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ON-SITE OFFICE OF DEFECTS INVESTIGATION POTENTIAL UNINTENDED ACCELERATION INVESTIGATION

CASE NUMBER - IN10011

LOCATION - OHIO

VEHICLE - 2007 LEXUS ES-350

CRASH DATE - June 2008

Submitted:

July 30, 2010



Contract Number: DTNH22-07-C-00044

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
National Center for Statistics and Analysis
Washington, D.C. 20590-0003

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

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

Technical Report Documentation Page

1. <i>Report No.</i> IN10011		2. <i>Government Accession No.</i>		3. <i>Recipient's Catalog No.</i>	
4. <i>Title and Subtitle</i> On-Site Office of Defects Investigation Unintended Acceleration Investigation Vehicle - 2007 Lexus ES-350 Location - Ohio			5. <i>Report Date:</i> July 30, 2010		
			6. <i>Performing Organization Code</i>		
7. <i>Author(s)</i> Special Crash Investigations Team #2			8. <i>Performing Organization Report No.</i>		
9. <i>Performing Organization Name and Address</i> Transportation Research Center Indiana University 501 South Madison Street, Suite 105 Bloomington, Indiana 47403-2452			10. <i>Work Unit No. (TRAIS)</i>		
			11. <i>Contract or Grant No.</i> DTNH22-07-C-00044		
12. <i>Sponsoring Agency Name and Address</i> U.S. Department of Transportation (NVS-411) National Highway Traffic Safety Administration National Center for Statistics and Analysis Washington, D.C. 20590-0003			13. <i>Type of Report and Period Covered</i> Technical Report Crash Date: June 2008		
			14. <i>Sponsoring Agency Code</i>		
15. <i>Supplementary Notes</i> On-site unintended acceleration investigation involving a 2007 Lexus ES-350.					
16. <i>Abstract</i> This on-site investigation focused on a 2007 Lexus ES-350, which was alleged to have experienced an Unintended Acceleration (UA) that led to an alleged loss of control by the driver. The restrained 52-year-old male driver of the Lexus was traveling east on a 2-lane state highway negotiating a right curve. A 2003 Ford E-350 van was traveling west approaching the curve. As the driver of the Lexus negotiated the curve, the vehicle traveled into the westbound lane where the front of the Lexus impacted the front of the Ford. The direction of force on the Lexus was within the 12 o'clock sector and the impact force was sufficient to trigger a low stage deployment of the driver's frontal air bag. The driver's knee air bag also deployed. Immediately following the crash, a fire started in the front of the Ford, which engulfed the Ford and spread to the Lexus. The front right passenger of the Ford removed the driver of the Lexus from his vehicle before the fire reached the driver. The driver was transported by ambulance to a hospital where he was pronounced deceased. It is unknown if the safety recall for the Lexus, which involved potential driver's floor mat interference with the accelerator pedal was conducted. The inspection of the Lexus revealed no evidence of entrapment of the accelerator pedal by the floor mat. The vehicle's Event Data Recorder (EDR) recorded the brake and accelerator as "off" throughout the pre-crash recording. The inspection of the brake rotors and pads revealed no evidence of prolonged brake application.					
17. <i>Key Words</i> Unintended acceleration			Motor Vehicle Traffic Crash Injury Severity		18. <i>Distribution Statement</i> General Public
19. <i>Security Classif. (of this report)</i> Unclassified	20. <i>Security Classif. (of this page)</i> Unclassified		21. <i>No. of Pages</i> 12	22. <i>Price</i>	

TABLE OF CONTENTS

IN10011

Page No.

BACKGROUND 1

CRASH CIRCUMSTANCES 1

CASE VEHICLE: 2007 LEXUS ES-350 3

 CASE VEHICLE DAMAGE 4

 ACCELERATOR PEDAL, DRIVER’S FLOOR MAT, AND BRAKE COMPONENTS 5

 EVENT DATA RECORDER 6

 AUTOMATIC RESTRAINT SYSTEM 7

 MANUAL RESTRAINT SYSTEM 8

 CASE VEHICLE DRIVER KINEMATICS 8

 CASE VEHICLE DRIVER INJURIES 9

OTHER VEHICLE 11

CRASH DIAGRAM 13

This on-site investigation focused on a 2007 Lexus ES-350 (**Figure 1**), which was alleged to have experienced an Unintended Acceleration (UA) that led to an alleged loss of control by the driver. This crash was brought to our attention on March 29, 2010 by the National Highway Traffic Safety Administration (NHTSA) through the Office of Defects Investigation (ODI). This investigation was assigned on April 6, 2010. The crash involved the Lexus and a 2003 Ford E-350 van. The crash occurred in June, 2008, at 2103 hours, in Ohio and had been investigated by the Ohio State Highway Patrol. The ODI was notified of the crash and the alleged involvement of a UA via a telephone call from an attorney who later filed a Vehicle Owner's Questionnaire (VOQ, reference number 10318183). The VOQs were submitted on March 9, 2010, and March 23, 2010 by the attorneys representing the estate of the deceased driver of the Lexus. It is unknown if the safety recall for the Lexus, which involved potential driver's floor mat interference with the accelerator pedal was conducted.



Figure 1: The damaged 2007 Lexus ES-350

The Lexus was inspected on April 8, 2010 and the Air Bag Control Module (ACM), which contains the Event Data Recorder (EDR) was removed. The crash scene was also inspected on April 8, 2010. The ACM was forwarded to NHTSA for imaging of the EDR data on April 12, 2010. The imaged EDR data were emailed to this contractor on April 16, 2010. The ACM was returned to this contractor and received on April 20, 2010. The ACM was returned to the attorney representing the company that insured the Lexus on April 21, 2010. The EDR data was read and reported with version 1.4.1.0 of Toyota's EDR readout tool. This report is based on the police crash report, vehicle inspection, EDR data, crash scene inspection, occupant kinematic principles, and evaluation of the evidence.

CRASH CIRCUMSTANCES

Crash Environment: This crash occurred on a 2-lane, undivided state highway that traversed in an east-west direction. Each travel lane was 3.7 m (12.1 ft) in width and was bordered by bituminous shoulders. The north shoulder was 3.6 m (11.8 ft) in width, while the south shoulder was 3.9 m (12.8 ft) in width. The roadway pavement markings consisted of solid white edge lines and double yellow center lines. The Lexus was traveling east and the driver was negotiating a right curve. The eastbound roadway had a positive 3.1% grade and a positive 7.8% superelevation to the north. The radius of curvature was approximately 340 m (1115 ft). The Ford was traveling west approaching the curve. The roadway was straight and had a negative 4.6% grade. At the time of the crash, the light condition was dark without artificial lighting and it was raining. The roadway pavement was wet bituminous and the speed limit was 89 km/h (55 mph). According to weather report contained within the police crash report, the temperature was 20.5 C (68.9 F) and the rate of rainfall was 1.5 cm/hr (0.59 in/hr). The winds were east/southeast

at 6.4 km/h (4 mph). There were thunderstorms throughout the area and a tornado warning was in effect. Water was running across the roadway west of the impact area. The site of the crash was rural. The Crash Diagram is on page 12 of this report.

Pre-Crash: The restrained 52-year-old male driver of the Lexus was traveling east negotiating a right curve (**Figure 2**). The vehicle traversed through an area where water was running across the roadway. Based on the police measurements, the area of water was approximately 15 m (49.2 ft) in width and the center of the runoff was approximately 83 m (272 ft) west of the impact area. The Ford was traveling west approaching the curve (**Figure 3**). It was occupied by a restrained 58-year-old male driver, restrained 24-year-old male front right passenger, and an unrestrained 45-year-old male second row center passenger. The vehicle was a correctional institution transport van and was transporting the second row passenger from a medical facility. The crash occurred in the westbound lane as the Ford entered the curve.



Figure 2: Approach of the Lexus; arrow shows area of the impact



Figure 3: Approach of the Ford; arrow shows area of the impact

EDR Pre-Crash Data: The Lexus’ EDR recorded pre-crash data, which is presented in the following table. A row was added to convert mph to km/h.

Time (sec)	-5	-4	-3	-2	-1	0
Speed (mph)	63.4	63.4	47.2	32.3	49.7	49.7
Speed (km/h)	102.0	102.4	76.0	52.0	80.0	80.0
Brake	Off	Off	Off	Off	Off	Off
Accelerator (Volts)	Off (1.37)	Off (1.25)	Off (0.78)	Off (0.78)	Off (0.78)	Off (0.78)
Engine (rpm)	1600	1600	1200	400	800	1200

Crash: The front plane of the Lexus (**Figure 4**) impacted the front plane of the Ford (**Figure 5**). Based on the police measurements, the impact occurred in the Ford’s travel lane 3 m (9.8 ft) from the center of the roadway. The force direction on the Lexus was within the 12 o’clock sector and the impact force was sufficient to trigger deployment of the driver’s frontal and knee air bags.

The EDR reported this as a low stage deployment, which occurred 5 ms following the impact trigger. The Lexus rotated counterclockwise 95 degrees and came to final rest across the westbound lane heading north (Figure 6). The Ford came to final rest on the north shoulder heading west.

Post-Crash: The police were notified of the crash at 2103 hours and arrived on scene at 2105 hours. A fire started in the front of the Ford immediately following the crash, which engulfed the Ford and spread to the Lexus. The front right passenger of the Ford removed the driver of the Lexus from the vehicle before the fire reached him. A passer-by attempted to extinguish the fire with a small extinguisher but was unsuccessful. The local fire department was dispatched to the crash scene at 2104 hours. They arrived on scene at 2115 hours and extinguished the fire. The driver of the Lexus was transported by ambulance to a hospital where he was pronounced deceased. The driver and front right passenger of the Ford were transported to a hospital. The unrestrained second row center passenger of the Ford sustained fatal injuries. Both vehicles were towed due to damage.

CASE VEHICLE

The 2007 Lexus ES-350 was a front wheel drive, 5-passenger, 4-door sedan (VIN: JTHBJ46G972-----) equipped with a 3.5-liter, V-6 engine, a 6-speed sequential-shift automatic transmission, a Smart Key push-button ignition, 4-wheel anti-lock brakes with electronic brake force distribution, traction control, electronic stability control, and a tire pressure monitoring system. The front row was equipped with bucket seats, adjustable head restraints, lap-and-shoulder safety belts, driver and front passenger frontal air bags, driver and front passenger knee air bags, seat-mounted side impact air bags, and side impact inflatable curtain (IC) air bags that provided protection for the front and second rows. The second row was equipped with a bench seat, lap-and-shoulder safety belts, adjustable head restraints in the outboard seating positions, and Lower Anchor and Tethers for Children (LATCH) in the outboard seating positions. The vehicle's mileage at the time of the crash was reported on the VOQ as 22,000 miles (35,406 kilometers). The vehicle's wheelbase was 278 cm (109.4 in).



Figure 4: The damage on the front plane of the Lexus from the impact with the front of the Ford



Figure 5: Police photo of the damage on the front of the Ford



Figure 6: Police photo of the final rest positions of the Lexus and the Ford

Exterior Damage: The Lexus sustained front plane damage during the impact with the Ford. The front bumper, grille, hood, both headlamp/turn signal assemblies and both fenders were directly damaged. The direct damage involved the full width of the front end, 150 cm (59.1 in). The crush measurements were taken on the front bumper bar and the maximum residual crush was 69 cm (27.2 in) occurring at C₄ (**Figure 7**). The vehicle’s left side wheelbase was reduced 21 cm (8.3 in) while the right side wheelbase was extended 4 cm (1.6 in). The table below presents the front crush profile.

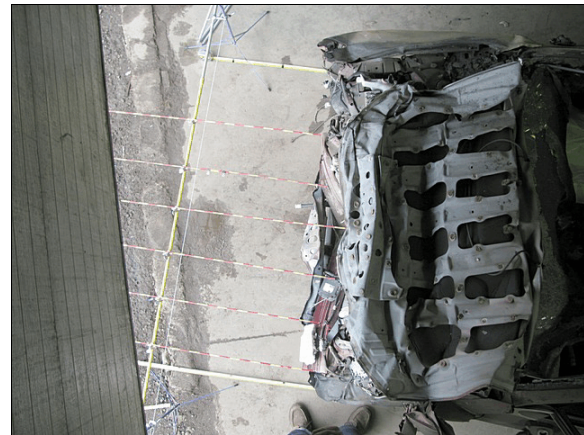


Figure 7: Top view of the front crush on the Lexus; each increment on the rods is 5 cm (2 in)

Units	Event	Direct Damage		Field L	C ₁	C ₂	C ₃	C ₄	C ₅	C ₆	Direct	Field L
		Width CDC	Max Crush								±D	±D
cm	1	150	69	114	59	59	63	69	53	46	0	0
in		59.1	27.2	44.9	23.2	23.2	24.8	27.2	20.9	18.1	0.0	0.0

The Lexus sustained fire damage (**Figure 8**) that involved the right fender, right portion of the hood and windshield, right front wheel, right front door, right rear door, and the interior of the vehicle. The fire started within the engine compartment of the Ford and spread to the Lexus. The fire was extinguished by a local fire department approximately 15 minutes following their arrival at the crash scene.



Figure 8: Right side view of the damage on the Lexus from the fire

Damage Classification: The Collision Deformation Classification (CDC) for the front impact with the Ford was 12FDEW3 (10 degrees). The Damage with CDC Only algorithm of the WinSMASH program calculated the total Delta V for the Lexus as 90 km/h (55.9 mph). The longitudinal and lateral velocity changes were -88.6 km/h (-55.1 mph) and -15.6 km/h (-9.7 mph), respectively. Based on the damage on the both vehicles, the results appeared reasonable. The vehicle’s EDR recorded the velocity change as 55.2 mph (88.8 km/h) at 200 ms.

The manufacturer’s recommended tire size was P215/55R17. The Lexus was equipped with the recommended size tires. The vehicle’s tire data are shown in the table below.

Tire	Measured Pressure		Vehicle Manufacturer's Recommended Cold Tire Pressure		Tread Depth		Damage	Restricted	Deflated
	kPa	psi	kPa	psi	milli-meters	32 nd of an inch			
LF	207	30	207	30	6	7	None	Yes	No
LR	207	30	207	30	4	5	None	No	No
RR	172	25	207	30	4	5	None	No	No
RF	Flat	Flat	207	30	6	7	Partially consumed by fire	No	Yes

Vehicle Interior: The interior of the Lexus was partially consumed by the fire (**Figure 9**). There was no deformation of the steering wheel rim. The energy absorbing steering column was compressed approximately 3 cm (1.2 in) from loading by the driver.

The left front and right rear doors were jammed shut. The left rear and right front doors remained closed and operational. Prior to the crash, all the window glazings were either closed for adjustable windows or fixed for all others. The windshield was in place and holed from impact forces as well as partially burned. The left front window glazing was disintegrated from impact forces. The right front and right rear windows were consumed in the fire. The left rear window glazing and the backlight glazing were not damaged during the crash.

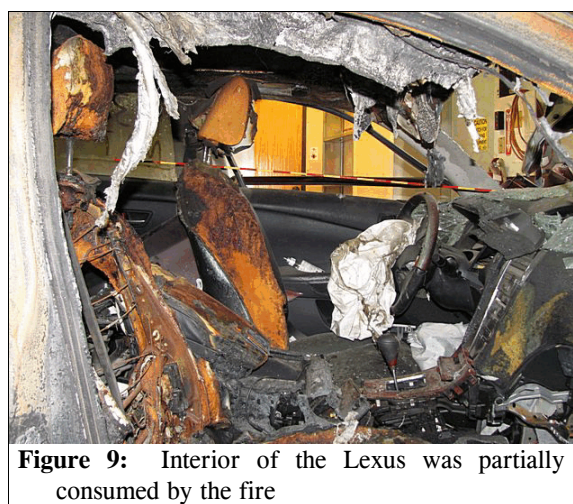


Figure 9: Interior of the Lexus was partially consumed by the fire

The passenger compartment sustained 8 intrusions. The most severe intrusions to the driver's space involved the left A-pillar, toe pan, and instrument panel, which intruded longitudinally approximately 12 cm (4.7 in), 12 cm (4.7 in), and 9 cm (3.5 in), respectively.

ACCELERATOR PEDAL, FLOOR MAT, AND BRAKE COMPONENTS

The initial status of the accelerator pedal, brake pedal, and floor mat at the time of the SCI inspection are shown in **Figure 10**. The driver's floor mat was secured by the floor mounted attachments and was partially entrapped under the driver's seat from the damage. The floor mat was not over or in contact with the accelerator pedal. There were no discernable product identification codes on the back of the floor mat. A Lexus logo was present on the front of the floor mat. The intrusion of the driver's toe pan folded the carpet and the end of the accelerator

pedal was entrapped in a damaged carpet fold (**Figure 11**). When freed from the carpet fold, the accelerator pedal functioned smoothly and did not bind. **Figure 12** shows the Denso accelerator pedal mechanism housing. Both rear wheels were removed and the brake rotors and brake pads were inspected. They showed no evidence of overheating (**Figures 13 and 14**). Both rotors contained significant rust deposits from prolonged non-use.



Figure 10: The initial status of the driver's floor mat, accelerator pedal, and brake pedal at the SCI inspection



Figure 11: The end of the accelerator pedal was entrapped in a fold in the damaged carpet



Figure 12: The Denso accelerator mechanism housing

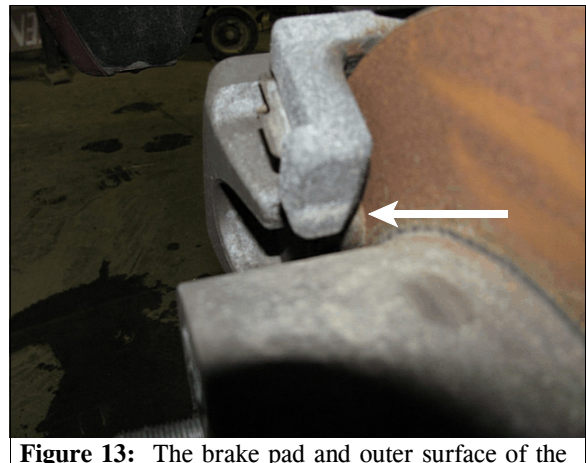


Figure 13: The brake pad and outer surface of the brake rotor on the right rear wheel of the Lexus; arrow shows the brake pad

EVENT DATA RECORDER

The inspection of the exterior of the ACM, which contained the EDR revealed minor heat exposure and a few black soot deposits as a result of the fire. There was no melting or damage on the electrical receptacle of the ACM. The EDR recorded the driver's safety belt switch status as "Belted" and the driver's seat position as "RM" (RM is understood to mean rear of the middle track position). The transmission shifter position was recorded as "Other," which is understood to indicate that the transmission was not in the park, neutral, reverse positions nor was it invalid

data. The EDR recorded one frontal event and no previous stored events. The time from the pre-crash trigger to the frontal event was recorded as 0 ms. The deployment time for the driver's frontal air bag was recorded as 5 ms. The pretensioner was recorded as actuating at 1 ms. The EDR recorded 200 ms of velocity change (Delta V) data, which are presented in the following table. A column was added to convert mph to km/h. The pre-crash data recorded by the vehicle's EDR is presented in the Pre-Crash section of this report on page 2.

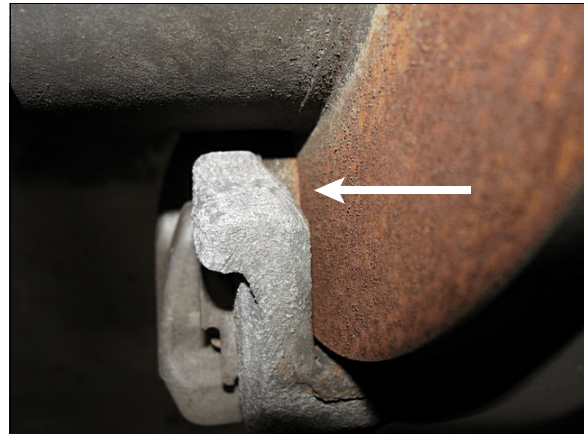


Figure 14: The brake pad and outer surface of the brake rotor on the left rear wheel of the Lexus

Time (ms)	Delta V (mph)	Delta V (km/h)	Time (ms)	Delta V (mph)	Delta V (km/h)
10	1.4	2.3	110	51.9	83.5
20	3.0	4.8	120	52.7	84.8
30	8.1	13.0	130	53.6	86.3
40	15.3	24.6	140	54.1	87.1
50	25.1	40.4	150	54.3	87.4
60	34.5	55.5	160	54.6	87.9
70	40.8	65.7	170	54.9	88.4
80	44.7	71.9	180	55.1	88.7
90	48.3	77.7	190	55.1	88.7
100	50.7	81.6	200	55.2	88.8

AUTOMATIC RESTRAINT SYSTEM

The Lexus was equipped with a Certified Advanced 208-Compliant (CAC) frontal air bag system and driver and front right passenger knee air bags. Based on the Holmatro Rescuer's Guide to Vehicle Safety Systems, the frontal air bag sensors were located on the inner fenders. The driver's frontal air bag and knee air bag deployed in this crash. The manufacturer has certified that the vehicle is compliant to the Advanced Air Bag portion of the Federal Motor Vehicle Safety Standard (FMVSS) No. 208.

The Lexus was also equipped with a side impact air bag system that consisted of roof side rail-mounted side impact inflatable curtain (IC) air bags and front seat-mounted side impact air

bags. Based on the Holmatro Rescuer's Guide to Vehicle Safety Systems, the IC air bag inflators were located within the roof side rails between the B-and C-pillars and the side impact sensors were located within the lower B-and C-pillars. Neither the IC air bags nor the seat-mounted side impact air bags deployed in this crash.

The driver's frontal air bag was located within the steering wheel hub. The module cover was a three flap configuration constructed of pliable vinyl. The top cover flap was 12.5 cm (4.9 in) in width and 6 cm (2.4 in) in height. Each of the lower flaps was 6.5 cm (2.6 in) in width and 9.5 cm (3.7 in) in height. An inspection of the cover flaps revealed that they opened at the designated tear points and were undamaged. The right portion of the deployed frontal air bag was melted from the fire.

The driver's knee air bag was located within the lower left instrument panel and deployed through two rectangular module covers. Each module cover was 25 cm (9.8 in) in width and 4 cm (1.6 in) in height. The module cover opened at the designated tear points and was undamaged. The right portion of the deployed knee air bag was partially melted from the fire.

MANUAL RESTRAINT SYSTEM

The Lexus was equipped with lap-and-shoulder safety belts for all the seating positions. The driver's safety belt consisted of continuous loop belt webbing, an Emergency Locking Retractor (ELR), a sliding latch plate, and an adjustable upper anchor that was located in the full-up position. The front passenger safety belt was consumed in the fire. The upper anchor was in the full-up position. Both safety belts were equipped with retractor-mounted pretensioners. The driver's pretensioner actuated during the crash. The second row lap-and-shoulder safety belts consisted of continuous loop belt webbing, sliding latch plates, and fixed upper anchors. All the second row safety belt retractors were jammed from pretensioner actuation.

The inspection of the driver's safety belt assembly revealed heavy historic usage scratches on the latch plate and load abrasions on the latch plate belt guide. The D-ring was damaged from heat exposure. The safety belt webbing appeared stretched and was partially melted. The retractor was jammed with a length of belt webbing extending out of the retractor consistent with usage. The length of the belt webbing as measured from the stop button to the D-ring was 141 cm (55.5 in). This evidence indicated that the driver was restrained by the lap-and-shoulder safety belt at the time of the crash. The EDR also recorded the driver's safety belt switch status as "belted."

CASE VEHICLE DRIVER KINEMATICS

The driver of the Lexus [52-year-old male, 178 cm (70 in) and 83 kg (184 lbs)] was seated in an unknown posture. The seat track was adjusted to between the middle and rear position and the seat back was slightly reclined.

The frontal impact with the Ford displaced the driver of the Lexus forward and opposite the 12 o'clock direction of force and he loaded the safety belt. The driver loaded through the air bag

and his chest contacted the steering wheel. The driver's head contacted the windshield which was reinforced by the damaged hood of the Lexus. The contact with the steering wheel resulted in a lacerated thoracic aorta, extensive bilateral lung contusions, bilateral rib fractures, and hemothoraces of the pleural cavities. The contact with the windshield/hood caused a laceration of the brain stem, which was associated with a complex basilar skull fracture, subarachnoid hemorrhage, hemorrhage in the lateral ventricles, and a fracture of the right maxilla. The front right passenger of the Ford removed the driver from the Lexus through the right front door before the fire reached him.

CASE VEHICLE DRIVER INJURIES

The driver of the Lexus was transported from the crash scene by ambulance to a hospital. He was pronounced deceased in the hospital emergency room at 2139 hours. The table below presents the driver's injuries and injury sources.

Injury Number	Injury Description (including Aspect)	NASS Injury Code & AIS 90	Injury Source	Source Confidence	Source of Injury Data
1	Laceration, partial thickness, of pontomedullary junction of brain stem ¹	maximum 140212.6,8	Front left windshield's glazing reinforced by hood	Probable	Autopsy
2	Lacerated thoracic aorta, immediately distal to ligamentum arteriosum ²	maximum 420218.6,4	Steering wheel hub and/or spokes and rim	Certain	Autopsy
3 4	Hemorrhage in lateral ventricles (bilaterally)	moderate 140678.4,1 140678.4,2	Front left windshield's glazing reinforced by hood	Probable	Autopsy
5	Hemorrhage, subarachnoid, minimal, across right cerebral convexity	moderate 140684.3,1	Front left windshield's glazing reinforced by hood	Probable	Autopsy
6	Contusions, extensive, bilateral lungs, not further specified, with bilateral hemothoraces in pleural cavities: 200 ml right, 100 ml left	severe 441410.4,3	Steering wheel hub and/or spokes and rim	Certain	Autopsy
7	Fractured ribs: left 1 st through 7 th , right 1 st through 3 rd , not further specified	serious 450230.3,3	Steering wheel hub and/or spokes and rim	Certain	Autopsy

¹ This lesion was associated with the complex basilar skull fracture.

² The following term is defined in DORLAND'S ILLUSTRATED MEDICAL DICTIONARY as follows:
ligamenta arterio/sum: a short, thick, strong fibromuscular cord extending from the pulmonary artery to the arch of the aorta; it is the remains of the ductus arteriosus. Called also *ligament of Botallo*.

Injury Number	Injury Description (including Aspect)	NASS Injury Code & AIS 90	Injury Source	Source Confidence	Source of Injury Data
8	Fracture, complex ³ , basilar skull: involving the middle and posterior cranial fossa	severe 150206.4,8	Front left windshield's glazing reinforced by hood	Probable	Autopsy
9	Fracture with depression right maxilla, not further specified	moderate 250800.2,1	Left instrument panel	Probable	Autopsy
10 11	Fracture, palpable, left distal radius and ulna with crepitus and deformity noted	moderate 752802.2,2 753202.2,2	Left instrument panel	Probable	Autopsy
12 13	Fracture and dislocation right patella, not further specified	moderate 850806.2,1 852400.2,1	Left instrument panel	Probable	Autopsy
14 15	Abrasion and laceration, 15.2 x 15.2 cm (6 x 6 in) with dicing injuries left frontal, parietal, temporal scalp	minor 190202.1,2 190602.1,2	Front left windshield's glazing reinforced by hood	Probable	Autopsy
16	Abrasion just above right eyebrow	minor 290202.1,7	Front left windshield's glazing	Probable	Autopsy
17	Lacerations, multiple, left side of nose	minor 290602.1,4	Front left windshield's glazing	Probable	Autopsy
18	Abrasion, dicing, left upper lip and abrasions x 3, vertical, right chin	minor 290202.1,8	Front left windshield's glazing	Probable	Autopsy
19	Abrasion, 7.6 x 0.6 cm (3 x 0.25 in), transverse, submental region of chin	minor 290202.1,8	Air bag, driver's	Probable	Autopsy
20	Abrasions, series of, 15.2 x 15.2 cm (6 x 6 in), transverse epigastric and mid lower chest	minor 490202.1,4	Torso portion of safety belt system	Probable	Autopsy
21 22	Abrasions x 2 right mid back and lumbar regions	minor 690202.1,1 690202.1,8	Seat back, driver's	Probable	Autopsy
23	Abrasions x 2, left anterolateral pelvis, not further specified	minor 590202.1,2	Lap portion of safety belt system	Probable	Autopsy
24	Abrasion, 7.6 x 2.5 cm (3 x 1 in), transverse, left inguinal region	minor 590202.1,8	Steering wheel rim	Possible	Autopsy

³ There was a linear fracture through petrous portion of left temporal bone, crossing midline anterior to foramen magnum, and ending in right sphenoid wing; connecting is a semicircular fracture posterior to the foramen magnum. Bloody cerebrospinal fluid was noted.

Injury Number	Injury Description (including Aspect)	NASS Injury Code & AIS 90	Injury Source	Source Confidence	Source of Injury Data
25	Abrasions x 2, 7.6 x 0.6 cm (3 x 0.25 in) right upper lateral gluteal region	minor 890202.1,1	Interior, center console first row	Probable	Autopsy
26	Abrasions across anterior lower right leg	minor 890202.1,1	Air bag, driver's knee blocker	Certain	Autopsy
27	Contusion, 3.8 x 3.8 cm (1.5 x 1.5 in) medial right ankle	minor 890402.1,1	Floor, foot controls	Probable	Autopsy

OTHER VEHICLE

The 2003 Ford E-350 Econoline was a rear wheel drive, 3-door, van (unknown VIN) and was configured as a correctional institution transport vehicle. It was equipped with an automatic transmission, four wheel anti-lock brakes, and redesigned driver and front right passenger frontal air bags.

Exterior Damage: The Ford sustained front plane damage (**Figure 15**) during the impact with the Lexus. The direct damage began on the front left bumper corner and involved approximately 55% of the front bumper. A fire started in the front of the vehicle immediately following the crash and involved the whole vehicle (**Figure 16**).



Figure 15: Police photo of the front plane damage on the Ford from the impact with the Lexus



Figure 16: Police photo of the left side of the Ford showing the extent of damage from the fire

Damage Classification: The CDC for the Ford was 12 FYEW5, which was based on the police photographs. The Damage with CDC Only algorithm of the WinSMASH program calculated the Ford's total Delta V as 52 km/h (32.3 mph). The longitudinal and lateral velocity changes were -51.2 km/h (-31.8 mph) and -9.0 km/h (-5.6 mph), respectively. Based on the damage on both vehicles, the results appeared reasonable.

Ford's Occupants: The police crash report indicated that the Ford's driver (58-year-old male) and front right passenger (24-year-old male) were restrained by their lap-and-shoulder safety belts.

Other Vehicle (Continued)

IN10011

The second row center passenger (46-year-old male) was not restrained. The driver and front right passenger sustained B (non-incapacitating) injuries and were transported by ambulance to a hospital. The second row center passenger sustained fatal injuries and was pronounced deceased at the crash scene.

