WILSON, Personal Representative of the Estate of Douglas L. Wilson, Deceased,

v.

PIPER AIRCRAFT CORPORATION, a Pennsylvania Corporation, Appellant.

Supreme Court of Oregon

577 P.2d 1322 (1978)

HOLMAN, Justice.

These two products liability cases, consolidated for trial and appeal, are wrongful-death actions brought by the personal representatives of two passengers who died after the crash of a small airplane. The only defendant is Piper Aircraft Corporation, the manufacturer of the aircraft.

The airplane, a Piper Cherokee manufactured in 1966, took off from the Eugene airport on January 22, 1971, with a licensed student pilot at the controls and a qualified instructor in the copilot's seat. Plaintiffs' decedents, Douglas Wilson and Arbie MacDonald, were passengers in the two rear seats. The airplane crashed in the Cascade Mountains southeast of Oakridge, after entering a cloud. All four occupants of the plane survived the crash itself, but plaintiffs' decedents and the student pilot died at the crash site before rescuers arrived. The only survivor was the instructor, Terry Liittschwager, who, at the time of trial, had no memory of the events immediately prior to the crash.

Plaintiffs' theory was that the crash was caused by engine failure resulting from carburetor icing, and that the deaths of Douglas Wilson and Arbie MacDonald were caused in part by injuries resulting from certain design features in the rear passenger compartment. There was evidence to support both of these contentions. The jury returned substantial verdicts for both plaintiffs, and defendant appeals.

Plaintiffs alleged the defendant furnished an airplane which was dangerously defective in various particulars having to do with both the engine's susceptibility to icing and the crashworthiness of the rear passenger compartment. The assignments of error require us to consider both aspects of the case.

In support of their theory that the airplane was dangerously defective because of its susceptibility to icing, plaintiffs alleged the following design defects: (1) the aircraft was not equipped with an injection type fuel system; (2) the carburetor was not so designed and equipped that it would provide a proper fuel-air mixture under icing conditions; (3) the aircraft was not supplied with an adequate carburetor heating system; and (4) the aircraft was not equipped with a carburetor heat gauge. Defendant contends first that these allegations, regardless of the state of the evidence, do not present a jury question; and second that the evidence was insufficient to justify submitting them to the jury. [Note to students: this is the only theory we will consider.]

In support of its first contention, defendant points out that it is undisputed that the design of this model of airplane was specifically approved by the Federal Aviation Administration (FAA) under its statutory authority to set safety standards for aircraft, and that this particular airplane had been issued an FAA certificate of airworthiness. It is defendant's position that the airplane's design could not be dangerously defective since it met the applicable FAA safety standards, and that FAA approval of the design has foreclosed any further inquiry into its adequacy from a safety standpoint.

We have found no support for this position. Neither the applicable statutes themselves, nor the legislative history indicates any Congressional intent to provide that FAA approval of either the general model design or the airworthiness of the particular craft is a complete defense to the claim of civil liability for faulty design. Indeed, one relevant statute provides that the FAA design standards are minimum standards only.

We have, in other contexts, refused to hold compliance with statutory or administrative safety standards to be conclusive on the question of

tort liability where there is no evidence of a legislative intent that the standards are to be applied for that purpose. (Citations omitted.) Other courts have treated compliance with the FAA safety standards as appropriate for consideration by the trier of fact in products liability cases involving aircraft. (Citations omitted.) We have found no cases holding that compliance is a complete defense. We hold that it is not.

That is not, however, the end of our consideration of the matter. The defendant also contends the evidence of these allegations was insufficient to be submitted to the jury for its consideration. This case presents difficult problems concerning the showing required of a plaintiff in a design defect case. There was evidence from which the jury could find that each of the allegations listed above accurately described the design of the aircraft, that the condition described in each allegation contributed to the likelihood of carburetor ice formation, and that the probable cause of the crash was engine failure caused by carburetor icing. We must consider whether this evidence was sufficient to permit the jury to find that the airplane was dangerously defective. We hold that it was not.

We have observed in prior products liability cases that charges of defective design present special problems. (Citations omitted.) One of those special problems is the nature, and necessary proof, of a "defect" in a product which reaches the consumer in precisely the condition intended by the designer/manufacturer.

We have held that when a design feature of a manufactured product creates a risk of injury, the test, if that injury results, is whether "a reasonably prudent manufacturer would have so designed and sold the article in question had he known of the risk involved which injured plaintiff." Phillips v. Kimwood Machine Co., 525 P.2d at 1037. We discussed the question of reasonableness further in that opinion as follows:

"To some it may seem that absolute liability has been imposed upon the manufacturer since it might be argued that no manufacturer could reasonably put into the stream of commerce an article which he realized might result in injury to a user. This is not the case, however. The manner of injury may be so fortuitous and the chances of injury occurring so remote that it is reasonable to sell the product despite the danger. In design cases the utility of the article may be so great, and the change of design necessary to alleviate the danger in question may so impair such utility, that it is reasonable to market the product as it is, even though the possibility of injury exists and was realized at the time of the sale. Again, the cost of the change necessary to alleviate the danger in design may be so great that the article would be priced out of the market and no one would buy it even though it was of high utility. Such an article is not dangerously defective despite its having inflicted injury." 269 Or. at 495-96, 525 P.2d at 1038.

We are mindful of defendant's argument that a lay jury is not qualified to determine technical questions of aeronautical design, and of the forceful argument by Professor Henderson that problems of conscious product design choices are inherently unsuited to determination by courts. Henderson, Judicial Review of Manufacturers' Conscious Design Choices: The Limits of Adjudication, 73 Colum.L.Rev. 1531 (1973); Henderson, Design Defect Litigation Revisited, 61 Cornell L.Rev. 541 (1976). We do not underestimate the difficulties involved in this type of litigation. We are, however, committed to the position that members of the public are entitled to compensation for their injuries if they are damaged because of improper product design. This is not a problem which is peculiar to products liability cases. In the absence of an ability to recover through courts, persons injured by such designs would be without a remedy.

We have never considered in detail the requirements of a plaintiff's prima facie case in this context, nor have we found decisions of other courts which have done so. We have, howev-

er, found suggestions in the reported decisions that the plaintiff's burden in a design defect case includes a showing that there was an available "alternative, safer design, practicable under the circumstances," Huddell v. Levin, 537 F.2d 726, 737 (3d Cir. 1976) (N.J. law), or that "in terms of cost, practicality and technological possibility, the alternative design was feasible," Lolie v. Ohio Brass Company, 502 F.2d 741, 744 (7th Cir. 1974) (Ill. law); see also (citations to cases from other states).

In Roach v. Kononen/Ford Motor Co., supra, 269 Or. at 464, and Phillips v. Kimwood Machine Co., supra, 269 Or. at 501, we said that the court should balance the utility of the risk against its magnitude in deciding whether to submit a design defect case to the jury. One of the factors to be weighed in making this determination is the manufacturer's ability to eliminate the unsafe character of the product without impairing its usefulness or making it too expensive to maintain its utility. In other words, the court is to determine, and to weigh in the balance, whether the proposed alternative design has been shown to be practicable. The trial court should not permit an allegation of design defect to go to the jury unless there is sufficient evidence upon which to make this determination. If liability for alleged design defects is to "stop somewhere short of the freakish and the fantastic," plaintiffs' prima facie case of a defect must show more than the technical possibility of a safer design.

In some cases, because of the relatively uncomplicated nature of the product or the design feature in question, evidence of the dangerous nature of the design in question or of a safer alternative design may be sufficient to permit the court to consider this factor adequately. An extreme example is found in the facts of Passwaters v. General Motors Corp., 454 F.2d 1270 (8th Cir. 1972). There a passenger on a motorcycle which was involved in a collision with an automobile was injured by purely ornamental blades on the automobile's hubcap. The evidence that the blades were ornamental only would suffice in such a case; the court and the jury could find from that fact alone that it would have been practicable to supply hubcaps of a safer design.

* * * *

In other instances, however, the question of practicability cannot be properly weighed solely on the basis of inference and common knowledge. That is the case with the allegations we are considering here. Plaintiffs' allegations amount to a contention that an airplane furnished with a standard aircraft engine is defective because an engine of a different type, or with a different carburetor system, would be safer in one particular. It is not proper to submit such allegations to the jury unless the court is satisfied that there is evidence from which the jury could find the suggested alternatives are not only technically feasible but also practicable in terms of cost and the over-all design and operation of the product. It is part of the required proof that a design feature is a "defect" to present such evidence. In at least some instances in the present case, that requirement has not been met.

We consider, because it well illustrates the problems involved, plaintiffs' contention that defendant's airplane was defective because it was provided with a carbureted engine rather than an engine with a fuel injection system. There was evidence that carbureted airplane engines are characteristically subject to icing of a kind which can result in engine failure and that fuel injected engines are not nearly so subject to dangerous icing. There was also evidence that, at the time this airplane was manufactured, fuel injected engines of appropriate horsepower were available, and expert testimony that FAA approval of an airplane like this one with a fuel injected engine could probably have been obtained.

There is not, however, any evidence about what effect the substitution of a fuel injected

engine in this airplane design would have had upon the airplane's cost, economy of operation, maintenance requirements, over-all performance, or safety in respects other than susceptibility to icing. Plaintiff's own expert witnesses testified that a carbureted engine of the type used in this airplane was, except for its susceptibility to icing, a highly satisfactory, dependable engine. There was also undisputed evidence that 80 to 90 per cent of all small airplanes comparable to this one are manufactured with carbureted engines rather than with fuel injected engines. There was no explanation of why this is the case.

We also think it is significant that both in 1966, when this airplane was manufactured, and at the present time the FAA safety standards disclose that the agency was aware of the carburetor icing problems and provided for them in its regulations and yet determined that the use of carbureted engines was not unduly dangerous. Although we have held that compliance with the FAA safety standards does not preclude the possibility of liability for a design defect, we nevertheless believe that in a field as closely regulated as aircraft design and manufacture, it is proper to take into consideration, in determining whether plaintiffs have produced sufficient evidence of defect to go to the jury, the fact that the regulatory agency has approved the very design of which they complain after considering the dangers involved.

Taking into account all of the evidence, including the FAA determination that this aircraft design included adequate protection against carburetor icing, we hold that plaintiffs did not produce sufficient evidence that a reasonably prudent manufacturer who was aware of the risks of carburetor icing would not have designed this model of aircraft with a carbureted engine, or that substitution of a fuel injected engine was practicable. On this ground alone, defendant is entitled to a new trial.

Because the evidence at a new trial is not likely to be the same, we see no need to pass on the sufficiency of the evidence supporting the other allegations of defect involving the carburetor and carburetor heating system. The extent to which evidence of practicability is necessary as to such allegations will depend, in each instance, upon such factors as the complexity of the technical problems involved and the degree to which it appears that FAA approval of the design is relevant to the particular allegation of defect.

As defendant is entitled to a new trial, we proceed to discuss those of the other assignments of error which involve matters likely to arise again. [The court goes on to address many other issues raised on appeal.]