

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF KENTUCKY
LOUISVILLE DIVISION
CIVIL ACTION NO. 3:07-CV-638-DJH**

LARRY CROUCH, et al.,

Plaintiffs,

v.

JOHN JEWELL AIRCRAFT, INC.,

Defendant.

MEMORANDUM OPINION AND ORDER

I. Introduction

In the present negligence action, the parties have retained a number of competing expert witnesses, who seek to opine on the cause and circumstances surrounding the November 21, 2006 crash of a Piper PA-32RT-300 airplane. In an attempt to exclude these experts' opinions, both sides have filed motions to exclude their testimony under Federal Rule of Evidence 702 and *Daubert v. Merrell Dow Pharmaceuticals, Inc.* In the interest of judicial economy, rather than issuing multiple rulings containing repetitive statements of facts and standards of review, the court has disposed of these motions collectively in the present opinion.

II. Statement of Facts and Procedural History

On November 21, 2006, Larry Crouch and Teddy Hudson ("Plaintiffs") departed Mayfield, Kentucky in Crouch's Piper airplane. About an hour into the flight, Crouch declared an emergency. While attempting to make an emergency landing at Samuels Field Airport in Bardstown, Kentucky, Crouch realized that he did not have enough altitude to make it there and attempted to land on an airstrip maintained by the Green County Parachute Club. As he was approaching the strip, Crouch's plane clipped a tree and crash landed. As a result of this crash, Crouch and Hudson are now permanently disabled and confined to wheelchairs.

On November 19, 2007, Plaintiffs filed their complaint in this court, suing numerous parties. On February 17, 2010, Plaintiffs' product liability claims against one of the original defendants, Teledyne Continental Motors, Inc. ("TCM"), were transferred to the United States District Court for the Southern District of Alabama.¹ That action, which alleged that TCM designed a defective dual magneto, was resolved on August 5, 2011, when a jury found for TCM on all counts. That verdict has since been affirmed by the Court of Appeals for the Eleventh Circuit.

In the present action, Plaintiffs' theory of the case is that in April 2005, defendant John Jewell Aircraft, Inc. ("Jewell") made a number of improper modifications to the plane's engine components. According to Plaintiffs, these modifications caused the engine to vibrate excessively, and these excessive vibrations in turn created fatigue fractures in the magneto flange. These fractures are said to have eventually caused the magneto to separate from the engine, causing a loss of power in the aircraft engine.

III. Standard for the Admissibility of Expert Testimony

Federal Rule of Evidence 702, which governs the admission of expert testimony, provides:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if:

- (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue;
- (b) the testimony is based on sufficient facts or data;
- (c) the testimony is the product of reliable principles and methods;
- and
- (d) the expert has reliably applied the principles and methods to the facts of the case.

¹ DN 184, 5.

Fed. R. Evid. 702. The Supreme Court has interpreted this rule to require trial judges to “ensure that any and all scientific testimony or evidence admitted is not only relevant, but reliable.” *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589 (1993). These prerequisites apply to not only “‘scientific’ knowledge, but also to testimony based on ‘technical’ and ‘other specialized’ knowledge.” *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141 (1999) (quoting Fed. R. Evid. 702). Thus, “*Daubert* attempts to strike a balance between a liberal admissibility standard for relevant evidence on the one hand and the need to exclude misleading ‘junk science’ on the other.” *Best v. Lowe’s Home Ctrs., Inc.*, 563 F.3d 171, 176-77 (6th Cir. 2009).

Although there is “no definitive checklist or test” to strike this balance, relevant factors include: (1) whether a theory or technique “can be (and has been) tested;” (2) whether a “theory or technique has been subjected to peer review and publication;” (3) the “known or potential rate of error;” and (4) whether the theory or technique is generally accepted. *Daubert*, 509 U.S. at 593-94. These factors are not exhaustive and the inquiry is “a flexible one,” *Pluck v. BP Oil Pipeline Co.*, 640 F.3d 671, 677 (6th Cir. 2011) (citations omitted), for district courts must be mindful that “the gatekeeping inquiry must be ‘tied to the facts of a particular case.’” *Kumho*, 526 U.S. at 150 (quoting *Daubert*, 509 U.S. at 591) (internal quotation marks omitted). Experts “need not testify to what is known to a certainty,” *Jahn v. Equine Servs., PSC*, 233 F.3d 382, 388 (6th Cir. 2000) (citing *Daubert*, 509 U.S. at 590) (internal quotation marks omitted), may state inferences derived from the scientific method, *Daubert*, 509 U.S. at 590, and may make deductive conclusions based on physical observations. *Kumho*, 526 U.S. at 156; *Mackenzie v. JLG Indus., Inc.*, No. 3:13-CV-01046, 2014 WL 7375546, at *8 (W.D. Ky. Dec. 29, 2014). So long as the proffered testimony “is properly grounded, well-reasoned, and not speculative,” district courts should admit it, for “the rejection of expert testimony is the exception rather than

the rule.” *W. Tenn. Chapter of Associated Builders & Contractors, Inc. v. City of Memphis*, 300 F. Supp. 2d 600, 602 (W.D. Tenn. 2004) (citations omitted).

District courts must also be careful not to weigh one party’s expert testimony against the other party’s expert testimony, *Jahn*, 233 F.3d at 391, as the focus “must be solely on principles and methodology, not on the conclusions that they generate.” *Daubert*, 509 U.S. 595. When a trial judge has doubts about the strength of proffered testimony, exclusion is not the remedy, but rather “[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.” *Id.* at 596 (citing *Rock v. Arkansas*, 483 U.S. 44, 61 (1987)). Finally, “it is the proponent of the testimony that must establish its admissibility by a preponderance of proof.” *Nelson v. Tenn. Gas Pipeline Co.*, 243 F.3d 244, 251 (6th Cir. 2001) (citing *Daubert*, 509 U.S. at 592 n.10).

IV. Analysis of Individual Motions

A. Jewell’s Motion to Exclude the Expert Testimony of William Carden

Jewell moves to exclude the expert testimony of William Carden (“Carden”), whom the parties do not dispute is an expert materials engineer and metallurgist (DN 418).² Plaintiffs retained Carden “to perform a materials failure analysis/engineering investigation” of the engine and related components of Crouch’s aircraft.³ Based on this investigation, Carden intends to testify concerning the cause of the accident. Jewell claims that his opinions are inadmissible because they are unreliable and lack a proper foundation. For the reasons stated below, the court finds that Carden’s methods and procedures were reliable and that he provided a proper engineering foundation for his opinions. His testimony is, therefore, admissible at trial.

² DN 451, 5 (“Mr. Carden is an expert metallurgist; he has the qualifications to have done the work which could have served as a foundation for his conclusions.”).

³ Carden Report, 1.

Plaintiffs' theory of the case is that, mid-flight, the magneto⁴ separated from the engine, which caused the engine to stop. Through Carden, they allege that the magneto's mounting flanges, which connect the magneto to the engine, broke mid-flight due to fatigue fractures that had been developing for some time. Carden seeks to testify in part that these fatigue fractures were caused by excessive vibrations in the engine, which occurred due to the alleged improper engine overhaul performed by Jewell.

While conducting his investigation, Carden used a coordinate measurement machine ("CMM")⁵ to measure the crankcase halves, gear shaft support holes, crankshaft counterweights, crankshaft rollers, dimensional features of the accessory case, gear shaft support holes, and dowel pin holes.⁶ He examined the surfaces of the crankshaft idler single gear shaft, crankshaft idler dual gear, and oil pump gear.⁷ Further, he used optical stereomicroscopy and scanning electron microscopy to examine the fracture surfaces of the magneto flange fragments.⁸ Finally, he used x-ray energy dispersive spectroscopy to determine that the magneto housing flange was composed of magnesium alloy and then measured the hardness of this component.⁹ Jewell does not challenge Carden's qualifications or the relevancy of his opinions. Rather, Jewel contends that despite performing these detailed measurements and examinations, Carden's opinions lack a sound foundation because he did not measure the alleged increase of engine vibrations.

Specifically, Jewell seeks to exclude Carden's opinion that Jewell's use of incorrect roller pins in the engine counterweight assembly increased engine vibrations. It contends that this opinion should be excluded because Carden did not perform any computations or calculations on

⁴ According to Plaintiffs, the "magneto is the component that provides electrical impulses to provide the engine's spark. Without a functioning magneto, the engine cannot run." DN 431, 5.

⁵ CMM conducts measurements down to the thousandth of an inch. Carden Report, 3.

⁶ *Id.* at 3-5.

⁷ *Id.* at 5-8.

⁸ *Id.* at 9.

⁹ *Id.* at 11.

this issue.¹⁰ Likewise, Jewell contends that Carden's opinions concerning dowel pin holes in the engine's accessory case and the "sanded" appearance of the crankshaft idler gear shafts should be excluded because Carden did not perform any experiments or calculations concerning the increased vibrations that these modifications allegedly caused.¹¹ These arguments must fail because although testing "is always desirable, testing is not a prerequisite to admissibility." *Mackenzie*, 2014 WL 7375546, at *11; *see also Clark v. Chrysler Corp.*, 310 F.3d 461, 467 (6th Cir. 2002) ("*Daubert* does not require an expert to come in and actually perform tests in any given situation."); *Dhillon v. Crown Controls Corp.*, 269 F.3d 865, 870 (7th Cir. 2001) (stating that "hands-on testing is not an absolute prerequisite to the admission of expert testimony"). Rather, expert testimony is admissible where experts "tie observations to conclusions through the use of . . . 'general truths derived from . . . specialized experience.'" *Kumho*, 526 U.S. at 148-49 (quoting Hand, *Historical and Practical Considerations Regarding Expert Testimony*, 15 Harv. L. Rev. 40, 54 (1901)). Because this is precisely what Carden did in his investigation of the engine and related components, his opinions are therefore admissible.

As discussed above, Carden used a number of sophisticated devices to examine, weigh, and measure the parts he analyzed. Based on these observations and measurements, he is of the opinion that Jewell made a number of improper modifications to, *inter alia*, the counterweights, dowel pin holes, and accessory case. In his experience, "an inappropriate weight on a counterweight or inappropriate assembly of counterweights that are supposed to dampen vibration is going to serve to increase vibration."¹² Applying this knowledge and experience to his observations, he is of the opinion that Jewell's modifications caused increased engine vibration, which in turn caused cracks in the magneto flange, which eventually caused the

¹⁰ DN 418-1, 5.

¹¹ *Id.* at 6.

¹² Carden Deposition, Pg. 27, Ln. 12-15.

magneto to disconnect from the engine mid-flight. Because “*Daubert* and Rule 702 require only that the expert testimony be derived from inferences based on a scientific method and that those inferences be derived from the facts of the case at hand,” which is the process Carden followed, his testimony is reliable and has a proper foundation. *Jahn*, 233 F.3d at 390 (citing *Daubert*, 509 U.S. at 590-92).

In fact, Carden’s procedures and methodology are well in line with those of other experts whose testimony has been admitted in this Circuit. In *Clay v. Ford Motor Co.*, an accident reconstructionist sought to opine on alleged automotive design defects that he believed led to a car crash. 215 F.3d 663, 667-69 (6th Cir. 2000). Although the defendant argued that his testimony was unreliable because he did not test his theories, the court admitted his opinion testimony because he conducted an investigation and then applied the science of dynamics to his observations in order to determine the most probable sequence of the accident. *Id.* Similarly, in *Dilts v. United Group Servs., LLC*, after a panel fell from a crane, an accident reconstructionist inspected a crane’s straps, shackles, rigging cable, and the dislodged panel. 500 F. App’x 440, 445 (6th Cir. 2012). To these observations, he applied “the laws of physics and mathematics generally employed in accident reconstruction to determine how the panel dislodged.” *Id.* at 445-46. Reversing the district court, the Sixth Circuit ruled that the expert’s opinions should have been admitted because he applied his knowledge and experience to his observations. Finally, in *Mackenzie v. JLG Industries., Inc.*, an expert sought to opine that a “jack screw was worn from the contact with a hardened steel washer.” 2014 WL 7375546, at *8. Although the defendant sought to exclude this opinion because the expert did not calculate the strength of the jack screw and steel washer, the court admitted the testimony because the expert relied on “the

general scientific premise that when a harder metal and softer metal are in contact, the softer metal will wear first.” *Id.*

The motion to exclude Carden’s testimony relies on the implicit premise that no expert can testify without having conducted testing. Neither *Daubert* nor its Sixth Circuit progeny support such a premise. If fact, the foundations for the respective experts’ opinions in the three cases discussed above are very similar to Carden’s: they all observed the physical evidence and applied their scientific and engineering knowledge to reach certain conclusions. When this occurs, the proffered testimony is admissible. *Jacobs v. Tricam Indus.*, 816 F. Supp. 2d 487, 493 (E.D. Mich. 2011) (“Furthermore, testing is not required in every case, particularly where, as here, the expert conducted an examination of the physical evidence.”).

Furthermore, although the *Daubert* factors are not dispositive, the court finds further support for the admissibility of Carden’s theory as to the cause of the plane crash because it *can be tested*. *Daubert*, 509 U.S. at 593. Although Carden did not, and did not have to, test his theory, Jewell’s expert, Scott Goodley, conducted a test on the “effect of the use of an inappropriate pin.”¹³ Based on this testing, Goodley will testify that the pin Jewell installed *reduced*, rather than *increased*, engine vibration.¹⁴ Goodley’s opinion, however, goes to the proper weight the jury will ultimately afford Carden’s testimony, not the admissibility of his testimony. For present purposes, the fact that Carden’s theory “can be (and has been) tested” bolsters its reliability under *Daubert*. *Id.*

Jewell also takes issue with Carden’s opinion that the abovementioned discrepancies, either in combination or individually, increased the engine vibration substantially beyond the

¹³ DN 451, 9.

¹⁴ *Id.*

normal vibration of the engine.¹⁵ Jewell argues that this opinion is unreliable because Carden admitted that he does not know what the normal vibration of the engine model in question would be.¹⁶ As discussed above, however, experts need not quantify every factor and do not need to conduct testing in order for their opinions to be reliable. Rather, as in this case, when an expert believes an engineering opinion is “so obvious as to not require formal calculations to come to a conclusion,” that opinion is admissible where the expert has applied his knowledge and experience to observed evidence. *Mackenzie*, 2014 WL 7375546, at *7.

Jewell may well have valid arguments against Carden’s testimony. The proper method of and place for those arguments, however, is at trial through cross-examination and by the presentation of contrary evidence. *Daubert*, 509 U.S. 595. At this stage, Jewell’s arguments go to the weight of Carden’s proffered testimony, not its admissibility. The foundations of Carden’s opinions meet *Daubert*’s requirements, and if Jewell still believes these foundations to be shaky, it may probe Carden when he is on the stand as to why he did not test his opinions.

As a final matter, Jewell argues that Carden should not be able to testify regarding the standard of care applicable to airframe and power plant mechanics performing civil aircraft engine overhauls because he lacks expertise on these matters.¹⁷ Because Plaintiffs did not address this contention in their response brief, the Court could read their silence as a tacit admission that they agree with Jewell. However, Jewell does not point to any specific standard of care opinions from Carden’s report or deposition testimony. Absent further clarification, rather than making a blanket ruling in the abstract on this issue, the court will reserve a ruling until Plaintiffs attempt to introduce such standard of care opinions at trial. But as to Jewell’s

¹⁵ DN 418-1, 7.

¹⁶ *Id.* at 8.

¹⁷ *Id.* at 9-10.

attempt to exclude Carden's opinions concerning increased engine vibrations, Jewell's motion is DENIED.

B. Jewell's Motion to Exclude the Expert Testimony of Bernard Coogan

Jewell moves to exclude the expert testimony of Bernard Coogan ("Coogan"), whom Plaintiffs offer as an expert in the field of aircraft accident reconstruction (DN 419). Plaintiffs retained Coogan to opine on the cause of the airplane crash.¹⁸ Unfortunately, Coogan is now deceased, and Plaintiffs have designated portions of his deposition testimony that they wish to read into the record at trial.¹⁹ This section of this opinion deals only with the admissibility of his opinions under Rule 702. Any potential issues with the reading of his transcript can be addressed when, and if, they arise.

A review of his expert report reveals that he formed four main opinions: (1) that the "primary cause of the accident was the total loss of engine power, during flight, when the magneto separated from the engine;"²⁰ (2) that the "mounting flange failed as a result of fatigue cracks," which were created due to abnormal engine vibrations caused by improper engine modifications performed by Jewell;²¹ (3) that Crouch was not at fault for the crash because Crouch took reasonable actions following the loss of engine power;²² and (4) that the smell of smoke perceived by the occupants before "power loss was, more likely than not, the oil escaping from the opening created by the failing magneto flange, before the magneto fell off completely, and vaporizing as it struck hot engine parts."²³ Jewell's motion is limited in that it does not challenge Coogan's qualifications as an aircraft accident reconstructionist and only seeks to bar

¹⁸ Coogan Report, 1.

¹⁹ DN 499, 6.

²⁰ Coogan Report, 2.

²¹ *Id.*

²² *Id.* at 3.

²³ *Id.*

his opinions concerning the alleged increase in engine vibrations caused by the allegedly improper modifications. For the reasons set forth below, Jewell's motion is granted in this limited respect; thus Plaintiffs cannot read into the record at trial the portions of Coogan's deposition testimony relating to the engine modifications and engine vibrations.

Although Coogan has impressive credentials in the field of aircraft accident reconstruction, which includes the subfields of "piloting and pilot training, aircraft performance analysis, aircraft maintenance and evaluation, wreckage analysis, and Human Factors regarding pilot behavior in accident causation,"²⁴ Plaintiffs have not asserted that he has engineering or metallurgy expertise. His opinions concerning the cause of the accident, Crouch's piloting, and the smell of smoke are all things on which an accident reconstructionist would opine, and Jewell does not challenge the admissibility of these opinions. His opinion on Jewell's engine modifications and the increase in vibrations that they allegedly caused, however, involves fields in which he lacks expertise. The impropriety of admitting Coogan's opinions on the alleged increase in vibrations is underscored by the fact that Coogan did not participate in the "teardown" inspection of the engine and relied on William Carden's expertise for his vibration opinion. *See Sigler v. Am. Honda Motor Co.*, 532 F.3d 469, 479 (6th Cir. 2008) (excluding a mechanic's opinion on accident reconstruction because the mechanic relied on the expertise of an accident reconstructionist to form his opinion). To be clear, experts, such as Coogan, do not always have to perform independent examinations of evidence and may rely on the data and opinions of another expert, such as Carden. *See Fed. R. Evid. 703* ("An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed. If experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject, they need not be admissible for the opinion to be

²⁴ *Id.* at 1.

admitted.”). Coogan may not, however, merely parrot Carden’s vibration opinions. *See Dura Auto. Sys. of Ind., Inc. v. CTS Corp.*, 285 F.3d 609, 613 (7th Cir. 2002) (relied on by the Sixth Circuit in *Sigler*).

On this point, *Sigler v. American Honda Motor Co.*, which involved a highly analogous set of facts, is instructive. There, an expert mechanic, who lacked expertise in physics, accident reconstruction, and airbag engineering, sought to testify “regarding the speed at which [an] Accord likely struck [a] tree and the possible cause for the failure of the Accord’s airbag to deploy.” *Sigler*, 532 F.3d at 478-79. In forming his opinion, he relied on the assistance of a former police officer who had received accident reconstruction training. *Id.* at 479. The Sixth Circuit affirmed the district court’s exclusion of the mechanic’s testimony because his testimony “thus pertained to accident reconstruction, an area in which he lacked experience” *Id.*

Here, although Coogan is an expert in *accident reconstruction*, he lacks experience in *engineering and metallurgy*, which is the type of knowledge and experience Carden employed to his measurements and observations to reach his vibration opinions.²⁵ Coogan’s examination of the NTSB Report of Investigation, Carden’s expert report, the airplane’s maintenance records, and this case’s depositions²⁶ could have served as a proper foundation for his vibration opinion, but only *if he possessed the requisite expertise* needed to link up this data to the opinion. *See* Fed. R. Evid. 703. As there is nothing in the record to suggest that expertise in accident reconstruction involves significant overlap with expertise in materials engineering and metallurgy, the court cannot say that Plaintiffs have established the admissibility of Coogan’s vibration opinion by a preponderance of the evidence. *Nelson*, 243 F.3d at 251 (citing *Daubert*, 509 U.S. at 592 n.10). However well-credentialed Coogan may be in accident reconstruction, he

²⁵ *See supra* Section IV.A.

²⁶ Coogan Report, 1.

“is not permitted to be the mouthpiece of a scientist in a different specialty.” *Dura Auto.*, 285 F.3d at 614.

Furthermore, Coogan’s deficiencies are not cured by Plaintiffs’ assertions that he is a certified mechanic and has worked as a metallurgy technician.²⁷ Just because an individual has held a certain job does not mean that, for the purposes of Rule 702, they are “qualified as an expert by knowledge, skill, experience, training, or education.” Fed. R. Evid. 702. Coogan’s lack of expertise in these areas is underscored by the fact that he did not claim such expertise in the “Background” section of his report.²⁸ Moreover, his report only lists “aircraft accident reconstruction, aviation safety, and aircraft piloting” as the “bases” for his opinions.²⁹ When a proffered witness does not claim a certain expertise or claim in his report that he applied a certain expertise, the Court must take him at his word.

Finally, Coogan’s deposition testimony underscores his lack of qualifications to opine on Jewell’s engine modifications and vibrations:

Q. You can’t say, for instance, whether these overhaul discrepancies actually caused any increase in vibration, correct? That’s a yes-or-no question.

...

A. I can’t.

Q. All right.

A. There may be persons who can.

...

Q. But you cannot, correct?

²⁷ DN 429, 12-13.

²⁸ Coogan Report, 1 (listing “piloting and pilot training, aircraft performance analysis, aircraft maintenance and evaluation, wreckage analysis, and Human Factors regarding pilot behavior in accident causation” as subfields of “aircraft accident reconstruction”).

²⁹ *Id.* at 3.

A. That's true.

...

Q. And you can't say whether if these overhaul discrepancies caused any increase in vibration, whether those related to, aggravated or reduced any harmonic vibration, correct?

A. I can't, that's correct.³⁰

This testimony directly contradicts the statement in his report that improper modifications were all “done during the most recent engine overhaul *resulting in increased vibration*, which increased the fatigue cracking of the flange.”³¹

For these reasons, the Court finds that Plaintiffs have not established by a preponderance of the evidence that Coogan has the requisite knowledge and experience needed under Rule 702 to opine on any alleged vibrations that were caused by Jewell's allegedly improper modifications. As with William Carden, Jewell also seeks to prevent the admission of any opinions Coogan formed on the standard of care applicable to airframe and power plant mechanics performing civil aircraft engine overhauls. For the same reasons that the Court reserves a ruling as to Carden on this issue, it likewise reserves a ruling as to Coogan. In all other respects, Jewell's motion to exclude Coogan's opinions *concerning increased engine vibrations* is hereby GRANTED.

C. Jewell's Motion to Exclude the Expert Testimony of Mark Seader

Jewell moves to exclude the expert testimony of Mark Seader (“Seader”), whom the parties do not dispute is an expert general aviation mechanic (DN 420). Seader has “37 years of expertise dealing with general aviation piston engines” and holds “an FAA Airframe and Power Plant License (A&P), which permits [him] to exercise the privileges of performing aircraft

³⁰ Coogan Deposition, Pg. 108, Ln. 16 – Pg. 109, Ln. 13.

³¹ Coogan Report, 2 (emphasis added).

maintenance and repairs pursuant to” various federal regulations.³² From 1984 to 2002, he was “the owner of Firewall Forward Aircraft Engines, Inc., an FAA approved Repair Station . . . that specialized in the inspection, repair and overhaul of aircraft piston engines and their related accessories, including the Lycoming model IO-540-KIG5D engine involved in the subject crash.”³³ During this time, he performed over 3000 engine overhauls.³⁴ He currently owns an aviation forensic investigation company, Engine Failure Analysis, LLC, and is personally involved in the analysis of aircraft accidents, engine failures, and component testing, including the testing of engines and magnetos of the type involved in Crouch’s crash.³⁵

Plaintiffs retained Seader “for the purpose of investigating and determining, the cause of the flight loss of power to” Crouch’s aircraft.³⁶ Based on his personal inspection of the engine, as well as his mechanics’ inspections, which he directed and controlled, Seader has “concluded that the ultimate cause of the in-flight loss of power to the aircraft was complete ignition failure. This failure occurred because of the separation of the single shaft dual magneto from the accessory case as a result of the fatigue fractures in the flanges”³⁷ Seader seeks to testify that Jewell made a number of defective modifications during its April 27, 2005 engine overhaul and that these modifications led to an increase in engine vibrations, which ultimately caused the fatigue fractures.³⁸ Jewell’s motion is limited in that it does not challenge Seader’s qualifications as an expert general aviation mechanic and only seeks to bar his opinions concerning the alleged increase in engine vibrations caused by the allegedly improper modifications. Jewell claims that his opinions are inadmissible because they are unreliable and not the product of scientific

³² Seader Report, ¶ 2.

³³ *Id.* at ¶ 4.

³⁴ *Id.*

³⁵ *Id.* at ¶ 5.

³⁶ *Id.* at ¶ 6.

³⁷ *Id.* at ¶ 12.

³⁸ *Id.* at ¶ 23.

analysis. For the reasons stated below, the court finds that Seader's methods and procedures were reliable and that he provided a proper mechanical foundation for his opinions. His testimony is, therefore, admissible at trial.

Jewell's motion to exclude Seader's testimony is practically a duplicate of its motion to exclude William Carden. Jewell urges this Court to exclude Seader's vibration opinion because he did not perform testing and only relies on his physical observations and personal experience. For the reasons this Court rejected these arguments as to Carden, it likewise rejects them as to Seader. In this section, the Court incorporates its Rule 702 analysis from the Carden section and will repeat only some of the high points. Contrary to Jewell's assertion, experts are not required to testify to what is known to a certainty. *Jahn*, 233 F.3d at 388 (quoting *Daubert*, 509 U.S. at 590). Rather, concerning expert testimony on causation, Rule 702 requires "only that the expert testimony be derived from inferences based on a scientific method and that those inferences be derived from the facts of the case at hand, not that they *know* answers to all the questions a case presents—even to the most fundamental questions." *Id.* at 390 (internal citations omitted). Furthermore, "*Daubert* does not require an expert to come in and actually perform tests in any given situation." *Clark*, 310 F.3d at 467.

Seader and his mechanics performed a thorough investigation of the post-accident engine and have noted numerous allegedly improper modifications. For instance: (1) "two alignment pin holes on the *accessory case* show evidence of being manually enlarged;" (2) the "*crankcase halves* were not in proper alignment;" (3) the "*accessory case* at both idler gear support bosses also showed evidence of being manually enlarged;" (4) two of the four crankshaft counterweight pins were the wrong diameter; and (5) the "accessory drive gears showed evidence of being

excessively altered.”³⁹ To a layman, the affect that these modifications would have on the function of an aircraft engine would be unknown. Expert aviation mechanics, however, possess specialized knowledge about the inner workings of such engines, and when such knowledge is applied to observations, it can “help the trier of fact to understand the evidence or to determine a fact in issue.” Fed. R. Evid. 702. As the following example from his report illustrates, Seader applied a reliable methodology because he “tie[d] observations to conclusions through the use of . . . general truths derived from specialized experience.” *Kumho*, 526 U.S. at 148-49 (citations omitted) (internal quotation marks omitted).

Seader’s *observation* concerning the crankshaft counterweight pins is that “[t]wo of the four crankshaft counterweight pins was [sic] the wrong part number as specified by Lycoming. These wrong pins are of a slightly different diameter than the correct pins.”⁴⁰ His *conclusion* concerning these pins is that because they were the wrong diameter, they “accelerate[d] the vibrational fatigue to the crankshaft and all attaching engine accessories, specifically the magneto flange attachment area.”⁴¹ His observation was *tied to* this conclusion through the *general truth derived from specialized experience* that the “size and weight of the counterweight pins directly affect the counterweights [sic] ability to properly dampen crankshaft torsional vibrations”⁴² *Daubert* requires nothing more.

Furthermore, as with Carden, the court finds that Seader’s methodology and procedures were reliable because his theories can be tested. *Daubert*, 509 U.S. at 593. During his deposition, Seader admitted that his theories could be tested,⁴³ and Jewell did in fact have one of its experts conduct testing concerning the use of the allegedly inappropriate pins and their effect

³⁹ *Id.*

⁴⁰ *Id.* at ¶ 23(D).

⁴¹ *Id.*

⁴² *Id.*

⁴³ Seader Deposition, Pg. 155, Ln. 24-25.

on vibrations. Nothing prevents Jewell from cross-examining Seader on the perceived shortcomings of his methods and/or introducing its own expert's findings concerning the pins and vibrations. *Id.* at 595. But for the reasons set forth in this section, and the reasons set forth in the section regarding Jewell's motion to exclude William Carden, the Court finds Seader's proffered opinion testimony to be reliable and admissible under Rule 702. Jewell's motion is therefore DENIED.

D. Jewell's Motion to Exclude the Expert Testimony of Richard Wartman

Jewell moves to exclude the expert testimony of Richard Wartman ("Wartman"), whom the parties do not dispute is an expert mechanical engineer (DN 421). Plaintiffs retained Wartman to opine on the cause of the airplane accident. He is of the opinion that Jewell performed a number of improper engine modifications during an overhaul, that these modifications led to abnormal engine vibrations, that these vibrations caused fatigue fractures in the magneto flange, and that these fractures eventually caused the magneto to separate from the engine, resulting in a loss of engine power.

Wartman is a registered professional engineer in the state of Florida and, in 1986, began investigating aircraft mishaps. Since 1993, he has been president of his own engineering firm, which conducts accident investigations and reconstructions, and currently serves as an instructor of aircraft structural failures and analysis at the Navy's School of Aviation Safety in Pensacola, Florida. During his time as an aerospace engineer at the Naval Supporting Office, he also gained experience concerning the wear and failure of engine components. Despite his extensive training, knowledge, and experience, Jewell moves to exclude his testimony, in whole or in part, on the following grounds: (1) Wartman's opinions concerning Jewell's engine overhaul and the alleged increase in engine vibrations that this overhaul caused lack a reliable scientific basis; and

(2) Wartman is unqualified to testify regarding the standard of care applicable to airframe and power plant mechanics performing civil aircraft engine overhauls. For the reasons stated below, the court finds that Wartman's methods and procedures were reliable and that he is qualified to testify regarding the standard of care applicable to civil aircraft engine overhauls. His testimony is, therefore, admissible at trial.

Regarding Jewell's argument that Wartman's vibration opinions are unreliable, the court has already discussed these issues at length in the sections concerning William Carden and Mark Seader. Again, the court need not repeat its analysis from those sections and will only discuss the high points regarding Wartman's methodology and analysis. First, Jewell faults Wartman for stating during his deposition that: (1) enlarged bores only have *the potential* to increase engine vibrations;⁴⁴ and (2) enlargement of the gear bores *might not have* permitted movement of the shafts within the gear bores so as to have increased engine vibrations at all.⁴⁵ This objection must fail because experts are not required to testify to what is known to a certainty. *Jahn*, 233 F.3d at 388 (quoting *Daubert*, 509 U.S. at 590). Rather, concerning expert testimony on causation, Rule 702 requires "only that the expert testimony be derived from inferences based on a scientific method and that those inferences be derived from the facts of the case at hand, not that they *know* answers to all the questions a case presents—even to the most fundamental questions." *Id.* at 390 (internal citations omitted).

Jewell also faults Wartman for not knowing (1) the engine's baseline vibrations; (2) the time required for the magneto flange fatigue; and (3) the stress level of the engine. This argument must fail because when an expert's testimony has a reliable engineering foundation, it does not become inadmissible just because the expert did not give consideration to factors

⁴⁴ DN 421-1, 5.

⁴⁵ *Id.* at 7.

thought important by the opposing party. As his report shows, Wartman observed the subject engine, performed numerous tests and calculations, reviewed the other experts' reports, and examined photographs and depositions. If Jewell believes he should have analyzed additional factors or tested certain theories, nothing prevents it from cross-examining Wartman on these perceived deficiencies or introducing contrary evidence. *Daubert*, 509 U.S. at 596. As to the reliability of Wartman's methods and procedures, the following example from his report shows the propriety of his opinions.

Concerning the enlarged crankshaft bores, Wartman observed that the "bore for the crankshaft idler shaft was found to be .006 inches in diameter beyond the limits and the bore for the magneto idler shaft was found to be .008 inches in diameter beyond limits."⁴⁶ Based on his experience, he believes that this "increase in tolerance between the shaft and the shaft bosses will greatly reduce the stiffness of these bearing supports" and that this reduction in stiffness will cause a substantial increase in vibrations.⁴⁷ Applying this knowledge to his observations, he is of the opinion that Jewell's modification to the bores caused an increase in engine vibrations. When experts apply their experience to observations and draw conclusions, their opinions are reliable under Rule 702. *Kumho*, 526 U.S. at 156 ("But no one denies that an expert might draw a conclusion from a set of observations based on extensive and specialized experience."). For these reasons, Wartman's proffered vibration opinions are reliable under Rule 702.

As a separate basis for exclusion, Jewell contends that Wartman should not be allowed "to testify regarding the standard of care applicable to airframe and power plant mechanics performing civil aircraft engine overhauls."⁴⁸ They contend that he "is not an expert on the work

⁴⁶ Wartman Report, 16.

⁴⁷ *Id.*

⁴⁸ DN 421-1, 8.

of FAA-certified engine mechanics,”⁴⁹ and thus, any opinions on the standard of care would be outside his area of expertise. Although Jewell raised this “standard of care” issue in their motions to exclude William Carden and Bernard Coogan, the court reserved a ruling as to those experts.⁵⁰ With Wartman, however, the parties have fully addressed the issue, and the court is in a position to rule on it.

The court finds that Wartman is qualified to offer opinions on the standard of care applicable to aircraft mechanics performing civil engine overhauls. When an expert possesses experience and knowledge concerning a general field, his lack of specific certifications or unfamiliarity with pertinent regulatory standards does not disqualify him from opining on matters within his expertise. In *Davis v. Combustion Eng’g, Inc.*, the plaintiff proffered an expert in the fields of “industrial relations” and “personnel” to opine on whether age discrimination had occurred in violation of the ADEA. 742 F.2d 916, 918-19 (6th Cir. 1984). The expert “had not previously been involved in the area of age discrimination” and, in fact, lacked any experience “with discrimination law in general.” *Id.* at 919. Despite these deficiencies, the Sixth Circuit allowed him to offer opinions on age discrimination, noting that “Rule 702 should be broadly interpreted” and the “fact that a proffered expert may be unfamiliar with pertinent statutory definitions or standards is not grounds for disqualification.” *Id.* Rather, “[s]uch lack of familiarity affects the witness’ credibility, not his qualifications to testify.” *Id.* (citing *Ellis v. K-Lan Co.*, 695 F.2d 157, 161 (5th Cir. 1983)).

Likewise, in *Tank v. Comm’r*, the Sixth Circuit noted:

It is common knowledge that a person does not become a more accomplished violinist through the process of merely joining the Musicians’ Union, that a trial lawyer does not become more adroit as a trial lawyer when he pays the initiation fee to the local Bar Association. The appraiser’s capability is not, in our opinion,

⁴⁹ *Id.* at 10.

⁵⁰ See *supra* Sections IV.A-B.

enhanced by virtue of memberships he holds in appraisal organizations. The absence of certificates, memberships, and the like, on the other hand, does not in and of itself detract from competency which otherwise exists.

270 F.2d 447, 486 (6th Cir. 1959). Applying these principles, Wartman qualifies to offer opinions on the standard of care applicable to civil aircraft engine overhauls. Wartman has been investigating and analyzing aircraft accidents for the past thirty years. In his current capacity as instructor at the Navy's School of Aviation Safety, he lectures on aircraft structural failures and analysis. He has also continued his engineering education by taking a number of courses on accident investigation, stress analysis, and fracture mechanics.

On this issue, the court also finds *Maloney v. Cent. Aviation, Inc.*, 450 F. Supp. 2d 905 (W.D. Wis. 2006), to be highly persuasive because it applied the above discussed principles when examining an analogous situation. There, the defendant contended that an aeronautics expert was not a qualified expert in the field of airplane engine repair due to "the requirement of federal law that no one may fly a plane unless it has been serviced by a mechanic licensed by the Federal Aviation Administration." *Id.* at 910 (citing 14 C.F.R. § 91.407; 14 C.F.R. § 43.7). Because the expert was not licensed by the FAA, the defendant argued that he was "not qualified to render an opinion whether defendant properly serviced plaintiff's aircraft." *Id.* Rejecting this argument, the U.S. District Court for the Western District of Wisconsin first noted that "neither *Daubert* nor Rule 704 [sic] imposes a rigid set of qualifications an expert must possess in order to qualify as a witness." *Id.* at 910-11. That court then reasoned that the expert's forty-plus years as an accident investigator for the Navy and FBI, which included time teaching and developing maintenance manuals, more than qualified him to opine on the propriety of the defendant's repair, despite his lack of certification from the FAA. *Id.* at 911.

Here, Wartman may not know the nuances concerning the work of FAA-certified engine mechanics and, like the expert in *Maloney*, may not hold an FAA certification. These perceived deficiencies, however, “may be fodder for cross-examination at trial, they do not demonstrate that [Wartman]’s opinions fail to meet the requirements of Fed. R. Evid. 702. *Id.* The court is aware of Jewell’s concerns, and, at trial, will be sure to “carefully instruct[] the jury that they [are] to determine the weight and credibility to be given the expert’s testimony,” *Davis*, 742 F.2d at 919, for such instructions “on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence.” *Daubert*, 509 U.S. at 596 (citing *Rock*, 483 U.S. at 61). For these reasons, Jewell’s motion to exclude the expert testimony of Richard Wartman is DENIED.

E. Jewell’s Motion to Exclude the Expert Testimony of Dr. Ralph Crystal

Jewell moves to exclude the expert testimony of Dr. Ralph Crystal (“Crystal”), whom the parties do not dispute is a vocational expert (DN 422). Crystal has a master’s degree in rehabilitation counseling and a Ph.D. in rehabilitation and educational psychology. He has been a university professor for nearly forty years and, since 1981, has taught in the University of Kentucky’s rehabilitation counseling graduation program. Plaintiffs retained Crystal to evaluate Crouch’s and Hudson’s vocational history and their ability to re-enter the labor market post-injury. In doing so, he conducted a vocational evaluation and employment assessment, which considers a person’s age, education and prior employment, and the nature of the person’s injury. This assessment also considers a person’s residual physical, mental, aptitude, and academic abilities.⁵¹ On five grounds, Jewell argues that Crystal’s opinions should be excluded because they are unreliable and based on stale data. For the reasons discussed below, Jewell’s motion is denied.

⁵¹ DN 430, 3.

First, Jewell argues that Crystal's "lost wages calculation" was formed through an "unreliable process that yielded significantly inflated damage estimates."⁵² Specifically, they contend that the calculation is unreliable because Crystal used Crouch's adjusted gross income (listed on his IRS Form 1040s) to estimate lost wages, when he should have used the income listed on Crouch's W-2s. Jewell believes that the W-2 was the proper form to use because it contains only vocational earnings, whereas the Form 1040 contains information on earnings from dividends and the sales of stock and property.⁵³ Jewell contends that utilization of adjusted gross income to set Crouch's baseline pre-accident earnings, therefore, inflated his lost wages because his injuries do not prevent him from selling stock and property and receiving dividends.

This argument must fail because Crystal's decision to use adjusted gross income rather than the income listed on Crouch's W-2s goes to the weight the jury should afford his opinion, not its admissibility. Jewell obviously believes that Crystal's lost wages estimate is inaccurate, but the admissibility of expert testimony does not rise and fall on whether the opinion is ultimately correct. Such a determination is for the jury. Rather, under *Daubert*, the "focus, of course, must be solely on principles and methodology, not on the conclusions that they generate." *Daubert*, 509 U.S. at 595. According to Crystal, utilization of adjusted gross income "is a standard way of using or determining an income figure that somebody had assigned or had the ability to generate,"⁵⁴ and the Court has no reason to doubt his assertion. Moreover, due to the fact that Crouch used to be a business owner, Crystal may have had a valid reason for choosing to base his estimate on adjusted gross income rather than Crouch's W-2 income.

Prior to his accident, Crouch's business earnings came from three sources: (1) his salary; (2) bonuses from the company; and (3) other company distributions. A W-2, however, would

⁵² DN 422-1, 4.

⁵³ DN 422-1, 5.

⁵⁴ Crystal Deposition, Pg. 56, Ln. 21-24.

only reflect earnings from his salary and bonuses, but his adjusted gross income would include all three categories. As a business owner, Crouch had control over how these earnings were allocated. Calculating his lost wages based on only the W-2, therefore, may not have provided the most accurate estimate of his capacity to earn money. If, in a pre-accident year, Crouch had decided to give himself a smaller bonus and larger distribution, utilization of the W-2 to calculate his earnings potential would have artificially devalued Crystal's calculation. At this stage, the Court does pass judgment on the accuracy of Crystal's findings and only includes this explanation to show that his methodology does not render the testimony inadmissible under *Daubert*.

Crystal's method of calculating Hudson's earnings potential was somewhat different from the one he used to calculate Crouch's potential, but it is no less reliable under *Daubert*. For Hudson, Crystal began by examining his pre- and post-accident adjusted gross income. He did not, however, ultimately use these figures to calculate Hudson's lost wages due to an unusual business event that occurred the year after the accident. In 2007, the bank at which Hudson was President and CEO was sold, and this event triggered a stock option. Hudson's 2007 earnings, therefore, were over \$900,000, about four times more than what he averaged during the previous years.⁵⁵ This was a one-time event that was unlikely to occur in the future, and, had Crystal used this figure to calculate Hudson's lost wages, his earnings potential would have been inflated.

To correct for this anomaly, Crystal decided to use the national CEO average salary of \$212,000 to estimate Hudson's earnings capacity. To be sure, estimates based on actual earnings, not national averages, are the norm, but admissibility under Rule 702 is not a one size fits all test. Rather, courts are to judge "reliability *in light of the particular facts and circumstances* of the particular case." *Kumho*, 526 U.S. at 158 (emphasis added). Given the

⁵⁵ Crystal Report on Hudson, 9.

unique stock option that was triggered in 2007, the Court declines to find that Crystal's decision to use the national CEO average renders his methodology unreliable. Were the \$212,000 figure nowhere near Hudson's actual past earnings, the Court might reach a different conclusion. This figure, however, is not far off from Hudson's earnings for 2004, 2005, and 2006, which were \$222,323, \$256,601, and \$221,581, respectively.⁵⁶

Second, Jewell contends that Crystal's opinions are unreliable because they are based on "stale" data. Specifically, they argue that Crystal prepared his report in 2009, in preparation for the Alabama products liability action, and that he should have updated his calculations to include data from 2008 through 2013. This argument, again, must fail because it goes to the weight of Crystal's opinions, not their admissibility. When Crystal prepared his report in 2009, it was based on a full picture of the information available at the time. Had he updated his report to reflect Crouch's and Hudson's 2008 through 2013 earnings, his lost wages calculation may have been more accurate. But as *Daubert* is concerned with principles and methodology, not conclusions, Crystal's failure to update his report is not a reason to exclude his otherwise reliable opinions.

Third, Jewell contends that Crystal's opinions are unreliable due to "his inability to describe the scientific process underlying his vocational potential assessment."⁵⁷ This argument is misleading in two respects. First, Rule 702 does not require a *scientific* basis for every expert opinion. Rather, an expert may base an opinion on "scientific, technical, or other specialized knowledge." Fed. R. Evid. 702. Vocational expertise does not require the laboratory testing of scientific knowledge and is more properly considered "other specialized knowledge." *Id.*

⁵⁶ *Id.*

⁵⁷ DN 422-1, 9.

Second, the Court finds that Crystal's report more than adequately discusses the factors and tests he considered in reaching his opinions.

To determine Plaintiffs' vocational abilities, Crystal conducted a Differential Aptitude Test Battery, the Crawford Small Parts Dexterity Test, Purdue Pegboard, Wide Range Achievement Test, Kaufman Intelligence Test, and 16 Personality Factor Test. He then considered these tests' results in light of Plaintiffs' age, physical condition, mental condition, and they type of work in which they were already trained. Finally, with these considerations in mind, he projected their lost wages based on the above discussed data. *Daubert* and Rule 702 do not require precise scientific formulae and theories for every expert opinion, and Jewell has enough information about Crystal's methodology should it desire to undermine his opinions on cross-examination.

Fourth, Jewell contends that Crystal's opinions should be excluded under Rule 703 because they are not based on facts and data that "experts in the particular field would reasonably rely on." Fed. R. Evid. 703. Specifically, they argue that Crystal did not conduct an independent analysis of Crouch's and Hudson's conditions and only relied on information provided by Plaintiffs' attorneys. For support, Jewell cites *Info-Hold, Inc. v. Muzak LLC*, in which the U.S. District Court for the Southern District of Ohio excluded an expert's testimony because he failed to independently verify information. No. 1:11-cv-283, 2013 WL 4482442, *5 (S.D. Ohio Aug. 20, 2013). This case is unpersuasive for the following reasons.

The *Info-Hold* expert was excluded for failing to independently verify *any* information on which he relied when forming his opinions. He blindly accepted the sales and revenue figures that the plaintiff's CEO and counsel conveyed to him and did not examine the underlying documentation off which the defendant's expert damages report was based. *Id.* Here, Crystal

conducted interviews, administered standardized tests, and reviewed tax returns, retirement records, hospital records, and physicians' reports. These steps, performed independently and apparently without the direction of counsel, are completely acceptable for someone in Crystal's profession. Jewell, however, takes issue with an exchange that occurred between Crystal and Plaintiffs' counsel just before Jewell took his deposition.

Before being deposed in 2013, four years after completing his report, Crystal asked Plaintiffs' counsel if there was any update on Crouch and Hudson, and he was informed that nothing had changed. Because Crystal did not re-interview Crouch and Hudson, obtain new medical records, and perform new tests, Jewell believes that Crystal's lost wages opinions are now similar to the *Info-Hold* expert's opinions that lacked independent verification. Jewell's contention might have merit if, prior to drafting his 2009 report, Crystal had asked Plaintiffs' counsel about Crouch's and Hudson's respective conditions and then did not conduct any independent verification. Crystal's report, however, was completed well before Crystal followed up on their condition in 2013, which makes this case easily distinguishable from *Info-Hold*. Furthermore, it makes no difference that Crystal "reaffirmed" his report in 2013; it was based on sufficient independent data when written in 2009. Any failure to update the report affects—if anything—the weight of his opinions.⁵⁸

Finally, Jewell contends that Crystal's opinion concerning Mrs. Crouch's lost income is inadmissible because "specialized knowledge on this topic is unnecessary."⁵⁹ Following her husband's injury, Mrs. Crouch completely stopped working and has stated that she would have worked for three more years absent his injuries. Jewell contends that Crystal's opinions concerning Mrs. Crouch are unnecessary because the jury, should it award damages, can do

⁵⁸ As Plaintiffs point out, it is not surprising that there was no need to update the report. Crouch and Hudson suffer from paraplegia and there is no chance, short of a miracle, that their ailments will be cured.

⁵⁹ DN 422-1, 9.

simple math: whatever Mrs. Crouch's salary for one year would have been multiplied by the three years that she did not work. This argument must fail because the admissibility of expert testimony does not rise and fall on whether the jury can sift through the evidence and determine a fact at issue on its own. Rather, expert testimony is admissible if, *inter alia*, it "will *help* the trier of fact to understand the evidence or to determine a fact in issue." Fed. R. Evid. 702 (emphasis added). Issues of economic loss and how such loss is calculated are not everyday issues for most laymen. Although the jury may be able to calculate any damages owed to Mrs. Crouch without any assistance, Crystal's testimony will *help* the jury with this determination and is therefore admissible.

For these reasons, Jewell's motion to exclude the expert testimony of Ralph Crystal is DENIED.

F. Plaintiffs' Motions to Exclude the Expert Testimony of Doug Stimpson

Plaintiffs move to exclude two portions of the proffered expert testimony of Doug Stimpson ("Stimpson"), whom the parties do not dispute is an expert accident reconstructionist and FAA-certified instructor pilot. Jewell retained Stimpson to examine Crouch's airplane, the accident sequence, the engine maintenance history, the plane's emergency procedures, and the plane's safety equipment and to offer opinions as to whether Crouch's actions contributed to the accident and Plaintiffs' injuries. Although Plaintiffs do not object to the majority of his report and proffered testimony, they have filed two separate motions to exclude portions of Stimpson's opinions. The first motion seeks to exclude Stimpson's opinion that "Properly worn shoulder harnesses would most likely have reduced the occupants' injuries in this accident."⁶⁰ The second motion seeks to exclude Stimpson's opinion that, based on terrain features, there were numerous more suitable landing sites at which Crouch should have attempted to land rather than the site he

⁶⁰ DN 413-1, 1 (quoting Stimpson's Report, 24).

ultimately choose for the crash landing.⁶¹ For the reasons stated below, Plaintiffs' motion concerning the shoulder harness opinion (DN 413) is granted in part and denied in part. Plaintiffs' motion concerning the suitability of the landing site (DN 414) is granted.

1) Plaintiffs' Motion to Exclude Stimpson's Proffered Opinion That Use of Shoulder Harnesses Would Most Likely Have Reduced Plaintiffs' Injuries

According to Stimpson, Crouch's "aircraft was equipped by the manufacturer with detachable shoulder belts for front seat occupant safety."⁶² Despite the presence of these shoulder belts, it is undisputed that Crouch and Hudson were wearing only lap belts when they crashed. Furthermore, in his deposition, Hudson stated that he was not provided with a shoulder belt and that he did not recall any briefing on the belts from Crouch.⁶³ From his review of FAA regulations, Stimpson believes that Crouch failed to comply with FAR 91.107(a)(1), which requires "that a pilot brief his passengers regarding the proper use of seat and shoulder belts," and that Plaintiffs failed to comply with FAR 91.107(a)(3), which mandates that any "person on board an aircraft must occupy a seat 'with a safety belt and . . . shoulder harness, properly secured about him or her during . . . landing.'"⁶⁴ Stimpson also seeks to opine that, in addition to violating the FAA regulations, Crouch's failure to brief Hudson went against "basic pilot training and good piloting technique."⁶⁵

Stimpson is of the opinion that "Properly worn shoulder harnesses *would most likely have reduced* the occupants' injuries in this accident."⁶⁶ His report further states, "The possibility of serious injuries suffered by the pilot and passenger *could likely have been greatly reduced* (50%)

⁶¹ DN 414-1, 1.

⁶² Stimpson Report, 22.

⁶³ *Id.* at 23.

⁶⁴ *Id.* (quoting 14 C.F.R. § 91.107(a)(3)).

⁶⁵ *Id.*

⁶⁶ *Id.* at 24 (emphasis added).

if they were wearing their shoulder harnesses”⁶⁷ The basis for this opinion is an Aircraft Owners and Pilots Association (“AOPA”) Air Safety Institute study which concluded that “the risk of fatal or serious injury with a lap belt alone was nearly 50% higher than with lap belt/shoulder harness combination.”⁶⁸ The problem with Stimpson’s opinions, however, is that he has made no attempt whatsoever to link up this general AOPA statistic with Plaintiffs’ specific injuries. In fact, at numerous points during his deposition, Stimpson admitted that he was not qualified to offer an opinion that Plaintiffs’ failure to wear shoulder harnesses was a casual contribution to their injuries:

Q. What qualifies you to give an opinion as to the casual connection between the wearing or non-wearing of a seatbelt in a person’s injuries in a crash?

A. Well, *I’m not specifying these opinions as to the exact injuries that occurred*, except that the information that I have and that I teach and that I aide by on wearing of seatbelts and shoulder harnesses and the articles written by authoritative groups such as the AOPA, the FAA, et cetera, is what I’m basing my opinion on.⁶⁹

...

Q. You would agree that you cannot give an opinion as to whether or not Larry Crouch’s failure to wear a shoulder harness had any causal connection to his spinal cord injuries?

A. I -- *my opinion is not based on the injuries, specific injuries to the two occupants but to the articles and information I have available to me* as to how to reduce injuries and what that reduction is and the federal aviation regulations that require you to wear them; that’s what it’s based on --⁷⁰

At other times, Stimpson admitted that he could not tie Plaintiffs’ injuries to their failure to abide by the FAA regulations:

Q. But you cannot give us an opinion as to the causal connection between Larry Crouch’s injuries and his failure to wear a seatbelt or a shoulder harness?

⁶⁷ *Id.* at 25 (emphasis added).

⁶⁸ *Id.* at 24 (quoting AOPA Study, www.aopa.org/Education/Safety/-Videos/Passenger-Safety-Briefing.aspx).

⁶⁹ Stimpson Deposition, Pg. 63, Ln. 20 – Pg. 64, Ln. 4 (emphasis added).

⁷⁰ *Id.* at Pg. 65, Ln. 9-18 (emphasis added).

A. Correct. *I'm not going to connect their injuries to the regulations. I'm simply going -- my opinion is that they were required to wear them, and then what my information is as to why, not as to their injuries.*⁷¹

...

Q. And you can't hook up the failure to wear a seatbelt or a shoulder harness causally to the injuries Larry Crouch suffered?

A. I -- I'm not -- I'm not aware of the -- *I'm not aware of the medical reasons for their injuries.* I'm simply giving opinions based on, again, the -- the reg- -- regulations and the requirements to wear the shoulder harness.

...

Q. [B]ut you can't quantify whether or not the injuries in this case for Larry Crouch would have been reduced or not?

A. Yeah. I'm not giving crashworthiness or *medical opinions* at all.⁷²

As an aircraft accident reconstructionist and instructor pilot, Stimpson may have specialized knowledge concerning safety procedures, but, as the above excerpts show, he has no expertise that would allow him to link Plaintiffs' failure to wear harnesses to their injuries in this case. Thus, he is not qualified to offer opinions on this topic, for the relevant inquiry is "not the qualifications of a witness in the abstract, but whether those qualifications provide a foundation for a witness to answer a specific question." *Berry v. City of Detroit*, 25 F.3d 1342, 1351 (6th Cir. 1994). In fact, through their response brief, Jewell "agrees that Mr. Stimpson ought not opine that properly worn shoulder harnesses *would most likely have reduced* the occupants' injuries in this accident unless that view has by the time of his testimony been supported by competent medical testimony."⁷³ Rather, Jewell believes Stimpson should be allowed to opine

⁷¹ *Id.* at Pg. 65, Ln. 21 – Pg. 66, Ln. 3 (emphasis added).

⁷² *Id.* at Pg. 66, Ln. 23 – Pg. 67, Ln. 22 (emphasis added).

⁷³ DN 437, 8 (emphasis added).

“that use of shoulder harnesses *had the potential* to prevent or reduce the injuries incurred by the present Plaintiffs in their accident.”⁷⁴ This position is problematic in several respects.

First, Jewell cannot be heard to assert that Stimpson should be allowed to testify to one opinion (that using harnesses *had the potential* to prevent/reduce injuries), when his report contains a different opinion altogether, namely, that harnesses *would most likely have* reduced Plaintiffs’ injuries. Second, even if Stimpson’s opinion was that the use of harnesses had the potential to prevent/reduce Plaintiffs’ injuries, such an opinion would be improper because it would not “help the trier of fact to understand the evidence or to determine a fact in issue.” *Id.* Plaintiffs’ are paralyzed due to *spinal* injuries, but, absent expert opinion testimony linking the lack of shoulder harness to Plaintiffs’ spinal injuries, it does not necessarily follow that wearing a *shoulder* harnesses would have prevented/reduced *spinal* injuries. Third, although Jewell asks the court to defer a ruling on Plaintiffs’ motion to see if medical testimony concerning the exact cause of Plaintiffs’ injuries is put forward at trial, there is no need to defer a ruling. Even if Plaintiffs put forward medical testimony at trial, Stimpson has explicitly admitted that he has “no training or experience to give opinion in terms of reasonable medical probability to connect Larry Crouch’s injuries to his failure to wear a seatbelt or a shoulder harness.”⁷⁵ Even with such medical testimony, Stimpson’s ability to link the lack of harnesses to the injuries is lacking. Because Jewell has not shown by a preponderance of the evidence that Stimpson is qualified to offer causation opinions concerning Plaintiffs’ failure to wear harnesses and their injuries, Stimpson’s proffered testimony that “Properly worn shoulder harnesses would most likely have reduced the occupants’ injuries in this accident” will be excluded. *Nelson*, 243 F.3d at 251.

⁷⁴ *Id.* at 9 (emphasis added).

⁷⁵ Stimpson Deposition, Pg. 66, Ln. 5-9.

Furthermore, the exclusion of Stimpson's opinion concerning the causal effect between the lack of shoulder harnesses and Plaintiffs' injuries means that none of Stimpson's proffered testimony concerning shoulder harnesses is relevant to Jewell's case-in-chief. "Evidence is relevant if: (a) it has any tendency to make a fact more or less probable than it would be without the evidence; and (b) the fact is of consequence in determining the action." Fed. R. Evid. 401. As discussed above, beyond his causation opinion, Stimpson has also formed opinions that Plaintiffs failed to comply with FAA regulations and good piloting techniques. These opinions, however, are only relevant if used to support Stimpson's causation opinion, which Jewell intended to introduce to meet its burden under Kentucky's comparative fault statute. *See Ky. Rev. Stat. Ann. § 411.182(2)* (West 2015) ("In determining the percentages of fault, the trier of fact shall consider both the nature of the conduct of each party at fault and *the extent of the causal relation between the conduct and the damages claimed.*") (emphasis added). Because Stimpson's causation opinions are inadmissible, all testimony and opinions on shoulder harnesses no longer "fit" with the pertinent issues of this case. *See Daubert*, 509 U.S. at 591 (explaining how certain knowledge fits with a case only if there is a "link" or "connection" between the knowledge and the issues). Jewell is therefore barred from introducing Stimpson's opinions concerning shoulder harnesses in its case-in-chief because "[i]rrelevant evidence is not admissible." Fed. R. Evid. 402.

The court is only granting Plaintiffs' motion in part because there is the possibility that Stimpson's testimony concerning shoulder harnesses could be admissible as rebuttable/impeachment testimony. As part of their case-in-chief, Plaintiffs may attempt to assert that Crouch was a skilled and careful pilot. If, as part of this assertion, Plaintiffs put forward testimony that Crouch informed Hudson of all proper safety procedures, Stimpson's

opinion that Crouch did not give a proper safety briefing would become relevant and could be used for the limited purpose of rebutting Plaintiffs' assertion that Crouch gave a proper briefing. But until, and only if, Plaintiffs put forward such evidence, Stimpson's opinions concerning shoulder harnesses are inadmissible because (1) he is not qualified to offer a causation opinion; and (2) all testimony on shoulder harnesses is irrelevant due to the fact that he is not qualified to offer a causation opinion. For these reasons, Plaintiffs' motion to exclude Stimpson's shoulder harness opinions is GRANTED IN PART and DENIED IN PART.

2) Plaintiffs' Motion to Exclude Stimpson's Proffered Opinion That Numerous Suitable

Alternative Crash Sites Existed on the Day of the Crouch's Accident

Plaintiffs also seek to exclude Stimpson's opinions that Crouch had "numerous suitable locations for a successful off airport landing,"⁷⁶ and that given these options, "there was no reason [Crouch] could not have put the aircraft safely on the ground, under positive control, in any number of suitable off airport landing areas."⁷⁷ Plaintiffs do not contend the potential relevancy of these opinions. Rather, they argue that these opinions lack a sound foundation because they are based on a Google Earth image that depicts the crash area sometime around 2012 through 2014, not 2006, the year of the crash. For the reasons stated below, the court agrees that Stimpson's alternate landing site opinions are unreliable because they are not "based on sufficient facts or data." Fed. R. Evid. 702(b).

In "Figure 7" of his expert report, Stimpson has included a Google Earth image that purports to show the different terrains at and around the accident site. Overlaid on this image is a circle that Stimpson uses to show the potential glide range for Crouch's aircraft at various altitudes. The center of the circle represents Crouch's location when the airplane lost engine

⁷⁶ Stimpson Report, 15.

⁷⁷ *Id.* at 21.

power. The circle's radius then proceeds outward for four nautical miles, or one nautical mile for every thousand feet of altitude. The radius ends at the circle's arc, which represents various points where the plane would have contacted the ground after it was no longer able to glide any further. According to Stimpson's interpretation of the Google Earth image, there were numerous suitable points at which Crouch could have, and should have, attempted to land the plane during its glide phase. Stimpson's reliance on the Google Earth image, however, is problematic because no one knows the exact date of the image.

Plaintiffs' accident occurred November 21, 2006, and Stimpson found the image he used in his report sometime in late 2014 or early 2015. However, because most images found on Google Earth are one to three years old,⁷⁸ this means that the image likely depicts the accident site and surrounding area as it existed *sometime between 2012 through 2014*, not 2006. Therefore, Stimpson's Google Earth image may not necessarily depict the area in the vicinity of the crash site as it existed on the day of Crouch's accident. Jewell has made a number of attempts to remedy this foundational error, none of which fix the issue that Stimpson simply does not know whether terrain options were available on the day of the accident.

First, Jewell contends that the Google Earth image was not the *sole* basis for Stimpson's terrain opinion and that other sources provide the adequate foundation. These sources include research into the capabilities of the aircraft, knowledge of the proper emergency procedures, and computations concerning the plane's glide range.⁷⁹ The problem with this argument is that Jewell is attempting to establish a proper foundation for Stimpson's *terrain opinion* with sources that are only relevant to his *other opinions*. Stimpson has formed the opinions, and Plaintiffs do not challenge the admissibility of these opinions, that Crouch tried to stretch the plane beyond its

⁷⁸ Frequently Asked Questions, Google Earth Help, <https://support.google.com/earth/answer/187961?hl=en> ("Google Earth displays the best available imagery, most of which is one to three years old.").

⁷⁹ DN 438, 4.

glide range after it lost power and that Crouch should have begun looking for crash landing sites immediately after his engine lost power. These opinions, however, have nothing to do with the suitability of alternative landing sites. Saying Crouch should have begun looking for alternative sites earlier and that alternative sites in fact existed are two completely different opinions, and Jewell cannot bootstrap one inadmissible opinion onto the back of admissible ones.

In its second attempt to establish a proper foundation for Stimpson's terrain opinion, Jewell argues that Stimpson has personal knowledge of the crash area and that the Google Earth image only refreshed his memory.⁸⁰ Stimpson claims that he has "flown that area. In my lifetime, I've flown there a number of times."⁸¹ Based on his memory of these undated flights, the Google Earth image merely corroborates his recollection that there "were many, many good options for [Crouch] to navigate to."⁸² The court does not dispute that any witness, expert or lay, may use his or her personal knowledge of a scene to lay a proper foundation for use of a photograph. The issue with Stimpson's attempt, however, is temporal. Saying that the Google Earth image accurately represents his recollection of the fields over which Crouch glided after losing engine power is only helpful if his recollection is of the fields *on or reasonably near the day Crouch crashed*. The fields may have been empty and suitable for crash landings on the unknown dates that Stimpson flew over them, but on November 21, 2006, they may have contained trees, mobile homes, roaming livestock, farm workers, or anything else.

The court does not fault Stimpson for lacking personal knowledge of the terrain as it existed on the day of the crash, for neither Stimpson nor Jewell could have anticipated this lawsuit and known that information on the fields' conditions could have been useful. Jewell, however, could have deposed Crouch and Hudson on the fields' conditions, as they may have

⁸⁰ DN 438, 9.

⁸¹ Stimpson Deposition, Pg. 94, Ln. 1-2.

⁸² *Id.* at Pg. 94, Ln. 2-3.

been able to—even if reluctantly—link up their recollection of the fields to the Google Earth image. Had Plaintiffs, or any other individual with knowledge of the fields, been able to say that the Google Earth image accurately represents the fields’ conditions on the day of the crash, Stimpson’s terrain opinion would then have a proper foundation.

Finally, Jewell has attempted to use Bernard Coogan’s deposition testimony to link up the Google Earth image with the terrain conditions that existed at the time of the crash. This attempt must fail for the same reasons that Jewell’s above discussed argument must fail: Coogan has no knowledge of the terrain conditions at the time of the accident. A review of his deposition testimony reveals that Coogan flew over the area, for reasons unrelated to this case, in an unspecified year during a time which he can only describe as “approaching winter.”⁸³ Given the fact that neither Stimpson, Coogan, nor anyone else were able to link up their personal knowledge of the crash area on the day of the crash with the Google Earth image, which was likely taken over five years after the crash, the court cannot say that Stimpson’s reliance on this image established a proper foundation for his opinion that numerous more suitable landing sites existed.

Although not directly on point, the Sixth Circuit’s reasoning in *Johnson v. Manitowoc Boom Trucks, Inc.* is helpful to understanding why Stimpson’s opinion is inadmissible. In *Johnson*, a products liability case concerning whether a manufacturer’s product was “in a defective condition or unreasonably dangerous *at the time it left the control of the manufacturer*,” Tenn. Code Ann. § 29-28-105(a) (emphasis added), an expert witness sought to opine that that a design was not defective because such a design had become generally accepted in the relevant industry. *Johnson v. Manitowoc Boom Trucks, Inc.*, 484 F.3d 426, 433 (6th Cir. 2007). The district court excluded his opinion, and the Sixth Circuit affirmed, noting that the

⁸³ Coogan Deposition, Pg. 117, Ln. 17 – Pg. 118, Ln. 16.

“problem with [the expert’s] argument is temporal.” *Id.* As the Sixth Circuit explained, although it may have been true that the design had become generally accepted by 2005, the year of the district court ruling, the expert had not established that the same could be said for the design in 1999, when the product left the manufacturer’s control.

Stimpson’s reliance on the 2012-2014 image is very much like the *Johnson* expert’s attempt to establish general acceptance by using a later date. By using information that was six years old, both experts made the same mistake. Just as in *Johnson*, where the relevant inquiry was general acceptance in 1999, not 2005, here the relevant inquiry is what the purported preferable landing sites looked like in 2006, not 2012. Because Jewell has not met the preponderance of the evidence hurdle on this issue, *Nelson*, 243 F.3d at 251, Plaintiffs’ motion to exclude Stimpson’s opinions concerning the availability of suitable alternative landing sites is GRANTED.

G. Plaintiffs’ Motion to Exclude the Expert Testimony of Dr. Roch Shipley

Plaintiffs move to exclude the expert testimony of Dr. Roch Shipley (“Shipley”), whom they do not dispute is an expert metallurgist (DN 415). Jewell retained Shipley “to review the available documentation, inspect the physical evidence, identify the most probable cause of the accident occurrence, and determine whether or not the work done by JJA played a role in causing the accident.”⁸⁴ Based on his review, he is of the opinion that although fatigue fractures were present in the magneto flange during the flight, the magneto did not separate mid-flight and did not contribute to the cause of the crash. He seeks to opine that the fatigue fractures were caused by the unapproved gasket and clamp installation by George Durham, who worked on the magneto after Jewell’s overhaul, and that Jewell’s overhaul did not contribute to the fractures in any way. As to why the magneto ultimately separated, he believes that the plane’s impact with

⁸⁴ Shipley Report, 1.

the ground alone did not cause the separation. Rather, he seeks to opine that after the plane impacted the ground, the engine pitched forward, which caused the magneto to impact with its surroundings. He believes that this secondary impact, not any alleged engine vibrations, caused the magneto to separate. Plaintiffs argue that Shipley's opinions are unreliable and that he does not offer any "scientifically-acceptable support for his opinion that the magneto did not separate from the engine during the flight."⁸⁵ Because the Court finds that Shipley employed an acceptable methodology, Plaintiffs' motion will be denied.

The core of Plaintiffs' case against Shipley is found on page six of their memorandum supporting their motion to exclude his testimony. There, Plaintiffs assert that Shipley "conducted a 'calculation' as to the amount of force necessary to cause the separation" of the magneto from the engine.⁸⁶ Although Plaintiffs do not attack his calculation of the force *necessary* to cause the separation, they go on to argue against the reliability of his method for determining the *actual* force present at impact. Specifically, they contend that Shipley merely observed the post-accident aircraft and made a bald assertion that the impact force was not enough to cause the magneto to separate.⁸⁷ After reviewing Shipley's report in full, the Court finds that Plaintiffs' argument is an oversimplification of Shipley's methodology that ignores key aspects of his opinions.

Because it is undisputed that, at some point, the magneto separated from the engine, this means that it either separated mid-flight or when the plane impacted the ground. According to Shipley, had the magneto separated mid-flight, oil would have leaked from the casing and would have been present around the magneto gasket. When Shipley examined the engine components,

⁸⁵ DN 415-1, 1.

⁸⁶ *Id.* at 6.

⁸⁷ *Id.*

however, he observed a lack of oil.⁸⁸ In his opinion, this rules out a mid-flight magneto separation and means that the engine must have separated when the plane impacted the ground. Rather than just assuming that one thing must have occurred because the other possibility had been ruled out, Shipley performed additional investigations to support his opinion that the magneto separated at impact.

Based on weights and measurements determined by William Carden, Shipley determined that a force of sixty-two times the force of gravity, or 62 Gs, would have been required to cause the magneto to separate.⁸⁹ Although Shipley does not know what the actual force was when the plane crashed, he has inferred, from a review of federal regulations and his observations, that it was far less than 62 Gs. As required by the FAA, the fuselage and pilot seat of a small aircraft must be designed to withstand 14 Gs of crash impact. 14 C.F.R. § 25.562(b)(1) (2015). Because the fuselage and pilot seat were still intact after the crash, Shipley believes this indicates that the plane did not experience 14 Gs at impact. Furthermore, during his career he has “looked at structures that have had more significant impacts” than 14 Gs, and testified that the fuselage and seat did not resemble structures that had been subjected to such force.⁹⁰ Therefore, the plane did not experience the 62 Gs necessary to separate the magneto from the engine.

This process, examining physical evidence and drawing inferences based on one’s experience and knowledge, is reliable under Rule 702. *Jahn*, 233 F.3d at 390 (citing *Daubert*, 509 U.S. at 590-92). Were Shipley’s opinions that the magneto did not separate mid-flight and that the impact force alone did not cause the magneto to separate his only proffered testimony, such testimony would be admissible because his methodology was no different than that

⁸⁸ Shipley Report, 2.

⁸⁹ *Id.* at 11.

⁹⁰ Shipley Deposition, Pg. 132, Ln. 19-22.

employed by Plaintiffs' experts, whom this Court has allowed to testify. Shipley's investigation, however, did not stop there, which makes his methodology all the more reliable under Rule 702.

From his examination of the engine components and discussions with Scott Goodley, Shipley believes he has determined why the magneto separated at impact and seeks to opine that the plane's impact with the ground caused the engine mount to separate, in turn causing the engine to pitch forward and downward.⁹¹ As the engine pitched, the magneto came into contact with its surroundings, and this secondary impact provided the additional force necessary to cause the magneto to separate.⁹² The court does not pass judgment on the correctness of this conclusion, but because it is reliable under Rule 702, the jury will have the opportunity to weigh it against Plaintiffs' theory of the case. In fact, Shipley's methodology, ruling out certain occurrences (mid-flight magneto separation and magneto separation from ground impact alone) and ruling in others (magneto separation from the secondary impact) closely resembles "differential diagnosis," a methodology that this Circuit has held is reliable. *See Best*, 563 F.3d at 179 (stating that an expert's methodology is reliable where it determines the nature of an injury, "rules in" one or more causes, and then "rules out" alternative causes"). Plaintiffs and their experts may disagree with Shipley's conclusions, but experts do not have to know with certainty what happened and are allowed "to use their expertise to piece together what probably happened." *Jahn*, 233 F.3d at 390. Shipley's attempt to piece together the accident sequence is based on a reliable methodology and is therefore admissible.

Plaintiffs' also argue that Shipley's opinions are unreliable because he "does not account for the pre-existing stress fractures in the magneto flange, which all parties admit were

⁹¹ Shipley Report, 14.

⁹² *Id.* at 11.

present.”⁹³ Had Shipley failed to consider this information, Plaintiffs’ motion may have had more merit. *See Smelser v. Norfolk S. Ry. Co.*, 105 F.3d 299, 305 (6th Cir. 1997) (“Huston’s causation opinion failed to consider this admittedly important information, and therefore cannot be considered reliable.”). Their assertion, however, must fail because Shipley’s report clearly states that he took the stress fractures into consideration in forming his opinions.⁹⁴ Any disagreement with the conclusions Shipley drew from the presence of fatigue fractures, which he properly considered, is proper fodder from cross-examination, not a reason to exclude his opinion.

Finally, Plaintiffs’ attempts to draw parallels between Shipley’s methodology and the expert’s rejected methodology in *Smelser v. Norfolk Southern Railway Co.* are unpersuasive. In *Smelser*, the plaintiff argued that a defective seat belt caused injuries to his back and aggravated neck injuries when he was rear ended by another motorist. *Id.* at 301. To support this theory, the plaintiffs’ biomechanical engineering expert conducted a visual examination of the seat belt’s webbing, during which he noted stretch marks on both the lap and shoulder bands. *Id.* at 304. He did not, however, examine the belts under a microscope or perform any tests to determine whether the stretch marks were from normal wear-and-tear or from being “loaded.” *Id.* Rather, he baldly asserted that the marks were caused by “loading” during the accident. *Id.* Furthermore, when opining on the plaintiff’s injuries, the expert failed to consider his previous hospitalizations for back injuries and whether those injuries may have been a factor in his car

⁹³ DN 443, 4.

⁹⁴ Shipley’s Report, 11 (“As noted above, this estimate is only intended to provide an order of magnitude of the impact forces which would have been required to cause separation of the magneto, *taking into account the fatigue cracks.*”) (emphasis added); *id.* (“[T]he impact forces were not even close to that which would have been required to fracture the vacuum pump case or the magneto case, *even taking into account the fatigue cracks in the latter.*”) (emphasis added).

accident injuries. When contrasted against the *Smelser* expert's methodology, it is clear that Shipley employed a more rigorous, reliable procedure.

Whereas the *Smelser* expert did nothing to rule out the normal wear-and-tear of the seat belt, Shipley conducted an investigation that, in his opinion, ruled out alternative causes to the magneto separation. Likewise, whereas the *Smelser* expert made unsupported assertions from mere visual inspections, Shipley applied his expertise and mathematical calculations to his observations to draw reliable inferences. Finally, unlike the *Smelser* expert, Shipley considered all relevant information, such as the presence of stress fractures, in reaching his opinions. For these reasons, Plaintiffs' motion is DENIED.

H. Plaintiffs' Motion to Exclude the Expert Testimony of Dr. Frank Slesnick

Plaintiffs move to exclude the expert testimony of Dr. Frank Slesnick ("Slesnick"), whom the parties do not dispute is an expert economist (DN 416). Jewell retained Slesnick to (1) estimate the cost of the life care plans developed by Jewell's expert Daniel Thompson, who evaluated Crouch and Hudson; and (2) to critique Plaintiffs' expert Dr. Harvey Rosen's cost estimate of the life care plans produced by Dr. Jack Sink. Plaintiffs' argument in support of their motion to exclude Slesnick under Rule 702 is somewhat different from the above-discussed arguments. Although they contend his methodology was unreliable, they do not necessarily take issue with the methodology itself. Rather, they take issue with "the absence of reliability due to his *selection of inputs* into his methodology."⁹⁵ Plaintiffs also contend that Slesnick's testimony should be excluded because his expert report is insufficient under Federal Rule of Civil Procedure 26(a)(2). For the reasons discussed below, Plaintiffs motion will be denied on both grounds.

⁹⁵ DN 444, 1 (emphasis added).

Slesnick began his analysis by examining Daniel Thompson's life care plans for Crouch and Hudson. Slesnick then divided the items in the plans into four categories: professional medical services, medical commodities, prescription drugs, and other items (transportation, attendant care, and yard maintenance).⁹⁶ Because wages for the "other items" typically grow at the rate of inflation, Slesnick estimated these items' growth rate at an inflation-adjusted rate of 0%.⁹⁷ Indeed, Plaintiffs do not object to his "other items" estimate, but rather argue against the reliability of the estimates for the real growth rate of professional medical services, medical commodities, and prescription drugs.

According to Slesnick, these three categories typically grow at a faster rate than the general rate of inflation. Thus, to estimate their future cost growth, economists look to the historic growth for similar products and services. For his source of historic growth rate, Slesnick choose various issues of news releases concerning the Consumer Price Index, which are published by the Bureau of Labor Statistics ("BLS").⁹⁸ For prescription drugs, these sources had data available starting in 2001. For professional medical services and medical commodities, these sources had data dating back to 1994.⁹⁹ Plaintiffs do not contend that use of BLS data is improper,¹⁰⁰ but argue that his use of the thirteen year time period for prescription drugs and twenty year time period for medical services and commodities was arbitrary. They contest that Slesnick has baldly asserted that these time periods were proper and that he "offers no justification, no study, no confirmation that the period he chose is fairly representative, is correlated, or was chosen for any other reason than that is the period for which he could easily

⁹⁶ Slesnick Report, 1.

⁹⁷ *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.*

¹⁰⁰ DN 444, 2.

obtain data.”¹⁰¹ This argument must fail because a party’s disagreement with inputs into a methodology is generally not enough to have the methodology excluded under Rule 702. Rather, any perceived deficiencies as to inputs are generally proper issues of weight to be considered by the jury and attacked on cross-examination.

The U.S. Court of Appeal for the Seventh Circuit has dealt with this issue in a case that, were it binding on this court, would be directly on point due to the highly similar factual nature of the case. In *Manpower, Inc. v. Insurance Company of Pennsylvania*, the plaintiff retained a forensic accounting expert to determine the amount of business interruption loss that occurred due to a building collapse. 732 F.3d 796, 801 (7th Cir. 2013). As part of his calculations, the expert used an estimated growth rate of 7.76%, a rate he selected by comparing total revenues for the five-month period preceding the collapse, and then extrapolated the growth rate. *Id.* at 801-02. He based the rate on only these five months because plaintiff had recently merged with another company, which led to the enactment of new policies and installation of new managers. *Id.* at 802. Before trial, the defendant filed a motion to exclude the expert’s testimony on reliability grounds, and the district court granted the motion. *Id.* at 801. Although, the district court found that the expert’s calculations were straightforward and that he followed the proper methodology, it took issue with his selection of growth rate. *Id.* at 801-02.

Specifically, the district court ruled that the expert’s choice of growth rate was not a factual issue for the jury, but rather went to the reliability of his opinions. *Id.* at 802. The court believed his rate was improper because it was only based on five months of data and did not account for the plaintiff company’s historical growth rate, which was much lower and even negative at some points. *Id.* at 801-03. Furthermore, the court chided the expert for “relying upon his judgment” rather than citing literature from the field of forensic accounting. *Id.* at 803.

¹⁰¹ DN 416-1, 9.

On appeal, the Seventh Circuit held that the district court abused its discretion in excluding the proffered testimony.

Notably, the Seventh Circuit stated that reliability “is primarily a question of the validity of the methodology employed by the expert, not the quality of the data used in applying the methodology or the conclusions produced.” *Id.* at 806. Rather, trial judges should not “assess the quality of the data inputs [experts] select[] in employing the growth rate extrapolation methodology,” *id.* at 807, for such issues concern weight and are best left to the jury. *Id.* (quoting *Stollings v. Ryobi Techs., Inc.*, 725 F.3d 753, 767 (7th Cir. 2013)). Additionally, the court noted that the proper way for objecting parties to explore whether an expert used the best data or faulty information is to probe the issues on cross-examination. *Id.* at 809 (citing *Walker v. Soo Line R.R. Co.*, 208 F.3d 581, 589 (7th Cir. 2000)). Applying these principles to Plaintiffs’ motion, their argument as to Slesnick’s decision to choose thirteen year-old and twenty year-old data to determine growth rates must fail.

Just as in *Manpower*, there is no dispute that Slesnick employed the proper methodology. Plaintiffs believe that he should have used older data to estimate his growth rates, as Plaintiffs’ expert did, but this disagreement can best be explored on cross-examination or through the introduction of evidence as to why older data produces more accurate results. Likewise, Slesnick’s failure to cite to any authority to support his reason for not examining older data, namely that using a time period beyond twenty years is problematic due to changes in technology and public policy, is not a reason to exclude his testimony under Rule 702 or 703. *Id.* at 803, 809. This lack of citation does not change the fact that his opinions are grounded in real data and that he has disclosed his reasons for choosing that data. *Id.* at 809.

To be sure, this does not mean that an expert can pick *any* data set off which to base certain opinions, for there are still some quantitative and qualitative restrictions on experts' selections. Because Rule 702 requires that an expert's opinions must be based on "sufficient facts or data," an expert's estimation of growth rate may not be based on a single data point. *Id.* at 808-09 (citing *Stollings*, 725 F.3d at 766). When the Seventh Circuit has approved an expert's choice to use five months' worth of data, this Court cannot say that Slesnick's decision to use thirteen and twenty years' worth of data was qualitatively improper. *Id.* Likewise, under Rule 703, experts' selection of data must be quantitatively proper in that they "must employ 'those kinds of facts or data' on which experts in the field would reasonably rely" *Id.* at 809 (quoting Fed. R. Evid. 703). This simply means that when estimating future growth rates, experts should base these rates on past growth rates from a sustained period of time, not changes in completely unrelated data. *Id.* ("[S]o Sullivan could not have based his earnings projections on changes in the size of the white rhino population in Africa, but he did not go amiss in basing them on Manpower's actual earnings over a sustained period immediately preceding the interruption of business").

As a final note on Plaintiffs' *Daubert* argument before turning to their Fed. R. Civ. P. 26(a)(2) argument, the Court would like to make clear that it considers *Manpower* to be highly persuasive because the United States Supreme Court has likewise rejected an argument based on an expert's selection of variables, albeit in a slightly different context. In *Bazemore v. Friday*, the Court found error in the lower courts' decision to exclude an expert's regression analyses "because they did not include 'all measurable variables thought to have an effect on salary level.'" 478 U.S. 385, 400 (1986) (quoting Fourth Circuit opinion below). Like the Seventh

Circuit in *Manpower*, the Supreme Court ruled that arguments concerning which variables should have been used best go to “the analysis’ probativeness, not its admissibility.” *Id.*

Changing focus, Plaintiffs also contend that Slesnick’s opinions should be excluded because his expert report is deficient under Fed. R. Civ. P. 26(a)(2), which states that an expert’s report must contain “a complete statement of all opinions the witness will express and the basis and reasons for them.” Specifically, Plaintiffs take issue with Slesnick’s assertions that “a time period from 2001 or 1994, 13 or 20 years, is certainly adequate for forecasting medical costs,”¹⁰² and that Harvey Rosen’s use of “prices far earlier than the 1990’s . . . [was] a serious error.”¹⁰³ This argument must fail because a review of page one of his report clearly shows that Slesnick provided “the basis and reasons” for these opinions: “Using a time period beyond 20 years raises multiple problems such as changes in technology distorting the meaning of a market basket of goods obtained by the average consumer and the impact of changing public policy over time.”¹⁰⁴ Because he has given his reasons, the Court cannot agree with Plaintiffs that his selection data from these time periods was arbitrary. Although Plaintiffs fault Slesnick for not citing any authorities to support his reasoning, Rule 26 does not require experts to provide secondary and tertiary support for their opinions when they have clearly stated their basis and reasons. Thus, the Court cannot say that Slesnick “did not give Plaintiffs adequate notice of the substance of his opinions.”¹⁰⁵ For these reasons, and because his methodology was reliable under Rule 702, Plaintiffs motion is hereby DENIED.

¹⁰² Slesnick Report, 1.

¹⁰³ *Id.* at 4.

¹⁰⁴ *Id.* at 1.

¹⁰⁵ DN 416-1, 10.

V. Conclusion

For the reasons set forth above, the following motions are DENIED: DNs 415, 416, 418, 420, 421, and 422. The following motions are GRANTED: DNs 414 & 419. Finally, the following motion is GRANTED IN PART AND DENIED IN PART: 413.