

# CRASHWORTHINESS CASES

## Is Your Auto Case Really A Crashworthiness Case?

### Don't Miss the Main Defendant in Your Auto Accident Case

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- ⊃ *An uncle driving his nephew to a movie was struck head on by a driver coming the other way that hydroplaned and crossed the road. The young boy in the rear seat was paralyzed. The family's lawyer knew to look beyond the insurance on the opposing vehicle, and to screen the case for potential product liability issues.*
- ⊃ *A young man driving his vehicle waiting in traffic was rear ended, his seatback collapsed, projecting him into the rear seat where he became a quadriplegic. His lawyer knew to look beyond the insurance coverage, and to screen the case for potential product liability issues.*
- ⊃ *A family driving to visit grandparents was rear ended by a tractor trailer. The vehicle burst into flames killing everyone in the vehicle. The family's lawyers knew to look beyond insurance coverage, and to screen the case for potential products liability issues.*
- ⊃ *A gentleman driving his pickup truck swerved to miss an animal on the roadway, the truck rolled over in the middle of the roadway and the roof crushed down on his head and spine rendering him a quadriplegic. His lawyer knew to look beyond the family's own insurance, and to screen the case for potential products liability issues.*

**In each of these cases, the families were fortunate enough to come to attorneys who knew that it is imperative to screen every catastrophic injury case for products liability issues. In each, the primary defendant was identified as a result.**

**The Duty to Screen.** This is not just an extra service you provide to your clients – this is what the law requires. We all understand our duty as lawyers to identify all potential defendants and claims. This includes manufacturers of products that may have contributed to your client's injury. See the appendix attached.

**Every Catastrophic Injury Auto Wreck Case Should Be Screened for Product Liability Issues.** You can do the screening, using guides like this, or there are many experienced product liability attorneys who will screen your cases for free. If you screen every case involving death, paralysis, or severe head injury, chances are most will not present product liability issues. In that case, the screening process will result in a memo or letter in your file showing that you addressed the issue. In some cases, however, this screening process will identify the leading defendants, a physically remote but responsible cause of your client's loss.

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**Not Just Car Wreck Cases.** This paper is intended to assist in screening auto accident cases for product issues. However, other types of catastrophic injury cases should also be screened for products issues. For example:

- ⊘ **Work Place Injuries.** Often result in incomplete compensation, due to the worker's compensation system. However, where work place machinery is involved, a product liability suit is often possible, and is often your client's only hope for recovering full and fair damages. Even where the negligence of a co-worker is a cause of the injury, a product may be a cause as well.
- ⊘ **Home Injuries.** Can also be product related. A recent electrocution case involving the death of a father and son was found to involve a product that lacked an important safety feature that could have prevented this tragedy. Another recent case involved an injury due to a dangerous toy. Actions of this nature not only provide your client a chance of more complete recovery of damages, they also motivate manufacturers to produce safer products in the future.

**Clues.** While all catastrophic injury auto accident cases should be screened for potential product liability issues, certain situations particularly call out for further inquiry:

- ⊘ **Minor and Severe Injuries in the Same Accident.** When different people involved in the same accident receive very different injuries, with only some severely injured, it is important to take a closer look and determine why. Did one occupant seatbelt not lock promptly? In a rollover, did the roof fail over one occupant's head? Did the occupant seatback collapse? The cause may, or may not, be due to a product failure.
- ⊘ **Was a Belted Occupant Severely Hurt in a Situation Where Crash Testing Shows the Accident to Be Survivable Without Catastrophic Injury?** Like comparing to other occupants, comparing what happened to an accident victim to what happened to crash test dummies in a similar impact may show that something went wrong in the accident.
- ⊘ **Was Someone Hurt Doing Everything Right?** Was your client belted but hurt anyway? Did your client in his SUV simply steer to avoid an obstacle but rolled over? This may provide a clue to a vehicle problem contributing to injury.
- ⊘ **Did Something Break or Not Operate as Expected?** Did the airbag fail to go off in a serious impact, or did it go off in a minor impact causing more harm than if it had not deployed? Is a belt or seat part broken? Did the roof crush into the occupant survival space? Did the seatback lay down flat? Did a tire fail? In many meritorious product cases, there is no visually obvious failure, but if there is one, that component certainly requires a closer look.

- 3 **Did Someone End Up Where They Should Not Have Been?** Was a belted occupant ejected? Did a belted occupant strike an interior component that should have been out of reach if the belt worked correctly? Did a front seat occupant end up in the back seat, due to seatback failure?

**Crashworthiness – How Your Car Should Protect You.** One kind of auto product liability case arises when a vehicle fails to provide reasonable crash protection. In a crashworthiness case, there is almost always some person at fault for the accident – perhaps even your client. However, since the 1960's, the courts have recognized the duty of auto makers to provide reasonable crash protection even where someone else causes the accident.<sup>2</sup>

Crashworthiness cases involve the allegation that a defendant manufacturer failed to take precautions to reduce the likelihood of injuries resulting from a foreseeable collision. This type of liability has been variously referred to as "*crashworthiness*," "*enhanced injury*," and "*second impact or collision*." The vehicle is defective if it is designed or manufactured in such a way that the injuries the occupant sustained in a collision are greater than injuries one would normally expect in that type of collision.

Legally, crashworthiness was first recognized in Pennsylvania in Kupetz v. Deere & Co., Inc., 644 A.2d 1213 (Pa. Super. 1994.) The court recognized that recovery is allowed against the manufacturer for any injuries attributable to a product defect over and above those injuries caused by the initial or first collision. This is true even though the injury causing defect was not the cause of the initial collision or accident.

Crashworthiness requires protection from the potentially injurious forces created in an impact. Typically, safe designs seek to distribute the accident forces over time and distance, and by directing those forces away from the more vulnerable parts of the body like the central nervous system and toward "harder targets" such as the clavicle and pelvis. Auto makers should build crashworthiness into their design using the following long-recognized techniques. Defects often result from a decision to forego a design that would accomplish one of these well established occupant protection goals.

**1. Minimize Intrusion.** Occupant survival space should be maintained by keeping the car structure out of the vehicle interior. Crush zones are used at the front and rear of the vehicle to absorb impact forces, but substantial crush should end where the occupant compartment begins. Roofs should be strong enough to not collapse in highway speed rollover accidents.

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<sup>2</sup> The crashworthiness doctrine was first recognized in *Larsen v. General Motors Corp.*, 391 F.2d 495 (8<sup>th</sup> Cir. 1968). Since then, it has been adopted by nearly every state; including Pennsylvania. *Kupetz v. Deere & Company, Inc.*, 435 Pa. Super. 16, 644 A.2d 1213 (1994); *Stecher v. Ford Motor Company*, 571 Pa. 312, 812 A.2d 553 (2002)

**2. Effective Restraint System.** The seatbelt should fit right and engage promptly. An occupant must be firmly restrained to benefit from the “ride-down” the crush zones provide. In a rollover, good restraint is necessary to keep the occupant from loading into the roof or going out the window.

**3. Prevention of Ejection.** People ejected in accidents are much more likely to be hurt or killed. Good seatbelts are a necessary start. Door latches should stay latched. Retentive glazing or side curtain airbags can also prevent complete or partial ejection.

**4. "Friendly Interiors."** Even with good restraint, occupants can contact parts of the vehicle interior. Hard surfaces should be padded, and steering columns should collapse to absorb accident forces. Of course, a well designed airbag can provide the ultimate friendly interior.

**5. Fuel System Integrity.** An occupant should not survive a crash only to perish in the subsequent fire. With good design of the entire fuel system including fuel tank location, fuel line routing, and secure connections most accidents should not cause a car to burst into flames (Hollywood notwithstanding).

**CSI-ing the accident.** Product failures are identifiable through examination of the forensic evidence at the scene and the vehicle, and through technical research. Screening typically involves some or all of the following elements. Auto product litigators often work with investigators and engineers that can quickly and economically review the evidence in these categories. All inspections should, of course, be non-destructive and should not alter the evidence in any way.

- **Preliminary Accident Reconstruction.** A review of the accident photos and accident report should allow a good understanding of what happened, and application of a few formulas can even render a ballpark estimation of speeds involved.
- **Vehicle and Scene inspection.** Forensic examination of this key evidence may be needed to reconstruct what went on, including what happened inside the vehicle. A trained observer can identify forensic evidence on a seatbelt indicating whether the belt was worn and whether it held tight. They can locate “witness marks” where occupants contacted the vehicle interior. Event data recorders – like airplane “black boxes” – may contain important crash and pre-crash information on speed, brake and throttle application, restraint usage, and airbag function or malfunction. Good practitioners disagree as to whether the event data recorder can or should be downloaded without having the potential defendant present. It has been my practice to always notify the potential defendant and allow them an opportunity to attend.
- **Biomechanical analysis.** The accident reconstruction and forensic inspections are reviewed with the medical records to determine the *mechanism of injury* – how specifically the injury occurred.

- **Defect investigation.** Technical literature, manufacturer documents produced in other cases, government reports, other incidents, and other sources of information are reviewed to identify known or suspected vehicle defects.
- **Legal research.** The law of the jurisdiction must be reviewed to make sure it will support a claim in the circumstances presented, and to identify proper defendants (e.g. just the vehicle manufacturer, or also the dealership and the manufacturer of any defective component parts). Legal research is also needed to assess whether a claim involving a particular defect will be preempted by federal law if the vehicle complied with an applicable federal regulation. This is rare, but does occur with certain defects.

**Evidence collection and preservation.** While the investigation is taking place, it is important to preserve all key evidence. The accident vehicle needs to be maintained in its immediate post-accident condition to the extent possible.<sup>3</sup> Scene evidence such as tire marks or roadway damage must be documented while they are fresh. Witness recollections should be recorded, preferably through sworn statements. All entities responding to the accident scene should be contacted to obtain any resulting paperwork, including notes as well as final reports and photos in the police or emergency responder files. Identify any news media that responded to the scene, and try to obtain their documentation of the accident.

**Common defects.** The following is a partial list of commonly encountered injury causing defects, which may assist you or a consulting lawyer in identifying whether the vehicle itself may have contributed to your client's injuries, so that the major defendant in your car wreck case is not overlooked.

**Post-Collision, Fuel-Fed Fires.** Vehicle manufacturers have a duty to the public to design vehicles that will not create a fire hazard in survivable collisions. In the early 1970's, a General Motors engineer indicated that GM should be designing their vehicles so that if the occupants survive the collision, they should not be burned in a post-collision, fuel-fed fire. There are several common fuel system defects that can cause fuel leaks which result in post-collision fires:

- ⊃ Fuel tanks may be punctured and leak in an accident;
- ⊃ Fuel lines may be compromised - the location and composition of the fuel lines is critical to the overall fuel system integrity of a vehicle;
- ⊃ Most fuel-injected engines have electric fuel pumps. It is critical that these pumps shut off in the event of a collision; and
- ⊃ It is possible for fuel to siphon from a fuel tank after a collision, providing a continuing source of fuel for a vehicle fire. This potential hazard can be eliminated with check valves or anti-siphoning devices.

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<sup>3</sup> See sample spoliation letter attached.

**Air Bags**. Air bags are supposed to be fully inflated before the passenger falls into it during a crash. Serious injuries occur when air bags, which can travel at speeds up to 200 mph, hit occupants prior to full inflation. There are numerous low-speed impacts where an air bag may deploy when it is unnecessary. Safer air bags include air bags with higher deployment thresholds, less aggressive air bags, tethers, better sensors, and adjustable or dual-stage inflators.

**Rollover**. Recent Government surveys indicate that pick-ups and sport utility vehicles (SUVs) have a rollover rate that is 2 to 3 times higher than the average passenger car. 80% of all deaths in single vehicle crashes of SUVs involve rollovers. The technology of electronic stability control, (ESC), has been around for years; yet numerous cars today still lack ESC.

**Rollover Crashworthiness**. Although rollovers may look dramatic on TV, they are relatively non-severe events as the energy of the crash is dissipated over a longer period of time. People in a crashworthy vehicle should not be catastrophically injured in a rollover event. The following are a few items to look for in a rollover:

- ⊃ **Roof Crush**. As part of a vehicle's structural support system, a roof creates a "*non-encroachment zone*" or "*survival space*" that should protect occupants in a crash. If a roof crushes substantially in an accident, the occupants may suffer disabling head or neck injuries.
- ⊃ **Seatbelt Slack**. Despite wearing their seatbelt, occupants may be partially or fully ejected or allowed to slam into the roof in a rollover.
- ⊃ **Belt Unlatching**. Some seatbelt designs are subject to release in an accident.
- ⊃ **Lack of Ejection Protection**. Laminated side window glass can keep occupants from being ejected, as can rollover activated side curtain airbags.

**Seat Belts**. When a seat belt works properly, it is undisputably the most important safety device in an automobile. When it works poorly or completely fails to work, the seat belt can cause serious injury and even death. When an occupant is killed or seriously injured in a car accident, despite wearing his/her seat belt, it is reasonable to ask "why."

Unfortunately, millions of vehicles on the road have defective seat belt systems that are incapable of providing reasonable protection in otherwise survivable accidents. Many of these defects have been known to the auto industry for many years, including inertial unlatching and false latching, torn or ripped webbing, retractor failure, window shade devices and poor seat belt geometry. Two of the more notorious defects are the lap-only belt designs and door-mounted and other automatic belt systems. Although the benefits of

utilizing a lap and shoulder belt have been known for decades, shoulder belts were not included in the rear seats of most U.S. cars until the late 1980's. Lap-only belts can lead to fatal or catastrophic injuries, including head and spinal cord and other internal injuries.

Door-mounted and other automatic belt systems pose a slew of safety risks, including occupant ejection when the door opens during a crash, and severe spinal cord injuries when an occupant with an automatic shoulder belt forgets to put the manual lap belt on.

**Tire Failure.** This has been a problem for years, but has come under increased scrutiny recently due to the Firestone debacle. Tire failures, separations and blow-outs are foreseeable events that occur on a daily basis. However, a tire will often fail to do its job due to a manufacturing or design defect long before the tread on the tire has worn out. The most common form of failure is tread separation, predominately found on steel-belted radials; the most common type of tire today. Some tire designs are more prone to tread separation than others.

**Seats/Seat Backs.** As a direct result of weak and defective designs of automobile seats and their components, such as seat backs, recliner mechanisms, and seat tracts, thousands of otherwise preventable injuries occur each year in rear-impact collisions. The seat is essentially an occupant restraint. Much like the seatbelt system prevents an occupant from moving forward in a frontal collision, the seat should perform the same function in a rear impact collision, and prevent the occupant from striking the interior of the vehicle or being ejected. Seats and their components suffer a variety of failure modes in rear-impact collisions including breakage of seat adjusters, breakage of folding seatback locks and supports, or separation of the anchorage from the vehicle.

**Child Safety Seats and Booster Seats.** Many of the devices sold in toy stores and baby shops are not up to the task of protecting children in crashes. Every year, hundreds of children suffer serious and often fatal injuries in automobile accidents, even though they were restrained in child safety seats or booster seats. Many of these injuries and deaths could have been prevented. Most of these could have survived the accidents without any serious injuries if they had been properly restrained and well designed, well built, and properly installed child safety seats or booster seats. Some common problems with child safety seats relate to manufacturing defects, including defectively manufactured plastic shelves, harnesses and accessories. Common design defects in child seats generally relate to shell design and buckle and latch design, inadequate padding and harness design, just to name a few.

**“Black Box” Technology.** Almost all late-model vehicles are equipped with a type of crash data recorded. They have become sometime known as “black boxes” because of the well-know devices on-board airplanes. Basically, the module or sensor system is tied into the airbag module and monitors the status of the vehicle just before and during a crash. The device can record such helpful information as whether the occupant was belted, timing of airbag deployment, delta V (change in velocity) braking, and even engine RPMs. It is important to note that each vehicle involved in the accident may have such a device and record useful information in a crash.

Many manufacturers have ignored vehicle crashworthiness, relying on inadequate government standards. When there is a motor vehicle accident and the resultant injuries are more severe than one would expect, given the facts of the accident, then the possibility of crashworthiness does exist. If the injuries are significant, it is important to do a thorough investigation to determine whether or not those injuries were the result of a defect in the design or manufacture of the vehicle, as opposed to the natural consequences of the accident or collision.

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