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# Products Liability Section
# Restraint Litigation Update: Emerging Issues
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When they work properly, restraint systems in automobiles and trucks indisputably prevent or lessen injury in crashes. When they fail, seatbelts and airbags can allow or even cause serious injury and death. This article is intended to identify some restraint system design defects in modern automobiles in order to acquaint lawyers with potential product liability theories where the injuries are particularly serious and can support the significant case expense required.

A typical auto crash can be viewed as having two collisions. The first collision occurs when the vehicle impacts another vehicle or fixed object. The second collision occurs when a vehicle occupant impacts the interior or is ejected. The second collision immediately follows the first collision-- often only by milliseconds. Seat belts and airbags are designed, in part, to prevent the second collision or minimize its injury causing effects.

The heart and soul of the shoulder belt is the retractor, which locks the seat belt webbing and holds the occupant in place. NHTSA standard 209 requires that retractors lock with less than 1 inch spoolout of webbing at .7 g. Thus a failure to lock, or late lockup, is the first place to look where a seatbelted occupant has suffered a significant injury. Late lockup “other similar incidents” are necessary in such cases, but not enough

to win unless your state has a consumer expectation definition of defect. Get into the retractor and find out the engineering reason for the failure in risk/utility states.

Seatbelts must withstand webbing force of 6000 lbs without tearing. Most auto companies use outside laboratories to certify compliance with the 209 tests, and these tests are done statically. A torn seatbelt in an accident is rare, but we have seen several. Usually they occur in high Delta V (change of velocity) accidents. The cases can be proved with a materials engineer working with a biomechanic.

Conventional seat belt retractors are designed with an internal pendulum or ball sensor, which swings forward during rapid deceleration as in braking or upon impact. However, many times, this system has so much belt on the spool that the "film spool effect" allows 3-4 inches of belt movement (which can translate to 6 inches of head movement) even after the retractor has locked. In order to lessen this slack, manufacturers introduced web-grabbers devices in the 1980's which guarantee lockup of the belts within 1 inch of spoolout, but they add $4 to the cost of the retractor. If you have lockup, but your client's head hit the A-pillar anyway in a small car or pickup, the absence of a webgrabber may be your design defect. Caution: webgrabbers also make belts stiffer, causing chest or internal injuries without proper attention to the type of fabric used in the belt system.

Seatbelt buckles may come unlatched in wrecks. The RCF-67 side release buckle has a now established (although still contested) history of inertial unlatching, especially in rollover crashes or when used with baby seats. The NHTSA study in 1992 which whitewashed this buckle is a report written by industry and published only one day after industry's responses to the NHTSA questions about the buckle were received by

NHTSA. OSI's and proof of coverup are the keys to this theory. South Carolina lawyer Kendall Few has traveled the world establishing that dozens of safe alternative designs of "lock for the latch" buckles existed by the mid-to-late 1980's for the RCF-67 buckle.

Another buckle problem is the raised push button on end-release buckles. Industry standards and GM internal tests require a recessed latch so that flying elbows and objects in a crash do not inadvertently unlatch seatbelts, particularly in rollover or multiple-impact crashes. Many Chrysler buckles fail this standard.

The "false latch" phenomenon rarely occurs but is well documented in sled testing at Ford. If the buckle does not have a release spring (such as the RCF-67), it may appear to be fully latched but not be. It will come loose in a crash. False latch may be an issue in single impact wrecks, but would not be the case where the buckle did not come loose until the second rollover in a multiple rollover crash. False latch is a long recognized defect that is easily preventable with a release spring in the buckle.

Seatbelt cases must start with proof that the client was properly seatbelted. This often turns on the forensic evidence found on the belt system. Microscopic analysis of load marks on the belt webbing, inside the retractor, buckle, or D-ring when the retractor locks under accident conditions, are all important. The necessity of forensic evidence makes it almost impossible to prove without the vehicle and its components. Save that vehicle and have it stored inside for the duration of the case if you hope to handle a seatbelt design defect case. As a rule, don't accept a seatbelt case without either clear proof of seatbelt use or eyewitnesses on that fact.

## AIRBAGS

Not all airbag systems are created equal. Issues may include whether the cause of

the injury itself was an overpowered or untethered airbag, whether the airbag fired late or not at all, or even whether a part of the bag tore or failed during deployment. Some examples:

--The case where the tether in a Geo Metro driver bag tore, allowing the bag to deploy six inches further back, and at such power that the driver was driven back into the seat so hard that he bent back the seatback and broke his neck. In that case, there should be other examples and one has already been found.

--The case where the driver bag had a tether to prevent bag slap but the passenger bag did not, and there was serious eye injury or brachial plexus injury from bag slap. "Bag slap" is the term used to describe the excess deployment "throw" over the length of the fully deployed bag while the bag is being filled with air during the explosion. This can be bag material being thrown at someone's face at 150 mph or higher, producing impact force of 10 to 25 neutons. Absolutely corporate assault and battery on a seatbelted occupant, especially where it was a slow speed crash to begin with.

--The case where the developmental pole crash testing used 4 sensors and the actual vehicle only has one crash sensor. Predictably, the airbag didn't deploy when the Taurus hit the tree. To top it off, the one sensor is mounted on a plastic part that inverted during the crash and therefore misinterpreted the crash. A pole crash test with one sensor might have discovered that defect, had one ever been run.

-The case where the little old lady was fully belted, only hit a guardrail at slow speed during a snowstorm, but had her neck broken by the driver airbag. In the early 1990's, many bags were grossly overpowered, and didn't need such powering to pass NHTSA 208 requirements.

--The case where the black box shows deployment of the bag at 100 to 150 milliseconds. By that time the crash is over, and the driver's head is vulnerably close to the deploying airbag. This frequently occurs during pole or tree impacts, where the car companies may have cut corners on their developmental testing to develop the algorithm for the sensor manufacturers.

## OTHER SIMILAR INCIDENT EVIDENCE

One commentator notes,

> [t]he primary reason the evidence is so important is that it has high probative value and trustworthiness attached to it. Indeed, it could be fairly said that other incident evidence is the single most probative evidence on the question of whether the product that forms the basis of the claim is defective. After all, if you want to know if a particular condition is dangerous, what better evidence could you have than information that shows you how the condition manifests itself during real world use?"1

From the standpoint of pure logic, the strongest evidence a plaintiff can adduce is evidence that shows that the defect has manifested itself on other occasions while being used in a reasonably foreseeable manner. Even though you may find yourself in strange airports during snowstorms, the act of running around the country collecting 30 minute videotaped depositions of OSI witnesses is your most effective lawyering. Such evidence is necessary to win all product cases, but especially restraint cases. In dealing with the Japanese manufacturers it will usually take a court order to get access to their complaint records. Do it. Get it. Get it in every case.

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1 Francis H. Hare, Jr., Admissibility of Evidence Concerning Other Similar Incidents in a Defective Design Product Case: Courts Should Determine "Similarity" by Reference to the Defect involved; *American Journal of Trial Advocacy, Vol. 21:3, Spring, 1998.*