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METROPOLITAN PROPERTY AND CASUALTY
INSURANCE COMPANY *v.* DEERE
AND COMPANY ET AL.
(SC 18341)

Rogers, C. J., and Norcott, Palmer, Zarella, McLachlan,
Eveleigh and Harper, Js.

Argued April 19—officially released August 16, 2011

Bruce H. Raymond, with whom were *Lanell H. Allen* and, on the brief, *N. Kane Bennett*, *Sharon S. Koziol* and *Joseph J. Blyskal*, for the appellant (named defendant).

Heather J. Adams-Beman, with whom were *Todd S. Federico* and, on the brief, *Susan L. Miller*, for the appellee (plaintiff).

Opinion

ZARELLA, J. This appeal¹ arises from a product liability action brought by the plaintiff, Metropolitan Property and Casualty Insurance Company, against the named defendant, Deere and Company,² in which the plaintiff claimed that a lawn tractor manufactured by the defendant contained a manufacturing defect in its electrical system that caused a fire resulting in the destruction of the home of the plaintiff's insureds. The defendant appeals from the judgment of the trial court rendered in favor of the plaintiff, following a jury verdict for the plaintiff. On appeal, the defendant claims that the trial court improperly (1) admitted certain evidence regarding the drivability of the tractor, (2) declined to exclude the testimony of two of the plaintiff's experts pursuant to *State v. Porter*, 241 Conn. 57, 698 A.2d 739 (1997), cert. denied, 523 U.S. 1058, 118 S. Ct. 1384, 140 L. Ed. 2d 645 (1998), and on the basis of spoliation of evidence, and (3) denied the defendant's motions for a directed verdict and to set aside the verdict, in which the defendant claimed that the plaintiff had failed to present sufficient evidence to establish liability. The plaintiff responds that the trial court properly admitted the evidence and expert testimony at issue and that it presented sufficient evidence to sustain the jury's verdict pursuant to the "malfunction theory" of products liability, which permits a plaintiff to prove its case on the basis of circumstantial evidence. Although we agree that a plaintiff may base a product liability action on the "malfunction theory," we conclude that the plaintiff's evidence in the present case was insufficient to establish its products liability claim, and, therefore, we reverse the judgment of the trial court.

The jury reasonably could have found the following facts. On July 13, 2003, at approximately 1 p.m., a fire occurred at the home of Spyro Kallivrousis and Roula Kallivrousis (homeowners) in the town of Cheshire. On the day of the fire, Spyro Kallivrousis was at work while his wife, Roula Kallivrousis, was at home with their two children, tending to the yard. Roula Kallivrousis attempted to mow the lawn with their John Deere LX 178 lawn tractor (tractor) at approximately 10 a.m. that same day, but the tractor's engine was running roughly and she was unable to finish. The homeowners purchased the tractor in April, 1998, and had not had any problems with the tractor until the spring of 2003. Roula Kallivrousis, who was the primary user of the tractor, reported that it had been running roughly and backfiring repeatedly for several months prior to the fire after a tune-up and some maintenance performed by both the dealer that sold the tractor and by Spyro Kallivrousis. Because the rough running was particularly severe that morning, Roula Kallivrousis stopped mowing and returned the tractor to its usual storage location in the western-most bay of the attached three bay garage

(west bay) and turned it off, at which time the tractor backfired. At about 11:30 a.m., Roula Kallivrousis was going to her car in the garage with her children to drive her son to work when she noticed a “different kind of smell” in the garage, which she likened to the smell of antifreeze. She inspected the interior of the garage, including the tractor, for about five minutes but noticed nothing unusual. Unable to determine the source of the smell, but seeing no cause for alarm, Roula Kallivrousis left the house in her car with her children and closed the garage door behind her. Approximately one and one-half hours later, witnesses reported a fire at the residence, and the Cheshire fire department responded and extinguished the blaze. Although no one was injured, the fire damaged or destroyed a substantial portion of the residence and its contents.

A subsequent investigation by the local and state fire marshals determined that the fire originated in the west bay of the garage. The marshals were able to rule out several potential causes of the fire within the garage, including arson, the home electrical system, and other potential ignition sources, but could not pinpoint the exact cause or the specific location where the fire originated. On the basis of information obtained from their interview with the homeowners and their inspection, the marshals identified the tractor as a likely “significant factor” in the cause of the fire. The marshals did not, however, conduct a full examination of the tractor, leaving that instead to interested parties, such as the plaintiff. Because the marshals did not have sufficient evidence to identify a specific cause of the fire, the marshals officially classified the cause of the fire as undetermined.

The homeowners filed a claim for the loss with the plaintiff, which initiated an investigation into the cause and origin of the fire for the purpose of determining whether it might have a cause of action against a third party. Scott E. Boris, an investigator for New England Fire Cause and Origin, Inc., investigated the fire for the plaintiff. To conduct his investigation, Boris interviewed the homeowners and examined the scene of the fire. During his examination of the scene, Boris utilized a method called delayering, which is the process of systematically examining each piece of debris within the area of suspected origin to determine the specific point of origin of the fire, the ignition source and first fuel burned. During the delayering process, when Boris determined that an item was not related to the cause of the fire, he discarded the item into the backyard of the home. After delayering almost the entire west bay of the garage, Boris concluded that the fire had started in the west bay, with the specific point of origin at the tractor. Because Boris was not an expert in vehicle fires, he did not attempt to delayer or disassemble the tractor to look for an ignition source and, instead, obtained the assistance of Thomas Bush, also an investi-

gator at New England Fire Cause and Origin, Inc., who specialized in vehicle fires. Boris also notified the plaintiff of his conclusion that the fire had started at the tractor, and the plaintiff notified the defendant that its experts intended to examine one of the defendant's products to determine whether it caused the fire.

On July 30, 2003, Bush and the defendant's fire investigator, John D. Walker, met at the home to examine the tractor further. Due to the extensive damage caused by the fire, many of the tractor's components were damaged or destroyed. Based on what remained of the tractor, Bush ruled out all possible causes of fire within the tractor except for the tractor's electrical system, which Bush concluded could not be ruled in, or out, as the cause of the fire. Bush concluded that, of the approximately 30 percent of the electrical system that remained, his examination of the remains revealed no indication of any defects. Bush acknowledged that he would have to speculate as to the exact cause of the fire and that he had no opinion as to whether there was any defect within the tractor attributable to the defendant. Bush also concluded that, although the rough running of the tractor could be indicative of an electrical problem, the drivability problems that Roula Kallivrousis experienced on the morning of the fire were not a direct cause of the fire.

On the same day that he examined the tractor with Bush, Walker also performed his own independent analysis of the scene of the fire to determine the cause and origin. Walker did not, however, have the benefit of seeing the scene in the same condition as Boris because Boris had delayered the garage and left the debris that he had removed unsecured in the backyard for two weeks. On the basis of his investigation of what remained of the scene, Walker concluded that the fire had not originated at the tractor, as Boris concluded, but, instead, had originated in a part of the garage where a workbench had been located, which had sustained the greatest amount of fire damage. Walker agreed with Bush that the rough running of the tractor was not a direct cause of the fire and concluded that none of the remaining electrical components of the tractor showed any signs of a defect. Walker further testified that the tractor's electrical system had fail-safes that would protect against a fire in the event of an electrical failure. On the basis of his investigation, Walker concluded that the tractor was not the cause of the fire and that it was more likely than not that the fire originated at the workbench in the west bay of the garage.

The plaintiff, through its subrogation rights, subsequently brought a product liability action against the defendant, claiming that the tractor's electrical system, which had been manufactured by the defendant, was in a defective condition when it left the defendant's control and that this defect caused the fire. The defen-

dant filed an answer denying that the tractor was defective or that it had caused the fire. The defendant also filed special defenses, including a claim that the plaintiff's expert, Boris, had spoliated the evidence at the fire scene, and a claim of comparative responsibility on the part of the homeowners. See General Statutes § 52-572o (permitting apportionment of damages based on comparative responsibility). Prior to trial, the defendant moved to exclude the plaintiff's evidence of a malfunction in the tractor and to exclude the testimony of the plaintiff's experts, Boris and Bush, on the basis that their testimony was inadmissible under *State v. Porter*, supra, 241 Conn. 57. The defendant also moved to exclude the testimony of Boris on the basis that he had spoliated evidence. Finally, the defendant filed a motion for summary judgment on the ground that the plaintiff's evidence was insufficient to establish a product liability case against the defendant. The trial court denied the motions, and the case was tried to a jury in July, 2008. At the close of the plaintiff's evidence and again at the close of the defendant's evidence, the defendant renewed its objections to the admission of the expert testimony and the plaintiff's malfunction evidence, and moved for a directed verdict. The trial court reserved ruling on the motion, and the case was submitted to the jury. The jury returned a verdict in favor of the plaintiff. The defendant renewed its previous objections and moved to set aside the verdict. The trial court denied the motion, rendered judgment for the plaintiff and awarded damages in the amount of \$749,642.69. This appeal followed.

We begin with the defendant's claim that the trial court improperly permitted the case to go to the jury and improperly declined to set aside the jury's verdict when the plaintiff failed to present sufficient evidence at trial to establish the defendant's liability. The defendant argues that the jury would have had to resort to speculation and conjecture to hold the defendant liable in view of the facts that (1) the plaintiff's own experts agreed that they could not determine the cause of the fire, (2) they had no opinion as to whether a failure in the electrical system caused the fire, and (3) they agreed that any failure of the electrical system would not necessarily be caused by a defect attributable to the defendant. The plaintiff responds that the trial court properly submitted the case to the jury because it had established a sufficient case for liability under the so-called "malfunction theory," which permits the trier of fact to infer the existence of a product defect on the basis of circumstantial evidence when direct evidence is unavailable. We agree with the defendant that the plaintiff's evidence was insufficient to establish a claim for liability on the part of the defendant.

principles governing product liability actions and the malfunction theory. To recover under the doctrine of strict liability in tort, a “plaintiff must prove that: (1) the defendant was engaged in the business of selling the product; (2) the product was in a defective condition unreasonably dangerous to the consumer or user; (3) the defect caused the injury for which compensation was sought; (4) the defect existed at the time of the sale; and (5) the product was expected to and did reach the consumer without substantial change in condition.” (Internal quotation marks omitted.) *Potter v. Chicago Pneumatic Tool Co.*, 241 Conn. 199, 214, 694 A.2d 1319 (1997); accord *Giglio v. Connecticut Light & Power Co.*, 180 Conn. 230, 234, 429 A.2d 486 (1980); see also 2 Restatement (Second), Torts § 402A, pp. 347–48 (1965). For a product to be “unreasonably dangerous,” it “must be dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics.” (Internal quotation marks omitted.) *Potter v. Chicago Pneumatic Tool Co.*, supra, 214–15, quoting 2 Restatement (Second), supra, § 402A, comment (i), p. 352.

Although most product liability cases are based on direct evidence of a specific product defect, there are cases in which such evidence is unavailable. For example, a product malfunction may result in an explosion, a crash or a fire that damages or destroys much, if not all, of the product’s components. See, e.g., *Liberty Mutual Ins. Co. v. Sears, Roebuck & Co.*, 35 Conn. Sup. 687, 689 406 A.2d 1254 (components of television set destroyed in fire), cert. denied, 177 Conn. 754, 399 A.2d 526 (1979). The product also may be lost when it has been discarded or destroyed after the incident such that the parties are no longer able to examine it.³ See, e.g., *Fallon v. Matworks*, 50 Conn. Sup. 207, 210, 918 A.2d 1067 (2007) (product discarded after accident but before it could be examined by experts). In such cases, the plaintiff is unable to produce direct evidence of a defect because of the loss of essential components of the product.⁴

The absence of direct evidence of a specific product defect is not, however, fatal to a plaintiff’s claims, and a plaintiff, under certain circumstances, may establish a prima facie case using circumstantial evidence of a defect attributable to the manufacturer. See *Potter v. Chicago Pneumatic Tool Co.*, supra, 241 Conn. 218; *Giglio v. Connecticut Light & Power Co.*, supra, 180 Conn. 234–35; see also *Living & Learning Centre, Inc. v. Griese Custom Signs, Inc.*, 3 Conn. App. 661, 664, 491 A.2d 433 (1985) (permitting fact finder to infer defect from fact that malfunction occurred in absence of other possible causes); *Liberty Mutual Ins. Co. v. Sears, Roebuck & Co.*, supra, 35 Conn. Sup. 691 (same). In addition, a plaintiff need not present evidence to establish a specific defect, “[as] long as there is evidence

of some unspecified dangerous condition.” *Liberty Mutual Ins. Co. v. Sears, Roebuck & Co.*, supra, 691.

Although this court has not examined the precise contours of those circumstances in which this principle might apply, the Appellate and Superior Courts have used the “malfunction theory” of products liability to permit a jury to infer the existence of a product defect that existed at the time of sale or distribution on the basis of circumstantial evidence alone. See *Potter v. Chicago Pneumatic Tool Co.*, supra, 241 Conn. 218 (citing cases from Appellate Court and Superior Court concluding that plaintiff may use fact of malfunction as evidence of defect when other potential causes are absent); see also *Living & Learning Centre, Inc. v. Griese Custom Signs, Inc.*, supra, 3 Conn. App. 664 (applying malfunction theory to permit inference of defect); *Fallon v. Matworks*, supra, 50 Conn. Sup. 215–16 (same); *O’Connor v. General Motors Corp.*, Superior Court, judicial district of Ansonia-Milford, Docket No. CV 89-028104 (April 25, 1997) (21 Conn. L. Rptr. 151) (same); *Liberty Mutual Ins. Co. v. Sears, Roebuck & Co.*, supra, 35 Conn. Sup. 691 (same).

The malfunction theory of products liability permits the plaintiff to establish a prima facie product liability case on the basis of circumstantial evidence when direct evidence of a defect is unavailable. Most states have adopted some form of the malfunction theory.⁵ 1 L. Frumer & M. Friedman, *Products Liability* (2010) § 8.06 [3], pp. 8-262 through 8-270 and nn. 22–48 (collecting cases); D. Owen, “Manufacturing Defects,” 53 S.C. L. Rev. 851, 874 n.128 (2002) (same). Although this theory does not relieve a plaintiff of the burden to prove all elements of a product liability claim; see 1 L. Frumer & M. Friedman, supra, § 8.06 [1], pp. 8-257 through 8-258;⁶ it does help to establish a prima facie product liability case by permitting the jury to infer the existence of a defect attributable to the manufacturer. According to § 3 of the Restatement (Third) of Torts, Products Liability, in a product liability action, the malfunction theory permits a jury to infer “that the harm sustained by the plaintiff was caused by a product defect existing at the time of sale or distribution, without proof of a specific defect, when the incident that harmed the plaintiff . . . was of a kind that ordinarily occurs as a result of product defect . . . and . . . was not, in the particular case, solely the result of causes other than product defect existing at the time of sale or distribution.” Restatement (Third), Torts, Products Liability § 3, p. 111 (1998). This theory is based on the same principles underlying the doctrine of *res ipsa loquitur*, which permits a fact finder to infer negligence from the circumstances of the incident, without resort to direct evidence of a specific wrongful act.⁷ *Id.*, comment (a); see also *id.*, reporters’ note to comment (a), p. 115; 1 L. Frumer & M. Friedman, supra, § 8.06 [1], p. 8-258; J. Henderson & A. Twerski, “The Products Liability

Restatement in the Courts: An Initial Assessment,” 27 Wm. Mitchell L. Rev. 7, 22 (2000); cf. *Boone v. William W. Backus Hospital*, 272 Conn. 551, 575–76, 864 A.2d 1 (2005) (“[t]he doctrine of *res ipsa loquitur*, literally the thing speaks for itself, permits a jury to infer negligence when no direct evidence of negligence has been introduced” [internal quotation marks omitted]). Indeed, when a relatively new product fails to perform its intended function, the fact that the product failed may be said to “speak for itself” and provide support for an inference that the product was defective. J. Henderson & A. Twerski, *supra*, 22; see J. Hoffman, “*Res Ipsa Loquitur* and Indeterminate Product Defects: If They Speak for Themselves, What Are They Saying?,” 36 S. Tex. L. Rev. 353, 355–57 (1995).

Although the malfunction theory is based on the principle that the fact of an accident can support an inference of a defect, proof of an accident alone is insufficient to establish a manufacturer’s liability. The fact of a product accident does not necessarily establish either the existence of a defect or that the manufacturer is responsible, both of which must be proven in product liability cases. See, e.g., 1 L. Frumer & M. Friedman, *supra*, § 8.06 [2], p. 8-260 (“the mere fact that an accident happened . . . is insufficient to take the injured plaintiff to the jury”); cf. *O’Connor v. General Motors Corp.*, *supra*, 21 Conn. L. Rptr. 152 (“[w]hen a party relies on the rule of strict liability the requirement of showing a defect cannot be satisfied by reliance on the doctrine of *res ipsa loquitur*” [internal quotation marks omitted]), quoting *Tresham v. Ford Motor Co.*, 275 Cal. App. 2d 403, 408, 79 Cal. Rptr. 883 (1969). Unlike in *res ipsa* cases, the defendant in a product liability action ordinarily does not have control of the instrumentality that causes the plaintiff’s injury at the time the injury occurs. When the product is out of the control of the manufacturer, the likelihood of other potential causes of the accident that are not attributable to the manufacturer necessarily increases. See J. Hoffman, *supra*, 36 S. Tex. L. Rev. 355–57. Additionally, product accidents often occur for a variety of reasons that do not indicate the existence of a defect. See W. Prosser, “The Fall of the Citadel (Strict Liability to the Consumer),” 50 Minn. L. Rev. 791, 843 (1966) (“[t]he bare fact that an accident happens to a product . . . is usually not sufficient proof that it was in any way defective”); see also, e.g., *Schwartz v. Subaru of America, Inc.*, 851 F. Sup. 191, 193–94 (E.D. Pa. 1994) (malfunction theory not applicable in case involving motor vehicle crash when evidence established that driver was intoxicated). For these reasons, an inference that an accident involving a product resulted from something attributable to the manufacturer is much more speculative than an inference of negligence by the defendant in *res ipsa* cases, in which the instrumentality is, by definition, within the control of the defendant. See *Myrlak v. Port Authority*, 157 N.J.

84, 102, 723 A.2d 45 (1999); see also *Boone v. William W. Backus Hospital*, supra, 272 Conn. 575–76 (application of doctrine of *res ipsa loquitur* requires proof that defendant had control of instrument causing plaintiff’s harm). To allow such a speculative inference solely from the fact of an accident, when manufacturers and sellers no longer have exclusive control of the product, would essentially convert them into insurers of their products; this is contrary to the purposes of our product liability laws. See *Potter v. Chicago Pneumatic Tool Co.*, supra, 241 Conn. 210 (“strict tort liability does not transform manufacturers into insurers, nor does it impose absolute liability”); see also *O’Connor v. General Motors Corp.*, supra, 21 Conn. L. Rptr. 152–53 (“[i]f evidence of a malfunction were to be given such probative force that it raised the presumption of a defect . . . [manufacturers] would be made insurers”); *Hunter v. Mazda of Milford*, Superior Court, judicial district of Fairfield, Docket No. CV 98-0350686-S (March 2, 1999) (24 Conn. L. Rptr. 206) (same). Therefore, the plaintiff’s evidence must support a chain of inferences sufficient to link the plaintiff’s injury to a product defect and to link the defect to the manufacturer. See *Myrlak v. Port Authority*, supra, 104 (malfunction theory “permits the jury to draw two inferences: that the harmful incident was caused by a product defect . . . and that the defect was present when the product left the manufacturer’s control”).

Moreover, the application of the malfunction theory in cases in which the evidence is speculative raises substantial questions of fairness in allowing cases to proceed against product manufacturers. Although the doctrine is typically justified on the basis that it may be unfair to prevent the plaintiff from establishing a case when the product has been destroyed in an accident, it does not necessarily follow that it is fair to allow a claim against a manufacturer in the absence of direct evidence. Although the loss of a product in an accident may harm the plaintiff’s case, it also may prevent the manufacturer from defending itself by proving the absence of a defect in a particular product. Furthermore, the loss of the product does not make it any more likely that a defect in the product existed, so courts must be cautious not to diminish a plaintiff’s burden of proof in such cases. See J. Hoffman, supra, 36 S. Tex. L. Rev. 362 (“Although some circumstances may justify the use of [the malfunction theory] to bridge the gap caused by missing evidence, such justification should be used with utmost caution for two reasons: [1] The absence of evidence does not make a fact more probable but merely lightens the plaintiff’s evidentiary burden despite the fact that the missing evidence might well have gone either way; and [2] this rationale is too often subject to misapplication by courts in situations in which evidence actually is available. When courts permit [a malfunction theory claim] to go to the jury

simply because the most critical piece of evidence is missing, they are often engaging in a result-oriented, rather than a logical, analysis.”)⁸

For these reasons, it is important that appropriate limitations be placed on the application of the malfunction theory, and, when the evidence presented by the plaintiff does not remove the case from the realm of speculation, courts must intervene to prevent such cases from reaching a jury. See *Living & Learning Centre, Inc. v. Griese Custom Signs, Inc.*, supra, 3 Conn. App. 665 (“The mere fact that there is sufficient evidence to infer a defect does not necessarily mean that there is sufficient evidence to infer that the defect existed at the time of sale. Normally, the questions of when and where a defect originated will be left to the jury. . . . [When] the answers to these questions would be based only on speculation or conjecture, however, the answers cannot stand.” [Citation omitted; internal quotation marks omitted.]); see also *Harrison v. Bill Cairns Pontiac of Marlow Heights, Inc.*, 77 Md. App. 41, 50–51, 549 A.2d 385 (1988) (“proof of a defect must arise above surmise, conjecture, or speculation” [internal quotation marks omitted]). Before permitting a case to go to the jury on the basis of the malfunction theory, a court must be satisfied that the plaintiff’s evidence is sufficient to establish the probability, and not the mere possibility, that the plaintiff’s injury resulted from a product defect attributable to the manufacturer. D. Owen, supra, 53 S.C. L. Rev. 881 (“Indeed, because of the vagueness of this ephemeral form of evidence built on circumstantial inferences, the plaintiff’s burden of proof is especially important in malfunction cases to protect [manufacturers] from unfounded liability. Thus, a plaintiff must establish such a case by the probabilities, not just the possibilities, and [when] there is an equal probability that an accident occurred for reasons other than a defect attributable to the [manufacturer], the plaintiff’s case will fail.”).

With these concerns in mind, we conclude that, when direct evidence of a specific defect is unavailable, a jury may rely on circumstantial evidence to infer that a product that malfunctioned was defective at the time it left the manufacturer’s or seller’s control if the plaintiff presents evidence establishing that (1) the incident that caused the plaintiff’s harm was of a kind that ordinarily does not occur in the absence of a product defect, and (2) any defect most likely existed at the time the product left the manufacturer’s or seller’s control and was not the result of other reasonably possible causes not attributable to the manufacturer or seller.⁹ These two inferences, taken together, permit a trier of fact to link the plaintiff’s injury to a product defect attributable to the manufacturer or seller. A plaintiff may establish these elements through the use of various forms of circumstantial evidence, including evidence of (1) the history and use of the particular product, (2) the manner in

which the product malfunctioned, (3) similar malfunctions in similar products that may negate the possibility of other causes, (4) the age of the product in relation to its life expectancy, and (5) the most likely causes of the malfunction.¹⁰ If lay witnesses and common experience are not sufficient to remove the case from the realm of speculation, the plaintiff will need to present expert testimony to establish a prima facie case. See D. Owen, *supra*, 53 S.C. L. Rev. 880 and n.183 (citing cases in which expert testimony was required); cf. *Potter v. Chicago Pneumatic Tool Co.*, *supra*, 241 Conn. 217–18.

Evidence supporting the first element permits the trier of fact to infer that the plaintiff's injury resulted from a defect in the product rather than from some other cause of the accident, such as operator error. See Restatement (Third), *supra*, § 3, p. 111; see also 2A American Law of Products Liability (3d Ed. 2008) § 31:26, p. 35 (“[e]vidence that the accident in question is the type of accident that does not happen without a manufacturing defect is probative circumstantial evidence of a manufacturing defect”). In most cases, the evidence easily will establish that a product malfunctioned as a result of a defect and thereby caused the plaintiff's injury. See, e.g., *Liberty Mutual Ins. Co. v. Sears, Roebuck & Co.*, *supra*, 35 Conn. Sup. 691 (inference of defect in television set permitted when witness saw flames emanating from television set because “television sets, in normal use, do not self-ignite”). This may also be established with circumstantial evidence of a malfunction, such as difficulties with the product at or near the time of the accident,¹¹ or the “failure [of] a relatively inaccessible part integral to the structure of the product and not generally required to be repaired, replaced or maintained.” 2A American Law of Products Liability, *supra*, § 31:26, p. 35; see also W. Prosser, *supra*, 50 Minn. L. Rev. 843–44 (“the addition of very little more in the way of other facts, as for example . . . a new car veered suddenly and sharply from the road without the fault of the driver, that the defect had given trouble before the accident, that other similar products made by the defendant had met with similar misfortunes, or the elimination of other causes, or the aid of expert opinion, may be enough to support the inference [of a defect]”). When, however, a plaintiff cannot establish that an accident involving a product is of the type that normally occurs when a product is defective, the plaintiff fails to establish a sufficient cause of action.¹²

Evidence as to the second element supports an inference that the defect in the product existed when the product left the manufacturer's control and was not introduced by any other reasonably possible cause outside of its control. Even if a plaintiff presents sufficient evidence to establish that a product defect most likely caused the plaintiff's harm, there remains the possibility that the defect resulted from something not attributable

to the manufacturer, such as the age of the product, abuse or improper maintenance. The plaintiff therefore must present sufficient evidence to negate a reasonable possibility that something or someone besides the manufacturer caused the defect in the product. See, e.g., *Living & Learning Centre, Inc. v. Griese Custom Signs, Inc.*, supra, 3 Conn. App. 665–66 (plaintiff must negate other “factors that might account for an alteration of the product after sale, including improper use, modification, tampering or improper maintenance” [internal quotation marks omitted]); see also *Dillon v. Toyota Co.*, 274 App. Div. 2d 411, 412, 710 N.Y.S.2d 629 (2000) (“[t]he plaintiff produced no evidence of a defect . . . and failed to refute the assertions contained in an expert affidavit to the effect that the [product] could have [malfunctioned] for a variety of reasons”); *Roselli v. General Electric Co.*, 410 Pa. Super. 223, 230, 599 A.2d 685 (1991) (concluding that plaintiffs failed to state cause of action in case in which glass carafe of coffee-maker shattered when plaintiffs did not negate reasonable possibility that excessive use caused product to fail); *Rohde v. Smiths Medical*, 165 P.3d 433, 439 (Wyo. 2007) (“[plaintiff] failed to meet his burden to discount reasonable secondary causes of the product’s malfunction” and, therefore, could not rely on malfunction theory to establish his product liability claim); Restatement (Third), supra, § 3, illustration (7), p. 115 (inference not permitted when tool fails during its first use after repair work and plaintiff does not present evidence negating repair as possible cause). A plaintiff need not conclusively eliminate all possible causes of a product defect but must only negate reasonably possible secondary causes. See, e.g., *Welge v. Planters Life-savers Co.*, 17 F.3d 209, 211 (7th Cir. 1994) (“[t]he plaintiff in a products liability [action] is not required to exclude every possibility, however fantastic or remote, that the defect [that] led to the accident was caused by someone other than one of the defendants”).

The age of the product in relation to its life expectancy is another important factor that may weaken any inference that a product defect is attributable to the manufacturer. This inference is more speculative when the manufacturer has lacked control of the product for a substantial period of time, thereby increasing the possibility of other, possibly unknown and undetectable causes of the defect. See J. Hoffman, supra, 36 S. Tex. L. Rev. 359 (“[t]here are sound policy reasons why [malfunction theory] claims should usually be restricted to malfunctions of newer products, most notably because of the manufacturer’s lack of exclusive—or any—control after the product leaves its hands”); W. Prosser, supra, 50 Minn. L. Rev. 844–45 (extended use before failure can defeat any inference that defect was attributable to manufacturer); see also *Myrlak v. Port Authority*, supra, 157 N.J. 98 (“[g]enerally, the older a product is, the more difficult it is to prove that a defect existed

while in the manufacturer's control"). When a product malfunctions when it is new, the inference that the malfunction resulted from a defect attributable to the manufacturer is likely to be stronger than when the product is older because of the diminished possibility of other causes in the case of the newer product. See 2A American Law of Products Liability, *supra*, § 31:25, p. 34 ("[t]he occurrence of an accident a short time after sale is circumstantial evidence of [a] product malfunction").¹³

The age of a product should not, however, present an absolute bar to recovery in those cases in which the product that malfunctioned had not outlived its expected lifespan because consumers should reasonably expect to benefit from the use of a product for the length of its expected useful life. See *id.* ("[t]he age of an allegedly defective product must be considered in light of its expected useful life and the stress to which it has been subject"); see also *Soto v. Danielson Suzuki*, Superior Court, judicial district of Hartford-New Britain, Docket No. CV 89-363525 (September 24, 1994) (age of product not "automatic bar to claims [when] specific manufacturer fault has caused the malfunction within the expected life of the product"); *Myrlak v. Port Authority*, *supra*, 157 N.J. 98–99 ("age of the product alone may not preclude a finding that the product was defective when the product is of a type permitting the jury, after weighing all the evidence . . . to infer that in the normal course of human experience an injury would not have occurred at this point in the product's life span [if] there [had] not been a defect attributable to the manufacturer" [internal quotation marks omitted]). Although at least one jurisdiction has barred any application of the malfunction theory to products that are not new or nearly new; see *Ford Motor Co. v. Ridgway*, 135 S.W.3d 598, 601 (Tex. 2004); most jurisdictions do not treat the age of a product as a dispositive factor but instead treat it as an important factor implicating the possibility of other causes of a defect. See 2A American Law of Products Liability, *supra*, § 31:25, p. 34; see also *Myrlak v. Port Authority*, *supra*, 98–99.

Even though the age of a product is not a complete bar to recovery in a malfunction theory case, courts often require more evidence from a plaintiff to overcome a presumption that something other than a defect attributable to the manufacturer caused the malfunction when the product is not new or nearly new. See, e.g., *Soto v. Danielson Suzuki*, *supra*, Superior Court, Docket No. CV 89-363525 ("[c]onvincing proof of an original defect will overcome lapse of time or use" [internal quotation marks omitted]), quoting *Dorney Park Coaster Co. v. General Electric Co.*, 669 F. Sup. 712, 715 (E.D. Pa. 1987); see also *Living & Learning Centre, Inc. v. Griese Custom Signs, Inc.*, *supra*, 3 Conn. App. 665 ("lack of evidence of the existence of a specific defect, though not fatal to the plaintiff's case,

does require that the [evidentiary] bridge linking the defect with the time of sale be more substantial than might otherwise be appropriate” [internal quotation marks omitted]), quoting *Liberty Mutual Ins. Co. v. Sears, Roebuck & Co.*, supra, 35 Conn. Sup. 693; *Barnish v. KWI Building Co.*, 602 Pa. 402, 421–22, 980 A.2d 535 (2009) (no inference allowed when product functioned flawlessly for ten years before alleged malfunction and when no evidence was presented to explain how defect attributable to manufacturer could have caused accident).¹⁴

If a product is not new or nearly new when it allegedly malfunctioned, and the product functioned without problems indicative of a defect before the malfunction, the plaintiff must present some evidence to explain how the product could have operated without incident for a time and then have failed on this particular occasion.¹⁵ In the absence of such evidence, any link between the product failure and a defect attributable to the manufacturer is simply too attenuated to serve to establish liability on the part of the manufacturer. W. Prosser, supra, 50 Minn. L. Rev. 844–45 (“when there is no [direct] evidence [of a defect], and it is only a matter of inference from the fact that something broke or gave way, the continued use [of a product prior to the accident] usually prevents the inference that the thing was more probably than not defective when it was sold”); see also *Soto v. Danielson Suzuki*, supra, Superior Court, Docket No. CV 89-363525; *Harrison v. Bill Cairns Pontiac of Marlow Heights, Inc.*, supra, 77 Md. App. 52–54; *Scanlon v. General Motors Corp.*, 65 N.J. 582, 599, 326 A.2d 673 (1974); *Quirk v. Ross*, 257 Or. 80, 88, 476 P.2d 559 (1970); *Barnish v. KWI Building Co.*, supra, 602 Pa. 421–22.¹⁶

The purpose of the limitations on the application of the malfunction theory is to ensure that, although the plaintiff will have an opportunity to pursue a product liability claim notwithstanding the loss of the product, such cases will proceed to trial only when the plaintiff’s evidence is sufficient to establish that it is more probable than not that the plaintiff’s injury was caused by a defect in a particular product that can fairly be attributed to the manufacturer and not some other cause. Although the trier of fact may draw inference upon inference to find liability on the part of the manufacturer, it is essential that the trial court ensure that the plaintiff has presented sufficient evidence to support each inference by a preponderance of the evidence before submitting a case to the jury, in order to prevent liability on the basis of speculation. See 63 Am. Jur. 2d 94, Products Liability § 52 (2010) (“[when] a finding of . . . causation could . . . be reached [only] by indulging in speculation and the stacking of one inference upon another, such finding is against the great weight and preponderance of the evidence”). Furthermore, not only must there be sufficient evidence to support each

required inference, but the evidence also must be sufficient for the trier of fact to conclude, after considering all of the evidence presented and all reasonable inferences to be drawn therefrom, that the manufacturer is more likely than not responsible for the plaintiff's harm. *Id.*, § 54, p. 96 ("Although proof may be made by circumstances alone, the plaintiff is required to establish that the facts and circumstances, together with all appropriate inferences, give rise to the conclusion with reasonable certainty that the defect in a product [attributable to the manufacturer] proximately caused the plaintiff's injury. That is, the evidence must be sufficient to tilt the balance from possibility to probability."). When the evidence is not sufficient to support such a finding, and such a finding essentially would require speculation by the trier of fact, the case cannot properly be submitted to the jury. See *id.*, § 52, p. 94 ("Special care should be taken when assessing the sufficiency of causation evidence [when] the evidence is wholly circumstantial. It is particularly important to be assured that an inference of causation is based [on] at least a reasonable probability of causation, in an effort to remove purely conjectural and speculative questions from the jury.").

II

Applying the foregoing principles to the present case, we conclude that the plaintiff did not present sufficient evidence to support a finding of liability against the defendant, and, therefore, the trial court should have granted the defendant's motion for a directed verdict on the ground that the plaintiff's evidence was insufficient, as a matter of law, to implicate the malfunction theory. Although we conclude that the plaintiff's evidence was sufficient to permit the jury to infer that the fire started within the tractor and that the fire most likely started as a result of a failure in the tractor's electrical system, the plaintiff's evidence did not support an inference that any defect existed in the electrical system when the tractor left the defendant's manufacturing facilities or at the time it was sold, as the plaintiff alleged.

We begin our analysis with the standard of review of a trial court's decision on a motion for a directed verdict.¹⁷ "The standards for appellate review of a directed verdict are well settled. Directed verdicts are not favored. . . . A trial court should direct a verdict only when a jury could not reasonably and legally have reached any other conclusion. . . . In reviewing the trial court's decision [to deny the defendant's motion for a directed verdict] we must consider the evidence in the light most favorable to the plaintiff. . . . Although it is the jury's right to draw logical deductions and make reasonable inferences from the facts proven . . . it may not resort to mere conjecture and speculation. . . . A directed verdict is justified if . . . the evi-

dence is so weak that it would be proper for the court to set aside a verdict rendered for the other party. . . . Additionally, if, as a matter of law, the [malfunction theory] was not implicated by the circumstances of this case, then the trial court was required to direct a verdict in the defendant's favor." (Citation omitted; internal quotation marks omitted.) *Fisher v. Big Y Foods, Inc.*, 298 Conn. 414, 439–40, 3 A.3d 919 (2010); see also *id.*, 441 (reversing judgment in favor of plaintiff when plaintiff did not present evidence regarding element necessary to establish claim). With these principles in mind, we turn to the evidence presented by the plaintiff.

The plaintiff's evidence established that the homeowners had purchased the tractor new from a local dealer in April, 1998. The homeowners reported that the tractor ran well and that they had no problems with its operation until after they took the tractor back to the dealer for a tune-up in November, 2002. The homeowners testified that the first time they attempted to use the tractor after the tune-up, in the spring of 2003, the tractor's engine ran unevenly, causing the tractor to kick, sputter, and backfire. Spyro Kallivrousis took the tractor back to the dealer to have the dealer fix the problems with the tractor, and the dealer checked the engine and replaced the spark plug. Although the tractor operated better the first time the homeowners used it after the repair, the problems returned the next time the homeowners attempted to use it. The homeowners continued to use the tractor, despite the problems, throughout the remainder of the spring of 2003, and into the summer, up to and including the day of the fire on July 13, 2003.

The plaintiff's evidence further established that the service technician who had performed the tune-up found no problems or deficiencies in the tractor's electrical system at the time he inspected it. Donald Aiello, the service technician, performed the tune-up on the tractor according to manufacturer specifications supplied by the defendant. Although Aiello did not specifically recall working on the tractor, he testified as to the work that was performed on the tractor according to the notes in the repair order and his ordinary routine in performing this kind of service. Aiello testified that, among the performance of other tasks, he inspected the condition of the tractor's electrical system by verifying that the electrical switches and components operated properly and confirming that there were no frayed or loose wires. He further inspected the protective guard on the positive terminal of the battery and cleaned the cables attached to the battery terminals. According to the repair order, Aiello found no problems with the tractor or the electrical system and made no alterations or modifications to the tractor's electrical system during the tune-up.

As to the cause of the fire, the plaintiff presented

expert testimony that the fire originated in the tractor in the west bay of the garage of the home. At trial, the plaintiff's fire cause and origin expert, Boris, testified that he conducted an investigation into the cause of the fire and concluded that the fire had started in the area of the west bay of the garage, with the specific point of origin at the tractor. Boris also testified that he was able to rule out all other possible ignition sources within the garage except for the tractor. Because Boris was not an expert in vehicle fires, he could not reach any conclusions as to whether the tractor caused the fire. The plaintiff's vehicle fire expert, Bush, testified that, on the basis of his examination of the components of the tractor that survived the fire, he was able to rule out all possible causes of fire within the tractor except for the possibility of an electrical failure,¹⁸ which Bush concluded could not be ruled in, or out, as to the cause of the fire. He further testified that, because the tractor was off at the time of the fire, the only potential ignition source in the tractor was the battery but that the remains of the battery and the attached cables were insufficient to determine whether the fire started there.

The plaintiff's experts further testified that they had no opinion as to the cause of the fire or whether the fire resulted from any defect that existed when the tractor left the defendant's control or at the time of sale to the homeowners. Furthermore, the plaintiff presented no circumstantial evidence that would indicate that a failure of the electrical system would most likely have resulted from a defect existing when the tractor left the defendant's manufacturing facilities or at the time of sale. Bush conceded on cross-examination that, of the approximately 30 percent of the electrical system that remained, his examination of the remains revealed no indication of any defects. Bush further acknowledged that he would have to speculate as to the exact cause of the fire in this case and that he had no opinion as to whether there was any defect within the tractor existing at the time that it left the defendant's manufacturing facilities or at the time of sale. Bush also concluded that, although the problems with the tractor, as described by the homeowners, could indicate an electrical problem in the tractor, the problems on the morning of the fire were not a direct cause of the fire. Furthermore, the defendant, in its pretrial motion to preclude the plaintiffs' use of the malfunction theory, presented the trial court with excerpts of Bush's deposition testimony in which Bush conceded that he did not suspect that there was a defect in the tractor but, rather, some "unidentified failure" Bush also agreed that "an electrical failure [is not] necessarily suggestive of a defect that was original to the motor vehicle" Finally, Bush conceded that he had "[no] opinion as to the presence of conditions that would be characterized as a defect at the time this product was sold"

Viewing the evidence in the light most favorable to

the plaintiff, we conclude that the jury reasonably could have found that the fire originated from the tractor's electrical system. Although the defendant argues that it presented evidence of other possible causes of the fire apart from the tractor, the testimony of the plaintiff's experts was sufficient to rule out other possible causes. The plaintiff's experts testified that they ruled out other potential causes in the garage and that the burn patterns in the garage pinpointed the tractor as the origin of the fire. Furthermore, the plaintiff's vehicle fire expert testified that he was able to rule out all other possible causes of a fire in the tractor except for the electrical system. Although thin, we conclude that this evidence was sufficient to support a finding that the tractor's electrical system started the fire. Cf. *Speller v. Sears, Roebuck & Co.*, 100 N.Y.2d 38, 42–43, 790 N.E.2d 252, 760 N.Y.S.2d 79 (2003) (triable issue of fact as to origin of fire when plaintiff presented expert testimony that house fire originated at refrigerator despite fire marshal's conclusion that fire started at kitchen stove); *Bennett v. ASCO Services, Inc.*, 218 W. Va. 41, 49, 621 S.E.2d 710 (2005) (triable issue of fact as to origin of fire when plaintiff's expert testified that evidence at scene including burn patterns indicated that garage fire started at particular vehicle).

Furthermore, the plaintiff presented sufficient evidence to establish that the fire most likely resulted from a defect in the tractor, satisfying the first requirement of the malfunction theory. Because common experience informs us that a tractor's electrical system does not ordinarily ignite, especially when not in operation, the evidence provided a reasonable basis on which the jury could have concluded that the tractor malfunctioned as a result of some defect in the electrical system. See, e.g., *Liberty Mutual Ins. Co. v. Sears, Roebuck & Co.*, supra, 35 Conn. Sup. 691 (inference of defect in television set permitted because "television sets, in normal use, do not self-ignite").

We further conclude, however, that the plaintiff failed to present sufficient evidence to eliminate other reasonably possible secondary causes of the defect and to establish that the fire in the tractor most likely resulted from a defect attributable to the defendant. First, the plaintiff's own evidence pointed to the possibility of other causes of an electrical failure not attributable to the defendant, namely, the possibility of improper maintenance and improper use. The evidence at trial established that the tractor operated without issue for more than four years and that the reported problems, which, according to the plaintiff's evidence, could have stemmed from an electrical problem, did not develop until *after* the dealer performed a tune-up on the tractor. Although the plaintiff presented the testimony of the dealer's technician, who testified that he did not alter or modify the electrical system, no evidence was presented that the work performed on the tractor could

not have damaged or caused problems with the tractor's electrical system, resulting in the problems of which the homeowners complained and, ultimately, the failure of the electrical system. Furthermore, although the evidence established that the homeowners continued to operate the tractor while the tractor was having problems, no evidence was presented that this was a proper use of the tractor or that this could not have resulted in damage or excessive wear and tear to the tractor's components, including the electrical system.

In addition, the plaintiff's evidence failed to link an electrical failure in the tractor to a defect attributable to the defendant. The evidence presented at trial clearly established that there were no problems reported with the tractor's electrical system during the first four years of use and that the tractor functioned properly during that time, weakening any inference that the tractor's electrical system was defective at the time it was manufactured or when it was sold to the homeowners. The evidence further established that, prior to the fire, the tractor had been inspected by a technician and that he identified no problems with the tractor's electrical systems, further weakening any inference that the electrical system was in a defective condition before it was serviced, let alone when it left the defendant's control several years earlier.

Furthermore, because the evidence established that the tractor was not new or nearly new when it malfunctioned, the plaintiff was required to present additional evidence to explain how the tractor could have had a defect in the electrical system when it left the defendant's manufacturing facilities yet function without problems for several years before failing in July, 2003. The plaintiff did not present any such evidence. Moreover, the plaintiff's own vehicle fire expert admitted that he did not suspect that a defect in the tractor was responsible for the fire and that the failure of the electrical system was not necessarily an indication of a defect existing when it was manufactured or sold to the homeowners. He further testified that he had no opinion as to whether the fire resulted from a defect attributable to the defendant and that he would have to speculate as to the cause of the fire. When the plaintiff's own expert concedes that speculation would be required to determine whether the fire resulted from anything attributable to the defendant, and there is no other evidence to link the defect to the defendant, a reasonable juror would have to resort to speculation to infer liability on the part of the defendant by a preponderance of the evidence.¹⁹ Compare *Harrison v. Bill Cairns Pontiac of Marlow Heights, Inc.*, supra, 77 Md. App. 43–44, 52–54 (upholding trial court's granting of summary judgment in case involving electrical fire in motor vehicle when vehicle was several years old, no prior problems with vehicle's electrical system had been identified, and plaintiffs' experts did not give "any indi-

cation that the electrical [problem] was caused by a defect in the automobile that existed at the time of the sale”), and *Scanlon v. General Motors Corp.*, supra, 65 N.J. 598–99 (inference of defect attributable to manufacturer could not be drawn when motor vehicle that malfunctioned was nine months old, had 4000 miles of use, and plaintiff did not present “other evidence [that] would permit an inference that a dangerous condition existed prior to sale” [internal quotation marks omitted]), with *Cincinnati Ins. Co. v. Volkswagen of America, Inc.*, 29 Ohio App. 3d 58, 59–62, 502 N.E.2d 651 (1985) (evidence sufficient to link defect to manufacturer in case involving electrical fire in motor vehicle when vehicle was several years old but plaintiff’s expert testified that electrical system showed signs of failure, that wire was most likely cause of fire, and that failure of wire was most likely result of defect attributable to manufacturer), and *Anderson v. Chrysler Corp.*, supra, 184 W. Va. 643, 646 (evidence sufficient to link electrical defect to manufacturer in case involving electrical fire in motor vehicle when vehicle owners testified that they had problems with vehicle’s electrical system from time it was purchased new from dealer). We therefore conclude that the evidence that the plaintiff presented was insufficient to satisfy the requirements of the malfunction theory, and, therefore, the trial court should not have permitted the jury to infer the existence of a defect attributable to the defendant on that basis. Furthermore, because the plaintiff did not present direct evidence to establish that any defect in the tractor was attributable to the defendant, it could rely on no other theory to establish its product liability claim, and, therefore, the trial court should have granted the defendant’s motion for a directed verdict.²⁰

The judgment is reversed and the case is remanded with direction to grant the defendant’s motion for a directed verdict and to render judgment for the defendant.

In this opinion the other justices concurred.

¹ The named defendant appealed to the Appellate Court from the judgment of the trial court, and we transferred the appeal to this court pursuant to General Statutes § 51-199 (c) and Practice Book § 65-1.

² The defendant Dighello Brothers Auto Sales, Inc., settled with the plaintiff before trial and is not a party to this appeal. We hereinafter refer to the named defendant, Deere and Company, as the defendant throughout the opinion.

³ Destruction or discarding of a product by a party to the action may, however, raise issues of spoliation of evidence, potentially requiring an adverse inference instruction, a cause of action against the spoliator, or any other remedy that may be appropriate under the circumstances of the particular case. See, e.g., *Rizzuto v. Davidson Ladders, Inc.*, 280 Conn. 225, 239–43, 905 A.2d 1165 (2006) (concluding that adverse inference is insufficient in certain cases involving intentional spoliation of evidence and permitting right of action by plaintiff against defendant that destroys evidence); *Beers v. Bayliner Marine Corp.*, 236 Conn. 769, 775, 675 A.2d 829 (1996) (permitting trier of fact to draw adverse inference against spoliator); see also Restatement (Third), Torts, Products Liability § 3, reporters’ note to comment (b), p. 118 (1998).

⁴ Whether a plaintiff in this state may use the malfunction theory when the product is still available for inspection but the plaintiff nevertheless is unable to produce direct evidence of a specific defect is a question that we

need not resolve in this appeal. See D. Owen, “Manufacturing Defects,” 53 S.C. L. Rev. 851, 874 n.128 (2002) (citing cases permitting plaintiff to proceed when product not destroyed by malfunction but plaintiff cannot prove specific defect). But see J. Hoffman, “Res Ipsa Loquitur and Indeterminate Product Defects: If They Speak for Themselves, What Are They Saying?,” 36 S. Tex. L. Rev. 353, 367–68 (1995) (noting that it is difficult to justify allowing plaintiff to proceed under malfunction theory when product and evidence that could reveal defect are still available).

⁵ The malfunction theory also is referred to, depending on the particular jurisdiction, as the “indeterminate defect theory,” “general defect theory,” or simply as “a principle of circumstantial evidence.” D. Owen, *supra*, 53 S.C. L. Rev. 873 n.123.

⁶ The malfunction theory does not relieve a plaintiff of the burden of proving all elements of a product liability claim. See 1 L. Frumer & M. Friedman, *supra*, § 8.06 [1], pp. 8-257 through 8-258. Proof that the injury to the plaintiff does not ordinarily occur in the absence of a product defect may establish the existence of a defect, and the elimination of other possible causes may establish that the defect existed when the product left the manufacturer’s control. See, e.g., *Living & Learning Centre, Inc. v. Griese Custom Signs, Inc.*, *supra*, 3 Conn. App. 664–66; *Barnish v. KWI Building Co.*, 602 Pa. 402, 412–13, 980 A.2d 535 (2009). The plaintiff independently must prove the remaining elements of the claim.

⁷ Although the principles underlying the malfunction theory and *res ipsa loquitur* are similar, inasmuch as the fact of a product failure may indicate the existence of a product defect, the doctrine of *res ipsa loquitur* does not directly apply in product liability cases. The doctrine of *res ipsa loquitur* is used to establish a defendant’s negligence, and negligence is not at issue when a product liability claim is asserted. See, e.g., 2A American Law of Products Liability (3d Ed. 2008) § 31:26, p. 35 (“*res ipsa loquitur* may not apply in strict liability cases . . . [when] negligence is not in issue”); J. Henderson & A. Twerski, “The Products Liability Restatement in the Courts: An Initial Assessment,” 27 Wm. Mitchell L. Rev. 7, 22 (2000) (“[b]ecause the doctrine of *res ipsa loquitur* has been historically connected to negligence, many courts have said that it does not apply to products liability cases”); W. Prosser, “The Fall of the Citadel (Strict Liability to the Consumer),” 50 Minn. L. Rev. 791, 842 (1966) (“[r]es ipsa loquitur, strictly speaking, is not an applicable principle when there is no question of inferring any negligence”). In a product liability action, the manufacturer’s level of care is irrelevant and the issues are, instead, whether the product was defective and whether the defect existed when the product left the manufacturer’s control. See, e.g., *Myrlak v. Port Authority*, 157 N.J. 84, 96, 723 A.2d 45 (1999) (“In the typical manufacturing defect case, a plaintiff is not required to establish negligence. . . . In other words, a plaintiff must impugn the product but not the conduct of the manufacturer of the product.” [Citations omitted.]).

⁸ If a product is destroyed after the accident by one of the parties, such a situation may give rise to issues regarding spoliation of evidence, requiring appropriate remedies against the spoliator to remedy the prejudice to the other party. See footnote 3 of this opinion.

⁹ In addition to these two elements, a plaintiff, as a threshold matter, must present sufficient evidence to support a finding that the product, and not some other cause apart from the product, was more likely than not the cause of the plaintiff’s injury. See, e.g., W. Prosser, *supra*, 50 Minn. L. Rev. 840 (“[A plaintiff] must prove, first of all, not only that he has been injured, but that he has been injured by the product. The mere possibility that this may have occurred is not enough, and there must be evidence from which the jury may reasonably conclude that it is more probable than not.”); see also 5 F. Harper et al., Torts (3d Ed. 2008) § 28.12, p. 489 (discussing possibility in some cases that “there may be serious doubt that the defendant’s product was the instrumentality of harm [to the plaintiff]”). In most cases, direct evidence will strongly support a finding that a particular product caused the plaintiff’s harm. See, e.g., *Liberty Mutual Ins. Co. v. Sears, Roebuck & Co.*, *supra*, 35 Conn. Sup. 689, 691 (inference that television caused fire permitted when witness saw television engulfed in flames).

There are those cases, however, such as the present case, in which the evidence that a particular product caused the accident will be wholly circumstantial. This adds an additional inference to the chain of inferences necessary for the trier of fact to find that a defect attributable to the manufacturer caused the plaintiff’s injury. This means that, to find the manufacturer liable pursuant to the malfunction theory, the trier of fact must find, first, that

the manufacturer's product caused the plaintiff to suffer harm, second, that the product failed as a result of a defect and not some other cause, and, third, that the defect was attributable to the manufacturer and not something or someone else. The addition of this inference to the chain of inferences adds to the danger that the evidence of each element, taken together, may be too speculative to support a finding of liability on the part of the manufacturer. When each of these inferences is based on circumstantial evidence alone, it is essential that the plaintiff present sufficient evidence not only to support each of the inferences but also to satisfy the trier of fact that, after consideration of all of the evidence and inferences together, it is more likely than not that the manufacturer caused the plaintiff to suffer harm. Even if there is sufficient evidence to allow the trier of fact to draw each of the inferences necessary to establish a claim pursuant to the malfunction theory, if the trier of fact nevertheless is not convinced that the manufacturer caused the plaintiff to suffer harm, the trier of fact must return a verdict for the manufacturer.

¹⁰ Evidence of the most likely causes of the malfunction ordinarily will be presented through an expert witness.

¹¹ See, e.g., *DeWitt v. Eveready Battery Co.*, 355 N.C. 672, 690–95, 565 S.E.2d 140 (2002) (circumstantial evidence that battery had leaked was sufficient to support inference that battery had defect and injured plaintiff); *Anderson v. Chrysler Corp.*, 184 W. Va. 641, 646, 403 S.E.2d 189 (1991) (inference of electrical defect in vehicle permitted when owner reported numerous problems with electrical system prior to vehicle fire).

¹² See, e.g., *Willard v. BIC Corp.*, 788 F. Sup. 1059, 1069–70 (W.D. Mo. 1991) (inference of defect not permitted in case against manufacturer of cigarette lighter in which boat caught fire after passenger used lighter, when facts established that user recently had fueled boat with gasoline); Restatement (Third), supra, § 3, illustration (6), pp. 114–15 (when vehicle suddenly speeds out of control while being operated on roadway, fact of accident is, without more, insufficient to support inference of product defect in light of possibility of other causes of accident, such as operator error); see also *Schwartz v. Subaru of America, Inc.*, supra, 851 F. Sup. 193–94 (inference of defect not permitted in case involving motor vehicle crash when evidence established that driver was intoxicated at time of crash).

¹³ For example, if an individual purchases a new laptop computer, and the computer ignites into flames the first time it is turned on, the fact that computers do not ordinarily catch fire when they are turned on for the first time is strong evidence of a product defect attributable to the manufacturer. See J. Hoffman, supra, 36 S. Tex. L. Rev. 356–57. When, however, that same computer has operated without problems for several years before malfunctioning, any inference that the fire is attributable to the manufacturer is more speculative, and, without additional evidence linking the defect to the manufacturer, an inference under the malfunction theory will not be permitted. See id., 360; see also *Hartford Casualty Ins. Co. v. Marpac Corp.*, 193 F. Sup. 2d 859, 863 (D. Md. 2002) (inference of defect attributable to manufacturer not permitted when product was eight or nine years old); *Soto v. Danielson Suzuki*, Superior Court, judicial district of Hartford-New Britain, Docket No. CV 89-363525 (September 22, 1994) (malfunction theory not applicable when driver of nine year old motorcycle suddenly crashed after years of problem free use and when expert could not determine whether accident resulted from any defect); *Woodin v. J.C. Penney Co.*, 427 Pa. Super. 488, 492–93, 629 A.2d 974 (1993) (inference of defect at time of sale not permitted from fact of fire alone when freezer functioned without incident for more than eight years, and there was no evidence of any defect), appeal denied, 537 Pa. 612, 641 A.2d 312 (1994); *Woelfel v. Murphy Ford Co.*, 337 Pa. Super. 433, 436, 487 A.2d 23 (1985) (inference not permitted in case in which tire blew out because “the prolonged trouble-free use of the tire, and the satisfactory inspection conducted prior to the accident [resulting from the blow out], would have made it unreasonable and erroneous to have allowed the jury to consider whether the [manufacturer] should be found liable for a manufacturing defect”).

¹⁴ In *Barnish*, the Supreme Court of Pennsylvania addressed a claim of a product defect in a spark detection system that allegedly failed to detect a spark on a single occasion after ten years of successful use. See *Barnish v. KWI Building Co.*, supra, 602 Pa. 408–409. The plaintiff did not present any evidence, however, to explain why the sudden failure of the product, after several years of use, could be attributed to the manufacturer of the product. Id., 421. The court concluded that, “to survive summary judgment, a plaintiff who admits that the product functioned properly in the past must

present some evidence explaining how the product could be defective when it left the manufacturer's control and yet still function properly for a period of time." *Id.*, 422. Because the plaintiff did not present any evidence to establish that the defect likely existed when the product left the manufacturer's control, the court concluded that the manufacturer was entitled to summary judgment. *Id.*

¹⁵ We note that this approach is different from the approach taken by the Restatement (Third) of Torts, Products Liability, § 3, which does not take a definite position as to the weight to be given to the age of the product in determining whether an inference may be drawn. Instead, it simply lists the age of the product as one factor among others to be weighed in considering whether other causes are responsible for the defect in a product that causes an accident. See Restatement (Third), *supra*, § 3, comment (d), p. 114. Notwithstanding the vagueness in the Restatement (Third), it is noteworthy that, in every illustration in the commentary to § 3 in which the Restatement (Third) indicates that liability is warranted, the accident involves a new product. J. Hoffman, *supra*, 36 S. Tex. L. Rev. 368. Notwithstanding the Restatement's ambiguous position on the issue, case law generally supports limiting the doctrine to new or nearly new products, in the absence of additional evidence linking the product defect to the manufacturer. *Id.*, 360, 368–69.

¹⁶ We also note that the type of product involved in the accident and the extent to which a user interacts with the product may be relevant factors when considering whether the age of the product or the possibility of other causes of a defect will prevent an inference from being drawn under the malfunction theory. See J. Hoffman, *supra*, 36 S. Tex. L. Rev. 360–61 n.38 (citing to case law standing for proposition that courts differentiate “between products such as televisions, stoves, and washers or dryers—in which the user's relationship is somewhat passive and custodial and does not normally involve hazardous conduct or active participation—and products such as automobiles which, if they leave the road under the control of the driver, may not necessarily give rise to the same generous inference of defect” [internal quotation marks omitted]).

¹⁷ We need not consider separately whether the trial court improperly denied the defendant's motion to set aside the verdict. “Practice Book § 16-37 permits a party whose motion for a directed verdict has been denied . . . [thereafter to] move to have the jury's verdict set aside and to have judgment rendered in accordance with its motion for a directed verdict. . . . If the trial court improperly denied the defendant's motion for directed verdict, its denial of the defendant's [other] motions, which reiterated the same arguments, necessarily was improper.” (Citation omitted; internal quotation marks omitted.) *Fisher v. Big Y Foods, Inc.*, 298 Conn. 414, 439–40 n.31, 3 A.3d 919 (2010).

¹⁸ According to Bush's testimony, there are five possible causes of vehicle fires: (1) careless disposal of smoking materials; (2) open flame; (3) mechanical failure that results in friction heating; (4) hot surface ignition; and (5) electrical failure.

¹⁹ We note that when the product at issue is new or nearly new, there is much less of a possibility that a malfunction would be caused by factors not attributable to the manufacturer (such as mistreatment, lack of maintenance, or improper maintenance). Therefore, it would not necessarily be speculative to conclude that any defect in the product is attributable to the manufacturer in a recently purchased product, even in the absence of additional affirmative evidence linking the defect to the manufacturer. When the product is not new or nearly new at the time of the malfunction, however, more evidence is required to eliminate the speculation that some other cause was responsible for the accident by negating other reasonably possible causes and demonstrating that the product was most likely defective when it left the manufacturer's control.

²⁰ Because we conclude that the plaintiff's evidence was not sufficient to support an inference that a failure of the electrical system was attributable to the defendant, we need not examine whether all of the plaintiff's evidence, taken together, was sufficient to remove the case from the realm of speculation and to support a finding that the defendant more likely than not caused the homeowners to suffer harm.

Furthermore, because we reverse the judgment of the trial court on this basis and direct that the trial court grant the defendant's motion for a directed verdict and render judgment for the defendant, we do not reach the defendant's remaining claims.