

**IN THE COURT OF APPEALS OF THE STATE OF WASHINGTON**

**DIVISION II**

KAREN MOORE and the ESTATE OF  
JOHNNY C. MOORE,  
Appellants,

v.

HARLEY-DAVIDSON MOTOR COMPANY  
GROUP, INC. d/b/a/ HARLEY-DAVIDSON  
MOTOR COMPANY, a Wisconsin State  
Corporation; DESTINATION  
MOTORCYCLES TACOMA, LLC d/b/a  
DESTINATION HARLEY-DAVIDSON, a  
Washington State Limited Liability Company,  
Respondents.

No. 39400-6-II

PUBLISHED IN PART OPINION

Van Deren, J. — Karen Moore and the estate of her deceased husband, Johnny C. Moore (Moore),<sup>1</sup> sued Harley-Davidson Motor Company Group, Inc. and Destination Motorcycles Tacoma, LLC (Harley-Davidson), for Washington Products Liability Act<sup>2</sup> (WPLA), ch. 7.72 RCW, violations. In pretrial motions, the trial court ruled that the Moores’ expert’s testimony based on metal spatter on the interior of a circuit breaker would not be admissible because it failed

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<sup>1</sup> We refer to the plaintiffs as the “Moore’s.” When a distinction is necessary, we refer to them by their first names.

<sup>2</sup> RCW 7.72.030.

No. 39400-6-II

to satisfy the *Frye*<sup>3</sup> test. The trial court admitted Harley-Davidson's expert's testimony based on controlled heating of a circuit breaker, finding it satisfied *Frye*. Following a verdict for Harley-Davidson, the Moores appeal, arguing that the trial court erred in its *Frye* rulings as well as in ruling that Harley-Davidson's expert's testimony was relevant. The Moores further allege that substantial evidence does not support the jury verdict. We affirm.

### FACTS

On April 25, 2004, Johnny and Karen Moore, accompanied by friends, were returning home from Portland, Oregon, on their motorcycle. Johnny was driving a 2003 Harley-Davidson Ultra Classic motorcycle and Karen was seated behind him. They were traveling in the far right lane of two westbound lanes on an uphill portion of Highway 30 about three miles west of Gnat Creek in northwest Oregon. One eastbound lane with a wide shoulder and a guardrail was adjacent to the westbound lanes.

The Moores' motorcycle drifted from the outside lane, across the inside westbound lane, across the eastbound lane, and collided with the guardrail. When Karen realized the motorcycle was drifting, she tapped Johnny on the shoulder; he did not respond but appeared to be in control of the motorcycle as it crossed the lanes until it hit the guardrail. The Moores were ejected from the motorcycle; Johnny was killed and Karen suffered injuries. The motorcycle continued along the guardrail for a short distance after the Moores were ejected, before coming to a stop. Witnesses later disputed whether the motorcycle fell over or remained upright against the guardrail with the motor running.

The next day, April 26, Karen received a recall notice from Harley-Davidson informing

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<sup>3</sup> *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923).

her that the main circuit breaker on the motorcycle might have a defect that could cause it to “open due to reasons other than for which it was designed,” therefore, causing a “‘quit while riding’ situation.” Clerk’s Papers (CP) at 358.

On March 22, 2004, Harley-Davidson had sent notices to its dealers concerning safety recall campaign 0113 (113 recall) regarding a defect in several lines of motorcycles that included the Moores’ 2003 Ultra Classic. The notice prohibited Harley-Davidson dealers from delivering motorcycles in the recall population, but neither Harley-Davidson nor its dealers began notifying owners of any defect at that time.

On April 24, 2007, the Moores sued Harley-Davidson. The Moores pleaded design defect, manufacturing defect, and failure to warn theories under the WPLA. RCW 7.72.030. The Moores’ suit claimed that their motorcycle had a defective circuit breaker and that the defect caused the accident.

From 1999 until 2003, Harley-Davidson produced 331,000 touring motorcycles that used a 40 amp circuit breaker to prevent an engine fire due to excessive electrical current. This circuit breaker consisted of a bimetallic strip that, when heated by excessive current load, ambient heat, or a combination of both, will bend, thus opening the circuit and depriving the entire motorcycle of power. When the circuit breaker opens, the lights and engine do not work, but steering and braking are unaffected.

In pretrial motions, the Moores and Harley-Davidson both requested permission to conduct tests on the Moores’ motorcycle’s circuit breaker. Either test would ultimately destroy any evidence sought by the opposing party because each time the circuit breaker opens the resulting electrical arc causes pits and a spattering of molten metal on the interior surface. The

No. 39400-6-II

Moore's expert witness, electrical and metallurgical engineer, Keith Cline, sought to disassemble the circuit breaker and examine the interior for these marks. His theory was that this spatter creates a distinct pattern analogous to blood spatter and that the metal spatter can be used to determine the exact number of tripping events. Because a single circuit breaker opening event can cause multiple pits, the "spatter analysis" is necessary to establish the minimum number of events that occurred in the Moore's motorcycle's circuit breaker. Report of Proceedings (RP) (Apr. 20, 2009) at 30. The Moores conceded that this technique had never been used before for any purpose but that an analogous technique involving blood was widely accepted in the scientific community.

Harley-Davidson conducted a road test of the Moore's motorcycle that indicated the current never exceeded 25 amps throughout the Moore's accident reenactment. Harley-Davidson then sought to place the Moore's motorcycle's circuit breaker in a climate controlled heat chamber (oven), run a constant 30 amp current across the breaker, and gradually increase the temperature to determine at what point the circuit breaker would trip. Larry Hejlik, a Harley-Davidson product safety engineer and technical consultant, needed to repeat this "bake test" three times, thus creating additional pits and spatter marks on the breaker interior and degrading or destroying the evidence Cline sought.

The trial court permitted Harley-Davidson to conduct its bake test before permitting the Moore's to conduct their spatter test. Harley-Davidson then successfully moved to exclude Cline's test under *Frye* because Cline's methodology was not generally accepted in the scientific community.

At trial, the Moore's accident reconstruction expert witness, Gerard Schaefer, testified

that Johnny could have been distracted by a loss of power to his motorcycle and a possible restart of the motorcycle or by a malfunctioning motorcycle, and that these distractions could have caused the accident. Charles Baxley, a lay witness with long motorcycle riding experience, also testified that the Moores' motorcycle could have restarted after quitting. A second plaintiff's expert witness, forensic engineer Douglas Barovsky, testified that it was inappropriate to use an automatically resetting circuit breaker in the Moores' motorcycle.<sup>4</sup>

Harley-Davidson's lead engineer on its recall investigation committee, Thomas McGowan, testified that Harley-Davidson authorized the 113 recall on March 11, 2004, because a "combination of engine heat[,] . . . loose nuts on the terminals, and . . . wiring issues" cause the majority of instances when a motorcycle quits while being operated. RP (May 4, 2009) at 674. McGowan continued, "We found some wires that had bad crimps and therefore generated additional resistive heating. So it's typically been a number of issues with some particular bikes that has caused unusual resistive heating at the terminals." RP (May 4, 2009) at 674-75. He did not testify to how many motorcycles in the recall population had this combination of defects, but 0.12 percent of motorcycles using a 40 amp circuit breaker reported that the motorcycle quit while being ridden. After he examined the Moores' motorcycle, he concluded that it did not have this defect. McGowan also testified that, during the 113 recall, Harley-Davidson replaced the 40 amp breaker with a 50 amp breaker in the recalled motorcycles, because the increased rating capacity would increase the allowance for additional resistive heating. Finally, he testified that the delay between deciding to issue a recall and notifying customers was due to National Highway

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<sup>4</sup> Hejlik also testified on cross-examination that using an automatically resetting circuit breaker was an appropriate design.

No. 39400-6-II

Traffic Safety Administration regulations.

Hejlik testified concerning his attempt to replicate the environmental and driving conditions at the time of the accident by driving the Moores' motorcycle in a road test with testing and measuring equipment attached. Among other variables, he monitored the ambient temperature, the temperature near the circuit breaker, and the number of amps passing through the circuit breaker. This testing indicated that a maximum current of 25 amps passed through the circuit breaker in circumstances similar to those present at the time of the Moores' accident. Hejlik then supervised the bake test, placing the Moores' circuit breaker in an oven to determine the temperature it would have to reach in order for it to trip, even under this lower current level. To determine a conservative number, Hejlik applied a constant 30 amp load and established that the circuit breaker would not trip at that load unless the temperature reached approximately 210 degrees Fahrenheit.

Another Harley-Davidson accident reconstruction expert, Warner Riley, testified that the accident witnesses' testimony concerning the estimated speed of the motorcycle until it collided with the guardrail was inconsistent with the Moores' assertion that their motorcycle engine stopped running while it was being ridden. Finally, both Hejlik and Riley testified that, to a reasonable degree of certainty on a more probable than not basis, the circuit breaker did not trip during the Moores' accident.

By special verdict, the jury found that Harley-Davidson did not supply a defective product to the Moores. Thus, the jury did not reach the causation issue. The Moores appeal the trial court's *Frye* rulings, its ruling that Harley-Davidson's expert's testimony was relevant, and the sufficiency of the evidence supporting the jury verdict. At oral argument, the Moores focused

largely on their assertion that the special verdict form was erroneous because the jury was not instructed to reach the causation issue if they found no “unreasonably safe” or defective product.<sup>5</sup>

## ANALYSIS

### Admissibility of Scientific Evidence Under *Frye*

#### Standard of Review

The Moores argue that the trial court erred in denying admission of Cline’s metal spatter theory as evidence of circuit breaker failure and in admitting Hejlik’s bake test of the circuit breaker. We disagree.

To admit scientific evidence, the evidence must satisfy both the *Frye* standard and ER 702. *Carlton v. Vancouver Care, LLC*, 155 Wn. App. 151, 161, 231 P.3d 1241 (2010). “We review a trial court’s *Frye* ruling de novo.” *Carlton*, 155 Wn. App. at 161. “We review a trial court’s ER 702 ruling for an abuse of discretion.” *Carlton*, 155 Wn. App. at 162. “A trial court abuses its discretion when its order is manifestly unreasonable or based on untenable grounds,” such as basing “its ruling on an erroneous view of the law.” *Wash. State Physicians Ins. Exch. & Ass'n v. Fisons Corp.*, 122 Wn.2d 299, 339, 858 P.2d 1054 (1993).

#### A. Scientific Evidence and *Frye*

Scientific evidence is admissible if it “will assist the trier of fact to understand the evidence or to determine a fact in issue.” ER 702. “We construe helpfulness to the trier of fact broadly.” *Philippides v. Bernard*, 151 Wn.2d 376, 393, 88 P.3d 939 (2004). Scientific evidence will assist

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<sup>5</sup> Moores did not take exception to the special verdict form at trial. Except for a showing of a manifest constitutional error, when no exception to the verdict form is taken, we do not review it on appeal. *Queen City Farms, Inc. v. Cent. Nat'l Ins. Co. of Omaha*, 126 Wn.2d 50, 63, 882 P.2d 703 (1994), 891 P.2d 718 (1995). See also *Estate of Stalkup v. Vancouver Clinic, Inc.*, 145 Wn. App. 572, 587-88, 187 P.3d 291 (2008).

No. 39400-6-II

the jury whenever it involves matters beyond common understanding and will not mislead them. *Carlton*, 155 Wn. App. at 161.

But when a challenge to the scientific evidence alleges that it is novel, Washington courts apply the *Frye* standard, asking whether “both the underlying scientific principle *and* the technique employing that principle find general acceptance in the scientific community.” *City of Bellevue v. Lightfoot*, 75 Wn. App. 214, 222, 877 P.2d 247 (1994). Whether the evidence meets the *Frye* standard is determined from a number of sources, including the record at trial, available literature, and cases from other jurisdictions. *State v. Baity*, 140 Wn.2d. 1, 10, 991 P.2d 1151 (2000). The principle and techniques need not have full acceptance in the community of scientists in the field in which the technique belongs. *Grant v. Boccia*, 133 Wn. App. 176, 179-80, 137 P.3d 20 (2006).

It is the court’s duty to act as a gatekeeper, to admit techniques accepted in the relevant scientific community even when they are novel to the court, but to exclude techniques that are novel both to the court and the relevant scientific community. *Medcalf v. Dep’t of Licensing*, 133 Wn.2d 290, 313-14, 944 P.2d 1014 (1997). The courtroom is not the appropriate venue for scientists with reasonable differences of opinion to resolve their professional disputes. *See United States v. Tranowski*, 659 F.2d 750, 757 (7th Cir. 1981); *Blackwell v. Wyeth*, 408 Md. 575, 971 A.2d 235, 239 (2009). The court will permit testimony about generally accepted methodology even when the conclusions the testifying expert reaches are not themselves yet generally accepted. *Intalco Aluminum Corp. v. Dep’t of Labor & Indus.*, 66 Wn. App. 644, 661-62, 833 P.2d 390 (1992); *State v. Hasan*, 205 Conn. 485, 534 A.2d 877, 881 (1987).



B. Cline's Spatter Analysis

The Moores contend that Cline's metal spatter analysis met the *Frye* standard for admission because blood spatter analysis is widely accepted within the forensic scientific community and Cline merely applied this technique to the engineering field. Harley-Davidson responds that Cline's methodology had no support in the relevant scientific literature.

The application of an accepted scientific theory by analogy to a different material, in a new and different area of science and in a new context, is an issue of first impression in Washington state. When a proponent seeks to apply techniques to a wholly different field, those techniques must undergo controlled testing conforming to the scientific method. *See Tranowski*, 659 F.2d at 755-56 (chart generally accepted for use in astronomy was not generally accepted for use in dating photographs). The scientific method comprises the following six step analytical process used to generate a theory or conclusion considered reliable by scientists generally: (1) observations of a phenomenon are made; (2) an explanatory theory is proffered; (3) observable hypotheses are generated from the theory; (4) studies are designed to test these hypotheses; (5) empirical test results are used to revise older theories or generate different, more reliable theories; and (6) the process repeats itself. *Blackwell*, 971 A.2d at 239 (citing 1 David L. Faigman et. al, *Modern Scientific Evidence: The Law and Science of Expert Testimony* at 263-64 (2008)).

One court recently stated about the scientific method, that "a finding of fact is only as good as the methods used to find it." *Blackwell*, 971 A.2d at 240 (quoting 1 Faigman et al., at 260). Thus, when considering the admission of novel scientific evidence, courts must first scrutinize the methodology before considering an expert's conclusions. *See Intalco Aluminum*, 66 Wn. App. at 662. Novel conclusions are admissible when the methodology used to reach them

No. 39400-6-II

is generally accepted within the relevant scientific community; but when novel methods are involved, their proponent must show that this methodology has been accepted by the relevant scientific community. *E.g.*, *Intalco Aluminum*, 66 Wn. App. at 660; *see also Tranowski*, 659 F.2d at 755-56; *People v. Slone*, 76 Cal. App. 3d 611, 625, 143 Cal. Rptr. 61 (1978); *Hasan*, 534 A.2d at 881.

The Moores contend that Cline’s methodology or technique is merely “visual observation” and his theory that the behavior of metal spatter corresponds with the behavior of blood spatter is his conclusion. Br. of Appellant at 12. But this argument covers merely the first and second steps in the scientific method. *See Blackwell*, 971 A.2d at 239. For example, in *Baity*, our Supreme Court held that, although a drug recognition technique<sup>6</sup> was “largely observational,” an expert proposing to testify about the technique must still qualify under the *Frye* standard. 140 Wn.2d at 11. “[O]nce a theory is conceived based on an observable phenomenon, a hypothesis, which is ‘[a] conjecture advanced for heuristic purposes, cast in a form that is amenable to confirmation or refutation by conducting of definable experiments and the critical assembly of empiric data,’ is developed.” *Blackwell*, 971 A.2d at 240 (second alteration in original) (citation omitted) (quoting *Stedman’s Medical Dictionary* 938 (28th ed. 2006)).

When techniques are applied to a significantly different field, they must still meet the *Frye* standard, i.e., they must be accepted in the relevant scientific community. *See Tranowski*, 659 F.2d at 755-57. General acceptance in the same scientific community may be established through empirical testing using the scientific method or by publication in a scholarly journal. *See Tranowski*, 659 F.2d at 756 n.11; *State v. Huynh*, 49 Wn. App. 192, 197, 742 P.2d 160 (1987);

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<sup>6</sup> *Baity* involved the use of “a drug recognition protocol, used by trained drug recognition officers to determine if a suspect’s driving is impaired by a drug other than alcohol.” 140 Wn.2d at 3.

*Blackwell*, 971 A.2d at 250.

In *Tranowski*, the United States offered testimony by an astronomer that he could date a photograph used to support an alibi by examining the length and direction of the shadows in the picture.<sup>7</sup> 659 F.2d at 753. To make this calculation, the astronomer relied on a chart using shadows to measure the height of lunar mountains. *Tranowski*, 659 F.2d at 753. The court found that this chart lacked indicia of reliability for its proposed use and that the photograph was not shown to be free of distortions that could skew the astronomer's calculations. *Tranowski*, 659 F.2d at 755-56. Without testing the methodology's application in a manner generally accepted in the scientific community demonstrating the technique's accuracy when applied to the novel purpose, it is not admissible. *Tranowski*, 659 F.2d at 757.

But in *Hasan*, after examining the defendant's feet and a pair of shoes linked to the crime scene, a podiatrist testified that the shoes belonged to the defendant.<sup>8</sup> 534 A.2d at 877. The wear on the shoe matched someone of the defendant's characteristics, the shoe's fit on the defendant conformed to a typical shoe's fit on its owner, and certain protuberances on the defendant's foot matched marks on the shoe. *Hasan*, 534 A.2d at 881. On cross-examination, the podiatrist agreed that there was no established science of matching shoes with their owners but that his techniques were established for other uses. *Hasan*, 534 A.2d at 881. But, because "established techniques in [the podiatrist's] uncontested area of expertise [were] applied to the solution of a

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<sup>7</sup> When *Tranowski* was decided, federal courts still followed the *Frye* standard but have since adopted the standard from *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 588, 113 S. Ct. 2786, 125 L. Ed. 2d 469 (1993).

<sup>8</sup> When *Hasan* was decided, Connecticut still followed the *Frye* standard but has since adopted the *Daubert* standard. *State v. Porter*, 241 Conn. 57, 698 A.2d 739, 743 (1997).

novel problem that is well within the capability of those techniques,” the Connecticut Supreme Court affirmed admission of the evidence.<sup>9</sup> *Hasan*, 534 A.2d at 881.

In conducting his analysis of metal spatter, Cline apparently relied on the widely accepted principle that blood spatters in a consistent way and that observation of the pattern can establish the spatter source. He then applied his “basic understanding of physics and metallurgy” to conclude that microscopic amounts of molten metal perform in the same manner. Clerk’s Papers (CP) at 386. Applying these two principles, Cline believed he could determine the origin or origins of each pit on the surface of the motorcycle’s circuit breaker and establish the minimum number of times the Moores’ circuit breaker had tripped.

The Moores concede that they cannot point to a single instance of metal spatter analysis within the engineering literature. Here, the issue is not that Cline’s spatter evidence is not generally accepted by a scientific community—blood spatter evidence is generally accepted by the forensic community—but that Cline’s application of the blood spatter analysis to metal spatter is not generally accepted by the relevant scientific community, i.e., the engineering community.

Furthermore, before determining the validity of his theory, Cline analyzed only two other circuit breakers, neither of which were tripped as many times as the circuit breaker on the Moores’ motorcycle was when he analyzed it. This falls far short of the rigorous, empirical

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<sup>9</sup> In the Washington case the Moores cited, the court reached a similar result. *State v. Noltie*, 57 Wn. App. 21, 29, 786 P.2d 332 (1990), *aff’d*, 116 Wn.2d 831, 809 P.2d 190 (1991). Likewise, in *Slone*, the California Court of Appeals affirmed the admission of three dentists’ expert testimony that bite marks on the victim matched the defendant’s teeth over the objection that peculiarity in dentations has not been widely accepted in the dental community. 76 Cal. App. 3d at 625. The court held that “bite-mark-identification” was generally accepted in the dental community. *Slone*, 76 Cal. App. 3d at 625. In *Noltie*, *Slone*, and *Hasan*, techniques were being applied in the same community in which they had already reached general acceptance. *See Noltie*, 57 Wn. App. at 29; *Slone*, 76 Cal. App. 3d at 625; *Hasan*, 534 A.2d at 881.

testing scientists expect. *See Huynh*, 49 Wn. App. at 197; *Blackwell*, 971 A.2d at 239-40. And the Moores have conceded that Cline is probably the first engineer to attempt this method of analyzing a liquid metal inside a circuit breaker, which implies that there are no other sources that could provide the indicia of general acceptance the Moores must present. Because Cline's spatter analysis is a novel methodology that has not yet been generally accepted by the relevant scientific community, the trial court did not err in denying its admissibility at trial.

Cline also proposed to testify about the number of pits on the circuit breaker. But without the spatter analysis, this information is not relevant to any disputed issue. Both parties agree that (1) a single tripping event may create multiple pits and (2) multiple tripping events may pit in the same location. Cline's conclusion that there were five pits, without more relevant evidence, does not make any disputed issue more or less probable. *See* ER 401. Therefore, the trial court did not err in excluding this testimony as well.

### C. Hejlik's Bake Test

The Moores next contend that Hejlik's bake test does not satisfy the *Frye* standard because there is no correlation between performance of the breaker in an oven and on the open road and, therefore, the trial court erred in admitting the bake test evidence at trial. Harley-Davidson responds that the test is a widely accepted method for determining current and temperature levels that will trip a circuit breaker.

Courts "do not determine if the scientific theory underlying the proposed testimony is correct. Rather, we must look to see whether the theory has achieved general acceptance in the appropriate scientific community." *Grant*, 133 Wn. App. at 179. A *Frye* analysis is not necessary unless new methods and principles are involved. *Carlton*, 155 Wn. App. at 161; *Grant*, 133 Wn.

No. 39400-6-II

App. at 180. Laboratory errors or improper procedures go to weight, not admissibility, of evidence. *State v. Copeland*, 130 Wn.2d 242, 270, 922 P.2d 1304 (1996). Such errors can rise to a level that make the evidence no longer useful to the jury and should be barred under *Frye*, but relatively minor allegations of error create a basis for cross-examination, not exclusion.

*Copeland*, 130 Wn.2d at 270-71.

Here, Hejlik's bake test was designed according to the Society of Automotive Engineers (SAE) surface vehicle standard J553. The Moores do not contend that Hejlik's test fails to comply with this SAE standard but, rather, that the protocol does not sufficiently account for all the variables that acted on the Moores' motorcycle during the accident. This challenge goes to the weight of the evidence, not its admissibility under *Frye*. See *Copeland*, 130 Wn.2d at 270. SAE protocol use demonstrates not just general acceptance but lack of novelty.<sup>10</sup> A *Frye* analysis is, therefore, unnecessary. *Carlton*, 155 Wn. App. at 161-62.

#### Hejlik's Bake Test is Relevant

The Moores also argue that Hejlik's bake test was not relevant and, therefore, should not have been admitted under ER 401 and ER 402 because vibration from an operating motorcycle could have contributed to the circuit breaker opening and Hejlik's bake test did not have any vibration component. Harley-Davidson presented contrary evidence that vibration has no affect on circuit breaker performance.

Allegations that the test procedure was flawed are grounds for cross-examination and

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<sup>10</sup> While not dispositive, our research indicates that SAE standard J553, circuit breakers, was published June 22, 2004. SAE International, *Circuit Breakers*, available at [http://standards.sae.org/j553\\_200406](http://standards.sae.org/j553_200406).

No. 39400-6-II

competing testimony, not exclusion. *See Copeland*, 130 Wn.2d at 271. Harley-Davidson's study, together with the SAE standard, show the protocol Hejlik used did not contain an error so severe that the test is no longer useful to the jury and, therefore, any potential error in its admission goes to the weight, not credibility, of the evidence. *See Copeland*, 130 Wn.2d at 271. Even with the doubts the Moores raised about Hejlik's evidence, the test results could assist the jury. *See ER 702*. The Moores were free to confront Hejlik about his failure to include vibration in his test protocol and the jury was properly permitted to weigh this competing evidence. We hold that Hejlik's bake test was not novel, was useful to the jury, and was within the trial court's discretion to admit.

The Moores further contend that Hejlik's bake test was not relevant because any 40 amp circuit breaker would have been inappropriate based on the specific environmental conditions the day of the accident and whether the circuit breaker on the Moores' motorcycle functioned uniquely was not the issue before the jury. Harley-Davidson responds that the test was relevant because it tended to disprove the Moores' accident theory based on the available data.

"We review a trial court's ruling on relevance for abuse of discretion." *Cobb v. Snohomish Cnty.*, 86 Wn. App. 223, 236, 935 P.2d 1384 (1997). "Relevant evidence" is any evidence which tends to show a disputed issue is more or less probable and encompasses elements of both probative value and materiality. *ER 401. Davidson v. Muni. of Metro. Seattle*, 43 Wn. App. 569, 573, 719 P.2d 569 (1986). Evidence is probative if it tends to prove or disprove some fact and is material if that fact is of consequence to the ultimate outcome. *Davidson*, 43 Wn. App. at 573.

Causation is an element of all three theories of liability under the WPLA. RCW 7.72.030;

*see* 16 David K. DeWolf & Keller W. Allen, *Washington Practice: Tort Law and Practice* § 16.11, at 214 (3d ed. Supp. 2009). In the context of the road test results, Hejlik's bake test was material because it tended to make it less likely that the circuit breaker opened under the conditions present before and during the Moores' accident. The circuit breaker's actual function during the accident was probative of causation. Despite the Moores' contention that the circuit breaker never experienced conditions similar to those in the bake test environment, it is not disputed that a combination of current and heat can cause the circuit breaker to open. The bake test tended to show that, in the context of the road test, the conditions must be much more extreme than was possible during the accident for the Moores' circuit breaker to open. We hold the trial court did not abuse its discretion when it admitted Hejlik's bake test testimony.

A majority of the panel having determined that only the foregoing portion of this opinion will be printed in the Washington Appellate Reports and that the remainder shall be filed for public record pursuant to RCW 2.06.040, it is so ordered.

#### Substantial Evidence Challenge

The Moores finally contend that substantial evidence does not support the jury's verdict



No. 39400-6-II

that the motorcycle was not defective because of the Harley-Davidson 113 recall.<sup>11</sup> Harley-Davidson responds that testimony indicated that the 113 recall was based on a manufacturing defect in a small percentage of recalled motorcycles and that the evidence showed that the Moores' motorcycle did not contain this defect.

A. Standard of Review

We review a jury verdict to determine whether substantial evidence in the record supports it. *Burnside v. Simpson Paper Co.*, 123 Wn.2d 93, 107-08, 864 P.2d 937 (1994). In this examination, we determine only whether the evidence could persuade a rational, fair-minded person of the truth of the disputed issue. *Winbun v. Moore*, 143 Wn.2d 206, 213, 18 P.3d 576 (2001). We do not review the credibility of witnesses or substitute our judgment for that of the jury. *Burnside*, 123 Wn.2d at 108.

B. Substantial Evidence Supports the Jury's Verdict

Under the WPLA, a manufacturer defectively designs its product if it is "not reasonably safe" and the defect caused the injury. RCW 7.72.030; *Higgins v. Intex Recreation Corp.*, 123 Wn. App. 821, 827, 99 P.3d 421 (2004). A defect in a product's design, manufacture, or warning may cause a product not to be reasonably safe. RCW 7.72.030; *see* 16 DeWolf & Allen § 16.11, at 521 (3d ed. 2006).

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<sup>11</sup> The Moores' briefing on the issue of whether substantial evidence supports the jury's verdict that Harley-Davidson did not produce a defective product contains no tests or legal standards and has no citation to authority. We are not required to review arguments that are inadequately briefed and that lack any citation to authority. RAP 12.1(a); *Palmer v. Jensen*, 81 Wn. App. 148, 153, 913 P.2d 413 (1996). We may decline to reach an issue raised by inadequate briefing. On appeal, the Moores appear to have abandoned their claim made at the trial court based on failure-to-warn.

A design defect is a defect that is present across an entire product line when some aspect of the product is unsafe, while a manufacturing defect is due to factory departure from proper specifications. 16 DeWolf & Allen § 16.12, at 521-22 (3d ed. 2006). A failure to warn occurs when the absence of warnings makes the product “not reasonably safe” for consumers’ reasonable expectations. 16 DeWolf & Allen § 16.15, at 527-28 (3d ed. 2006).

Here, the jury could reasonably have concluded from testimony of the accident witnesses that the Moores’ motorcycle was not defective and did not quit while the Moores were riding it. There were witnesses at the scene of the accident who testified that the motorcycle continued to run down the guardrail after the Moores were thrown off. Riley testified that the eye witness testimony was inconsistent with a motorcycle quitting while being ridden.

Thomas McGowan testified for Harley-Davidson that a combination of engine heat and loose wiring causes the majority of reported cases of Harley-Davidson motorcycles quitting while being ridden. He further testified that this condition was not present on the Moores’ motorcycle. Hejlik testified that use of an automatically resetting circuit breaker was an appropriate design. Hejlik also testified that the delay between Harley-Davidson’s decision to issue a recall and sending notice to dealers and owners was due to National Highway Transportation Safety Administration regulations.

Based on this testimony, the jury could reasonably have found that (1) use of a 40 amp automatically resetting circuit breaker was reasonable and not a defective design; (2) motorcycles that quit while being ridden with a circuit breaker trip had a combination of faulty wiring and high ambient heat and that the Moores’ motorcycle had neither of these manufacturing defects; (3) the Moores’ motorcycle’s engine did not quit running before or during the accident; and (4) Harley-

No. 39400-6-II

Davidson acted reasonably under the circumstances in its efforts to warn the Moores of any possible danger. Therefore, the Moores' claim fails because substantial evidence could persuade a rational, fair-minded person that their motorcycle was not "unreasonably safe" based on a defect in design, manufacture, or warnings to consumers.

We affirm.

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Van Deren, J.

We concur:

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Hunt, J.

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Quinn-Brintnall, J.