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TRIAL



**Transportation
Litigation**
Steering Cases Successfully

**Preparing the Utility
Vehicle Rollover Case**
R. Ben Hogan, III,
and James R. Pratt, III

Preparing the Utility Vehicle Rollover Case

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Nick Marinelli was driving his 1973 Volkswagen (VW) Thing convertible on a narrow road in Hoover, Alabama, on March 18, 1989. He was talking to his two passengers, his sister Susan and her boyfriend, Bryan Madonia. The Thing, a Jeep-type vehicle without a roll bar, had been manufactured in Mexico and imported by VW during the early 1970s. It had a high center of gravity and a narrow track width (the distance side to side between tires).

An animal ran in front of the Thing. Nick made a sudden maneuver to dodge it, and the vehicle skidded sideways. Instead of coming to a safe stop, it rolled over, spilling the three occupants and killing Bryan and Susan. Nick was thrown clear and escaped serious injury. The subsequent utility vehicle rollover case against VW resulted in a jury verdict for the Marinelli and Madonia parents.¹ Nick was a witness but not a party.

Cases alleging lack of crashworthy design have traditionally focused on missing or poorly designed roll bars or inadequate passenger restraints or door latches. This article discusses how the instability defect can be incorporated into a "lack of crashworthiness" theme.

Crashworthiness

In 1968, the Eighth Circuit adopted what has become known as the crashworthiness doctrine in *Larsen v. General Motors Corp.*² The doctrine imposed on

manufacturers a reasonable duty of care to design vehicles to minimize the effect of collisions. The doctrine lay relatively dormant until the Pinto gas tank cases of the early 1970s, when it began gaining wider acceptance.

The crashworthiness doctrine has now been recognized in automobile design cases in most states.³ It has been applied to other vehicles, including airplanes, motorcycles, and snowmobiles.⁴ Crashworthiness has also been applied in utility vehicle cases that center on the lack of adequate roof structure, roll bar, or other components designed to preserve structural integrity during a rollover.

The doctrine has not been applied in utility vehicle rollover cases to allegations of instability defects or claims of roll-over-propensity problems. The theme of these cases is that when a vehicle's design, suspension system, and tires cause it to overturn rather than skid to a safe stop on a flat surface during foreseeable emergency driving, the vehicle is dynamically unstable.

In *Volkswagen of America, Inc. v. Marinelli & Madonia*, Volkswagen argued that the crashworthiness doctrine did not apply in this case because the injuries were caused by the rollover and the rollover was the initial event. Crashworthiness involves a "second collision" between the occupant and the interior of the vehicle.⁵

The Supreme Court of Alabama disposed of this argument as having "no basis in logic or fact." The court compared *Marinelli* to *General Motors v. Edwards*,⁶ the Chevette fuel-fed fire case that established the crashworthiness doctrine in Alabama.

In *Edwards*, the plaintiffs argued that a speeding driver caused a collision when he rear-ended the plaintiffs' vehicle, but that the collision did not cause the deaths of the plaintiffs' children. Instead, the deaths were caused by General Motors's failure to design a fuel system that would not erupt in fire in a foreseeable rear-end collision.

In *Marinelli*, the driver's reaction to an animal darting in front of his vehicle also caused an "accident"—the vehicle skidding sideways to its path of travel. But as in *Edwards*, the plaintiffs claimed that this would not have resulted in any deaths if the vehicle had been properly designed. The instability defect made it overturn rather than skid to a stop.

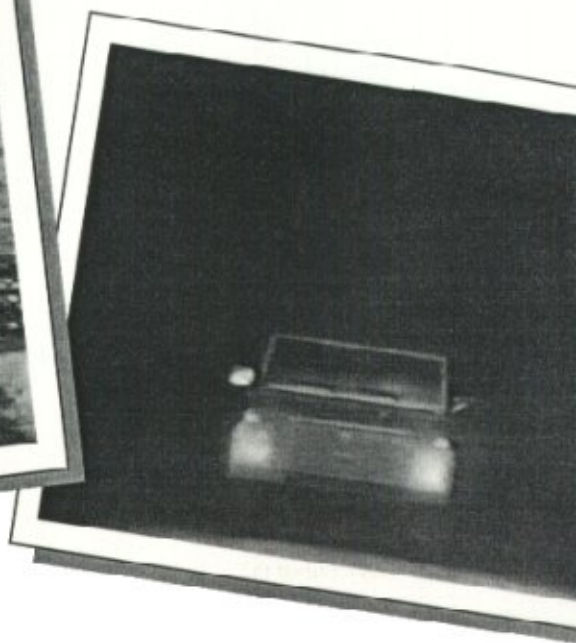
The court noted, "Both cases focus on the capacity of the automobile to respond to a foreseeable hazardous situation without causing or enhancing injury." Thus, separating the driver's steering and braking decisions from the vehicle's emergency performance enabled us to apply the crashworthiness theory.

Preparing for Trial

Work with jury focus and mock trial groups has revealed tips for presenting vehicle rollover cases effectively. Many of these also apply to products liability cases in general.

- *The order of presentation is important.* Most jurors blame an auto collision on the driver. Before hearing the parties' arguments, a focus group that is asked to list 10 reasons why a rollover might occur will typically list reasons related to driver mistakes. Only after vehicle defects have been explained will perceptions change.

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witness Dr. Michael Kaplan of Denver adjusted the HVOSM program used by VW's expert to drop the center of gravity of the Volkswagen Thing and create a stability ratio of 1.2. (The stability ratio can be obtained by dividing a vehicle's track width by twice the height of the center of gravity, which can be represented by the equation $SR=T/2H$.)

The simulation then showed the VW skidding to a stop rather than turning over. The jurors watched this happen on videotape and could see that the rollover could have been avoided with a safe vehicle design.

The Supreme Court of Alabama, in the affirming opinion, commented,

The plaintiffs presented a strong case that the design of the vehicle caused the rollover in this case. The jury saw two 'highway vehicle object simulations' (HVOSM) computer simulations of the accident. The first, offered by Volkswagen's expert, Ray McHenry, replicated the accident based on the dimensions of the Volkswagen Thing and on measurements taken from the accident scene. The second HVOSM simulation was offered through rebuttal testimony of Dr. Michael Kaplan, an expert testifying for the plaintiffs. This simulation showed that the rollover would not have occurred if the vehicle had had a stability ratio of 1.2;

that ratio could have been obtained by lowering the center of gravity of the vehicle one inch.⁹

• *Statistical evidence has an important role.* Mock trial work has shown that jurors want to know if this product has caused other injuries and if there is a similar product that is safer. Often injury statistics can answer both questions.

In *Marinelli*, Dr. Leon Robertson presented data from the Fatal Accident Reporting System (FARS), established by the federal government in 1975, to show that any utility vehicle with a stability ratio of less than 1.2 had a significantly higher rollover death rate.¹⁰

Robertson contrasted the stability ratio and rollover death rates of the VW Thing to that of the Jeep Cherokee, a safer vehicle. He concluded that many rollover deaths in the Thing were directly related to its defectively low stability ratio.

The Supreme Court of Alabama affirmed the trial court's decision to allow Robertson's testimony.

One of the primary issues before the jury was whether an automobile manufacturer can predict the propensity of a vehicle to roll over, based upon the relationship between its track width and the height of its center of gravity. Dr. Robertson's testimony centered on the stability ratio of the Volkswagen

Thing. . . . Although Volkswagen criticizes Dr. Robertson's testimony as unreliable, the plaintiffs offered numerous scientific articles and government studies utilizing the same methodology or a similar one and the same data or data similar to those utilized by Dr. Robertson. . . . We conclude that the trial court did not err in allowing this testimony, because the evidence presented by the plaintiffs indicates it was sufficiently reliable.¹¹

• *Biomechanical evaluation may be necessary to prove causation.* The expert who reconstructs the accident has a different task from the expert who determines occupant kinematics (the movement of the occupants within the vehicle and injury causation). Although these two aspects of the case are independent to a degree, a biomechanical engineer may help confirm the accident reconstruction by explaining how the plaintiff's injuries occurred.

In rollover propensity cases, defendants typically reconstruct the accident in such a way that the vehicle "trips," instead of addressing the stability of the vehicle. Even stable vehicles can be tripped into rollover—for example, when they strike a curb. Often the defense reconstruction shows the vehicle rolling in a different manner than the plaintiff's reconstruction does.

In *Marinelli*, VW's reconstructionist had the vehicle travel off the paved surface. Then as it returned to the road, VW's expert said, it tripped on the edge of the roadway and rolled toward the driver's side. Our reconstructionist testified that the vehicle had rolled with its passenger side leading. This difference was important because if the plaintiffs' reconstruction was correct, VW could not explain why the vehicle rolled. VW could not justify a low-speed roll on a relatively dry, flat surface.

Since this issue was so important, we asked our biomechanical engineer to determine whether the victims could have sustained their fatal injuries if the vehicle had rolled the way Volkswagen proposed. He demonstrated that the injury patterns and the locations of the victims' bodies were not possible under Volkswagen's scenario. This returned the trial's focus to the vehicle's propensity to roll.

Our experience suggests that plaintiffs should consider using a biomechanical engineer not only to prove injury causation but also to confirm the accident reconstruction.

The Theme

Crashworthiness law focuses on what defect created the injury—not on what caused the "accident."¹² Our trial tactic in *Marinelli* was to focus on the defects that caused the two deaths. Our case theme was that instability defects had turned foreseeable emergency maneuvers into a rollover. In much the same way, a defectively designed gasoline tank might turn a foreseeable rear-end collision from a fender-bender into a fiery death trap.

The defense attorney in any rollover case will typically concentrate on driver

mistakes, second-guessing the driver's instinctive reactions to the emergency situation. But if plaintiff's computer simulation evidence demonstrates that the maneuver would not have resulted in a rollover if the vehicle had a stable design, none of the driver's alleged mistakes matters.

The Supreme Court of Alabama in *Marinelli* accepted our analogy to the gas-tank case and rejected VW's argument that rollover cases should be treated differently.

It is clear that the strength of the computer simulation proof enabled the jury to find, and the Supreme Court of Alabama to affirm, that driver error could be separated out from vehicle rollover. Any plaintiff's counsel handling a rollover case should strongly consider investing necessary time and funds to obtain data on vehicle dimension and performance through discovery. Counsel should then retain knowledgeable experts who can input that data into a computer simulation program to graphically depict for the jurors how the vehicle rollover occurred.

The theme of the trial of the *Marinelli* case was that because the vehicle involved was too top-heavy to skid to a safe stop, the driver's foreseeable emergency maneuver led to a rollover that could otherwise have been avoided. Similar cases are more likely to succeed in conjunction with effective computer simulation technology that enables counsel to use a crashworthiness theme to full advantage. □

Notes

¹ Volkswagen of America, Inc. v. Marinelli & Madonia, No. 1911644 and No. 1911645, 1993 WL 325225 (Ala. Aug. 27, 1993). See

also R. Ben Hogan, III, *Utility Vehicle Rollover Cases: Understanding the Defect*, TRIAL, June 1992, at 52.

² 391 F.2d 495 (8th Cir. 1968).

³ See generally Jeffrey F. Ghent, Annotation, *Liability of Manufacturer, Seller or Distributor of Motor Vehicles for Defect Which Merely Enhances Injury from Accident Otherwise Caused*, 42 A.L.R. 3d 560 (1972); James O. Pearson, Jr., Annotation, *Products Liability: Sufficiency of Proof of Injuries Resulting from "Second Collision,"* 9 A.L.R. 4th 494 (1981).

⁴ See Gerald F. Tietz et al., *Crashworthiness and Eric: Determining State Law Regarding the Burden of Proving and Apportioning Damages*, 62 TEMPLE L. REV. 587, 594-95 (1989).

⁵ See Michael Hoening, *Resolution of "Crashworthiness" Design Claims*, 55 ST. JOHN'S L. REV. 633 (1981); Barry Levinson & Darryl J. Lapp, *Plaintiff's Burden of Proving Enhanced Injury in Crashworthiness Cases: A Clash Worthy of Analysis*, 38 JOURNAL OF PAUL L. REV. 55 (1989); Kelly Carberta-Scandy, *Litigation of Enhanced Injury Cases: Complex Issues, Empty Precedents and Unpredictable Results*, 54 U. CIN. L. REV. 1257 (1986).

⁶ 482 So. 2d 1176 (Ala. 1985).

⁷ *Marinelli*, Nos. 1911644 and 1911645, slip op. at 15.


⁸ Automatic Dynamic Analysis of Mechanical Systems (ADAMS), from Mechanical Dynamics, Inc., 2301 Commonwealth, Ann Arbor, MI 48105, tel. (313) 994-3800; Highway Vehicle Object Simulation Model (HVO5M), from McHenry Assoc., Cary, NC, tel. (919) 469-3310; Light Vehicle Dynamic Simulation (LVDS) and Advanced Dynamic Vehicle Simulation (ADVS), approved by the Society of Automotive Engineers, from Vehicle Dynamics Int'l, 2600 Forum Blvd., St. C, Columbia, MO 65203, tel. (314) 446-7010; and Vehicle Dynamics Analysis Non-Linear (VDANL), used by the National Highway Traffic Safety Administration, from Systems Technology, Inc., 13766 S. Hawthorne Blvd., Hawthorne, CA 90250, tel. (310) 379-2281.

⁹ See *Marinelli*, Nos. 1911644 and 1911645, slip op. at 16, n.16.

¹⁰ *Id.* at 17-18.

¹¹ *Id.*

¹² See James L. Gilbert, *Anatomy of a Rollover*, in CRASHWORTHINESS 147 (A. Holloway & C. Griffiths, eds., ATLA Press 1989).

628  378