

FILED
United States Court of Appeals
Tenth Circuit

UNITED STATES COURT OF APPEALS

December 14, 2018

FOR THE TENTH CIRCUIT

Elisabeth A. Shumaker
Clerk of Court

JAMES RODGERS; SHERYLL
RODGERS, individually and as Husband
and Wife; CHRISTOPHER EVANS; JILL
EVANS, individually and as Husband and
Wife,

Plaintiffs - Appellants,

v.

BEEHCRAFT CORPORATION, f/k/a
Hawker Beechcraft Corporation, a Kansas
corporation; HAWKER BEEHCRAFT
GLOBAL CUSTOMER SUPPORT, LLC,
f/k/a Hawker Beechcraft Services, Inc., a
Kansas limited liability company,

Defendants - Appellees.

No. 17-5045
(D.C. No. 4:15-CV-00129-CVE-PJC)
(N.D. Okla.)

ORDER AND JUDGMENT*

Before **MATHESON**, **McHUGH**, and **EID**, Circuit Judges.

On March 17, 2013, James Rodgers and Christopher Evans were passengers on a Beech Premier 390 jet airplane, flying from Tulsa, Oklahoma to South Bend, Indiana.

* This order and judgment is not binding precedent, except under the doctrines of law of the case, res judicata, and collateral estoppel. It may be cited, however, for its persuasive value consistent with Fed. R. App. P. 32.1 and 10th Cir. R. 32.1.

During the flight, both engines of the plane were inadvertently shut down. The plane crashed on landing, killing the pilot, Wesley Caves, and a third passenger, Steve Davis. Mr. Rodgers and Mr. Evans were injured.

Mr. Rodgers and Mr. Evans and their spouses sued Beechcraft Corporation, the plane's manufacturer, and Hawker Beechcraft Global Customer Support, LLC, the plane's repair and maintenance provider. Plaintiffs alleged negligence claims against Beechcraft and Hawker, and products liability claims against Beechcraft.¹ Their complaint alleged that (1) the pilot was unable to restart the engines because the plane's electrical distribution bus system was defective; (2) the plane's alternate landing gear system was defectively designed and failed to deploy; and (3) the aircraft flight manual contained faulty instructions for restarting the electrical generator following a dual engine shutdown.

This appeal challenges two key rulings. First, the district court limited the testimony of four of Plaintiffs' experts and excluded supplementation of their experts' reports. Second, with this evidence excluded, the district court granted Defendants' motion for summary judgment because Plaintiffs had presented insufficient evidence to support their claims. Exercising jurisdiction under 28 U.S.C. § 1291, we affirm.

¹ In this opinion, we refer to Appellants as "Plaintiffs" in reference to the district court proceedings, as "Appellants" in reference to these appellate proceedings, or as "Mr. Rodgers and Mr. Evans." We refer to Appellees as "Defendants" in reference to the district court proceedings, "Appellees" in reference to these appellate proceedings, or as "Beechcraft and Hawker."

I. BACKGROUND

A. *Factual Background*²

1. The Parties

James Rodgers and Christopher Evans were passengers on the plane. They survived the crash but suffered injuries. Their spouses, Sheryll Rodgers and Jill Evans, sued for loss of consortium.

Beechcraft, a Kansas corporation with its principal place of business in Kansas, manufactures and sells commercial aviation aircraft. App. at 4623. Hawker, a Kansas limited liability company, provides aviation inspection and maintenance service.³

2. The Plane

Beechcraft designed and, in 2008, manufactured the Beechcraft Premier 1A Model 390, RB-226 (“RB-226”), a two-engine aircraft.⁴ App. at 2786. The Federal Aviation Administration (“FAA”) issued a standard airworthiness certificate for the plane. *Id.* The plane had recorded 457.5 hours in total flight time when it crashed.

² In our review of the district court’s summary judgment, we present the facts and view the evidence in the light most favorable to the non-moving parties, here the Plaintiffs. See *Wolf v. Prudential Ins. Co. of Am.*, 50 F.3d 793, 796 (10th Cir. 1995).

³ Beechcraft and Hawker were merged into Textron Aviation Inc. effective January 1, 2017. Textron Inc. is Textron Aviation Inc.’s parent company. See Aplee Br. at i; Aplt. Br. Errata (Nov. 9, 2017).

⁴ We use “Model 390” as shorthand for the Beechcraft Premier 1A Model 390. We use “RB-226” to refer to the specific Model 390 aircraft that crashed in this case.

a. *Electrical System*

The RB-226 has two engine-driven generators that supply electricity throughout the aircraft. The plane is designed to fly with only one engine. An engine may be restarted through engine start and ignition switches powered by the pilot's essential bus, which is part of the electrical load distribution system.⁵ App. at 4625-26.

For emergencies, the plane relies on a main battery and a standby battery to provide power. When the engines shut down, the generators also turn off, and the power

⁵ Appellants provided in their Appendix an excerpt from a deposition of Beechcraft electrical engineer Rodney Allen Voth, defining the word "bus":

Q: Could you describe for the ladies and gentlemen of the jury what a 'bus' is?

A: It's a – a electrical tie point that feeds circuit breakers – it's – it's a branch – it's a branch circuit off of the power distribution network that's – the buses are named for the – either their type or operation or how they're fed by the various power sources. They're distributed through the airplane to the various panels that have circuit breakers and relays.

App. at 209. The "essential bus" is one of these "branches." *Id.* Appellees defined "essential bus" in a motion to limit expert testimony as follows:

A "bus" is a branch circuit off of the power distribution network, which supplies power to designated components of the airplane. Using buses, the electrical power load is divided in a balanced fashion, and backup systems can be powered from a different circuit than the main systems, providing redundancy. The pilot's essential bus is one such bus, and it supplies electrical power to a number of essential components on the Premier. The co-pilot's essential bus supplies electrical power to other essential components, again providing for balanced power supply and effective backup systems.

App. at 707 (citations omitted).

supply in the plane switches from the generators to the main battery. *Id.* at 2295, 2381, 2424-25. The plane has a switch that toggles between “On” for the main battery and “Standby” for the standby battery. During normal flight operations, the battery switch remains in the “On” position. The battery switch must be set to “On” for the generators to power the plane.

When the plane uses battery power, many non-essential components in the plane are shut off to conserve energy for landing, including the cockpit voice recorder (“CVR”). *Id.* at 2296, 2439. Certain features continue to function. For example, a pilot can still receive communications from the airport control tower, and the plane’s transponder continues to “ping” with its location. *Id.* at 2435.

b. *Alternate landing gear*

The main landing gear of the plane is designed to operate even when the electrical generators are not functioning because the battery provides enough power to lower the gear. *App.* at 2246-47. The plane also has an alternate landing gear that can be deployed without electrical power. *Id.* at 2294. The alternate landing gear is engaged by pulling a red, T-shaped handle marked “PULL” that sits under the pilot’s “yoke” or control column.⁶ *Id.* at 1563.

⁶ A yoke is a “type of pilot[’]s control column in which the ailerons are controlled by rotating a device on top of the column to the left or right.” *Yoke*, Dictionary of Aeronautical English 536 (1999). An “aileron” is a “horizontal control surface hinged to the mainplane (wing) which provides movement around the longitudinal axis of the aeroplane” *Aileron*, *id.* at 10.

When Beechcraft inspected the RB-226 before it was sold, the plane's alternate landing gear handle had a maximum pull-force—the force needed to deploy the landing gear—of 53.7 pounds. *Id.* at 2700. The Maintenance Manual for RB 226 specified a procedure for testing the handle and also stated that the maximum pull-force to pass inspection was 64 pounds. *Id.* at 2477. The alternate landing gear was due for an inspection at 600 flight hours, which had not yet been reached when the crash occurred. *Id.* at 4630. Beechcraft had never previously reported that a pilot was unable to lock the landing gear in place using the alternate landing gear on a Model 390. *Id.*

c. Manuals

The RB-226 was equipped with three manuals: an Airplane Flight Manual (“AFM”), a Pilot’s Operating Manual (“POM”), and a model-specific Maintenance Manual. App. at 2290, 2339, 2476. The FAA approved the AFM, which provided required information for piloting under federal requirements. *Id.* at 2339. *See* 14 C.F.R. Part 23. The AFM had a checklist to restart the engine when it shut down (“Engine Shutdown or Failure in Flight”) and also had a checklist for what to do when both electrical generators failed (“Dual Generator Failure”). App. at 2343, 2345.

d. Previous servicing

In 2009, Beechcraft issued Service Bulletin 24-3868, which required changes to the RB-226’s circuit breaker panel to fix the hydraulic shutoff valve. App. at 2244. Hawker performed this repair on the plane in this case using a kit (Kit No. 390-3622-0003) assembled by Beechcraft. *Id.* During the repair, Hawker had to remove and reattach a service wire from the circuit breaker on the pilot’s essential bus. *Id.* at 2428.

The kit required that a screw used to reattach the wire be tightened to six to nine pounds of torque.

The last scheduled inspection of the plane occurred in 2012. *Id.* at 2787.

3. The Flight

a. Generally

On March 17, 2013, Pilot Caves was flying the RB-226 from Tulsa, Oklahoma to South Bend, Indiana. Mr. Davis sat to his right in the front passenger seat. Mr. Rodgers and Mr. Evans were back-seat passengers. Mr. Davis had a pilot's license but was not licensed to fly jets. His last recorded flight had been in 2008. Pilot Caves was licensed to fly the plane and had passed federally mandated training for that purpose. App. at 3116.

b. Mr. Davis pilots

On their descent toward the South Bend airport, Mr. Caves allowed Mr. Davis to pilot the aircraft by operating the throttles. App. at 2309-2335. While Mr. Davis was at the helm, the aircraft's overspeed warning signal sounded twice, alerting the pilot to slow down. *Id.* at 2317, 2327. As recorded on the CVR, Mr. Caves directed Mr. Davis to pull back on the throttle to reduce the aircraft's speed and commented that Mr. Davis was inexperienced flying this type of aircraft. *Id.* at 2316-35. Mr. Davis responded that he was "uncomfortable" and hesitated about how to pull back the throttle. *Id.* at 2318.

Mr. Davis then pulled back on the throttle, but instead of only slowing the plane, he pulled the throttle lever into the "Cutoff" position, inadvertently shutting down both engines. *Id.* at 2334-35; *see also id.* at 1567, 1644. At this point, numerous systems in

the plane began to shut down and Mr. Caves said, “Uh-oh. . . . we are dead stick.” *Id.* at 2335.

c. The crash

The CVR eventually cut off because the plane was running on battery. Mr. Caves restarted one of the engines, but he did not reset the electrical generator associated with the engine, so the plane continued to operate on battery power. *Id.* at 4626. The parties dispute which of the checklists from the AFM for restarting the engines was the correct one to use in this emergency. They also dispute whether or not Mr. Caves followed either checklist. Various warning and caution lights flashed at intervals after initially blacking out. *Id.* at 2449-50.

Through communication with air traffic control in South Bend, Mr. Caves was able to pilot the plane to the airport. He attempted to land, but air traffic control waved him off because his main landing gear had not been extended. Instead, only the “nose” or the front landing gear had extended. A plane cannot safely land in this configuration. *Id.* at 2215.

Mr. Caves pulled the plane up, circled around the airport, and attempted a second landing. But again the main landing gear was not extended. *Id.* at 1567. It is unknown what Mr. Caves did to try to extend the landing gear between the first and second landing attempts. On the second landing attempt, the aircraft touched down on the runway and began to bounce. Mr. Caves tried to bring the plane back up into the air, at which point it entered a “nose low, rolling descent into a nearby residential community.” *Id.* at 2215 (National Transportation Safety Board report on the crash). Mr. Caves and Mr. Davis

died of blunt force injuries in the crash. Mr. Rodgers and Mr. Evans sustained injuries. *Id.* at 2221-22, 2227.

d. *The aftermath*

In the accident wreckage, the battery switch was found to be in “Standby” position. The parties dispute whether the impact of the crash affected the switch position. *App.* at 2221.

The handle for the alternate landing gear was found partially pulled out (an inch and a half) and bent toward the instrument panel. *Id.* It is unknown what pull-force Mr. Caves used when he pulled out the handle before the accident.

Chris Evans testified that at one point during the flight, the plane’s display screen went black and lights and indicators flashed in the cockpit. *Id.* at 3319-20.

e. *Information from a previous flight*

Two weeks before the crash, Rick Frie was a passenger on the RB-226 with Pilot Caves on a flight from Tulsa to Memphis. During a thunderstorm, Mr. Frie said that several displays on the plane flickered or blacked out. *App.* at 2637-2638.

* * * *

We will present additional factual background below as it pertains to each issue.

B. *Procedural Background*

1. *Complaint*

Plaintiffs sued Beechcraft and Hawker in 2015. Their products liability claims for manufacturing and design defects against Beechcraft and their negligence claims against Beechcraft and Hawker concern: (1) the plane’s electrical system; (2) the alternate

landing gear; and (3) the Premier 390's Airplane Flight Manual and certain repair kit instructions.

We summarize below the Plaintiffs' claims.

a. *Electrical system*

i. Manufacturing defect

Plaintiffs alleged that a manufacturing defect in the plane and in replacement part 390-3622-0003 caused electrical failures in the aircraft. They also alleged the first defect was present in 2008 upon initial sale of the plane and the second was present upon the plane's leaving Beechcraft's control (through its agent Hawker) after servicing in compliance with Bulletin RSB 24-3868. They asserted the electrical system was therefore defective and failed to provide the pilot with reliable control of engine power or the plane's instruments.

ii. Design defect

Plaintiffs alleged improper design of the plane's electrical system, making the aircraft unsafe and leading to Plaintiffs' injuries.⁷

iii. Negligence

Plaintiffs alleged that Beechcraft was negligent in its manufacture, inspection, and assembly of the plane's electrical system and in its lack of adequate supervision, training, and maintenance instructions for those involved in the repair and service of the electrical

⁷ Appellants also appear to allege a "failure to warn" products liability theory of defect in their appellate briefing, but this theory was not in the operative complaint and is distinct from their negligence claim based on failure to warn.

system. They also alleged Beechcraft was negligent in failing to warn owners, users, and servicers of defects. They finally alleged that Beechcraft was negligent through its agent, Hawker, for problems caused by the faulty in-warranty installation of the service kit in 2009.

Plaintiffs alleged that Hawker was negligent in creating flaws in the electrical system when it serviced the plane in 2009.

b. *Alternate landing gear*

i. Manufacturing defect

Plaintiffs alleged a manufacturing defect in the alternate landing gear, claiming that it did not comply with representations Beechcraft made to the FAA to obtain its “type certificate.” Second Am. Compl. at 6.⁸

ii. Design defect

Plaintiffs alleged defective design of the alternate landing gear extension system.⁹

⁸ “A type certification represents the FAA’s finding that, based upon the manufacturer’s representations to the FAA, a particular design ‘meets the regulations and minimum standards prescribed under’ the [Federal Aviation] Act.” *Aplt. App.* at 3753 (citing 49 U.S.C. § 44704(a)(1)). “Type certificates are required for all aircraft designs before those designs can be manufactured.” *Id.*

⁹ As with the electrical system, it appears Plaintiffs in their appellate briefing allege a failure-to-warn products liability defect with regard to the alternate landing gear, a theory not in the operative complaint, and distinct from a negligence claim based on failure to warn.

iii. Negligence

Plaintiffs alleged Beechcraft was negligent in its manufacture, inspection, and assembly of the alternate landing gear. They also appeared to allege that Beechcraft was negligent in its lack of adequate supervision, training, and communication of maintenance instructions to those involved in service of the alternate landing gear.¹⁰ Plaintiffs further alleged that Beechcraft negligently failed to warn owners, users, or servicers of alternate landing gear defects and negligently designed the alternate landing gear. Plaintiffs similarly alleged that Hawker was negligent in failing to inspect or assess the condition of the alternate landing gear.

c. *Aircraft flight manual and repair kit instructions*

i. Design defect

Plaintiffs alleged “improper design” of the Airplane Flight Manual based on insufficient guidance for restarting the electrical generators and for deploying the alternate landing gear in emergencies.¹¹ They also alleged that the repair kit instructions were defective because they prescribed a faulty method of repair.

ii. Negligence

Plaintiffs alleged that Beechcraft “negligently designed” the AFM, resulting in inadequate instructions to restart the generators and to deploy the alternate landing gear.

¹⁰ The operative complaint seems to allege that its failure-to-communicate-with-servicers claim applies both to the electrical system and the alternate landing gear.

¹¹ Plaintiffs seem to argue on appeal a failure-to-warn products liability claim regarding the flight manual, but this theory was not in the operative complaint.

Plaintiffs also allege that Beechcraft was negligent in its preparation of repair kit instructions.

* * * *

In light of the combination of parties, claims, and subjects of the claims, we provide the following chart summarizing the complaint:

		Electrical System	Alternate Landing Gear	Flight Manual and Repair Kit
CLAIMS	Manufacturing Defect	Beechcraft	Beechcraft	
	Design Defect	Beechcraft	Beechcraft	Beechcraft
	Negligence	Beechcraft Hawker	Beechcraft Hawker	Beechcraft Hawker

2. District Court Rulings on Expert Testimony

The Defendants moved to exclude the proposed testimony of the Plaintiffs’ four expert witnesses—John Bloomfield, Donald Sommer, Frank Graham, and Michael Haider. The motion was based on the expert reports produced in discovery and depositions of the experts. In response, the Plaintiffs submitted additional affidavits from each of their experts. The Defendants moved to exclude these supplemental affidavits. The district court referred the motions to a magistrate judge, who held a hearing and then prepared a report and recommendation (“R & R”) for each motion. App. at 3949-77, 3991. Both sides objected in part to the magistrate’s R & R.

Ruling on the motions, the district court limited the testimony of three of Plaintiffs' experts because they were not properly qualified or did not have an adequate basis for their opinions. It excluded the fourth expert altogether because he did not sufficiently prepare his expert report. The court struck the supplemental affidavits as either improper or untimely supplementation. *Rodgers v. Beechcraft Corp.*, No. 15-CV-0129-CVE-PJC, 2017 WL 465474, at *5 (N.D. Okla. Feb. 3, 2017) ("*Rodgers MIL*");¹² *Rodgers v. Beechcraft Corp.*, No. 15-CV-0129-CVE-PJC, 2017 WL 979100 at *7 (N.D. Okla. Mar. 14, 2017) ("*Rodgers Haider*").

3. District Court Ruling on Summary Judgment

The Defendants also moved for summary judgment. In light of the excluded expert evidence, the district court granted the motion, holding there was no genuine issue of material fact that would allow a reasonable jury to find in favor of the Plaintiffs on any of their theories of products liability or negligence.

II. DISCUSSION

The district court did not abuse its discretion when it limited Plaintiffs' expert evidence and refused to accept their supplemental affidavits. And given the exclusion of expert testimony, summary judgment was properly granted to the Defendants.

Plaintiffs - Appellants appeal the district court's orders (1) excluding the supplemental expert affidavits; (2) limiting or excluding expert testimony; and (3) granting summary judgment to Defendants.

¹² "MIL" stands for motion in limine.

A. *Limitation of Expert Testimony*

1. **Standard of Review**

We review for abuse of discretion the striking of a supplemental expert report. *See, e.g., Kemin Foods, L.C. v. Pigmentos Vegetales del Centro S.A. de C.V.*, 464 F.3d 1339, 1350 (Fed. Cir. 2006); *Henderson v. Nat’l R.R. Passenger Corp.*, 412 F. App’x 74, 80 (10th Cir. 2011) (unpublished) (striking of supplemental expert evidence as untimely reviewed for abuse of discretion).

When an appellant challenges a district court’s decision to exclude expert testimony, we review de novo whether the court performed its gatekeeping function and whether it used the proper legal standard. We review for abuse of discretion whether the court applied the standard correctly. *Gen. Elec. v. Joiner*, 522 U.S. 136, 141-42 (1997) (holding abuse of discretion is the standard to review district court rulings excluding expert evidence); *Norris v. Baxter Healthcare Corp.*, 397 F.3d 878, 883 (10th Cir. 2005); *Dodge v. Cotter Corp.*, 328 F.3d 1212, 1223 (10th Cir. 2003). The Appellants here do not question whether the district court exercised its gatekeeping function or used the proper legal standard, so our review is limited to whether the court abused its discretion in limiting their experts’ testimony. In that regard, we will find error only if the decision was “‘arbitrary, capricious, whimsical or manifestly unreasonable,’ or ‘we are convinced that the [tribunal] made a clear error of judgment or exceeded the bounds of permissible choice in the circumstances.’” *United States v. Nacchio*, 555 F.3d 1234, 1241 (10th Cir. 2009) (en banc) (quoting *Dodge*, 328 F.3d at 1223).

2. Legal Background

a. *Supplementation of expert testimony*

Federal Rule of Civil Procedure 26(a)(2)(B)(i) requires disclosure of an expert's report, which "must contain . . . a complete statement of all opinions the witness will express and the basis and reasons for them." Courts may set a time by which the parties must submit their expert reports. Fed. R. Civ. P. 26(a)(2)(D). "Rule 26(a) expert reports . . . are intended not only to identify the expert witness, but also 'to set forth the substance of the direct examination' . . . [and are] necessary to allow the opposing party 'a reasonable opportunity to prepare for effective cross examination and perhaps arrange for expert testimony from other witnesses.'" *Jacobsen v. Deseret Book Co.*, 287 F.3d 936, 953 (10th Cir. 2002) (quoting Fed. R. Civ. P. 26(a)(2) advisory committee's note to 1993 amendment).

Parties have a continuing obligation to supplement these reports "in a timely manner" if the parties later learn the information initially provided is incomplete or incorrect. Fed. R. Civ. P. 26(a)(2)(E) & 26(e). Supplementation must occur "by the time the party's pretrial disclosures under Rule 26(a)(3) are due." Fed. R. Civ. P. 26(e)(2).¹³ If, however, an expert disclosure is "intended solely to contradict or rebut evidence on the same subject matter identified by another party under Rule 26(a)(2)(B) or (C)," that

¹³ Rule 26(a)(3), in turn, specifies that "[u]nless the court orders otherwise, [pretrial] disclosures must be made at least 30 days before trial." Fed. R. Civ. P. 26(a)(3)(B).

disclosure is due within 30 days after the other party's disclosure. Fed. R. Civ. P. 26(a)(2)(D)(ii).

Under Federal Rule of Civil Procedure 37(c), a district court can allow evidence violating Rule 26(a), but only "if the violation is justified or harmless." *Jacobsen*, 287 F.3d at 952. "A district court need not make explicit findings concerning the existence of a substantial justification or the harmlessness of a failure." *Woodworker's Supply, Inc. v. Principal Mut. Life Ins. Co.*, 170 F.3d 985, 993 (10th Cir. 1999). In determining whether a Rule 26(a) violation was justified or harmless, courts weigh the following factors: "(1) the prejudice or surprise to the party against whom the testimony is offered; (2) the ability of the party to cure the prejudice; (3) the extent to which introducing such testimony would disrupt the trial; and (4) the moving party's bad faith or willfulness." *Id.* "The determination of whether a Rule 26(a) violation is justified or harmless is entrusted to the broad discretion of the district court." *Id.* (quoting *Mid-Am. Tablewares, Inc. v. Mogi Trading Co.*, 100 F.3d 1353, 1363 (7th Cir. 1996)).

Additionally, evaluation of supplemental expert testimony is subject to the same standards as the evaluation of expert testimony, which we describe below.

b. *Expert testimony*

Federal Rule of Evidence 702 states:

A witness who is qualified as an expert by knowledge, skill, experience, 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.

Fed. R. Evid. 702. Rule 702 imposes a gatekeeping function on district courts to ensure expert testimony is admitted only if (1) the expert is qualified and the testimony would be helpful to the trier of fact, (2) the testimony is based on sufficient facts or data, (3) it is further based on reliable principles and methods, and (4) the expert has reliably applied the principles and methods to the facts and data. *See Kumho Tire Co., v. Carmichael*, 526 U.S. 137, 141 (1999); *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 589, 597 (1993). The district court in this case relied on one or more of these grounds to limit the testimony of each of the Appellants' experts. We briefly review these requirements.

Qualified – The first step is to determine whether the expert is qualified to testify. *Bitler v. A.O. Smith Corp.*, 400 F.3d 1227, 1232-33 (10th Cir. 2005). District courts have broad discretion to determine whether a proposed expert may testify. *United States v. Nichols*, 169 F.3d 1255, 1265 (10th Cir. 1999). An expert must possess “such skill, experience or knowledge in that particular field as to make it appear that his opinion would rest on substantial foundation and would tend to aid the trier of fact in his search for truth.” *LifeWise Master Funding v. Telebank*, 374 F.3d 917, 928 (10th Cir. 2004) (quoting *Graham v. Wyeth Labs.*, 906 F.2d 1399, 1408 (10th Cir. 1990)). An expert who “possesses knowledge as to a general field” but “lacks specific knowledge does not necessarily assist the jury.” *City of Hobbs v. Hartford Fire Ins. Co.*, 162 F.3d 576, 587 (10th Cir. 1998).

Proposed expert testimony must therefore “fall within the reasonable confines of [the witness’s] expertise.” *Conroy v. Vilsack*, 707 F.3d 1163, 1169 (10th Cir. 2013) (quotations omitted). The proponent of expert testimony bears the burden of showing the expert is qualified. *Ralston v. Smith & Nephew Richards, Inc.*, 275 F.3d 965, 970 n.4 (10th Cir. 2001) (upholding the district court’s determination that a board-certified orthopedic surgeon was not qualified to testify about intramedullary nailing because she was not familiar with that surgical technique).

For example, in *Conroy*, the plaintiff alleging sex discrimination failed to show that her proposed expert had sufficient expertise in “the particular field of sex stereotyping” because she had not researched or published on the topic and because her business degree and human resource work did not provide the needed expertise. 707 F.3d at 1168-69 (quotations omitted). In *Milne v. USA Cycling, Inc.*, 575 F.3d 1120, 1133-34 (10th Cir. 2009), we held a proposed expert was not qualified to testify about organizing and supervising mountain biker races because his expertise was in paved road races. In *Kinser v. Gehl Co.*, we held that plaintiff’s expert, who had a bachelor’s degree in mechanical engineering and a doctorate in industrial engineering, was nonetheless not qualified to testify about alternate designs for a bay haler, an agricultural device, because he had “no practical experience in mechanical design.” 184 F.3d 1259, 1271 (10th Cir. 1999), *abrogated on other grounds by Weisgram v. Marley Co.*, 528 U.S. 440 (2000).

Sufficient facts or data – The Supreme Court’s decision in *General Electric v. Joiner* offers a good illustration of the requirement that expert testimony must be based on sufficient facts or data. The Court held that the district court did not abuse its

discretion in rejecting expert opinions that plaintiff's exposure to toxins caused his lung cancer because the opinions were based on animal studies that could not be extrapolated to humans. 522 U.S. at 144-46. Opinion evidence need not be admitted when it "is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered." *Id.* at 146.

Federal Rule 703 complements Rule 702(c). It provides that "facts or data in the case that the expert has been aware of or personally observed" may be the basis for the expert's opinion and need not be admissible "[i]f experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject." Fed. R. Evid. 703.

Reliable principles and methods reliably applied – The reliability determination calls for a "preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue." *Daubert*, 509 U.S. at 592-93. Although many factors may bear on whether expert testimony is based on sound methods and principles, the *Daubert* Court offered five non-exclusive considerations: whether the theory or technique has (1) been or can be tested, (2) been peer-reviewed, (3) a known or potential error rate, (4) standards controlling the technique's operation, and (5) been generally accepted by the scientific community. *See* 509 U.S. at 593-94. "[D]istrict courts applying *Daubert* have broad discretion to consider a variety of other factors."

Hollander v. Sandoz Pharm. Corp., 289 F.3d 1193, 1205 (10th Cir. 2002). As the Court said in *Kumho Tire*,

[W]e can neither rule out, nor rule in, for all cases and for all time the applicability of the factors mentioned in *Daubert*, nor can we now do so for subsets of cases categorized by category of expert or by kind of evidence. Too much depends on the particular circumstances of the particular case at issue.

526 U.S. at 150.

“The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate.” *Daubert*, 509 U.S. at 595. “The plaintiff need not prove that the expert is undisputably correct Instead, the plaintiff must show that the method employed by the expert in reaching the conclusion is scientifically sound and that the opinion is based on facts which sufficiently satisfy Rule 702’s reliability requirements.” *Mitchell v. Gencorp Inc.*, 165 F.3d 778, 781 (10th Cir. 1999); *see Bitler*, 400 F.3d at 1233. Even if the methodology is sound, reliability must also be assessed by the reasonableness of applying it to the facts and by the validity of how conclusions are drawn from the data. *See Kumho Tire*, 526 U.S. at 153-54; *Hendrix v. Evenflo Co.*, 609 F.3d 1183, 1195 (11th Cir. 2010).

3. Review of the District Court’s Rulings on Appellants’ Four Experts

a. Limitation of Mr. Bloomfield’s testimony

i. Additional background

Mr. Bloomfield has a degree in industrial and systems engineering from the Georgia Institute of Technology. He describes himself as an expert in “avionics, aircraft electrical systems, aircraft electrical distribution, avionics integration,” and “all

electro/mechanical systems and hydro/mechanical systems and sub-systems.” App. at 1842.

1) Original report and deposition

Mr. Bloomfield’s original Rule 26(a) report outlined his proposed testimony on defects in the plane’s electrical system and the alternate landing gear. Defendants also deposed Mr. Bloomfield about his proposed testimony. App. at 406-30.

a) Electrical System – loose screw and voltage problems

Mr. Bloomfield opined that a loose screw in the pilot’s essential bus caused intermittent electrical failure, which in turn damaged the plane’s electrical system from voltage spikes or variation. App. at 227-52, 410, 416, 418, 1851. He testified in his deposition that the screw came loose when Hawker negligently performed service on the plane by disconnecting the bus from the wrong end. *Id.* at 2430. He further testified that Hawker followed the repair kit’s defective instructions that were negligently written by Beechcraft. *Id.*

Mr. Bloomfield based his opinions partly on his examination of the aircraft wreckage and analysis of some of the plane’s electronic components that were removed from the plane in the days after the crash. *Id.* at 1851. He found a loose screw connecting a feed wire to the pilot-side electrical bus. *Id.* He thought there were overall tightness problems with screws connecting wires and bus bars to circuit breakers. *Id.* at 1870. He said that “because of that poor quality we had one come loose that was critical.” *Id.* at 3335; *see also id.* at 3337.

Mr. Bloomfield originally suggested in his report that the loose screw had been loose since manufacture and thus constituted a manufacturing defect. *Id.* at 410, 1892. He opined that this manufacturing defect resulted in electrical failures that “ultimately caused the crash.” *Id.* at 1844. He later changed his view to opine that Hawker negligently loosened the screw during its repair service when it followed the faulty service kit (which in turn referenced the aircraft’s Maintenance Manual). *Id.* at 410-11, 2429. He explained that problems with screws connecting wires and bus bars to circuit breakers make electric connections unreliable and intermittent. *See, e.g., id.* at 419, 1871. He said loose electrical connections cause voltage spikes, which in turn would damage the plane’s systems. *Id.* at 414, 1872, 1889. For example, with an electrical failure, indicators showing the pilot when landing gear was down and locked would not function, and electrical failure from the pilot side bus could drain the battery and indirectly cause the CVR to cut out. *Id.* at 422-23.

Mr. Bloomfield provided literature on voltage spikes but did not do his own testing regarding voltage spikes and variation. *Id.* at 281-315, 413-14. He stated in his deposition, “I don’t have evidence that there were voltage spikes, but I know a hundred percent that there were voltage spikes”; “I know they had to”; “I will guarantee you there are” *Id.* at 414. He did not, in his original report or deposition, offer an opinion on the adequacy of the plane’s voltage suppression (“surge protector”) system, *id.* at 414-15, and contended that a surge protector would not provide evidence of a voltage spike because it “doesn’t get damaged by the voltage spike.” *Id.* at 415.

b) Alternate landing gear – excessive pull-force and lack of an indicator

Mr. Bloomfield identified two defects in the alternate landing gear: (1) an excessive pull-force requirement in the handle, and (2) the lack of indicators showing when the alternate landing gear was properly deployed.

Mr. Bloomfield opined that the alternate landing gear's extension system was defectively designed because the force needed to pull the handle out manually was greater than the design specification. App. at 1883-84. He based this testimony on testing, described in more detail below, that he and Mr. Sommer conducted on the pull-force required to deploy the alternate landing gear in three other Beech "Model 390" planes. *Id.* at 1883. Mr. Bloomfield hypothesized that accumulation of debris in the wheel well caused the pull-force to become excessive in the alternate landing gear of the crashed plane. *Id.* at 1888. He did not provide evidence that debris had in fact accumulated in the RB-226's wheel well.

Mr. Bloomfield opined that indicators showing when the alternate landing gear is locked did not work during electrical failure, so a pilot could not know whether the gear was properly down. *Id.* at 1884. He also pointed to problems with the pull-handle for the alternate landing gear because the handle had no indication on it how far it should be pulled out. *Id.* at 1886. He proposed an alternate design method for the landing gear system to alert the pilot whether the landing gear was down and locked even in the case of an electrical failure. *Id.* at 1887. Mr. Bloomfield did not state whether his alternate

design is found elsewhere in the industry and did not opine as to the feasibility of such a design on the plane in question.

c) AFM

Mr. Bloomfield additionally contended that the AFM was defective for not adequately explaining how to use the pull-handle and deploy the alternate landing gear. App. at 1893.

2) Supplemental affidavit

In response to the Defendants' *Daubert* motions to exclude his testimony, Mr. Bloomfield prepared a supplemental affidavit reiterating some of his previous opinions, altering others, and adding new ones. App. at 2842-2955. He clarified that he would no longer testify that the loose screw he found had been loose at the time of the plane's manufacture. *Id.* at 2855-2857. He also opined that the plane's voltage suppressors were not equipped to handle the voltage spikes caused by the intermittent electrical distribution problems caused by loose screws. *Id.* at 2849. The supplemental affidavit also attempted to rebut various arguments made in Defendants' *Daubert* motion. Mr. Bloomfield's affidavit included a 96-page attachment of evidentiary materials. *Id.* at 2860-2955.

ii. District court rulings

1) Supplemental affidavit

The district court followed the magistrate judge's recommendation and excluded Mr. Bloomfield's supplemental affidavit, determining the affidavit was (a) improper supplementation and (b) untimely rebuttal.

a) Improper supplementation

The court determined that (1) “[t]o the extent that the affidavit simply restates Bloomfield’s opinions, the affidavit is essentially irrelevant and the Court will review Bloomfield’s expert report and deposition testimony in ruling on defendants’ *Daubert* motion”; and (2) “Bloomfield’s affidavit goes beyond simply re-packaging his original report[,] and he clearly states a new opinion as to the sufficiency of the aircraft’s voltage suppression system. In addition, he expands on his opinion as to the adequacy of the instructions for installation of a repair kit.” *Rodgers MIL*, 2017 WL 465474 at *5.

The district court found the supplemental affidavit unacceptable because Mr. Bloomfield “makes no attempt in his affidavit to show that he has learned of new evidence since the drafting of his original report that would render his original report incomplete or inaccurate.” *Id.*

b) Untimely rebuttal

The court additionally said that Mr. Bloomfield “is seeking to rebut arguments made in defendants’ *Daubert* motion, and he does not claim to be correcting any inaccuracy or omission in his original report.” *Id.* This rebuttal effort was out of time because, “[u]nder Fed. R. Civ. P. 26(2)(D)(ii), a rebuttal opinion must be provided within 30 days of the other party’s disclosure.” *Id.* Mr. Bloomfield’s supplemental affidavit attached and responded to a report from Robert Winn, one of the Defendants’ experts. *Id.* Because Mr. Winn’s report had been provided to plaintiffs on May 6, 2016, the latest a rebuttal to this disclosure could have been filed was June 5, 2016. Mr. Bloomfield’s affidavit was not filed until July of 2016. *Id.*

2) Limiting testimony – electrical system

The magistrate judge recommended that Defendants' motion to exclude Mr. Bloomfield's testimony should be granted in part and denied in part. The R & R recommended that, because he did no testing or calculations, Mr. Bloomfield should be prohibited from opining that a loose electrical connection caused voltage spikes and an intermittent electrical supply. The district court agreed. *Rodgers MIL*, 2017 WL 465474 at *4. It reasoned that Mr. Bloomfield did not follow a reliable methodology as required under Rule 702 and *Daubert*. He did not do his own testing, nor did he describe established scientific principles in his original report.

Plaintiffs argued that there was circumstantial evidence to support Mr. Bloomberg's opinions in that two passengers from different times, Mr. Evans on the accident flight and Mr. Frie on an earlier flight, had observed electrical malfunctions in the plane's systems. But the court rejected this argument because Mr. Bloomfield did not mention these observations in his report or deposition testimony.

The district court refused to exclude that Mr. Bloomfield found a loose screw in the wreckage, finding an adequate factual basis for this testimony. The court noted, however, that the loose screw evidence might have a relevance problem because Mr. Bloomfield could not opine that it caused voltage changes or electrical failures on the plane. *Id.* at *7.

3) Limiting testimony – alternate landing gear

The magistrate judge recommended excluding Mr. Bloomfield's testimony that defects in the plane's alternate landing gear caused the accident because Mr. Bloomfield

lacked relevant experience in aircraft design and because he offered no evidence there was debris in the wheel well.

The district court agreed. It explained that Mr. Bloomfield had no relevant experience and that he had not tested the alleged improvement he had proposed. As to debris in the wheel well increasing the pull-force, the court said Mr. Bloomfield could not testify to a hypothetical cause unsupported by evidence. *Id.* at *7.

4) Limiting testimony – AFM

The magistrate judge recommended excluding Mr. Bloomfield’s testimony concerning deficiencies with the AFM’s instructions on how to use the alternate landing gear. The R & R cited Mr. Bloomfield’s lack of experience flying jets like the RB-226, his admission at his deposition that he was not a “piloting expert”, and his lack of experience in drafting instruction manuals. *Id.* at *7. The district court agreed and excluded Mr. Bloomfield’s testimony on the manual’s alleged defects. App. at 4514.

iii. Analysis

1) Supplemental affidavit

The district court did not abuse its discretion when it refused to consider Mr. Bloomfield’s supplemental affidavit.

Appellants argue that the district court abused its discretion when it struck Mr. Bloomfield’s supplemental affidavit. They maintain that (1) the affidavit emphasized what had already been presented in the previous report; and (2) any further elaboration was in rebuttal to the Appellees’ motion to exclude expert evidence. Aplt. Br. at 5 (“The affidavits highlighted the relevant opinions that were previously disclosed, and further

explained the basis for these opinions in response to challenges by Defendants that there were gaps in the expert’s chain of reasoning.”). On the rebuttal point, Appellants further argue that the district court did not properly interpret Federal Rule of Civil Procedure 26(a)(2)(D)(ii). They contend that the pretrial disclosure deadline of September 12, 2016, should be seen as a “court order” that overrode Rule 26’s 30-day rebuttal deadline (“Absent a stipulation or court order, the disclosures must be made . . . within 30 days after the other party’s disclosures”), and the supplemental affidavits were submitted before that date. *Id.* at 6. We reject both arguments.

a) Improper supplementation

Highlighting previous testimony is not proper supplementation under Rule 26(e). Appellants do not cite legal support to permit this type of supplementation. Rule 26(e) states that a party “must supplement or correct its disclosure . . . in a timely manner if the party learns that in some material respect the disclosure or response is incomplete or incorrect, and if the additional or corrective information has not otherwise been made known to the other parties during the discovery process or in writing.” Fed. R. Civ. P. 26(e)(1)(A). Highlighting parts of previously disclosed opinions does not serve any of these purposes. *See Minebea Co. v. Pabst*, 231 F.R.D. 3, 6 (D.D.C. 2005) (“[Rule 26(e)] permits supplemental reports only for the narrow purpose of correcting inaccuracies or adding information that was not available at the time of the initial report.”) (quotations omitted); *Richardson v. Korson*, 905 F. Supp. 2d 193, 199 (D.D.C. 2012) (“[Rule 26(e)] does not grant a license to supplement a previously filed expert report because a party wants to.” (quotations omitted)); *see also S.E.C. v. Nacchio*, No. 05-cv-00480-MSK-

CBS, 2008 WL 4587240, at *3 n.3 (D. Colo. Oct. 15, 2008) (“To construe supplementation to apply whenever a party wants to bolster or submit additional expert opinions would [wreak] havoc in docket control and amount to unlimited expert opinion preparation.”). Previously proposed opinions should stand on their own and do not need further emphasis.

Furthermore, Mr. Bloomfield’s affidavit did not simply emphasize or highlight previous opinions but instead attempted to add new opinions. The affidavit added a novel argument about the plane’s voltage suppressors. It also attached 96 pages of evidentiary materials. On appeal, Appellants do not adequately explain why Mr. Bloomfield could not have made these arguments or included these materials in his original report. Their general contention that his theories evolved as he gained access to more information is insufficient without pointing to specific information that he did not possess when he prepared the initial report. Rather than adding to an “incomplete” report, he added a new theory that could have been included earlier.

b) Untimely rebuttal

Appellants’ argument concerning rebuttal lacks merit. They concede that at least part of Mr. Bloomfield’s supplemental affidavit was “in response to challenges by Defendants.” Aplt. Br. at 5. The affidavit attaches a report from defense expert Mr. Winn that was provided to Plaintiffs on May 6, 2016. Appellants do not contest the district court’s ruling that the response to Mr. Winn constitutes rebuttal. They filed Mr. Bloomfield’s supplemental affidavit in July 2016.

Under Federal Rule of Civil Procedure 26(a)(2)(D), Plaintiffs had 30 days to respond to Mr. Winn’s supplemental report “[a]bsent a stipulation or a court order.” The district court’s general pretrial disclosure deadline of September 12, 2016, in its Amended Scheduling Order, App. at 1361, did not qualify as a “court order” overriding the 30-day window to rebut Defendant’s disclosure. Instead, courts analyze what a scheduling (or “case management”) order on disclosures says (or does not say) about rebuttal testimony to find a relevant “court order” for Rule 26(a)(2)(D) purposes. If nothing in the scheduling or case management order speaks to rebuttal, then 26(a)(2)(D)’s 30-day rule applies.¹⁴ Accordingly, the 30-day rule applied to Mr. Bloomfield’s rebuttal in his supplemental affidavit, and it was untimely, coming over 30 days after May 6, 2016.

The district court had the discretion to allow an untimely affidavit if doing so would not prejudice or harm the Defendants and if the Plaintiffs were acting in good faith. *Jacobsen*, 287 F.3d at 953. Appellants do not explain why the acceptance of Mr. Bloomfield’s supplement would not prejudice or harm the Defendants. The district court

¹⁴ See, e.g., *Teledyne Instruments, Inc. v. Cairns*, No. 6:12-CV-854-ORL-28, 2013 WL 5781274, at *17 (M.D. Fla. Oct. 25, 2013) (“The [Case Management Order’s] failure to set a deadline for the disclosure of rebuttal expert witness reports does not mean that rebuttal expert witness reports are not permitted. It simply means that rebuttal expert witness reports must be submitted within the period set forth in Rule 26(a)(2)(D)(ii). This is the prevailing rule in [the Eleventh] [C]ircuit and throughout the country.” (citation omitted)) (collecting cases); *Lincoln Elec. Co. v. Travelers Cas. & Sur. Co.*, No. 1:11CV2253, 2013 WL 12131876, at *1 (N.D. Ohio June 26, 2013) (“It appears that courts in [the Sixth] Circuit have uniformly concluded that when, as here, a scheduling order does not address rebuttal reports, Rule 26(a)(2)(D)’s 30-day rule applies.”).

did not abuse its discretion by concluding that the affidavits would be prejudicial to the Defendants.

2) Limitation of Mr. Bloomfield's testimony

The district court did not abuse its discretion when it limited Mr. Bloomfield's testimony.

a) Electrical system

First, Appellants argue that Mr. Bloomfield should be allowed to testify about a link between the loose screw and the intermittent electricity outages because he addressed the underlying scientific principles in his report and deposition. Aplt. Br. 12-13 (citing App. 247-50, 281-327). They concede Mr. Bloomfield did not test electrical system failures or voltage fluctuations but argue that experts do not need to test to re-prove established principles. *Id.*

Second, Appellants argue the district court erred when it ignored Mr. Frie's and Mr. Evans's observations of flickering panels on the plane. They contend that, contrary to the district court's understanding, Mr. Bloomfield discussed Mr. Evans's eyewitness testimony of lights flickering in his report, and he "reviewed" all NTSB materials, including Mr. Evans's witness statement. And although Mr. Frie was deposed after Mr. Bloomfield's report and deposition, Mr. Bloomfield was "aware of [Mr. Frie's] experience in the aircraft." *Id.* at 13. Appellants allege that the district court did not read Mr. Bloomfield's "entire deposition." *Id.*

Neither of these arguments shows that the district court abused its discretion.

b) Sufficient facts and reliable methods

Appellants are correct that testing is not always required to establish a factual basis for an expert opinion.¹⁵ But an expert must still show under Rule 702 that his opinion is based on sufficient facts or data and on reliable principles and methods. The district court has wide discretion to determine whether these standards have been satisfied. *Goebel v. Denver & Rio Grande W.R.R. Co.*, 346 F.3d 987, 990 (10th Cir. 2003) (“The trial court’s broad discretion applies both in deciding how to assess an expert’s reliability, including what procedures to utilize in making that assessment, as well as in making the ultimate determination of reliability.”). The court’s analysis here was not arbitrary or capricious or manifestly unreasonable. *See Nacchio*, 555 F.3d at 1241. It correctly pointed out that Mr. Bloomfield did not use established scientific principles to link the electric intermittency and voltage spikes to the facts of this case.

¹⁵ See, for instance, our discussion of the relative necessity of testing in expert testimony in *Bitler*, 400 F.3d at 1235-36:

When an expert proposes a theory that modifies otherwise well-established knowledge about regularly occurring phenomenon, such as the normal ignition temperature of wood, we would expect the importance of testing as a factor in determining reliability to be at its highest. Here, by contrast, plaintiffs’ experts propose a theory about how the accident occurred given the known science of copper sulfide particulate contamination as a cause of propane gas leaks. What distinguishes the present case is that the need for testing is not at its highest because the reliability of the science of copper sulfide contamination is not in dispute, and thus the district court did not abuse its discretion in finding that the presence of a screen did not alter the reliability of the fundamental science.

Having examined Mr. Bloomfield's report and his deposition, we conclude the district court did not abuse its discretion by excluding Mr. Bloomfield's testimony under Rule 702.

Despite Mr. Bloomfield's observations of the wire connected to the loose screw¹⁶ and other nearby components of the loose connection,¹⁷ his thermal study of the type of putty found on the head of the screw,¹⁸ and his random testing of the torque of other screws from the wreckage,¹⁹ the district court determined in its gatekeeper role that he nonetheless failed to develop sufficient facts or data, or establish that he applied a reliable methodology, to support his theory of electric intermittency and voltage surges, and that

¹⁶ In Mr. Bloomfield's report, he said that the color of the "feed wire"—which the loose screw connected to the essential bus—was "blue/purple," "the classic sign of continuous overheating." App. at 1851.

¹⁷ Mr. Bloomfield pointed to darkening in a nearby circuit breaker shell enclosure as evidence that the loose screw connection was generating heat. App. at 1856. He additionally reported that his examination of marks on a lock washer from the aircraft versus those on an exemplar washer was further evidence of a loose connection. *Id.* at 1859. Mr. Bloomfield also noted that breakers and buses throughout the aircraft were inconsistent in their use of washers or of specific screw and washer types. *Id.* at 820.

¹⁸ Mr. Bloomfield observed "charcoalized torque putty" on the head of the connector screw, and said it showed heat exposure caused by the loose electrical connection. App. at 1855 (quotations omitted). He opined further that the loose screw connection generated heat that traveled across a copper bus bar, heating other screw heads and changing their putty's color. *Id.* at 1856. In support of his torque putty claims, he presented a "thermal study" in which he exposed torque putty to various temperatures and durations to show how the putty changed color under such conditions. *Id.* at 1858.

¹⁹ Mr. Bloomfield randomly tested the torque of 14 screws from the wreckage connecting wires and bus bars to circuit breakers and found that half of them were tightened to less than "factory specification[]" of 6 to 9 inch pounds. App. at 1870.

he failed to show how the technical articles he cited applied to the accident in this case. We discern no abuse of discretion in the district court's analysis.

Mr. Bloomfield's theory of electric intermittency was that the loose connection of the service/feed wire for the essential bus on the pilot side circuit breaker, combined with the intense vibration of the plane, caused "downstream electrical problems" affecting "all the systems, devices and apparatuses that depend on electrical power from the service/feed." App. at 1871. The plane's vibrations and the loose connection caused such rapid intermittencies of power ("several hundred times a second") that voltage spikes of 40 to 100 volts could have occurred. *Id.* at 1873. Once the spikes occurred, "[t]he entire electrical system of the aircraft and all the electrical systems, devices and apparatuses now 'see' and experience erratic voltages surge[sic] through the system causing functional unreliability." *Id.*

According to the district court, Mr. Bloomfield was unable to show that his visual inspection of discolorations in the feed wire, torque putty, and circuit breaker, and his associated tests of temperature and torque putty constituted a reliable methodology under Rule 702. Given the "analytical gap" the district court found between Mr. Bloomfield's opinions and a scientifically reliable foundation for them, it did not abuse its discretion in excluding the testimony. *See Gen. Elec.*, 522 U.S. at 146 (A court does not abuse its discretion when it excludes an expert opinion "connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered.").

c) Flickering panel observations

Appellants complain that the district court did not consider Mr. Bloomfield's reliance on Mr. Frie's and Mr. Evans's observation of flickering panels on the aircraft. But the court was correct that Mr. Bloomfield did not cite this information in his report as evidence of electrical intermittency. The original report's brief mention of Mr. Evans's observation about light-flickering concerned whether the battery switch was in the "On" as opposed to "Standby" position and was not used to address intermittency. App. at 255-56.

Appellants cite a brief snippet of Mr. Bloomfield's deposition to argue that he was "aware" of Mr. Frie's observation of panel lights blinking on and off during turbulence on an earlier flight, Aplt. Br. at 13, but this excerpt was not part of the district court record and, again, was not cited in Mr. Bloomfield's report. Even if the excerpt from the deposition had been before the district court, it would not help the Appellants. Mr. Bloomfield said he heard about Mr. Frie's testimony only second-hand from Plaintiffs' counsel, and he could not name any panel light that reportedly blinked on Mr. Frie's previous flight. App. at 2434. He simply argued that "none of them are supposed to blink on and off, none of them. And the fact they did, fits into the fact that this connection was loose at that time" *Id.*

Finally, Appellants fail to show how this information could serve as a reliable basis for Mr. Bloomfield's opinions, an essential prerequisite under Rule 702.

iv. Alternate landing gear

Appellants argue that Mr. Bloomfield should be allowed to testify about a design defect in the alternate landing gear because he “is trained and experienced in electromechanical systems engineering” and, given the straightforward nature of the gear’s manual handle, “there was nothing unique about the Premier [alternate landing gear] system to take it outside the realm of Bloomfield’s experience in electromechanical systems engineering.” Aplt. Br. at 14-15. Appellants also claim the district court abused its discretion when it cited Mr. Bloomfield’s lack of experience in alternate design. His “personal knowledge and experience qualify him to render opinions on the [alternate landing gear] system” and “[p]laintiffs are not required to prove alternate designs.” *Id.* at 15.

The district court did not abuse its discretion in excluding Mr. Bloomfield’s testimony on a design defect in the alternate landing gear. Even if Mr. Bloomfield “is trained and experienced in electromechanical systems engineering,” *Id.* at 14, and even if the alternate landing gear is not particularly advanced from an engineering standpoint, *id.*, Mr. Bloomfield has never designed landing gear. The district court acted within its discretion to find that lack of experience disqualified Mr. Bloomfield as an expert on the issue. *See, e.g., Alfred v. Caterpillar, Inc.*, 262 F.3d 1083, 1088 (10th Cir. 2001) (holding it was not an abuse of discretion for a district court to exclude an expert’s testimony evaluating a paver if he had never evaluated a paver prior to the litigation).

v. AFM

As to the district court's exclusion of Mr. Bloomfield's testimony on the AFM, the Appellants merely note disagreement: "This was error, but the court agreed that Sommer can testify to this defect." Aplt. Br. at 15. Even if Appellants had fully argued the point in their briefing, they would fail. For the same reasons described above regarding the alternate landing gear, the district court did not abuse its discretion in excluding Mr. Bloomfield's testimony on the alleged defect in the AFM given that he had never drafted an aircraft instruction manual. *See Alfred*, 262 F.3d at 1088.

b. *Limitation of Mr. Sommer's testimony*²⁰

i. Additional background

Donald Sommer graduated from the University of Michigan with a B.S. in Engineering. App. at 826. He completed graduate work in instrumentation and testing systems. *Id.* The FAA has certified him as an airline transport pilot, commercial pilot, flight instructor, ground instructor, and mechanic. *Id.* He has logged more than 16,000 hours of flight time. *Id.* at 827. He is currently the president and owner of Aeroscope, Inc., which performs accident reconstruction and analysis following plane crashes. *Id.* at 826. Mr. Sommer is a member of the Aircraft Owners and Pilots Association; the International Society of Air Safety Investigators; the Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Landscape Architects; and the

²⁰ Plaintiffs used two Mr. Sommers as experts, App. at 791, 831, but only Donald Sommer's proposed testimony is at issue here.

National Association of Flight Instructors. *Id.* at 827. His resume states that he specializes in “aircraft accident reconstruction[,] in-flight and stationary instrumentation systems and testing[,] mechanical and hydraulic systems[,] aircraft performance[,] aircraft and engine design and operation [,] failure analysis[,] interpretation of FAA regulations[,] pilot reactions[,] and pilot training.” *Id.* at 828 (capitalization altered).

1) Original report and deposition

Mr. Sommer’s expert report and deposition testimony overlapped with Mr. Bloomfield’s. *See, e.g.*, App. at 819-21 (summarizing Mr. Bloomfield’s findings with regard to the electrical system). Mr. Sommer stated in his report, citing to Mr. Bloomfield, that defects in the plane’s electrical distribution system led to overheating and interruption of critical aircraft systems. *Id.* at 823-24, 819-21; *see also id.* at 854 (deposition stating he does not disagree with Mr. Bloomfield on anything). He further opined that a design defect in the alternate landing gear prevented it from properly deploying during Mr. Caves’s attempted landing. *Id.* at 823-24. He contended that Beechcraft failed to warn pilots of the significant pull-force required to operate the alternate landing gear and that Hawker failed to fix the problem. *Id.* at 824.

Mr. Sommer also claimed Beechcraft and Hawker were negligent in failing to diagnose and repair alleged defects in the plane’s electrical system and alternate landing gear, arguing that the defects existed since the time of manufacture and “each time it left Beechcraft’s control during warranty work.” *Id.* He criticized the flight manual in his deposition, opining that the AFM should indicate how far to pull the lever to deploy the landing gear, or “there should be a marker on the handle that tells you how far you have

to pull it.” *Id.* at 875. Finally, Mr. Sommer commented on Mr. Caves’s licensing and training and opined that he acted as a “prudent and reasonable pilot” under the circumstances. *Id.* at 823.

Mr. Sommer based his opinions on his examination of the aircraft wreckage, *id.* at 802, 855, previous maintenance history, *id.* at 816, listening to the CVR, *id.* at 861, reviewing witness statements, and testing the alternate landing gear with Mr. Bloomfield on other Model 390 planes. *Id.* at 825.

Mr. Sommer’s pull-testing, conducted with Mr. Bloomfield and others, measured the force necessary to deploy the alternate landing gear on three exemplar Model 390 aircraft. *Id.* at 821. He reported that substantially more force was required to lock each alternate landing gear than the Maintenance Manual described, which is 64 lbs. *Id.* In exemplar aircraft one, the measured pull-force to deploy the landing gear was 120 lbs.; for exemplar two, 100 lbs.; and for exemplar three, 118 lbs. *Id.* He said that their testing followed International Civil Aviation Organization guidelines and was consistent with the United States Air Force Guide to Mishap Investigation, the United States Navy Handbook for Aircraft Accident Investigation, the NTSB Major Investigation Manual, the Transport Safety Board of Canada Investigations Manual, and the University of Southern California Manual of Aircraft Accident Investigation. *Id.* at 822-23.

2) Supplemental affidavit

Following the Defendants' *Daubert* motion to exclude Mr. Sommer's report, he prepared a supplemental affidavit. It discussed the landing gear issues in considerably greater depth than his original report, including the testing described above and further testing on an exemplar "T" handle to argue for the accuracy and repeatability of his previous pull mechanism findings. App. at 3046. In the new report, Mr. Sommer claimed that he is qualified to offer an opinion on alternate product design based on his background. He also said he was qualified to opine on the adequacy of the AFM (which he had referenced in the original report but had not critiqued). *Id.* at 3000-3023.

ii. District court rulings

1) Supplemental affidavit

The magistrate judge recommended to the district court that Mr. Sommer's supplemental affidavit be excluded under Federal Rule of Civil Procedure 26. The district court agreed, stating there was no viable basis for accepting the report. *Rodgers MIL*, 2017 WL 465474 at *8-*11. If the supplemental affidavit simply restated previous information from the original report, it was not needed. If it went into further depth than the original report or discussed new testing, the Plaintiffs showed no reason why that information could not have been included in the original report. And if it attempted to refute Defendants' *Daubert* motion, that was not an appropriate reason to supplement expert disclosures. *Id.* at *9.

2) Limiting testimony – alternate landing gear²¹

The magistrate judge recommended that Mr. Sommer’s testimony on alternate landing gear design defects should be excluded, and the district court agreed based on lack of qualifications. *Rodgers MIL*, 2017 WL 465474 at *9. It explained that Mr. Sommer has no aircraft design experience and that he works primarily as a consultant offering litigation opinions to plaintiffs in plane crash cases. His expert report did not explain how he applied his knowledge of engineering principles to the case at hand. The district court said, “Sommer simply conducted testing to establish the pull force necessary to lock the alternate landing gear in exemplar aircraft, but he did not conduct any analysis to identi[f]y a specific design defect in the alternate landing gear” *Id.*

3) Allowing testimony – flight manual

The magistrate judge recommended that Mr. Sommer’s proposed testimony on the AFM’s inadequacy regarding the alternate landing gear should be allowed, and the district court agreed. It stated that Mr. Sommer disclosed his opinions on the AFM during his deposition, and Defendants thus had an opportunity to cross-examine Mr.

²¹ Although Mr. Sommer offered an opinion on the aircraft’s electrical system malfunctions in his expert report, he stated in his deposition that any opinion he had on the electrical system was based on Mr. Bloomfield’s analysis and conclusions. He therefore consistently deferred to Mr. Bloomfield on the topic. *See, e.g.*, App. at 855 (questions about Hawker servicing and removing the supply wire “not my charge”); *id.* at 862 (“I didn’t do an electrical load analysis. That was [Mr.] Bloomfield’s job.”); *id.* at 864 (relationship between previous servicing on the aircraft and electrical systems problems was “a Bloomfield issue”); *id.* at 868 (questions about arcing and torque putty melting are questions for Mr. Bloomfield). The district court did not comment upon Mr. Sommer’s electrical opinion in its order, and Appellants do not appeal its omission. We therefore need not address it here.

Sommer on the issue. It limited the scope of Mr. Sommer’s testimony on the AFM to what he said in his deposition. *Id.* at *10.

4) Allowing testimony – pull-force testing

The magistrate judge recommended that Mr. Sommer be allowed to testify about his and Mr. Bloomfield’s pull-force testing, and the district court agreed. Even though Defendants contended that Mr. Sommer and Mr. Bloomfield did not conduct a proper test in accordance with the Maintenance Manual, the court said that point goes to the weight rather than the admissibility of the pull-force testing evidence. The court said Mr. Sommer established an acceptable factual foundation for the reliability of his methodology. *Rodgers MIL*, 2017 WL 465474 at *10.

5) Limiting testimony - Mr. Caves’s piloting

The magistrate judge recommended excluding Mr. Sommer’s opinion on Mr. Caves’s piloting. The district court held that Mr. Sommer could testify about Mr. Caves’s licensing and certification qualifications but could not offer any assessment of Mr. Caves’s piloting in general or during the flight leading to the accident. According to the court, Mr. Sommer ignored significant evidence that conflicted with his opinion—namely, that “[Mr.] Caves allowed a non-pilot to operate the aircraft and that [Mr.] Caves had problems in his training with ‘switchology’ and following checklists”—and did minimal investigation into Mr. Caves’s actual training, history, and possible errors. *Id.* at *10.

iii. Analysis

1) Supplemental affidavit

The district court did not abuse its discretion in refusing to accept Mr. Sommer's supplemental affidavit. Mr. Sommer's affidavit elaborated on landing gear issues from his previous report; claimed that he was qualified to offer opinions on the product design alternatives and the flight manual based on his training; and described further testing done on the T-handle of an exemplar to confirm his previous alternate landing gear pull-testing results.

The district court did not abuse its discretion when it rejected the supplemental affidavit on the bases that Appellants did not explain why any of the information could not have been included in Mr. Sommer's original report; the supplement introduced new arguments and material; and the supplemental report's new arguments did not fill a gap or a previously incomplete claim or discussion in the original report. The district court still had discretion to allow the supplement, but it did not abuse its discretion by excluding it. Appellants do not explain how allowing the supplemental affidavit would not have harmed or prejudiced the Defendants.

2) Limiting Mr. Sommer's testimony

The district court did not abuse its discretion in limiting the testimony of Mr. Sommer.

a) Alternate landing gear

Appellants argue the district court should have allowed Mr. Sommer to testify about a design defect in the plane's alternate landing gear. Aplt. Br. at 16-17. They

contend the court “misappli[ed] Oklahoma law, which follows the consumer expectation test to determine if products are defective.” *Id.* at 16. And Mr. Sommer, having flown 16,000 hours, is the consummate “consumer” of Beechcraft’s plane, and “certainly has the experience to offer opinions on this topic.” *Id.*

Appellants also argue that Mr. Sommer’s pull-force testing showed that the alternate landing gear was unreasonably dangerous because it showed the Model 390 alternate landing gear required unexpectedly large pull-force. Because this testing pointed to a design flaw, Appellants contend, Mr. Sommer should be allowed to testify as to a design defect and need not, contrary to the district court’s ruling, identify a precise flaw in the alternate landing gear. *Id.* at 16-17.

Appellants’ argument that Mr. Sommer qualifies as an expert on a design defect in the alternate landing gear because he is an experienced “consumer” of the “product” misses the mark. The “consumer expectation test” is used to determine dangerousness in the products liability context, not to establish an expert’s credentials on a design defect in a consumer product. *See, e.g., Gaines-Tabb v. ICI Explosives, USA, Inc.*, 160 F.3d 613, 624 (10th Cir. 1998) (“[o]nly when a defect in the product renders it less safe than expected by the ordinary consumer will the manufacturer be held responsible.” (quoting *Lamke v. Futorian Corp.*, 709 P.2d 684, 686 (Okla. 1985)) (applying Oklahoma law)).

The district court did not abuse its discretion in excluding Mr. Sommer from testifying that the pull-force testing supported a design flaw opinion because there was no evidence that abnormal pull-force was present in the plane that crashed. Mr. Sommer’s pull-force testing itself, which has not been excluded, permits the inference that the

alternate landing gears on Beechcraft's Model 390 planes need a pull-force in excess of the 64 lbs. specified by the Maintenance Manual. But that evidence does not show a specific design flaw. *See, e.g., Burton v. R.J. Reynolds Tobacco Co.*, 181 F. Supp. 2d 1256, 1261 (D. Kan. 2002) (“[T]here must be a specific claim concerning what aspect of the design was defective for a plaintiff to prevail on a strict liability design defect claim.” (quotations omitted)) (analyzing Kansas law).

As the district court noted, the Plaintiffs relied on the testing of other models to infer there was a “flaw” in the aircraft that crashed: “Sommer simply conducted testing to establish the pull-force necessary to lock the alternate landing gear in exemplar aircraft, but he did not conduct any analysis to identi[f]y a specific design defect in the alternate landing gear in the subject aircraft, and there is no analysis in his report that would support the existence of a design defect.” *Rodgers MIL*, 2017 WL 465474, at *9. Moreover, in each of Mr. Sommer's tests, the alternate landing gear deployed, App. at 821-22. The district court acted within its discretion to limit the testimony.

b) Mr. Caves's piloting

Appellants argue that Mr. Sommer should be allowed to testify as to Mr. Caves's piloting performance. They contend, “[U]nder Oklahoma law, there is a presumption that the product user would heed a proper and adequate warning. This principle, in conjunction with the known defects in the aircraft (the ALG, AFM, and electrical system), lead to the reasonable inference that Caves took the necessary steps as trained, but was unable to safely land due to defects in the aircraft.” Aplt. Br. at 17-18 (citation

omitted). Mr. Sommer should have been able to “reason[] to the best inference” in this manner. *Id.* at 18.

The district court did not abuse its discretion in excluding Mr. Sommer’s testimony on Mr. Caves’s piloting ability. It found that Mr. Sommer ignored significant contrary evidence on Mr. Caves’s conduct and abilities, such as his decision to allow Mr. Davis to take over the controls and evidence from Mr. Caves’s training that he had problems with “switchology” and following checklists. *Rodgers MIL*, 2017 WL 465474, at *10. *See, e.g., Norris*, 397 F.3d at 884 (district court did not abuse gatekeeping role when it found expert “completely ignored or discounted without explanation . . . many epidemiological studies” reaching an opposite conclusion from expert’s proffered opinion).

The court also said Mr. Sommer’s evaluation of Mr. Caves was based on superficial research. Indeed, in reaching his opinion that Mr. Caves was “trained, qualified, experienced and capable of performing the subject mission,” Mr. Sommer did not conduct independent research into Mr. Caves’s training or speak with anyone who trained him. App. at 858-59. The court did not abuse its discretion by excluding testimony on this subject. *See, e.g., Alfred*, 262 F.3d at 1086 (no abuse of discretion for district court to exclude testimony because it was, among other things, “backed by very little work.” (quotation omitted)).

Appellants’ argument that Mr. Sommer should be allowed to “reason[] to the best inference” on Mr. Caves’s piloting performance is not persuasive. The argument is that Mr. Sommer could draw a “reasonable inference” that the pilot “took the necessary steps

as trained, but was unable to safely land due to defects in the aircraft.” Aplt. Br. at 17-18. But this approach is not based on “scientific, technical, or otherwise specialized knowledge”; would not “help the trier of fact to understand the evidence or to determine a fact in issue;” is not “based on “sufficient facts or data”; and is not “the product of reliable principle and methods.” Fed. R. Evid. 702.

c. Limitation of Mr. Graham’s testimony

Appellants do not make a specific argument against the exclusion of Mr. Graham’s supplemental affidavit or against the limitation of Mr. Graham’s testimony. They instead refer this court to their “previously submitted briefs,” i.e., those submitted to the district court. Aplt. Br. at 18. Their arguments about Mr. Graham are inadequately briefed and thus waived. *See* Tenth Circuit Rule 28.3 (“Incorporating by reference portions of [district] court or agency briefs or pleadings is disapproved and does not satisfy the requirements of Fed. R. App. P. 28(a) and (b).”); *United States v. Patterson*, 713 F.3d 1237, 1250 (10th Cir. 2013).

d. Limitation of Mr. Haider’s testimony

i. Additional background

Mr. Haider earned his B.S. in aerospace engineering from the United States Military Academy at West Point and a master’s degree from Webster University. App. at 1085, 4314. He is a graduate of the U.S. Naval Test Pilot School and has logged nearly 7,000 hours of flight time, including experience with the 390 model. *Rodgers Haider*, 2017 WL 979100, at *3.

1) Original report

Mr. Haider proposed in his report and at his deposition to testify generally about Mr. Caves's training and Beechcraft's failure to warn about defects in the plane. He opined that Mr. Caves used an acceptable method of pilot training to get certified on the Model 390 and that Mr. Caves would have been trained on how to use the alternate landing gear. Mr. Caves would not, however, be expected to know how to restart both engines in the air. Mr. Haider stated that Mr. Caves was a "reasonably prudent pilot" and that pilot error was not a contributing cause of the crash. He also said that a pilot should be able to rely on the functionality of an aircraft as designed; that the engines should have restarted unless there was a defect in the electrical system; and that the aircraft experienced intermittent electrical failures. Mr. Haider further opined that Beechcraft failed to warn pilots of the significant pull-force needed to deploy the alternate landing gear; that the landing gear was defectively designed; and that Hawker had occasion to correct the defects in the electrical system and landing gear but failed to do so. *Id.*

Regarding intermittency problems in the plane's electrical systems, Mr. Haider said "any pilot at any level in this situation would do anything they could to get that generator back online because that would have solved a whole basketful of problems that he had at that point in time. And obviously, the generator, for some unknown reason to me, did not come online." App. at 1099. Mr. Haider agreed with Plaintiffs' attorney that "[w]hen it comes to specifically describing any electrical problems on the plane," he was "going to defer to Mr. Bloomfield." *Id.* at 1112; *see also id.* at 1109 (referring questions

about which previous part failures in the plane can be explained by intermittency problems to Mr. Bloomfield).

At his deposition, Mr. Haider acknowledged that he was not the author of his report and that Plaintiffs' attorney, Mr. Stoops, wrote it. *Id.* at 1084. When asked about Mr. Caves's training, Mr. Haider said he did not do any independent research on the precise circumstances of Mr. Caves's flight education and said that he was unaware of evidence suggesting Mr. Caves had trouble following checklists. *Id.* at 1090-91. As to his basis for stating in his report that Mr. Caves had learned the proper procedures required for an emergency situation like the one that occurred, Mr. Haider responded that these are matters "any school would cover." *Id.* at 1092.

When asked about alleged defects in the design and servicing of the alternate landing gear, Mr. Haider testified that he had not read anything about previous testing done on the alternate landing gear and did not know the position of the pull-handle amid the wreckage. *Id.* at 1101-02. As to his basis for a design or maintenance failure in the alternate landing gear, Mr. Haider said, "My basis for that is that the handle was pulled, and – I assume the handle was pulled, and the main gear didn't come down." *Id.* at 1101. He conceded the opinion in his report that Beechcraft failed to warn users of excess pull-force needed on the T-handle was based on what an attorney told him about Mr. Bloomfield's and Mr. Sommer's pull-testing experiment. *Id.* at 1103.

2) Supplemental affidavit

Mr. Haider also filed a supplemental affidavit in response to Defendants' *Daubert* motion to exclude his testimony.

ii. District court rulings

Although the magistrate judge recommended limiting Mr. Haider's testimony only in part, the district court decided to exclude his testimony altogether, finding that he did not sufficiently "prepare" his own report and thus ran afoul of Federal Rule of Civil Procedure 26. *Rodgers Haider*, 2017 WL 979100, at *7.

The district court, employing a "totality of the circumstances" analysis, *Rodgers Haider* at *5, noted that (1) Mr. Haider did not compose even a first draft of the report; (2) others indisputably wrote the report; (3) the drafting was done at the last minute, (4) the report included opinions outside Mr. Haider's expertise; (5) Mr. Haider's billing records showed very little time spent reviewing materials before the report was submitted; and (6) Mr. Haider admitted he "reviewed" but did not "read" the materials. *Id.* at *7. The court said that even if Mr. Haider could rely heavily on his personal experience for his testimony, he still would have needed to analyze the materials to opine credibly on subjects like the intermittent electrical failure or the reasonableness of Mr. Caves's actions during the emergency. The court noted, referencing the Advisory Committee Notes to Rule 26, that although in some cases attorneys may help experts draft a report, Mr. Haider was not a good candidate for such drafting assistance considering he is well-educated and could "put together a draft report stating his substantive opinions." *Rodgers Haider* at *6.

The district court also rejected Mr. Haider's supplemental affidavit because there was no allowable testimony to supplement.

iii. Analysis

The district court did not abuse its discretion in excluding Mr. Haider's testimony. In their briefing on this issue, Appellants rehash many of their previous arguments to the district court, which remain unpersuasive.

Appellants argue the district court misinterpreted Rule 26(a): "The comment does *not* say that counsel is *only* permitted to assist those experts who are unable to prepare the report themselves. As long as the substance of the report reflects the testimony to be given by the expert, it complies with Rule 26." Aplt. Br. at 19. Appellants insist that the opinions in the report were Mr. Haider's own.

As to Mr. Haider's cursory review of the case materials, Appellants argue that "Haider's opinions predominately required him to draw on his knowledge and experience flying the Premier, and how it should respond under specified conditions (*e.g.*, loss of generator power, loss of normal landing gear system)." *Id.* As far as the specifics of this case were concerned, "[t]he *new* material Haider reviewed included the NTSB data (*i.e.*, NTSB factual report & witness statements, CVR and ATC transcripts/recordings). He reviewed the relevant data, formed his opinions, then communicated them to counsel for memorialization. There is no proof that Haider lacked sufficient factual information about the crash to form his opinions." *Id.* at 21 (citation omitted). Appellants insist that the rushed nature of the report's composition under deadline pressure should not disfavor Mr. Haider's testimony.

Notwithstanding these arguments, the district court properly read and applied Rule 26(a) to require substantial participation from Mr. Haider in drafting his report. The

court did not rely solely on Plaintiffs' admission that Mr. Haider did not actually write his own report. It considered the totality of the circumstances underlying the preparation of the report and reasonably analyzed the facts. Mr. Haider's proposed testimony must be premised on the facts of this case, not just his general knowledge. *See Norris*, 397 F.3d at 884 n.2 (“[E]vidence must have a valid scientific connection to the disputed facts in the case.” (citing *Daubert*, 509 U.S. at 591)). We agree with the district court that Mr. Haider cannot reliably opine on electric intermittency in this specific plane during the emergency or about Mr. Caves's piloting skill without meaningful analysis of the materials pertinent to the case. *See, e.g., Alfred*, 262 F.3d at 1086 (no abuse of discretion for district court to exclude testimony because it was, among other things, “backed by very little work.” (quotation omitted)). Appellants' contention that Mr. Haider “reviewed the relevant data” is unavailing because it is clear from Mr. Haider's billing records and his deposition that “reviewed” does not mean “read,” much less analyzed.

Nor does Mr. Haider's deposition testimony suffice to cure these deficiencies. As noted above, Mr. Haider deferred on all electricity-related questions to Mr. Bloomfield. To that extent, Mr. Haider's testimony is unnecessary and not the proper basis for an additional expert. Nor was his reliance at his deposition on a lawyer's summary of another expert's pull-testing sufficient for his failure to warn opinion. And his contention that the alternate landing gear suffered from a design defect was based solely on his assertion that it did not deploy.²²

²² Even if certain parts of Mr. Haider's deposition did not have these problems, his lack of an expert report (being properly excluded) would be another ground for excluding

The district court did not abuse its discretion in excluding Mr. Haider’s testimony. We also affirm exclusion of his supplemental affidavit because no allowable testimony remained to supplement.²³

B. *Summary Judgment*

We affirm the district court’s grant of summary judgment to Beechcraft and Hawker because the Plaintiffs lacked adequate expert evidence to support their claims.

1. **Legal Background**

a. *Summary judgment and standard of review*

“We review a district court’s grant of summary judgment de novo, applying the same legal standard as the district court.” *Twigg v. Hawker Beechcraft Corp.*, 659 F.3d 987, 997 (10th Cir. 2011). “The court shall grant summary judgment if the movant

him as an expert. *See* Fed. R. Civ. P. 26(a)(2)(B) (“Unless otherwise stipulated or ordered by the court, this disclosure must be accompanied by a written report—prepared and signed by the witness—if the witness is one retained or specially employed to provide expert testimony in the case or one whose duties as the party’s employee regularly involve giving expert testimony.”) There are limited exceptions to this rule, such as for busy practicing physicians, *Watson v. United States*, 485 F.3d 1100, 1107 (10th Cir. 2007), but Mr. Haider would not qualify for this exception.

²³ Appellants also contend that they were not given sufficient chance to explain the nuances of their experts’ opinions to the district court because there was no evidentiary hearing, no additional evidentiary submissions were allowed, and the magistrate judge did not schedule enough time for *Daubert* oral arguments. Also, they argue the magistrate judge required the parties at one point to put their expert arguments in summary form.

We reject these general arguments. As is apparent from the record, both parties received ample time and space to present their arguments regarding experts and both the magistrate and district judge considered the entirety of the parties’ submissions, not simply the summaries.

shows that there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56(a). “In applying this standard, we view the evidence and the reasonable inferences to be drawn from the evidence in the light most favorable to the nonmoving party.” *Twigg*, 659 F.3d at 997. “A fact is material if, under the governing law, it could have an effect on the outcome of the lawsuit. A dispute over a material fact is genuine if a rational jury could find in favor of the nonmoving party on the evidence presented.” *Smothers v. Solvay Chems., Inc.*, 740 F.3d 530, 538 (10th Cir. 2014) (quotations omitted).

The party moving for summary judgment bears the burden to produce evidence in support of its claims. *Kannady v. City of Kiowa*, 590 F.3d 1161, 1169 (10th Cir. 2010). If the movant does so, the burden shifts to the party opposing summary judgment to demonstrate a genuine issue of material fact. *Id.* We view evidence in the light most favorable to the party opposing summary judgment. *McBeth v. Himes*, 598 F.3d 708, 715 (10th Cir. 2010). “On an appeal from summary judgment, we examine the record and all reasonable inferences that might be drawn from it in the light most favorable to the non-moving party, without making credibility determinations or weighing the evidence.” *Hernandez v. Valley View Hosp. Ass’n*, 684 F.3d 950, 953 n.2 (10th Cir. 2012) (quotations omitted).

b. *Products liability*

Under Oklahoma products liability law,²⁴ a plaintiff suing a retailer or supplier under a strict liability theory must prove (1) that the product caused plaintiff's injury; (2) that the defect existed in the product at the time of sale or at the time it left the retailer's possession and control; and (3) that the defect made the product unreasonably dangerous. *See Kirkland v. Gen. Motors Corp.*, 521 P.2d 1353, 1363 (Okla. 1974); *see also Rohrbaugh v. Celotex Corp.*, 53 F.3d 1181, 1183 (10th Cir. 1995) (applying Oklahoma law). In Kansas, the standard is very similar. *See Jenkins v. Amchem Prods., Inc.*, 886 P.2d 869, 886 (Kan. 1994) (“[T]he plaintiff, to present a prima facie strict [products] liability case, must produce proof of three elements: (1) the injury resulted from a condition of the product; (2) the condition was an unreasonably dangerous one; and (3) the condition existed at the time it left the defendant's control.” (quotations omitted)).

“The alleged defect may be the result of a problem in the product's design or manufacture, or it may be the result of inadequate warnings regarding use of the product.” *Holt v. Deere & Co.*, 24 F.3d 1289, 1292 (10th Cir. 1994) (applying Oklahoma law); *see also Mayberry v. Akron Rubber Mach. Corp.*, 483 F. Supp. 407, 411-12 (N.D.

²⁴ The parties initially disputed whether Oklahoma or Kansas law was the relevant governing law for Plaintiffs' claims. App. at 4634. The district court deferred a decision on the matter, noting that nothing turned on a distinction between the two bodies of law. *Id.* at 4634-37. In this appeal, both parties acknowledge that there is no relevant substantive difference in the states' laws for the purpose of their arguments.

Okla. 1979) (applying Oklahoma law). In other words, a products liability claim can be made for a manufacturing defect or a design defect.

A product is unreasonably dangerous when it is “dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics.” *Kirkland*, 521 P.2d at 1362-63 (quoting and adopting standard of proof from Restatement (Second) of Torts § 402A cmt. g); *see also Jensen*, 886 P.2d at 872 (Kansas case using consumer expectations test).

i. Manufacturing defects

A product is defective in manufacture if it “deviates in some material way from its design or performance standards. The issue is whether the product was rendered unsafe by an error in the manufacturing process.” *Wheeler v. HO Sports Inc.*, 232 F.3d 754, 757 (10th Cir. 2000) (quotations omitted). Errors in the process are often established by showing that a product, as produced, did not conform with the manufacturer’s specifications. *Oja v. Howmedica, Inc.*, 111 F.3d 782, 792 (10th Cir. 1997) (applying Colorado law).

ii. Design defects

A product is defective in design if something about that design “renders it less safe than expected by the ordinary consumer.” *Lamke v. Futorian Corp.*, 709 P.2d 684, 686 (Okla. 1985). “[T]he fact that it is possible to make a product more safe does not render its design defective.” *Wheeler*, 232 F.3d at 758 (quotations omitted).

c. Negligence

Claims for negligent manufacture or design are treated the same as other negligence claims in Oklahoma. A negligence claim requires plaintiffs to prove (1) defendants owed plaintiffs a duty; (2) there was a breach of that duty; and (3) that the breach caused plaintiffs' injuries. *Dirickson v. Mings*, 910 P.2d 1015, 1018 (Okla. 1996). An entity charged with repairing a vehicle may be sued under a theory of negligent repair. *See, e.g., Delbrel v. Doenges Bros. Ford*, 913 P.2d 1318, 1322 (Okla. 1996) (“[O]ne who is paid to repair a car owes a duty of care to both the owner of the car and to the general public to assure that the repair is properly performed or the owner is warned of its dangerous condition, where the dangerous condition is discoverable in the exercise of ordinary care.”).

2. Additional Background – District Court Proceedings on Summary Judgment

The district court granted Defendants' motion for summary judgment. It held that:

- (1) Plaintiffs could not show a genuine issue of material fact that the plane's electrical system was defective or that a loose screw caused any electrical problems that contributed to the accident and thus could not proceed on any electrical system products liability or negligence claim;
- (2) Plaintiffs could not proceed with their manufacturer's products liability claim against Beechcraft based on a defect in the alternate landing gear because undisputed evidence established the defect did not exist when the plane left control of the manufacturer; nor could Plaintiffs show a genuine issue of material fact that the plane's alternate landing gear had a design defect;
- (3) Plaintiffs could not proceed with their alternate landing gear negligence claims against Beechcraft and Hawker

because they could not show a defect with the manufacture or design of the alternate landing gear or that a defect proximately caused the accident; and

- (4) Plaintiffs could not show a genuine issue of material fact that the flight manual was defective and thus could not proceed on any manual-based products liability or negligence claim.

App. at 4637-52.

a. *Electrical system – products liability, negligence*

The district court found that Plaintiffs’ manufacturer’s products liability claim against Beechcraft failed because Mr. Bloomfield acknowledged the loose screw was not loose at the time of manufacture but rather after servicing. App. at 4507. The Plaintiffs therefore could not establish an essential element of manufacturer’s products liability—that the defect existed when it left the manufacturer. *Id.* at 4639.

As for the negligence claims against Beechcraft and Hawker, the district court said the Plaintiffs had not shown a genuine issue of material fact regarding causation, an essential element of a negligence claim. *Id.* at 4641-42. Mr. Davis’s shutting down the engines triggered the loss of power. There was, according to the district court, “no evidence of a voltage spike or intermittent power supply before this event.” *Id.* at 4639. The Plaintiffs’ intermittent power and voltage spike causation theory relied on Mr. Bloomfield’s proposed testimony linking the loose screw to the power, but that testimony was excluded. Mr. Frie’s and Mr. Evans’s observations about a flickering power display were not enough to create a genuine dispute as to causation without any expert testimony. *Id.* at 4640-42.

b. *Alternate landing gear – products liability*

The district court held that the manufacturer products liability claim failed because the undisputed evidence showed that Beechcraft tested the plane before it was sold and that the measured pull-force of the handle to deploy the alternate landing gear—53.7 pounds—was within the manufacturer’s specifications. App. at 4644.

The district court also rejected the design defect products liability claim against Beechcraft because Plaintiffs produced no supporting evidence. Mr. Bloomfield’s theory about debris in the landing gear causing higher pull-forces was excluded as hypothetical. *Id.* at 4644-45. Mr. Bloomfield’s and Mr. Sommer’s design defect opinions were similarly excluded because neither had experience in aircraft product design. *Id.* at 4645. The court also noted that, even if Mr. Bloomfield’s and Mr. Sommer’s design arguments were admitted, Plaintiffs lacked evidence of causation: “Plaintiffs have the burden of proof to establish causation, and they must have at least some evidence tending to show that there is a dispute as to whether Caves made another attempt to pull out the alternate landing gear handle before his second landing attempt. It is just as likely that Caves did nothing with the alternate landing gear handle before his second landing attempt, and a jury would not be permitted to speculate as to what actions Caves took.” *Id.* at 4646.

c. *Alternate landing gear – negligence*

Plaintiffs alleged that Beechcraft was negligent in manufacturing an aircraft that required excessive pull-force to deploy the alternate landing gear. This argument was based on the tests of three exemplar aircraft finding the alternate landing gears required

between 100 and 120 pounds of pull-force instead of the maximum 64 pounds stated in the Maintenance Manual. App. at 4643-44.

The district court stated that “the mere fact that the pull-force in plaintiffs’ experts’ test results exceeded 64 pounds does not by itself show that the aircraft was defective or that excessive pull-force caused the landing gear not to deploy.” *Id.* at 4647. It further stated that “Plaintiffs have offered no evidence comparing the maximum pull-force stated in the maintenance manual for the Premier 390 to other types of aircraft, nor have plaintiffs provided a frame of reference for how difficult it is use the alternate landing gear handle if the pull force exceeds 64 pounds.” *Id.*

In contrast, the court said, “It is undisputed that plaintiffs’ experts were able to pull out the alternate landing gear handle and lock the landing gear into place on each exemplar aircraft and that Beechcraft had received no complaints or reports of problems using the alternate landing gear.” *Id.* at 4647. It also noted there was no evidence that “Caves received any training concerning the use of the alternate landing gear.” *Id.* For these reasons, the court held that “plaintiffs’ evidence concerning the pull force needed to use the alternate landing gear does not independently give rise to genuine dispute that the allegedly excessive pull force caused the accident.” *Id.*

d. *Flight manual – products liability, negligence*

The district court held there was no evidence creating a genuine issue of material fact that a defect in the AFM on how to restart the generators was the proximate cause of the accident.

Plaintiffs argued that the AFM’s procedure for restarting electrical generators was incorrect and would not have worked had Mr. Caves followed it. But the district court pointed out this theory was based entirely on the proposed testimony of Mr. Haider, which was excluded. App. at 4648-49. Apart from Mr. Haider’s testimony, the court said some evidence tended to show that the method recommended in the AFM for restarting an electrical generator—moving the generator switch from “Reset” to “On”—is not always sufficient and that sometimes it is necessary to cycle the switch in a slightly different way. *Id.* at 4649-51. But, as the court explained, this point, based on one instance during a test on an exemplar aircraft by the Defendants, *id.* at 1436, does not mean that all units are defective or support an inference that there was a fleet-wide problem with the switch. Without Mr. Haider’s testimony, Plaintiffs did not have expert evidence that the AFM contained incorrect instructions for restarting a generator following an engine shutdown mid-flight. *Id.* at 4650. And, the district court said, even if a defect could be shown, Plaintiffs cannot establish that erroneous instructions in the manual were the proximate cause of the accident. *Id.* at 4649-51.

3. Analysis

We affirm the district court’s grant of summary judgment to Beechcraft and Hawker. Each claim fails at least on the element of causation. Given the expert testimony exclusions affirmed above, Appellants either have no expert to testify to causation or no evidence to prove causation.

a. *Electrical system*

i. Manufacturing or design defects

Appellants have no admissible expert testimony linking the loose screw to electric intermittency or voltage issues. They thus cannot show causation for a products liability claim based on electrical system defects. Although the district court allowed Mr. Bloomfield's testimony about finding a loose screw, it excluded his testimony connecting the loose screw to electric bus problems. App. at 4639-40.

Appellants contend that Mr. Frie's and Mr. Evans's statements about seeing flickering display panels create a material dispute as to whether a defective electrical system caused the accident. Aplt. Br. at 25. But evidence from Mr. Frie and Mr. Evans does not adequately establish that intermittency or voltage spikes from a defective electric system caused the accident. In the context of a complicated aircraft electrical system, Plaintiffs needed expert testimony to prove causation. *See James River Ins. Co. v. Rapid Funding, LLC*, 658 F.3d 1207, 1214 (10th Cir. 2011) (lay witness may not "express an opinion as to matters which are beyond the realm of common experience and which require the special skill and knowledge of an expert witness." (quotations omitted)).

ii. Negligence

Appellants' complaint alleged that Appellees breached their duty to exercise reasonable care in their assembly and inspection of the aircraft, as evidenced by the electrical failures contributing to the crash. Because Appellants, following the exclusion of Mr. Bloomfield's testimony, lack expert evidence to why the plane's electrical systems

were deficient, Appellants cannot succeed on a claim for negligence in assembling and inspecting that system. Without expert testimony on electrical failure, they cannot prove causation on their negligence claim.

b. *Alternate landing gear*

i. Manufacturing defect

Appellants' manufacturing defect claim regarding the alternate landing gear fails because it is undisputed that the RB-226's gear deployed within an allowable force range upon testing after production. The alleged alternate landing gear handle defect thus did not exist at the time of sale or at the time it left Beechcraft's possession and control. Accordingly, Appellants cannot satisfy a required element of a manufacturing defect claim. *See Kirkland*, 521 P.2d at 1363.²⁵

ii. Design defect

All of Appellants' expert testimony on alleged design defects in the alternate landing gear was excluded, so there is no basis on which to establish design flaw. Mr. Bloomfield's and Mr. Sommer's testing on the pull-force required for the alternate landing gear in the three other Model 390s remains admissible evidence. But their testing

²⁵ Appellants present a new argument on appeal that a manufacturing defect claim regarding the alternate landing gear remains possible under a "guaranteed to degrade" theory, wherein the product was designed in such a way to become more dangerous with use over time. *Aplt. Br.* at 40. Because this argument was not made before the district court, we do not consider it. *See Carney v. Okla. Dep't of Pub. Safety*, 875 F.3d 1347, 1351 (10th Cir. 2017) ("We will only consider arguments not raised below in the most unusual circumstances." (quotations omitted)). Even if it were considered, Appellants present no evidence of degradation in the RB-226's alternate landing gear on the day of the crash.

did not address the plane that was involved in the crash, and there is no expert evidence on what precisely is the defect in the alternate landing gear. The district court properly excluded the debris-in-the-wheel-well theory because it was only hypothetical and without any evidentiary basis. App. at 4642. Moreover, Plaintiffs have no expert evidence on how an alleged design flaw caused the accident.

iii. Negligence

Appellants' complaint contends that Beechcraft breached its duty to exercise reasonable care in the design and assembly of the alternate landing gear. We affirm the district court's grant of summary judgment to the Defendants on the negligence claim regarding the alternate landing gear because Appellants have no evidence to satisfy causation.

Mr. Bloomfield's and Mr. Sommer's tests on the handles of other aircrafts purportedly showed that the pull-force required to deploy the alternate landing gear on the Model 390 was considerably higher than the specified maximum in the Maintenance Manual, at least in the three aircraft tested. This testing may support an inference that the force required to deploy the alternate landing gear in the plane that crashed also was higher than the manual's limit at the time of the accident, but Appellants have not provided evidence of causation. Although the alternate landing gear handle in the plane was pulled out only about an inch in the wreckage, the record lacks evidence that the alternate landing gear failed to lock due to excessive pull-force. And in all three of the experts' tests, they were able to deploy the landing gear despite the increased pull-force.

Appellants also argue that Mr. Caves did not have sufficient information from either the AFM, the handle itself, or the plane's controls to know how far to pull the handle. Aplt. Br. at 31-32. But Mr. Bloomfield's and Mr. Sommer's testing did not address the information that was available concerning the alternate landing gear. They were instead measuring required pull-force. Appellants therefore have no expert testimony linking insufficient information about how far to pull the handle with causation of the crash.²⁶ Because Appellants failed to marshal evidence on an essential element of a negligence claim, summary judgment was appropriately granted to Appellees.

The negligence claims against Hawker also do not survive summary judgment because Appellants have not produced evidence to show that failure to inspect the landing gear caused the accident.

c. AFM and repair kit instructions

i. Design

1) Checklists to restart engines

Appellants' AFM claims based on an inadequate checklist fail because Appellants have offered no evidence to prove causation. Although Appellants contend there was some evidence that may have suggested that a checklist for restarting an engine did not always work, App. at 1436, they decided not to include it in the record on appeal, so we

²⁶ Even if we construe Appellants' argument concerning "guaranteed to degrade" landing gear as concerning causation, this argument was not made before the district court and we decline to consider it here. *See Tele-Communications, Inc. v. Comm'r of I.R.S.*, 104 F.3d 1229, 1232 (10th Cir. 1997) ("Generally, an appellate court will not consider an issue raised for the first time on appeal.").

do not consider it here. *See* Doc. 10536488; Doc. 10537103. Without this evidence and without the opinion of Mr. Haider, Appellants have no basis for their AFM checklist argument.²⁷

2) Alternate landing gear directions in the AFM

Appellants also have not shown a genuine factual dispute to save their claim that the alternate landing gear directions were defective. Although the manual did not state how far to pull the handle or how to know when the alternate gear has been dropped and locked, the Appellants have no expert testimony on manual design defects or how the manual's alleged shortcomings caused the accident.

3) Repair kit instructions

Appellants presented no evidence for a defect claim against Beechcraft's repair kit instructions for servicing the aircraft. The instructions provide for the required amount of torque in the relevant screws. Because their theory is that a defective repair kit was responsible for electrical failure in the plane, all of Appellant's repair kit products liability claims require expert testimony on the electrical system defects (intermittency and voltage spikes). They have no expert evidence to support this theory.

²⁷ Even if there were a basis to argue the checklist was defective, Appellants would still need to show that Mr. Caves tried to follow the checklist and that defects in the checklist caused the accident. They have not done so. They instead say that under Oklahoma law, a consumer of a product would heed an adequate warning. *Aplt. Br.* at 35. A checklist is not a warning. It provides instructions to follow in case of emergency. Appellants have presented no evidence that Mr. Caves's attempt to follow these instructions caused the accident.

ii. Negligence

Appellants' negligence claims based on a defective manual or repair instructions fail at summary judgment because they have not provided evidence on causation. We do not know which checklist, if any, Mr. Caves relied on. Nor is there evidence that Mr. Caves failed to pull out the alternate landing gear handle far enough because the flight manual did not provide guidance. Finally, Appellants' negligence claim based on repair kit instructions fails because, without any expert testimony remaining on electrical system defects, they do not have evidence to show causation.

III. CONCLUSION

We affirm the district court's judgment, which includes the limitations on expert testimony and the grant of summary judgment to Defendants Beechcraft and Hawker.

Entered for the Court

Scott M. Matheson, Jr.
Circuit Judge