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**Special Crash Investigations:  
Remote Vehicle Fire/Child  
Restraint System Investigation;  
Vehicle: 1995 GMC Suburban;  
Location: Minnesota;  
Crash Date: December 2015**

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<b>16. Abstract</b>  This report documents the remote vehicle fire/child restraint system (CRS) investigation of a 1995 GMC Suburban with a CRS-restrained child that was involved in a crash with another vehicle and subsequent post-crash fire. The crash occurred during the day in December 2015 in Minnesota. The GMC was being driven northbound by an unbelted 26-year-old male. The other occupants included an unbelted 22-year-old female in her third trimester of pregnancy in the front passenger position, an unbelted 25-year-old male in the second row left position, a 2-year-old male restrained in a forward-facing CRS in the second-row center position and an unbelted 21-year-old female in the second-row right position. The other vehicle was a 2001 Mazda Tribute driven southbound by a belted 45-year-old male. The other occupants included a belted 12-year-old male in the front passenger position, a belted 14-year-old female, and an unbelted 40-year-old female in the second row. Conditions were snowing with accumulation of snow, ice, and water on the roadway. The Mazda lost traction and began a counterclockwise rotation, crossing over into the northbound lane, where the front of the GMC struck the right side of the Mazda. The GMC came to rest on the roadway shoulder, where a post-impact fire quickly spread to the occupant compartment, fully engulfing the vehicle. The five occupants of the GMC were transported by ambulance to a local hospital. The driver and the front-right occupant were hospitalized, and the second-row occupants were treated and released. The Mazda departed the roadway and came to rest on the east roadside. The four occupants of the Mazda sustained fatal injuries and were declared deceased on-scene.			
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**Special Crash Investigations**  
**Remote Vehicle Fire/Child Restraint System Crash Investigation**  
**Case Number: DS19025**  
**Vehicle: 1995 GMC Suburban**  
**Location: Minnesota**  
**Crash Date: December 2015**

## **Background**

This report documents the remote vehicle fire/child restraint system (CRS) investigation of a 1995 GMC Suburban with a CRS-restrained child involved in a two-vehicle crash and subsequent post-crash fire (Figure 1). The investigation was intended to examine the events leading to the fire, how quickly the fire spread to the occupant compartment, the magnitude of the fire, the time in which emergency medical services (EMS) and other responders arrived on-scene, occupant restraint usage, demographics, injury data, and CRS usage. The crash was identified during a review of Fatality Analysis Reporting System (FARS) crash reports. The criteria for the crash type include a front or side plane impact, a fire that spreads to the occupant compartment, and at least one occupant seated in a CRS. The on-scene police photos were obtained, and the Special Crash Investigations (SCI) group of the National Highway Traffic Safety Administration assigned the case in August 2019. The fire incident report was obtained in September 2019; a non-redacted version of the police report was obtained in November 2019. Neither vehicle was supported by the Bosch Crash Data Retrieval system, and no Event Data Recorder (EDR) information was obtained.



*Figure 1. The 1995 GMC Suburban, looking east  
(police photo)*

The crash occurred during the day in December 2015 on an undivided, two-lane north/south State highway in Minnesota. The GMC was driven northbound by an unbelted 26-year-old male. The other occupants were an unbelted 22-year-old female in her third trimester of pregnancy in the front passenger position, an unbelted 25-year-old male in the second-row left position, a 2-year-old male restrained in a forward-facing CRS in the second-row center position, and an unbelted 21-year-old female in the second-row right position. The other vehicle was a 2001

Mazda Tribute driven southbound by a belted 45-year-old male. The other occupants were a belted 12-year-old male in the front passenger position, a belted 14-year-old female in the second-row left position, and an unbelted 40-year-old female in the second-row right position. It was snowing with accumulation of snow, ice, and water on the roadway. The Mazda lost traction and began a counterclockwise rotation, crossing over into the northbound lane, where the front plane of the GMC struck the right plane of the Mazda at an angle. The GMC came to rest on the roadway shoulder, where a post-impact fire quickly spread in the occupant compartment, fully engulfing the vehicle. The five occupants of the GMC were transported by ambulance to a local hospital. The driver and the back left 25-year-old male sustained police-reported "B" (non-incapacitating) severity injuries, the pregnant front passenger sustained "A" (incapacitating) severity injuries, and the back right occupant and the child sustained "C" (possible) injuries. The driver and the front passenger were hospitalized, and the second-row occupants were treated and released. The Mazda departed the roadway and came to rest on the east roadside. The four occupants of the Mazda sustained fatal injuries and were declared deceased on-scene. The unbelted 40-year-old female seated in the second-row right seat position was fully ejected and came to rest on the roadside. Both vehicles were towed due to damage.

## Summary

### Crash Site

The crash site was an undivided, two-lane north/south State highway in rural Minnesota (Figure 2). The roadway, which was paved with asphalt in traveled condition, was straight and level. It had lanes measuring 3.8 m (12.5 ft) wide, bordered by paved shoulders measuring 3.8 m (12.5 ft) wide. The centerline was a dashed yellow painted stripe, and the fog lines were solid white painted stripes. The roadway had continuous rumble strips on the centerline, left shoulder, and right shoulder. The roadside was downward sloping ground, leading to drainage ditches. The speed limit was 89 km/h (55 mph). Conditions at the time of the crash were daylight, snowing, and wet with snow, ice, and water accumulation on the roadway. The temperature was 4.4 °C (24 °F), relative humidity was 88 percent, winds were northerly at 14 km/h (9 mph), and light snow was falling. A crash diagram is included at the end of this report.



*Figure 2. Crash site looking north (police photo)*

### Pre-Crash

The GMC was traveling northbound at an unknown speed and the Mazda was traveling southbound at an unknown speed. The Mazda lost traction and began a counterclockwise yaw before crossing the centerline into the northbound lane with its right plane leading. The driver of the GMC braked in response and stayed in his lane prior to impact.

### Crash

The front plane of the GMC struck the right plane of the Mazda (Event 1) in the passenger and rearward zones beginning at the right A-pillar and ending near the right D-pillar. The GMC initiated a post-impact, clockwise rotation and traveled to the east shoulder, where it came to rest facing south (Figure 3). Soon after the impact, the GMC caught fire from an unknown source (Event 2) and sustained major fire damage to the exterior and interior. The Mazda initiated a post-impact, clockwise rotation and departed the roadway on the east edge. It traveled down a descending embankment and came to rest facing west at a ditch line. During the crash, the unbelted 40-year-old female seated in the second-row right seat of the Mazda was fully ejected in an unknown manner and came to rest on the east roadside.



*Figure 3. The 1995 GMC Suburban looking north  
(police photo)*

### **Post-Crash**

Passersby and witnesses immediately stopped to assist the occupants of the GMC. The five occupants of the GMC exited the vehicle either with assistance or under their own power before the vehicle became fully engulfed in flames. EMS responders began arriving at 24 minutes after the crash, and fire department personnel arrived at an unknown time. All five occupants of the GMC were transported by ambulance to a local hospital, where the 2-year-old male second-row center occupant and the 21-year-old female second-row right occupant were treated and released. The driver and the 22-year-old female front passenger were transferred by air to other hospitals, where they were admitted. The 25-year-old male second-row left occupant was transferred by ambulance to a second hospital, where he was treated and released. The four occupants of the Mazda were declared deceased on-scene. Both vehicles were towed due to damage.

## 1995 GMC Suburban

### Description

The 1995 GMC Suburban K2500 was a 4-door SUV identified by the vehicle identification number (VIN) 1GKGGK26N6SJxxxxxx. The odometer reading was estimated by the owner at approximately 450,000 km (280,000 mi). The vehicle had an 8-cylinder, 7.4-liter gasoline engine; 4-wheel drive; power steering and brakes; hydraulic brakes; and all-wheel antilock brakes. The front row had two bucket seats with adjustable head restraints. The second row had a split bench seat with folding backs and adjustable head restraints at the outer positions. The owner purchased the vehicle approximately one year prior to the crash and was unsure of its history.

### Exterior Damage

The GMC sustained major exterior damage to the front plane during the impact with the other vehicle and major severity damage to the entire vehicle during the fire. The front plane appeared to have sustained direct damage distributed from bumper corner to bumper corner (Figure 4). The left and right wheelbases appeared to have been shortened, and the front plane had an observed principal direction of force (PDOF) of 350°. The estimated Collision Deformation Classification (CDC) for the GMC in Event 1 was 12FDEW2.



*Figure 4. Front-plane damage, the 1995 GMC Suburban (police photo)*



*Figure 5. Interior fire damage, the 1995 GMC Suburban (police photo)*

### Vehicle Fire Discussion

The police report and the fire incident reports were obtained. The police report stated that the GMC was engulfed by the fire and that all occupants exited the vehicle before it burned. The fire incident report stated that the fire was a result of the crash. The driver who was interviewed stated that the vehicle's electrical system was the cause of the fire and that no additional information regarding the cause or origin was available. The fire appeared to have started forward of the occupant compartment and quickly spread to the front row (Figure 5). The fire company alarm sounded 10 minutes after the crash. Eight fire personnel and an unknown number of apparatus arrived at an unknown time, and the last unit was cleared at approximately 4 hours 23 minutes after the crash. The fire report noted that no hazardous materials were released. The

report was brief and did not identify the fire's origin or cause. The fire company was a volunteer force, and no further data were available.

## **Child Restraint System**

### ***Evenflo/Unknown Model Child Restraint System***

The CRS used in this crash sustained post-impact burn damage, and no photos were available. SCI interviewed the driver and front passenger of the GMC who were the vehicle owners and parents of the 2-year-old male occupant. The CRS was an unknown model Evenflo convertible CRS. It was manufactured approximately 6 months before the crash and had been used by the occupant for approximately two months. The CRS had a non-adjustable headrest and armrests, a 5-point harness system, and Lower Anchors and Tethers for Children (LATCH). It could be used either rearward-facing or forward-facing.

The vehicle did not have LATCH. The vehicle owner's manual indicated a CRS should be installed using the vehicle's lap and shoulder seat belts in the outboard seat positions and the lap belt in the center seat position. If requested, tether anchors were available and could be installed by an OEM dealership or the vehicle owner. The CRS used in this crash was installed forward-facing by the driver using the vehicle's lap belt routed through the appropriate channels in the second-row center seat position. The seat belt was static and non-retractable with a locking/cinching buckle. No locking clip or tether was used. The driver tightened the seat belt by pulling the slack through the buckle. The driver stated that the CRS was anchored tightly to the vehicle seat. The harness straps were routed through the middle set of the slot, and the retaining clip was buckled at the chest or armpit level.

The family had one-on-one training with a nurse, who instructed them how to properly install the CRS and adjust the harness straps to ensure the child was properly restrained. The 2-year-old had recently transitioned from rearward-facing to forward-facing, and the CRS had only recently been put into use. The front passenger, the child's mother, had previously attended a one-day class focused on CRS installation and best practice usage.

The height and weight parameters for the CRS were unknown, but the mother stated that the child's age, height, and weight were within the parameters as stated on the CRS instruction labels. She indicated that the child's stature was within the 90th percentile and estimated his weight at the time of the crash to be approximately 18 kg (40 lb), and that his height was unknown. The occupant's medical records indicated that his weight was 16 kg (35 lb) and that his height was not reported. The height of a 2-year-old male in the 90th percentile was approximately 91 cm (36 in).<sup>1</sup>

## **NHTSA Recalls and Investigations**

A search in June 2021 using the vehicle's year, make, and model revealed seven recalls and seven investigations. Two recalls were cited as potential causes of vehicle fires. The driver of the GMC had purchased the vehicle approximately one year prior to the crash and did not have a

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<sup>1</sup> Stature per age percentiles: Boys 2 to 20 years. Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).

vehicle history report or know the vehicle history. It was unknown whether the GMC had undergone recall-related inspection or service. The two recalls associated with potential fire causation are summarized as follows:

- **May 19, 2006**

NHTSA Campaign Number: 06E043000 Aftermarket Fuel Filters/Fuel Leak

This condition may cause an inadequate seal at the connection, potentially leading to a fuel leak. In the presence of an ignition source, a fire could occur.

NHTSA Campaign Number: 06E043000 Manufacturer: Honeywell International, Inc.  
Components: Fuel System, Gasoline Potential Number of Units Affected: 88,303

Summary

Certain replacement fuel filters manufactured from 10/18/2006–3/21/2006. The connector on the fuel filter was not manufactured to Honeywell’s specification. As a result, the O-ring may not seat correctly on the fuel line.

Remedy

Honeywell will notify owners and replace the fuel filters free of charge. The recall began on 11/18/2006.

Notes

This recall only pertains to aftermarket Fram fuel filters and has no relation to any original equipment installed on the vehicles listed.

- **February 16, 1995**

NHTSA Campaign Number: 95V026000

Power Train: Transmission: Automatic: Cooling Unit

This condition can cause transmission oil to spray onto the exhaust system and result in a possible vehicle fire.

NHTSA Campaign Number: 95V026000 Manufacturer: GMC

Components: Power Train

Potential Number of Units Affected: 13,853

Summary

Due to a thin case casting, an external transmission leak can occur.

Remedy

Dealers will inspect the transmission case assembly for the involved case casting. If the assembly is involved, the transmission will be replaced.

Notes

System: Automatic Transmission; cooling unit and lines.

Vehicle Description: Pickup trucks and vans equipped with 4L80-E automatic transmission.

## Interior Damage

The GMC's interior sustained unknown impact damage and major fire damage. The front passenger who was interviewed stated that the engine intruded longitudinally into the front row (Figure 6). The magnitude of the intrusion was unknown. The windshield was fractured, and the front-row windows disintegrated at impact with the other vehicle. The left-front, left-rear, and right-front doors were jammed shut, and the right-rear door remained operational. All non-metal components appeared in police photos to have burned or melted in the fire.



*Figure 6. Front row showing longitudinal intrusion, the 1995 GMC Suburban (police photo)*

## Manual Restraint Systems

The GMC had three-point continuous lap and shoulder seat belts for all outboard seat positions and lap belts for center seat positions. Only the 2-year-old male using the CRS with a lap belt was restrained. The police report, the adult occupants' medical records, and the interviewee confirmed their unbelted status.

## Supplemental Restraints System

The GMC was equipped with a driver's frontal air bag. According to the interviewee and the driver's medical records, the driver's frontal air bag deployed in the crash and was later destroyed in the vehicle fire. The interviewee stated that the driver loaded the deployed air bag at impact, possibly causing a pneumothorax. The owner was not aware of any prior crashes, air bag deployments, or air bag service. The driver purchased the vehicle approximately one year prior to the crash, and the vehicle history was unknown.

## 1995 GMC Suburban Occupants

### Driver Demographics

Age/sex:	26 years old/male
Height:	183 cm (72 in)
Weight:	98 kg (216 lb)
Eyewear:	Contact lenses, sunglasses
Seat type:	Bucket
Seat track position:	Middle to full-rearward
Manual restraint usage:	Lap and shoulder belt not used
Usage source:	Medical records, police report, interview
Air bags:	Driver's frontal air bag; deployed
Alcohol/drug data:	None
Egress from vehicle:	Exited without assistance
Transport from scene:	Ambulance to hospital
Type of medical treatment:	Treated, transported via helicopter to another hospital where he was hospitalized for 10 days

### Driver Injuries

Injury No.	Injury	Injury Severity AIS 2015	Involved Physical Component (IPC)	IPC Confidence Level
1	Pneumothorax NFS	442202.2	Tandem – Frontal air bag and steering wheel rim/spokes/hub	Probable Possible
2	Fracture NFS, right foot	852004.2	Foot controls	Probable
3	Contusion, chest	410402.1	Frontal air bag	Probable
4	Abrasion, left knee	810202.1	Lower left IP	Probable

Source: medical records, interview.

### Driver Kinematics

The unbelted 26-year-old male driver was seated in an upright posture. At impact with the other vehicle, the driver was displaced forward and left in response to the direction of force. His driver's frontal air bag deployed, and he loaded the air bag and steering wheel with his chest, causing a pneumothorax and chest contusion. According to the interviewee, the engine was displaced rearward at impact, and the floor and foot controls likely intruded longitudinally into the front row of the occupant compartment. The driver's right foot probably contacted the foot controls, causing a fracture; his left knee contacted the left lower IP, causing an abrasion. The vehicle initiated a post-impact, clockwise rotation. The occupant was probably displaced to the left in response to centrifugal forces. The vehicle came to rest, and the driver exited under his own power through the left-front window, which disintegrated during the crash. He was transported by ambulance to a local hospital and transferred by helicopter to a second hospital, where he was admitted for 10 days. The driver missed approximately 40 days from his work due to his injuries.

### Front-Row Right Occupant Demographics

Age/sex: 22 years old/female  
 Height: 178 cm (70 in)  
 Weight: 79 kg (174 lb)  
 Eyewear: None  
 Seat type: Bucket  
 Seat track position: Middle to full-rearward  
 Manual restraint usage: Lap and shoulder belt not used  
 Usage source: Medical records, police report, interview  
 Air bags: None available  
 Egress from vehicle: Removed by passersby  
 Transport from scene: Ambulance to hospital  
 Type of medical treatment: Treated, transferred via helicopter to another hospital where she was hospitalized for 7 days

### Front-Row Right Occupant Injuries

Injury No.	Injury	Injury Severity AIS 2015	Involved Physical Component (IPC)	IPC Confidence Level
1	1st 2nd and 3rd degree burns, left foot (required skin graft)	912008.2	Fire	Certain
2	Fracture, right distal ulna	752313.2	Right IP	Probable
3	Tear, meniscus, right knee	840300.2	Right IP	Probable
4	Laceration, minor (5 cm), lower lip to chin	210602.1	Right IP	Probable
5	2nd degree burn, right hand (thumb)	912006.1	Fire	Certain
6	Abrasion, right lower leg	810202.1	Right lower IP	Probable

Source: medical records, interview.

### Front-Row Right Occupant Kinematics

The unbelted 22-year-old female occupant was in her third trimester of pregnancy and was seated in an upright posture. Prior to impact, she reached forward with her right arm to brace herself against the right IP. At impact with the other vehicle, she was displaced forward and left in response to the direction of force, likely loading the IP with her right hand and arm, which caused a fracture to the right distal ulna. Her right knee and lower leg contacted the right IP,

which caused a tear to the right meniscus and abrasion to the shin. Her head, face, and neck continued to be displaced forward contacting the right IP, which caused a laceration extending from the lower lip to the chin. The vehicle initiated a post-impact, clockwise rotation, and the occupant was probably displaced to the left in response to centrifugal forces. A fire started forward of the occupant compartment and quickly spread to the occupant compartment. The occupant may have experienced a loss of consciousness while her right thumb and left foot were contacted by fire causing 2nd and 3rd degree burn injuries. After the vehicle came to rest, she was moved from the front row to the second row and out through the right-rear door by passersby. She was transported by ambulance to a local hospital for treatment and later transferred via helicopter to a second hospital, where she was admitted for seven days. She missed approximately 60 or more days from her work due to injuries and her pregnancy.

### Second-Row Left Occupant Demographics

Age/sex: 25 years old/male  
 Height: 190 cm (75 in)  
 Weight: 127 kg (280 lb)  
 Eyewear: None  
 Seat type: Split bench with folding back  
 Seat track position: Not adjustable  
 Manual restraint usage: Lap and shoulder belt not used  
 Usage source: Medical records, police report, interview  
 Air bags: None available  
 Egress from vehicle: Exited without assistance  
 Transport from scene: Ambulance to hospital  
 Type of medical treatment: Treated, transferred via ambulance to another hospital where he was treated and released

### Second-Row Left Occupant Injuries

Injury No.	Injury	Injury Severity AIS 2015	Involved Physical Component (IPC)	IPC Confidence Level
1	Laceration, left eye lid	210602.1	Front-row seat back	Probable
2	Contusion, right shoulder	710402.1	Front-row seat back	Probable
3	Contusion, right ankle	810402.1	Front-row seat back	Probable
4	Contusion, left ankle			

Source: medical records, interview.

### Second-Row Left Occupant Kinematics

The unbelted 25-year-old male occupant was seated in an upright posture. At impact with the other vehicle, he was displaced forward and left in response to the direction of force, contacting the front-row left position seat back with his head, face, thorax, and lower extremities, causing a laceration to the left eyelid and contusions to the right shoulder and bilateral ankles. The vehicle initiated a post-impact, clockwise rotation, and the occupant was probably displaced to the left in response to centrifugal forces. After the vehicle came to rest, he removed the 2-year-old male

from his CRS and carried him from the vehicle through the right-rear door. This occupant was transported by ambulance to a local hospital for treatment and was later transferred by ambulance to a second hospital, where he was treated and released. He missed approximately five days from his work due to his injuries.

### Second-Row Center Occupant Demographics

Age/sex: 2 years old/male  
 Height: 91 cm (36 in) (estimated)  
 Weight: 16 kg (35 lb)  
 Eyewear: None  
 Seat type: Split bench with folding back  
 Seat track position: Not adjustable  
 Manual restraint usage: Forward-facing CRS installed using lap belt  
 Usage source: Medical records, interview, police report  
 Air bags: None available  
 Egress from vehicle: Removed by occupant 3 due to age  
 Transport from scene: Ambulance to hospital  
 Type of medical treatment: Treated and released

### Second-Row Center Occupant Injuries

Injury No.	Injury	Injury Severity AIS 2015	Involved Physical Component (IPC)	IPC Confidence Level
1	Abrasion, upper back	410202.1	CRS shell	Probable
2	Abrasion, right shoulder	710202.1	CRS harness	Probable

*Source: medical records, interview.*

### Second-Row Center Occupant Kinematics

The 2-year-old male occupant was using an Evenflo CRS with a 5-point harness in a forward-facing orientation. The driver installed the CRS by routing the vehicle’s static, non-retractable lap belt through the appropriate channels. At impact with the other vehicle, the occupant was displaced forward and left in response to the direction of force, loading the CRS harness with his shoulders and causing an abrasion to his right shoulder. His medical records indicated the presence of an abrasion on his upper back, probably resulting from contact with the CRS shell. The vehicle initiated a post-impact, clockwise rotation, and the occupant was probably displaced to the left in response to centrifugal forces while remaining in his CRS. The vehicle came to rest, and he was removed from the CRS and vehicle through the right-rear door by the occupant seated to his left. He was transported by ambulance to a local hospital, where he was treated and released. The interviewee stated that the abrasions were gone after a day or two and that the child had no follow-up treatment.

## **Second-Row Right Occupant Demographics**

Age/sex:	21 years old/female
Height:	163 cm (64 in)
Weight:	64 kg (141 lb)
Eyewear:	None
Seat type:	Split bench with folding back
Seat track position:	Not adjustable
Manual restraint usage:	Lap and shoulder belt not used
Usage source:	Medical records, police report, interview
Air bags:	None available
Egress from vehicle:	Exited without assistance
Transport from scene:	Ambulance to hospital
Type of medical treatment:	Treated and released

## **Second-Row Right Occupant Injuries**

According to the occupant's medical records, she complained of pain to the right shoulder, chest, and back. She had no codeable injuries and was treated and released. The interviewee stated that this occupant later sought treatment of an unspecified nature for the pain to her right shoulder.

## **Second-Row Right Occupant Kinematics**

The 21-year-old unbelted female was seated in an upright posture. At impact with the other vehicle, she was displaced forward and left in response to the direction of force, contacting the front-row right position seat back with her torso, which caused pain to her right shoulder, chest, and back. The vehicle initiated a post-impact clockwise rotation, and the occupant was probably displaced to the left in response to centrifugal forces. The vehicle came to rest, and she exited the vehicle without assistance through the right-rear door. The occupant was transported by ambulance to a local hospital, where she was treated and released. She sought treatment later for the pain to her right shoulder.

## 2001 Mazda Tribute

### Description

The 2001 Mazda Tribute (Figure 7) was identified by the VIN 4F2CU08171Kxxxxxx. It was a 5-door SUV with a 6-cylinder, 3.0-liter, gasoline engine; hydraulic brakes; and 4-wheel drive.

### Exterior Damage

The Mazda sustained major damage to the right plane at impact with the other vehicle. Police photos indicated that maximum crush to the right plane measured 125 cm (49.2 in) and that the right plane had an observed PDOF of 80°. The estimated CDC for the Mazda in Event 1 was 03RZAW5.

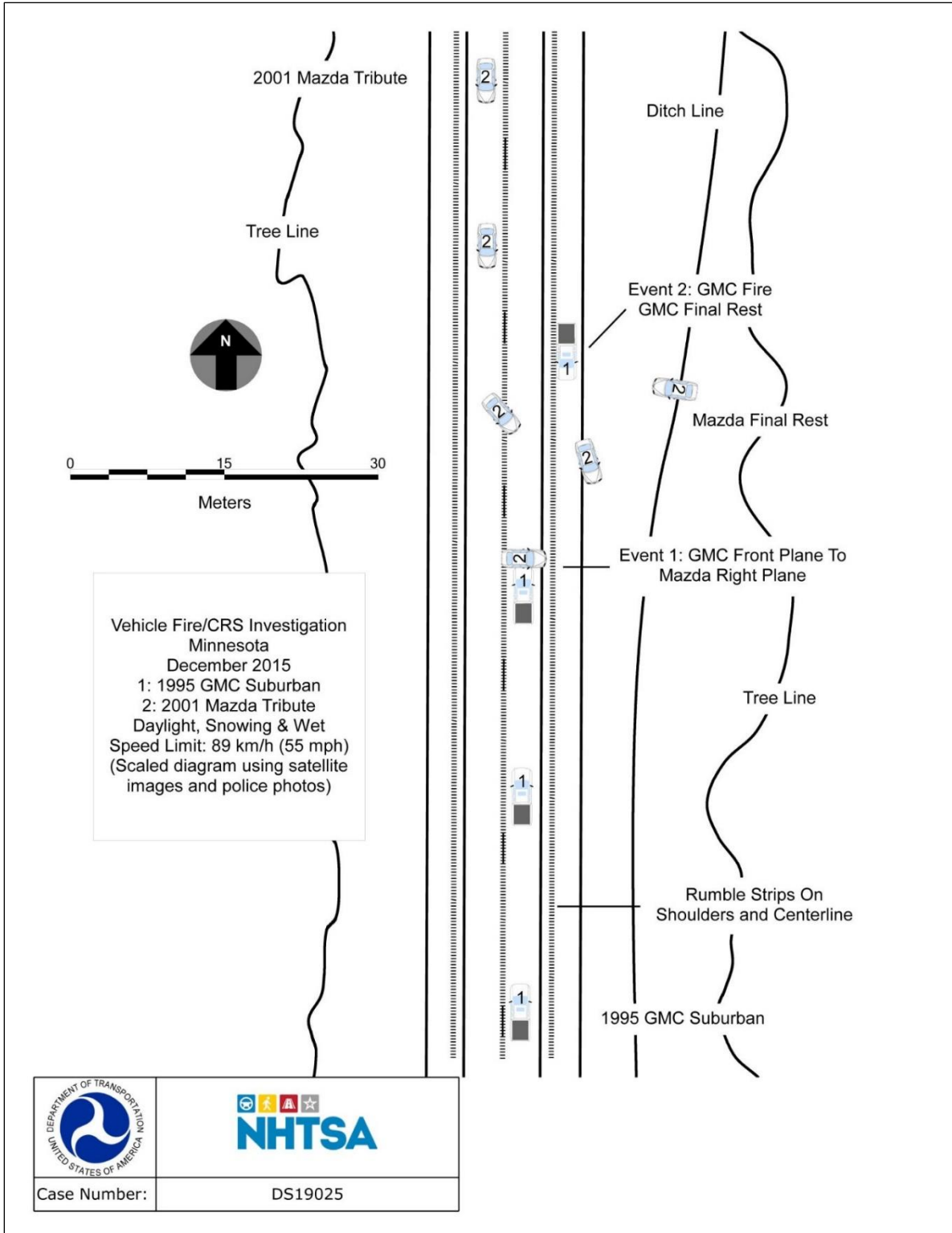


*Figure 7. Right plane damage, the 2001 Mazda Tribute (police photo)*

### Occupant Data

Occupant and manual restraint usage data were obtained from the police report. The occupants of the Mazda were a belted 45-year-old male driver, a belted 12-year-old male seated in the front passenger position, a belted 14-year-old female seated in the second-row left position, and an unbelted 40-year-old female seated in the second-row right position. The 40-year-old female was fully ejected during the crash. All the occupants sustained fatal injuries and were declared deceased on-scene.

# Crash Diagram



DOT HS 813 172  
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U.S. Department  
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**National Highway  
Traffic Safety  
Administration**



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