>
</tr>
<tr>
<td>19</td>
<td>Unknown orientation</td>
</tr>
</tbody>
</table>

#### 31. Child Safety Seat Harness Usage

- (00) No child safety seat
- (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
- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

#### 32. Child Safety Seat Shield Usage

- (00) No child safety seat
- (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
- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

#### 33. Child Safety Seat Tether Usage

- (00) No child safety seat
- (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
- (11) Harness/shield/tether not used
- (12) Harness/shield/tether used
- (19) Unknown if harness/shield/tether used

---

**Child Safety Seat**

#### 28. Child Safety Seat Make/Model

- (000) No child safety seat
- (097) Other make/model (specify): |
- (998) Unknown make/model
- (999) Unknown if child safety seat used

#### 29. Type of Child Safety Seat

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>No child safety seat</td>
</tr>
<tr>
<td>01</td>
<td>Infant seat</td>
</tr>
<tr>
<td>02</td>
<td>Toddler seat</td>
</tr>
<tr>
<td>03</td>
<td>Convertible seat</td>
</tr>
<tr>
<td>04</td>
<td>Booster seat</td>
</tr>
<tr>
<td>07</td>
<td>Other type child safety seat (specify):</td>
</tr>
<tr>
<td>08</td>
<td>Unknown child safety seat type</td>
</tr>
<tr>
<td>09</td>
<td>Unknown if child safety seat used</td>
</tr>
</tbody>
</table>

---

**Note:** Options below applicable to variables OA31-OA33.

- (00) No child safety seat
- (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
- (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)** 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)** No treatment
- **(1)** Fatal
- **(2)** Fatal - ruled disease

Nonfatal:
- **(3)** Hospitalized
- **(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)** 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

- **(0)** Not hospitalized
- **(61)** 61 days or more
- **(99)** Unknown

#### 38. Working Days Lost

- **(0)** 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

#### 39. Time to Death

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

#### 40. 1st Medically Reported Cause of Death

- **(00)** Not fatal or no additional causes
- **(97)** Other result (specify):
- **(99)** Unknown

#### 41. 2nd Medically Reported Cause of Death

- **(00)** Not fatal or no additional causes
- **(97)** Other result (specify):
- **(99)** Unknown

#### 42. 3rd Medically Reported Cause of Death

- **(00)** Not fatal or no additional causes
- **(97)** Other result (specify):
- **(99)** Unknown

#### 43. Number of Recorded Injuries for This Occupant

- **(00)** No recorded injuries
- **(97)** Injured, details unknown
- **(99)** Unknown if injured

---

**UPDATE CANDIDATE**

- [ ] NO
- [✓] YES

*** STOP HERE ***

IF THERE ARE NO RECORDED INJURIES

(i.e., OA43=00, 97, 99)
INJURY DATA

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

<table>
<thead>
<tr>
<th>Source of Injury Data</th>
<th>O.I.C.—A.I.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Body Region</td>
<td>Aspect</td>
</tr>
<tr>
<td>4th</td>
<td>35.</td>
</tr>
<tr>
<td>5th</td>
<td>45.</td>
</tr>
<tr>
<td>6th</td>
<td>55.</td>
</tr>
<tr>
<td>7th</td>
<td>65.</td>
</tr>
<tr>
<td>8th</td>
<td>75.</td>
</tr>
<tr>
<td>9th</td>
<td>85.</td>
</tr>
<tr>
<td>10th</td>
<td>95.</td>
</tr>
<tr>
<td>Source of Injury Data</td>
<td>Body Region</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>11th</td>
<td>1</td>
</tr>
<tr>
<td>12th</td>
<td>1</td>
</tr>
<tr>
<td>13th</td>
<td>1</td>
</tr>
<tr>
<td>14th</td>
<td>1</td>
</tr>
<tr>
<td>15th</td>
<td>1</td>
</tr>
<tr>
<td>16th</td>
<td>1</td>
</tr>
<tr>
<td>17th</td>
<td>1</td>
</tr>
<tr>
<td>18th</td>
<td>1</td>
</tr>
<tr>
<td>19th</td>
<td></td>
</tr>
<tr>
<td>20th</td>
<td></td>
</tr>
<tr>
<td>21st</td>
<td></td>
</tr>
<tr>
<td>22nd</td>
<td></td>
</tr>
<tr>
<td>23rd</td>
<td></td>
</tr>
</tbody>
</table>
OFFICIAL INJURY DATA – SOFT TISSUE INJURIES

Impact with steering wheel + windshield (Death Certificate)

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

- Ejected through sun roof. Vehicle landed partially on top of body. The front bumper of the back of the deceased's head as he laid face down on the ground.
- Abrasion to back of head
- Hemorrhage in scalp and galea, parieto-temporal area
- Contusion to sternocleidomastoid muscle bilaterally
- Contusion hemorrhage is present in body wall (chest and/or abdomen)
- Blood in nose and mouth
- Multiple linear abrasions on face and anterior body abdomen along the long axis
- Smeared with grey-brown granular soil (clothing tool)

Case of death, injury of brain. [Partial information]

Wrist: [Missing information]
Indicate the Location, Lesion, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

- Fx + dislocation @ clavicle @ manubrium
- Fx Neck
  Cervical vertebrae bilaterally @ C7
- Fx clavicle, distally (distal)
- Fx T1, left laterally
- Fx (R) posterior fossa (basilar)
- Fx T6, left laterally
- Fx (R) posterior ribs 1-6
- Massive bilateral hemothorax [500 ml (R) + (L)]
- Fx (L) femur, midshaft
Indicate the Location, Lesion, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

- No epidural or subdural hematoma, no subarachnoid hemorrhage
- No brain injury
- Spinal cord is not examined

- Multiple superficial tears of intima of aorta; massive embolism but no pulmonary thromboembolism
- Contusion heart, base - no myocardial contusion
- Air in the heart (pneumo mediastinum) and thoracic vein

- Transection type  Location  Bronchus of Lung @ hilum
AUTOPSY REPORT

Name: 
Age: 33 years
Sex: Male
Performed by: ______ M.D.
Performed for: ______

Autopsy No. ___
Date: ___
Time: ___

ANATOMIC FINDINGS

1. Blunt force injury of the head:
   a. Laceration, left face
   b. Fracture, temporal, left
   c. Fracture, basilar, posterior fossa, left

2. Blunt force injury of the neck:
   a. Fracture, laryngeal, thyroid, cornu, bilateral
   b. Fracture, thoracic vertebra, one
   c. Fracture, clavicle, left, lateral
   d. Fracture dislocation, clavicular/manubrial, right

3. Blunt force injury of the chest:
   a. Multiple fractures of ribs 1-6 posterior right, 1-8 posterolateral left
   b. Contusion, heart, base
   c. Laceration, lung, bronchus, right

4. Fracture, femur, midshaft, left

TOXICOLOGY

Pending

CAUSE OF DEATH

Multiple Blunt Force and Crushing Injury of Head and Chest

MANNER OF DEATH

Accident (Motor Vehicle/Driver/Ejected)

PH.D., M.D.
CIRCUMSTANTIAL SUMMARY

This 33 year old white male, DOB [redacted], resident of [redacted] Street in Indiana was apparently exhibiting erratic driving which elicited pursuit by police. He ran off the end of the roadway at a high rate of speed at [redacted] on [redacted] He was ejected through the sun roof of his late model Ford Mustang which was rotating to the left. The car made a complete rotation landing on the tires some 240 feet from the roadway and partially on top of his body. The front bumper was at the back of the deceased's head as he laid face down on the ground.

DOCUMENTS AND EVIDENCE EXAMINED

Telephone conversation with [redacted] of the

X-RAYS

None.

IDENTIFICATION

On [redacted] at [redacted] a complete post mortem examination was performed on the body of [redacted] who was identified by [redacted]. Also present for the autopsy included Mr. [redacted] and Cpt [redacted]

CLOTHING AND VALUABLES: Grey golf shirt with fine blue and red transverse stripes, brown oxfords, black socks and blue jeans with white jockey shorts.

EXTERNAL EXAMINATION

The body is that of a well developed, well nourished white male adult appearing the stated age of 33 years. The body length is 75 inches and the body weight is 180 pounds. Scalp hair is red-brown. There is a full, well-trimmed mustache and beard. Jaundice is not present in the skin or sclerae.

The head is normocephalic. The irides are blue and the sclerae are white. The pupils are round and equal in diameter. There are no contact lenses present and there are no conjunctival petechia. The nose is unremarkable. There is mucus and blood in the nares and mouth. Teeth are present. There is no denture. Oral hygiene is good. The ears are not pierced.

There is no significant increase in the anteroposterior diameter of the chest. The breasts are symmetrical without palpable masses and the nipples appear normal without discharge. The abdomen is soft without significant ascites. The external genitalia are those of a short foreskin male adult. The anus is not dilated and measures 2cm with no evidence of injury.

The extremities are symmetric and there are no significant deforming blunt force or penetrating injuries.

The following scars, nevi and tattoos are present: There is a professionally done tattoo of an eagle on the lateral aspect of the right upper arm.
SIGNS OF DEATH: Rigor mortis is generalized and post mortem lividity is scant but purple and fixed on the posterior surface of the body.

ARTIFACTS: The following artifacts of medical and post mortem care are present: None.

The following artifacts of putrefaction are present: None.

INJURIES

There are multiple linear sliding abrasions on the face and anterior body arranged along the long axis. These and the clothing are smeared with grey-brown granular soil. There is a deforming fracture of the left mid-shaft of the femur. There are multiple fractured ribs both posteriorly and some anteriorly. There is contusion of the base of the heart and transection of the right bronchus at the hilum.

There is contusion of the sternocleidomastoid muscle bilaterally with fracturing of the corner of the thyroid cartilage bilaterally at their junction with the body. The left cornu is angled medially.

The first thoracic vertebra is fractured left laterally. The 6th thoracic vertebra is fracturing through the body. All the ribs 1-8 are fractured on the left just lateral to the spine. Similar fractures are seen 1-5 on the right.

There is a fracture dislocation of the clavicle on the manubrium on the right and a distal fracture of the left clavicle.

INTERNAL EXAMINATION

SEROUS CAVITIES: The body cavities are opened with a standard Y-shaped incision. The cranial cavity is opened with a coronal incision of the scalp and removal of the calvarium. An odor like alcohol is not apparent in the body cavities. The lungs are well aerated and fill the pleural cavities. There is massive bilateral hemothorax and air in the heart and thoracic vein.

There is no evidence of pneumothorax. There is 1500 ml of blood in the right and left pleural cavities. The pleural surfaces are smooth and glistening and there are no pleural adhesions. There is no blood or excess fluid in the pericardial sac. There is no evidence of pericarditis. There is no evidence of peritonitis. There is no blood in the peritoneal cavity. There is no ascitic fluid. After removal of the organs from the body, inspection of the serous cavities reveals extensive fracturing of the ribs, manubrial clavicle and vertebral column as previously reported. There is no evidence of fracture of the pelvic bones. Contusion hemorrhage is present in the body walls.

NECK ORGANS: The larynx and trachea are in the midline. The neck dissection is performed following removal of the thoracoabdominal viscera. Moderate hemorrhage is present in the skin, fat and sternocleidomastoid muscles of the anterior neck especially on the right. The strap muscles are free of hemorrhage. The thyroid gland is symmetrical and composed of reddish-brown parenchyma. There is no hemorrhage in the intrinsic muscles of the larynx, except for the pharyngeous muscles bilaterally in association with the fractures of the cornu of the thyroid cartilages. The other laryngeal cartilages and hyoid bone are not fractured. There is no obstruction of the respiratory tract in the nasopharynx, larynx or trachea. There is scant blood in the larynx. The mucosa of the hypopharynx, larynx and trachea is smooth and glistening without ulceration or tumor. The arytenoideus muscles are free of hemorrhage. Cervical lymph nodes are appropriate for age.
**THYMUS:** The thymus is present in the anterior mediastinum and appropriate in size for age. There are many petechiae in the thymus.

**HEART:** The 400 gram heart is in usual position with respect to the great vessels and chest cavity. The left ventricle is firm. The left ventricle is slightly hypertrophied but the cardiac chambers are not dilated. On opening the aorta and pulmonary trunk, there is massive embolism but no evidence of pulmonary thromboembolism. There is no evidence of pericarditis. There are no epicardial petechiae. The circumflex coronary artery arises from the left main coronary. The coronary arteries are examined by multiple cross sections. There is focal, soft yellow atherosclerotic plaque in the left anterior descending and right coronary arteries.

The left main coronary artery is not narrowed by plaque. The left anterior descending coronary artery is focally 25%-50% narrowed by plaque. The circumflex coronary artery is focally less than 25% narrowed by plaque. The right coronary artery is focally 25%-50% narrowed by plaque.

Thrombosis of a coronary artery is not present. The cardiac valve leaflets are delicate, translucent and membranous. The circumferences of the cardiac valves are within normal limits for age and heart size.

There is no softening or mottling of the myocardium due to recent myocardial infarction or necrosis. There is no myocardial fibrosis. There is no myocardial contusion. There are no defects in the atrial or ventricular septa. The ductus arteriosus is not patent. Autolysis is not significant.

**VASCULAR SYSTEM:** The aorta and its main branches show mild yellow streak atherosclerosis. There are multiple superficial tears of the intima of the aorta. These measure from 0.3 to 0.8 cm. There is no evidence of aneurysm, coarctation or dissection of the aorta. The renal arteries are not stenotic.

**LUNGS:** Right: 380 grams. Left: 320 grams. There is no atelectasis. The trachea is complete, without malformation, from the larynx to the carina. The right mainstem bronchus is lacerated at the hilum. There is no aspirated gastric material and no aspirated blood in the trachea. The distal bronchi contain scant mucus. The pleural surfaces are smooth and glistening. No petechiae are visible. The lungs and hilar nodes are mildly antrhacotic and there is no bullous emphysema. On cut section, there is no aspirated blood apparent in alveoli. Bronchopneumonia is not recognized. There is no focal consolidation and no tumor. There is no significant passive congestion of the lungs. There is no evidence of pulmonary edema. There is no pulmonary contusion. Pulmonary thromboemboli are not present. There is no putrid gas cavitation.

**LIVER:** The 2100 gram liver has a smooth capsular surface. On cut section, the parenchyma is reddish-brown and has a lobular architecture. The liver is not significantly passively congested. Metastatic tumor is not present. The hepatic duct is patent. The gallbladder is present and contains about 20 cc green viscid bile. There are no gallstones. Autolysis of the liver is not significant.

**PANCREAS:** The pancreas is appropriate in shape and size with respect to total body fat stores. On cut surface, it is lobular with interspersed fat without focal calcification, fibrosis, hemorrhage and/or fat necrosis. Autolysis is not significant.
GASTROINTESTINAL SYSTEM: The esophagus is lined with glistening white mucosa. The stomach is coarsely rugated. The stomach contains 400 ml of partially digested food. There is an odor like alcohol in the stomach. There are no erosions or ulcers in the stomach or duodenum. The small bowel and colon are intact without perforation, diverticula or palpable tumors. The vermiform appendix is present.

SPLEEN: The 140 gram spleen is composed of firm red and white trabecular pulp. There is no laceration of the splenic capsule. Autolysis is not significant.

ADRENALS: Two adrenals are present with golden brown cortex and white medulla. No cortical nodules are present in either adrenal. Autolysis is not significant.

URINARY TRACT: Right kidney: 200 grams. Left kidney 220 grams. The two kidneys, ureters and a bladder are present in their usual positions without collecting system dilatation. The kidneys are symmetrical in shape and size. The capsules strip from the cortices with ease and the cortical surfaces are smooth. On cut section, the cortex appears of ample thickness and the medulla appears ample. The kidneys are not congested. There are no stones or tumors in the kidneys, pelves, ureters or bladder. The mucosa of the urinary bladder appears glistening. Autolysis of the kidneys is not significant.

REPRODUCTIVE SYSTEM: The prostate is slightly enlarged. The testes are descended into the scrotum and are usual in size for the age. On cut section, the testes and epididymides appear unremarkable.

CENTRAL NERVOUS SYSTEM: There is hemorrhage in the scalp and galea in the left parieto-temporal area. The dura, removed by stripping from the calvarium and base of the skull, shows no epidural or subdural hemorrhage. The cerebral and cerebellar hemispheres of the 1380 gram brain are symmetrical. The leptomeninges are transparent and can be stripped with ease. There is no subarachnoid hemorrhage. There is no flattening of the gyri and no widening of the sulci. The major vessels at the base of the brain have a usual anatomic distribution and there is no significant atherosclerosis. The cranial nerves are symmetrical and intact. There is no evidence of herniation at any of the portals of the brain. On serial coronal sectioning of the brain, there is no internal evidence of contusion, edema, hemorrhage, tumor, atrophy, infection or infarction in the cerebrum, cerebellum and brain stem. There are no fractures of the convexity or base of the skull. The craniocervical junction demonstrates a usual range of motion. The spinal cord is not examined.
PHOTOGRAPHS: Departmental.

SPECIMENS FOR FIREARMS EXAMINATION OR TRACE EVIDENCE: None.

SPECIMENS FOR TOXICOLOGY: Vitreous, blood, urine, bile, gastric contents, liver tissue and kidney tissue.

SPECIMENS FOR CHEMICAL ANALYSIS: None.

SPECIMENS FOR CULTURE: None.

MICROSCOPIC EXAMINATION: Tissue samples representative of the major organs have been processed onto glass slides for microscopic examination. These histologic specimens have been examined and there are no additional significant pathologic findings other than those noted on the Anatomic Findings.
**CERTIFICATE OF ANALYSIS**

TO: Ph.D  cc:  

Your Case #  Subject:  
Toxicology Case #  Evidence Submitted By:  
Date Received:  

**SPECIMENS SUBMITTED:**

<table>
<thead>
<tr>
<th>Type</th>
<th>Volume/Amount</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td>100 ml</td>
<td>Sealed, Fresh, Not Contaminated</td>
</tr>
<tr>
<td>Urine</td>
<td>110 ml</td>
<td>Sealed, Fresh, Not Contaminated</td>
</tr>
<tr>
<td>Bile</td>
<td>3 ml</td>
<td>Sealed, Fresh, Not Contaminated</td>
</tr>
<tr>
<td>Stomach Contents</td>
<td>90 ml</td>
<td>Sealed, Fresh, Not Contaminated</td>
</tr>
<tr>
<td>Vitreous Fluid</td>
<td>2 ml</td>
<td>Sealed, Fresh, Not Contaminated</td>
</tr>
<tr>
<td>Kidney Tissue</td>
<td>210 grams</td>
<td>Sealed, Fresh, Not Contaminated</td>
</tr>
<tr>
<td>Liver Tissue</td>
<td>290 grams</td>
<td>Sealed, Fresh, Not Contaminated</td>
</tr>
</tbody>
</table>

**RESULTS OF ANALYSES:**

<table>
<thead>
<tr>
<th>Specimen</th>
<th>Drug/Chemical Identified</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood</td>
<td>Ethanol</td>
<td>76 mg/dl (0.07%)</td>
</tr>
<tr>
<td>Blood</td>
<td>Carbon Monoxide</td>
<td>Less Than 10%</td>
</tr>
<tr>
<td>Urine</td>
<td>Cocaine</td>
<td>None Detected</td>
</tr>
<tr>
<td>Urine</td>
<td>Other Drugs</td>
<td>None Detected</td>
</tr>
</tbody>
</table>

Comments: