

## THE BEST-SELLING DEFECT IN AMERICA: THE FORD F-150 SUPERCAB

### I. Tragedy in Texas

On July 26, 2001 four friends were returning from a celebration when tragedy struck. The group was traveling in a 2000 Ford F-150 SuperCab pickup. The F-150 was driven by Paul Alaniz, who was a football coach at a local high school. Seated behind coach Alaniz on the driver's side of the vehicle was Laura Benavides. The group was returning from Kingsville, Texas on their way to Benavides, Texas to celebrate the new coaching job of one of the occupants. When they were almost home, they entered a curve near the town of San Jose, and one of the tires of the F-150 dropped off the shoulder of the road. Coach Alaniz brought the vehicle back onto the road but then lost control. The vehicle skidded across the roadway and began a passenger-side leading roll on the soft shoulder on the opposite side of the road. The truck rolled a total of 3 times and landed on all four wheels. In the course of the rollover, the doors on the driver's side opened, and both Coach Alaniz and Laura Benavides were ejected and killed. During the event, the doors on the passenger side stayed closed, and the occupants seated on that side of the vehicle remained inside the cab of the truck. They walked away from the accident unhurt. The evidence at trial demonstrated that there were 134 similar incidents involving the ejection of occupants in fatal F-150 SuperCab accidents.<sup>1</sup>

### II. The Doors Opened Because the B-Pillar Was Removed

In 1999, Ford produced the F-150 four-door SuperCab pickup for the first time. The distinguishing feature of the four-door SuperCab is two full doors and two half doors on both sides of the vehicle. The smaller half door is rear-hinged so the doors on each side open toward the middle like "barn doors." Such doors have been historically referred to as "suicide doors." This vehicle does not have a center support, or B-pillar, between the front and back seats. This is a convenience feature that allows easy access to the SuperCab portion of the truck. The four-door SuperCab design can be contrasted with the "Crew Cab" pickup that has two full-size doors on each side of the cab and a B-pillar in the middle of the cab.

In the Alaniz case, the lack of B-Pillar support allowed the roof to collapse in the middle. The downward force from the collapsing roof caused a failure of two door latches on the driver's side. After the latches failed, the doors opened, and a large ejection portal was created. In deposition testimony, Ford admitted that two of the door latches actually "failed" in this accident.<sup>2</sup>

This failure mode can be distinguished from the typical roof-crush defect or door-latch defect. The typical roof-crush case usually involves severe head/neck injuries or death from occupant compartment intrusion. The occupants are often belted and not ejected. The typical door latch case involves actuation/opening of the latching mechanism, oftentimes due to the use of a rod versus a cable in the door, which allows the door to open when the rod is foreshortened in an accident. This particular F-150 SuperCab defect is a hybrid—the roof does crush, but crush is not the precipitating event that causes injury or death; rather, it is the event that overloads the door latches, and allows the doors to open. The reason this occurs is due to the fact that the roof lacks a center support to protect the occupant compartment in a rollover.

This defect will claim more lives. In 2002 alone, Ford sold approximately 900,000 F-series pickups.<sup>3</sup>

The Alaniz case resulted in a substantial plaintiffs' verdict.

### III. Ford Resurrected a Bad Design

This was not the first time Ford designed a vehicle without a B-pillar. Older model Lincoln Continentals were designed with "suicide doors" that opened toward the middle, just like the doors found in the F-150 four-door SuperCab. This Lincoln and many others in its class were known as "hardtops."<sup>4</sup> Other examples of hardtops include the Ford Fairlane, Mercury, and 1960's vintage Mustangs. Hardtops were vehicles that completely lacked a B-pillar or possessed a "B-post." The B-post was a short-stub pillar that was attached near the top of the door but did not connect with the roof. Thus, it did not serve to support the roof. Historical data pertaining to hardtop vehicles indicates that "open doors" were the major cause of ejection during rollover.<sup>5</sup>

Ford has admitted that they stopped manufacturing hardtop vehicles because they could not pass Federal Motor Vehicle Safety Standard (FMVSS) 216 due to excessive roof crush, and they were more prone to roof crush in a rollover.<sup>6</sup> When these vehicles rolled, the results were often dramatic with the entire roof crushing all the way to the beltline (top of the door) of the vehicle. Fortunately, these vehicles did not have a significant rollover rate due to a relatively low center of gravity.<sup>7</sup> Unfortunately, Ford brought this bad design back and gave it life in a vehicle with a much higher center of gravity, the F-150 pickup truck.

### IV. Ford's Testing Proves the Defect

In Alaniz, the defense experts from Exponent were hired by Ford to conduct a dolly rollover test.<sup>8</sup> This test involved placing the pickup on a dolly, moving the dolly at a certain speed, and then abruptly stopping the dolly so the vehicle dropped and rolled. This test was apparently performed to demonstrate the severity of the rollover accident; however, this test backfired when the driver's doors opened during the roll sequence. Larry Ragan, Ford's expert on roof crush, has admitted that the doors opened during the rollover.<sup>9</sup>

Q. Is it your understanding that it became unlatched during the rollover sequence?

A. I think that it probably did, yes. It's my judgment from what I see, and I understood that it was unlatched, found unlatched at the point of rest.

Q. So it is your belief and understanding that during the rollover test that was conducted by Ford, that the driver's door did come unlatched?

A. Yes.

Q. And that is in fact the position that you found the door in when you inspected it?

A. Yes.

Ford attempted to explain this failure by arguing that the doors opened at the end of the roll sequence, but a frame-by-frame examination of the videotape demonstrates that the latches failed, and the doors opened, early in the rollover.<sup>10</sup> In addition, the driver dummy was partially ejected through the portal that was created when the door opened, even though he was belted. A post-test examination revealed significant head damage to the dummy from the ejection, which would have resulted in death or serious injury to a real person in a real-world accident.

Another noteworthy aspect of this test includes the fact that the roof experienced at least 13 inches of crush (5 inches of crush is acceptable in a FMVSS 216 roof crush test). Ford's expert, Tom Tiede admitted that the roof crushed all the way to the steering wheel, and he bluntly characterized this roof crush as "nasty."<sup>11</sup>

Testing performed in other cases can be used to demonstrate the difference in cabin integrity when the pickup is designed with a B-Pillar. Some such tests include:

-1993 General Motors pickup<sup>12</sup>

-1993 Dodge pickup<sup>13</sup>

-1993 Ford pickup<sup>14</sup>

-1966 Ford Bronco<sup>15</sup>

-1967 Ford F-100<sup>16</sup>

In all of these tests, many of which were performed by automotive company experts, the trucks possessed a B-pillar, and the doors stayed closed—even though these vehicles often experienced more rolls than the Alaniz accident.

These tests were used as evidence in the Alaniz case because Ford has not conducted pre-production rollover tests for many years. The only dynamic rollover test ever conducted on the F-150 four-door SuperCab (the dolly rollover test) was for purposes of the Alaniz case, and its purpose was to defend Ford.

The standard excuse given for failing to conduct rollover tests is that they are allegedly not repeatable. This answer is nonsensical since Volvo conducts rollover tests for design purposes, and Volvo is a wholly owned subsidiary of Ford Motor Company. In the Alaniz trial, a promotional video of the Volvo rollover test was used for purposes of impeachment.<sup>17</sup> This video demonstrates a dynamic rollover and a drop test. In both tests, the roof maintains its integrity, and the doors remain closed.

#### V. Ford's Marketing of the F-150

Ford spends large sums of money to market the F-Series pickup, which has been the best-selling pickup in America for the last 20 years. In fact, they spend approximately \$80 to 100 million per year on advertising media for the F-Series alone.<sup>18</sup> The key to its marketing strategy is the "Built Ford Tough" image. As to the F-150 four-door SuperCab, one of the biggest selling points for this type of vehicle is the standard fourth door, and the marketing literature is replete with representations about this design.<sup>19</sup> While they tout the toughness of the vehicle, there is no communication between marketing and engineering to educate the people who sell the trucks about any defects that may exist that affect "toughness."<sup>20</sup> When Ford received a favorable rating in a NHTSA test, this information was communicated to the marketing division, and it was used as a selling point.<sup>21</sup> However, when this same vehicle received a poor rating and was ranked worst in its class in a Insurance Institute of Highway Safety crash test, this information was not divulged by Ford.<sup>22</sup>

#### VI. Defensive Issues

##### Governmental standards

In any automotive product liability case, you will be confronted with the governmental standards defense. In a case involving the F-150 SuperCab, the argument will be made that the vehicle complied with standards pertaining to door latches and roof strength. In this regard, it is important to note that these are merely minimum standards, and these standards do not measure what occurs in a real accident.

As to latch testing, Federal Motor Vehicle Safety Standard 206 applies. This test involves the slow and deliberate application of force to the latch. The test itself can last two minutes or more.<sup>23</sup> In a real-world accident, force is applied to the latch in a matter of milliseconds. Thus, the force involved in a real accident may be applied a thousand times faster than the FMVSS test. The latch test is performed in a laboratory. There are no doors, roof, or pillars involved. In other words, the latch is tested in a vacuum without the vehicle structure. In Alaniz, the failure occurred when downward force was applied to the latches. Ford has admitted that there is no downward force applied in a 206 test.<sup>24</sup> FMVSS 216 is the roof standard. FMVSS 216 testing is also a poor measure of roof performance. In this test, a steel platen is pushed against the roof. The steel platen is slowly forced against the roof in the area of the A-pillar. Again, this test lasts minutes, and force is applied in a deliberate manner. In a real accident, force is applied in a fraction of this time. Regarding admissions, Ford has admitted that this is not a test to determine latch performance since a 216 test cannot fail the latch.<sup>25</sup> Per Ford guidelines, the steel platen is pushed against the roof at the front of the vehicle near the A-pillar and the rear of the roof (usually near the C-pillar). Ford does not conduct a roof test that applies force directly over the B-pillar area.<sup>26</sup>

Even though this vehicle meets the FMVSS standards, a laundry list of defective products, which also met the standards and are known to kill people, can be used to impeach the witness on this point.

#### Severity of the accident

This is a defensive favorite in any crashworthiness case. It can be addressed with expert testimony that the particular accident was average in trip speed and number of rolls. An experienced product expert in the area of design, biomechanics, and accident reconstruction is critical in this regard. When it comes to door openings, some corporate representatives and defense experts will be forced to admit that regardless of the severity of the test, the doors on a vehicle should stay closed, and a test that results in a door opening should be considered a failure. If they refuse to admit this relatively commonsense idea it is an opening to attack them on the basis of bias. Additionally, this issue should be addressed with the investigating officer who may offer an opinion about the survivability of the accident absent door latch failure.

The defense will attempt to increase both trip speed and number of rolls. Also, it will try to increase the drop height of the vehicle. The defense may attempt to prove this point through “ramping” if they can find any type of incline near the trip point.

#### Seat belts

The seat belt defense will be utilized in jurisdictions where such evidence is allowed and unbelted occupants are ejected. In this argument, the use of a seat belt cures all automotive defects. In the Alaniz case, none of the occupants were restrained; however, those who remained in the vehicle only suffered minor injuries. The two occupants that were ejected were killed. Ford documents provide key admissions about design concepts in this regard. These documents confirm that persons who stay in the vehicle have an excellent chance of suffering only a minor injury—regardless of belt use.<sup>27</sup> Ford determined in 1974 that 6000 lives could be saved if occupants were contained in vehicles during rollover accidents.<sup>28</sup> Additionally, documents indicate that an occupant is 70 times more likely to be ejected if a door opens during an accident.<sup>29</sup> The dolly

rollover test can be used to rebut this defense as well, since the belted dummy was partially ejected and sustained major head damage.

#### VII. Alternative Safer Designs

There are a number of alternative designs that can be discussed in the context of a F-150 SuperCab case. As to the roof, these designs include the use of a B-pillar (as it is used in the Crew Cab version), a roll bar to re-enforce the roof, and structural foam in the pillars. This type of foam reinforcement is used in the Lincoln Navigator.<sup>30</sup> Ford also used glue, instead of welds, to secure some of the roof components. Obviously, this glue provides poor structural integrity. Additionally, Ford documents demonstrate that they made the decision to change the steel in the roof structure reinforcement from Boron steel to lower strength cold-rolled steel. The higher strength Boron steel is utilized by Ford's subsidiary, Volvo, for structural integrity. Cold-rolled steel is cheaper than Boron steel, and its use saves money.

To strengthen the door, it can be reinforced with structural welds, as opposed to glue, and should incorporate a steel side-door beam.

The latches are primarily made of plastic. When force is applied, plastic tends to break. A steel latch, similar to the "corporate latch" that was used by Ford in older models, would provide additional strength, since it can absorb more energy than its plastic counterpart. Additionally, the latch should be guarded by location within the door so it is less susceptible to force loads.

#### VIII. Conclusion

The Alaniz case demonstrates the defective nature of the F-150. The F-150 four-door SuperCab is defective because the vehicle lacks a B-pillar to support the roof in the area, directly above the door latches. When the vehicle experiences roof crush in this area the door latches are prone to failure, which allows the doors to open. This opening provides a massive portal for ejection. When ejection occurs, death or serious bodily injury is likely to result. Ford has failed to adequately test this truck before selling hundreds of thousands of the vehicles to the unsuspecting public. Their excuses for failing to perform adequate testing are wholly without merit. Since this is the best-selling pickup in America, needless deaths will continue to occur until the vehicle is redesigned.

#### Endnotes

1Rates of ejection of occupants in fatal accidents; occupants seated next to side doors of Model Year 1999-2002 Ford SuperCab pickups; Fatal Accident Reporting System years 1998-2001.

2Page 31 of deposition of Dennis Schafer taken Aug. 27, 2002 in Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

3Page 29 of deposition of Drew Cook taken Nov. 4, 2002 in Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

4R.C. Dodt, Accident Reviews: Rollovers, IMPACT DYNAMICS DEP'T, AUTOMOTIVE SAFETY RESEARCH OFFICE, FORD MOTOR CO., ENGINEERING STAFF, dated Nov. 30, 1967.

5Id.

6Id. at pp. 64, 67, and 68.

7Id. at pp. 76 and 77.

8Exponent Failure Analysis of Dolly Rollover Crash Test of 2000 Ford F-150 XLT 7700 (44.9 mph) Oct. 18, 2002; Plaintiffs' Exhibit 415 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

9Page 50 of deposition of Larry F. Ragan taken Nov. 6, 2002 in Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

10Videotape of Dolly Rollover Crash Test—2000 Ford F-150 XLT 7700 (44.9 mph) Oct. 18, 2002; Plaintiffs' Exhibit 167 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

11Pages 122 and 123 of deposition of Thomas O. Tiede taken Nov. 1, 2002 in Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

12Videotape by Exponent of TEC6802 and PH06802 of 1993 Chevrolet Silverado 4WD Pickup dated Aug. 7, 2001; Defendants' Exhibit 47 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

13Videotape of 1993 Dodge Ram 4WD Pickup Crash Test dated Aug. 2, 2001; Defendants' Exhibit 48 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

14Videotape by Exponent of 1993 Ford F-350 4WD Pickup dated Aug. 9, 2001; Defendants' Exhibit 47 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

15Videotape of 1966 Ford Bronco 55 mph Rollover #619 dated May 18, 1967; Plaintiffs' Exhibit 404 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

16Videotape of 1967 Ford F-100 52.7 mph Rollover #755 dated Nov. 13, 1967; Plaintiffs' Exhibit 405 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

17Videotape of Volvo KC90 "The Next Generation SUV, Volvo for Life;" edited version marked as Plaintiffs' Exhibit 433 in Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

18Page 80 and page 81, line 6 of deposition of Drew Cook taken Nov. 4, 2002 in Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

19Pages 58-63 of deposition of Thomas F. Patterson taken Aug. 30, 2002 in Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

20Page 70 of deposition of Drew Cook taken Nov. 4, 2002 in Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

21Id. at p. 71.

22Id. at p. 73.

23Page 107 of deposition of Dennis Schafer taken Aug. 27, 2002 in Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

24Id. at p. 119.

25Page 115 of deposition of Alfred Darold taken Sept. 26, 2002 in Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

26Id. at pp. 30 and 31.

27ESV Rollover Test Methods by C. R. Ennos, Manager, Body Research Engineering Research, Ford Motor Co. Limited, dated Oct. 22, 1971; Plaintiffs' Exhibit 49 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

28Ford Motor Co. Interoffice Memorandum from John Versace regarding "Side Impact Occupant Ejection Statistics" dated March 29, 1974; Plaintiffs' Exhibit 54 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

29Ford Motor Co. Study; Plaintiffs' Exhibit 340 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

30Patrick Ponticel, Lincoln Navigator—New Vehicle Technology Highlights, AEI Mag. (Oct. 2002); Plaintiffs' Exhibit 342 in trial of Benavides et al. v. Ford Motor Co. et al., Cause No. DC-01-195 (229th Jud. Dist. Ct., Duval County, Tex.).

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