

Hershman, Larry (NHTSA)

From: Demeter, Kathleen (NHTSA)
Sent: Monday, November 23, 2009 3:34 PM
To: Hershman, Larry (NHTSA)
Cc: Yon, Scott (NHTSA)
Subject: FW: NASS Case 2006 81 16
Attachments: NASS_cases 2006 81 16.pdf; Summary Case 2006 81 16.doc

See below from Clarence. He would like this to be included in DP file.

From: Clarence Ditlow [mailto:cmdiii@autosafety.org]
Sent: Monday, November 23, 2009 3:19 PM
To: Demeter, Kathleen (NHTSA)
Cc: Chidester, Chip (NHTSA)
Subject: NASS Case 2006 81 16

This is a 1995 Jeep Grand Cherokee fatal fire crash that also showed up in the FARS run (Case # 53101 on March 15, 2006, in Washington State) – note the NASS analysis found the fuel leakage came from the filler neck & that there was filler neck separation. The right front passenger suffered AIS 6 burn injuries. The next highest injuries levels were AIS 4. The other passenger (second row left) suffering AIS 6 burn injuries would have died from trauma suffering AIS head, spinal cord & myocardial laceration) injuries. Another passenger (second row right) suffered AIS 5 burn injuries over 50% of the body. The second row middle passenger had AIS 3 burn injuries over 15% of the body. I will be sending imagines in two separate files. We will be making submissions to our defect petition on 1993-04 Jeep Grand Cherokee shortly. In the meantime, please consider this NASS case as part of the petition file. Note also that FARS did not classify this as a MHE fire case.

Clarence Ditlow
Executive Director
Center for Auto Safety.

Summary:

Vehicle 1, a 1995 Jeep Grand Cherokee, was traveling north in lane one of a straight, wet, bituminous, two lane undivided roadway which had a downhill grade in the crash area. For unknown reasons, V1 crossed into the oncoming lane, exited the roadway onto the west shoulder, then steered to the right, and departed the right side of the roadway in a clockwise yaw, and struck an embankment with its front plane. V1 continued and struck bushes with the front before the vehicle tripped and rolled over with the left side leading. Vehicle 1 then traveled another 18 meters on the top plane before it ramped up an embankment, became airborne, and struck a large tree with its back plane while inverted. Vehicle 1 rotated clockwise off of the tree and came to rest on its top facing generally north. After the impact to the back plane, a fuel leak occurred and V1 had a major fire event. V1 was towed from the scene due to damage. The driver was hospitalized overnight for observation of loss of consciousness and released with scalp laceration. The left front seat passenger was fatal at the scene with total body burn as well as multiple injuries. The left second seat passenger was fatal at the scene with crushed skull, spinal cord transection and heart lacerations as well as multiple other injury and total body burn. The middle second seat passenger was hospitalized with 15% body burn, lung contusion and rib fracture. The right second seat was shared by two passengers. One was hospitalized with liver contusion. The other was hospitalized with 50% body burn.)

Crash Reports

Prepared by Ken Digges

Mon Nov 23 13:14:11 2009

Contents

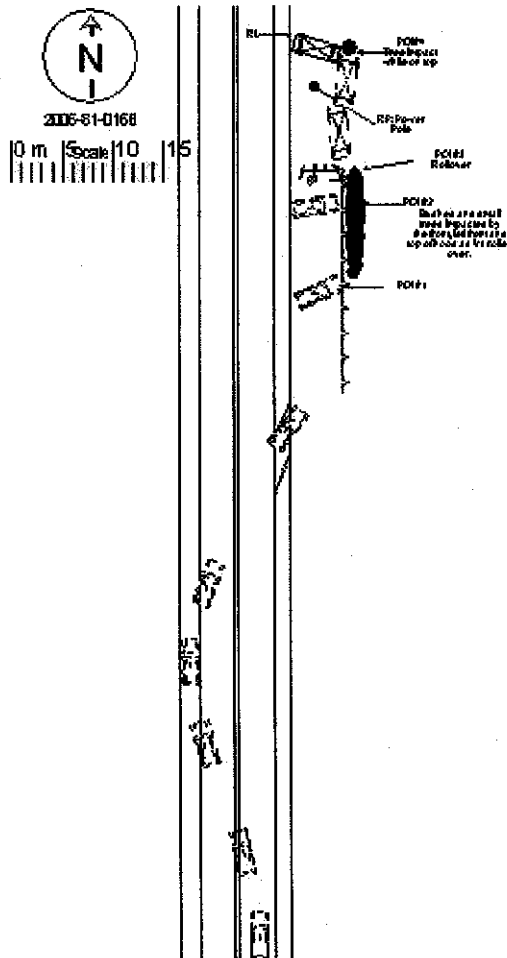
1 Case 2006-81-16

3

1 Case 2006-81-16

Summary:

Vehicle 1, a 1995 Jeep Grand Cherokee, was traveling north in lane one of a straight, wet, bituminous, two lane undivided roadway which had a downhill grade in the crash area. For unknown reasons, V1 crossed into the oncoming lane, exited the roadway onto the west shoulder, then steered to the right, and departed the right side of the roadway in a clockwise yaw, and struck an embankment with its front plane. V1 continued and struck bushes with the front before the vehicle tripped and rolled over with the left side leading. Vehicle 1 then traveled another 18 meters on the top plane before it ramped up an embankment, became airborne, and struck a large tree with its back plane while inverted. Vehicle 1 rotated clockwise off of the tree and came to rest on its top facing generally north. After the impact to the back plane, a fuel leak occurred and V1 had a major fire event. V1 was towed from the scene due to damage. The driver was hospitalized overnight for observation of loss of consciousness and released with scalp laceration. The left front seat passenger was fatal at the scene with total body burn as well as multiple injuries. The left second seat passenger was fatal at the scene with crushed skull, spinal cord transection and heart lacerations as well as multiple other injury and total body burn. The middle second seat passenger was hospitalized with 15



| Vehicle | Body type | Make | Model | Year | Occ.# | Age | Occupant's sex | Maximum known occupant ais |
|---------|-----------------|------|-------------|------|-------|-----|----------------|----------------------------|
| 1 | COMPACT UTILITY | Jeep | Cherokee84- | 1995 | 1 | 18 | MALE | 2=Moderate |
| 1 | COMPACT UTILITY | Jeep | Cherokee84- | 1995 | 2 | 20 | MALE | 6=Maximum |
| 1 | COMPACT UTILITY | Jeep | Cherokee84- | 1995 | 3 | 20 | MALE | 6=Maximum |
| 1 | COMPACT UTILITY | Jeep | Cherokee84- | 1995 | 4 | 15 | MALE | 4=Severe |
| 1 | COMPACT UTILITY | Jeep | Cherokee84- | 1995 | 5 | 15 | MALE | 2=Moderate |
| 1 | COMPACT UTILITY | Jeep | Cherokee84- | 1995 | 6 | 15 | MALE | 5=Critical |

Occupant: 2006-81-16-1-1



Fire Information

| | |
|--------------------------|-----------------------------|
| Fire Occurrence | Major fire |
| Fire Origin | Fuel tank |
| Location of Fuel Leakage | Filler neck |
| Type of Fuel Tank | Unknown type |
| Fuel Tank Location | Behind rear axle, centered |
| Fuel Cap Location | Left side, behind rear axle |
| Fuel Tank Damage | Fill neck separation |
| Fuel Type | Gasoline |

Rollover Characteristics

| | |
|--|-----------------|
| Number of Events | 5 |
| Rollover Initiation Type | TRIP-OVER |
| Location of Rollover Initiation | ROADSIDE/MEDIAN |
| Rollover Initiation Object Contacted | GROUND |
| Location on Vehicle where Principal Tripping Force was Applied | WHEELS/TIRES |
| Direction of Initial Roll | ROLL LEFT |



Crash Severity

| | |
|---|---------------------|
| Nr. Quarter Turns | 2 QUARTER TURNS |
| Impact Speed | 999 |
| Total, Longitudal, and Lateral δV | 999 999 999 |
| Est. δV with sequence number | MODERATE 4 |
| CDC | 40 B D A W 5 |
| Damage (C1-C6) | 107 102 84 76 67 58 |
| Crush (L and D) | 160 0 |
| Object Contacted 1 | LARGE TREE |
| Object Contacted 2 | EMBANKMENT |

Pre-Crash Environment

| | |
|--|------------------|
| Traffic Flow | Not DIVIDED |
| Number of Travel Lanes | TWO |
| Roadway Alignment | STRAIGHT |
| Roadway Profile | DOWNHILL GRADE |
| Roadway Surface Type | ASPHALT |
| Roadway Surface Condition | WET |
| Light Conditions | DARK/LIGHTED |
| Atmospheric Conditions | No ADVERSE COND |
| Relation to Intersection | NONINTER/NONJUNC |
| Traffic Control Device | |
| Police Reported Alcohol Presence | ALCOHOL PRESENT |
| Alcohol Test (< 95 indicates BAC 0.xx) | 35 |

NASS Weighting Factor

| | |
|------------------|--------|
| Weighting factor | 22.036 |
|------------------|--------|

Vehicle Factors

| | |
|------------|------------------|
| Make-Model | Jeep Cherokee84- |
| Year | 1995 |
| Class | TRUCK |
| Body Type | COMPACT UTILITY |
| Weight | 184 |

Pre-Crash Driver Data

| | |
|------------------------------|------------------|
| Accident Type | 2 |
| Pre-event Movement | GOING STRAIGHT |
| Critical Pre-crash Event | OFF EDGE-RIGHT |
| Attempted Avoidance Maneuver | 99 |
| Pre-impact Stability | LATERAL SKID-CLK |
| Pre-impact Location | DEPARTED ROADWAY |

DRIVER Factors

| | | | | | |
|---------------|----|--------|-------------|--------|----|
| Age | 18 | Height | 180 | Weight | 93 |
| Gender | | | MALE | | |
| Ejection | | | No EJECTION | | |
| Ejection Area | | | No EJECTION | | |
| Entrapment | | | 9 | | |

Restraint Factors

| | |
|--|------------------|
| Restrain | 99 |
| AOPS | NO |
| Airbag Deployment | 9 |
| Airbag Deployment - 1 st Seat | Not EQUIP/AVAIL |
| Airbag Deployment - Oth Seat | Not EQUIP W/ OTH |

Injuries

| | |
|---------------|-----------------|
| Occupant | 2006-81-16-1-1 |
| MAIS | 2=Moderate |
| Seat Position | Front left side |

| AIS Level | Injury Description | Contacts |
|------------|---|----------------|
| 2=Moderate | Awake on admission, unconscious <1 hour | Roof left rail |
| 1=Minor | Scalp laceration, minor | Roof left rail |
| 1=Minor | Facial skin laceration, minor | Roof left rail |
| 1=Minor | Leg skin abrasion | Left hardware |
| 1=Minor | Leg skin abrasion | Knee bolster |

Occupant: 2006-81-16-1-2



Fire Information

| | |
|--------------------------|-----------------------------|
| Fire Occurrence | Major fire |
| Fire Origin | Fuel tank |
| Location of Fuel Leakage | Filler neck |
| Type of Fuel Tank | Unknown type |
| Fuel Tank Location | Behind rear axle, centered |
| Fuel Cap Location | Left side, behind rear axle |
| Fuel Tank Damage | Fill neck separation |
| Fuel Type | Gasoline |



Crash Severity

| | |
|---|---------------------|
| Nr. Quarter Turns | 2 QUARTER TURNS |
| Impact Speed | 999 |
| Total, Longitudal, and Lateral δV | 999 999 999 |
| Est. δV with sequence number | MODERATE 4 |
| CDC | 40 B D A W 5 |
| Damage (C1-C6) | 107 102 84 76 67 58 |
| Crush (L and D) | 160 0 |
| Object Contacted 1 | LARGE TREE |
| Object Contacted 2 | EMBANKMENT |

NASS Weighting Factor

Weighting factor 22.036

Rollover Characteristics

| | |
|--|-----------------|
| Number of Events | 5 |
| Rollover Initiation Type | TRIP-OVER |
| Location of Rollover Initiation | ROADSIDE/MEDIAN |
| Rollover Initiation Object Contacted | GROUND |
| Location on Vehicle where Principal Tripping Force was Applied | WHEELS/TIRES |
| Direction of Initial Roll | ROLL LEFT |

Pre-Crash Environment

| | |
|--|------------------|
| Traffic Flow | Not DIVIDED |
| Number of Travel Lanes | TWO |
| Roadway Alignment | STRAIGHT |
| Roadway Profile | DOWNHILL GRADE |
| Roadway Surface Type | ASPHALT |
| Roadway Surface Condition | WET |
| Light Conditions | DARK/LIGHTED |
| Atmospheric Conditions | No ADVERSE COND |
| Relation to Intersection | NONINTER/NONJUNC |
| Traffic Control Device | |
| Police Reported Alcohol Presence | ALCOHOL PRESENT |
| Alcohol Test (< 95 indicates BAC 0.xx) | 35 |

Vehicle Factors

| | |
|------------|------------------|
| Make-Model | Jeep Cherokee84- |
| Year | 1995 |
| Class | TRUCK |
| Body Type | COMPACT UTILITY |
| Weight | 184 |

Pre-Crash Driver Data

| | |
|------------------------------|------------------|
| Accident Type | 2 |
| Pre-event Movement | GOING STRAIGHT |
| Critical Pre-crash Event | OFF EDGE-RIGHT |
| Attempted Avoidance Manuever | 99 |
| Pre-impact Stability | LATERAL SKID-CLK |
| Pre-impact Location | DEPARTED ROADWAY |

PASSENGER Factors

| | | | | | |
|---------------|----|--------|-------------|--------|----|
| Age | 20 | Height | 152 | Weight | 66 |
| Gender | | | MALE | | |
| Ejection | | | No EJECTION | | |
| Ejection Area | | | No EJECTION | | |
| Entrapment | | | 9 | | |

Restraint Factors

| | |
|--|------------------|
| Restrain | 99 |
| AOPS | NO |
| Airbag Deployment | 9 |
| Airbag Deployment - 1 st Seat | Not EQUIP/AVAIL |
| Airbag Deployment - Oth Seat | Not EQUIP W/ OTH |

Injuries

| | |
|---------------|------------------|
| Occupant | 2006-81-16-1-2 |
| MAIS | 6=Maximum |
| Seat Position | Front right side |

| AIS Level | Injury Description | Contacts |
|------------|--|-----------------|
| 6=Maximum | Burn, 2nd or 3rd degree, >90% (includes incineration) | Fire in vehicle |
| 4=Severe | Basilar skull fracture, open, with brain tissue loss. | Roof |
| 3=Serious | Cerebral contusions, multiple, bilateral, small | Roof |
| 3=Serious | Cerebral subarachnoid hemorrhage | Roof |
| 4=Severe | Lung contusion, bilateral | Seat, back |
| 1=Minor | Myocardial contusion, minor | Seat, back |
| 4=Severe | Thoracic aortic laceration, minor (incomplete, EBL<20%) | Seat, back |
| 2=Moderate | Hepatic laceration, minor (<3cms deep, EBL<20%, simple cap.) | Seat, back |
| 3=Serious | >3 rib fractures one side & <3 other side, with stable chest | Seat, back |
| 3=Serious | Sacroiliium fracture | Seat, back |

Occupant: 2006-81-16-1-3



Fire Information

| | |
|--------------------------|-----------------------------|
| Fire Occurrence | Major fire |
| Fire Origin | Fuel tank |
| Location of Fuel Leakage | Filler neck |
| Type of Fuel Tank | Unknown type |
| Fuel Tank Location | Behind rear axle, centered |
| Fuel Cap Location | Left side, behind rear axle |
| Fuel Tank Damage | Fill neck separation |
| Fuel Type | Gasoline |

Rollover Characteristics

| | |
|--------------------------------------|-----------------|
| Number of Events | 5 |
| Rollover Initiation Type | TRIP-OVER |
| Location of Rollover Initiation | ROADSIDE/MEDIAN |
| Rollover Initiation Object | GROUND |
| Contacted | |
| Location on Vehicle where | WHEELS/TIRES |
| Principal Tripping Force was Applied | |
| Direction of Initial Roll | ROLL LEFT |



Crash Severity

| | |
|---|---------------------|
| Nr. Quarter Turns | 2 QUARTER TURNS |
| Impact Speed | 999 |
| Total, Longitudal, and Lateral δV | 999 999 999 |
| Est. δV with sequence number | MODERATE 4 |
| CDC | 40 B D A W 5 |
| Damage (C1-C6) | 107 102 84 76 67 58 |
| Crush (L and D) | 160 0 |
| Object Contacted 1 | LARGE TREE |
| Object Contacted 2 | EMBANKMENT |

Pre-Crash Environment

| | |
|--|------------------|
| Traffic Flow | Not DIVIDED |
| Number of Travel Lanes | TWO |
| Roadway Alignment | STRAIGHT |
| Roadway Profile | DOWNHILL GRADE |
| Roadway Surface Type | ASPHALT |
| Roadway Surface Condition | WET |
| Light Conditions | DARK/LIGHTED |
| Atmospheric Conditions | No ADVERSE COND |
| Relation to Intersection | NONINTER/NONJUNC |
| Traffic Control Device | |
| Police Reported Alcohol Presence | ALCOHOL PRESENT |
| Alcohol Test (< 95 indicates BAC 0.xx) | 35 |

NASS Weighting Factor

| | |
|------------------|--------|
| Weighting factor | 22.036 |
|------------------|--------|

Vehicle Factors

| | |
|------------|------------------|
| Make-Model | Jeep Cherokee84- |
| Year | 1995 |
| Class | TRUCK |
| Body Type | COMPACT UTILITY |
| Weight | 184 |

Pre-Crash Driver Data

Accident Type 2
 Pre-event Movement GOING STRAIGHT
 Critical Pre-crash Event OFF EDGE-RIGHT
 Attempted Avoidance Manue- 99
 ver
 Pre-impact Stability LATERAL SKID-CLK
 Pre-impact Location DEPARTED ROADWAY

PASSENGER Factors

Age 20 Height 183 Weight 84
 Gender MALE
 Ejection No EJECTION
 Ejection Area No EJECTION
 Entrapment JAMMED DOOR/FIRE

Restraint Factors

Restrain 99
 AOPS NO
 Airbag Deployment Not EQUIP/AVAIL
 Airbag Deployment - 1st Seat Not EQUIP/AVAIL
 Airbag Deployment - Oth Not EQUIP W/ OTH
 Seat

Injuries

Occupant 2006-81-16-1-3
 MAIS 6=Maximum
 Seat Position Second left

| AIS Level | Injury Description | Contacts |
|------------|--|-----------------|
| 6=Maximum | Head injury, crush (massive destruction of skull and brain) | Roof |
| 6=Maximum | Cord laceration, complete, C3 or above, with fx&dislocation | Roof |
| 6=Maximum | Myocardial laceration with complex perforation | Seat, back |
| 5=Critical | Flail chest, bilateral | Seat, back |
| 2=Moderate | Thoracic vertebral body fracture without cord injury NFS | Seat, back |
| 2=Moderate | Sternal fracture | Seat, back |
| 2=Moderate | Humeral fracture, closed | Seat, back |
| 2=Moderate | Pericardial laceration (puncture) | Seat, back |
| 4=Severe | Lung laceration, bilateral, with hemomediastinum | Seat, back |
| 4=Severe | Bronchus distal to main stem laceration, complex (avulsion) | Seat, back |
| 4=Severe | Pulmonary artery laceration, major (complete or EBL>20%) | Seat, back |
| 4=Severe | Pulmonary vein laceration, major (complete or EBL>20%) | Seat, back |
| 5=Critical | Thoracic aortic laceration, major, & mediastinal bleeding | Seat, back |
| 4=Severe | Other abdominal artery intimal laceration, major (EBL>20%) | Seat, back |
| 5=Critical | Celiac artery laceration, major (complete, EBL>20%) | Seat, back |
| 3=Serious | Splenic laceration, moderate (>3 cms deep, no hilar injury) | Seat, back |
| 2=Moderate | Hepatic laceration, minor (<3cms deep, EBL<20%, simple cap.) | Seat, back |
| 3=Serious | Inhalation injury, minor (CO level<20 mg%) | Fire in vehicle |
| 6=Maximum | Burn, 2nd or 3rd degree, >90% (includes incineration) | Fire in vehicle |

Occupant: 2006-81-16-1-4



Fire Information

| | |
|--------------------------|-----------------------------|
| Fire Occurrence | Major fire |
| Fire Origin | Fuel tank |
| Location of Fuel Leakage | Filler neck |
| Type of Fuel Tank | Unknown type |
| Fuel Tank Location | Behind rear axle, centered |
| Fuel Cap Location | Left side, behind rear axle |
| Fuel Tank Damage | Fill neck separation |
| Fuel Type | Gasoline |

Rollover Characteristics

| | |
|---------------------------------|-----------------|
| Number of Events | 5 |
| Rollover Initiation Type | TRIP-OVER |
| Location of Rollover Initiation | ROADSIDE/MEDIAN |
| Rollover Initiation Object | GROUND |
| Contacted | |
| Location on Vehicle where | WHEELS/TIRES |
| Principal Tripping Force was | |
| Applied | |
| Direction of Initial Roll | ROLL LEFT |



Crash Severity

| | |
|---|---------------------|
| Nr. Quarter Turns | 2 QUARTER TURNS |
| Impact Speed | 999 |
| Total, Longitudal, and Lateral δV | 999 999 999 |
| Est. δV with sequence number | MODERATE 4 |
| CDC | 40 B D A W 5 |
| Damage (C1-C6) | 107 102 84 76 67 58 |
| Crush (L and D) | 160 0 |
| Object Contacted 1 | LARGE TREE |
| Object Contacted 2 | EMBANKMENT |

NASS Weighting Factor

| | |
|------------------|--------|
| Weighting factor | 22.036 |
|------------------|--------|

Pre-Crash Environment

| | |
|--|------------------|
| Traffic Flow | Not DIVIDED |
| Number of Travel Lanes | TWO |
| Roadway Alignment | STRAIGHT |
| Roadway Profile | DOWNHILL GRADE |
| Roadway Surface Type | ASPHALT |
| Roadway Surface Condition | WET |
| Light Conditions | DARK/LIGHTED |
| Atmospheric Conditions | No ADVERSE COND |
| Relation to Intersection | NONINTER/NONJUNC |
| Traffic Control Device | |
| Police Reported Alcohol Presence | ALCOHOL PRESENT |
| Alcohol Test (< 95 indicates BAC 0.xx) | 35 |

Vehicle Factors

| | |
|------------|------------------|
| Make-Model | Jeep Cherokee84- |
| Year | 1995 |
| Class | TRUCK |
| Body Type | COMPACT UTILITY |
| Weight | 184 |

Pre-Crash Driver Data

Accident Type 2
Pre-event Movement GOING STRAIGHT
Critical Pre-crash Event OFF EDGE-RIGHT
Attempted Avoidance Maneuver 99
Pre-impact Stability LATERAL SKID-CLK
Pre-impact Location DEPARTED ROADWAY

PASSENGER Factors

Age 15 Height 999 Weight 999
Gender MALE
Ejection No EJECTION
Ejection Area No EJECTION
Entrapment 9

Restraint Factors

Restrain 99
AOPS NO
Airbag Deployment Not EQUIP/AVAIL
Airbag Deployment - 1st Seat Not EQUIP/AVAIL
Airbag Deployment - Oth Seat Not EQUIP W/ OTH Seat

Injuries

Occupant 2006-81-16-1-4
MAIS 4=Severe
Seat Position Second middle

| AIS Level | Injury Description | Contacts |
|------------|--|-----------------|
| 4=Severe | Lung contusion, bilateral | Seat, back |
| 3=Serious | 792016 | Fire in vehicle |
| 2=Moderate | 892012 | Fire in vehicle |
| 1=Minor | 692006 | Fire in vehicle |
| 2=Moderate | Clavicle fracture | Seat, back |
| 3=Serious | 2-3 rib fractures with stable chest and hemo-/pneumothorax | Seat, back |
| 1=Minor | 690202 | Seat, back |

Occupant: 2006-81-16-1-5



Fire Information

| | |
|--------------------------|-----------------------------|
| Fire Occurrence | Major fire |
| Fire Origin | Fuel tank |
| Location of Fuel Leakage | Filler neck |
| Type of Fuel Tank | Unknown type |
| Fuel Tank Location | Behind rear axle, centered |
| Fuel Cap Location | Left side, behind rear axle |
| Fuel Tank Damage | Fill neck separation |
| Fuel Type | Gasoline |



Crash Severity

| | |
|---|---------------------|
| Nr. Quarter Turns | 2 QUARTER TURNS |
| Impact Speed | 999 |
| Total, Longitudal, and Lateral δV | 999 999 999 |
| Est. δV with sequence number | MODERATE 4 |
| CDC | 40 B D A W 5 |
| Damage (C1-C6) | 107 102 84 76 67 58 |
| Crush (L and D) | 160 0 |
| Object Contacted 1 | LARGE TREE |
| Object Contacted 2 | EMBANKMENT |

NASS Weighting Factor

| | |
|------------------|--------|
| Weighting factor | 22.036 |
|------------------|--------|

Rollover Characteristics

| | |
|--|-----------------|
| Number of Events | 5 |
| Rollover Initiation Type | TRIP-OVER |
| Location of Rollover Initiation | ROADSIDE/MEDIAN |
| Rollover Initiation Object | GROUND |
| Contacted | |
| Location on Vehicle where Principal Tripping Force was Applied | WHEELS/TIRES |
| Direction of Initial Roll | ROLL LEFT |

Pre-Crash Environment

| | |
|--|------------------|
| Traffic Flow | Not DIVIDED |
| Number of Travel Lanes | TWO |
| Roadway Alignment | STRAIGHT |
| Roadway Profile | DOWNHILL GRADE |
| Roadway Surface Type | ASPHALT |
| Roadway Surface Condition | WET |
| Light Conditions | DARK/LIGHTED |
| Atmospheric Conditions | No ADVERSE COND |
| Relation to Intersection | NONINTER/NONJUNC |
| Traffic Control Device | |
| Police Reported Alcohol Presence | ALCOHOL PRESENT |
| Alcohol Test (< 95 indicates BAC 0.xx) | 35 |

Vehicle Factors

| | |
|------------|------------------|
| Make-Model | Jeep Cherokee84- |
| Year | 1995 |
| Class | TRUCK |
| Body Type | COMPACT UTILITY |
| Weight | 184 |

Pre-Crash Driver Data

Accident Type 2
Pre-event Movement GOING STRAIGHT
Critical Pre-crash Event OFF EDGE-RIGHT
Attempted Avoidance Manue- 99
ver
Pre-impact Stability LATERAL SKID-CLK
Pre-impact Location DEPARTED ROADWAY

PASSENGER Factors

Age 15 Height 999 Weight 999
Gender MALE
Ejection No EJECTION
Ejection Area No EJECTION
Entrapment 9

Restraint Factors

Restrain 99
AOPS NO
Airbag Deployment Not EQUIP/AVAIL
Airbag Deployment - 1st Seat Not EQUIP/AVAIL
Airbag Deployment - Oth Not EQUIP W/ OTH
Seat

Injuries

Occupant 2006-81-16-1-5
MAIS 2=Moderate
Seat Position Second right

| AIS Level | Injury Description | Contacts |
|------------|---|-----------------|
| 2=Moderate | Hepatic contusion, minor (subcapsular, <50% surface, <2cms) | Seat, back |
| 1=Minor | Adrenal gland contusion, minor | Seat, back |
| 1=Minor | 690402 | Seat, back |
| 1=Minor | 792006 | Fire in vehicle |

Occupant: 2006-81-16-1-6



Fire Information

| | |
|--------------------------|-----------------------------|
| Fire Occurrence | Major fire |
| Fire Origin | Fuel tank |
| Location of Fuel Leakage | Filler neck |
| Type of Fuel Tank | Unknown type |
| Fuel Tank Location | Behind rear axle, centered |
| Fuel Cap Location | Left side, behind rear axle |
| Fuel Tank Damage | Fill neck separation |
| Fuel Type | Gasoline |

Rollover Characteristics

| | |
|--|-----------------|
| Number of Events | 5 |
| Rollover Initiation Type | TRIP-OVER |
| Location of Rollover Initiation | ROADSIDE/MEDIAN |
| Rollover Initiation Object | GROUND |
| Contacted | |
| Location on Vehicle where Principal Tripping Force was Applied | WHEELS/TIRES |
| Direction of Initial Roll | ROLL LEFT |



Crash Severity

| | |
|---|---------------------|
| Nr. Quarter Turns | 2 QUARTER TURNS |
| Impact Speed | 999 |
| Total, Longitudal, and Lateral δV | 999 999 999 |
| Est. δV with sequence number | MODERATE 4 |
| CDC | 40 B D A W 5 |
| Damage (C1-C6) | 107 102 84 76 67 58 |
| Crush (L and D) | 160 0 |
| Object Contacted 1 | LARGE TREE |
| Object Contacted 2 | EMBANKMENT |

Pre-Crash Environment

| | |
|--|------------------|
| Traffic Flow | Not DIVIDED |
| Number of Travel Lanes | TWO |
| Roadway Alignment | STRAIGHT |
| Roadway Profile | DOWNHILL GRADE |
| Roadway Surface Type | ASPHALT |
| Roadway Surface Condition | WET |
| Light Conditions | DARK/LIGHTED |
| Atmospheric Conditions | No ADVERSE COND |
| Relation to Intersection | NONINTER/NONJUNC |
| Traffic Control Device | |
| Police Reported Alcohol Presence | ALCOHOL PRESENT |
| Alcohol Test (< 95 indicates BAC 0.xx) | 35 |

NASS Weighting Factor

| | |
|------------------|--------|
| Weighting factor | 22.036 |
|------------------|--------|

Vehicle Factors

| | |
|------------|------------------|
| Make-Model | Jeep Cherokee84- |
| Year | 1995 |
| Class | TRUCK |
| Body Type | COMPACT UTILITY |
| Weight | 184 |

Pre-Crash Driver Data

| | |
|------------------------------|------------------|
| Accident Type | 2 |
| Pre-event Movement | GOING STRAIGHT |
| Critical Pre-crash Event | OFF EDGE-RIGHT |
| Attempted Avoidance Maneuver | 99 |
| Pre-impact Stability | LATERAL SKID-CLK |
| Pre-impact Location | DEPARTED ROADWAY |

PASSENGER Factors

| | | | | | |
|---------------|----|--------|-------------|--------|-----|
| Age | 15 | Height | 999 | Weight | 999 |
| Gender | | | MALE | | |
| Ejection | | | No EJECTION | | |
| Ejection Area | | | No EJECTION | | |
| Entrapment | | | 9 | | |

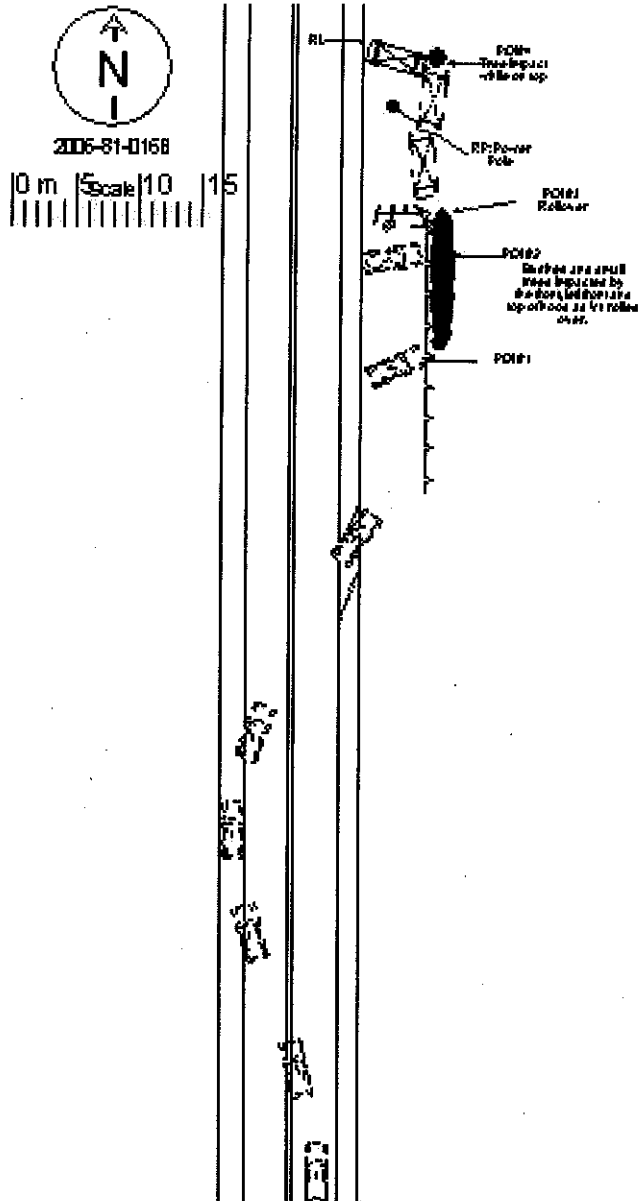
Restraint Factors

| | |
|--|------------------|
| Restrain | 99 |
| AOPS | NO |
| Airbag Deployment | Not EQUIP/AVAIL |
| Airbag Deployment - 1 st Seat | Not EQUIP/AVAIL |
| Airbag Deployment - Oth Seat | Not EQUIP W/ OTH |

Injuries

| | |
|---------------|----------------|
| Occupant | 2006-81-16-1-6 |
| MAIS | 5=Critical |
| Seat Position | Second other |

| AIS Level | Injury Description | Contacts |
|------------|---|-----------------|
| 5=Critical | Burn, 2nd or 3rd degree, 40%-89% | Fire in vehicle |
| 2=Moderate | Lethargic on admission, unconscious <1 hour | Rear header |
| 2=Moderate | Clavicle fracture | Seat, back |



CRASH SCENE Vehicle Point of Impact - Vehicle Point of Impact - 2



CRASH SCENE MISCELLANEOUS VIEWS Fire damage to tree (POI 2)



CRASH SCENE Lookback From Impact to PreCrash - Lookback From Impact 2 to Pre-Crash



CRASH SCENE Vehicle Path to Final Rest - Vehicle Path to Final Rest - 3



CRASH SCENE Lookback Beyond Final Rest to Impac Lookback Beyond Final Rest to Impac



CRASH SCENE Vehicle Path to Final Rest - Vehicle Path to Final Rest - 4



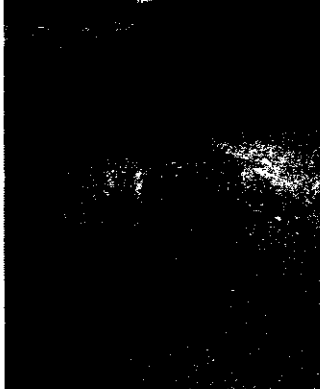
CRASH SCENE Vehicle Path to Final Rest - Vehicle Path to Final Rest - 1



CRASH SCENE Vehicle Path to Final Rest - Vehicle Path to Final Rest - 5



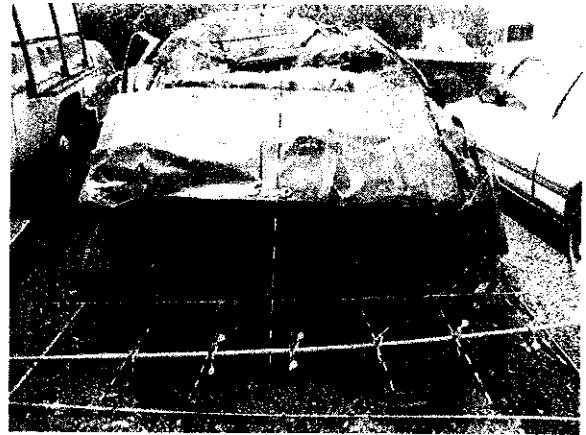
CRASH SCENE Vehicle Path to Final Rest - Vehicle Path to Final Rest - 2



CRASH SCENE MISCELLANEOUS VIEWS RL looking north



CRASH SCENE MISCELLANEOUS VIEWS RL looking south



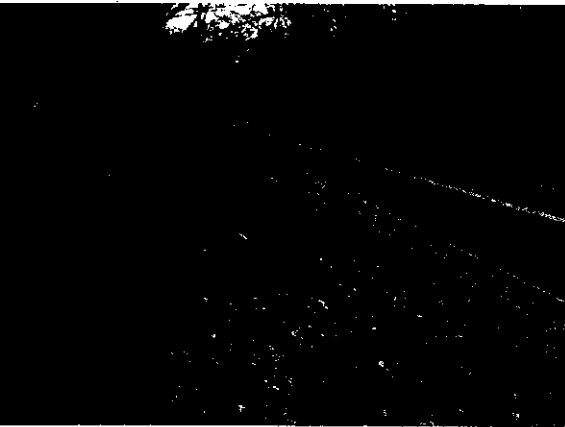
VEHICLE 1 FRONT FRONT with gauges set at bumper lev



CRASH SCENE MISCELLANEOUS VIEWS RP/Origin



VEHICLE 1 FRONT C1-C6



CRASH SCENE Lookback From Impact to PreCrash - Lookback From Impact 1 to Pre-Crash



VEHICLE 1 FRONT C6-C1



CRASH SCENE LOOK BACK Look Back from road departure to pr



VEHICLE 1 RIGHT Look down right side front to back



VEHICLE 1 LEFT Look down left side front to back



VEHICLE 1 RIGHT Rollover max crush



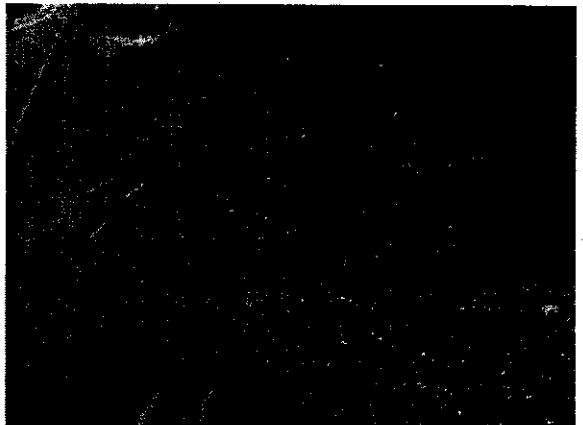
VEHICLE 1 LEFT Look down left side back to front



VEHICLE 1 RIGHT Rollover max crush



VEHICLE 1 RIGHT Look down right side back to front



CRASH SCENE Vehicle Approach - Vehicle Approach - 7



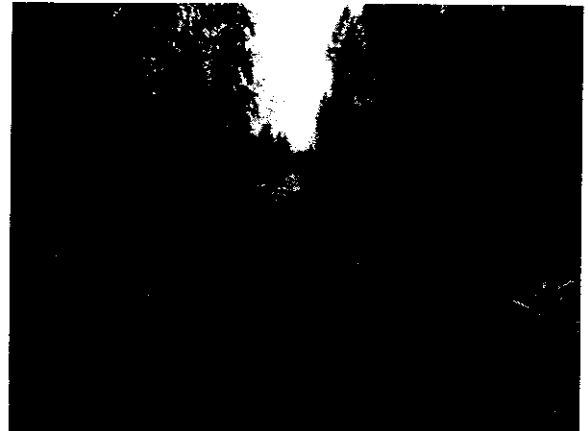
VEHICLE 1 RIGHT Right side back to front



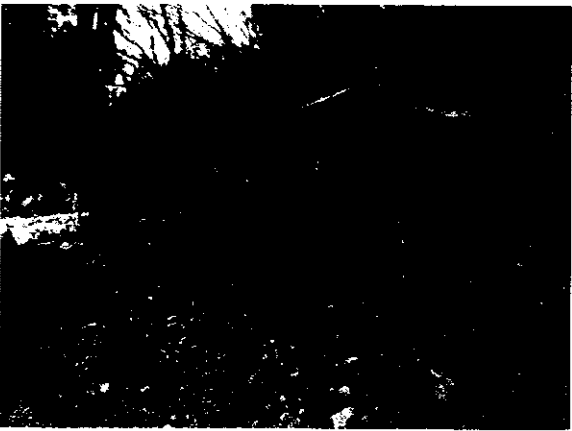
CRASH SCENE Vehicle Approach - Vehicle Approach - 8



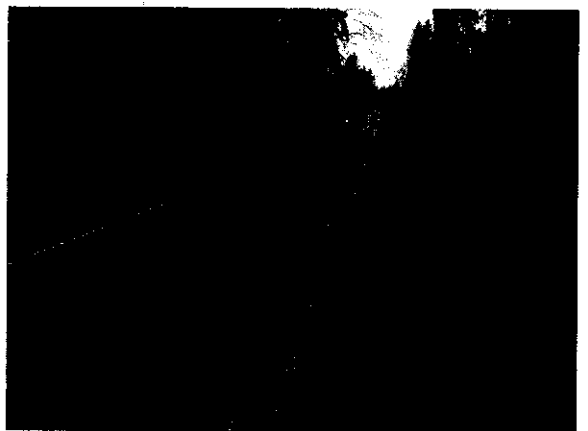
CRASH SCENE Vehicle Approach - Vehicle Approach - 9



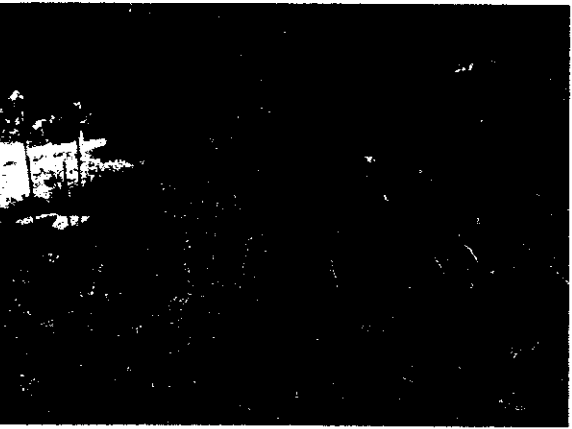
CRASH SCENE Vehicle Approach - Vehicle Approach - 1



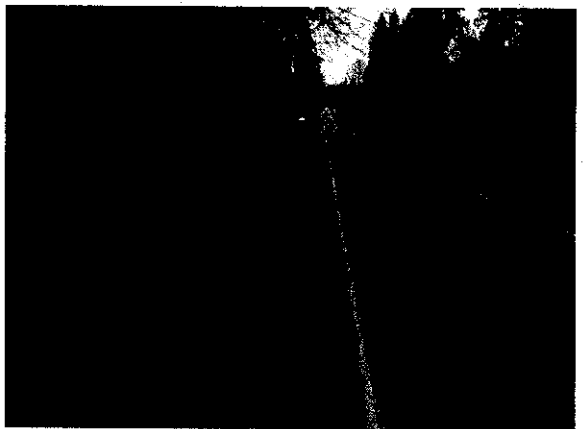
CRASH SCENE Vehicle Approach - Vehicle Approach - 10



CRASH SCENE Vehicle Approach - Vehicle Approach - 2



CRASH SCENE Vehicle Point of Impact - Vehicle Point of Impact - 1



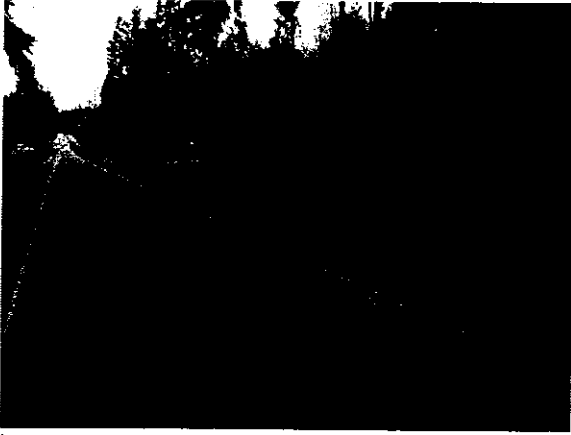
CRASH SCENE Vehicle Approach - Vehicle Approach - 3



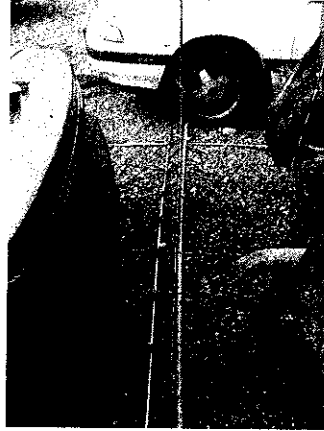
CRASH SCENE LOOK BACK LOOK BACK



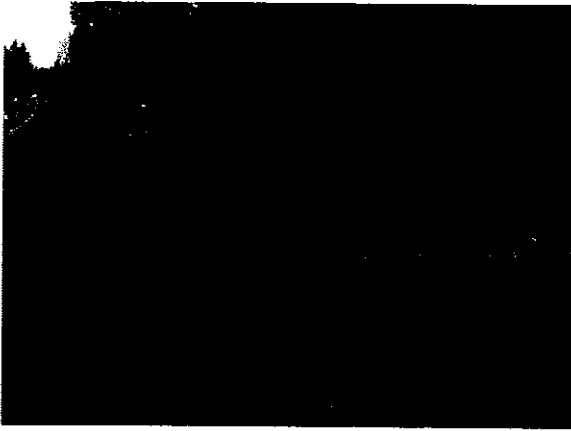
CRASH SCENE Vehicle Approach - Vehicle Approach - 4



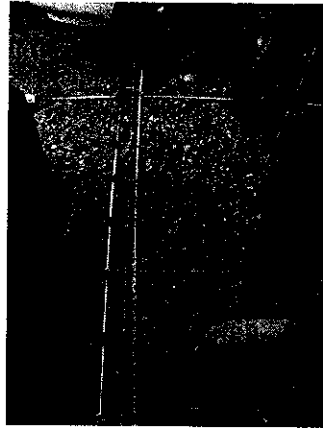
CRASH SCENE Vehicle Approach - Vehicle Approach - 5



VEHICLE 1 BACK C6-C1 bumper



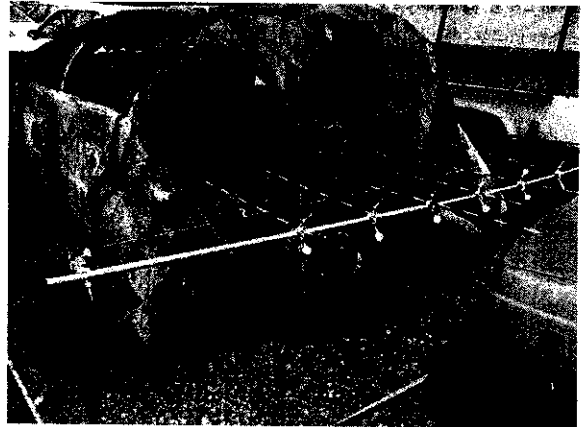
CRASH SCENE Vehicle Approach - Vehicle Approach - 6



VEHICLE 1 BACK C6-C1 bumper



VEHICLE 1 BACK BACK with gauges set at bumper



VEHICLE 1 BACK BACK with gauges above bumper



VEHICLE 1 BACK C1-C6 bumper



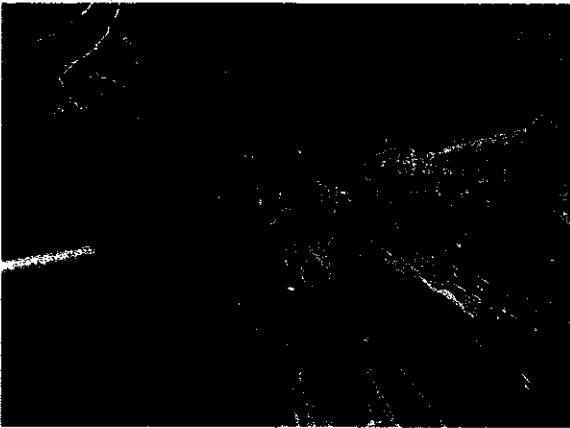
VEHICLE 1 BACK C1-C6 above bumper



VEHICLE 1 BACK C6-C1 above bumper



VEHICLE 1 LEFT LEFT front 1/3



VEHICLE 1 FRONT Possible contact to windshield



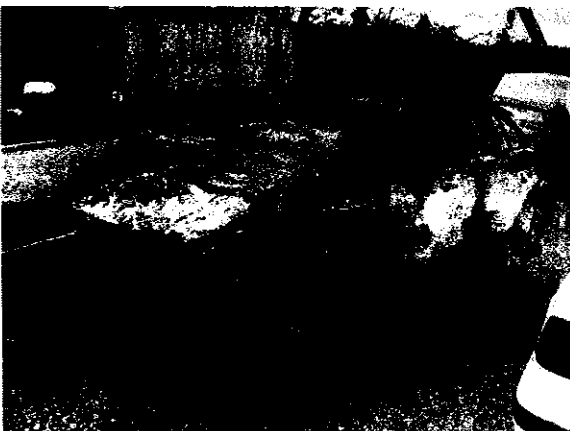
VEHICLE 1 LEFT LEFT middle 1/3 from front



VEHICLE 1 FRONT FRONT



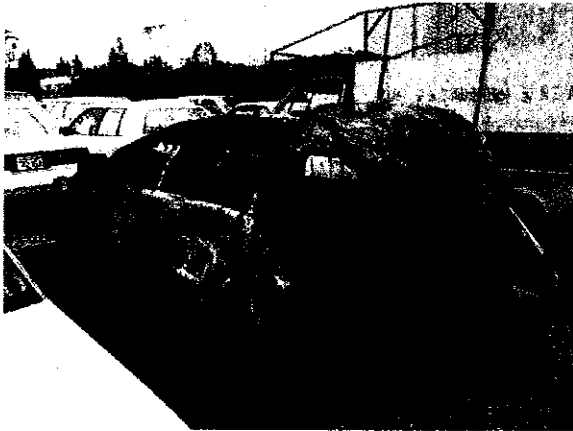
VEHICLE 1 LEFT LEFT middle 1/3 from back



VEHICLE 1 Front/Left Oblique Front/Left Oblique



VEHICLE 1 LEFT LEFT back 1/3



VEHICLE 1 Back/Left Oblique Back/Left Oblique



VEHICLE 1 RIGHT RIGHT middle 1/3 from back



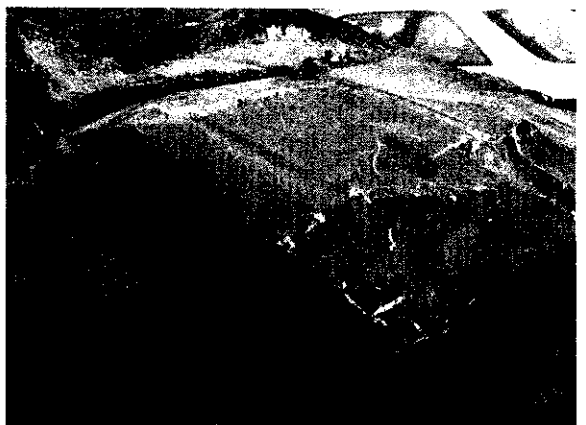
VEHICLE 1 BACK BACK



VEHICLE 1 RIGHT RIGHT middle 1/3 from front



VEHICLE 1 Back/Right Oblique Back/Right Oblique



VEHICLE 1 RIGHT RIGHT front 1/3



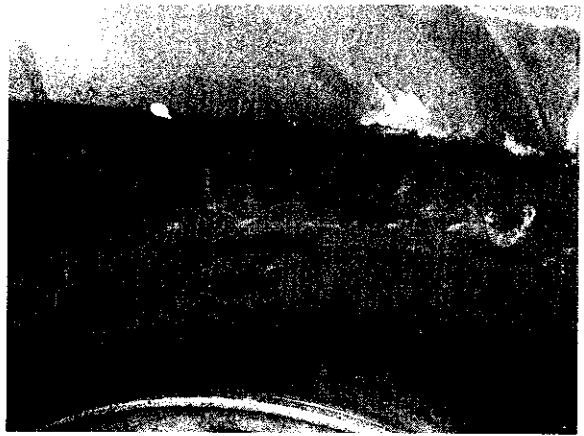
VEHICLE 1 RIGHT RIGHT back 1/3



VEHICLE 1 Front/Right Oblique Front/Right Oblique



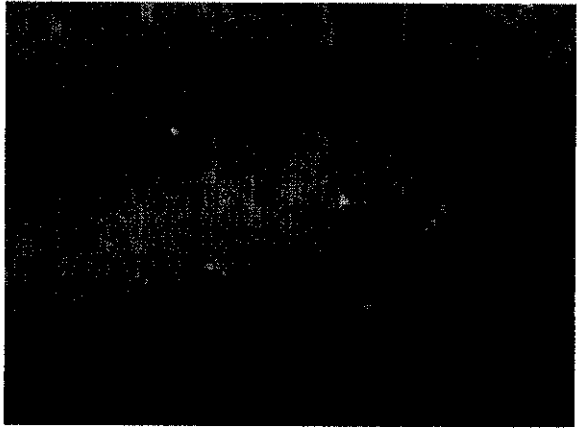
VEHICLE 1 Top Top from front



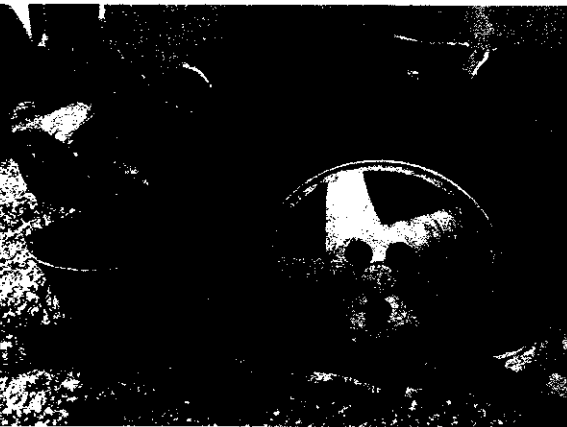
VEHICLE 1 MISCELLANEOUS Tire manufacturer



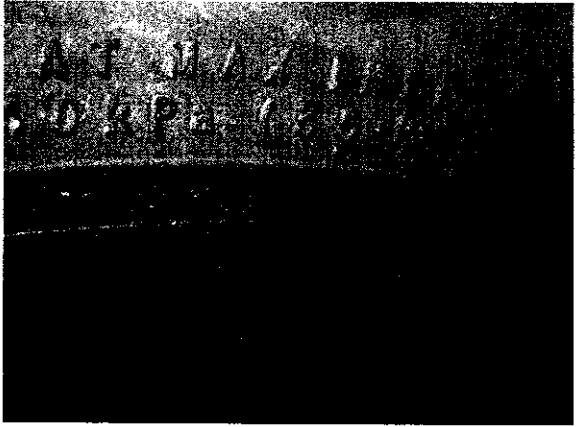
VEHICLE 1 Top Top from back



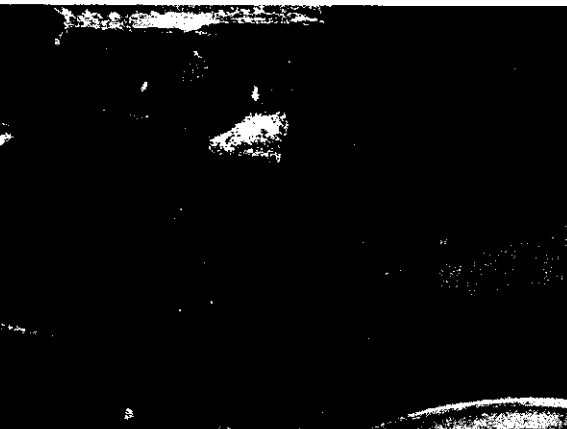
VEHICLE 1 MISCELLANEOUS Tire size



VEHICLE 1 LEFT LF Tire



VEHICLE 1 MISCELLANEOUS Tire max pressure



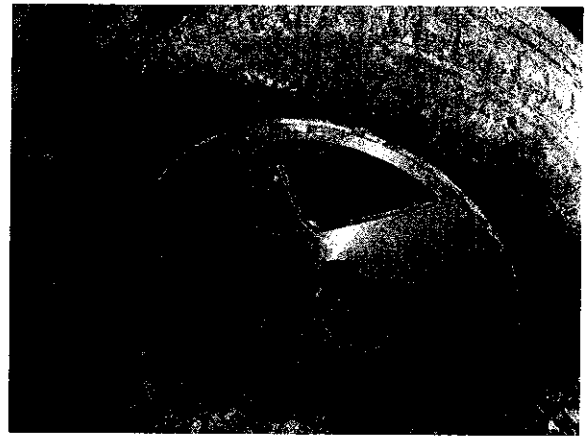
VEHICLE 1 MISCELLANEOUS LF tire melted



VEHICLE 1 LEFT LR tire



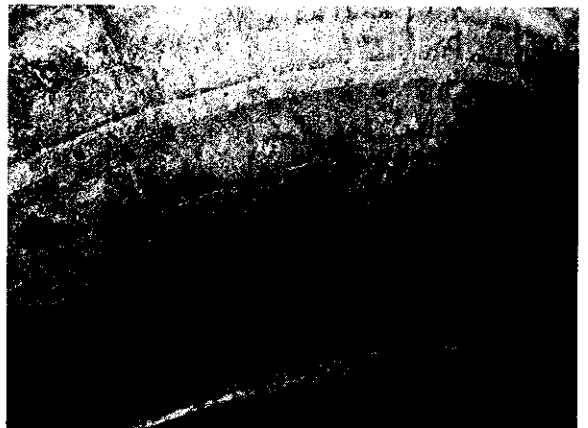
VEHICLE 1 FUEL SYSTEM Fuel filler neck



VEHICLE 1 RIGHT RF tire



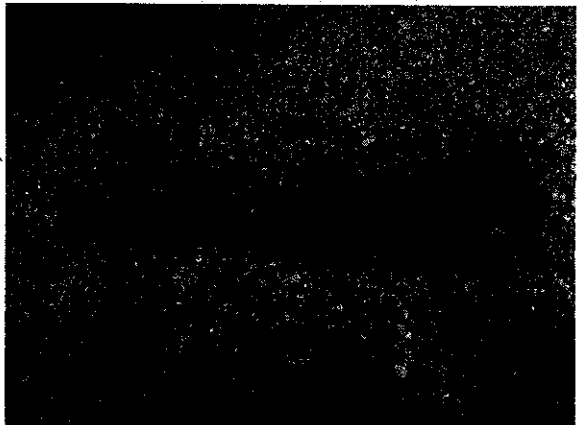
VEHICLE 1 FUEL SYSTEM Fuel filler cap location



VEHICLE 1 MISCELLANEOUS Tire model



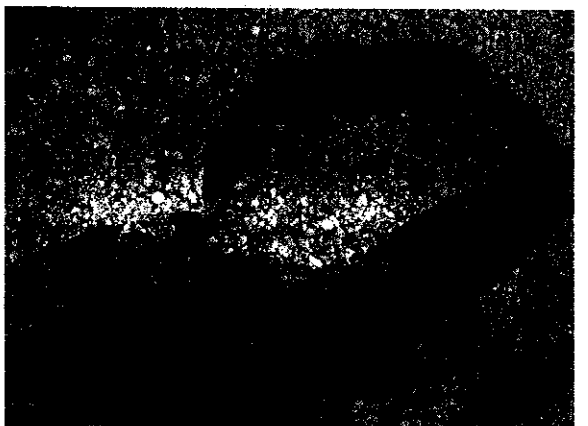
VEHICLE 1 RIGHT RR tire



VEHICLE 1 RIGHT R "B" pillar



VEHICLE 1 FUEL SYSTEM Fuel tank



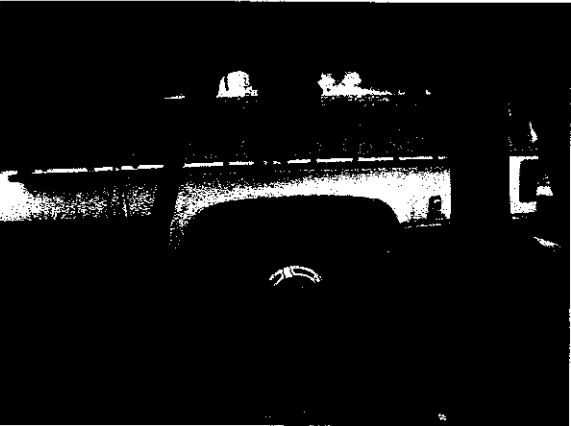
VEHICLE 1 BACK Tail gate



VEHICLE 1 INTERIOR 1ST ROW Look through LF door across row



VEHICLE 1 INTERIOR 1ST ROW Look through RF door instrument pan



VEHICLE 1 INTERIOR 2ND ROW Look through LR door across row



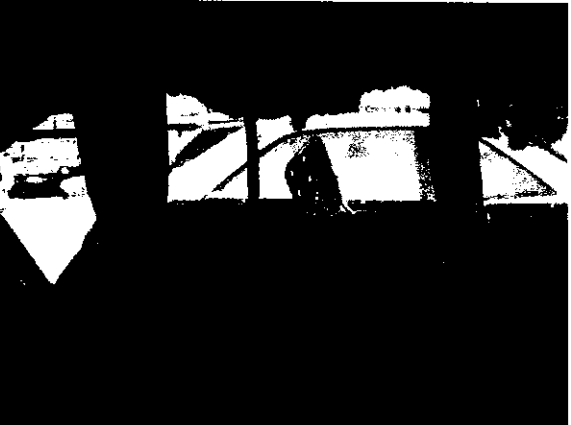
VEHICLE 1 INTERIOR 1ST ROW Look through LF door instrument pan



VEHICLE 1 INTERIOR 1ST ROW Look through RF door across row



VEHICLE 1 INTERIOR 1ST ROW Steering assembly



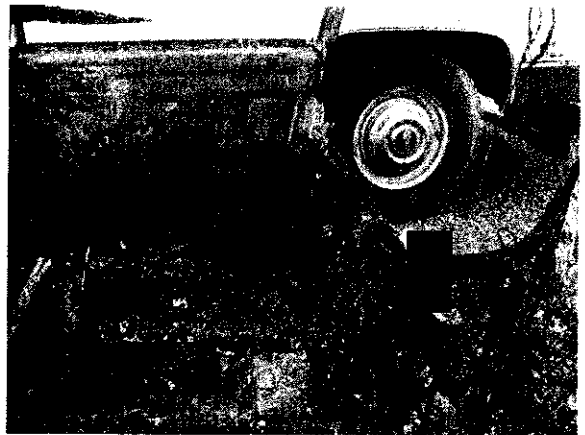
VEHICLE 1 INTERIOR 2ND ROW Look through RR door across row



VEHICLE 1 INTERIOR 1ST ROW Steering assembly



VEHICLE 1 INTERIOR 1ST ROW Seat 11



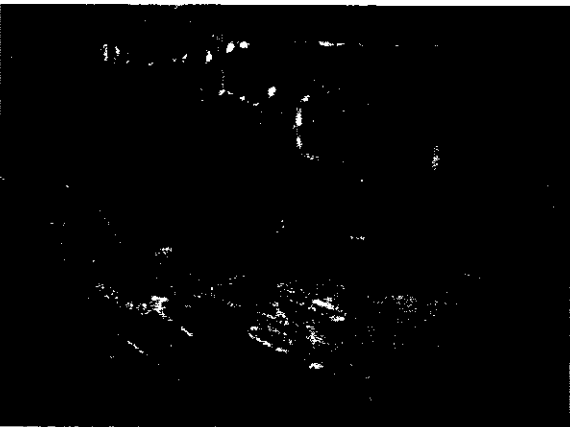
VEHICLE 1 INTERIOR 1ST ROW Seat 13



VEHICLE 1 INTERIOR 1ST ROW 11 belt adjuster



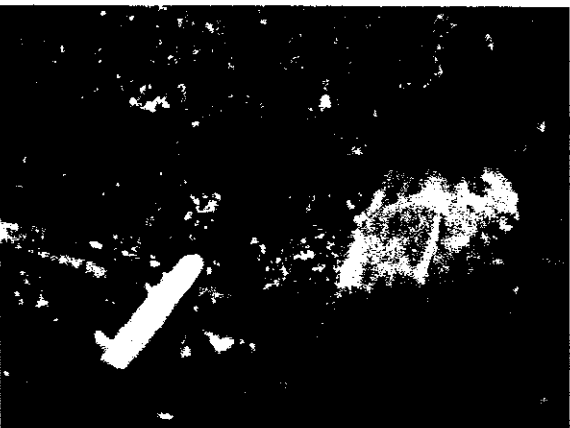
VEHICLE 1 INTERIOR 1ST ROW 13 head restraint



VEHICLE 1 INTERIOR 1ST ROW 11 belt retractor



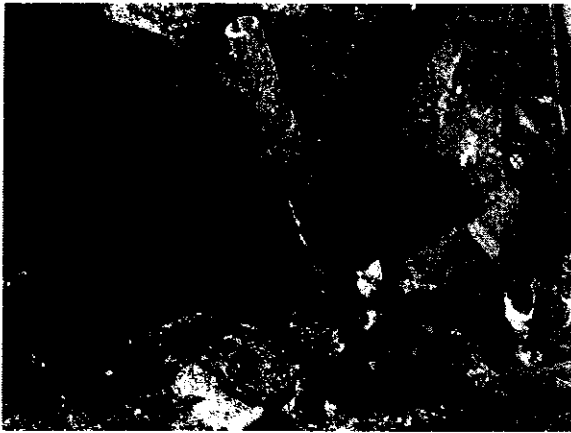
VEHICLE 1 INTERIOR 1ST ROW 13 belt retractor



VEHICLE 1 INTERIOR 1ST ROW 11 belt latch



VEHICLE 1 INTERIOR 1ST ROW 13 belt latch



VEHICLE 1 INTERIOR 1ST ROW Transmission shifter



VEHICLE 1 INTERIOR 2ND ROW 21 and 22 belt latch



VEHICLE 1 INTERIOR 2ND ROW 2nd row seat



VEHICLE 1 INTERIOR 2ND ROW 23 belt latch



VEHICLE 1 INTERIOR 2ND ROW 21 belt retractor



VEHICLE 1 INTERIOR 2ND ROW 23 belt retractor



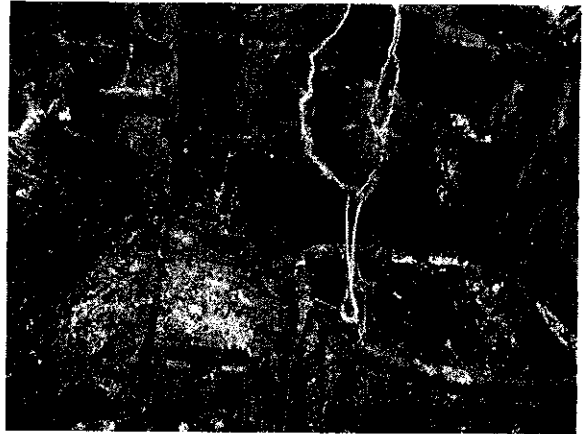
VEHICLE 1 INTERIOR 2ND ROW 21 belt adjuster



VEHICLE 1 INTERIOR 2ND ROW 23 belt adjuster



VEHICLE 1 INTERIOR 1ST ROW 13 belt adjuster



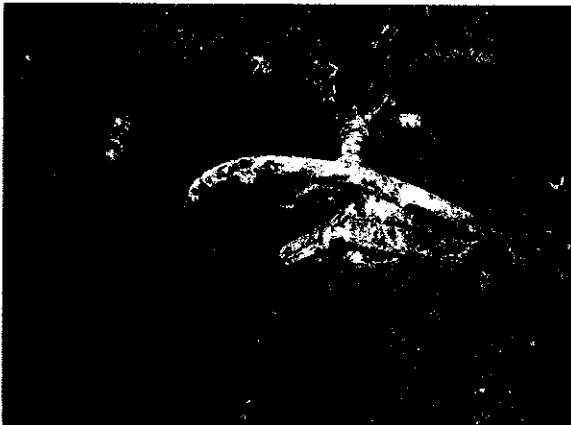
VEHICLE 1 INTERIOR 1ST ROW 12 bottom



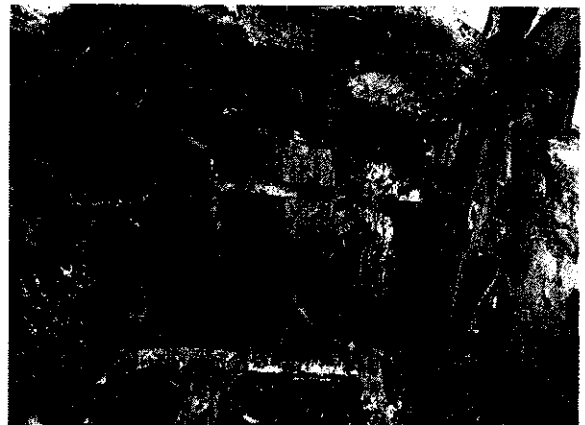
VEHICLE 1 INTERIOR 1ST ROW 11 top



VEHICLE 1 INTERIOR 1ST ROW 13 top



VEHICLE 1 INTERIOR 1ST ROW 11 bottom



VEHICLE 1 INTERIOR 1ST ROW 13 bottom



VEHICLE 1 INTERIOR 1ST ROW 12 top