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Products Liability: Component Part Manufacturer's Liability for Design and Warning Defects

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I. INTRODUCTION

IN TODAY'S LITIGIOUS society a lawsuit often involves everybody who could conceivably be held liable. The plaintiff is often searching for the person with the "deepest pocket."1 If a product in some manner causes an injury, everyone involved in production or distribution of that product, from the maker of a screw to the person who ultimately sold the product to the consumer, might expect to be a defendant in a lawsuit.2 Such a situation arises often in the aircraft industry due to the number of

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1 One of the reasons for joining multiple parties is the theory of joint and several liability. Under this theory, each defendant is liable for the entire amount of a judgment in favor of the plaintiff. Thus the plaintiff can collect the entire judgment from one defendant. For example, a jury may find damages in the amount of $100,000 and apportion fault in the following percentages: plaintiff 10%; defendant A 25%; defendant B 30%; and defendant C 35%. The plaintiff may recover the entire judgment of $90,000 from either A, B or C. That defendant will have to seek contribution from other defendants, who may or may not have the ability to do so. If the plaintiff collects the entire amount from A, then A can seek contribution from B of $30,000 and from C of $35,000. However, there may be some limitations. Assume the jury apportions fault as follows: plaintiff 25% and defendants A, B and C 10%, 30% and 35%, respectively. Under a "modified" comparative fault system, defendant A is only liable up to his percentage of fault since his percentage of fault is less than the plaintiff's. See, e.g., Tex. Civ. Prac. & Rem. Code Ann. § 33.012 (Vernon 1986).

2 Note at this point that liability under the RESTATEMENT (SECOND) OF TORTS § 402A extends to both manufacturers and retailers, regardless of fault. See infra notes 13-27 and accompanying text for a discussion of the elements of a cause of action under § 402A.
people injured in accidents involving aircraft and the complexity involved in the manufacture of an aircraft.

The liability of a component part manufacturer creates problems in the determination of responsibility for injuries. When a component part malfunctions, it seems reasonably clear that the manufacturer will be accountable for the resulting injury. The manufacturer's liability is not so clear, however, when other types of defects in the component product are involved in the lawsuit.

Consider the following hypothetical involving a design defect:

Rotor, Inc. manufactures rotors for helicopters that are hollow and pressurized with nitrogen. Helicopter, Inc. assembles helicopters and sells them to various customers. A helicopter manufactured by Helicopter, Inc. and equipped with Rotor, Inc. rotors crashes, killing its occupants. The cause of the crash was a crack developed in a rotor blade while in flight that allowed the pressurized nitrogen to escape.

Assume that the plaintiff's only claim is of a design defect due to the lack of a safety device in the cockpit that would have warned the pilot of a nitrogen leak. Who should bear the responsibility for the installation of such a safety device: the assembler of the helicopter or the manufacturer of the component part? Should both Rotor, Inc. and Helicopter, Inc. be liable?

In addition, consider the following hypothetical involving a design defect:

See infra notes 23-27 and accompanying text for a discussion of the types of defects under § 402A.

The facts in this hypothetical are loosely based on Haas v. United Technologies Corp., 450 A.2d 1173 (Del. 1982). In Haas, the defendant's subdivision was the manufacturer of the helicopter. The case does not indicate who manufactured the rotors and there is no issue of component part liability. The manufacturer equipped the helicopter with a gauge located outside the cockpit so that the occupants could not check the pressure while in flight. Id. at 1175. At the trial level, the court presented to the jury the issue of whether the absence of a warning device in the cockpit constituted a design defect. Id. at 1176. The jury returned a verdict in favor of the defendant and the Delaware Supreme Court held that the trial court properly instructed the jury on the issue of design defect under § 402A. Id. at 1177. Although the court in Haas held that the defendant was not liable, the basic facts are useful for purposes of analysis.
ing a warning defect.\textsuperscript{5}

Elevator, Inc. manufactures aircraft “elevators,” that control the upward and downward movement of the airplane and also manufactures “trim tabs” that are attached to the elevators and help relieve the force created by the operation of the elevators. Elevator, Inc. purchases from Actuator, Inc. “elevator trim tab actuators” which are the control mechanism for the directional movement of the trim tabs. There are two actuators, one for each side of the airplane. The right and left actuators are visually identical, yet functionally distinct. Elevator, Inc. sells the elevators, trim tabs and actuators as a package to aircraft manufacturers who assemble and install them in aircraft. An aircraft crashes due to the installation of a right actuator on the left side of the airplane and the installation of a left actuator on the right side of the airplane. Assume that the plaintiff’s only claim is that the actuators were defective because of the lack of a warning of the distinct functions of the right and left actuators. Who should bear the liability for failure to give a warning: the manufacturer of the actuator or the seller of the complete package? Should both Actuator, Inc. and Elevator, Inc. be liable?\textsuperscript{6}

This comment will attempt to solve the liability questions presented by these two different situations under section 402A of the \textit{Restatement (Second) of Torts}. There are two primary approaches courts take in solving

\textsuperscript{a} See infra notes 23-27 and accompanying text for a discussion of the types of defects under § 402A.

\textsuperscript{b} The facts in this hypothetical are loosely based on Nesselrode v. Executive Beechcraft, Inc., 707 S.W.2d 371 (Mo. 1986). In \textit{Nesselrode}, the defendant Beech Aircraft Corporation manufactured and designed the elevator trim tab actuators. \textit{Id.} at 373. The defendant Executive Beechcraft, Inc. installed new trim tab actuators after a periodic inspection of the aircraft. \textit{Id.} at 374. In addition to negligence, the plaintiff based its action on both design and warning defects under § 402A. \textit{Id.} at 374-75. The basis for the claim of design defect is that the defendant should have designed the trim tab actuators such that a person could not install them improperly. \textit{Id.} The basis for the claim of a warning defect was that the defendant should have placed a warning on the elevators that they were visually identical but functionally distinct. \textit{Id.} at 374. At trial the jury found that the trim tab actuators were defectively designed and that there was an inadequate warning. \textit{Id.} at 371. The Supreme Court of Missouri eventually affirmed in a close decision. \textit{Id.}
the issues posed in the hypotheticals. Both approaches, however, tend to result in the imposition of an "all or nothing" method of ascertaining liability. One approach generally results in the imposition of joint and several liability on both the manufacturer of the component part and the assembler of the final product. The other line of cases imposes liability solely on one of the potential defendants. Neither approach takes into account the availability of comparative fault or responsibility doctrines. After describing these approaches, this comment will address an alternative approach that considers the use of comparative doctrines. However, before discussing these approaches to solving the liability issue, this article will discuss the nature and elements of a products liability claim under section 402A and of a claim involving component part manufacturers.

II. LIABILITY UNDER SECTION 402A

A. Generally

A majority of jurisdictions have adopted the doctrine of strict products liability under section 402A of the Restatement (Second) of Torts. The purpose behind strict products liability is to compensate persons for inju-

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7 See infra notes 31-43 and accompanying text for a discussion of comparative fault doctrines.

8 RESTATEMENT (SECOND) OF TORTS § 402A (1965). Section 402A provides:

(1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if
(a) the seller is engaged in the business of selling such a product, and
(b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.
(2) The rule stated in Subsection (1) applies although
(a) the seller has exercised all possible care in the preparation and sale of his product, and
(b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

Id.; see 63 AM. JUR. 2D Products Liability §§ 537-38 (1984) for a summary of jurisdictions adopting or rejecting § 402A.
ries that result from use of a defective product. One of the justifications for the creation of section 402A is that holding defendants liable for the introduction of a defective product into the stream of commerce will result in safer products. Another reason for imposing strict liability is that manufacturers and sellers of products can absorb the loss of an injury and spread the costs to the consumers of their product. Although strict liability purportedly imposes liability without fault, there must be a sufficient relationship between the plaintiff’s injuries and the defendant’s products.

**B. Elements of Cause of Action Under Section 402A**

To state a cause of action under section 402A, a product must have caused the plaintiff’s injuries. The de-
fendant must also be in the business of selling such a product. Because strict liability is liability without fault, it applies even though the manufacturer or retailer was not negligent. The product must be in a defective condition that is unreasonably dangerous to the user or consumer. Furthermore, the defect must exist at the time it left control of the defendant.

Lack of privity between the manufacturer and the injured party is not a defense to an action under section 402A. In addition, the fact that the plaintiff did not discover the defect is not a defense to an action under section 402A. However, the plaintiff’s voluntary and unreasonable use of the product in disregard of the dangerous nature of the product may constitute a defense. In addition, a seller or manufacturer will not be liable if

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14 *Restate*ment (Second) of Torts § 402A comment d (1965).
15 *Restate*ment (Second) of Torts § 402A(1)(a) (1965). Comment f provides:
Section [402A] applies to any person engaged in the business of selling products for use or consumption. It therefore applies to any manufacturer of such a product, to any wholesale or retail dealer or distributor, and to the operator of a restaurant.

*Id.* § 402A comment f. Thus, anyone who causes the defective product to enter the stream of commerce may be held liable under § 402A.

16 *Id.* § 402A(2)(b). Section 402A states that it applies even though “the seller has exercised all possible care in the preparation and sale of his product . . . .” *Id.*

17 *Id.* § 402A(1).

18 *Id.* § 402A(1)(b). Section 402A requires that the product be “expected to and does reach the user or consumer without substantial change in the condition in which it is sold.” *Id.*

19 *Restate*ment (Second) of Torts § 402A comment n (1965). Comment n addresses contributory negligence of the plaintiff stating that “[c]ontributory negligence of the plaintiff is not a defense when such negligence consists merely in failure to discover the defect in the product, or to guard against the possibility of its existence.” *Id.*

20 *Id.* Comment n further states: “On the other hand the form of contributory negligence which consists in voluntarily and unreasonably proceeding to encounter a known danger, and commonly passes under the name of assumption of risk, is a defense under [§ 402A] as in other cases of strict liability.” *Id.*
the consumer misused the product. Application of these defenses may vary from one jurisdiction to another.

Under section 402A there are three types of defects: manufacturing defects, design defects, and warning defects. A manufacturing defect occurs when the product does not meet the manufacturer's own specifications. An example of a manufacturing defect would be when an airplane manufacturer improperly installs a wing and it detaches in flight. A design defect, on the other hand, does not involve a malfunction. On the contrary, the product reached the user in the condition intended by the manufacturer. A design defect occurs when the product, as designed, is unreasonably dangerous to the user or consumer. An example of a design defect would be

21 Id. § 402A comment h. Examples given in the comments to § 402A include the user knocking a bottle against a radiator in order to open it, adding too much salt to food, or a child eating too much candy. Id.

22 For example, in Duncan v. Cessna Aircraft Co., 665 S.W.2d 414 (Tex. 1984), the Texas Supreme Court combined the defenses of assumption of risk and misuse and labelled the combined defense "contributory negligence." Id. at 428.


24 Note that a cause of action based on strict liability does not replace a cause of action based on negligence. If the plaintiff can show that the defendant failed to exercise reasonable or ordinary care, he can also recover under a negligence theory. Under strict liability, the plaintiff need only show that the product was defective when it left the hands of the defendant. See, e.g., Nesselrod, 707 S.W.2d at 371 (plaintiff alleged both negligence and strict liability against manufacturer of elevator trim tab actuators).

25 A typical instruction to a jury on the issue of a design defect is:

Do you find from a preponderance of the evidence that at the time the [product] in question was manufactured by [the manufacturer] the [product] was defectively designed? By the term "defectively designed" as used in this issue is meant a product that is unreasonably dangerous as designed taking into consideration the utility of the product and the risk involved in its use.

Turner v. General Motors Corp., 584 S.W.2d 844, 847 (Tex. 1979). This instruction reflects what may be termed a "risk-utility" test. Compare an instruction reflecting what is termed a "consumer expectation" test:

By the term "defectively designed" as used in this issue is meant a design that is unreasonably dangerous. "Unreasonably dangerous" means dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics.

Id. at 846.
when an airplane manufacturer installed a wing that would not withstand certain changes in altitude, where an alternative design would function properly. The third type of defect under section 402A involves a failure to warn the consumer of the dangerous nature of the product.

C. Causation and Comparative Fault Doctrines

The element of causation is an important issue in any products liability action. In order for a plaintiff to recover under section 402A, the defect must be the cause of injury. Generally, the plaintiff must prove that the defective product was both the cause in fact and proximate cause of his injury. The analysis of causation in a products liability claim is similar to an action for negligence.

In both negligence and strict liability cases, the exist-

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26 A common and controversial type of defect involves liability for enhanced injuries. This situation, also known as crashworthiness, arises where the product did not cause an accident, but because of defective design, the plaintiff incurred enhanced injuries. See, e.g., Duncan v. Cessna Aircraft Co., 665 S.W.2d at 414 (involving design defect of aircraft seats). See generally Comment, Crashworthiness Claims in Aviation Accidents, 53 J. AIR L. & COM. 219 (1987).

27 RESTATEMENT (SECOND) OF TORTS § 402A comment j (1965). Comment j to § 402A states: "In order to prevent the product from being unreasonably dangerous, the seller may be required to give instructions or warning, on the container, as to its use." Id. A warning defect may also occur where the manufacturer cannot make the product safe for its intended use. Id. § 402A comment k. The comments state that "[s]uch a product properly prepared, and accompanied by proper directions and warning, is not defective, nor is it unreasonably dangerous." Id. (emphasis in original); see, e.g., Davis v. Wyeth Laboratories, Inc., 399 F.2d 121 (9th Cir. 1968) (involving warning as to possible effects of polio vaccine).


29 Cause in fact, or actual causation, corresponds to common sense notion of whether the product actually caused the plaintiff's injuries. Often the test applied is stated as "but for" the defective product, the plaintiff would not have been injured. See RESTATEMENT (SECOND) TORTS § 432 (1965).

30 Relying solely on actual causation will often result in holding defendants liable for the most far reaching and bizarre consequences of their acts. Proximate cause, or legal causation, is a policy doctrine that draws the line between whether the defendant will be held liable or not. Generally, a defendant will be liable for those consequences which are reasonably forseeable. Cf. Palsgraf v. Long Island R.R., 248 N.Y. 339, 162 N.E. 99 (1928) (plaintiff not entitled to recover for her injuries because third person causing injury unable to anticipate any danger to plaintiff).
ence of contributory negligence or product misuse complicates the allocation of responsibility for injuries. A similar problem arises when courts attempt to apportion liability between multiple tortfeasors. To combat this problem, many states have adopted, either by statute or judicial decision, a system of comparative negligence. Such a system apportions the costs of an injury among negligent plaintiffs, negligent defendants and strict liability defendants.

Courts have had conceptual difficulty in extending comparative fault doctrines to actions involving liability in tort. The difficulty arises in applying a doctrine founded in negligence to a doctrine of liability without fault. Critics assert that comparative fault is a negligence concept that is irrelevant in a strict liability analysis. Despite the conceptual roadblocks, a number of jurisdictions have judicially adopted a comparative fault doctrine with respect to strict liability actions, either through extension of con-

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51 The problem is even more complicated when there are multiple claims such as negligence, strict liability and breach of warranty. See, e.g., Duncan v. Cessna Aircraft Co., 665 S.W.2d at 414.

52 See, e.g., TEX. CIV. PRAC. & REM. CODE ANN. § 33.001 (Vernon Supp. 1987) for an example of adoption of comparative responsibility (negligence) in negligence cases. Texas adopted what is called "modified" comparative negligence in that a plaintiff "may recover damages only if his percentage of responsibility is less than or equal to 50 percent." Id. § 33.001(a).

53 See Li v. Yellow Cab Co., 13 Cal. 3d 804, 532 P.2d 1226, 119 Cal. Rptr. 858 (1975) for an example of judicial adoption of "pure" comparative negligence. In adopting pure comparative negligence the California Supreme Court stated that a modified system distorts the principle that "persons are responsible for their acts to the extent their fault contributes to an injurious result." Id. at 1243 (citation omitted).

54 Different jurisdictions utilize various terminology such as comparative negligence, comparative fault, comparative responsibility, and comparative causation. Duncan v. Cessna Aircraft Co., 665 S.W.2d at 424.

55 Id.

56 Daly v. General Motors Corp., 20 Cal. 3d 725, 575 P.2d 1162, 144 Cal. Rptr. 380 (1978).

57 Id. at 730, 575 P.2d at 1167, 144 Cal. Rptr. at 385. Critics state that application of comparative fault doctrine to strict liability is analogous to mixing "apples with oranges" or "oil and water." Id.

58 Id. Some courts also assert semantic difficulties in that comparative "fault" is incompatible with a strict liability principle where the defendant's fault, or lack thereof, is not at issue. Id.
tributory negligence statutes or otherwise. Some states have either general or specific statutes that mandate the application of comparative principles in strict liability actions.

Implementation of comparative fault in practice requires proper instructions to the jury in a products liability suit. There are several different forms of instruction to the jury depending upon the nature of the plaintiff's claim, the number of defendants, and the existence of any defenses. For instance, if the plaintiff alleges both negligence and strict liability the jury instruction will ask whether the defendant(s) was (were) negligent, whether

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39 See, e.g., Dippel v. Sciano, 37 Wis. 2d 443, 155 N.W.2d 55 (1967) (applying a comparative negligence statute directly to a strict products liability action by analyzing strict liability as negligence per se); see also Suter v. San Angelo Foundry & Mach. Co., 81 N.J. 150, 406 A.2d 140 (1979) (stating that the concept of strict liability was consistent with the intent of the comparative negligence statute). For a list of states with comparative negligence statutes, see Brewster, Comparative Negligence in Strict Liability Cases, 42 J. Air L. & Com. 107 n.2 (1976). For a discussion of different approaches to adoption of comparative fault in strict liability see 1 COMPARATIVE NEGLIGENCE LAW AND PRACTICE § 9.20 (1988).

40 See, e.g., Daly v. General Motors Corp., 20 Cal. 3d at 725, 575 P.2d at 1162, 144 Cal. Rptr. at 725 (extending comparative negligence expressed in Li v. Yellow Cab Co., 13 Cal. 3d at 804, 532 P.2d at 1126, 119 Cal. Rptr. at 858 to strict liability actions); Duncan v. Cessna Aircraft Co., 665 S.W.2d at 414 (refusing to extend comparative negligence statute but adopting comparative principles for strict liability causes of action).

41 See, e.g., IDAHO CODE § 6-1304 (Supp. 1987) (comparative responsibility statute applying to any action "to recover damages for product liability resulting in death or injury to person or property"); MICH. COMP. LAWS ANN. § 600.2949 (West Cum. Supp. 1986) (application of comparative principles to "all products liability actions"); NEB. REV. STAT. § 25-21,185 (1985) (comparative statute applying to "all actions brought to recover damages for injuries to a person or to his property caused by the negligence or act or omission giving rise to strict liability in tort of another"). Texas recently amended its "modified" comparative negligence statute to include actions based on strict liability as a response to Duncan v. Cessna Aircraft Co., 665 S.W.2d at 414, where the Texas Supreme Court adopted "pure" comparative causation in strict liability actions. TEX. CIV. PRAC. & REM. CODE ANN. § 33.001(b) (Vernon Supp. 1987). At the time of the Duncan decision, Texas statutes mandated "modified" comparative responsibility in negligence actions. TEX. CIV. PRAC. & REM. CODE ANN. § 33.001 (Vernon 1986). The court adopted comparative causation without reliance on the comparative negligence statute, and therefore adopted a "pure" form of comparative causation in strict liability actions. Duncan v. Cessna Aircraft Co., 665 S.W.2d at 427-28. For an analysis of the decision in Duncan v. Cessna Aircraft Co. see Note, Strict Products Liability-Judicial Adoption of Pure Comparative Apportionment of Liability, 49 J. Air L. & Com. 1021 (1984).
the plaintiff was negligent, whether the product was defective and whether the plaintiff misused the product or assumed the risk. If the jury answers yes to any of these questions, then the instruction will ask them to apportion responsibility to the product and each of the parties. Of course, the form of instruction will differ depending on the jurisdiction.

III. LIABILITY OF COMPONENT PART MANUFACTURERS

A. Generally

A difficult issue in the area of products liability is the liability of a manufacturer or supplier of a component part for injuries caused by defects in the assembled product. In Goldberg v. Kollsman Instrument Corp., the plaintiff brought an action for breach of warranty against the manufacturer of a defective altimeter and the assembler of the airplane. The court refused to hold the component part manufacturer liable, stating that the airplane manufacturer provided adequate protection to injured parties.

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42 For example, the charge to the jury may ask:
   Was the Product X defective?
   Was Defendant Y negligent?
   Was Plaintiff Z negligent?

The court would define what the legal standards are for product defects and negligence.

43 The next instruction would ask the jury to apportion fault to the parties based on the evidence presented at trial. For example, the court in Duncan v. Cessna Aircraft Co. suggested the following instruction:

   Find from a preponderance of the evidence the percentage of plaintiff's injuries caused by:
   
   Product X __ __ __
   Defendant Y __ __
   Plaintiff Z __ __
   Total 100%.

Duncan v. Cessna Aircraft Co., 665 S.W.2d at 427 n.8.


45 Id. 191 N.E.2d at 83. The court stated:

   [F]or the present at least we do not think it necessary so to extend this rule as to hold liable the manufacturer of a component part. Adequate protection is provided for the passengers by casting in liability the airplane manufacturer which put into the market the completed aircraft.

Id.
To complicate matters, the writers of section 402A express no opinion as to whether strict liability applies to component part manufacturers.\footnote{Restatement (Second) of Torts \S 402A (1965). Section 402A includes the following caveats:}

Despite the decision in \textit{Goldberg} and the caveat in the \textit{Restatement}, a majority of jurisdictions hold that a component part manufacturer can be liable under section 402A.\footnote{Union Supply Co. v. Pust, 583 P.2d at 281; see also Suvada v. White Motor Co., 210 N.E.2d at 182 (holding a manufacturer of a defective brake system incorporated into a truck liable under \S 402A); Burbage v. Boiler Eng'g \& Supply Co., 433 Pa. 319, 249 A.2d 563 (1969) (holding manufacturer of a defective boiler valve liable under \S 402A).} As in any case concerning liability under section 402A, the defendant must be engaged in the business of selling such products.\footnote{Union Supply Co. v. Pust, 583 P.2d at 283; see Restatement (Second) Torts \S 402A (1965), supra note 8.} Generally, the component part must be in a defective condition unreasonably dangerous to the user or consumer.\footnote{Union Supply Co. v. Pust, 583 P.2d at 282. Some jurisdictions have eliminated the "unreasonably dangerous" language because it indicates negligence in a strict liability cause of action. \textit{Id.} n.5.} In addition, the product must reach the consumer without substantial change,\footnote{Restatement (Second) of Torts \S 402A(1)(b) (1965); see supra note 8 for the text of \S 402A. Comment q to \S 402A states that where there is no change in the component part, the manufacturer will be liable. \textit{Id.} \S 402A comment q; see supra note 46 for the text of comment q.} however, small changes or minor alterations will not relieve the component part manufacturer from liability.\footnote{Union Supply Co. v. Pust, 583 P.2d at 283. Comment p to \S 402A discusses further processing and substantial change stating:}
courts in various jurisdictions analyze the question of substantial change differently.\footnote{52}

B. Failure to Provide a Safety Device as a Design Defect

One type of design defect covered under section 402A is a manufacturer’s failure to provide a safety device.\footnote{53}

It seems reasonably clear that the mere fact that the product is to undergo processing, or other substantial change, will not in all cases relieve the seller of liability under the rule stated in \(\S\ 402A\). If, for example, raw coffee beans are sold to a buyer who roasts and packs them for sale to the ultimate consumer, it cannot be supposed that the seller will be relieved of all liability when the raw beans are contaminated with arsenic, or some other poison. . . . On the other hand, the manufacturer of pigiron, which is capable of a wide variety of uses, is not so likely to be held to strict liability when it turns out to be unsuitable for the child’s tricycle into which it is finally made by a remote buyer. The question is essentially one of whether the responsibility for discovery and prevention of the dangerous defect is shifted to the intermediate party who is to make the changes.

\textit{RESTATEMENT (SECOND) OF TORTS} \(\S\ 402A\) comment \(p\) (1965).

\footnote{52} The court in \textit{Union Supply Co. v. Pust} stated that “the element of ‘without substantial change’ has been strictly adhered to in most decisions that have held component part manufacturers strictly liable.” \textit{Union Supply Co. v. Pust}, 583 P.2d at 282. In \textit{Southwire Co. v. Beloit E. Corp.}, 370 F. Supp. 842 (E.D. Pa. 1974), the court compared the issue of substantial change to the theory of intervening superceding cause. \textit{Id.} at 855-57. Intervening superceding cause is a negligence concept where “an act of another person or force which by its intervention prevents, the defendant from being liable for harm to another which his antecedent negligence is a substantial factor in bringing about.” \textit{Id.} at 857 n.21. The court stated that:

Since a defendant in a \(\S\ 402A\) action can be held liable without proof of any fault on his part, this broad liability should not be imposed on a faultless defendant unless the plaintiff can prove a chain of causation linking the defendant’s defective product to plaintiff’s injury without substantial changes that may be less significant than intervening superceding causes needed to negate the liability of a negligent defendant. On the other hand, since \(\S\ 402A\) liability is designed to be broader than negligence liability, it would be consistent with the intent of \(\S\ 402A\) to require that, for a substantial change to negate \(\S\ 402A\) liability, it must be at least as significant a break in the chain of causation as an intervening superceding cause is in negligence law.

\textit{Id.} The court decided the case on other grounds and did not adopt either of these theories in its opinion. \textit{Id.}

\footnote{53} See generally \textit{28 AM. LAW PROD. LIAB. 3D} \(\S\S\ 28.73-28.83\) (1987) for a discussion of safety features and devices as a design defect; \textit{Annotation, Products Liability: Manufacturer’s or Seller’s Obligation to Supply or Recommend Available Safety Accessories in Connection with Industrial Machinery or Equipment}, 99 A.L.R. 3d 693 (1980); \textit{Annota-
The test applied to this type of claim is that the product, absent a safety device, is unreasonably dangerous to users or consumers. Whether the product is unreasonably dangerous will depend on the outcome of a balancing test weighing the utility of the product against the risk inherent in its design. Factors considered in this analysis are the loss of utility of the product because of the safety device, industry custom, and the multifunctional nature of the product. No one factor, however, is determinative.

As indicated in the first hypothetical in the introduction, a difficult issue arises when a component part is incorporated in a larger product and the plaintiff alleges the failure to provide a safety device. As discussed earlier, section 402A subjects component part manufacturers to liability for defective products that cause injury or harm to users or consumers. Courts differ, however, in approaches to the question of whether the component part manufacturer or the assembler of the final product should be liable for the failure to provide a safety device in the final product. Generally, whether the component part was defective because of a lack of a safety device is a factual question. Courts differ, however, on the extent of
In *Bexiga v. Havir Manufacturing Corp.*, the defendant manufactured a ten-ton punch press. The defendant sold the press to the plaintiff's employer and did not incorporate any safety devices other than a guard over the flywheel. While the plaintiff was using the machine to punch holes in metal discs, he attempted to adjust a disc in the machine. The plaintiff did not remove his foot from the pedal which activates the machine and, as a result, the machine crushed his hand. The plaintiff presented evidence of two types of safety devices utilized in the industry: one, a push-button device which would require the use of both hands for the machine to operate and alternatively, a guardrail or gate to prevent the operator from putting his hands into the machine while it was operating. The defendant introduced evidence that the custom of the trade was for the purchasers to provide such safety devices.

The trial court dismissed the cause of action and the appellate court affirmed stating that, based on industry practice, the manufacturer did not expect that the punch press would reach the user without substantial change. The New Jersey Supreme Court reversed, stating that the substantial change rule in *Section 402A* does not apply where it absolves a manufacturer of liability if he expects the purchaser to provide safety devices. The court held that a jury could find that failure to incorporate a safety device created a defective product unless the inclu-

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63 60 N.J. 402, 290 A.2d 281 (1972).
64 Id. at 282.
65 Id. at 283.
66 Id.
67 Id. The plaintiff based his cause of action on negligence, breach of warranty and strict products liability.
68 Id.
70 Restatement (Second) of Torts § 402A(1)(b) (1965); see supra note 8 for the text of § 402A.
sion of a safety device would make the product unusable for its intended purpose.\textsuperscript{72} Evidence of trade custom, therefore, is not conclusive as to the duty to provide a safety device.\textsuperscript{73} Although the 	extit{Bexiga} decision does not involve a component part manufacturer, it is analogous to a situation where a component part manufacturer relies on the assembler of the final product to install a safety device.

In 	extit{Union Supply Co. v. Pust},\textsuperscript{74} the defendant manufactured a conveyor for a sugar refining company. The purchaser added several parts, including the motor, conveyor belt, electrical controls, legs for support, stairs, walkways, and the counterweight.\textsuperscript{75} The plaintiff caught his arm in the "nip point"\textsuperscript{76} of the conveyor while trying to clean the conveyor belts.\textsuperscript{77} The plaintiff asserted that the conveyor was defectively designed in that it did not have a safety guard at the "nip point" and because there was no warning of the hazards present at the "nip point."\textsuperscript{78} The trial court dismissed the plaintiff's complaint, but the court of appeals reversed.\textsuperscript{79}

The Colorado Supreme Court had never imposed liability on a manufacturer on the basis of a design defect

\textsuperscript{72} \textit{Id.} The court stated that "[t]he public interest in assuring that safety devices are installed demands more from the manufacturer than to permit him to leave such a critical phase of his manufacturing process to the haphazard conduct of the ultimate purchaser." \textit{Id.}

\textsuperscript{73} \textit{Id.}

\textsuperscript{74} 583 P.2d at 276.

\textsuperscript{75} \textit{Id.} at 279. The opinion notes that both Union Supply Co. and Holly Sugar Corp., the purchaser of the conveyor, were involved in the design of the conveyor. \textit{Id.}

\textsuperscript{76} A "nip point" is created where a conveyor belt moves over a stationary object. \textit{See generally} Annotation, \textit{Products Liability: Industrial Accidents Involving Conveyor Belts or Systems}, 2 A.L.R. 4th 262 (1980).

\textsuperscript{77} Union Supply Co. v. Pust, 583 P.2d at 278.

\textsuperscript{78} \textit{Id.} at 279.

before Union Supply.\textsuperscript{80} After holding that a design defect can be a basis for strict liability,\textsuperscript{81} the court discussed the liability of a component part manufacturer.\textsuperscript{82} The court noted a distinction between manufacturing defects and design defects when addressing the liability of a component part manufacturer.\textsuperscript{83} Nevertheless, the court held that a jury could find that there was a design defect because of the failure to provide a safety device in the conveyor sections that Union Supply provided to the purchaser.\textsuperscript{84}

Union Supply attempted to introduce evidence that it expected the purchaser to supply a safety guard.\textsuperscript{85} The court rejected this evidence as irrelevant because it related to a negligence analysis rather than a strict liability claim.\textsuperscript{86} The court then stated that the issue was not who had the duty to provide the safety device, but whether the product was defective because of the failure to incorporate a safety guard.\textsuperscript{87} Accordingly, the court held that if

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\textsuperscript{80} Union Supply Co. v. Pust, 583 P.2d at 280.
\textsuperscript{81} Id. The court held that if "a product is unreasonably dangerous because of a defect in its design strict liability may lie." Id.
\textsuperscript{82} Id. at 281. Before discussing component part liability, the court stated that it was possible that a jury could find both Holly Sugar and Union Supply were designers of the conveyor, in which case both could be liable under \textsection{} 402A for defective design. Id. However, Holly Sugar presumably could not be liable to the plaintiff even though it assembled the conveyor because it was the plaintiff's employer and thus subject to a workman's compensation statute. The court discussed component part liability as an alternative grounds for liability under \textsection{} 402A. Id.
\textsuperscript{83} Id. at 282. The court stated: "Unlike defects in manufacture—such as a defective tire assembly in an automobile or a defective fuse in a hand grenade—defects in design are not easily attributed to one component part or group of parts." Id.
\textsuperscript{84} Id.
\textsuperscript{85} Id. at 283.
\textsuperscript{86} Id.
\textsuperscript{87} Id. The court stated that:

This evidence injects into the case the irrelevant negligence issue of who had the duty to install safety guards. In strict liability cases, we are not concerned with who had the duty to provide guards, but rather with whether the conveyor was in a defective condition unreasonably dangerous because of the failure to provide safety guards before it reached the ultimate user or consumer.

Id. (citations omitted).
the proper elements of an action under section 402A were present, Union Supply would be liable for failure to provide a safety device.\textsuperscript{88} Thus under the \textit{Union Supply} analysis, a component part is defective if it is feasible to incorporate a safety device and the manufacturer fails to do so.\textsuperscript{89}

In \textit{Parkins \textit{v. Van Doren Sales, Inc.}},\textsuperscript{90} a Washington court of appeal reached a similar result. The plaintiff sustained severe injuries to her hand, wrist, and elbow when her hand was caught in the nip point of a conveyer belt.\textsuperscript{91} Van Doren Sales sold component parts to Wenoka Fruit Packing Plant, the plaintiff's employer, which Wenoka used to build the conveyer system.\textsuperscript{92} Van Doren did not provide any guards or warning labels with the component parts.\textsuperscript{93} The trial court granted summary judgment in favor of Van Doren; however, the court of appeals reversed and

\textsuperscript{88} Id. at 282-83. The court listed the following elements of an action under § 402A:
1. "The component part "must be in 'a defective condition unreasonably dangerous' to the user or consumer."
2. "[T]he product 'is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.' " (citation omitted).
3. "[T]he design defect must be the cause of the plaintiff's injury."
4. "[T]he defendant sold this product and is engaged in the business of selling such products." (citation omitted).
5. "The final element, of course, is that the plaintiff has sustained damages as a result."

\textsuperscript{89} Id. at 282-83; \textit{see also supra} notes 13-27 and accompanying text for a discussion of the elements of an action under § 402A.

\textsuperscript{90} Union Supply Co. \textit{v. Pust}, 583 P.2d at 282-83. The court also discussed the failure to warn of the danger at the "nip point" as a warning defect under § 402A. The court stated that the jury could find that "failure to attach warnings at the 'nip point' created a 'defective condition unreasonably dangerous' to the user or consumer." \textit{Id.} at 283-84. The court stated the elements of such an action are the same as that of a design defect and would extend to a component part manufacturer. \textit{Id.}

\textsuperscript{91} 45 Wash. App. 19, 724 P.2d 389 (1986).

\textsuperscript{92} Id. at 20-21, 724 P.2d at 391.

\textsuperscript{93} \textit{Id.}

\textsuperscript{94} \textit{Id.} Van Doren left the task of providing a guard or warning to Wenoka; however, Van Doren incorporates guards and warnings of the danger at the nip point when it sells assembled conveyer systems to other customers. \textit{Id.} at 21-22, 724 P.2d at 391-92.
remanded.\textsuperscript{94}

Applying Washington product liability statutes,\textsuperscript{95} the court stated that a jury could find that Van Doren should have provided a safety device based on its practice of providing guards when it installed conveyors.\textsuperscript{96} The court rejected Van Doren's argument that it was not feasible to install guards because they merely sold the component parts.\textsuperscript{97} The court stated that the basic design of the conveyor system does not change, regardless of who assembles the parts.\textsuperscript{98}

In \textit{Verge v. Ford Motor Co.},\textsuperscript{99} the Third Circuit developed a much different approach to the issue of a component part manufacturer's liability for failure to provide a safety device. In \textit{Verge}, the plaintiff broke his leg when a co-worker backed up a garbage truck and pinned him against a garbage can.\textsuperscript{100} The defendant manufactured the cab and chassis of the garbage truck and Leach Co. converted the cab and chassis for use as a garbage truck for the ultimate purchaser.\textsuperscript{101} Leach ordinarily sends the completed product to the ultimate consumer and does not purchase the chassis itself.\textsuperscript{102} The plaintiff claimed that the garbage truck was defective because it did not have a safety device to warn the plaintiff that the truck was in reverse.\textsuperscript{103} The

\begin{itemize}
\item \textsuperscript{94} \textit{Id.} at 22, 724 P.2d at 392.
\item \textsuperscript{95} Washington has specific statutes covering products liability which define design and warning defects similar to an action under § 402A. \textit{Id.} at 23-24 n.4, 724 P.2d at 392-93 n.4.
\item \textsuperscript{96} \textit{Id.} at 26, 724 P.2d at 394. The court considered the availability of a safety device, the affidavit of a mechanic concerning the dangers presented at an unguarded nip point, and the fact that the conveyor was originally designed twenty years before the accident and had not been modified significantly. \textit{Id.}
\item \textsuperscript{97} \textit{Id.} at 27, 724 P.2d at 394.
\item \textsuperscript{98} \textit{Id.} The court also held that the trial court erred in granting summary judgment because a jury could find that the conveyor was defective due to Van Doren's failure to provide a warning label or decal. \textit{Id.}
\item \textsuperscript{99} 581 F.2d 384 (3d Cir. 1978) (applying Virgin Islands law).
\item \textsuperscript{100} \textit{Id.} at 385.
\item \textsuperscript{101} \textit{Id.} at 387. The conversion process involved reducing the size of the chassis, adding a compactor unit, and making electrical hook-ups. \textit{Id.}
\item \textsuperscript{102} \textit{Id.} Leach generally bills the purchaser for the conversion. \textit{Id.}
\item \textsuperscript{103} \textit{Id.} at 386. The complaint stated that the truck was defective because the defendant "failed to equip the garbage truck with an operable buzzer or other
jury returned a verdict in favor of the plaintiff; however, the court of appeals reversed in favor of the defendant.

The court stated that in a case of this nature, two issues were involved: Was there a defect? and if so, who was responsible for it? Addressing the first issue, the court stated that there was ample evidence for the jury to find that the garbage truck was defective because of the failure to have a safety device. As to the second issue, the court developed a test for determining responsibility by looking at three factors: trade custom, relative expertise, and practicability. The court held that there was insufficient evidence to establish a trade custom as to who should be responsible for the installation of a safety device. After reviewing the relative expertise of Ford and Leach, the court determined that Leach possessed more expertise than Ford. Finally, the court held that it was more practicable for Leach to install such a safety device in light of the multi-purpose nature of the vehicle. As a result of this three part analysis, the court held that Ford was not liable. A number of courts have adopted the three part test enunciated in Verge.

device which would warn [the plaintiff] and other persons foreseeably similarly situated that the garbage truck was to be reversed.” Id.

104 Id.
105 Id. at 389.
106 Id. at 386.
107 Id.
108 Id. at 387.
109 Id. at 387-88.
110 Id. at 388. The court noted that Leach’s business was primarily in the manufacture and installation of compactor units, while there was no evidence that Ford ever installed a warning device of this kind. Id. Moreover, there was no direct evidence that Ford knew that Leach was converting its trucks into garbage trucks since the trucks were purchased from dealers. Id.

111 Id. The court went on to state that the “vehicle . . . was not inherently defective when manufactured, but that it became defective solely because of additions made by a company with decades of experience in accomplishing just this type of modification.” Id. at 389.

112 The court did state that there may be different factual situations where the manufacturer of a component part may be held liable for failing to provide a safety device. Id.

113 See Field v. Omaha Standard, Inc., 582 F. Supp. 323 (E.D. Pa. 1983) (admitting evidence of trade custom and instruction to jury that it should consider prac-
These cases illustrate the two basic approaches the courts take when addressing the issue of a component part manufacturer's liability for failure to provide a safety device as a design defect. The *Union Supply* approach concentrates solely on the issue of whether the component part was defective. If the product was defective, then the component manufacturer and the assembler will be liable for resulting injury. The *Verge* approach, on the other hand, allows the jury to look at other factors in assessing who should have provided the safety device. The factors of trade custom, practicability and relative expertise lend to a result that only one of the potential defendants will be accountable for resulting injuries.

Neither the *Union Supply* or the *Verge* approach can be termed the "majority view." The *Verge* approach, however, is expanding into other types of defects such as warning defects and other design defects. As will be discussed in the analysis of the hypotheticals, the use of comparative fault doctrines may provide an approach which eliminates the tendency of an "all or nothing" result.

C. **Warning Defects and Other Design Defects**

Even though a manufacturer properly manufactured the product and there is no design defect, he may still be liable for failure to provide a warning. A manufacturer will be held accountable for injuries if the product is un-
reasonably dangerous as a result of a failure to warn of the dangers inherent in the product. Moreover, a component part manufacturer may be liable for a warning defect with respect to the completed product.

The analysis of a warning defect is similar to that of a design defect. A plaintiff will often assert a warning defect as alternative grounds for recovery in a products liability action. Thus, the court in *Union Supply* stated that the failure to provide a warning of the dangers at the "nip point" of the conveyor system could constitute a defect under section 402A. Similarly, in *Jiminez v. Dreis & Krump Manufacturing Co.*, the defendant manufactured an activating device for an industrial press machine. Sixteen years after the defendant sold the part to an unknown party, the plaintiff lost three fingers while operating a press machine. The plaintiff brought the action alleging failure to provide a guard mechanism and failure to warn of the hazards of operating the press without a guard. The Second Circuit reversed a summary judgment in favor of the defendant stating that there was a jury issue as to whether the failure to provide a warning created a defective product.

A different result was reached in *Frazier v. Materials Transportation Co.*, where the plaintiff sued the manufacturer of a meat dumping machine and the makers of some of its component parts. The plaintiff jumped from the hy-
draulic lift of the machine when he realized he could not
reach the stop button to prevent the machine from drop-
ing him into the meat grinders.\textsuperscript{126} Namco Controls man-
ufactured switches which Materials Transportation Co.
incorporated into the machine.\textsuperscript{127} Since Namco had no
part in the design of the machine nor in placement of the
switches, the court granted summary judgment stating
that Namco was not close enough to the chain of causa-
tion.\textsuperscript{128} Similarly, the court held that Allied Power Inc.,
who supplied hydraulic pumps and valves in the machine,
could not be held liable for failure to provide a
warning.\textsuperscript{129}

A Pennsylvania state court extended the test in \textit{Verge v.
Ford Motor Co.}\textsuperscript{130} to defects other than failure to provide a
safety device. In \textit{Orion Insurance Co. v. United Technologies
Corp.},\textsuperscript{131} the plaintiff brought an action alleging that
United Technologies Corporation (United) defectively
manufactured a helicopter which crashed in flight.\textsuperscript{192} The
plaintiff also alleged both design and warning defects re-
lating to the helicopter's "stationary star."\textsuperscript{133} Amtel, Inc.
(Amtel), through a subsidiary, machined the star accord-
ing to specifications provided by a United subsidiary.\textsuperscript{134}

\textsuperscript{126} \textit{Id.} at 934-35.
\textsuperscript{127} \textit{Id.} at 935.
\textsuperscript{128} \textit{Id.} The court stated that "[s]uppliers of component parts, no matter how
small or insignificant, should not be held to inquire into their ultimate use and
foresee all possible applications in order to satisfy a duty to warn of potential
danger associated with the finished product." \textit{Id.} The court appears to have ap-
plied a duty analysis, a negligence concept, to the failure to provide a warning
under \S\ 402A. The court in \textit{Union Supply Co. v. Pust}, 583 P.2d at 284, rejected
the issue of duty to provide a safety device in design defects; see \textit{supra} note 86-87
and accompanying text.
\textsuperscript{129} \textit{Frazier}, 609 F. Supp. at 935-36. The court did find that there was a jury issue
as to whether Materials Transportation Co., as assembler of the finished product,
could be held liable for failure to provide a warning. \textit{Id.} at 986.
\textsuperscript{130} \textit{See supra} note 99-113 for a discussion of the decision in \textit{Verge}.
\textsuperscript{131} 502 F. Supp. at 173.
\textsuperscript{132} \textit{Id.} at 174.
\textsuperscript{133} \textit{Id.} A stationary star is a part of the main rotor head assembly on a helicop-
ter. \textit{Id.} The plaintiffs alleged that the star cracked in flight thus causing the acci-
dent. \textit{Id.} The defendants, on the other hand, claimed that the star fractured upon
impact of the crash. \textit{Id.}
\textsuperscript{134} \textit{Id.} at 175.
Amtel moved for summary judgment, raising the issue of whether a component part manufacturer who manufactured a part to another's specifications can be liable for a design defect.\textsuperscript{135}

First, the court held that Amtel reasonably relied on the specifications of the helicopter manufacturer and thus was not negligent.\textsuperscript{136} In addressing the design defect claim, the court stated that similar considerations of reliance apply.\textsuperscript{137} The court considered the fact that United possessed superior knowledge,\textsuperscript{138} and cited with approval the three part test in \textit{Verge}.\textsuperscript{139} Next, the court considered the claim of a warning defect under section 402A.\textsuperscript{140} The court, relying on the \textit{Verge} test, held that the responsibility for a warning defect should also be borne by United as manufacturer of the helicopter.\textsuperscript{141} Finally, the court stated that there was no public policy interest in placing liability

\textsuperscript{135} \textit{Id.} Through interrogatories, the plaintiff conceded that it could not prove a manufacturing defect; thus, the only issue remaining was the defective design of the star. \textit{Id.} n.2.

\textsuperscript{136} \textit{Id.} at 176. The court stated that because the helicopter manufacturer had an established reputation, "[i]t was not unreasonable as a matter of law for Amtel to rely on the plans." \textit{Id.}

\textsuperscript{137} \textit{Id.}

\textsuperscript{138} \textit{Id.} The court stated that "Amtel was dealing not with specifications submitted by a consumer but by a business entity with superior knowledge in the field of aviation." \textit{Id.}

\textsuperscript{139} \textit{Id.} at 177. The court also cited Taylor v. Paul O. Abbe, Inc., 516 F.2d 145 (3d Cir. 1975). In \textit{Taylor}, the defendant manufactured a replacement cylinder for a mill owned and operated by Taylor's employer. \textit{Taylor}, 516 F.2d at 146. The defendant offered to provide, for an additional charge, a guard at the point where the "ring and pinion gears meshed." \textit{Id.} However, the purchaser rejected the offer, and the plaintiff was injured when his hand caught in the unguarded nip point of the gears. \textit{Id.} The plaintiff claimed the component cylinder was defective in that there was no cut off switch in the vicinity of the machine and no gear guard. \textit{Id.} at 147. The court held that imposition of these safety devices was more the concern of the purchaser. \textit{Id.} at 149. A seemingly critical factor was the offer by the defendant to install a gear guard and the fact that the purchaser was an established business entity with over fifty years experience in the operation of the mill. \textit{Id.} at 148.

\textsuperscript{140} \textit{Orion Ins. Co.}, 502 F. Supp. at 177.

\textsuperscript{141} \textit{Id.} at 178. The court stated:

Just as in the safety device cases, where the Third Circuit [in \textit{Verge}] has said that the district court may consider, inter alia, the expertise of the component part manufacturer vis-a-vis the assembler of the finished product, I believe a similar inquiry is in order when consid-
on a component part manufacturer who followed specifications provided by others.\textsuperscript{142}

It is important to note that the component part manufacturer in \textit{Orion} did not participate in the design of the stationary star. However, it is not at all clear that the court would have reached the same result if Amtel designed the star. The importance of the \textit{Orion} decision is that the test enunciated in \textit{Verge} may be applied to an ordinary design defect claim. For instance, if Amtel had knowledge superior to United on the design of a stationary star, the court may have reached a different result. In addition, the court charted new territory by applying the \textit{Verge} test to a warning defect.

In many circumstances, it is conceptually difficult to evaluate the liability of a component part manufacturer for failure to provide a warning. The most apparent reason for this difficulty is the factor of practicability. In many situations, it seems impracticable to require that a component manufacturer provide a warning when his product is incorporated in a larger product. The court in \textit{Frazier} addressed this issue in terms of causation;\textsuperscript{143} a court applying the \textit{Verge} test, however, could analyze the question by looking at practicability, as well as trade custom and relative expertise. As will be discussed later, a

\textsuperscript{142} Id.

\textsuperscript{143} See supra note 128 and accompanying text.
third alternative utilizing comparative fault doctrines may provide a better approach to solving this liability issue.

V. ANALYSIS OF HYPOTHETICAL

The following discussion considers how a court might analyze the hypotheticals posed in the introduction to this comment.

A. Hypothetical One:

Recall that in the first hypothetical Rotor, Inc. manufactured helicopter rotors that cracked during flight. Assume that there is no claim of a manufacturing or warning defect. The issue is whether the absence of a warning device in the cockpit which would have alerted the pilot of a loss of pressure in the helicopter rotors constitutes a design defect under section 402A. A jury might consider such factors as the probability of a reduction in rotor pressure, industry custom, the costs associated with such a device, and whether such a device would impair the usefulness of the product. It appears that a jury could reasonably find that the risks outweigh the utility associated with piloting the helicopter without the warning device.

Assuming the plaintiff is able to prove the helicopter was defective because of the failure to incorporate a cockpit warning device, the question remains as to who should be held responsible under section 402A. Under the ra-

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144 Note that the failure to provide a warning device such as a pressure gauge is not a warning defect. A design defect is where the absence of a design feature, e.g., a safety device, causes the product to be unreasonably dangerous; see supra notes 53-59 and accompanying text for a discussion of design defects. A warning defect occurs when the manufacture fails to give adequate notice to the user or consumer that the product itself may expose him to certain risks and danger; see supra notes 115-117 and accompanying text for a discussion of warning defects.

145 See supra notes 56-58 and accompanying text for a discussion of factors considered in a risk-utility analysis.

146 See supra note 25 for a sample jury instruction for a design defect. Even though the jury in Haas v. United Technologies Corp., 450 A.2d 1173 (Del. 1982), found that the helicopter was not defective under similar facts, it is still possible that other jurors might reach a different conclusion.
tionale in Union Supply Co., Rotor, Inc. could not escape liability if it believed that Helicopter, Inc. would provide a safety device or if it was trade custom for the assembler to provide a device. If the plaintiff is able to prove the necessary elements of an action under section 402A, Rotor, Inc. will be liable for the plaintiff's injuries. Because the rotor was defectively designed, Helicopter, Inc. and Rotor, Inc. will both be jointly and severally liable for the injuries to the consumer.

Under the three part test of trade custom, expertise and practicability utilized in Verge v. Ford Motor Co., it is not at all clear whether Rotor, Inc., as manufacturer of the component parts, will be liable for this design defect. The test is much more fact specific than in Union Supply Co., and the result will depend on the evidence presented at trial as to these factors. It is possible that it was industry practice for the assembler of the helicopter to provide pressure gauges or some other warning device. Both Rotor, Inc. and Helicopter, Inc. appear to have equal expertise in the manufacture of helicopters. In addition, it seems more practicable for Helicopter, Inc. to provide some type of pressure gauge since Rotor, Inc. did not participate in the design or assembly of the cockpit. Thus, the jury would most likely find that only Helicopter, Inc. should bear the responsibility for the plaintiffs injuries.

Neither of these attempts to analyze the hypothetical take into account the availability of comparative fault doctrines. Suppose the jury receives the following instruction:

Was the rotor unreasonably dangerous because of the fail-

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147 Union Supply Co. v. Pust, 583 P.2d at 276; see supra notes 74-89 and accompanying text for a discussion of Union Supply.
148 Id. at 283.
149 See supra note 88 for the elements the Colorado Supreme Court listed in Union Supply Co v. Pust.
150 581 F.2d at 384; see supra notes 99-113 and accompanying text for a discussion of Verge.
151 See supra notes 31-43 and accompanying text for a discussion of comparative fault principles.
ure to provide a warning device in the cockpit of the helicopter? Answer yes or no.

Was the helicopter unreasonably dangerous because of the absence of a warning device in the cockpit of the helicopter? Answer yes or no.

The jury would answer the above questions based on the definition of defect given to them by the court.152 If the jury answers yes to only one of the above questions, there is no need to proceed further. Either Rotor, Inc. or Helicopter, Inc. will be liable.

If the jury returns the instruction answering yes to both the above queries, then the jury must also answer the following question:

Find from a preponderance of the evidence the percentage of plaintiff's injuries caused by:

The Rotors

The Helicopter

100%

The problem with this instruction is the difficulty in comparing the products rather than the manufacturers when attempting to determine causation.153 A jury would probably consider the manufacturers and their conduct rather than the defective nature of the product.

Suppose instead we ask the jury the following:

Find from a preponderance of the evidence the percentage of plaintiff's injuries caused by:

Rotor, Inc.

Helicopter, Inc.

100%

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152 See supra note 25 for examples of jury instructions incorporating the risk-utility test and the consumer expectation test.

153 It would be an easier case if there were two products, the component part and the completed part, each defective and each contributing to the plaintiff's injury. Consider a molding machine and a component switchboard. The molding machine does not have a guard and the plaintiff's hand gets caught in the mechanism. The switchboard which turns the machine off also malfunctions and the plaintiff incurs enhanced injuries as a result. Asking the jury to compare the defective molding machine and the defective component control board as to the cause of the plaintiff's injuries is conceptually easier.
Such an instruction would force the jury to consider the conduct of the defendants and could possibly present a negligence issue of duty. Yet this would be no different than applying the Verge three part test of trade custom, practicability and relative expertise. The court could instruct the jury to consider these three factors in apportioning relative fault. In this way, there is no need for an "all or nothing" imposition of liability on either the assembler or the component part manufacturer.

B. Hypothetical Two:

Consider the second hypothetical involving a warning defect. Recall that in the hypothetical, the component part at issue is an "elevator trim tab actuator" which is the control mechanism for the upward and downward movement of the aircraft. The plaintiff alleges a warning defect in that there was no warning accompanying the product that the left and right actuators are visually identical, yet functionally distinct. The plaintiff claims that a proper warning would have given notice that installing the actuators in reverse would cause the aircraft to crash.

To find that there was a warning defect, the plaintiff

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154 See supra notes 86 and 128 for a discussion of interjecting duty into a § 402A analysis.

155 Some courts may have difficulty in leaving such issues to the speculation of a jury. For example, in Frazier v. Materials Transp. Co., 609 F. Supp. at 933, the court refused to leave to the jury the issue of failure to warn with respect to the component part manufacturers. The court noted "the impropriety of allowing a jury to speculate on these causation-related issues, such as the degree of control over the final product exercised by a parts supplier. [The component part manufacturer's] role in composing or attaching warnings is far too distant." Id. at 935 (emphasis added); see supra notes 125-129 and accompanying text for a discussion of the decision in Frazier.

156 The claim of a warning defect could be in addition to a claim that the actuators were defectively designed. The actuators are defectively designed if they were unreasonably dangerous to the user or consumer taking into account the utility of the product and the risk involved in its use. See supra note 6 for a discussion of Nesselrode, 707 S.W.2d at 371. In Nesselrode, the plaintiff introduced evidence of "murphy proof" design features which would eliminate or reduce the possibility of incorrect installation. Id. at 381.

157 See supra notes 115-117 and accompanying text for a discussion of warning defects.
must show that there was either no warning or inadequate warning of the possibility of reverse installation of the actuators, and the absence of a warning created an unreasonable risk to users of the actuators. In addition, the plaintiff must show that but for the lack of the warning, the actuators would have been installed properly and the risk of reverse installation was foreseeable. It appears reasonable that a jury could find that there was inadequate warning and that the actuators are defective under section 402A.

Assuming that there is a warning defect, the question remains as to who should be held accountable for the failure to provide a warning. One way of analyzing the issue is relatively simple. If we assume that the actuator is a separate product and Elevator, Inc. is merely a distributor of the product, both Actuator, Inc. and Elevator, Inc. are liable for any injuries resulting from the defective actuator. It can be argued, alternatively, that the actuator is one product and the package is another. If this is the case, then the *Union Supply* and *Verge* tests, as well as the use of comparative fault doctrines, are applicable.

Under the analysis in *Union Supply*, both Actuator, Inc., as manufacturer of the component part, and Elevator, Inc., who sells the actuator with other component parts as a package, should be liable. As manufacturer of the actuator, Actuator, Inc. could have provided a warning and cannot escape liability by claiming that they expected Elevator, Inc. to warn the user. Similarly, Elevator, Inc. sold the product without an adequate warning and is liable for the injuries caused to the plaintiff. Thus, Actuator, Inc. and Elevator, Inc. are jointly and severally liable to plaintiff for the injuries incurred by the plaintiff under the *Union Supply* analysis.

Alternatively, a court can apply the *Verge* three part test of trade custom, relative expertise, and practicability to a claim of a warning defect. The analysis is similar to the

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158 See *Orion Ins. Co.*, 502 F. Supp. at 173; see *supra* notes 139-141 and accompa-
first hypothetical in that trade custom, the relative expertise of Actuator, Inc. and Elevator, Inc. and practicability are important in deciding whether one or the other should bear the responsibility for the plaintiff's injuries. Depending on the evidence presented at trial, either party, but not both, could be held liable.

The use of comparative principles might yield entirely different results than the analysis under *Union Supply* or *Verge*. Suppose the jury receives the following instructions:

> Was the “elevator trim tab actuator” unreasonably dangerous because of the failure to provide a warning of the possibility of reverse installation? Answer yes or no.
> Was the “package” unreasonably dangerous because of the failure to provide a warning of the possibility of reverse installation of the actuators? Answer yes or no.

If the jury answers both questions in the affirmative, then the next question would be as follows:

> Find from a preponderance of the evidence the percentage of plaintiff's injuries caused by:
> Actuator, Inc. _____
> Elevator, Inc. _____
> 100%

Again, this instruction tends to ask the jury to compare the conduct of the defendants, which is closer to a negligence analysis than strict liability. As in the first hypothetical, the result of using this comparative format also considers the *Verge* factors and possibly avoids an "all or nothing" imposition of liability.

VI. Analysis and Conclusion

Although most of the cases cited in this Comment do not involve aircraft related litigation, they nevertheless are applicable to the industry. In a products liability action, the plaintiff will offer all possible theories of recovery which could result in a judgment in his favor. The

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nying text for discussion of the court's application of the *Verge* test to a warning defect.
first hypothetical illustrates this principle. The plaintiff in such an action would first claim that the rotor was defectively manufactured. However, there is often difficulty in proving such a claim, and it is possible that no manufacturing defect existed. In addition, the plaintiff might assert a design defect by showing an alternative design of the rotor; it is possible, however, that there was no design defect. Thus an alternative theory of liability is the failure of the defendants to provide a safety device.

In this Comment, three different approaches were presented concerning the problem of determining the liability of a component part manufacturer when the alleged defect is the failure to provide a safety device or failure to provide adequate warning. The Union Supply analysis imposes liability on the component part manufacturer regardless of the duty or ability of the assembler of the final product to provide a safety device. The Verge analysis examines trade custom, expertise, and practicability of the defendants. Finally, it is possible to avoid an "all or nothing" analysis by utilizing a comparative fault doctrine.

The problem with the Verge analysis and the comparative fault analysis is that both inject the conduct of each of the defendants into a strict liability cause of action. Although comparative fault doctrines are used in strict liability actions, the focus is on comparing the product with the negligence of the defendant(s) or the plaintiff. This is not the same as comparing the conduct of one manufacturer to that of another.

One cannot say that component part manufacturers should always be liable for failure to provide a safety device. Whether the product is defective or not when it leaves the component part manufacturer depends on many factors. In this respect, the Union Supply analysis does not eliminate the possibility that the product was not defective. The plaintiff must prove all of the elements of a strict liability analysis under section 402A. Therefore, the result is really not an "all or nothing" proposition. On the other hand, if one agrees that the factors of custom,
expertise and common sense practicability are relevant in a strict liability analysis of the defendant, then using comparative fault principles would appear to be the best approach to the solution of the component part problem.
Casenotes and Statute Notes