# Product Liability of the Aviation Component Part Manufacturer: A Proposal To Reduce Transaction Costs

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TABLE OF CONTENTS



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## I. INTRODUCTION

Despite the commonly accepted notion that product manufacturers are intimately involved in all phases of the production process, many products are, in fact, the end result of the discrete contributions of many producers. Modern technology and the development of increasingly complex products has caused specialization in the manufacturing process. It is common for a product to be made up of parts contributed by a number of different component manufacturers.

Aviation products are a prime example. Finished aircraft are made up of altimeters, engines, navigational instruments, electronic and hydraulic systems (in turn, made up of many independently produced components), and a variety of other products, none of which are manufactured by the aircraft manufacturer. While some of these parts are manufactured by part-makers who are engaged exclusively in the business of aviation, many are not.

Aviation component manufacturers have been faced with increasing numbers of product liability claims. In order to fund escalating damage awards, claimants are seeking greater numbers of defendants.[1] The component manufacturer has been the target of this search.

With the exception of injuries caused by manufacturing defects in component parts, however, it is inappropriate for product liability law to treat an aviation component manufacturer as if he designed and produced a finished aircraft. Product liability is based upon the assumption that the manufacturer, as an expert in his field, has greater access to information regarding product safety than does the consumer and, due to this expertise, is in a better position to assess product dangers and to take steps to

1. Carsey, *Initial and Continuing Responsibilities of General Aviation Manufacturers*, 37 J. AIR L. & COM. 295, 295 (1971).

assure safety. Hence, the imposition of liability on product manufacturers is justifiable both as an efficient allocation of society's resources and as a means of deterring the introduction of unsafe products into the marketplace, by placing responsibility for those products upon those who are best able to assure their safety.

In the case of the component part manufacturer, however, these assumptions break down. First, unlike the product assembler, who is familiar with the end-use applications of the finished product, component part manufacturers most often are not experts in the end product.[2] This is particularly true in the case of technologically advanced products such as aircraft. Where large numbers of component part-makers contribute distinct products to the finished aircraft, it is only the aircraft manufacturer who possesses the aviation expertise necessary to insure the production of a safe aircraft. In this situation, it is reasonable for the component part-maker to rely on the greater expertise of the assembler.

Second, component part manufacturers often lack information regarding the interrelationship of the component parts to each other and to the finished product.[3] Manufacturer-assemblers rarely provide information to each component part-maker with respect to the functioning of the system as a whole; moreover, the component part manufacturer frequently is not expert enough in the end-use assembly operations to intelligently use such information effectively. Due to this lack of knowledge, component part manufacturers generally do not have the ability to foresee and assess product risks.

Third, even assuming that the component part manufacturer is able to identify product dangers, he often has no contact with the ultimate user of the product and no means of communicating with him.[4] Unlike the assembler, his product is not distributed to the consumer in his own packaging or with his manual of labeling. Therefore, his opportunity to warn or instruct the ultimate purchaser of the product with respect to hazards and the proper use of the product is limited.

Finally, component manufacturers often manufacture their products to design specifications provided by the assembler or by a third party.[5] Such specifications deprive the component manufacturer of a large measure of control over the design process itself. This serves to insulate him even more from the decision-making function generally performed by the product manufacturer.

The unique position of the component manufacturer renders the prod-

2. *See infra* text accompanying notes 56-60 & 93-94.
3. *See infra* text accompanying notes 68-81 & 85-93.
4. *See infra* text accompanying notes 95-98.
5. *See infra* text accompanying notes 55-67.

uct liability system inappropriate for resolving questions of component part manufacturer design or warnings liability in most cases. Because he does not have involvement in or control of product design or marketing, he is usually not causally involved in accidents growing out of design or marketing defects. The principal result of continuing to impose the same standards of product liability on the component part manufacturer as on the assembler of the final product is to increase the costs of compensating injured persons. If the standards of liability are the same, the plaintiff can hardly be expected not to sue the component part manufacturer. In doing so, however, the plaintiff does not broaden the basis of recovery or make recovery more likely. The factual bases for liability — knowledge, control, expertise, ability to foresee and prevent harm—are generally not present, and the courts have recognized the unique position of the component part manufacturer by carving out ad hoc, fact-based exceptions to liability for that class of manufacturers.

In most product liability cases involving component part manufacturers the courts unnecessarily suffer the burden of multi-party litigation and defendant component part manufacturers are unnecessarily put to the cost of defense. This is a waste of legal resources and unreasonably increases the cost of compensating accident victims.[6] The posture of the component part manufacturer is, in this respect, similar to that of wholesaler-distributors and retailers. The Senate Committee on Commerce, Science, and Transportation recommended in its report on S. 2631, a bill to create uniform standards of product liability law throughout the United States, that wholesaler-distributors and retailers be excluded from broad exposure to strict liability and that they be responsible only for harms caused by their own negligent conduct.[7] The Committee recommendation is based on the resource waste and cost burden involved in unnecessarily subjecting wholesaler-distributors and retailers to product liability litigation. Keeping the wholesaler-distributor and the retailer in the product liability system is inefficient and unnecessary to injury compensation in most cases.

A similar adjustment of the product liability system is warranted in the case of component part manufacturers. Their presence in product liability lawsuits is usually not necessary for compensation of injured persons. Component part-maker cases generally involve the allocation of responsibility between the assembler and the component part manufacturer. This issue has little bearing upon the ultimate compensation of the injured victim; rather, it involves the economic allocation of resources between parties of

6. For every dollar of claims paid an average of 42 cents is spent in defense costs. INSURANCE SERVICES OFFICE, PRODUCT LIABILITY CLOSED CLAIM SURVEY 11 (1977).

7. S. REP. NO. 670, 97th Cong., 2nd Sess. 39 (1982). If the manufacturer is out of business or cannot be reached by judicial process, the wholesaler-distributor and retailer would then have manufacturer liability.

similar, if not equal, bargaining power.[8] Such issues are more properly dealt with by resort to negotiated contracts and insurance, which permits the parties involved in the manufacturing process to assign responsibility among themselves in accordance with the most efficient allocation of resources. Where there is a final assembler of the product subject to suit and able to respond in damages, the component part manufacturer should be removed from the operation of the product liability system except in cases involving its own fault. In suits against component part-makers, the standard by which the part-maker is judged should be a fault-based negligence standard.

In general, the allocation of responsibility between component part manufacturers and final assemblers should be addressed contractually. Where that is not possible and recourse to the courts is necessary, whether in a separate suit or as part of the underlying suit by the injured party, the component part manufacturer's liability to the final assembler should be determined under negligence principles, not strict liability. The theory of strict liability is premised upon the assumption that the cost of redressing injuries from defective products should more properly lie with the manufacturer, who is better able to spread the risk among those who benefit from the product, than with the injured consumer.[9] Where, however, the issue is not compensation but the allocation of risk between two commercial parties, *i.e.*, the assembler and the component part manufacturer, strict liability is inapplicable because either party is equally able to perform the risk spreading function.[10] Moreover, to the extent that strict liability is based upon the notion that liability serves to deter the manufacture of defective products, that notion is usually inapplicable to the component part manufacturer. He generally lacks the kind of knowledge, control, expertise and ability to foresee and prevent product risks, the essential predicate to the deterrence rationale.

Section II of this article will outline current theories of product liability as they have been applied to the aviation component manufacturer. Section III will review areas of product liability in which the courts have recognized the unique position of component part manufacturers. Finally, section IV will

8. *See* Comment, *Apportionment Between Partmakers and Assemblers in Strict Liability*, 49 U. CHI. L. REV. 544 (1982); Note, *Airline Passenger's Lack of Privity Bars Implied Warranty Action Against Manufacturer of Defective Component Part But Not Against Assembler of Completed Airplane*, 63 COLUM. L. REV. 1522 (1963). The former comment argues for the allocation of liability between the assembler and the component manufacturer on the basis of an assessment of who is the "cheapest cost avoider." While this approach is not unreasonable, it will generally be the case that the assembler is the cheapest cost avoider by virtue of his greater ability to learn of the hazardous condition and prevent it from occurring.

9. Greenman v. Yuba Power Products, Inc., 59 Cal. 2d 57, 27 Cal. Rptr. 697, 377 P.2d 897 (1962).

10. *See infra* text accompanying notes 51-54.

suggest proposed revisions to the product liability system which address the burdens on component part manufacturers and on the court system created by the present liability standards.

## II. Theories of Liability Applicable to Component Part Manufacturers

Aircraft accident cases generally involve at least three parties: 1) an aircraft owner or operator, which in large commercial litigation is generally an airline; 2) the manufacturer of the aircraft, the assembler of the finished product; and 3) the manufacturer of a component part which is installed into the finished aircraft by the aircraft manufacturer. The liability of the component part manufacturer will, in almost all cases, be intimately related to whether the other parties to the manufacturing and design process performed their functions properly.[11]

### *A. Negligence*

Aviation component part manufacturers, like other manufacturers, are liable for failure to exercise reasonable care in the production of their products. If a component manufacturer's lack of due care renders the product, or the finished product in which it is incorporated, unreasonably dangerous for use by consumers, and, if the product is the proximate cause of harm to a product user, the component manufacturer will be liable to the injured party.[12]

Aviation component part manufacturers may be negligent in one of three ways: (1) they may negligently manufacture a particular product, thus

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11. An aircraft manufacturer who installs component parts in its aircraft may, of course, be held solely liable for defects in those components. Boeing Airplane Co. v. Brown, 291 F.2d 310 (9th Cir. 1961) (aircraft manufacturer held liable for defects in alternator drive supplied by component manufacturer); King v. Douglas Aircraft Co., 159 So. 2d 108 (Fla. Dist. Ct. App. 1963) (aircraft manufacturer liable in action sounding in negligence and breach of warranty for design defect in engine supplied by component part manufacturer). *See generally* Ford Motor Co. v. Mathis, 322 F.2d 267, 273-74 (5th Cir. 1963); 1 L. Frumer & M. Friedman, Products Liability § 10.02 (1982) [hereinafter cited as Frumer & Friedman]. This principle has been followed in cases involving strict liability and breach of warranty claims. *See, e.g.*, D'Antona v. Hampton Grinding Wheel Co., 225 Pa. Super. 120, 310 A.2d 307, 309 (1973) (strict liability); King v. Douglas Aircraft Co., 159 So. 2d 108 (Fla. Dist. Ct. App. 1963) (warranty). It is based on the thesis that "an assembler of a product . . . sells the completed product as its own and thereby represents to the public that it is the manufacturer." King, 159 So. 2d at 110. Since the public does not distinguish between the assembler and the component manufacturer it is considered fair to hold the finished product manufacturer liable for defects in component parts which it incorporates into the final product.

12. *See generally* 1 Frumer & Friedman, *supra* note 11, at § 9.01; Restatement (Second) of Torts §§ 395, 396 comment m (1965) ("A manufacturer of parts to be incorporated in the product of his buyer or others is subject to liability under the rule stated in this Section, if they are so negligently made as to render the products in which they are incorporated unreasonably dangerous for use.")

causing harm to the plaintiff;[13] (2) they may negligently design an entire product line;[14] or (3) they may negligently fail to provide adequate warnings and instructions to accompany their products.[15]

Even though a component part manufacturer has breached a duty of care to product users, no liability will arise where the component manufacturer's conduct was not the proximate cause of the plaintiff's injury. Because component products often pass through the hands of a number of parties before reaching the ultimate consumer, the intervening negligence of third parties is frequently an issue in component part cases. Where an accident is caused by the unforeseeable intervening negligence of a third party, the component part manufacturer will be absolved of liability if the intervening negligence is deemed by the trier of fact to be a "superseding cause."[16]

*Goldsmith v. Martin Marietta Corp.*[17] is a good illustration. In that case Bendix, the designer of a fluxgate caging switch, was sued by survivors of deceased passengers who were killed when the switch was accidentally activated during flight, thus causing the pilot to receive incorrect directional information. Plaintiffs alleged that Bendix was negligent in failing to incorporate a guard in its design of the caging switch. They contended that the installation of a guard would have prevented the inadvertent activation of the switch, and thus would have prevented the ensuing crash. It was undisputed that the actual switch involved in the accident was neither manufactured nor installed by Bendix but rather was manufactured by an unknown party who "pirated" Bendix's design.

The U.S. District Court for the District of Maryland held that Bendix was

13. *See, e.g.*, Carter Carburetor Corp. v. Riley, 186 F.2d 148 (8th Cir. 1951) (component part manufacturer's negligent manufacture of fuel pump was proximate cause of crash).

14. *See, e.g.*, Pan American World Airways, Inc. v. United Aircraft Corp., 192 A.2d 913 (Del. Super. Ct. 1963), *aff'd*, 57 Del. 322, 199 A.2d 758 (1964) (component part manufacturer's negligent design of governor caused aircraft damage).

15. Labelle v. McCauley Indus. Corp., 649 F.2d 46, 49 (1st Cir. 1981) (propeller manufacturer negligently failed to warn users directly of fact that rounding and polishing of propellers had not been performed); Braniff Airways Inc. v. Curtiss-Wright Corp., 411 F.2d 451 (2d Cir. 1969), *cert. denied*, 396 U.S. 959 (1969) (engine manufacturer negligently failed to warn of incidents of cylinder barrel separation after manufacture); Noel v. United Aircraft Corp., 342 F.2d 232 (3d Cir. 1964) (propeller manufacturer negligently failed to warn users of defects in propeller system).

16. *See, e.g.*, Goldsmith v. Martin Marietta Corp., 211 F. Supp. 91 (D. Md. 1962).

17. *Id. But see* Fisher v. Bell Helicopter Co., 403 F. Supp. 1165 (D.D.C. 1975), in which a surviving police officer sued Avco, an engine manufacturer, after the helicopter in which he was riding crashed due to the fact that improper bolts were used in the construction of the engine. The helicopter was owned by the District of Columbia. Despite the fact that Avco issued a service bulletin recommending that the improper bolts be removed and replaced with shot-peened bolts, the District of Columbia, which was responsible for maintaining the aircraft, failed to comply with this recommendation. The Court held that the District of Columbia's negligence was merely a concurring cause of plaintiff's injury and thus refused to absolve Avco of liability to the plaintiff.

absolved from liability as a result of a number of intervening acts of negligence. The court stated:

> First, if it was negligent of Bendix to design the switch without a guard, it was no less negligent for some unknown person to construct it without a guard. . . . Second, if the switch were actuated as the plaintiffs contend, whoever did so or permitted such to be done likewise was negligent. . . . Bendix is to be exonerated, not because it was not negligent, but because its negligence, if any, was superseded by that of the persons who constructed the switch and who actuated it.[18]

This case, though perhaps not typical, illustrates the relatively unique position in which component part manufacturers often find themselves. Due to the intervening acts of a number of subsequent handlers of the component part, it is often impossible for the part-maker to assure that its product reaches the ultimate user in a non-defective condition. Moreover, due to the part-maker's lack of knowledge with respect to subsequent steps in the production process, he is frequently forced to rely on the assembler's greater expertise in the specialized area to which the part relates in order to insure that the product is safe for its intended use.

The courts have gone farthest to expand the manufacturer's duty of care to the injured consumer in the warnings field. Most time-of-sale warnings to aircraft purchasers are communicated by means of flight or instruction manuals or by cockpit placards. Such warnings, even though they are approved by the Federal Aviation Administration,[19] invariably present jury questions as to adequacy of the communication.[20] Once the adequacy problem is met, an aircraft user's failure to follow the procedures specified in the manual is unforeseeable misuse.[21]

The problem for the component parts manufacturer in the warnings area is that he has no control over the method of conveyance, the words used, or any other element determining the adequacy of a communication. The component part manufacturer has little or no ability to control either the content or the mode of conveying required warnings or instructions. Certainly, an argument can be made that the part supplier should supply essential information to its purchaser, the aircraft manufacturer. In general, however, the law imposes no obligation to warn persons experienced or otherwise expert in a product,[22] and the aircraft manufacturer, as an expert, may not be entitled to the warning that an inexpert consumer could expect.

The manufacturer's duty to warn extends beyond the time of manufac-

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18. *Goldsmith*, 211 F. Supp. at 94-96.
19. *See* 14 C.F.R. §§ 21.5, 23.1529, 25.1529, 27.1529, 29.1529 (1983).
20. *See, e.g.*, Berkebile v. Brantley Helicopter Corp., 225 Pa. Super. 349, 311 A.2d 140 (1976).
21. *See* Kay v. Cessna Aircraft Co., 548 F.2d 1370 (9th Cir. 1977).
22. *See* note 94 *infra*.

ture. When a manufacturer acquires new knowledge about the dangers of its product after the product has been manufactured and sold, it is under a continuing duty to warn product users of that danger.[23]

This has been a particularly significant obligation in aviation tort liability cases. In the aviation field, post-sale warnings from aircraft manufacturers, as opposed to component manufacturers, generally take the form of "service bulletins" or "service letters" to product purchasers informing them of new information acquired by the manufacturer subsequent to sale. In addition, the Federal Air Regulations require manufacturers to promptly report serious failures, malfunctions or defects to the FAA.[24] This applies to component manufacturers who hold Parts Manufacturer Approvals and Technical Standard Order authorizations, as well as to aircraft manufacturers themselves. Failure to comply with these regulations can result in a finding of negligence as a matter of law in some jurisdictions.[25] If the FAA determines, from a review of information submitted by the manufacturer, that the product defect is sufficiently serious to warrant FAA action, it may issue an "airworthiness directive" requiring modifications to the aircraft which will eliminate the unsafe condition.[26]

At this time it is frequently difficult, if not impossible, for the manufacturer to discover the identity of the owner of the product.[27] This is particularly true for aviation component manufacturers, since aviation parts are frequently removed from one aircraft and transferred to another by the original purchaser without the component manufacturers' knowledge. The aircraft may then be sold to a number of subsequent purchasers, who may also alter or replace component parts.

### B. Breach of Warranty

The Uniform Commercial Code is applicable to aircraft sales and has frequently been applied in actions involving component manufacturers. Under the Uniform Commercial Code, component part manufacturers may

23. *See* Braniff Airways, Inc. v. Curtiss-Wright Corp., 411 F.2d 451 (2d Cir. 1969), *cert. denied*, 396 U.S. 959 (1969); Noel v. United Aircraft Corp., 342 F.2d 232 (3d Cir. 1964); Comstock v. General Motors Corp., 358 Mich. 163, 99 N.W.2d 627 (1959); Comment, *Products Liability: Post-Sale Warnings*, 1978 Ariz. St. L.J. 49; Fleming, *The Duty of the Manufacturer to Recall Aircraft*, 45 J. Air L. & Com. 581 (1980); Note, *The Manufacturer's Duty to Notify of Subsequent Safety Improvements*, 33 Stan. L. Rev. 1087 (1981).

24. 14 C.F.R. § 21.3 (1983).

25. *E.g.*, Gatenby v. Altoona Aviation Corp., 407 F.2d 443 (3d Cir. 1969); Gas Service Co. v. Helmers, 179 F.2d 101 (8th Cir. 1950). In other jurisdictions such failure is admissible as evidence of negligence at trial. *See, e.g.*, Neiswonger v. Goodyear Tire and Rubber Co., 35 F.2d 761 (6th Cir. 1929).

26. 14 C.F.R. § 39.1 (1983).

27. *See* Comment, *supra* note 23, at 54-58.

be liable for breach of warranty to their immediate vendees and to injured passengers.

Warranties created by a component manufacturer may be either express or implied. Express warranties arise by reason of a manufacturer's affirmative representations.[28] No particular words are necessary and it is not essential that the manufacturer intend that its statement have the effect of a warranty.[29] In the context of the aircraft manufacturing industry, such express warranties may arise from a manufacturer's representations of "airworthiness."[30] Express warranties may also arise from affirmations contained in advertisements designed to induce someone to buy certain aircraft or component parts.[31]

Implied warranties on the other hand, arise by operation of law. Under the Uniform Commercial Code, the warranties of merchantability and fitness for a particular purpose are implied in contracts of sale.[32] The warranty of merchantability arises when the seller is a merchant with respect to the kind of goods sold.[33] The warranty of fitness arises where a manufacturer has reason to know that the buyer is relying upon its skill and judgment to select or furnish suitable goods.[34] As with breach of express warranty, a plaintiff must show reliance to recover for a breach of a warranty of fitness; a breach of the warranty of merchantability may arise in the absence of reliance.[35]

Historically, component manufacturers who sold their products to air-

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28. The Uniform Commercial Code provides:

(1) Express warranties by the seller are created as follows:

(a) Any affirmation of fact or promise made by the seller to the buyer which relates to the goods and becomes part of the basis of the bargain creates an express warranty that the goods shall conform to the affirmation or promise.

(b) Any description of the goods which is made part of the basis of the bargain creates an express warranty that the goods shall conform to the description.

(c) Any sample or model which is made part of the basis of the bargain creates an express warranty that the whole of the goods shall conform to the sample or model.

U.C.C. § 2-313 (1978).

29. Downs v. Shouse, 18 Ariz. App. 225, 501 P.2d 401 (1972).

30. *See, e.g.*, Limited Flying Club v. Wood, 632 F.2d 51 (8th Cir. 1980) (seller's representations of airworthiness, based upon entries in logbook which set forth the repair and inspection history of the airplane, created an express warranty); Downs v. Shouse, 18 Ariz. App. 225, 501 P.2d 401 (1972) (seller's description of aircraft maintenance, including a representation that the oil had been changed every 50 hours as recommended by the service manual, was an affirmation of fact constituting an express warranty).

31. *But see* Banko v. Continental Motors Corp., 373 F.2d 314 (4th Cir. 1966) (express warranty not breached when advertisement warranted freedom from carburetor or vaporization icing and accident caused by icing of throttle valve; manufacturer did not warrant freedom from all types of engine icing).

32. U.C.C. §§ 2-314 to 2-315.

33. U.C.C. § 2-314.

34. U.C.C. § 2-315.

35. U.C.C. §§ 2-314 to 2-315. *See also* 2 FRUMER & FRIEDMAN, *supra* note 11, at § 16.04[2][d].

craft manufacturers were insulated from liability to injured passengers and to aircraft owners on the theory that neither party was in privity of contract with the component manufacturer. Since the warranty was viewed as an incident of the contract of sale, persons not parties to the contract were not entitled to benefit from the warranties offered or implied thereunder.[36]

The privity requirement, however, has been abolished. Since most modern express warranties arise from representations made in advertising and other related promotional material, courts have dispensed with the privity requirement on the theory that such material is, in fact, designed for the ultimate purchaser or user.[37] Similarly, the courts permit breach of implied warranty actions against component manufacturers by remote purchasers and by injured passengers or their representatives on the theory that the manufacturer is better able to distribute the risk than the injured passenger.[38] In addition, courts have frequently cited the difficulty of proving negligence as a basis for abolition of privity in breach of warranty actions.[39]

There is still some authority for the proposition that aviation component part manufacturers will not be liable to injured passengers or to remote purchasers for breach of warranty. In *Goldberg v. Kollsman Instrument Corp.*,[40] a wrongful death action was brought by the mother of a deceased passenger after an American Airlines flight crashed near La Guardia airport. Plaintiff named Lockheed Corporation, the manufacturer of the aircraft, and Kollsman Instrument Corporation, the manufacturer of the plane's altimeter, as defendants. Plaintiff alleged that both manufacturers breached their respective implied warranties of merchantability and fitness. While the New York Court of Appeals had no hesitation in dispensing with the privity re-

36. Sevits v. McKiernan-Terry Corp., 264 F. Supp. 810 (S.D.N.Y. 1966) (tracing history of abolition of privity requirement). *See generally* FRUMER & FRIEDMAN, *supra* note 11, at §§ 16.03-16.04. *See also* Siegel v. Braniff Airways, Inc., 204 F. Supp. 861 (S.D.N.Y. 1960) (discussing policy reasons for abolition of the privity requirement).

37. *See, e.g.*, Randy Knitwear, Inc. v. American Cyanamid Co., 11 N.Y.2d 5, 226 N.Y.S.2d 363, 181 N.E.2d 399 (1962).

38. *See, e.g.*, Quadrini v. Sikorsky Aircraft Div., 425 F. Supp. 81 (D. Conn. 1977), *aff'd*, 505 F. Supp. 1049 (D. Conn. 1981) (estate of deceased passenger could recover from helicopter manufacturer for breach of implied warranty despite absence of privity); Ewing v. Lockheed Aircraft Corp., 202 F. Supp. 216 (D. Minn. 1962) (aircraft manufacturer's implied warranty of fitness of aircraft for commercial travel would inure to the benefit of those who were expected to be carried on the plane for the purposes for which it was intended); Siegel v. Braniff Airways, Inc., 204 F. Supp. 861 (S.D.N.Y. 1960) (lack of privity of contract did not preclude action for wrongful death of aircraft passenger based upon breach of implied warranty of fitness). *But see* Catlette v. McDonnell-Douglas Corp., 2 PROD. LIAB. REP. (CCH) ¶ 9204 (S.D. Ind. Dec. 23, 1981) (skydivers injured when aircraft crashed could not recover from aircraft manufacturer due to lack of privity); Anderson v. Fairchild Hiller Corp., 358 F. Supp. 976 (D. Alaska 1973) (person injured by helicopter tail rotor blade had no claim against helicopter manufacturer due to lack of privity). *See, e.g.*, Siegel v. Braniff Airways, Inc., 204 F. Supp. 861 (S.D.N.Y. 1960).

39. Siegel v. Braniff Airways, Inc., 204 F. Supp. 861, 863 (S.D.N.Y. 1960).

40. 12 N.Y.2d 432, 191 N.E.2d 81 (1963).

quirement and holding Lockheed liable for breach of implied warranty, *the court declined to extend this rule to the manufacturer of the component part*. The court found that adequate protection was provided for airline passengers by "casting in liability the airplane manufacturer which put into the market the completed aircraft."[41]

Even in New York, however, there are instances in which *Goldberg* does not apply. Where the injured plaintiff cannot recover from the manufacturer or assembler of the finished product, the component manufacturer may still be liable for breach of warranty. In *Sevits v. McKiernan-Terry Corp.*,[42] an injured serviceman brought a claim against McKiernan-Terry Corporation for breach of implied warranty with respect to an engine manufactured by the defendant and sold to the U.S. Navy. Plaintiff was injured when the engine failed during an attempted landing aboard the U.S.S. Constellation. The U.S. District Court for the Southern District of New York, applying New York law, held that the plaintiff could recover against the component part manufacturer despite the holding of the New York Court of Appeals in *Goldberg*. The court distinguished the case from *Goldberg*, stating:

> [In the instant case] the plaintiff has no right to sue the manufacturer of the entire ship since it is the United States Government, and being a member of the United States Navy, he is not in a position in this particular case to sue the Government on the theory of an implied warranty. Thus, if he is forbidden to sue the manufacturer of the component part . . . the theory of implied warranty which he has a right to assert under admiralty law would become entirely meaningless.[43]

What *Goldberg* and *Sevits* indicate is that when the courts address themselves to the unique position of the component part manufacturer vis-a-vis the assembler of the finished product, they do recognize that position as long as the injured party may recover from the assembler. In the absence of recovery against the assembler, however, the courts will not absolve the component manufacturer of liability to the injured consumer.

In sum, in most jurisdictions a component manufacturer may be sued for breach of warranty by all potential plaintiffs involved in an aviation accident, regardless of whether they are in privity of contract with the manufacturer. In New York, a component manufacturer may be insulated from such suits if the finished product manufacturer is subject to suit.

### C. Strict Liability

At the time of the adoption of section 402A, the drafters of the Re-

41. *Id*. at 83.
42. 264 F. Supp. 810 (S.D.N.Y. 1966).
43. *Id*. at 814.

statement were uncertain as to whether strict liability would apply to component part manufacturers. Comment q to section 402A states:

> [I]n cases of the sale of a component part of a product to be assembled by another . . . the question arises, whether responsibility is shifted to the assembler. It is no doubt to be expected that where there is no change in the component part itself, but it is merely incorporated into something larger, the strict liability will be found to carry through to the ultimate user or consumer. But in the absence of a sufficient number of decisions on the matter to justify a conclusion, the Institute expresses no opinion on the matter.[44]

Since the adoption of section 402A, many courts have applied the theory of strict liability to component part manufacturers.[45] Aviation component manufacturers are no exception to this rule.[46]

It is often the case, however, that the component part undergoes substantial change before it reaches the ultimate consumer. In such cases, the courts have recognized that strict liability is inappropriate due to the fact that the plaintiff cannot prove that the component was defective when it left the control of the component part manufacturer.[47] This is particularly true with aviation components, such as aircraft engines, which are frequently removed and re-installed in aircraft by airline personnel themselves, either for purposes of repair or replacement in new aircraft. Since the evidence does not establish the component manufacturer's responsibility for the product defect, it is unfair to impose liability.

This point was made in *Rossignol v. Danbury School of Aeronautics Inc.*[48] Plaintiff, the owner of an aircraft which was damaged when he attempted to perform a crash landing after its engines failed, brought an action for property damage to the aircraft. Plaintiff alleged that the accident was caused by a defective exhaust valve in one of the cylinders of the engine. Plaintiff named both Eaton Manufacturing Company, the manufacturer of the exhaust valve, and Avco Corporation, the manufacturer of the motor in which the valve was installed, as party defendants.

The Supreme Court of Connecticut held that plaintiff had failed to state a cause of action in strict liability against the various component manufacturers. Since the product had clearly passed through a number of hands, the court held that it was essential to allege that the product "was expected to and did reach the plaintiff without substantial change in condition in which it was sold."[49] In the absence of such an allegation the court held

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44. RESTATEMENT (SECOND) OF TORTS, § 402A comment q (1965).

45. *See, e.g.*, Suvada v. White Motor Co., 32 Ill. 2d 612, 210 N.E.2d 182 (1965).

46. *E.g.*, Hartzell Propeller Co. v. Alexander, 485 S.W. 2d 943 (Tex. Civ. App. 1972) (writ denied) (propeller manufacturer held strictly liable to survivors of deceased passenger for defective design of propeller blade).

47. *But see* Michalko v. Cooke Color & Chem. Corp., 91 N.J. 386, 451 A.2d 179 (1982).

48. 154 Conn. 549, 227 A.2d 418 (1967).

49. *Id.*, 227 A.2d at 442.

that no cause of action would lie.

A number of rationales have been advanced for the adoption of strict liability. First, strict liability claims insure that the risk of injury from defective products will be borne by those persons who are best able to distribute the risk by insuring against it, rather than by the persons injured by product defects. Second, strict liability is presumed to have a deterrent effect upon product manufacturers by encouraging them to produce safer products. Finally, strict liability claims eliminate the necessity of proving negligence, which is often an insurmountable barrier to injured plaintiffs.[50]

These rationales do not apply where the issue involves apportionment of liability between an assembler and a component part-maker. Since, in most cases, both are substantial commercial entities, either party is equally able to spread the risk of loss. Moreover, unlike an injured consumer, a large commercial entity does not suffer from the difficulties traditionally associated with proving negligence. Such manufacturers generally have access to expert information which can ease the burden of proof. Finally, the deterrence rationale is equally well served by the law of contracts; component part-makers who are contractually liable to their immediate vendees for their defective products have the same incentive to produce safe products as the product liability system imposes. Insofar as the component part-maker suffers from incomplete knowledge and expertise, the deterrence rationale is improperly applied to him because there is little that he can do to increase the safety of a production process over which he exercises little control.

The courts have recognized these limitations on strict liability.[51] In *Scandinavian Airlines System v. United Aircraft Corp.*,[52] SAS brought an action against an engine manufacturer when two engines installed in aircraft owned and operated by SAS failed during take-off. One of the engines had been sold by United to McDonnell-Douglas, which installed it in its aircraft and sold it to SAS. The other engine was sold by United directly to SAS. With respect to both engines SAS alleged that United was strictly liable for the product defect.

In passing upon this question the Ninth Circuit held that SAS could not recover against United in strict liability due to the inappropriateness of that

50. Greenman v. Yuba Power Products, Inc., 59 Cal. 2d 57, 27 Cal. Rptr. 697, 377 P.2d 897 (1962). *See also* Abramson, *Defining the Design Defect in Aircraft Products Liability Cases*, 45 J. AIR L. & COM. 167, 176-77 (1979).

51. Airlift Int'l, Inc. v. McDonnell-Douglas Corp., 685 F.2d 267 (9th Cir. 1982); S.A. Empresa (Varig Airlines) v. Walter Kidde & Co., 2 PROD. LIAB. REP. (CCH) ¶ 9215 (9th Cir. Feb. 26, 1982); Tokio Marine and Fire Ins. Co. v. McDonnell-Douglas Corp., 617 F.2d 936 (2d Cir. 1980); Scandinavian Airlines Sys. v. United Aircraft Corp., 601 F.2d 425 (9th Cir. 1979); Kaiser Steel Corp. v. Westinghouse Elec. Corp., 55 Cal. App. 3d 737, 127 Cal. Rptr. 838 (1976). *See also* Johnson, *Developments in Recent Aviation Cases*, 45 J. AIR L. & COM. 879, 880 (1980).

52. 601 F.2d 425 (9th Cir. 1979).

theory to the apportionment of liability between commercial entities. The court noted that where the two parties to the action are large commercial entities, it is immaterial "whether the loss is thrust initially upon the manufacturer [United] or consumer [SAS], [since] it is ultimately passed on as a cost of doing business included in the price of the products of one or the other and thus spread over a broad commercial stream."[53] Moreover, the court noted that SAS had the necessary expertise, personnel, and technical knowledge to identify product defects and to prove negligent design or manufacture. Since at least one of the engines was sold to SAS directly by United, SAS did not face problems of privity in bringing a breach of warranty action.

Decisions similar to *SAS* are common.[54] They indicate that the courts will not mechanically apply strict liability doctrines without fully examining whether the policy rationale for the doctrine is applicable in each individual case. They demonstrate that strict liability is inappropriate in design and warnings cases since they involve apportionment of liability between component part manufacturers and assemblers.

## III. The Unique Position of the Component Part Manufacturer

It is in the design and warnings areas where the inappropriateness of product liability rules as applied to component part manufacturers is most apparent. Attempts by the courts to exempt component part manufacturers from the application of product liability rules by creating limited fact-based exceptions have unnecessarily complicated product liability law and have resulted in the piecemeal development of product liability law as it applies to component part-makers.

### A. *Design Liability of Component Manufacturers*

#### 1. *Compliance with Specifications*

Component part manufacturers frequently manufacture their products pursuant to specifications provided by the assembler of the finished product. This is particularly true of aviation products, which are often designed to comply with specifications provided by either the aircraft manufacturer in the case of commercial aircraft, or by the government in the case of military aircraft. In this context, the question frequently arises whether the component manufacturer will be liable to injured persons for aircraft defects caused by defective design specifications developed by a third party.

The rule is well established that, at least in the commercial context, a component manufacturer who supplies a product in compliance with speci-

53. *Id*. at 428 (quoting Kaiser Steel Corp. v. Westinghouse Elec. Corp., 55 Cal. App. 3d 737, 748, 127 Cal. Rptr. 838, 845 (1976)).

54. *See* cases cited *supra* note 51.

fications developed by another will be absolved from negligence liability[55] unless the defect in the design was so obvious that the component manufacturer knew or should have known of the defect.[56] This rule is based upon the premise that the party who developed the design specifications is in a much better position than the component part manufacturer to recognize the risks associated with the product design and to incorporate safety features into the product. Not only is the designer familiar with the interrelationship of the component parts to one another, he is also generally expert in the field to which the specifications relate, perhaps more so than the component part manufacturer. Therefore, it is not unreasonable for the component part-maker to rely on that party's expertise when fabricating the part for eventual incorporation into the finished product.

This premise has been repeatedly recognized by the courts.[57] In *Orion Insurance Co. v. United Technologies Corp.*,[58] a helicopter pilot's estate brought suit against Amtel, the manufacturer of the helicopter's "stationary star," and against the Sikorsky division of United Technologies, which manufactured the helicopter. The plaintiff alleged that the star, which had been manufactured by Amtel to conform to the specifications provided by Sikorsky, was defective because it was too weak for its intended function. This weakness, they contended, ultimately caused the helicopter to crash. Plaintiff asserted that Amtel was liable in negligence and strict liability due to the design defect in the star.

In passing upon this claim, the U.S. District Court for the Eastern District of Pennsylvania noted that Sikorsky was in the business of manufacturing aircraft while Amtel was not.[59] Consequently, absent an obvious defect in the design specifications provided by Sikorsky, it was reasonable for

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55. With respect to strict liability, the courts differ as to whether compliance with specifications is a valid defense. Those courts that have upheld the defense in strict liability actions do so on the theory that section 402A of the RESTATEMENT requires that the manufacturer be responsible for product defects and, where the specifications have been provided by a third party, the manufacturer is not responsible for such defects. *See* note 56 *infra*.

However, some courts have refused to uphold the defense of compliance with specifications in strict liability actions on the theory that, since reasonable care is not an issue in such actions, all parties to the manufacturing and distribution chain should be held responsible for product defects. *See, e.g.*, Lenherr v. NRM Corp., 504 F. Supp. 165 (D. Kan. 1980); Michalko v. Cooke Color & Chem. Corp., 91 N.J. 386, 451 A.2d 179 (1982). These courts will hold component part manufacturers strictly liable for compliance with defective specifications developed by another even where the component part manufacturer has no reason to know of the defect.

56. Spangler v. Kranco, Inc., 481 F.2d 373 (4th Cir. 1973); Lesnefsky v. Fischer & Porter Co., 527 F. Supp. 951 (E.D. Pa. 1981); Orion Ins. Co. v. United Technologies Corp., 502 F. Supp. 173 (E.D. Pa. 1980); Littlehale v. E.I. duPont de Nemours & Co., 268 F. Supp. 791 (S.D.N.Y. 1966), *aff'd*, 380 F.2d 274 (2d Cir. 1967); Moon v. Winger Boss Co., 205 Neb. 292, 287 N.W.2d 430 (1980); Munger v. Heider Mfg. Corp., 456 N.Y.S.2d 271 (N.Y. App. Div. 1982).

57. *See* note 56 *supra*.

58. 502 F. Supp. 173 (E.D. Pa. 1980).

59. *Id.* at 177.

Amtel to rely on Sikorsky's plans. As the court stated, "Amtel was dealing not with specifications submitted by a consumer but by a business entity with superior knowledge in the field of aviation."[60] Consequently, the court refused to hold Amtel liable in either strict liability or in negligence for the defective design of the star.

Where the design specifications are provided by the government, as in the case of military aircraft, the component manufacturer's right to rely on those specifications is less clear. Many suppliers doing business with the government have argued that compliance with government specifications should immunize them from tort liability. Most courts have rejected this argument. Thus, in *O'Keefe v. Boeing Co.*, a New York federal district court decision, the court stated:

> There is no question, and the court so finds, that ultimate responsibility for the design and use of the [product] rests and always has rested with the United States government. The court concludes, however, that this fact, in itself, neither exonerates the defendant, nor has it in any way altered the defendant's duty as a manufacturer in this case where there has been no showing that the defendant was totally oblivious of and/or aloof from the genesis of the design specifications in the first place or that the specifications represented either something less than the uppermost level of the art or a compromise of safety.[61]

Even where the manufacturer pointed out an error in the government's specifications and requested that they be changed, the manufacturer has been held liable for injuries caused by the product built to the defective specifications.[62]

Some courts, however, have recognized the government specifications defense,[63] including two recent and significant tort cases involving toxic products. In *In re "Agent Orange" Product Liability Litigation*,[64] the U.S. District Court for the Eastern District of New York indicated that manufacturers who had supplied Agent Orange to the government would be permitted to assert a defense based upon compliance with government specifications provided they could demonstrate: (1) that the government established the specifications for Agent Orange; (2) that the Agent Orange manufactured by the defendant met the government's specifications in all material re-

60. *Id.* at 176.

61. O'Keefe v. Boeing Co., 335 F. Supp. 1104, 1124 (S.D.N.Y. 1971); *see also* Boeing Airplane Co. v. Brown, 291 F.2d 310 (9th Cir. 1961).

62. Barr v. Brezina Constr. Co., 464 F.2d 1141 (10th Cir. 1972), *cert. denied*, 409 U.S. 1125 (1973).

63. Hunt v. Blasius, 74 Ill.2d 203, 384 N.E.2d 368 (1978); Sanner v. Ford Motor Co., 144 N.J. Super. 1, 364 A.2d 43 (1976), *aff'd*, 154 N.J. Super. 407, 381 A.2d 805 (1977), *cert. denied*, 75 N.J. 616, 384 A.2d 846 (1978); Casabianca v. Casabianca, 428 N.Y.S.2d 400 (N.Y. Sup. Ct. 1980), *aff'd*, 79 A.D.2d 1117 (1981); Ryan v. Feeny & Sheehan Bldg. Co., 239 N.Y. 43, 145 N.E. 321 (1924).

64. 534 F. Supp. 1046 (E.D.N.Y. 1982).

spects; and (3) that the government knew as much or more than the defendants about the hazards associated with Agent Orange.[65] The Court placed great emphasis upon the fact that the product had been supplied to the government for military use. The court indicated, however, that it was unsure "what if any protection a particular defendant's subcontractor or *supplier of component materials* may have if that defendant successfully proves the government contract defense."[66]

Subsequent to this decision a U.S. district court in Washington permitted eight asbestos manufacturers to assert the government specifications defense despite the fact that the products were not produced for military purposes.[67] The court did not rule upon the question of whether the defense could be asserted by component part manufacturers.

The government specifications defense is even more appropriately applied to component part manufacturers. Component part manufacturers compelled to meet defective government specifications lack even that minimal control over the production process which is associated with the manufacturer of the finished product. The component part-maker is generally several steps farther removed from the vendee of the final product. Therefore, he is in even less of a position to assess the suitability of those specifications than other manufacturers might be. Placing responsibility upon the component part-maker for defective design specifications supplied by the government therefore makes even less sense than placing such responsibility upon a supplier of a finished product.

### 2. Duty to Install Safety Features

Where the component part manufacturer does design as well as manufacture the component part, the issue of the part-maker's liability for failure to install safety devices or systems frequently arises. The inquiry in these cases generally focuses on whether the duty to install safety features is more appropriately the function of the component part-maker or of the assembler.[68] It is in this context that the courts have most frequently recog-

65. *Id*. at 1055.

66. *Id*. at 1056 (emphasis added).

67. Tefft v. A.C. & C., Inc., No. C80-924M, slip op. (W.D. Wash. Sept. 14, 1982).

68. There is some authority for the proposition that the assembler's obligation extends beyond the duty to install safety devices to an affirmative duty to develop safety devices. Noel v. United Aircraft Corp., 342 F.2d 232, 237 (3d Cir. 1964) (United was negligent in "permitting the development of an effective safety device . . . to lag behind similar development for other airplanes"). *But see* Braniff Airways, Inc. v. Curtiss-Wright, 411 F.2d 451 (2d Cir.), *cert. denied*, 396 U.S. 959 (1969) (in which the Second Circuit explicitly rejected the *Noel* holding but implied that the manufacturer may have a duty to remedy product defects which come to his attention after the product is sold). In Bell Helicopter Co. v. Bradshaw, 594 S.W.2d 519 (Tex. Civ. App. 1979) (writ denied), the Texas Court of Civil Appeals expanded upon the obligation to develop product improvements by holding that where a helicopter manufacturer does, in fact, develop safety improvements in its

nized the unique position of the component part-maker vis-a-vis the assembler insofar as his expertise, ability to assess product dangers and limits on foreseeability are concerned.

The leading case in this area is *Verge v. Ford Motor Co.*[69] A sanitation department employee, who was injured when a fellow employee backed into him with a garbage truck, brought a strict liability action against Ford Motor Company, who manufactured the cab and chassis of the truck, and Elgin Leach Corporation, who modified the chassis by adding a compactor unit to it. The plaintiff contended that Ford had an obligation to include a warning buzzer on the chassis which would sound whenever the truck was put into reverse. In passing upon this claim, the Third Circuit listed three criteria which the court would consider in determining whether such design responsibility would properly be placed upon the part-maker or the manufacturer of the finished product. These criteria were:

1) trade custom — at what stage the device is generally installed;
2) relative expertise — which party is best acquainted with the design problems and safety techniques in question; and
3) practicality — at what stage is installation of the device most feasible.[70]

The court then went on to hold that Ford could not be held strictly liable for failure to include a warning device on the chassis where the evidence revealed that Elgin Leach had much more expertise in the design of garbage trucks than Ford, and that the chassis in question was manufactured by Ford for multiple purposes, only one of which was its use as a component part in the manufacture of garbage trucks.

Following the decision in *Verge*, a number of courts have reached similar conclusions with respect to the component part-maker's responsibility for the installation of safety devices.[71] In *Shawver v. Roberts Corp.*,[72] an

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product, it will be held strictly liable for failure to incorporate those improvements into products which are currently on the market. *But see* Jackson v. New Jersey Mfrs. Ins. Co., 166 N.J. Super. 448, 400 A.2d 81, *cert. denied*, 81 N.J. 330, 407 A.2d 1204 (1979). However, none of these cases has held that the *component* manufacturer has a duty to develop safety devices.

69. 581 F.2d 384 (3d Cir. 1978).

70. *Id*. at 387.

71. *See* Taylor v. Paul O. Abbe, Inc., 516 F.2d 145 (3d Cir. 1975) (supplier of replacement parts for mill had no duty to provide on-off switch or gear guard where supplier had nothing to do with the design of the mill); Mayberry v. Akron Rubber Machinery Corp., 483 F. Supp. 407 (N.D. Okla. 1979) (supplier of component parts had no responsibility for absence of safety device in rubber mixing mill where design of mill done by assembler); Shanks v. A.F.E. Industries, Inc., 416 N.E.2d 833 (Ind. 1981) (manufacturer of grain dryer not strictly liable for failure to provide safety device to alert user of activation of system); Leonard v. Albany Machine & Supply Co., 339 So. 2d 458 (La. Ct. App. 1976) (manufacturer of trimmer not liable for failure to include safety shield where method of shielding workmen varies from mill to mill depending upon placement of trimmer); Shawver v. Roberts Corp., 90 Wis. 2d 672, 280 N.W.2d 226 (1979) (manufacturer of conveyor not strictly liable for failure to include safety system where system would depend on environment in which it must function). *But see* Michalko v. Cooke Color & Chem. Corp., 91 N.J. 386, 451 A.2d 179 (1982).

employee of the Beloit Corporation suffered amputation of his right foot after it was crushed when a fellow employee mistakenly turned on a conveyor belt on which Mr. Shawver was standing. Shawver sued the Roberts Corporation in negligence and strict liability, alleging that Roberts was liable due to its failure to include a safety device on the conveyor which would have alerted Shawver to the imminent movement of the conveyor.

Despite the fact that the evidence adduced at trial indicated that such safety devices were available in the industry at the time the device was manufactured, the Supreme Court of Wisconsin refused to find Roberts liable. The court stated that the evidence showed that Roberts could not have designed an effective safety system for the conveyor in the absence of knowledge of the noise level, the lighting system, and competing signals on other equipment in the factory.[73] Moreover, the court noted that since the electrical control system which powered the conveyor was not supplied by Roberts, Roberts had no expectation that the conveyor would reach the user without substantial change in condition.[74]

In *Shanks v. A.F.E. Industries*,[75] the Supreme Court of Indiana reached a similar conclusion. An employee of Grammer Elevator was permanently injured when a grain dryer automatically activated an elevator leg which the employee was repairing. The employee contended that A.F.E. was strictly liable for failure to incorporate a warning device in the dryer which would notify the user of the automatic activation of the machine. In rejecting this claim, the court stated:

> Because the dryer could be used as a component in a multifaceted complex . . . to allow a jury to examine, in retrospect, the wisdom of A.F.E.'s incorporating some lights or bells into the dryer is to permit nothing more than speculation. A complex operation such as this one could have taken many forms, depending on the needs of the owner and the imagination of the designer. . . . The need for any warning device, and the circumstances surrounding their use, would, of course depend upon the operation of the whole complex, based upon the features of its design. Thus, because the dryer could be incorporated into a variety of grain handling systems, the desirability or need for such devices could be determined only after any given type of complex had been chosen and created.[76]

Cases such as *Shawver* and *Shanks* demonstrate the severe limitations on foreseeability faced by component part-makers. Due to the part-maker's lack of expertise in the operation of the end-use assembly he is frequently unable to make an informed judgment with respect to the installation of appropriate safety devices. Moreover, the component part manufac-

72. 90 Wis. 2d 672, 280 N.W.2d 226 (1979).
73. *Id.*, 280 N.W.2d at 229.
74. *Id.*, 280 N.W.2d at 232.
75. 416 N.E.2d 833 (Ind. 1981).
76. *Id.* at 838.

turer is hampered by a lack of information with respect to the use to which the component part will be put and the environment in which it will function. This lack of knowledge severely limits his ability to foresee potential product dangers and install appropriate safety systems.

In view of these limitations, the courts have repeatedly refused to impose liability upon component manufacturers for failure to install safety devices.[77] In so doing, they have looked to tort law to justify what are essentially fact-based conclusions. Thus, courts have stated that the part-maker had no duty to provide a safety device;[78] that the part-maker's duty was not breached;[79] that the product did not reach the user without substantial change in condition;[80] or that the lack of a safety device did not render the product unreasonably dangerous.[81]

The true basis for these court holdings is that, insofar as liability must be apportioned between the component part-maker and the assembler, it makes sense to place liability upon the assembler in view of his greater expertise in end-use assembly applications, his greater familiarity with the environment in which the component part must function, and his consequent better ability to foresee product risks and to prevent them.

### 3. *Design Services*

In the area of design services, the courts have been equally reluctant to permit assemblers of finished products to delegate design liability to others. Where the assembler contracts with engineers, architects or other design professionals to prepare design specifications for the finished product or for a component part thereof, the designer may not be held strictly liable for the creation of a defective design.[82]

In this area, the courts have recognized that the assumptions upon which strict liability is predicated are not applicable to the suppliers of design services.[83] Unlike the situation in which products are mass produced

77. *See* note 71 *supra*.

78. *E.g.*, Taylor v. Paul O. Abbe, Inc., 516 F.2d 145 (3d Cir. 1975).

79. *E.g.*, Eubanks v. New Amsterdam Casualty Co., 153 So. 2d 86 (La. Ct. App. 1963).

80. Shawver v. Roberts Corp., 90 Wis. 2d 672, 280 N.W.2d 226 (1979).

81. *Id*.

82. Raritan Trucking Corp. v. Aero Commander, Inc., 458 F.2d 1106 (3d Cir. 1972); La Rossa v. Scientific Design Co., 402 F.2d 937 (3d Cir. 1968); Stuart v. Crestview Mutual Water Co., 34 Cal. 3d 802, 110 Cal. Rptr. 543 (1973); Allied Properties v. John A. Blume & Associates, 25 Cal. 3d 848, 102 Cal. Rptr. 259 (1972); Castaldo v. Pittsburgh Des Moines Steel Co., 376 A.2d 88 (Del. 1977); Audlane Lumber & Builders Supply, Inc. v. Dr. Britt Associates, Inc., 168 So. 2d 333 (Fla. Dist. Ct. App. 1964); Queensbury Union Free School District v. Jim Walter Corp., 91 Misc. 2d 804, 398 N.Y.S.2d 832 (1977). *See also* Ware, *Strict Liability for Defects in Consumer Services: A Defense Approach*, 20 For the Def. 3 (1979).

83. *But see* Michalko v. Cooke Color & Chemical Corp., 91 N.J. 386, 451 A.2d 179 (1982) (in which the Supreme Court of New Jersey indicated that strict liability would be applied to sellers of design services).

and distributed to a multitude of users, design services are performed on an individual basis. Were the sellers of design services to be held strictly liable for defective performance of these services they would, in effect, be required to guarantee the result which they are commissioned to perform. This result would create a disincentive to the development of innovative design techniques and might, in fact, have a negative impact upon the availability of such services. In recognition of this fact, those courts which have addressed the matter have consistently held that those who hire experts can only expect reasonable care. As Justice Traynor stated, "They purchase service, not insurance."[84]

### B. WARNINGS

It is in the warnings area that the inappropriateness of strict liability in defining the responsibilities of component part manufacturers is most apparent. The doctrine of strict liability presupposes knowledge, expertise, the ability to foresee product risks and the opportunity to communicate them to the user. The component part-maker's unique position in the distribution chain prevents him, however, from acquiring the information necessary to assess product risks and impedes his access to channels of communication. Consequently, the courts have had difficulty rationalizing warning claims against component manufacturers and have most often absolved them of any warning obligation.

An essential prerequisite to the duty to warn is the knowledge or the ability to acquire knowledge of product hazards.[85] With the exception of the recent decision of the New Jersey Supreme Court in *Beshada v. Johns-Manville Products Corp.*,[86] no court will hold a manufacturer liable for the failure to warn of product defects unless that manufacturer knew or should have known that the product was likely to become dangerous in the ab-

84. Gagne v. Bertran, 43 Cal. 2d 481, 275 P.2d 15, 21 (1954).

85. One who supplies directly or through a third person a chattel for another to use is subject to liability to those whom the supplier should expect to use the chattel with the consent of the other or to be endangered by its probable use, for physical harm caused by the use of the chattel in the manner for which and by a person for whose use it is supplied, if the supplier

(a) knows or has reason to know that the chattel is or is likely to be dangerous for the use for which it is supplied, and

(b) has no reason to believe that those for whose use the chattel is supplied will realize its dangerous condition, and

(c) fails to exercise reasonable care to inform them of its dangerous condition or of the facts which make it likely to be dangerous.

RESTATEMENT (SECOND) OF TORTS § 388 (1965).

86. 90 N.J. 191, 447 A.2d 539 (1982). In *Beshada*, the New Jersey Supreme Court ruled that a manufacturer can be held strictly liable for failing to warn of a product hazard, even if the hazard is scientifically undiscoverable at the time of manufacture and sale.

sence of such a warning.[87]

Component part manufacturers rarely possess the knowledge necessary to make an informed decision with respect to product hazards. Unlike the assembler, they are generally unfamiliar with the environment in which the component part will be required to function and they are generally unfamiliar with the interrelationship of their component and the other parts of the assembly. Consequently, they cannot foresee risks which may arise from the interrelationship of the component with other component parts in the use environment. Because they are generally not experts in the use to which the product will be put, they have no reason to know that product hazards may arise from the interaction of the component with other parts of the finished product.

The courts have repeatedly recognized these limitations on the component part-maker's knowledge.[88] In *Orion Insurance Co. v. United Technologies Corp.*,[89] the United States District Court for the Eastern District of Pennsylvania refused to hold Amtel liable for failure to warn United Technologies of defects in design specifications provided by United Technologies' Sikorsky division for a "star" used in the production of helicopters. The court stated that "assuming . . . that the star as constructed per the Sikorsky specification was inadequate for the purpose to which Sikorsky put it, there is no reason why defendant Amtel . . . should have known this."[90] Sikorsky, not Amtel, the court noted, was an expert in the field of aviation.

In response to the plaintiff's claim that Amtel should have investigated the reason for Sikorsky's change of the alloy from which the star was made prior to the crash of the helicopter, the court held that the law does not impose a duty upon a component manufacturer to undertake an independent safety investigation. To impose such an obligation upon the component part-maker, the court held, would impede the free flow of commerce. The court stated:

> [Component part manufacturers] would be forced to retain private experts to review an assemblers plans and to evaluate the soundness of the proposed use of the manufacturer's parts. The added cost of such a procedure both financially and in terms of stifled innovation outweighs the public benefit of giving plaintiffs an additional pocket to look to for recovery. . . . [T]he better view is to leave the liability for design defects where it belongs and where it now is — with the originator and implementer of the design — the assembler

87. *See, e.g.*, Basko v. Sterling Drug, Inc., 416 F.2d 417 (2d Cir. 1969); Oakes v. Geisy Agricultural Chemicals, 272 Cal. App. 2d 645, 77 Cal. Rptr. 709 (1969).

88. Orion Insurance Co. v. United Technologies Corp., 502 F. Supp. 173 (E.D. Pa. 1980); Lockett v. General Electric Co., 376 F. Supp. 1201 (E.D. Pa. 1974); Temple v. Wean United, Inc. 50 Ohio St. 2d 317, 364 N.E.2d 267 (1977); Shawver v. Roberts Corp., 90 Wis. 2d 672, 280 N.W.2d 226 (1979).

89. 502 F. Supp. 173 (E.D. Pa. 1980). *See supra* text accompanying notes 58-60.

90. *Id.* at 177.

of the finished product.[91]

Similarly, in *Temple v. Wean United, Inc.*,[92] the Supreme Court of Ohio refused to hold a manufacturer of operating buttons, which were installed on a punch press, strictly liable for failure to warn the punch press operator of their danger in the absence of safety guards. The court stated:

> In our opinion, the obligation that generates the duty to warn does not extend to the speculative anticipation of how manufactured components, not in and of themselves dangerous or defective, can become potentially dangerous dependent upon the nature of their integration into a unit designed and assembled by another. Because of limited contact with [the assembler of the finished product], there is no indication that [the manufacturer of the components] could have known that its components were to be fashioned or fabricated into the power press in the particular manner that they were here.[93]

Even where the component manufacturer *has* knowledge of potential product hazards, he often has no reason to believe that his immediate purchaser does not realize the dangerous condition. Unlike the assembler of the finished product, component manufacturers generally sell to experienced users. If the product assembler has not actually supplied the design specifications for the component part, he is most often experienced in the use to which the component is put in the finished product. Moreover, particularly in the context of highly technical products such as aircraft, the assembler-purchaser is often a large industrial concern with its own engineering department and its own safety programs. In this context, the component part manufacturer's duty to warn never even arises because, as one court stated, "a duty to warn exists only when those to whom the warning is to be communicated can reasonably be assumed to be ignorant of the dangers to which the warning relates. If it is unreasonable to assume they are ignorant of those facts, there is no duty to warn."[94]

Finally, there are numerous practical problems which arise with respect to warnings given by component part manufacturers. First, it is often difficult to identify to whom the duty to warn runs in a component part-maker case. Unlike the assembler of the finished product, component part-makers frequently sell to intermediate vendees who are often several steps removed from the ultimate user of the product. For this reason the component part-maker should have no responsibility to warn the ultimate

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91. *Id.* at 178.

92. 50 Ohio St. 2d 317, 364 N.E.2d 267 (1977).

93. *Id.*, 364 N.E.2d at 272.

94. Mayberry v. Akron Rubber Machinery Corp., 483 F. Supp. 407, 413 (N.D. Okla. 1979). *See also* Taylor v. Paul O. Abbe, Inc., 516 F.2d 145 (3d Cir. 1975); Jacobsen v. Colorado Fuel & Iron Corp., 409 F.2d 1263 (9th Cir. 1969); Lockett v. General Electric Co., 376 F. Supp. 1201 (E.D. Pa. 1974); Eyster v. Borg-Warner Corp., 131 Ga. App. 702, 206 S.E.2d 668 (1974); Shanks v. A.F.E. Industries, 416 N.E.2d 833 (Ind. 1981); Reed v. Pennwalt Corp., 22 Wash. App. 718, 591 P.2d 478 (1979); Shawver v. Roberts Corp., 90 Wis. 2d 672, 280 N.W.2d 226 (1979).

user of the finished product.[95] Aside from the fact that it often has no means of identifying the ultimate user at the time the component is sold to the assembler, it is also generally the case that warnings given to the ultimate user will rarely serve the purpose for which they are intended due to the highly technical nature of the products in which component parts are generally incorporated.

This is particularly true in the aviation area, as is illustrated by *Stevens v. Cessna Aircraft Co.*[96] The estate of a deceased passenger brought a claim against Cessna, the aircraft manufacturer, alleging that the aircraft was defective due to the failure of the manufacturer to post a warning to passengers with respect to the plane's load capacity. The aircraft had crashed as a result of the pilot's inaccurate calculation of the carrying weight. The plaintiff alleged that if the aircraft had contained a sign warning of the aircraft's load capacity, one of the passengers would have realized the pilot's error and the accident would have been averted.

In rejecting this claim, the California Court of Appeals indicated that warnings directed to the aircraft passenger would not have performed their intended function. The court stated:

> Whether the plane can fly safely with a given total weight of passengers depends upon too many additional factors for a passenger to make an informed and intelligent judgment from such a notice . . . . In the airplane situation, the passenger necessarily depends upon the skill and judgment of the pilot to determine the load capacity of the airplane in light of the flying conditions to be encountered . . . . It would be impossible ultimately to provide meaningful information to the passenger, and in the long run a rule requiring the manufacturer to provide such information directly to the passenger would not be in the interests of safety.[97]

It is equally inappropriate to require component part-makers to warn persons other than their immediate vendee of product hazards. Unlike assemblers of finished products, component part-makers generally have no practical mode of communication with anyone other than their immediate vendee and no means of acquiring access to them. While the assembler's product is generally distributed in its own "packaging" for which it may supply appropriate labeling, the component manufacturer does not have an equivalent means of communication at his disposal.[98] In fact, often the

95. Basko v. Sterling Drug, Inc., 416 F.2d 417 (2d Cir. 1969); Sterling Drug, Inc. v. Yarrow, 408 F.2d 978 (8th Cir. 1969); Sterling Drug, Inc. v. Cornish, 370 F.2d 82 (8th Cir. 1966). *But see* Labelle v. McCauley Indus. Corp., 649 F.2d 46 (1st Cir. 1981) (a component manufacturer, who notified repair stations of a defect in its propeller blade and revised its service manual accordingly, was negligent because it failed to warn aircraft owners directly of this condition).

96. 115 Cal. App. 3d 431, 170 Cal. Rptr. 925 (1981).

97. *Id.*, 170 Cal. Rptr. at 926.

98. *See* Jones v. Hittle Serv., Inc., 549 P.2d 1383, 1394 (Kan. 1976) ("[T]he bulk wholesaler has no way of telling who the ultimate purchaser might be, and has no package on which to endorse any warning"); Hill v. Wilmington Chem. Corp., 156 N.W.2d 898 (Minn. 1968).

immediate vendee is the only party who has knowledge that the component part manufacturer has contributed to the finished product. Therefore, it is generally impractical to impose far-reaching warning obligations upon the component manufacturer when the assembler has both the information and the means available to communicate effective warnings to the product user.

## IV. A Proposed Revision of Product Liability for the Component Part Manufacturer

The foregoing discussion suggests that to the extent the component part manufacturer is subject to the product liability system his liability in design and warnings cases should be determined by a negligence standard. The severe limits placed upon the component part manufacturer by virtue of his place in the distribution chain, in terms of his ability to foresee and assess product hazards and to introduce system safeguards, simply renders the concept of strict liability inappropriate to him. This is particularly true for the component part manufacturer who participates in a highly technical industry, such as aviation, in which he cannot be expected to intelligently assess product dangers associated with the technologically complex final product and exercise the necessary control to avoid them.

Moreover, strict liability is not appropriate when applied to the allocation of responsibility between two commercial parties in relatively equal bargaining positions. Not only is each party equally able to spread the risk of loss through insuring against it, but large commercial parties do not face the same problems of proof in negligence cases as injured consumers face. They generally have access to the expertise required to determine and prove the cause of a product-related accident. Insofar as strict liability is based upon the notion that it will serve to deter the introduction of unsafe products into the marketplace, that notion is inapplicable to the component part manufacturer since he generally lacks the kind of knowledge, control, expertise, and ability to foresee and prevent product risks which is the predicate to the deterrence rationale. Moreover, deterrence is equally well served by negligence liability and the application of principles of contract law to the component manufacturer.

At the present time, due to the uncertainties created by the product liability system, assemblers and component part manufacturers often choose to allocate the risk of loss by contract.[99] Devices such as disclaimer clauses,[100] limitations on liability, liquidated damages clauses, or

99. It is generally the case that assemblers and part-makers operate under some sort of contractual arrangement with one another. Although the contracts may not always be formalized and strictly negotiated, the exchange of forms that takes place between the parties and the oral promises which are made in the course of commissioning the work become part of the basis of the bargain under which the parties subsequently operate.

100. *See generally* 2 Frumer & Friedman, *supra* note 11, at § 16.04[2][e]; Metzger, *Disclaim-*

hold harmless clauses all serve that purpose. For example, under a hold harmless clause the component part manufacturer may agree to indemnify the assembler for all injuries arising out of manufacturing defects in the component part.

The courts have often recognized that there are significant policy reasons for upholding such devices when they are agreed to by commercial parties of approximately equal bargaining power.[101] In addition to the fact that such clauses enable manufacturers to allocate the risk of loss of product defects at the outset of a transaction, they also effect a reduction in the uncertainties associated with product claims and a consequent reduction in costs. Such cost reductions ultimately inure to the benefit of the consumer.

To the extent that the component manufacturer and the assembler have not allocated the risk of loss, a system which recognizes the unique position of component part-makers in the distribution chain by eliminating strict liability claims against them in design and warnings cases, will contribute substantially to the reduction of transaction costs caused by the present complexities and uncertainties in the law. The consequent conservation of judicial resources will benefit the judicial system, the component part-maker and, ultimately, the consumer.

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*ers, Limitations of Remedy and Third Parties*, 48 U. CIN. L. REV. 663 (1979); Kroll, *Aviation Products: Commercial Disclaimers*, 682 INS. L.J. 615 (1979); Harkey, *Manufacturers' Limitations of Warranties: Aircraft Damage*, 41 J. AIR L. & COM. 279 (1975); Parker, *The Warranty Disclaimer v. Manufacturers' Products Liability — Sterner Aero AB v. Page Airmotive, Inc.: Did the Tenth Circuit Bury the Disclaimer Alive?*, 10 TULSA L.J. 612 (1975).

101. Airlift Int'l, Inc. v. McDonnell-Douglas Corp., 685 F.2d 267 (9th Cir. 1982) (exculpatory clause prevented recovery in negligence against aircraft manufacturer and component manufacturer); Aeronaves de Mexico, S.A. v. McDonnell-Douglas Corp., 677 F.2d 771 (9th Cir. 1982) (exculpatory clause upheld to prevent negligence claim against both aircraft and component manufacturers); S.A. Empresa (Varig Airlines) v. Boeing Co., 641 F.2d 746 (9th Cir. 1981) (exculpatory clause prevented airline from recovering for post-delivery negligence of aircraft manufacturer); Tokio Marine and Fire Ins. Co. v. McDonnell-Douglas Corp., 617 F.2d 936 (2d Cir. 1980) (exculpatory clause barred both pre- and post-delivery negligence claims by airline against aircraft manufacturer); Delta Air Lines, Inc. v. McDonnell-Douglas Corp., 503 F.2d 239 (5th Cir. 1974) (exculpatory clause absolved aircraft manufacturer of liability to airline in strict liability and negligence); Islamic Republic of Iran v. Boeing Co., 15 Av. Cas. 18,189 (W.D. Wash. June 2, 1980) (broad disclaimer clause precluded aircraft owner from asserting negligence and strict liability claims); Scandinavian Airlines Sys. v. United Aircraft Corp., No. CV 74-2609-DWW, slip. op. (C.D. Cal. Dec. 4, 1975), *aff'd*, 601 F.2d 425 (9th Cir. 1979) (exculpatory clause barred negligence, strict liability and breach of warranty claims by airline against aircraft manufacturer); Saturn Airways, Inc. v. Lockheed Aircraft Corp., No. 53869, slip op. (Cal. Ct. App. May 23, 1979) (exculpatory clause barred negligence claims by airline against aircraft manufacturer). *But see* Sterner Aero AB v. Page Airmotive, Inc., 499 F.2d 709 (10th Cir. 1974) (disclaimer clause would not bar strict liability action).