SAFETY ISSUES WITH SPORT UTILITY VEHICLES

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Sport Utility Vehicles (SUVs) have enjoyed tremendous commercial success. Part of the reason for this success is the public perception that SUVs are safer because they are bigger, sturdier vehicles. However, this perception is incorrect. While SUVs represents less than half the total number of vehicles on the road, SUV collisions account for a disproportionately higher percentage of serious injuries and deaths.

Given their infamous safety characteristics, plaintiff's lawyers will face many occasions to counsel those whose lives have been touched by an SUV safety defect. Proper analysis of each potential SUV defect can be a complex and expensive endeavor requiring extensive expert involvement. To help evaluate potential claims, this article provides an overview of some of the more common defect allegations associated with SUV claims and suggests ways to screen for the "good" cases.

UNIVERSAL SCREENS FOR SUV CASES

Before agreeing to accept a case, consider each of the following SUV universal screens. First, it is important to emphasize that SUV product liability cases are extremely time intensive and expensive. Therefore, you should limit cases to those involving death or serious personal injury. As a minimum starting point, only consider cases with at least a few hundred thousand dollars in medical bills, ongoing future care needs, or permanent impairment.

Next, determine whether there is a presence of drug or alcohol usage. If the plaintiff, the decedent, or the driver of the plaintiff or decedent was using drugs or alcohol, do not take the case.

The next screen to consider is a high ΔV. Manufacturers often defend cases with the "hell of a crash defense." If the crash is too severe (high ΔV, short crash pulse) then regardless of the vehicle's crashworthiness safety shortcomings, the defendants will argue that nobody could have survived without similar injuries or death. Look for relatively non-severe crashes with surprisingly substantial injuries.

Medical causation is always a critical screen. Consider employing a biomechanical expert to link causation between the defect alleged and the injuries suffered by your client.

Finally, whether the plaintiff or decedent was belted is also a critical screen because seatbelt usage is a cornerstone of vehicle crashworthiness. Look for evidence of belt usage through witness testimony, marks on the seatbelt and seatbelt components, and seatbelt injuries documented in the medical records.

COMMON DEFECT THEORIES

After applying the universal screens, the analysis shifts to evaluation of specific defect theories. The following list is not meant to be exhaustive. However, this section does provide a summary of some common SUV product liability defect theories.

This article first breaks down the defect types into crashworthiness and non-crashworthiness claims. Crashworthiness cases deal with the issue of whether a vehicle properly protects occupants in a collision. In theory, the cause of the collision is irrelevant; the focus should be on how well the vehicle protects occupants during the collision. Examples of crashworthiness cases are seatbelts, airbags, and/or roof crush cases.

Non-crashworthiness defect cases focus on a defect that caused or contributed to the collision. Examples of non-crashworthiness defect cases include tire defects, axle failures, and Electronic Stability Control (ESC) cases.

To help evaluate whether specific defects exist, this article further breaks each defect into several components. First is the crash profile. Should the collision be a side impact, a rollover, an on-road trip, a rear impact, etc.? Next is the mechanism of the defect. Although each defect could be the subject of its own treatise, this component will sketch out what is defective and how that defect manifests itself. The final component is the injury profile. What kinds of injuries would you expect with a given defect?

Taking together, these three components should provide a broad overview of what to look for in evaluating potential defects. Different defect crash profiles and injuries can and will exist. It is always advisable to engage experts to help in your evaluation of the case.

Non-Crashworthiness Defects

These defects cause or contribute to the collision. Essential to the allegation is a safer alternative that would have prevented the collision as well as the plaintiff's injury.

Stability/Handling

a. Crash Profile

SUVs are less stable than there counterparts on the roadway because they have higher centers of gravity and narrower track widths. Moreover, suspension systems on SUVs lift vehicles higher off the road and may act independent of one another to provide better off-road handling and clearance. Many of the larger SUVs are built on truck platforms instead of more stable sedan platforms.

The characteristics of the suspension systems, the centers of gravity, and the track width make SUVs less stable and more difficult to handle, especially during emergency turns. For these reason, SUVs are more likely to be involved in collisions, specifically rollover collisions.

Most vehicles, including sport cars, will roll under certain road conditions. A sports car will likely roll if it goes off the roadway and down an embankment. However, on a flat roadway, that same sports car will skid or spin out before it will roll. A properly designed vehicle will always skid out on the roadway, rather than roll over.

These concepts are critical to a stability case. To have a good stability case the vehicle must "trip" or began its rollover on the roadway rather than off the roadway (where many vehicles will roll). The accident reconstruction should show that the vehicle was traveling on a roadway without any excess speed.

b. Mechanism of the Defect

The basic allegation is that the vehicle is designed with a center of gravity that is too high and a track width that is too narrow. This design means that the vehicle will tip and roll under foreseeable on-road maneuvers rather than simply skid out.

c. Injury Profile

The injury profile is simple with this defect. If the vehicle had a proper design, the accident would have been avoided and there would be no injury. Medical causation is not the issue in these cases.

Tires – Detreads and Failure to Warn of Old Tires

a. Crash Profile

With these defects, you will see evidence on the tires, the wheel wells, and the roadway of a tire failing. There may be slap marks on the roadway that start at the location where the tire failure occurred and continue on for a period. The marks may then go into a yaw as the vehicle begins its loss-of-control. Many times this is followed by marking and debris fields consistent with a rollover. There should not be any signs of loss-of-control prior to the indication of the tire failure itself. The wheel well may also have slap marks that are created as tread pulls away from the tire.

The tire itself is the key piece of evidence in determining the existence of the defect. It is also critical to eliminate other potential causes of the tire failure. The defendants often point to damage from the roadway, prior tire repairs, or chronic under inflation as the cause of the tire failure. A careful forensic analysis of the tire should help eliminate these potential other causes.

b. Mechanism of Defect

Most tire failures involve tread separation. Tread separation occurs when there is improper bonding between the layers of a tire. These cases involve both manufacturing defects and design defects.

The manufacturing cases allege that the tire manufacturing process was faulty and allowed an improper bonding. The design aspect asserts that different tire designs such as cap plys can prevent tread separations. In a separation case, the tread separates from the tire's bladder, and the vehicle becomes very difficult if not impossible to control.

Determining the cause for a tread separation should be done in consultation with a qualified tire expert. However, look for polishing on the separated sections, which indicates that the detread occurred over time and not during a single crash impact.

In addition to straight tread separations, there is a new wave of litigation involving the failure to warn of the dangers of older tires. In Europe, manufacturers are now warning consumers about using older tires. However, no such warnings currently exist in the United States.

Most often, the failure to warn cases exist when a spare tire goes unused for an extended period of time. When the spare tire is finally used, it appears pristine and with plenty of tread. However, time has compromised the integrity of the tire to the extent that a failure can occur. Tire manufacturers in the United States should follow the example of their European counterparts and warn that older tires may be unsafe.

c. Injury Profile

The injury profile is simple with this defect. If the vehicle had good tires, the accident would have been avoided and there would not be an injury. Medical causation is not the issue in these cases.

Electronic Stability Control

The allegation in an ESC case is that the vehicle should have had ESC, but it did not employ this life saving technology.

a. Crash Profile

In an ESC case, the crash is much less important than what preceded the crash. ESC works when the on-board computer makes control corrections to prevent an accident. The on-board computer makes those corrections when it senses vehicle yaw. Thus, accident reconstruction in an ESC case is critical.

The most advantageous accident reconstruction will demonstrate a loss of control that would have been prevented by the presence of ESC. Look for yaw marks or vehicles that make increasingly severe “s-turns” down the road as the driver makes over corrections. Also, look for loss-of-control on icy or slick roads because ESC is specifically designed to help prevent loss-of-control under these types of road conditions.

However, ESC will not provide protection in crashes where there is not a loss-of-control preceding the crash. Thus, intersection collisions and straight rear impacts are not good ESC cases.

b. Mechanism of the Defect

ESC cases are relatively new. ESC systems use the vehicle’s on-board computer to sense the onset of a loss of control. Once sensed, the computer then takes over applying control inputs (such as braking) to each of the individual tires.

ESC is amazingly effective at preventing loss of vehicle control. Industry commentators have commented that ESC will save more lives than any other vehicle safety system except for seatbelts. The National Highway Traffic Safety Administration (NHTSA) will soon mandate ESC on all vehicles.

The theory in these cases is very simple: the vehicle should have ESC and it did not despite its availability and relatively low expense.

c. Injury Profile

The injury profile is simple with this defect. If the vehicle had ESC, the accident would have been avoided and there would be no injury. Medical causation is not the issue in these cases.

Crashworthiness Claims

As discussed, SUVs are prone to rollover after a loss of control. Generally, rollovers are relatively benign events and most occupants walk away with minor injuries – assuming of course that the SUV’s crashworthiness safety systems function properly

Seatbelt – Inertial Release, Unwanted Releases, and Partial Engagement

a. Crash Profile

In seat belt release cases, the accident reconstructionist, occupant kinematics expert, and defect expert have to work closely together to determine the direction, source, and magnitude of force which caused a buckle or release button’s unwanted release.

Many times these wrecks are rollovers. Rollovers often have forces acting in multiple directions. These forces can impact the buckle and cause the unwanted release. In these situations, the likelihood of having the correct force acting in the correct direction diminishes greatly.

b. Mechanism of the Defect

A buckle that will inertially release holds the male portion of the buckle into the female portion of the buckle using a spring. If a sufficient force is applied to that buckle housing from the right direction, the spring will compress allowing the buckle to release. There are numerous alternative designs with secondary locking mechanisms that will prevent inertial release.

Inadvertent Release occurs when the release button is not well guarded. Essentially, during the collision an object or body part in the car inadvertently contacts the release button causing the buckle to disengage.

Partial engagement occurs when the male portion of the buckle is inserted in the female portion of the buckle, but does not engage the locking mechanism. The buckle appears to be safely locked, but will release in a wreck because it was only partially engaged.

c. Injury Profile

Many of these cases involve rollovers where the occupants whose restraints have failed are ejected from the SUV. Therefore, you are often looking for post-ejections injuries. Avoid those injuries that occur to occupants belted in the vehicle. Because there is no bright line injury profile in these cases, it’s essential to consult a forensic/biomechanical/medical expert to solidly establish medical causation.

Seatbelts— Retractor Defects

a. Crash Profile

Retractor failures most often occur with frontal impacts and rollover collisions. There will also be clear physical evidence of belt usage. If the defect is a skip lock, then a microscopic inspection of the retractor teeth will reveal evidence consistent with skip locking.

b. Mechanism of Defect

Some retractors work when two opposing set of teeth are forced to engage one another thereby causing the belt webbing movement to cease. One system that tells the teeth to engage is a ball and pendulum system. However, in a rollover, ball and pendulum system may incorrectly tell the retractor to release the webbing.

Retractors also fail when the teeth do not properly engage one another and skip along the ends. This is referred to as “skip-lock.” Both defects allow excess slack into the restraint system.

c. Injury profile

When excess slack is introduced into the restraint system the upper torso is not properly restrained. This can result in full ejections, partial ejections, and interior head strikes. With the interior strikes and partial ejections, you will often see head injuries. Complete ejections create a variety of injuries as discussed above.

Seatbelts – ABTS, Pretensioners & Roll Protection Airbags

a. Crash Profile

All-belts-to-seats (ABTS) designs, pretensioners, and roll protection airbags increase the restraining capability of a restraint system and reduce the likelihood of ejection in all wrecks. However, the most dramatic improvement comes in rollovers, wrecks involving seat back failures, and wrecks where the b-pillar is crushed to the extent that the excess slack is introduced into the restraint system.

b. Mechanism of the Defect

Like the ESC defect discussed above, the basis for this defect is that the vehicle should have incorporated an ABTS design, roll protection airbags, and/or pretensioners. These designs greatly improve the restraint system's effectiveness and prevent ejections.

ABTS is particularly helpful when the b-pillar is compromised or the seat back is deflected rearward. In both of these instances, a belt that is attached to the b-pillar will lose much of its restraining capacity. An ABTS design, however, remains effective because it stays with the occupant regardless of the position of the b-pillar or the seatback.

Pretensioners sense a collision and tighten the belt webbing to the occupant before the belts are loaded. This reduces the potential for slack in the restraint system. Pretensioners are particularly helpful in rollover collisions. Again, the theory is that your vehicle should have incorporated this safety technology but did not.

Roll protection airbags deploy when the vehicle senses a rollover and deploys curtain airbags designed to prevent occupant ejections and partial ejections.

c. Injury Profile

When excess slack is introduced into the restraint system or when there is no roll protection airbag, often the upper torso is not properly restrained. This can result in full ejections, partial ejections, and interior head strikes. With the interior strikes and partial ejections, you will often see head injuries. Complete ejections create a variety of injuries as discussed above.

Roof Crush

a. Crash Profile

In a roof crush case, the allegation is that the roof structure was too weak causing it to crush the restrained occupant(s). It is critical in these cases to show that the occupants were wearing seatbelts at the time of the crash. Even well designed roofs will crush under extreme conditions involving excessive speeds, steep embankments, or drop offs. Thus, you look for a crash profile that includes lower speeds and a smaller number of rolls occurring on a relative flat surface.

The roof on the vehicle should be more than partially crushed or deformed. Most good roof crush cases have the area over the injured party crushed down to near the level of or beyond the head rest.

b. Mechanism of the Defect

A weakness in the design of the roof allows it to crush under non-extreme conditions. The reasons for weak roofs are as varied as the number of model vehicles. Some vehicles remove steel sections of the support structures to save expense and weight. Other vehicles have suicide doors without supporting b-pillars. Other vehicles are very heavy (like super duty trucks), but do not have strong enough roofs to support the additional vehicle weight in the event of the rollover.

c. Injury Profile

C-spine burst fractures, positional asphyxiation, and head injuries with clear severe contacts to the apex of the head are the types of injuries most often associated with roof crush. There will not be causation with T-spine, L-spine, and mid and lower extremity injuries. Also, be careful with head injuries as many times they will be caused by partial ejection and not roof crush.

Glass

a. Crash Profile

Look for a crash profile where an occupant experiences partial or total ejection. You also need a tempered glass window that was broken in the collision. It is important (as with most cases) that the occupant was properly belted.

b. Mechanism of the Defect

Front windshields have laminated glass. Laminated glass contains an inner liner of plastic or laminate. This laminate allows the glass to break, but prevents the glass from exploding into pieces leaving large open ejection portals. Thus, the laminate provides some level of protection against ejection through the front windshield.

Most cars, however, only have laminated glass on the windshield and have tempered glass on the other windows. Tempered glass explodes into small piece upon impact creating large ejection portals. The defect allegation is that laminated glass should have been used instead of tempered glass. The change in glass type would have prevented the ejection or partial ejection injuries.

c. Injury Profile

Glass cases have injuries that are either partial or total ejection injuries as discussed in detail above.

CONCLUSION

Products liability litigation involving SUV's is one of the most challenging and interesting areas of Plaintiff's personal injury litigation. In considering whether to undertake one of these cases, carefully review the crash profile, gain an in-depth understanding of the defect and how it works, and finally insure you have medical causation. Hopefully, this article will help you in the initial evaluation and screening process. While deciding to move forward with these cases can be time consuming and expensive, helping your client and facing an interesting new challenge can be a tremendously satisfying undertaking.

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