

Practical Considerations in the Defense of Rollover Accident and ROPS Defect Claims

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Despite the prevalence of rollover protective structures (“ROPS”) on agricultural and construction equipment manufactured over the last two decades, claims against manufacturers and dealers arising out of rollover accidents continue to be filed. These cases often involve older machinery that was manufactured without ROPS as standard equipment, or machinery that has a design or purpose that make ROPS inappropriate. In addition, where ROPS are present on equipment involved in an accident, manufacturers may be being faced with claims that that ROPS failed or were ineffective. Although these cases can be challenging, since they often involve serious injuries or fatalities, the specialized nature of the machinery at issue, and the experience and knowledge of the operators offer defenses that might be more difficult to assert in consumer products cases.

Rollover Accident Protection

Agricultural and construction rollover accidents are a well-known cause of occupational injury and death in the United States. Farming is an especially hazardous occupation, and rollover accidents have been identified as the most significant single cause of trac-

tor-related fatalities in the United States.¹ NIOSH has reported that each year from 1992 – 2000, an average of 110 American farm workers were involved in fatal tractor rollovers.² Many of these accidents result in product liability claims against equipment manufacturers where it is alleged that the absence of ROPS is a product defect.

ROPS are structures such as roll-bars, frames, cages or roll-protective cabs which are designed to prevent the equipment operator from being crushed as a result of a rollover. ROPS are commonly seen on tractors and others machines that are operated on uneven ground, have a narrow wheel-base and/or high center of gravity, or are otherwise at risk of falling over during operation. ROPS are highly effective in protecting operators from serious injury during a rollover incident when used with a seat belt, since the operator is kept within the cab structure. Without using the seat belt, however, an operator faces the risk of being thrown from the cab and/or crushed by the tractor. In many situations, ROPS also offer protection from falling objects and from being ejected from the cab in the event of a crash.

By the mid to late 1960s, ROPS were available as optional equipment on many tractor models, but since they were relatively expensive, optional ROPS were not particularly popular. The use of ROPS on agricul-

tural and industrial equipment gradually increased, and by 1985, most American tractor manufacturers began including ROPS as standard equipment on tractors over 20 horsepower, consistent with the American Society of Agricultural Engineers (ASAE) standard.³ OSHA has adopted the ASAE and Society of Automotive Engineers (SAE) standards for ROPS, and requires employers to provide ROPS on various types of equipment, including, *inter alia*, most wheel and track-type agricultural tractors (Occupational Safety & Health Standards, 29 C.F.R. §1928.51) and material handling equipment (29 C.F.R. §1926.1000). Nevertheless, the National Safety Council reports that only half of the farm tractors used on U.S. farms are equipped with ROPS with seat belts.⁴

Equipment Without ROPS

Contrary to the opinions of many litigation experts, ROPS are not appropriate in all machine designs. In many cases, the peculiar circumstances of a plaintiff’s accident will result in an expert proposing the inclusion of a ROPS as an alternative design. In point of fact, ROPS are often unnecessary or impractical. With some types of machines, rollovers are highly unlikely due to the vehicle’s low center of gravity or great weight. In other cases ROPS would impair the function of the equipment. In these

cases, it is critical that the jury (or the judge in a dispositive motion setting) understand that the focus is on the product design at the time of manufacture — what are the intended uses of this machine, in what setting is it intended to be used, and what are the genuine, realistic, risks of injury given these circumstances. What plaintiffs want the jury to overlook is the fact that agricultural and construction machinery is for the most part designed for certain specific jobs and intended to be used by trained and knowledgeable operators, in sharp contrast with automotive products (cars, vans, motorcycles) sold to the general public. The practical reality is that manufacturers of heavy equipment cannot design machines that will protect its operators and bystanders against every type of accident under every circumstance, nor does the law require them to do so.

These principles were highlighted in *Caterpillar, Inc. v. Shears*, 911 S.W.2d 379 (Tex. 1991). In *Shears*, the plaintiff was injured in a collision while operating a loader without a ROPS. The loader had been manufactured with a detachable ROPS as standard equipment, and it was undisputed that had the ROPS been installed on Shears' loader, the plaintiff's injuries would have been prevented. Plaintiff alleged that the loader was defectively designed by virtue of its removable ROPS, and that defendants were negligent in failing to warn of the dangers of operating the loader without its ROPS. While plaintiff's expert opined that all loaders should be built with a ROPS permanently installed and presented alternative designs of loaders with ROPS permanently attached, plaintiff

did not present evidence that a safer alternative design existed for a loader that could fulfill the same multi-purpose role as the loader at issue. The loader had been intentionally designed with a removable ROPS so that it could be removed and replaced in the event of collision damage and so that operators could use the loader without the ROPS in low clearance areas.

In reversing a verdict that had been upheld against the manufacturer, the Texas Supreme Court opined that a manufacturer has no duty "to destroy the utility of his product in order to make it safe", and noted that a product is not unreasonably dangerous if there are no safer alternatives. *Id.* at 384. Since plaintiff did not present a safer design for a loader that could perform the same tasks as the loader at issue, the product was not defectively designed as a matter of law. See also *Campbell v. Studer, Inc.*, 970 P.2d 389, 391 (Wyo. 1998) (affirming the trial court's grant of summary judgment in favor of an asphalt roller manufacturer, where plaintiff failed to present admissible evidence showing that the roller's lack of a ROPS constituted a design defect, and because safety and operational concerns, such as reduced access, egress, maneuverability, and clearance, were inherent in the decision as to whether to utilize ROPS in the roller's design); *Siebern v. Miss.-Ill. Tractor & Equip. Co.*, 711 S.W. 2d. 935 (Mo. Ct. App. 1986) (holding that evidence of lack of rollover accidents for a 1969 coal loader was admissible on the issue of design defect where defendants contended that any practical ROPS design would have been useless because the 145,000 pound loader could not

tip over in the course of ordinary use, and if it did, the ROPS would have been ineffective to protect the operator.)

A plaintiff who has been injured after being thrown from a piece of equipment without ROPS may claim a seat belt should have been installed in the machine. However, seat belts typically are not present on machinery without ROPS. In most cases it is dangerous to stay with a piece of heavy equipment during a rollover if it is not equipped with a ROPS, and often the operator is better jumping or being thrown clear of the rolling machine rather than risk being crushed. While in the abstract it may seem reasonable that the inclusion of would be useful in preventing injury, it is likely that a seat belt in the absence of ROPS would result in more numerous and/or severe injuries.

Ahrens v. Ford Motor Co. involved a collision accident where the plaintiff asserted a unique theory of liability premised on the absence of ROPS. 340 F.3d 1142 (10th Cir. 2003). Plaintiff's decedent was killed after being thrown from his 1967 tractor, which did not have a ROPS or a seatbelt, as a result of a collision with a car. Plaintiff alleged that the tractor was defective because it did not have a ROPS, and argued that had the tractor had a ROPS it would have also had a seatbelt, and a seatbelt would have prevented the decedent from being thrown. Plaintiff also alleged that the tractor was defective because it did not contain warnings about the need for a ROPS. The 10th Circuit, applying Oklahoma law, affirmed the district court's grant of summary judgment to defendants, and refused to allow plaintiff to "bootstrap" evi-

dence of the risk of a rollover in a case that did not involve a rollover accident. *Id.* at 1146.

Even in situations where ROPS may arguably have been appropriate for the equipment at issue, it should be remembered that many rollover accidents occur on older model tractors that were manufactured before the use of ROPS became widespread. In many cases, ROPS were available as an option at the time of sale, but the purchaser chose not to pay for that optional equipment, despite being expressly aware of the rollover hazard. Moreover, even where ROPS were not offered as optional equipment, there is often evidence that ROPS retrofits were available for the purchaser/owner prior to the time of the accident. These circumstances demonstrate that while perhaps technologically feasible, ROPS as standard equipment may not have been economically feasible on older equipment, since this would have made that particular model more expensive and less “marketable”. See *Kolesar v. Navistar Int’l Transp. Corp.*, 815 F.Supp. 818, 821 (W.D.Pa. 1992) (holding that the issue of marketability was relevant in a crashworthiness case when considering what duty a manufacturer owed to a decedent killed in a rollover accident in 1990 while operating a tractor manufactured in 1967 without ROPS), citing *Huddell v. Levin*, 537 F.2d 726, 735 (3d Cir. 1976) (“The manufacturer is not required to design against bizarre accidents; the manufacturer is not required to produce an accident-proof vehicle. But the manufacturer is required to take reasonable steps — within the limitations of cost, technology, and marketability — to design and produce a vehicle that will

minimize the unavoidable danger.”); see also *Jordan v. Massey-Ferguson, Inc.*, 100 F.3d 956, 1996 WL 662874, **3 (6th Cir.(KY)) (referencing 1969 report by National Safety Council noting that practical and economic concerns have prevented widespread use of ROPS). This argument has practical appeal, as the experience of rejecting safety options, such as anti-lock brakes, in order to avoid additional expense, is within the ken of most judges and jurors.

Causation may also be at issue in cases where it is alleged ROPS should have been installed on a particular piece of equipment, since the circumstances of the accident may reveal that the lack of a ROPS did not cause or exacerbate any of plaintiff’s injuries. For example, in a “tip-over” case (an incomplete rollover), the presence of a ROPS may have done nothing to protect plaintiff. In *Strang v. Deere & Co.*, the position in which the loader was found after the accident demonstrated that it had only rolled ninety degrees plus the angle of the slope. 796 S.W. 2d. 908 (MO App.Ct.1990). There, plaintiff’s expert conceded on cross examination that the principal purpose of the ROPS was to limit the roll of the equipment to ninety degrees and if the loader had only rolled ninety degrees plus the angle of the slope, a roll bar would not have made any difference in the movement of the machine. See *id.* This testimony enabled the manufacturer to successfully argue that the absence of ROPS did not cause plaintiff’s injuries.

A proximate cause defense based on plaintiff’s knowledge and experience is available in failure to warn cases. While plaintiffs often contend the

warnings provided by the manufacturer are inadequate, discovery often reveals that the plaintiffs were experienced operators, well aware of the hazards of operating the equipment — to the extent these hazards were not open and obvious. Heavy equipment requires specialized training, and plaintiffs often have had years of experience operating the equipment prior to the accident at issue. Experienced operators will often admit (or appear less than forthright if they do not) that they were well aware that tractors could roll over, that they could be injured if such an event were to occur, and that ROPS were available for the equipment at issue. Accordingly, failure of manufacturer to warn of the danger of a rollover or the availability of ROPS could not have been the proximate cause of any injuries suffered due to a rollover accident. See *Hiner v. Deere & Co.*, 340 F.3d 1190 (10th Cir. 2003) (holding that the manufacturer had no duty to warn the plaintiff/farmer of, *inter alia*, the need for protection against falling objects since plaintiff conceded that he was aware of this danger prior to the date of the accident). Accordingly, a comprehensive inquiry into plaintiff’s training, experience and knowledge can be critical in rollover cases.

Similarly, in circumstances where a plaintiff voluntarily and unreasonably encountered a known danger, of an assumption of the risk defense can sometimes be raised (although the doctrine of assumption of the risk is not uniformly recognized or described in all jurisdictions). See *Strang*, 796 S.W. 2d. at 918 (holding that because the plaintiff was an experienced operator of backhoe type equipment knew the tractor that he was operating did

not have a roll bar and was aware that tractors and backhoes could roll over and cause him injury, there was evidence from which a jury could conclude that plaintiff voluntarily and unreasonably assumed the risk of the overturn of the machine without the ROPS); *Kolesar*, 815 F.Supp. at 822 (holding that where there was evidence from which the jury could conclude that the decedent was operating the tractor in an improper and dangerous manner, jury instructions on plaintiff's conduct as a proximate cause of the accident were appropriate, and noting that, "A crashworthiness case necessarily implicates a consideration of other causes, including the conduct of the plaintiff as a cause of the injury. Such evidence cannot be excluded merely because it also tends to show contributory negligence.").

Alleged Defects in Equipment with ROPS

Although much of the litigation in rollover cases involves agricultural and construction machinery without ROPS, manufacturers may also face claims by plaintiffs injured in rollover accidents operating machinery where ROPS are present. While ROPS are effective in preventing serious injury in the event of a rollover, a seat belt must be worn by the operator in order for the ROPS to be effective. However, many operators simply refuse to wear seat belts.⁵ An operator's failure to avail himself of this fundamental safety device can actually result in an increased risk of a crushing injury during a rollover accident. Once a rollover begins, it is human nature to attempt to jump clear. However,

rollovers happen quickly, much more quickly than the operator is able to jump clear of the machine. Without a seat belt, therefore, an operator trying to jump clear is at risk of an impact with the ROPS itself. In such cases, a plaintiff's failure to adhere to the manufacturer's explicit warnings concerning seat belt use can be said to be the proximate cause of these types of injuries.

Another source of claims can be the allegation that ROPS failed during a rollover. However, to be effective, ROPS and the seat belt must be properly maintained. The integrity of the ROPS can be compromised by normal wear and tear, alterations by the owner, or even by previous rollovers. Most ROPS have instructions advising of the need to periodically inspect them for cracks, rust or other physical damage, to check the mounts for looseness or wear, and to avoid any welding, drilling or cutting of the ROPS. ROPS which have been subject to the force of a rollover must be replaced; the equipment should not be used until replacement is complete. Similarly, seat belts must be inspected regularly for damage and must be replaced every few years. Seat belt mounts typically have a label indicating the month and year in which the seat belt was installed, and advising the seat belt should be replaced every three years.

Because inspection and maintenance requires diligence on the part of the owner, many times ROPS are neglected or reused after an accident, thereby creating a dangerous condition that is not of the manufacturer's making. In cases involving failure of ROPS, discovery should include detailed requests for maintenance

records, accident history or other records relating to intentional or unintentional alteration to the ROPS.

Conclusion

The defense of manufacturers in cases involving heavy machinery rollover/ROPS accidents can be daunting. Such cases frequently involve severe injury or death, sympathetic plaintiffs and machines that are unfamiliar to lay persons, all set against the background of generally unfriendly product liability law. Nevertheless, there are eminently practical defenses arising from the typical circumstances of such accidents and the specialized context in which such machines are generally used, juxtaposed against the elements of feasibility and alternative design.

- 1 Myers JR, Snyder KA. Roll-over Protective Structure use and the cost of retrofitting tractors in the United States, 1993. *Journal of Agricultural Safety and Health*. 1(3):185-197, 1995 (Of agricultural farm tractor-related deaths, approximately 50-60% are the result of tractor overturns.) (p. 185), citing Lehtola, C.J. 1992. An investigation of tractor-related farm accidents in Iowa during 1988-1990, 92-127. Ph.D. thesis, Iowa State Univ., Ames; Lehtola, C.J., S.J. Marley and S.W. Melvin, 1993. A study of five years of tractor-related fatalities in Iowa. *Applied Engineering in Agriculture* 10(5):627-632; and National Safety Council 1993. *Accident Facts* Itasa, Ill.; National Safety Council.
- 2 See <http://www.cdc.gov/niosh/injury/traumaagric.html>.
- 3 Myers JR, Snyder KA. Roll-over Protective Structure use and the cost of retrofitting tractors in the United States, 1993. *Journal of Agricultural Safety and Health*. 1(3):185-197, 1995 (p.193).
- 4 See www.nsc.org/issues/agri/indus.htm "The Plain FactsAbout the Agricultural Industry" ("Many farm tractors were manufactured prior to the voluntary installation of ROPS with seat belts, while some newer tractors

have had their ROPS removed by the owner.”)

5 Myers JR, Snyder KA. Roll-over Protective Structure use and the cost of retrofitting tractors in the United States, 1993. *Journal of Agricultural Safety and Health*. 1(3):185-197, 1995 (It is “unrealistic” to assume that ROPS are 100% effective in saving a life during a roll-over, since “seatbelt use on farm tractors is generally found to be negligible”.) (p.195)