IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA

JILL SIKKELEE, Individually and as Personal Representative of the ESTATE OF DAVID SIKKELEE, deceased,	:	No. 4:07-CV-00886
	:	(Judge Brann)
Plaintiff,	:	
v.	:	
AVCO CORPORATION, *et al.*,	:	
Defendants.	:	

MEMORANDUM OPINION

AUGUST 3, 2017

A weightless innocence so often attends our daydreams of flight. As the American aviator John Gillespie Magee, Jr., loftily described it, pilots "dance[ ] the skies on laughter-silvered wings," soaring "high in the sunlit silence."[1] Sadly, it would seem that Magee's "high untrespassed sanctity of space" must belong to a universe far away from the dark origins and convoluted history of this case.

Initiated in 2007, two years after David Sikkelee, Jr., died in a fiery plane crash, the instant litigation has charted an eventful path full of intricate factual, legal, and regulatory detours. At its core is an allegation by the Plaintiff that her deceased husband's plane lost power when screws that held the engine's carburetor

[1] John Gillespie Magee, Jr., "High Flight" (1941).

together came loose. AVCO Corporation's Lycoming Engine division (hereinafter "Lycoming"), who filed the two pending motions, did not manufacture or install the carburetor that powered the aircraft on that fateful day.

In January 2013, the matter was reassigned to me, and in September 2014, relying upon *Abdullah v. American Airlines, Inc.* 181 F.3d 363 (3d Cir. 1999), I held that Plaintiff's state tort claims against Lycoming were field preempted by Federal Aviation Administration (FAA) regulations. *Sikkelee v. Precision Airmotive Corp.*, 45 F. Supp. 3d 431 (M.D. Pa. 2014). In April 2016, during the ensuing interlocutory appeal, the United States Court of Appeals for the Third Circuit repudiated *Abdullah's* breadth but instructed me to consider whether Plaintiff's state law claims might nevertheless be conflict preempted. *Sikkelee v. Precision Airmotive Corp.*, 822 F.3d 680 (3d Cir. 2016). Thereafter, in November 2016, the Supreme Court of the United States denied Lycoming's petition for a writ of certiorari. *AVCO Corp. v. Sikkelee*, 137 S. Ct. 495 (2016).

On remand, Lycoming has submitted two new motions for summary judgment. One motion challenges the extent of Lycoming's liability for third-party modifications; the other sounds in recent conflict preemption jurisprudence. I conducted oral argument on May 19, 2017 and received supplemental briefing.

Lycoming has on numerous occasions vociferously challenged a prior decision in this case that exposed it to liability for subsequent modifications made

by an aftermarket parts manufacturer. That holding was reached by my colleague, the Honorable John E. Jones III, to whom this matter was originally assigned. In particular, Judge Jones concluded that Lycoming, a type certificate holder, could be held liable for modifications made by the third-party manufacturer who overhauled the engine's carburetor. In Judge Jones's view, "while Lycoming's hands were not physically present in the plant during the manufacture or in the shop during the overhaul, its invisible hands were undeniably present." ECF No. 299 at 17.

Although I have previously expressed skepticism at this holding, it is evident now, with the benefit of thorough argument, that this expanded notion of liability is unsupported by the law and is partially responsible for sending this litigation into an academic tailspin. One might say that since I was first assigned to this matter, "I have acquired new wisdom . . . or, to put it more critically, have discarded old ignorance." *Ring v. Arizona*, 536 U.S. 584, 611 (2002) (Scalia, J., concurring). Now having gained familiarity with the applicable regulations, the FAA approvals, and the production history at issue here, I must conclude that Lycoming's connection to the allegedly defective component was too far removed to subject it to tort liability. Indeed, the third-party manufacturer, without Lycoming's knowledge or approval, acted pursuant to its own aftermarket parts agreement

when it overhauled the carburetor in a manner that Lycoming could never have foreseen. Summary judgment is warranted on that ground alone.

Further, by arguing that those subsequent carburetor modifications were attributable to Lycoming because the third-party manufacturer was bound by regulation to follow the type certificate holder's designs, Plaintiff has chanced upon a second reason why her claims must fail: they are conflict preempted. Because it was impossible for Lycoming and the aftermarket parts manufacturer to unilaterally comply with both state tort law and federal regulations, as in *Mutual Pharmaceutical Co. v. Bartlett*, 133 S. Ct. 2466 (2013), and *PLIVA, Inc. v. Mensing*, 564 U.S. 604 (2011), I will grant summary judgment in Lycoming's favor on this independent ground.

I. BACKGROUND

As the late Honorable Robert H. Jackson, Associate Justice of the Supreme Court, once remarked, "Planes do not wander about in the sky like vagrant clouds. They move only by federal permission, subject to federal inspection, in the hands of federally certified personnel and under an intricate system of federal commands." *Northwest Airlines v. State of Minnesota*, 322 U.S. 292, 303 (1944). Justice Jackson's observation sprang from "the national responsibility for regulating air commerce" and reinforced the notion that the "air is too precious as an open highway to permit it to be owned" by local interests. *Id.* "Local exactions

and barriers to free transit in the air would neutralize its indifference to space and its conquest of time." *Id.*

Nearly three-quarters of a century later, Justice Jackson's prescient concerns about an excessively splintered airway regulatory system ring just as true. Indeed, those animating federalist principles are precisely why Congress has established an administration whose sole mission is to assure the safety of our nation's skies. This background section examines the FAA's intricate framework of regulations, a fraction of whose existence Justice Jackson could only imagine in 1944. It then connects those regulations to the narrative of this case.

A. In 1958, Congress Creates The Federal Aviation Agency And Bestows Upon It Dominion Over The Skies.

Congress passed the Federal Aviation Act of 1958 to regulate aviation in a way that would "best foster its development and safety" and would ensure the "safe and efficient use of the airspace." 85 Pub. L. No. 726, 72 Stat. 731. The Act created the position of an Administrator who would be appointed by the president to head the agency. 49 U.S.C. §§ 106(b). As part of his official role, the Administrator must prescribe, among other regulations, minimum standards for the design, construction, inspection, and overhauling of aircraft and their engines. *Id.* § 44701(a)(1)–(2).

Concerned with a lack of coordination amongst our nation's transportation systems, President Lyndon B. Johnson worked jointly with Congress to create the

Department of Transportation (DOT) in 1967, at which time the Federal Aviation Agency was renamed the Federal Aviation Administration (FAA) and brought within the DOT's purview. *See A Brief History of the FAA*.[2] Since that time, the FAA has continued to fulfill its regulatory mission, and today, its nearly 50,000 employees make it the largest subdivision within the DOT. *See FACT SHEET*.[3] Recent estimates suggest that more than 1.7 million passengers board a flight in the United States every day, and the FAA oversees more than 50 million commercial, military, and general aviation flights per year. *See id.*

Acting on the powers vested in it by Congress through the Federal Aviation Act and corresponding grants, the FAA has littered the books with a maze of regulations not readily traversed by most laypersons. Like other parallel regulatory regimes that have exposed state tort claims to conflict preemption defenses, *Mutual Pharmaceutical Co. v. Bartlett*, 133 S. Ct. 2466 (2013) (FDA drug regulations); *PLIVA, Inc. v. Mensing*, 564 U.S. 604 (2011) (same), the FAA's regulations are highly particularized, govern nearly every aspect of the regulated field, and are born from the twin aims of ensuring the safety of consumers and protecting the public. *See, e.g.*, *Elsworth v. Beech Aircraft Corp.*, 691 P.2d 630, 636 (Cal. 1984)

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2 https://www.faa.gov/about/history/brief_history/.

3 https://www.faa.gov/news/press_releases/news_story.cfm?newsId=12903.

(FAA regulations protect not only "those who fly in airplanes" but also anyone "affected by their flight").

The FAA's regulations, found at Title 14 of the Code of Federal Regulations, are divided into three volumes, sixty-eight parts, and thousands more detailed subparts. *See Overview—Title 14 of the Code of Federal Regulations*, at 12–1.[4] Volume I contains those FAA regulations governing definitions (Parts 1 & 3); procedure (Parts 11, 13, 14, 15, 16, & 17); and aircrafts (Parts 21, 23, 25, 27, 29, 31, 33, 34, 35, 36, 39, 43, 45, 47 & 49). Volume II contains the regulations governing airmen (Parts 61, 63, 65, & 67); airspace (Parts 71, 73, & 77); air traffic and operation (Parts 91, 93, 95, 97, 99, 101, 103, & 105); and air carriers (Parts 119, 121, 125, 129, 133, 135, 136, 137, & 139). Volume III covers flight schools (Parts 141, 142, 145 & 147); airports (Parts 150, 151, 152, 155, 156, 157, 158, 161, & 169); navigational facilities (Parts 170 & 171); administrative regulations (Parts 183, 185, 187, 189, & 193); and insurance (Part 198). *Id.* at 12–2. In fact, the FAA typically only assigns odd numbers to its major batches of regulations in order to leave room for new regulations that will eventually fill in the even-numbered gaps. *See id.* at 12–3.

According to an FAA letter brief submitted to the Third Circuit in this case, the FAA has instituted a three-stage process to ensure that all new aircrafts and

[4] https://www.faa.gov/regulations_policies/handbooks_manuals/aircraft/amt_handbook/media/FAA-8083-30_Ch12.pdf.

components comply with established design standards. *See* FAA Ltr. Br., ECF No. 534-1, at 4 (hereinafter "FAA Ltr. Br."). These three steps are: (1) type certification; (2) production certification; and (3) airworthiness certification. For the purpose of resolving the pending motions, I will review the pertinent regulations with an emphasis on those comprising type certification. Then, I will discuss how a type certificate might be amended and how aftermarket manufacturers who do not possess the type certificate nevertheless may produce replacement parts by way of a "Parts Manufacturer Approval." Finally, I will explain how those regulations apply to this dispute.

B. Obtaining A Type Certificate Is An Onerous Process Requiring Numerous Submissions That Precisely Detail The Specifications Of The Proposed Aircraft, Its Engine, And Related Components.

The first step in production requires a manufacturer who wishes to produce a new aircraft, aircraft engine, or propeller to obtain a "type certificate." A type certificate confirms that the aircraft or its component is properly designed and manufactured, and satisfies all applicable regulatory standards. *See id. See also* 49 U.S.C. § 44704(a); 14 C.F.R. § 21.21. A manufacturer must obtain a type certificate before producing a new aircraft or engine, unless a type certificate already exists for the precise design or it has a licensing agreement to produce the aircraft or engine with the type certificate holder. 14 C.F.R. § 21.6.

All type certificate applications are required to be completed on a form and in a manner prescribed by the FAA. *Id.* § 21.15. They are submitted to the appropriate aircraft certification office and must be accompanied by a three-view drawing of the aircraft, available preliminary basic data, a description of the engine design features, the engine operating characteristics, and the proposed engine operating limitations. *Id.* § 21.15. A type certificate application must demonstrate compliance with all applicable regulatory requirements, must provide the FAA the means by which such compliance has been shown, and must also supply a statement certifying as much. *Id.* § 21.20.

An applicant may not obtain a type certificate unless the FAA Administrator expressly finds that the proposed aircraft, aircraft engine, propeller, or appliance is "properly designed and manufactured, performs properly, and meets the regulations and minimum standards." 49 U.S.C. § 44704(a). Indeed, 14 C.F.R. § 21.21 (entitled "Issue of type certificate: normal, utility, acrobatic, commuter, and transport category aircraft; manned free balloons; special classes of aircraft; aircraft engines; propellers") instructs applicants as follows:

> An applicant is entitled to a type certificate for an aircraft in the normal, utility, acrobatic, commuter, or transport category, or for a manned free balloon, special class of aircraft, or an aircraft engine or propeller, if—
>
> . . .

> (b) The applicant submits the type design, test reports, and computations necessary to show that the product to be certificated meets the applicable airworthiness, aircraft noise, fuel venting, and exhaust emission requirements of this subchapter and any special conditions prescribed by the FAA, and the FAA finds—
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> (1) Upon examination of the type design, and after completing all tests and inspections, that the type design and the product meet the applicable noise, fuel venting, and emissions requirements of this subchapter, and further finds that they meet the applicable airworthiness requirements of this subchapter or that any airworthiness provisions not complied with are compensated for by factors that provide an equivalent level of safety; and
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> (2) For an aircraft, that no feature or characteristic makes it unsafe for the category in which certification is requested.

As that regulation makes clear, the FAA must receive a number of submissions, including the type design, test reports, and computations that show that the product for which certification is sought meets all applicable regulatory standards. This process is often "intensive and painstaking": a commercial aircraft manufacturer seeking a new type certificated aircraft might submit 300,000 drawings, 2,000 engineering reports, and 200 other reports in addition to completing approximately 80 ground tests and 1,600 hours of flight tests. *Sikkelee*, 822 F.3d at 684–85 (citing *United States v. S.A. Empresa de Viacao Aerea Rio Grandense (Varig Airlines)*, 467 U.S. 797, 805 n. 7 (1984)).

The "type design" portion of the type certificate application is governed by 14 C.F.R. § 21.31. Under that regulation, the type design must consist of: (1) drawings and specifications; (2) structural information on materials and dimensions; (3) a showing of continued airworthiness; (4) inspection and preventative maintenance programs; and (5) any other information relevant to airworthiness, noise, fuel venting, and emissions determinations. In addition, the type certificate applicant must submit to the FAA a statement confirming that the manufactured aircraft engine or propeller presented for certification in fact conforms to its submitted type design. *Id.* § 21.53(a).

The concept of "airworthiness" as the type design regulation refers to it, is explained in greater detail at 14 C.F.R. § 23 for aircrafts and at 14 C.F.R. § 33 for aircraft engines. For instance, § 21.23 (aircrafts) contains subparts on flight (§§ 23.21–23.255); structure (§§ 23.301–23.575); design and construction (§§ 23.601–23.871); powerplant (§§ 23.901–23.1203); equipment (§§ 23.1301–23.1461); and operating limitations and information (§§ 23.1501–23.1589).

As to an engine specifically, the airworthiness regulations require that its materials be established on the basis of experience or tests and conform to approved specifications that ensure their strength and continued durability. *Id.* § 33.15. A separate regulation provides that an engine's design and construction "must minimize the development of an unsafe condition of the engine between

overhaul periods." *Id.* § 33.19(a). Other regulations governing engine construction in general pertain to engine mounting attachments (§ 33.23) and engine instrument connections (§ 33.29).

Fueling mechanism are regulated in part by 14 C.F.R. § 33.35(a), which requires that a reciprocating or piston engine's fuel injection system "be designed and constructed to supply an appropriate mixture of fuel to the cylinders throughout the complete operating range of the engine under all flight and atmospheric conditions." One regulation in that subpart also requires that the engine be designed and constructed in such a way that avoids excessive stress or vibrations. *Id.* § 33.33. Another regulation also governs an engine's lubrication system. *Id.* § 33.39.

In addition to the type design and its components, all type certificate applicants must permit the FAA to conduct any necessary inspections, flight tests, and ground tests necessary to show that the proposed product satisfies all applicable regulations. *Id.* § 21.33. These inspections ensure, among other things, that (1) the proposed product complies with the applicable airworthiness, aircraft noise, fuel venting, and exhaust emission requirements; (2) materials and products conform to the specifications in the type design; (3) parts of the products conform to the drawings in the type design; and (4) the manufacturing processes,

construction and assembly conform to those specified in the type design. *Id.* § 21.33(b).

Once the applicable ground tests and compliance are completed, the applicant must conduct flight tests to determine whether there is reasonable assurance that the aircraft, its components, and its equipment are reliable and functioning properly. *Id.* § 21.35(b)(2). Such tests require upwards of 150 to 300 hours of flight time, depending upon whether the particular engine type was already incorporated in an earlier type certificated aircraft. *Id.* § 21.35(f)(1)–(2). By regulation, these flight tests must be conducted by a certified pilot. *Id.* § 21.37. The applicant must also submit all reports regarding calibration of testing instruments and allow the FAA to audit the accuracy of those reports. *Id.* § 21.39.

Importantly, every type certificate "is considered to include" the type design, the operating limitations, the certificate data sheet, and other applicable specifications submitted thereto. *Id.* § 21.41.

The type certificate data sheet, which § 21.41 explicitly incorporates into the type certificate itself, has been defined in various FAA orders as "the part of the type certificate documenting the conditions and limitations necessary to meet certification airworthiness requirements." *See* FAA Order 8110.4C, *Type Certification*, at 68 (hereinafter "FAA Type Certification Order").[5] The type

[5] https://www.faa.gov/documentLibrary/media/Order/FAA_Order_8110_4C_Chg_6.pdf.

certificate data sheet "provid[es] a concise definition of the configuration of a type-certificated product" and "is necessary to enable any person to easily find information about a specific product." *Id.* In other words, it "records the type certification data of a product (such as control surface movement limits, operating limitations, placards, and weight and balance) that may also be available in the flight manual or maintenance manual in accordance with FAA Order 8110.4." *See* FAA Order 8110.121, *Type Certificate Data Sheet Notes*, at 2 (hereinafter "FAA TCDS Order").[6] Although 14 C.F.R. § 21.41 does not separate the type certificate data sheet into a main section and a notes section, the FAA has elected to do so for clarification and standardization purposes. *Id.*

A type certificate remains effective until it is surrendered, suspended, revoked, or a termination date set by the FAA has passed. *Id.* § 21.51. Holders of type certificates and other related production authorizations have a continuing duty to report known defects, failures, and malfunctions to the extent that they result in any of a number of enumerated occurrences. *Id.* § 21.3.

C. A Type Certificate Holder May Not Independently Change A Type Certificate's Type Design Details Without First Obtaining FAA Approval.

A type certificate holder may not implement type design changes absent the FAA first explicitly approving such modifications. Command of several of the

[6] https://www.faa.gov/documentLibrary/media/Order/FAA_Order_8110_121.pdf.

regulations' terms of art is required to see why this is so. The FAA has set forth two types of modifications relevant here: (1) alterations and (2) type design changes.[7] The regulations conceive of type design changes as a specific subset of alterations that would modify the type design. Recall that the regulations make clear that the "type design" includes all pertinent drawings and specifications necessary to define the configuration and the design features of the product; information on dimensions, materials, and processes necessary to define the structural strength of the product; and the required airworthiness criteria. 14 C.F.R. § 21.31.

To add an additional layer of classification, the regulations also define all alterations and type design changes as "major" or "minor." The definition of a major alteration is not coextensive with that of a major type design. Consequently, a major alteration need not also be a major type design change. This background is important because the particular form of FAA approval necessary depends upon whether the proposed modification is a major or minor alteration and on whether it

[7] The regulations name a third category: "repairs," which mirror alterations. However, because Plaintiff's proposed modifications constitute alterations and not repairs, I focus on the former. *See* FAA Order 8110.37E, *Designated Engineering Representative (DER) Handbook*, https://www.faa.gov/documentLibrary/media/Order/8110.37E.pdf, at 27 (hereinafter "FAA DER Handbook"). ("A *repair* is the restoration of a damaged product or article accomplished in such a manner and using material of such quality that its restored condition will be at least equal to its original or properly altered condition. . . . An *alteration* is the modification of an aircraft from one sound state to another sound state; the aircraft meets the applicable airworthiness standards both before and after the modification.").

constitutes a major or minor type design change (if it constitutes a type design change at all).

To be clear from the outset, the regulations and the FAA's interpretation of its own regulations make explicit that FAA approval is required to implement all type design changes, regardless of whether they are major or minor. As the FAA has previously explained to our Court of Appeals during this litigation, "Certain 'minor' changes, defined by regulation, may not require an amended or supplemental type certificate, but are still subject to approval by the FAA." FAA Ltr. Br. at 5 (citing 14 C.F.R. § 21.95). "[N]o matter what role a manufacturer plays in the type-certification process, the decision to approve the type design ultimately rests with the FAA." FAA Ltr. Br. at 15. "This is true even for 'minor' type design changes, 14 C.F.R. § 21.93(a), which are approved under a method acceptable to the FAA." *Id.* Thus, as I will discuss more fully herein, to the extent that Plaintiff's tort claims are premised on a modification that would have constituted a type design change, her tort claims fail on conflict preemption grounds.

I note that the FAA's interpretation of its own regulations, as provided in the cited Letter Brief, is not plainly erroneous or inconsistent with the regulations' text. *See Auer v. Robbins*, 519 U.S. 452 (1997). To begin with, 14 C.F.R. § 21.93(a) provides that a "minor change" has no appreciable effect on the weight,

balance, structural strength, reliability, operational characteristics, or other characteristics of the aircraft.[8] All other changes are major changes. *Id.* The regulations further clarify that major changes in type design require submission all substantiating and descriptive data for inclusion in the type design and compliance statement, all of which is subject to FAA approval. 14 C.F.R. § 21.97.[9]

Minor type design changes may be approved "under a method acceptable to the FAA." 14 C.F.R. § 21.95. The FAA has clarified that implementation of minor type design changes still requires FAA approval. FAA Ltr. Br. at 5, 15. This is true in part because not only must the applicant choose a method acceptable to the FAA to effectuate minor type design changes, but "at a minimum," such minor changes also must be "recorded in the descriptive data, with the FAA and the applicant determining an acceptable process for approving the data supporting the type design changes." FAA DER Handbook at 12. The FAA's interpretation of its own

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[8] The regulations do not define "appreciable." I note that Merriam-Webster defines the term as "capable of being perceived or measured."

[9] A manufacturer must obtain a new type certificate when it proposes any change in design, power, thrust, or weight that is so extensive that the FAA believes a substantially renewed investigation of compliance is required. 14 C.F.R. § 21.19. The same is true of type design changes that appreciably affect those factors. *Id.* § 21.93(a). Such changes may be implemented via the issuance of an amended or supplemental type certificate. *Id.* § 21.113(a). If a manufacturer does not hold the type certificate for a product but wishes to alter that product by introducing a major change in type design that does not require an application for a new type certificate under § 21.19, that person must apply to the appropriate aircraft certification office for a supplemental type certificate. *Id.* §§ 21.85; 21.113(b). Consequently, "[e]ven where a manufacturer identifies and reports a defect, it may not unilaterally make a major change to its preapproved design; instead, the FAA must either preapprove such a change or issue an airworthiness directive that provides legally enforceable instructions to make the product safe." *Sikkelee*, 822 F.3d at 704 n.21.

regulations thus makes clear that even though major type design changes often require more formalized methods of review, minor type design changes still must be approved before their implementation—albeit through more informal means as appropriate.

Relatedly, major and minor alterations are defined at 14 C.F.R. § 1.1. A major alteration is any alteration not listed in the aircraft, aircraft engine, or propeller specifications that (1) might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or that (2) is not performed according to accepted practices or cannot be performed by elementary operations. *Id.* All other alterations are minor alterations. *Id.* Appendix A to 14 C.F.R. § 43 provides as follows:

> (a) Major Alterations—
>
> . . .
>
> (2) Powerplant major alterations. The following alterations of a powerplant when not listed in the engine specifications issued by the FAA, are powerplant major alterations:
>
> (i) Conversion of an aircraft engine from one approved model to another, involving any changes in compression ratio, propeller reduction gear, impeller gear ratios or the substitution of major engine parts which requires extensive rework and testing of the engine.

(ii) Changes to the engine by replacing aircraft engine structural parts with parts not supplied by the original manufacturer or parts not specifically approved by the Administrator.

(iii) Installation of an accessory which is not approved for the engine.

(iv) Removal of accessories that are listed as required equipment on the aircraft or engine specification.

(v) Installation of structural parts other than the type of parts approved for the installation.

(vi) Conversions of any sort for the purpose of using fuel of a rating or grade other than that listed in the engine specifications.

When a type certificate holder makes a major alteration or delegates implementation of a major alteration to an authorized party, the alteration must be completed "in accordance with technical data approved by the Administrator." *Id.* § 379(b). The same requirement applies to certificated repair stations who perform major alterations. *Id.* § 145.201(c)(2). "Approved data" used to make major alterations means data approved by the FAA or any person to whom the FAA has delegated its authority as to the alteration. FAA Order 8300.16 CHG 1, at 13 (hereinafter "FAA Data Approval Order").[10] "All data used to substantiate a major repair or alteration, regardless of the source, must be approved before being used." *Id.* at 13–14.

[10] https://www.faa.gov/documentLibrary/media/Order/8300_16_CHG_1.pdf.

In contrast, to perform minor alterations, the applicant or an authorized third-party performs the alteration using data "acceptable to the FAA" and must document it in maintenance records. *Id.* at 1. "Acceptable data" means data acceptable to the FAA. *Id.* at 13. Although acceptable data does not "necessarily require FAA review and acceptance prior to" use, the authorized party must be able to demonstrate that the data "meets all applicable regulatory requirements," and the FAA may challenge that data in a subsequent enforcement action. *Id.*

In that same Order describing the types of data necessary for major versus minor alterations, the FAA explained:

> The use of the term(s) major and minor are sometimes inappropriately applied or misunderstood. A major change in type design can be approved only by an ACO as an amended type certificate (TC) or supplemental type certificate (STC). A major alteration requires the use of FAA-approved technical data. Minor alterations only require data that is acceptable to the FAA. During an evaluation, an anticipated major alteration may be subsequently classified as a major change in type design, and thus would require application for an amended TC or STC.

Id. at 1.

The following flowchart supplied by the FAA on page 5 of its Data Approval Order assists in visualizing a manufacturer's regulatory burden when it seeks to implement an alteration:

Figure 1. Alterations Flowchart

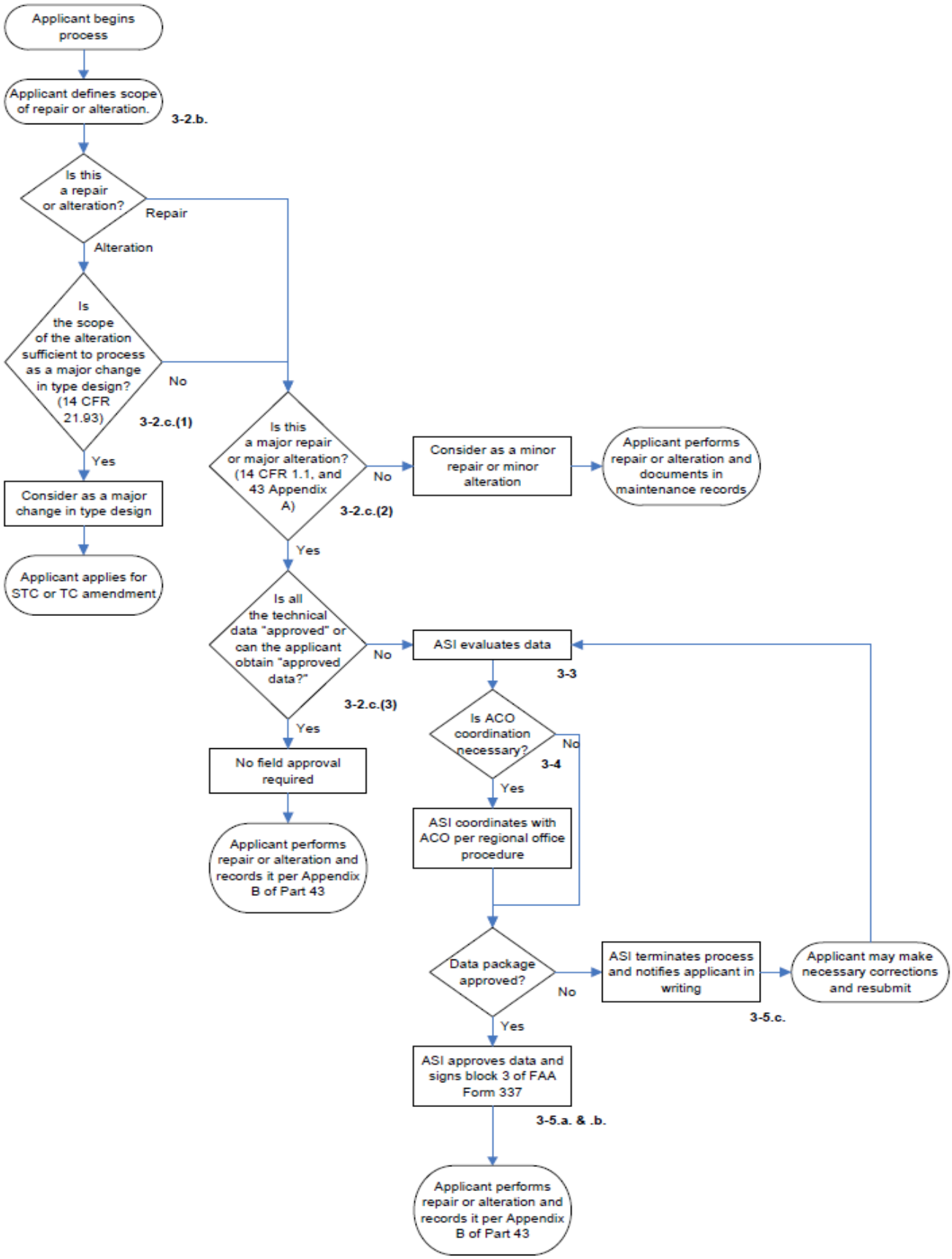

Table 1 below, categorizes the changes and regulatory burdens outlined by the regulations and the FAA's flowchart:

Table 1. Regulatory Burden by Modification Type

Proposed Modification		Regulatory Burden	Source
Major Alterations/Repairs	**Major Type Design Change**	must submit all substantiating and descriptive data for inclusion in the type design and compliance statement; subject to FAA approval	14 C.F.R. § 21.97
	Minor Type Design Change	may be approved under a method acceptable to the FAA; subject to FAA approval; requires the submission of "approved data"	14 C.F.R. § 21.95 FAA Ltr. Br. at 5, 15 14 C.F.R. § 121.379(b) 14 C.F.R. § 145.201(c)(2)
	No Type Design Change	requires the submission of "approved data"	14 C.F.R. § 121.379(b) 14 C.F.R. § 145.201(c)(2)
Minor Alterations/Repairs	**Major Type Design Change**	must submit all substantiating and descriptive data for inclusion in the type design and compliance statement; subject to FAA approval	14 C.F.R. § 21.97
	Minor Type Design Change	may be approved under a method acceptable to the FAA; subject to FAA approval	14 C.F.R. § 21.95 FAA Ltr. Br. at 5, 15
	No Type Design Change	applicant performs repairs and documents in maintenance records using data "acceptable to the FAA"	FAA Order 8300.16 at 1

To summarize, FAA approval is required for any major or minor changes to an article's type design, as well as for any major alteration. A major alteration is one that "might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness,"

D. Designated Engineering Representatives (DERs) Pose No Issue As To Conflict Preemption Because At All Times, DERs Act Within The Scope Of Their FAA Delegation And Ensure That FAA Regulations Are Followed.

Recall that minor type design changes may be approved "under a method acceptable to the FAA." 14 C.F.R. § 21.95. One such method requires obtaining approval from an FAA designated engineering representative (DER). Plaintiff has suggested that changes implemented by way of DER approval would not be conflict preempted because some DERs may nominally be hired by private aircraft manufacturers. That argument is unavailing, however, because the FAA delegates to its DERs the power to approve modifications and otherwise act on the Administration's own behalf. Further, DER approval would likely have been insufficient to implement the proposed changes complained of here.

Section 44702(d) of the Federal Aviation Act (entitled "Delegation"), sets forth the authority for the FAA to empanel DERs to act as surrogates of the Administration, subject at all times to its regulations. That Section provides as follows:

> (1) Subject to regulations, supervision, and review the Administrator may prescribe, the Administrator may delegate to a qualified private person, or to an employee under the supervision of that person, a matter related to—
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> (A) the examination, testing, and inspection necessary to issue a certificate under this chapter; and
>
> (B) issuing the certificate.

The FAA exercises significant control over its DERs in the performance of their official duties. For instance, DERs are typically designated to serve one-year terms, capable of renewal for additional one-year periods at the FAA's discretion. *See Steenholdt v. FAA*, 314 F.3d 633, 635 (D.C. Cir. 2003) (Sentelle, J.) (citing 14 C.F.R. § 183.15). Moreover, a DER's designation may be rescinded should the FAA find that the DER has not properly performed his or her duties, is no longer necessary, or "for any reason the Administrator considers appropriate." 14 C.F.R. § 183.15; 49 U.S.C. § 44702(d)(2). In fact, the United States Court of Appeals for the District of Columbia Circuit has held that there are "no constraints" on the FAA's power to rescind a DER's official designation and that such a decision is not substantively reviewable under the Administrative Procedures Act. *Steenholdt*, 314 F.3d at 639.

Any decision by a DER may be appealed to the FAA. *Id.* § 44702(d)(3), and the FAA may, "on the Administrator's own initiative," reconsider a DER decision

at any time. If the FAA believes that the DER's decision was "unreasonable or unwarranted," it can modify or reverse it *in toto*. *Id.*

A corresponding regulation, 14 C.F.R. § 83.29(a), explicitly provides that a DER may approve structural engineering information and other structural considerations only when he or she determines that the revisions comply with all applicable FAA regulations. At all times, the DER acts "within limits prescribed by and under the general supervision of the Administrator." *Id.* As the FAA's official DER Handbook explains, "Specific roles, authorized areas, and responsibilities of a DER are established by an agreement between the [FAA's Air Craft Certification Office (ACO)] and the DER at the initial appointment of a DER, and, may be further limited for specific FAA projects." FAA DER Handbook at 6. Moreover, DERs can only "find compliance" on behalf of the FAA "in the delegated functions and authorized areas for which they were appointed." *Id.* at 11. The FAA also "retains authority and responsibility for establishing the certification basis" in such a way that "limits the data that a DER can approve." *Id.* at 12.

That same Handbook characterizes the delegatory relationship between the FAA and its DERs as follows:

> Title 49, United States Code, Section 44704 (49 U.S.C. § 44704) empowers the Administrator to issue type certificates (TC) for aircraft, aircraft engines, and propellers, and to specify regulations as

> applicable to the type certification function. Section 44702(d) authorizes the Administrator to delegate to a qualified private person, or to an employee under the supervision of that person, a matter related to the examination, testing, and inspection necessary to the issuance of such certificates. Delegations are limited in scope: all requirements, policy, direction, and interpretations remain with the Administrator.

Id. at 6. Further, any DER "must follow the same procedures that an FAA engineer must follow when performing compliance finding functions, such as those appearing in Order 8110.4, Type Certification, Order 8110.42, Parts Manufacturer Approval Procedures, and Order 8110.54, Instructions for Continued Airworthiness Responsibilities, Requirements, and Contents." *Id.* The DER Manual explains that FAA pre-authorization is required "before exercising authority on any certification project," and in all cases, the DER "must follow FAA policy in determining compliance with pertinent regulations." *Id.* at 21.

According to the DER Handbook, major changes require specific DER authorization. FAA DER Handbook at 24. However, the FAA "may approve minor changes in type design under a method acceptable to the Administrator, per 14 CFR § 21.95." *Id.* This method may include approval by a DER." *Id.* Thus, even where a manufacturer believes that a proposed change is a minor one, it cannot take independent action to make that change—its implementation instead depends upon the DER's approval and still remains subject to the FAA's broad oversight at

several junctures. This is consistent with the FAA's interpretation of its own regulations. FAA Ltr. Br. at 5, 15.

Although the applicant may suggest to the DER whether it believes a type design change is major or minor, "the FAA retains final approval of that decision, and it cannot be delegated." *Id.* at 12. To that end, the DER is not authorized to interpret FAA regulations. *Id.* Instead it "must be guided by" the FAA's "existing policies, procedures, specifications, processes, and standards." *Id.* In addition, not only must the applicant choose a method acceptable to the FAA to effectuate minor changes, but "at a minimum," minor changes also must be "recorded in the descriptive data, with the FAA and the applicant determining an acceptable process for approving the data supporting the type design changes." *Id.*

The United States Court of Appeals for the Fifth Circuit has described DERs as "independent contractors" of the FAA, who although hired by the private aircraft industry to inspect private airplanes, may only approve modifications within their delegated authority by first ensuring that the changes would comply with the regulations. *Ligon v. LaHood*, 614 F.3d 150, 152 (5th Cir. 2010). "Stated differently, the DER process enables the FAA to appoint qualified private individuals to perform examinations, tests, and inspections required to determine compliance with FAA airworthiness regulations," ensuring "that private industry clients who hire the DER are in compliance with FAA regulations for

airworthiness standards." *Jones v. LaHood*, 667 F. Supp. 2d 714, 715 (N.D. Tex. 2009), *aff'd sub nom. Jones v. United States*, 625 F.3d 827 (5th Cir. 2010). *See also Leica Geosystems, Inc. v. L.W.S. Leasing, Inc.*, 872 F. Supp. 2d 1191, 1195 (D. Colo. 2012) (explaining that a DER "works as a special liaison" between the FAA and private repair stations "to ensure that the modification is in compliance with FAA regulations").

The Supreme Court has cast the surrogacy relationship between the FAA and its DER designees in the following light:

> With fewer than 400 engineers, the FAA obviously cannot complete this elaborate compliance review process alone. Accordingly, 49 U.S.C. § 1355 authorizes the Secretary to delegate certain inspection and certification responsibilities to properly qualified private persons. By regulation, the Secretary has provided for the appointment of private individuals to serve as designated engineering representatives to assist in the FAA certification process. 14 CFR § 183.29 (1984). These representatives are typically employees of aircraft manufacturers who possess detailed knowledge of an aircraft's design based upon their day-to-day involvement in its development. The representatives act as surrogates of the FAA in examining, inspecting, and testing aircraft for purposes of certification. 14 CFR § 183.1 (1984). In determining whether an aircraft complies with FAA regulations, they are guided by the same requirements, instructions, and procedures as FAA employees. FAA employees may briefly review the reports and other data submitted by representatives before certificating a subject aircraft.

United States v. S.A. Empresa de Viacao Aerea Rio Grandense (Varig Airlines), 467 U.S. 797, 807 (1984) (internal citations omitted).

As such, I note that a DER serves as a functional extension of the FAA, working to make the Administration's approval process more efficient—not to lower the applicable regulatory standards. As the FAA has explained, the DER's purpose is to "expedit[e] accomplishment of required demonstrations of compliance with applicable airworthiness standards" and to "reduce or eliminate delays in obtaining required certifications." *Designated Airworthiness Representatives*, 48 Fed. Reg. 16176.

Neither is it significant that DERs may at times be nominally employed third-party aviation entities when they perform the regulatory role that the FAA has delegated them. "The FAA has stated that 'when performing a delegated function, designees are legally distinct from and act independent of the organizations that employ them.'" *Swanstrom v. Teledyne Cont'l Motors, Inc.*, 531 F. Supp. 2d 1325, 1333 (S.D. Ala. 2008) (quoting *Establishment of Organization Designation Authorization Program,* 70 Fed. Reg. 59932, 59933 (Oct. 13, 2005)). In fact, the district court in *Swanstrom* described DERS as being "subject to administrative regulations by the FAA" and perhaps capable of being classified as "persons acting under a federal officer" for the purposes of federal removal jurisdiction. 531 F. Supp. 2d at 1332. Moreover, a failure by a DER to fulfill his obligations for the continued maintenance of FAA certification is "a failure as a DER, not as an individual airman." *Duchek v. Nat'l Transp. Safety Bd.*, 364 F.3d

311, 316 (D.C. Cir. 2004). *See also Marcy v. FAA*, 936 F.2d 583 (10th Cir. 1991) (upholding substantive reasonableness of FAA's decision not to renew DER's commission when DER "exceeded the bounds of his authority in violation of agency regulations" by "continu[ing] to insist upon his own interpretation of the appropriate regulations").

Further, the law is clear that courts must prioritize functional realities over cursory labels when analyzing employment or delegation relationships. In determining upon whose behalf an individual performs his work, "economic reality rather than technical concepts is to be the test." *In re Enterprise Rent-A-Car Wage & Hour Employment Practices Litig.*, 683 F.3d 462, 467 (3d Cir. 2012) (Garth, J.). Thus, courts in the Third Circuit's vicinage must examine "the totality of the circumstances to determine the economic realities of the relationship" between two entities. *Jochim v. Jean Madeline Education Center of Cosmetology, Inc.*, 98 F. Supp. 3d 750, 757 (E.D. Pa. 2015).

These authorities thus point to one conclusion: DER approval is not independently undertaken by a private manufacturer unconstrained by FAA regulations. Rather, it is a type of delegated approval that will only be granted when compliance with the pertinent regulations is adequately shown, and the DER has acted within the scope of the Administration's delegation.

E. Parts Manufacturer Approval (PMA) Holders Who Submit Their Own Tests And Computations To The FAA Are Not Legally Bound By The Type Certificate Holder's Design Decisions. Instead, Market Forces Incentivize Them To Produce Replacement Parts Sufficiently Close To Those Approved In The Type Certificate.

In general, aircraft replacement components may not be produced except under the original type certificate or a production agreement, such as a Parts Manufacturer Approval (PMA). 14 C.F.R. §§ 21.8; 21.9(a)–(b). A type certificate may also be transferred or made available to third parties by way of a licensing agreement. 21 C.F.R. § 21.47(a). In that case, the type certificate holder must provide to the other party to the licensing agreement a formal written agreement acceptable to the FAA. *Id.* § 21.55. Lycoming had no licensing agreement with its co-defendants regarding the subject carburetor. Instead, the co-defendants produced that part independently according to a separate agreement that they had reached with the FAA to which Lycoming was not a party.

Make no mistake about it: type certificate holders and PMA holders are not entities who sit at different stages of a unified supply chain. To the extent that earlier decisions of this Court have imputed as much, those decisions gave analysis of this relationship much too short shrift. To the contrary, type certificate holders and PMA holders are competitors, as are most original equipment manufacturers (OEMs) relative to their aftermarket counterparts. The hallmark of any such economic relationship is the trade-off between the quality of imitations and price

savings. As it were, OEMs like type certificate holders were quick to disparage the quality of PMA parts when they were first authorized to sell aftermarket products. In fact, an early FAA Special Airworthiness Information Bulletin rebuked one OEM's attempt to analogize PMA holders to second-rate Elvis impersonators. *See* FAA SAIB: NE-08-40.[11] Tellingly, the FAA wrote the following in that very same bulletin: "The FAA understands that the [type certificate] holder has no knowledge or data about the PMA and STC parts installed in the product and, therefore, can only assess the airworthiness and systems effects of their parts installed in the product."

This strict dichotomy between OEMs like type certificate holders and aftermarket part producers like PMA holders is further illustrated by the regulations. Specifically, the first regulation in the subpart on PMAs makes clear that the section governs only the procedures for obtaining a PMA and the duties of PMA holders—it does not apply to the type certification process discussed above. 14. C.F.R. § 21.301.

Third-party manufacturers seeking PMA approval typically must obtain it by satisfying one of three methods: (1) identicality with a licensing agreement; (2) identicality without a licensing agreement; or (3) tests and computations. FAA Order 8120.22A, *Production Approval Process*, at 4-7–4-8 (hereinafter "PMA

[11] http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgSAIB.nsf/dc7bd4f27e5f107486257221005f069d/af4cd7d303d7ba628625749f006afbc7/$FILE/NE-08-40.pdf.

Order").[12] The parties do not dispute that the PMA relevant to the pending motions was obtained by the tests and computations method. This is a particularly compelling fact when considering the extent of Lycoming's liability for subsequent modifications, as the tests and computations method is the type of approval that relies least upon demonstrating an identity of structure between the type certificate holder's article and the article for which the PMA is sought.

In the context of the PMA process, "identicality" is a strict notion. It requires that the PMA applicant "show[ ] that the design of the article is identical to the design of an article that is covered under a type certificate." 14 C.F.R. § 21.303(4). An applicant seeking approval by way of identicality must certify that the proposed design "is identical in all respects" to the already-approved design. PMA Order at 4-8. That certification must be supported by data. *Id.* Further, identicality with an existing PMA is insufficient to obtain approval for a subsequent PMA. *Id.* The previously approved design from which identicality is measured must have received type certification or an equivalent approval. *Id.*

Absent such a showing, the applicant must submit test reports and computations showing that the design of the article meets the applicable airworthiness requirements. *Id.* When a PMA applicant selects the tests and computations route, it must submit a "data package" indicating that "all design,

[12] https://www.faa.gov/documentLibrary/media/Order/FAA_Order_8120_22A.pdf.

materials, processes, test specifications, system compatibility, and interchangeability are supported by an appropriate test and substantiation plan for FAA review and approval." *Id.* A tests and computations application must contain: (1) a compliance checklist as to the regulatory requirements; (2) test reports and computations; (3) a safety assessment; and (4) a continued operation safety plan. *See* FAA Advisory Circular 21.303-4, at 5 (hereinafter "PMA Advisory Circular").[13]

The test reports and computations must "show that an article's design meets the applicable airworthiness requirements of its respective product." *Id.* at 7. Although the scope and rigor of each test may vary, the FAA requires that they at least include: (1) a safety assessment that characterizes the nature of the article and its effect on safety; (2) computations that show regulatory compliance or substantiate the comparative analysis; and (3) test results that show direct regulatory compliance or verify the comparative analyses. *Id.* At all times, the focus is on the proposed articles "purpose, physical characteristics, interfaces with its product, and hot its failure modes impact safety." *Id.*[14]

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[13] https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_21.303-4.pdf.

[14] In an eleventh-hour argument, Plaintiff contended in supplemental briefing that the PMA holder in this case may have been exempted from obtaining FAA approval because it qualified as an FAA-certified "repair station." This argument is unavailing for several reasons. First, the facts reveal that the subject carburetor overhaul discussed more fully herein was accomplished by virtue of the manufacturer's status as a PMA holder, not in its capacity as a repair station as Plaintiff's *post hoc* characterization might suggest. Second, no evidence in the record suggests that the carburetor overhaul would have qualified as a

All of these tests are completed and summarized by the PMA applicant, not by the type certificate holder. *Id.* Indeed, the type certificate holder has no place in the PMA process. As counsel for Plaintiff, Tejinder Singh, Esquire, explained at oral argument, the relationship between a PMA article and a type-certificated one is primarily that of imitation motivated by economic incentives. As Mr. Singh described, "[T]he reason that [the PMA holder] designs things the way it does is not so much that the FAA . . . created a design for it to follow. It is that it wants to produce parts for use on [the type certificate holder's] engines. Right. That's its economic motivation." Tr. of May 19, 2017 Oral Arg., ECF No. 562, at 138:22–25 (hereinafter "May 2017 Tr."). "The reason that manufacturers like [the PMA holder] get in the position they're in is because they just to sell parts for these engines," he continued. "[T]hey follow the OEM design as closely as possible." *Id.* at 139:09–12.

In response to my follow-up question "So you are saying out of their own free will that they would follow the type certificate design? Not a mandate from someone?" Mr. Singh answered, "Well, it's not their own—so the reason they seek

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"repair" as the FAA regulations define that term, rather than an as "alteration." To the contrary, it appears that the overhaul process began with the subject engine in an airworthy state. Third, FAA repair stations, similar to DERs, are bound by the scope of their FAA designation, and Plaintiff has presented no evidence that the FAA would have permitted this particular aftermarket manufacturer to institute such a change in engine design that would have allegedly had a significant impact on reliability and airworthiness under the guise of a "repair." Finally, the record is silent as to when precisely this PMA holder became an FAA-certified repair station and whether that designation was active at the time of the 2004 overhaul.

the approval they seek, yes, is to conform to the type certificate and design. Yeah, that's a decision they make." *Id.* Mr. Singh would go on to explain:

> [T]hat's not how the PMA business works. If you want to make parts to put on [type-certificated] engines, you mimic the design as closely as possible. Right?
>
> You may not want to have to source your parts from [the type certificate holder]. You may want to get them yourself cheaper. You may want to sell them to whoever [*sic*] you want to sell them to. All of that, as a matter of economics, makes perfect sense.

Id. at 101:19–25.

"Only the FAA or an [Organization Designation Authorization (ODA)] can issue PMA. DERs do not issue PMAs, but support the FAA approval process with findings within their limitations." In addition, "a DER may only recommend approval within the scope of their authority for critical parts." *Id.* FAA Order 8110.42D, *Parts Manufacturer Approval Procedures*, at 3-2 (hereinafter "FAA PMA Procedures").[15] A "critical part" is typically one "for which a replacement time, inspection interval, or related procedure is specified in the Airworthiness Limitations section of a manufacturer's maintenance manual or Instructions for Continued Airworthiness." 14 C.F.R. § 45.15(c).

Further, Appendix A to the FAA's DER Handbook (entitled "Limitations on DER Functions") specifically states that "The following items are approved or issued only by the FAA: . . . (d) TCs, PMAs, ..." A provision in the Handbook

[15] https://www.faa.gov/documentLibrary/media/Order/8110.42D.pdf.

directly reference the list of functions reserved to the FAA states: "[W]e generally reserve for ourselves the approval of items listed in appendix A, paragraph 2. If we do delegate, we should do it carefully and consistently as follows: . . . (4) PMA Design Approvals. A DER may make findings of identicality or findings of compliance to the airworthiness requirements by test and computation that contribute to PMA design approvals, within the scope of delegation from the project ACO. The DER must be specifically authorized to make a finding of identicality by the managing ACO."

The process for implementing design changes to a PMA tracks those for type certificates and type design changes. In particular, 14 C.F.R. § 21.319(a) defines a "minor change" to a PMA as "one that has no appreciable effect" on its basis for approval. All other design changes are "major changes." *Id.* For major changes, the PMA holder "must obtain FAA approval" before including the change in a renewed design. *Id.* 21.319(b). Minor changes to the basic design of a PMA "may be approved using a method acceptable to the FAA." *Id.* Recall that "a method acceptable to the FAA" is the same language that the FAA has previously interpreted in this case to require FAA approval before independent action can be taken. FAA Ltr. Br. at 5, 15. The scope of a DER's authority to implement post-PMA major repairs or alterations is limited in the same way as his authority to make those repairs and alterations to type certificates. FAA DER Handbook at 27.

F. The Subject Engine Leaves Lycoming's Hands In 1969, Only To Be Placed In Storage And Lost To Time.

With that regulatory background in mind, I now turn to the operative facts of this case. The engine at issue, Lycoming model O-320-D2C, serial number L-6540-39A, was manufactured on August 13, 1969 by Lycoming Engines in Williamsport, Lycoming County, Pennsylvania. Expert Report of W. Jeffrey Edwards, ECF No. 384-1, at 57 (hereinafter "Edwards Report"). The engine was FAA certified under Lycoming's E-274 Type Certificate on May 2, 1966.

On September 4, 1969, shortly after Neil Armstrong walked on the moon, Lycoming shipped the engine at the heart of this dispute to Beagle Aircraft, Ltd., a British aircraft manufacturer. Declaration of James R. Stabley, ECF No. 221–1, ¶ 3 (hereinafter "Stabley Decl."). Beagle apparently planned to install the engine in a small, single-engine model known as the Beagle Pup. Edwards Report at 57–58; May Tr. at 45:18–21. However, for reasons unknown to the parties and likely lost to history, the engine was diverted to permanent storage before it ever was installed on any aircraft whatsoever. Edwards Report at 57–58; Stabley Report at 4. According to Mr. Edwards's report, Beagle was dissolved late in 1969 and its assets were liquidated. Edwards Report at 57.

Lycoming has no record of the engine ever being returned to its factory for service after the original September 4, 1969 shipment. Stabley Decl. ¶ 6. In fact, the "Received for Repairs" section of Lycoming's internal engine record form for

the engine is entirely blank for that time period. ECF No. 221-1 Ex. A. Moreover, the parties suspect that the individual who signed certain of the earliest available records has either since died or has become *non compos mentis*. May 2017 Tr. at 10:14–19. Lycoming maintained no further records of the subject engine until after the accident was reported—it did not know where the engine was or even that it still existed.

At the time Lycoming manufactured and shipped the engine to Beagle in 1969, the engine was equipped with a Marvel-Schebler model MA-4SPA, setting 10-3678-32, carburetor with serial number A-25-15850. Stabley Decl. ¶ 4. The carburetor is critical to ensuring that the engine itself generates sufficient power for the aircraft, as the carburetor is responsible for delivering the appropriate mix of air and fuel for combustion in the engine. The specific workings of this carburetor are explained more fully herein.

G. In 1998, After 29 Year In Storage, The Subject Engine Is Removed, Maintenance Is Performed, And The Engine Is Installed On An Aircraft For The First Time, Which Aircraft Did Not Even Exist In 1969.

On September 1, 1998, the subject engine was removed from storage. Edwards Report at 59. One additional expert report submitted in this case points out that during this period of long-term storage, the engine at least twice would have missed its scheduled 12-year overhaul date and therefore would not be in compliance with Lycoming's service instructions. Expert Report of James R.

Stabley, ECF No. 381-1, at 7 (hereinafter "Stabley Report"). The following maintenance was performed in 1998 as recorded in the engine's logbook:

(a) "Removed 4 cylinders and prop flange crankshaft plug, inspection found new condition";

(b) "Replaced cylinders using new Lycoming original kits";

(c) "Replaced Prop Flange Bushings with new";

(d) "Replaced Magnetos with Slick mag and harness kit";

(e) "Install serviceable Alt Motorcraft 00 FF 103000 OH 1-23-95";

(f) "Install new OH carb 10-5135 SN CK-611739"; and

(g) "Installed new Lycoming Alt drive belt, new Champion REM40E plugs."

Edwards Report at 59.

By October 16, 1998, the engine was installed on a 1976 Cessna 172N bearing registration N73747 after a previous engine was removed from that same plane. *Id.* All of the maintenance work and reinstallation was performed by a third-party and not by Lycoming. *See id.* at 58–59. In fact, at that time, the engine was not even type certificated for installation in the 1976 Cessna 172N, presumably because the Cessna 172N did not exist at the time Lycoming obtained the original type certificate for its engine. *Id. See also* Tr. of Nov. 13, 2013 Fed. R. Evid. 104 Hr'g, ECF No. 459, at 229:19–21 (hereinafter "Nov. 2013 Tr."); May 2017 Tr. at 22:13–18.

An exemplar of a Cessna 172N taken from Mr. Edwards's Report is depicted below:

Figure 2. Cessna 172N Exemplar

All told, after having been left in storage for nearly three decades, the engine was removed, maintenance was performed, and it was installed an aircraft for which it was not originally certified and for which supplemental approval was required. The owner of the Cessna at that time was listed as LaGrange Machine Shop, Inc., whose business address was 1706 Shorewood Drive, LaGrange, GA 30240. *See* ECF No. 234-1 at 6–7. Based on that same hoary 1998 maintenance record, the individual who performed the maintenance on behalf of LaGrange

appears to be James O. Perry. *Id.* Nothing in the record indicates the LaGrange or Mr. Perry bore any relationship to Lycoming whatsoever. Until this litigation commenced, Lycoming likely never knew either existed.

Because the engine was not type certificated for installation on a Cessna 172N, Mr. Perry was required to submit an FAA Major Alteration Form 337, dated December 1, 1998. *See* ECF No. 234-1 at 6–7. That alteration was field approved by Peter J. Van Leeuwuen, acting within the scope of his FAA inspection authorization. *See id*. at 6.[16] On the approval form, Mr. Van Leeuwen's address is the same as LaGrange's above.

Mr. Edwards's report also suggests that the October 1998 installation did not comply with Lycoming Service Instruction 1009AM regarding overhaul periodicity and failed to address several outstanding airworthiness directives. Edwards Report at 59. This is "consistent with substandard maintenance," Mr. Edwards wrote, as the aircraft was operated while not airworthy between October 1998 and December 1998, and again between December 1998 and August 2004. *Id.*

According to Mr. Edwards, the reason that the engine required such immediate repair in December 1998 after its October 1998 installation was because

[16] "Field approval" is a method by which the FAA grants one-time approval for technical data used to accomplish a major repair or a major alteration on a single aircraft. FAA Data Approval Order at 3.

it sustained a broken lifter body component after being placed into service for just 12.3 hours. *Id.* at 60. According to his report, "The engine had significant problems due to corrosion from its long-term storage, necessitating a complete disassembly and inspection." *Id.*

H. The Subject Aircraft Is Struck By Lightning, After Which Time And Without Lycoming's Approval Or Knowledge, Kelly Aerospace Overhauls The Subject Carburetor And Replaces It With An Aftermarket Conglomerate, Pursuant To An Independent, Third-Party PMA From The FAA.

In July 2004, the engine was removed after the aircraft was struck by lightning. Stabley Report at 4; Edwards Report at 61. The record is unclear as to whether the strike occurred while the aircraft was grounded or in flight and whether the aircraft was activated at the time of the strike. Nevertheless, from December 1998 until the July 2004 lightning strike, the aircraft flew for 1,262.6 problem-free hours. Stabley Report at 4; Edwards Report at 61.

At that time and while the engine was removed for inspection, Triad Aviation, Inc., overhauled the entire engine. Stabley Report at 4; Edwards Report at 62. During the overhaul, Triad removed the carburetor itself from the engine and sent it to Kelly Aerospace Power Systems to be overhauled separately. Kelly's principal place of business was Alabama. Second Am. Compl., ECF No. 205, at ¶ 4.

Under 14 C.F.R. § 43.2, "overhaul" is a regulatory term of art, which describes the process by which a component, using methods, techniques, and practices acceptable to the FAA, has been disassembled, cleaned, inspected, repaired as necessary, and reassembled. Overhaul methods must be conducted in accordance with FAA-approved standards and technical data, and adequately documented. *Id.* Component overhauls, for instance, follow a sort of Humpty-Dumpty process, whereby the components are disassembled and all of the internal parts are separated, repaired, or replaced, at which point the overhauling entity endeavors to put all of the pieces back together again. *See* Defendant Kelly's Revised Responses to Lycoming's Request for Admission, ECF No. 221-2 (hereinafter "Kelly Admissions").

As discussed earlier, the carburetor is the engine component that meters the air-fuel mixture supplied to the engine so that the combustion process functions efficiently and powers the engine accordingly. During the November 2013 Rule 104 Hearing before this Court, Plaintiff's expert, Donald E. Sommer, explained the significance of the carburetor to an aircraft engine, as well as how a carburetor like the one at issue typically functions. Sitting upright, the bottom of the carburetor connects to the air box from which it receives air, and the top of the carburetor connects to the engine into which it supplies metered air. Nov. 2013 Tr. at 22:20–23:04.

The bottom of the carburetor is called the float bowl because it is a bowl-shaped compartment that contains the fuel. *Id.* at 23:05–08. The top half of the carburetor is known as the throttle body because it contains the throttle, the device that meters the flow of air and fuel to the engine. *Id.* at 23:08–11. The two parts parts—the float bowl and the throttle body—connected by four hex head screws and bolts. *Id.* at 23:11–13. Two schematics from Mr. Sommer's report are depicted below for reference:

Figure 3. MA-4SPA Carburetor Operational Schematic

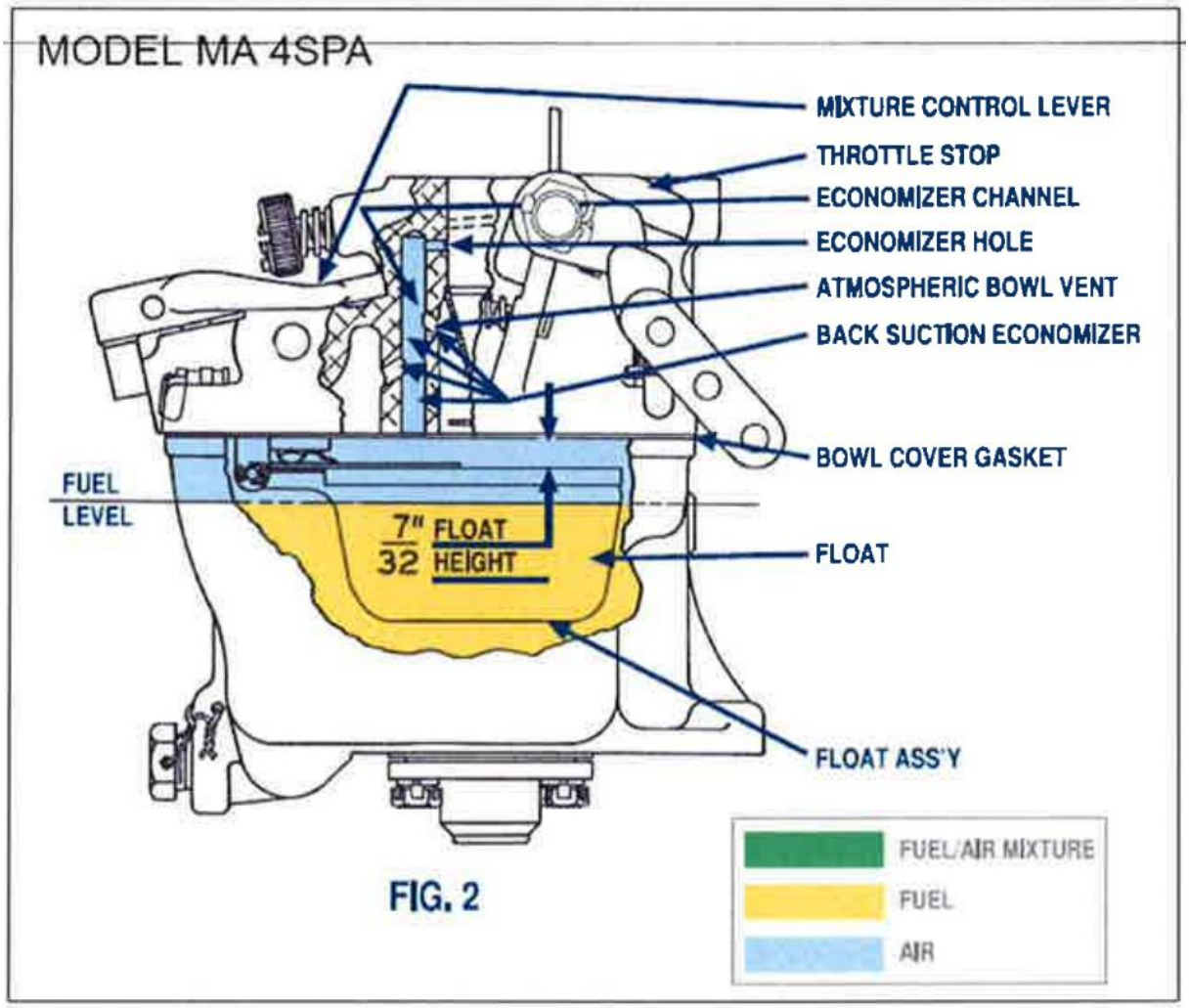
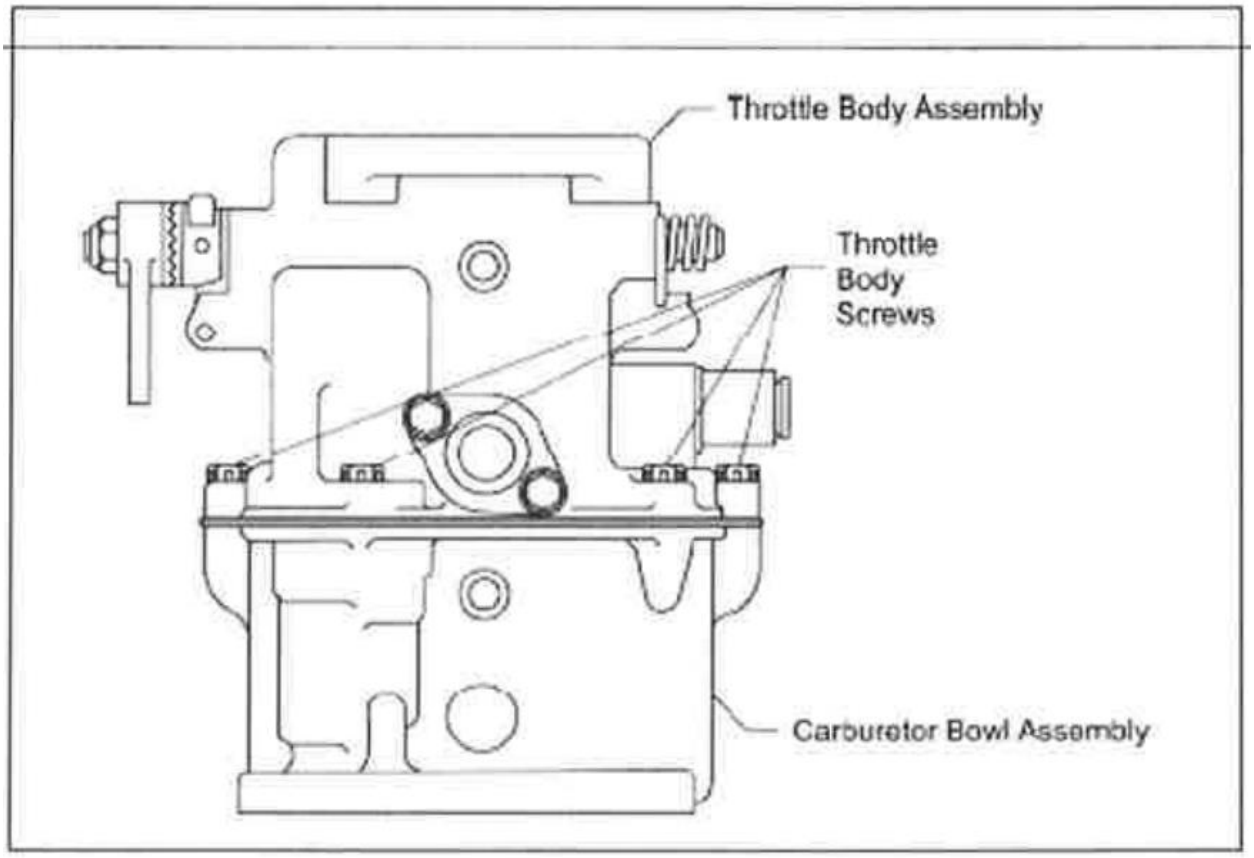


Figure 4. MA-4SPA Carburetor Throttle Body Screws Schematic

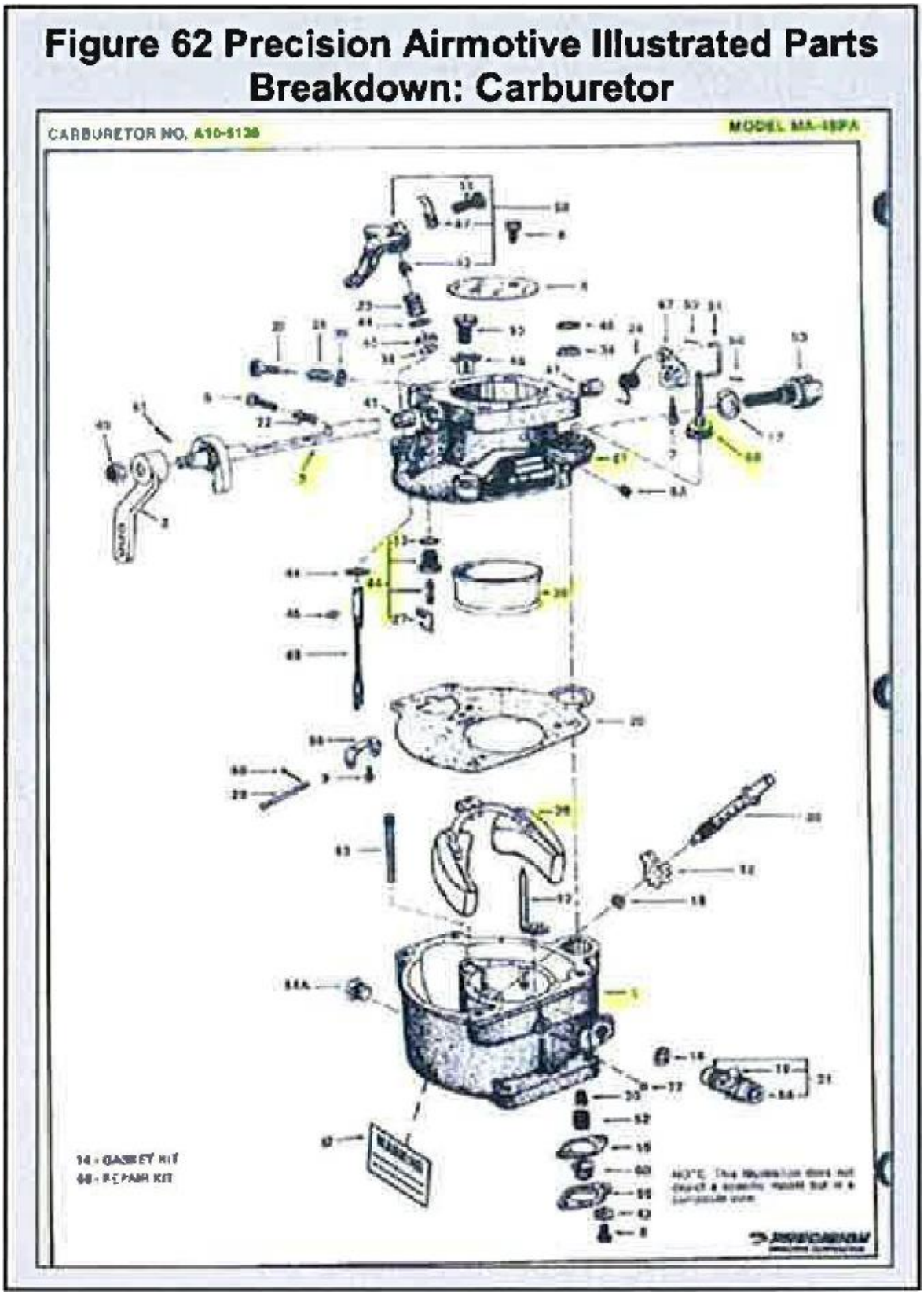


According to Mr. Sommer, it is very important that the carburetor regulate how much air passes through it, because the metered fuel should emerge as a fine mist or spray. *Id.* at 24:17–20. If the fuel is emitted in globules or large droplets, however, the engine will not be able to burn it efficiently, and the aircraft's horsepower will be minimal. *Id.* at 24:20–25. Eventually, if the fuel content in the mixture is continuously concentrated rather than finely dispersed, the engine may even cease to run. *Id.* at 24:25–25:01.

In between the float bowl and the throttle body is a gasket that permits an airtight seal. *Id.* at 28:02–04. That gasket is held in place by four bolts and lock

washers that connect the throttle body to the float bowl. *Id.* at 28:05–06. The bolt has a screw slot, but it also features a hexed head, so that it can be installed either by a screwdriver or a wrench. *Id.* at 29:16–19. When a mechanic fastens the system together after a repair or overhaul, he or she would take the bolt, drop it into the lock washer holes, drop the bolts into the throttle body holes, put the throttle body on top of the float bowl, and screw the bolts into the threaded holes featured on the float bowl. *Id.* at 29:19–23. A corresponding photo from Mr. Edward's report depicts not only this portion of the MA-4SPA carburetor fastening process, but also the entire carburetor reconstruction:

Figure 5. MA-4SPA Carburetor Bolt Fastening Schematic



With those visuals in mind, I now turn the precise facts of Kelly's 2004 overhaul of the subject carburetor. This is an important juncture in the engine's history, because although Plaintiff alleges that faulty carburetor screws caused the plain to lose power, the original MA-4SPA carburetor shipped by Lycoming with the original in 1969 was entirely gutted and replaced by Kelly during the overhaul. Somewhat remarkably, that fact is undisputed (and has been) through the pendency of this litigation. Indeed, Judge Jones, in a 2012 decision, memorialized those admissions as follows:

- "Plaintiff admits that the carburetor that was installed on the Cessna 172N was not the same carburetor that Lycoming shipped with the engine in 1969."
- "Plaintiff does not dispute, that the Kelly Defendants manufactured, replaced, and shipped the carburetor and its component parts."
- "Plaintiff admits that Lycoming's hands did not physically touch the carburetor."

ECF No. 299 at 8, 13, 15.

It is also admitted that Triad shipped the carburetor from North Carolina to Kelly for overhaul. Kelly Admissions ¶ 5. Kelly overhauled the carburetor on or about August 3–5, 2004 using a throttle body and float bowl from Kelly's own core parts bank. *Id.* ¶ 6. Kelly also manufactured the pump plunger, the valve and

seat assembly, the single piece venturi, and the throttle shaft, and used them to rebuild the carburetor during the overhaul. *Id.* ¶ 13–14.

An important facet of Kelly's overhaul of the subject was its selection of parts comprising the float bowl (bottom) and throttle body (top) of the carburetor. In particular, Kelly admitted that the physical manufacturing of the float bowl was performed by an outside vendor. *Id.* ¶ 16. Subsequent discovery has suggested that one half of the carburetor was likely manufactured by Marvel-Schebler in the 1960s because it was painted black, a practice the company stopped in that decade. May Tr. at 16:09–14. *See also* Stabley Report at 8. Another Defendant produced a record showing that the other half of the carburetor was manufactured in the 1970s. May Tr. at 16:14–15. Then, Kelly used its own aftermarket parts to fasten the two halves together. *Id.* at 16–20. In essence, Kelly created what counsel for Defendant, Catherine Slavin, Esquire, termed "a Frankenstein's monster"—literally melding together two distinct aftermarket carburetor halves produced in subsequent decades before adjoining those two halves with a third set of parts from a different aftermarket parts manufacturer. May Tr. at 16:09–20; 84:15–16.

Lycoming was not involved with 2004 overhaul in any way. It had no practical control over how Kelly overhauled the engine, and at no time did it instruct Kelly to use the parts that Kelly ultimately selected. In fact, we now know that Lycoming was not even aware that one of its engines had been placed on this

specific Cessna aircraft, never mind having had its carburetor overhauled in such a hodgepodge manner, until after the accident occurred in the summer of 2005.

To the contrary, when Kelly overhauled the plane, it acted pursuant to a separate PMA that it had obtained from the FAA. Lycoming was not party to that PMA, and Kelly at no time had a licensing agreement with Lycoming. Instead, Kelly obtained its PMA by way of the tests and computations avenue, having run its own tests on its parts and having submitted its own proposed designs and its own supporting data. To the extent that Kelly's parts were similar to Lycoming's, it was because Kelly consciously decided as much, not because its hand was forced by Lycoming.

As Mr. Sommer, Plaintiff's own expert, testified at the Rule 104 hearing, Kelly obtained its PMA "by going to the FAA and showing that their [*sic*] parts were similar in fit, form, and function and preparing an application and receiving approval." Nov. 2013 Tr. at 127:11–15. Mr. Sommer explained that Lycoming itself could not have even sold the engine with aftermarket Kelly parts, as it stood in its post-overhaul form. *Id.* at 127:20–24. "Kelly is not included in the Cessna 172 Lycoming type certification. So it can't come out of the factory." *Id.* at 127:23–24. In fact, Kelly did not obtain FAA approval to implement the subject PMA parts until the 1980s, well after Lycoming had released the engine into the stream of commerce. Nov. 2013 Tr. at 128:03–09. Thus, to the extent that Kelly's

independent designs and configurations resembled Lycoming's, it was because, as Mr. Singh explained at oral argument, Kelly freely chose to model its parts after the type certificate holder's, not because Lycoming controlled or coerced Kelly to do as much. To the contrary, it appears highly disadvantageous from a type certificate holder's point of view for comparable aftermarket replacement parts to be available at all, let alone at lower price points.

During the July 2004 engine overhaul, Plaintiff alleges that the Defendants complied with a service bulletin previously issued by Lycoming, known as Service Bulletin 366. That bulletin was broadly issued on September 14, 1973 to any and all parts manufacturers or end users who might be responsible for securing maintenance on "All AVCO Lycoming engines equipped with Marvel-Schebler carburetors." ECF No. 234-10 at 2. The Bulletin consists of three short paragraphs, together approximately one-half page in length.

The Bulletin is written generally and provides no direct guidance for the particular parts or methods eventually employed 31 years later by Kelly. *See id.* Instead it merely notifies recipients that if leaking is evident or the screws are loose, the carburetor may be disassembled so that the gasket may be replaced and the screws retightened. *Id.* Further, it makes no mention of the types of components or the designs that should be used when an aftermarket parts manufacturer seeks a PMA pertaining to the carburetor. *See id.*

I. The Carburetor Is Reinstalled In The Engine, The Engine Is Reinstalled In The Aircraft, And After Just 400 Hours Of Flight Time, The Aircraft Crashes With An Inexperienced Pilot In Command.

The plane was placed back into service on September 9, 2004, and the plane was flown for just under 400 additional hours when, on Sunday, July 10, 2005, it crashed near the rural Transylvania County Airport in Brevard, North Carolina. Edwards Report at 5, 65–66. Just after take-off, the plane collided with the ground and caught fire. *Id.* at 5. Prior to the August 2004 overhaul, the plane had flown for at least 1,200 hours. *Id.* at 66. The last annual inspection occurred on February 4, 2005, approximately 200 hours after the overhaul. *Id.* The last known maintenance occurred on June 20, 2005, at which time work was performed on the carburetor within a few inches of the subject carburetor body-to-bowl screws. *Id.*

The plane was registered to a private owner, Randall F. Winchester of Greenville Aviation, a full-service pilot training center. *Id.* at 56. At the time of the crash, it was being flown by pilot David Sikkelee, Jr., with his brother Craig Sikkelee riding along as a passenger. *Id.* at 5–7. The pair was purportedly on a business trip. *Id.* at 1. David Sikkelee sustained fatal injuries in the crash, while Craig Sikkelee received serious injuries but survived. *Id.*

David Sikkelee's pilot history was reconstructed from existing records, including FAA records on file at the FAA record center in Oklahoma City, Oklahoma, as his pilot logbook was damaged by the post-crash fire. *Id.* 7– 8. In

2004, Mr. Sikkelee received an FAA private pilot single-engine land certificate, the lowest pilot certificate that allows one to act as a pilot in command carrying passengers in this class of aircraft. *Id.* at 8. According to the certification records, Mr. Sikkelee had approximately 50 total hours of certifying flight time and 14 hours as a pilot in command, none of which were accumulated in a Cessna 172N. *Id.* The certifying instructor apparently only spent a total of 3.9 hours with Mr. Sikkelee. *Id.* Further, although Mr. Sikkelee reported 68 total hours of flight time, with 4 hours in the six months preceding the accident, Mr. Edwards believes that an analysis of Mr. Sikkelee's rental and FAA certificate records revealed that he had only 55 hours of total flight time, 2.5 of which occurred in the preceding six months. *Id.* Prior to the day of the accident, Mr. Sikkelee had flown a Cessna 172 model aircraft for just 1.8 total hours. *Id.* Altogether, he had flown for approximately 5.6 hours in the year before the accident and not all in the preceding 60 days. *Id.* at 8–9.

This lawsuit was filed in 2007, in which Plaintiff alleges that the throttle body to float bowl screws had come loose and caused the engine to lose power. Lycoming contends that the screws were not defective and that the accident was likely caused by pilot inexperience, a botched 2004 overhaul, or any number of chance occurrences for which it was not legally responsible. As one of the Lycoming's experts reminded:

> When an aircraft crashes, there may be any one of a thousand and one reasons why it did so. The overall task confronting the investigator is one of initiating a program aimed specifically at eliminating those possibilities which could not conceivably have been involved under the particular circumstances.

Expert Report of Thomas W. Eagar, ECF No. 489-2, at 4 (quoting FAA *Aircraft Accident Investigator's Desk Reference Guide* (1991)).

In 2010, the Plaintiff entered into a settlement agreement with Kelly, who overhauled the carburetor in 2004. Kelly agreed to pay Plaintiff $2 million for the injuries suffered by her decedent in connection with the 2004 crash. ECF No. 145–46.

In 2014, I held that Plaintiff's claims against Lycoming were field preempted. In 2016, our Court of Appeals reversed that determination with instructions that I consider conflict preemption on remand.[17] I now hold that Lycoming is entitled to summary judgment.

[17] Specifically, our Court of Appeals instructed me as follows:

> We have no need here to demarcate the boundaries of those tort suits that will be preempted as a result of a conflict between state law and a given type certificate, nor which FAA documents incorporated by reference in a type certificate might give rise to such a conflict. While the parties responded to the FAA's submission by arguing for the first time in supplemental submissions whether the alleged design defect at issue in this case is a design aspect that was expressly incorporated into the type certificate for the Textron Lycoming O–320–D2C engine and what significance that might have for conflict preemption, we will leave those issues for the District Court to consider on remand.

Sikkelee, 822 F.3d at 702.

II. LAW[18]

"One of the principal purposes of the summary judgment rule is to isolate and dispose of factually unsupported claims or defenses, and we think it should be interpreted in a way that allows it to accomplish this purpose." *Celotex Corp. v. Catrett*, 477 U.S. 317, 323–24 (1986). Summary judgment is appropriate where "the movant 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). "Facts that could alter the outcome are 'material facts,' and disputes are 'genuine' if evidence exists from which a rational person could conclude that the position of the person with the burden of proof on the disputed issue is correct." *Clark v. Modern Grp. Ltd.*, 9 F.3d 321, 326 (3d Cir. 1993) (Hutchinson, J.) (citing *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 255 (1986) and *Celotex*, 477 U.S. at 322).

"A defendant meets this standard when there is an absence of evidence that rationally supports the plaintiff's case." *Clark*, 9 F.3d at 326. "A plaintiff, on the

[18] Plaintiff suggests that the instant motions should be assessed using the standard for reconsideration. I disagree. The Third Circuit supplied explicit instructions for me to revisit these issues on remand. Regardless, even if viewed through the lens of reconsideration, changes in the applicable legal principles starting with *Tincher v. Omega Flex, Inc.*, 104 A.3d 328 (Pa. 2014), as well as what appear to be earlier errors applying that law, both justify my conclusions.

other hand, must point to admissible evidence that would be sufficient to show all elements of a *prima facie* case under applicable substantive law." *Id.*

"[T]he inquiry involved in a ruling on a motion for summary judgment or for a directed verdict necessarily implicates the substantive evidentiary standard of proof that would apply at the trial on the merits." *Liberty Lobby, Inc.*, 477 U.S. at 252. Thus, "[i]f the defendant in a run-of-the-mill civil case moves for summary judgment or for a directed verdict based on the lack of proof of a material fact, the judge must ask himself not whether he thinks the evidence unmistakably favors one side or the other but whether a fair-minded jury could return a verdict for the plaintiff on the evidence presented." *Id.* "The mere existence of a scintilla of evidence in support of the plaintiff's position will be insufficient; there must be evidence on which the jury could reasonably find for the plaintiff." *Id.* "The judge's inquiry, therefore, unavoidably asks . . . 'whether there is [evidence] upon which a jury can properly proceed to find a verdict for the party producing it, upon whom the onus of proof is imposed.'" *Id.* (quoting *Schuylkill & Dauphin Imp. Co. v. Munson*, 81 U.S. 442, 447 (1871)). Summary judgment therefore is "where the rubber meets the road" for a plaintiff, as the evidentiary record at trial, by rule, will typically never surpass that which was compiled during the course of discovery.

"[A] party seeking summary judgment always bears the initial responsibility of informing the district court of the basis for its motion, and identifying those

portions of the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, which it believes demonstrate the absence of a genuine issue of material fact." *Celotex*, 477 U.S. at 323 (internal quotations omitted). "[R]egardless of whether the moving party accompanies its summary judgment motion with affidavits, the motion may, and should, be granted so long as whatever is before the district court demonstrates that the standard for the entry of summary judgment, as set forth in Rule 56(c), is satisfied." *Id.*

Where the movant properly supports his motion, the nonmoving party, to avoid summary judgment, must answer by setting forth "genuine factual issues that properly can be resolved only by a finder of fact because they may reasonably be resolved in favor of either party." *Liberty Lobby*, 477 U.S. at 250. For movants and nonmovants alike, the assertion "that a fact cannot be or is genuinely disputed" must be supported by: (i) "citing to particular parts of materials in the record" that go beyond "mere allegations"; (ii) "showing that the materials cited do not establish the absence or presence of a genuine dispute"; or (iii) "showing . . . that an adverse party cannot produce admissible evidence to support the fact." Fed. R. Civ. P. 56(c)(1).

"When opposing summary judgment, the non-movant may not rest upon mere allegations, but rather must 'identify those facts of record which would contradict the facts identified by the movant.'" *Port Auth. of N.Y. and N.J. v.*

Affiliated FM Ins. Co., 311 F.3d 226, 233 (3d Cir. 2003) (Weis, J.). Moreover, "[i]f a party fails to properly support an assertion of fact or fails to properly address another party's assertion of fact as required by Rule 56(c), the court may . . . consider the fact undisputed for purposes of the motion." Fed. R. Civ. P. 56(e)(2). On motion for summary judgment, "[t]he court need consider only the cited materials, but it may consider other materials in the record." Fed. R. Civ. P. 56(c)(3).

"[A]t the summary judgment stage the judge's function is not himself to weigh the evidence and determine the truth of the matter but to determine whether there is a genuine issue for trial." *Liberty Lobby*, 477 U.S. at 249. "[T]here is no issue for trial unless there is sufficient evidence favoring the nonmoving party for a jury to return a verdict for that party." *Id.* "If the evidence is merely colorable . . . or is not significantly probative, summary judgment may be granted." *Id.* at 249–50 (internal citations omitted).

III. ANALYSIS

At first glance, this case appears to present puzzling questions of conflict preemption and proximate cause in the field of aviation. Yet, I have come to suspect that its complexity, like that of a shimmering oasis in the eyes of a weary wanderer, may be nothing more than a clever mirage flowing from strained interpretations of the law and academic daydreams divorced from fact. In

accordance with the discussion that follows, I hold that Plaintiff's state tort claims must fail because they are conflict preempted and lack proximate cause.

A. There Is No Genuine Dispute Of Material Fact As To Whether Plaintiff's State Tort Claims Are Conflict Preempted, Because The FAA's Regulations Rendered It Impossible For Lycoming To Unilaterally Implement What Design Changes Pennsylvania Law Allegedly Required Of It.

Federal law "shall be the supreme Law of the Land . . . any Thing in the Constitution or Laws of any State to the Contrary notwithstanding." U.S. Const., Art. VI, cl. 2. "It is basic to this constitutional command that all conflicting state provisions be without effect." *Maryland v. Louisiana*, 451 U.S. 725, 746 (1981). Thus, "under the Supremacy Clause, from which our preemption doctrine is derived, any state law, however clearly within a State's acknowledged power, which interferes with or is contrary to federal law, must yield." *Gade v. Nat'l Solid Wastes Mgmt. Ass'n*, 505 U.S. 88, 108 (1992) (internal quotation marks omitted).

In *Colacicco v. Apotex Inc.*, 521 F.3d 253, 261 (3d Cir. 2008), the United States Court of Appeals for the Third Circuit explained that there are three primary types of preemption: (1) "express" preemption, when Congress expressly states its intent to preempt state law; (2) "field" preemption, when Congress' intent to pre-empt all state law in a particular area may be inferred; and (3) "conflict" preemption, when state law is nullified to the extent that it actually conflicts with

federal law. On occasion, field and conflict preemption are jointly referred to as "implied" preemption. Only conflict preemption is at issue here.

The above framework necessarily means that "[e]ven in the absence of an express pre-emption provision," courts may find preemption where "it is 'impossible for a private party to comply with both state and federal requirements.'" *Mutual Pharm. Co. v. Bartlett*, 133 S. Ct. 2466, 2473 (2013) (quoting *English v. General Elec. Co.*, 496 U.S. 72, 79 (1990)). Importantly, a holding of preemption "is inescapable and requires no inquiry into congressional design where compliance with both federal and state regulations is a physical impossibility for one engaged in interstate commerce." *Florida Lime & Avocado Growers, Inc. v. Paul*, 373 U.S. 132, 142–43 (1963). Thus, "[t]he question for 'impossibility' is whether the private party could independently do under federal law what state law requires of it." *PLIVA, Inc. v. Mensing*, 564 U.S. 604, 620 (2011). When federal regulations prevent the defendant from "unilaterally" doing what state law required, the state law is conflict preempted. *Id.*

In recent years, the Supreme Court of the United States has issued two opinions examining conflict preemption in the context of federal regulations: *Mutual Pharmaceutical Co. v. Bartlett*, 133 S. Ct. 2466 (2013) and *PLIVA, Inc. v. Mensing*, 564 U.S. 604 (2011). Both cases weigh strongly in favor of conflict preemption here.

In *PLIVA v. Mensing*, Justice Clarence Thomas, writing for the Court, held that a system of regulations promulgated by the Food and Drug Administration (FDA) conflicted with certain state failure to warn claims regarding alleged labeling deficiencies in pharmaceuticals. 564 U.S. at 608–11. The narrow issue in *PLIVA* was thus whether generic drugmakers could independently change their labels after initial FDA approval. *Id.* a 614. The FDA filed a brief interpreting its regulation as prohibiting generic manufacturers from altering the drug label without such approval. *Id.* As the Court summarized, "The FDA denies that the Manufacturers could have . . . unilaterally strengthen[ed] their warning labels." *Id.* In support, it noted that an agency's views are controlling "unless plainly erroneous or inconsistent with the regulation[s]." *Id.* (quoting *Auer v. Robbins*, 519 U.S. 452, 461 (1997)).[19]

The state failure to warn claims in *PLIVA* were therefore conflict preempted because "[i]t was not lawful under federal law for the Manufacturers to do what state law required of them." *PLIVA*, 564 U.S. at 618. This was true in two respects. First, had the drugmakers independently changed their labels, they would have violated federal law. *Id.* at 618–19. Second, and just as important, the Court noted that even if the drugmakers could have eventually altered their labels by

[19] The Court also reminded that "[a]lthough we defer to the agency's interpretation of its regulations, we do not defer to an agency's ultimate conclusion about whether state law should be preempted." *Id.* n.3.

"requesting FDA assistance," the state tort claims would still be preempted. *Id.* at 619. This was so because the state claims "demanded a safer label"—they did not "instruct the Manufacturers to communicate with the FDA about the possibility of a safer label." *Id.* In other words, the possibility that the FDA might approve a drugmaker's proposed changes did not alter the conflict preemption calculus whatsoever.

PLIVA's second justification, that a future hypothetical determination by the agency was irrelevant to the preemption inquiry, holds particular weight in the present case. In fact, the tort claimants in *PLIVA* argued that "when a private party's ability to comply with state law depends on approval and assistance" from the agency, a finding of preemption requires that party "to demonstrate that the [agency] would not have allowed compliance with state law." *Id.* at 620 "This is a fair argument," Justice Thomas wrote, "but we reject it." *Id.*

Permitting litigants to consider hypothetical regulatory action would "render conflict preemption largely meaningless," and it would make most conflicts "illusory." *Id.* "We can often imagine that a third party or the Federal Government *might* do something that makes it lawful for a private party to accomplish under federal law what state law requires of it," the Court wrote. *Id.* "If these conjectures suffice to prevent federal and state law from conflicting," then "it is unclear when, outside of express preemption that the Supremacy Clause would have any force."

Id. at 621. Thus, contrary to what the Plaintiff might suggest here, conflict preemption cannot "take into account hypothetical federal action." *Id.* n.6

"To decide these cases," the *PLIVA* Court concluded, "it is enough to hold that when a party cannot satisfy its state duties without the Federal Government's special permission and assistance, which is dependent on the exercise of judgment by a federal agency, that party cannot independently satisfy those state duties for preemption purposes." *Id.* at 623–24. Justice Thomas then noted that in regulatory preemption cases such as these, "the possibility of possibility"—that is, the possibility that the agency will approve a requested change—does not defeat conflict preemption. *Id.* at 624.

Two years later, the Supreme Court extended its bright-line conflict preemption jurisprudence by deeming preempted several § 402A strict liability design defect claims in *Mutual Pharmaceutical Co., Inc., v. Bartlett*. 133 S. Ct. 2466 (2013).[20] *Bartlett* involved the same "onerous and lengthy" regulatory

[20] The *Bartlett* Court drew no meaningful distinction between strict liability claims premised upon § 402A of the Second Restatement and common law negligence claims. To the contrary, it noted that for preemption purposes, such claims typically fall hand-in-hand. This is true because "most common-law causes of action for negligence and strict liability do not exist merely to spread risk, but rather impose affirmative duties." *Id.* at 2474 n.1 (citing *Riegel v. Medtronic, Inc.*, 552 U.S. 312 (2008)). In *Riegel*, the Court explained that "common-law causes of action for negligence and strict liability do impose requirements and would be preempted by federal requirements." Indeed, in preemption cases, judicial "reference to a State's 'requirements' includes its common-law duties," and "a tort judgment therefore establishes that the defendant has violated a state-law obligation." *Id.* at 323–324 (internal citations omitted). This is particularly true as a matter of Pennsylvania law following the decision of our Supreme Court in *Tincher v. Omega Flex, Inc.*, 104 A.3d 328

scheme as did *PLIVA*, which required manufacturers to obtain FDA approval "before marketing any drug in interstate commerce." *Id.* at 2470–71. At the same time, state tort law had effectively forbidden manufacturers from selling products that were "unreasonably unsafe." *Id.* at 2470. Thus, when the prevalence of a dangerous side-effect associated with one of Mutual Pharmaceutical's drugs became more prevalent, state law required the company redesign the drug or its label in direct violation of a regulation that "prohibited [it] from making any unilateral changes." *Id.* at 2471–72. Accordingly, because "state law imposed a duty on Mutual *not* to comply with federal law," Justice Samuel A. Alito, Jr., writing for the Court, held that the tort law was "without effect." *Id.* at 2470.

As is the case here, the state law at issue in *Bartlett* imposed on the manufacturer "a duty to design his product reasonably safely for the uses which he can foresee." *Id.* 2473. *Compare Tincher*, 104 A.3d at 383 ("[An] entity engaged in the business of selling a product has a duty to make and/or market the product—which is expected to and does reach the user or consumer without substantial change in the condition in which it is sold—free from a defective condition unreasonably dangerous to the consumer." (internal quotation marks omitted). In addition, the state at issue in *Bartlett* had applied the "risk-utility approach," one of two applicable approaches in Pennsylvania after *Tincher*, pursuant to which courts

(Pa. 2014), a decision clarifying strict liability and negligence principles, to which I turn my attention more fully herein.

must consider "the usefulness and desirability of the product to the public"; "whether the risk of danger could have been reduced without significantly affecting either the product's effectiveness or manufacturing cost"; and "the presence and efficacy of a warning to avoid an unreasonable risk of harm from hidden dangers." *Id.* at 2475. Thus, because the regulations as interpreted by the FDA prevented the drugmaker from "independently changing" its products, "federal law prohibited Mutual from taking the remedial action required to avoid liability under [state] law." *Id.* at 2476.[21]

[21] Impossibility that an aircraft manufacturer might face when attempting to alter the essence of its product is thoroughly discussed herein. That being said, I note that the suggestion that Lycoming might have issued warning labels or changed existing packaging makes no legal difference here. First, Plaintiff has not suggested that this is a failure to warn of known dangers case. To the contrary, the precise action that Plaintiff alleges Lycoming failed to take was redesigning the engine's carburetor. Moreover, warning labels would not have aided Lycoming in satisfying what state law required of it. Specifically, state failure to warn claims are effective only where inclusion of the alleged omission would have remedied the plaintiff's injures. *See Simon v. Wyeth Pharm., Inc.*, 989 A.2d 356, 368 (Pa Super. Ct. 2009) ("Proximate cause is an essential element in failure-to-warn cases involving prescription medications. The law requires that there must be some reasonable connection between the act or omission of the defendant and the injury suffered by the plaintiff.") (internal quotation marks omitted). *See also Demmler v. SmithKline Beecham Corp.*, 671 A.2d 1151, 1155 (Pa. Super. Ct. 1996) ("In the duty to warn context, assuming that plaintiffs have established both duty and a failure to warn, plaintiffs must further establish proximate causation by showing that had defendant issued a proper warning to the learned intermediary, he would have altered his behavior and the injury would have been avoided."). As the *Bartlett* Court emphasized, preemption does not turn on semantic differences between various case theories but upon whether the state claims fall "outside the class of claims" that federal law preempts. 133 S. Ct. at 2479 (quoting *Bates v. Dow Agrosciences LLC*, 544 U.S. 431 (2005)). In addition, such claims would likely nevertheless be preempted regardless by the FAA's reservation of power to issue appropriate Airworthiness Directives and its guidance as to individualized Service Bulletins or Maintenance Manuals. *See, e.g.*, FAA Order 8110.117A, *Service Bulletins Related to Airworthiness Directives*, https://www.faa.gov/documentLibrary/media/Order/8110_117A.pdf; FAA Advisory Circular 20-176A, *Service Bulletins Related to Airworthiness Directives and Indicating FAA Approval on Service Documents*, https://www.faa.gov/documentLibrary/media/Advisory_Circular/AC_20-176A.pdf. Finally, a

Accordingly, in the wake of *PLIVA* and *Bartlett*, if Lycoming could not independently do what Pennsylvania state tort law may have required of it, Plaintiff's claims are also conflict preempted. That must be the case here. "Pre-emption analysis requires us to compare federal and state law. We therefore begin by identifying the state tort duties and federal [ ] requirements applicable to the Manufacturers." *PLIVA*, 564 U.S. at 611.

In *Tincher v. Omega Flex, Inc.*, the Supreme Court of Pennsylvania confirmed that state tort claims spring from "breaches of duties imposed by law," which duties represent the Commonwealth's judgment on "matter[s] of social policy." 104 A.3d at 387. "In Pennsylvania, the question of whether those who make or market products have duties in strict liability (in addition to negligence) has been answered in the affirmative." *Id.* at 389. Thus, after *Tincher*, regardless of whether a strict liability action under § 402A is viewed through the lens of the consumer expectations or risk-utility tests, it is clear that a manufacturer "has a duty to make . . . the product . . . free from a defective condition unreasonably dangerous to the consumer." 104 A.3d at 383. Moreover, although "[t]he duty spoken of in strict liability is intended to be distinct from the duty of due care in negligence," that both torts incorporate the concept of duty "obviously reflects the

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fallback on labelling changes must necessarily fail to defeat preemption challenges in cases where the complained-of defect goes to the essence of the product itself. Otherwise, that fallback would make the Supreme Court's conflict preemption jurisprudence wholly illusory. "To hold otherwise would render impossibility preemption 'all but meaningless.'" *Bartlett*, 133 S. Ct. at 2447 n.3 (quoting *PLIVA*, 564 U.S. at 621).

negligence roots of strict liability." *Id.* at 388–89. The requirements instituted by these state law duties are precisely the kinds that gave rise to conflict preemption in *PLIVA* and *Bartlett*—in fact, they are identical in all practical respects to those in *Bartlett*.

The next step is a review of federal law, which by virtue of the operative FAA regulations, is set forth in Part I of this Memorandum Opinion. "Where Congress has delegated the authority to regulate a particular field to an administrative agency, the agency's regulations issued pursuant to that authority have no less preemptive effect than federal statutes, assuming those regulations are a valid exercise of the agency's delegated authority." *PPL Energyplus, LLC v. Solomon*, 766 F.3d 241, 253 (3d Cir. 2014).[22] To summarize that law, I note that FAA approval is required for any major or minor changes to an article's type design, as well as for any major alteration. A major alteration is one that "might

[22] The same is true of the FAA's Orders reviewed above, to the extent that they are relied upon herein:

> The FAA's orders, as agency manuals without the force of law, are not afforded deference under *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984). Nevertheless, we conclude that the definition of "prudent" found in these orders is entitled to deference pursuant to *Skidmore v. Swift & Co.*, 323 U.S. 134 (1944). Under *Skidmore*, the weight courts accord an agency interpretation depends on "the thoroughness evident in [the agency's] consideration, the validity of its reasoning, its consistency with earlier and later pronouncements, and all those factors which give it power to persuade, if lacking power to control." 323 U.S. at 140.

Natural Resources Defense Council, Inc. v. F.A.A., 564 F.3d 549, 564 (2d Cir. 2009) (internal quotation marks omitted).

appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness." Further, when a DER acts to implement a type design change or alteration that otherwise requires FAA approval, he acts on behalf of the FAA and within the scope of his designation, not in a private capacity.

PLIVA and *Bartlett*, together with a dose of common sense and pragmatism, demand a finding that Lycoming was prohibited by those regulations from making the design changes about whose omission Plaintiff has complained. In particular, recall that Plaintiff alleges that the "throttle body to float bowl screws came loose due to the faulty design of the lock tab washers as well as gasket set." Pl.'s Statement of Facts, ECF No. 488, at ¶ 16. As for alternative designs, Plaintiff suggests that Lycoming could have switched the manner in which the carburetors installed in its engines had their two halves fastened by, for instance, "using a fuel injection systems [*sic*] in lieu of a carburetor, safety lock wire on the throttle body to bowl screws, and different gasket material." *Id.* at ¶ 17.

Plaintiff's counterarguments to Lycoming's suggestion of conflict preemption fail for two broad reasons. First, the FAA's regulations forbid independent implementation of those changes, and the facts here plainly support that conclusion. Second, even assuming that Lycoming were to implement the suggested design changes, it is unclear whether the subject tort duty would have

been met, as Lycoming's decision could not guarantee future design decisions by aftermarket parts manufacturers like Kelly.

The operative type certificate would not have permitted Lycoming to install a different carburetor model, nor would the instant PMA have permitted Kelly to change the carburetor's inner workings. In fact, when the FAA issued the engine's type certificate to Lycoming, it explicitly approved the MA-4SPA model carburetor on the type certificate data sheet as the only carburetor that could be installed in the engine. Def.'s Statement of Facts, ECF No. 533, at ¶ 4. As the FAA has reiterated, "a manufacturer is bound to manufacture its aircraft or aircraft part in compliance with the type certificate." FAA Ltr. Br. at 10–11.

Then, when the FAA issued the PMA authorizing Kelly to manufacture replacement parts for MA-4SPA model carburetors, the FAA specifically approved the design of the gasket, slotted hex head screws, and lock washers at issue here, as well as the use of those parts in the throttle body to float bowl attachment mechanism. ECF No. 533, Exs. 1–7. These facts are well chronicled in briefing by Christopher Carlsen, Esquire, counsel for Lycoming. *See* ECF No. 534.

Moreover, as recited earlier, the regulations required Kelly to ensure that all MA-4SPA model carburetor replacement parts that it manufactured and sold pursuant to its PMA conformed to the design that the FAA had approved. *See, e.g.*, 14 C.F.R. § 21.316 ("Each holder of a PMA must . . . (b) Maintain the quality

system in compliance with the data and procedures approved for the PMA;
(c) Ensure that each PMA article conforms to its approved design and is in a condition for safe operation"). Absent additional approval by the FAA or a corresponding amendment to Kelly's PMA, neither of which Kelly had at any time relevant to this case, it could not lawfully manufacture and sell replacement parts that were different from the parts actually approved for use on the replacement carburetor.

Plaintiff's argument that the issuance of Kelly's PMA for the replacement gasket, screw, and lock washer did not involve the FAA's approval of the design of the attachment mechanism itself is unavailing and too clever by half.[23] These parts have no function apart from collectively attaching the throttle body to the bowl in the MA- 4SPA carburetor. In fact, during the November 2013 Rule 104 hearing,

[23] In my view, Plaintiff has also placed far too great emphasis on whether the alleged modifications would be made to parts that previously had been expressly approved the FAA. This test derives from the FAA's interpretation of conflict preemption principles and not of its own regulations. *See* FAA Ltr. Br. at 10. Make no mistake, *PLIVA* and *Bartlett* clarify that the test for conflict preemption is whether the defendant may take independent action under federal law. Whether the FAA had at some time in the past expressly approved the article in question would appear to strengthen a conflict preemption defense (on the assumption that previously approved articles typically need future approval to implement modifications). However, nothing in either *PLIVA* or *Bartlett* requires prior express approval. To the contrary, the question is whether, at the time of the alleged breach of duty, it was impossible for the defendant to unilaterally satisfy both state and federal law. To the extent that a prior aircraft article had not been expressly approved in the past at the time of its installation but would require express approval for any future modifications, it seems axiomatic that state tort claims requiring immediate modifications to that article would give rise to a conflict preemption defense. Further, to the extent that an article received express approval in the past but could be modified freely at the time of the alleged breach, conflict preemption would be a less fitting defense. That follows logically because the pertinent regulations balance the quantum of approval required with the extent of the proposed modification.

plaintiff's expert witness, Mr. Sommer, described at length for this Court how crucial it is that all of those parts work as a unit so that the carburetor halves do not separate and cause the engine to lose power.

Plaintiff's attempt to separate the FAA's approval of each Kelly replacement part from its approval of the attachment mechanism itself is refuted by Kelly's own rendition of the PMA process:

> Thus, to obtain approval for its replacement articles, Kelly tested an OEM carburetor for a period of time (*e.g.*, 150 hours), and then tested a carburetor that contained Kelly parts for the same period of time. It then prepared a report documenting that its parts performed just as well or better than the OEM parts.

ECF No. 545 at 10. Plaintiff does not contest that the only function performed by the gasket, screws, and lock washers is to work together as the design feature that fastens the carburetor throttle body to the bowl. I agree with Mr. Carlsen that it is therefore difficult to fathom that Kelly and the FAA analyzed 300 hours of carburetor operation "simply to confirm that the gasket performed as a gasket, the screw as a screw, and the lock washer as a lock washer, all while ignoring whether the attachment mechanism they formed operated properly to hold the carburetor together"—the precise operation complained of here. *See* ECF No. 550 at 5.

In fact, a number of the proprietary drawings that Kelly submitted to the FAA in support of its PMA were attached under seal for my review. ECF No. 533, Exs. 1–6. I also reviewed the 6-page PMA Listing Supplement, which the FAA

supplied to Kelly to indicate that "the parts listed below" were approved "by test and analysis per Federal Regulation (FAR) 21.303(c)." ECF No. 533-7. At page 3, that list indicates that use of the particular throttle body to float bowl hex head screws were approved by the FAA. *Id.* at 4. The Plaintiff admits "that the FAA at various points in time approved the use of each of the individual articles listed (gasket, screw, and washer) on MA-4SPA carburetors generally as acceptable substitutes for OEM parts." *See* Pl.'s Resp. to Def.'s Statement of Material Facts, ECF No. 546, at ¶ 22.

Moreover, the linchpin under *PLIVA* and *Bartlett* is not so much express historical approval but whether immediate regulatory approval would be required to implement the proposed change at the time of the alleged breach of duty. It is evident that neither Lycoming nor Kelly could make the requested change here without first obtaining FAA approval.[24] Thus, Plaintiff retreats to a fallback

[24] Moreover, Plaintiff has made sporadic arguments suggesting that Lycoming possessed broader certification that would have allowed it to install one of a small selection of distinct carburetor models in its engine in 1969. Again, it is rather unremarkable that a manufacturer in a products liability case could theoretically comply with state and federal law by halting production of the subject product or producing different ones altogether. The Court in *Bartlett* expressly rejected arguments like this one, explaining that, when taken to their logical extreme, such lines of reasoning would defeat preemption by the mere suggestion that the manufacturer could have abstained from selling the particular product in the first place or could have left the market altogether. The Court explained that it was "undeterred by the prospect that [the defendant] could have complied with both state and federal requirements by simply leaving the market." *Bartlett*, 133 S. Ct. at 2478. Similar here, because Plaintiff concedes that the engine was not defective when it left Lycoming's hands in 1969, the issue as far conflict preemption goes is not whether Lycoming could have ceased producing this particular carburetor engine altogether in 1969. Rather, the question is whether, once subsequent modifications allegedly rendered the product defective, Lycoming had the power

argument: that the alleged omission here would have constituted a minor alteration not affecting the type design were either Lycoming or Kelly to implement it. That is unsupported by the clear terms of the regulations and is logically contradictory with the premise of this action.

Plaintiff suggests that the proposed modification would be a minor one because "the use of safety wire is common, can be done by any trained mechanic, and would not adversely affect . . . the engine." ECF No. 564 at 10. Perhaps those suggestions are factually accurate and perhaps they are not, but one thing is certain: none of them encapsulates the standard established by the FAA in its regulations for distinguishing major alterations from minor ones.

Recall that major and minor alterations are defined at 14 C.F.R. § 1.1. A major alteration is any alteration not listed in the aircraft, aircraft engine, or propeller specifications that (1) might appreciably affect weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or that (2) is not performed according to accepted practices or cannot be performed by elementary operations. *Id.* All other alterations are minor alterations. *Id.* Appendix A to 14 C.F.R. § 43 provides as follows:

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to unilaterally remedy those alleged defects at that later time. The answer under the regulations is that it did not.

(b) Major Alterations—

. . .

(2) Powerplant major alterations. The following alterations of a powerplant when not listed in the engine specifications issued by the FAA, are powerplant major alterations:

(vi) Conversion of an aircraft engine from one approved model to another, involving any changes in compression ratio, propeller reduction gear, impeller gear ratios or the substitution of major engine parts which requires extensive rework and testing of the engine.

(vii) Changes to the engine by replacing aircraft engine structural parts with parts not supplied by the original manufacturer or parts not specifically approved by the Administrator.

(viii) Installation of an accessory which is not approved for the engine.

(ix) Removal of accessories that are listed as required equipment on the aircraft or engine specification.

(x) Installation of structural parts other than the type of parts approved for the installation.

(vi) Conversions of any sort for the purpose of using fuel of a rating or grade other than that listed in the engine specifications.

Even from the outset, reliance on these definitions is perhaps unnecessary, as we know from the regulations and the FAA's Letter Brief that any type design change (that is, any change affecting any element of the type design supporting a type certificate) would require FAA approval. That is an important aspect of this

case, as the type design includes (1) drawings and specifications; (2) structural information on materials and dimensions; (3) a showing of continued airworthiness; (4) inspection and preventative maintenance programs; and (5) any other information relevant to airworthiness, noise, fuel venting, and emissions determinations. 14 C.F.R. § 21.31.

Certainly then, it is difficult to advance the position that a change in the mechanism that powers the engine itself, indeed a change that would allegedly increase its efficiency, would not be relevant to the type design categories recited above. For starters, such a change would likely need to be drawn and specified and could impact airworthiness. Just the same, this fallback argument has always struck me to be paradoxical to Plaintiff's theory of the case. If the alleged omission was a minor one, then by definition, it had no effect on the aircraft engine's structural strength, reliability, operational characteristics, or airworthiness. If this has been true all along, then it certainly would seem that this litigation should be over, or rather, should never have begun. Although I have confronted the case in a somewhat heady posture dealing with conflict preemption, the underlying claims are nothing more than state law tort actions, which require proximate causation. If the alleged breach of duty had no appreciable effect on the engine's reliability, airworthiness, structure, or operation, then proximate cause cannot be met. This is

yet another manifestation of the damned-if-you-do, damned-if-you-don't motif that seems to riddle Plaintiff's stance on the pending motions.[25]

Further, Plaintiff's proposed change goes to perhaps the most critical component of the aircraft: the unit that vaporized fuel in a way that guaranteed the delivery of sufficient fuel to other components of the engine. That such changes could be made without approval is unsupported by the regulations cited above and by the history of the case.

In fact, we know that Kelly, albeit in the parallel context of a PMA, did in fact submit the drawings required by regulation in order to obtain FAA approval. Moreover, when Kelly received its PMA authorization in this case, it received

[25] Perhaps what motivates Plaintiff's counterargument is her counsel's reluctance to acknowledge that "the need for a DER signature therefore prevents Lycoming from acting unilaterally to comply with state law." ECF No. 564 at 14. In other words, because our Court of Appeals has held that the FAA regulations do not field preempt related state tort claims, Plaintiff suggests that there must be some universe of claims that survives conflict preemption as well—that conflict preemption cannot effectively accomplish in one particular case what field preemption would have done in all cases. I am not so uneasy about the opposite proposition. Nothing in *PLIVA* and *Bartlett* suggests that field preemption and conflict preemption cannot be coextensive or that conflict preemption may only apply to a lesser universe of claims than field preemption otherwise might have. Further, nothing in those decisions suggests that claims that are not conflict preempted must otherwise be legally or financially viable. Thus, where a hypothetical regulatory regime included an explicit state law savings clause but yet required agency approval of any product design changes, it is not a far stretch to conclude that under *Sikkelee*, *PLIVA*, and *Bartlett*, state tort claims are not expressly field preempted, but to the extent that they require immediate design changes, those claims would be conflict preempted. Of course, this is a fact-specific inquiry that depends on the nature of each claim and the operative regulations. *See, e.g., In re Incretin-Based Therapies Products Liability Litig.*, 142 F. Supp. 3d 1108, 1116 (S.D. Cal. 2015) ("The determination that conflict preemption is a fact-intensive analysis is consistent with the conclusion that it presents only a question of law suitable for determination by the Court through summary judgment.").

express approval from the FAA for precisely the design features that Plaintiff claims were defective. The drawings for the gasket and the lock tab washer are stamped "FAA Approved" or "FAA-PMA Design Approval ANE-140." ECF No. 533 Exs. 1–4. The FAA PMA approvals for the gasket, lock tab washer, and screw are signed by "Jay J. Pardee, Manager, Engine Certification Office, ANE 140." *Id.* Exs. 5–7. Minor changes to certain parts, including the gasket material that Sikkelee's expert Mr. Sommer claims is defective on page 29 of his expert report, all were approved by "Paul C. Sconyers, Associate Manager, ACE-117A, Atlanta Aircraft Certification Office." *Id.* Ex. 6; ECF No. 546 Exs. 6–7.

It too appears from the record that Lycoming requested FAA approval to use hex head screws in its throttle body to float bowl design in the first place. Lycoming requested that approval jointly with Marvel-Schebler in February 1965. ECF No. 546-1. The letter states that it is "requesting approval" from the FAA for the "new method of safety locking the float bowl screws by . . . a hex head screw." *Id.* "Before permitting its use in production," Lycoming wrote, "we request your concurrence with . . . approval of this locking method." *Id.* In response, the FAA determined in the Statement of Compliance of Aircraft or Aircraft Components with Civil Air Regulations that the hex head screw and lock tab washer in fact complied with the applicable requirements of the Civil Air Regulations. ECF No. 549 at ¶ 28. In July 1965, it wrote the following to Lycoming in reply to its request

for approval: "An amendment . . . was published in the June 24, 1965 issue of the Federal Register which authorizes the use of the new locking device." ECF No. 546-2.

Neither does it make a difference that certain changes in the design in the case might have been made by way of first obtaining DER approval. DER approval *is* FAA approval, and any argument to the contrary is creative but unavailing. Recall that DER approval is not some lower threshold of approval, but rather is a more efficient mechanism by which the FAA expedites its own grants of approval. It does not make a difference that the DER may be nominally employed by a private entity either. The emphasis in such cases in on substance over form, and the law is clear that when a privately hired DER acts, he or she acts in the capacity of an official FAA approver, bounded by the scope of the pertinent FAA delegation. Thus, DER approval fails to move the needle even a bit as far as conflict preemption goes.

Throughout this chapter of the litigation, the retort Plaintiff's counsel has offered in response to the clear text of the regulations is that Lycoming actually should be held liable for Kelly's alleged design omissions because Kelly was bound by Lycoming's independent business decisions to manufacture the carburetor in the manner it did. That argument is logically flawed and divorced from the facts. For one, if Kelly was bound by the type designs that supported

Lycoming's type certificate, then, as counsel for Lycoming, John P. O'Flanagan, Esquire, accurately pointed out at oral argument, this case is over, because the type design could not be altered by anyone (especially an aftermarket parts manufacturer Kelly) without FAA approval. That is the catch-22 that riddles Plaintiff's opposition to the present two motions and hints that at some earlier time, this case traced a path leading to nowhere but a maze's dead end. If this case truly is about Kelly indenturing itself in 2004 to a set of designs approved in the 1960s—and I certainly have my doubts about that—then conflict preemption has taken effect because Plaintiff offers no feasible explanation as to how Lycoming could have changed the type design without preapproval if Kelly (the sole PMA holder itself) could not have done the same.

To this, Plaintiff concedes that Kelly may have a conflict preemption defense based upon either the type certificate or the PMA here, but that does not mean Lycoming can enjoy the benefit of that defense too. As to why that is the rule, Plaintiff offers nothing but silence. As Mr. O'Flanagan rightly noted at oral argument, when a defendant stands in the shoes of another in terms of liability, it stands in the shoes of that entity in terms of defenses as well. That is correct, and to be frank, given that neither entity could alter the initial type design without FAA approval, this second layer of preemption is something of a belt-and-suspenders point at this juncture of the analysis. Nevertheless, I note that the United States

Court of Appeals for the Ninth Circuit, applying many of the same preemption cases outlined above, has explained in a products liability case that a preemption determination applies "equally to manufacturers and distributors." *Taylor AG Indus. v. Pure-Gro*, 54 F.3d 555, 562 (9th Cir. 1995). "Our decision applies equally to all defendants, the Ninth Circuit concluded, because "the analysis focuses not on whom the legal duty is imposed, but on whether the legal duty constitutes a state law requirement to provide information in addition to or different from the [regulated] label." *Id.* at 561 n.3. Accordingly, Lycoming's conflict preemption defense prevails not only because it could not alter the type certificate or Kelly's PMA absent FAA approval, but also because neither could Kelly.

Relatedly, it is worth reemphasizing that even if Lycoming could have implemented the proposed modification, nothing would ensure that Kelly would follow suit and input its own design changes on its own aftermarket parts. In fact, had Lycoming received certification for an alternative method by which to fasten the throttle body to the float bowl, Kelly might just have likely decided that because its products conform to at least one type of carburetor design used on Lycoming's engines, changing all of Kelly's parts would represent a cost inefficiency. That is a causal conundrum skirted by Plaintiff: certification of

another method does not imply decertification of all other methods or strict adherence to the newest alternative by independent aftermarket suppliers.

I said before that Plaintiff's argument is divorced from the facts of this case because, of course, we actually know from the record that Kelly was not bound by the type designs supporting Lycoming's type certificate—and not to be duped, we know that Kelly knew as much too. How "controlling" Kelly viewed Lycoming's designs is no mystery whatsoever. Quite the opposite, when given the opportunity to follow Lycoming's type design, Kelly dispensed with Lycoming's prior workmanship, overhauling a type-certificated article (the original carburetor) by excising it from the engine and replacing it with a conglomerate melded together using one part from the era of counterculture and the other from the age of disco. Certainly, if Kelly was so bound by Lycoming's decisions, a scorched-earth engine overhaul was a curious way to pay Lycoming deference. And if Kelly *ex ante* had no qualms about that design debacle, certainly it should have felt free to disregard other tertiary aspects of the carburetor's design to which it now claims to have been strictly tethered.

I note too that a certain superficial argument tends to recur in implied preemption cases like this one. That argument questions how federal regulations can ever preempt state tort law if both regimes serve the same end, for instance, ensuring product safety. Framing the inquiry at such a high level of abstraction

misstates the operative question from *PLIVA* and *Bartlett*. Implied preemption does not hinge upon whether the policy justifications of the two regimes coexist harmoniously. In fact, they often will. Rather, the critical inquiry is whether a regulated party can unilaterally comply with both regimes simultaneously. Where one cannot, concepts of supremacy clarify that the state law has no force.

An apt illustration of this concept is the comparison between a state tort law that requires a given change to make a product safer and a corresponding federal regulation that requires exactly the same change, a hypothetical discussed at oral argument. If the federal regulatory regime also requires agency approval before that change could be made, the state tort law must be impliedly preempted if an enterprising litigant seeks to hold a manufacturer liable under such a theory.

Although these imagined tort law and regulatory regime appear identical in substance, they are not. The federal regulation, which predicates any alterations on agency approval, contains an element that state tort law does not share. Moreover, compliance with both is mutually exclusive: Either the manufacturer maintains the status quo and breaches its state tort duty, or it unilaterally satisfies that state duty and immediately runs afoul of the regulation's approval requirement. The proper question is thus whether unilateral *compliance* is simultaneously possible.

Neither is it persuasive to suggest that an approval requirement is a tertiary component of a regularly scheme, like a signature or a rubber stamp, that therefore

may be overlooked in favor of substance during implied preemption inquiries. Quite the opposite, permitting and approval schemes are a major channel through which agencies regulate. To discern no implied preemption on that ground would necessarily require a finding that violation of the agency's permitting or approval processes was of no consequence for regulated actors. In other words, to adopt this argument would gut regulatory regimes nationwide by a judicial thumbing of the nose. The propriety of permitting and approval requirements is undoubtedly a question for the executive, not politically-insulated judges.

Another rebuttal is in order. Plaintiff suggests that this Court should not follow *PLIVA* and *Bartlett* but should adhere to a decision by the Supreme Court in *Wyeth v. Levine*, 555 U.S. 555 (2009) and a decision by the Third Circuit captioned *In re Fosamax (Alendronate Sodium) Product Liability Litigation*, 852 F.3d 268 (3d Cir. 2017). Despite counsel for Plaintiff's protestations to the contrary, neither case is applicable here.

Wyeth involved the same regulations as did *PLIVA* and *Bartlett*, but because the defendant in *Wyeth* was a brand-name drug manufacturer, a regulatory exception permitted it "to unilaterally strengthen its warning" without prior approval. 555 U.S. at 573. The *PLIVA* and *Bartlett* Courts distinguished *Wyeth* on the ground that the particular regulatory exception at issue in *Wyeth* was not available in those two successor cases, both of which involved generic drug

companies.[26] The FDA retained the authority to reject any changes made pursuant to that regulatory exception. *Id.* at 571. Accordingly, the Court held that, in order for conflict preemption to apply in this back-and-forth posture, the drug maker had to show by "clear evidence" that the FDA was likely to ultimately reject the any change instituted by way of the exception. *Id.* Because no such regulatory exception permitting revocable unilateral action is provided for in the applicable regulations here, *Wyeth* does not apply.

I would say the same about application of the Third Circuit's decision in *Fosamax*. Although it is a precedential decision, advocating its application in this context sounds more in sophistry than in substance. *Fosamax* involved precisely the same nuanced regulatory exception as did *Wyeth*. 852 F.3d at 273. The only reasonable reading of these decisions is that they govern this particular regulation or more broadly, regulatory regimes that allow for unilateral yet revocable

[26] Counsel for Plaintiff, inadvisably in my view, has spent some time insisting that Lycoming and other type certificate holders are more analogous to brand-name drug manufacturers, whereas PMA holders and aftermarket part manufacturers like Kelly are more akin to generic drug companies. Although the analogy is somewhat strained, it is nevertheless a distinction without a difference when applied to the aviation context. The only reason the brand-name versus generic distinction was relevant in the pharmaceutical cases was because brand-name manufacturers enjoyed the benefit of a regulatory exception that allowed them to unilaterally modify their products. Conflict preemption did not turn on a drug maker's status as a brand-name or generic manufacturer *per se* or its position in the market. Instead, the unilateral action exception was what carried the day legally. In fact, should the exception have applied to generic makers and not to brand-name companies, the Court's three pharmaceutical cases likely would have yielded the opposite outcome each time. In the aviation context, however, there is no regulatory exception allowing unilateral action that applies to type certificate holders and not PMA holders or *vice versa*, and even if there were such a mechanism, it does not apply here. Consequently, the comparison to *Wyeth* is unsound.

approval. Because, as outlined above, no type certificate holder may make major or minor type design changes or major alterations without FAA approval and because no such regulatory alternative is applicable here, *Wyeth* and *Fosamax* are readily distinguished.

Not to be dissuaded, counsel for Plaintiff argues that the *Wyeth* and *Fosamax* courts intended the "clear evidence" standard to be trans-substantive—to apply to *any* conflict preemption defense involving *any* product subject to *any* federal regulatory regime. I confirmed that position at oral argument:

> THE COURT: So is clear evidence then not taken from [this particular] regulatory process? It's just an evidentiary standard in your view?
>
> MR. SINGH: That's correct. That's exactly, I think, what the Court said in *Fosamax*.
>
> . . .
>
> The standard in *Wyeth* is the clear evidence standard discussed in the *Fosamax* case. Right. You say unless the FDA would have clearly rejected a proposed change, they don't get to claim impossibility preemption. We don't see any reason necessarily to cabin that only to cases where completely unilateral action is available as a first step.

May 2017 Tr. at 146:16– 20; 170:19–24. That argument is unfaithful to the law and wholly impractical. There are many reasons why the clear evidence rule must

cabined to the circumstance in which manufacturers can take unilateral yet revocable action, a number of which I turn to now.

First, *Wyeth's* concept of "clear evidence" arose in the context of a unique pharmaceutical regulation known as the "changes-being effect" or "CBE" provision. *See PLIVA*, 564 U.S. at 624. That provision allows a brand-name drug manufacturer "to unilaterally strengthen its warning without prior FDA approval." *Id.* (internal quotation marks omitted). Importantly, however, the FDA retained the right to later rescind any changes made by a manufacturer as part of the CBE process. *Id.* Thus, *Wyeth's* clear evidence standard applies only to those rare cases in which a manufacturer can take immediate, unilateral action to satisfy both federal and state law, but where that unilateral action is also subject to eventual regulatory clawback. Unsurprisingly, *Fosamax* involved precisely the same regulatory provision. *In re Fosamax (Alendronate Sodium) Products Liability Litig.*, 852 F.3d 268, 293 (3d Cir. 2017).[27]

[27] Not only did *Fosamax* pertain to a unique regulatory provision that is not at issue here, but the panel also observed that "[a] state-law failure-to-warn claim will only be preempted if a jury concludes it is highly probable that the FDA would not have approved a label change." *Id.* at 293. Relegating such a legally-specialized determination to lay jurors reinforces, in my view, that the clear evidence standard could not possibly have been meant to apply trans-substantively to every regulatory framework that might ever be the subject of a federal conflict preemption dispute. *Id.* at 293. In fact, to construe *Fosamax's* holding any other way would not only be highly unworkable but would also contravene established Third Circuit and Supreme Court precedent. *See In re Federal-Mogul Global Inc.*, 684 F.3d 355, 364 n.16 (3d Cir. 2012) (Scirica, J.) ("The scope of preemption presents a pure question of law, which we review *de novo*."); *Horn v. Thoratec Corp.*, 376 F.3d 163, 166 (3d Cir. 2004) ("This Court also exercises plenary review over a district court's preemption determination, as it is a question of law."); *Geier v. Am. Honda Motor Co.*, 529 U.S. 861, 873–74 (2000) ("A 'special

Further, Plaintiff's argument that "clear evidence" is a broad-based conflict preemption standard would violate the Supreme Court's clear admonition in *PLIVA* and *Bartlett* that "the possibility of possibility"—that is, the possibility that the agency will approve a requested change—does not defeat preemption. *PLIVA*, 564 U.S. at 624. Indeed, it is quite curious that, as Mr. Singh suggests, the *Wyeth* Court instituted a universal clear evidence rule for all future conflict preemption cases, when two years later in *PLIVA*, the Court mentioned the term "clear evidence" only once in the entire body of its opinion (to distinguish *Wyeth*) and not at all in *Bartlett*. If *Wyeth* set forth the applicable standard, it appears as though the Court itself is unaware of as much.

Second, Plaintiff's academic proposal for detecting preemption requires talents more attributable to street-corner charlatans than busy federal judges. Were Plaintiff to have her way, district court judges faced with preemption issues simply could "predict" how an agency would react to a proposed design change, imagining whether denial would be "unlikely," "likely," or "clearly likely." Just how, precisely, would a district court distinguish among proposals who were "clearly likely" to be denied and those that were not? Is it a straightforward determination that can be made on text of the regulations themselves? According

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burden' would also promise practical difficulty by further complicating well-established pre-emption principles that already are difficult to apply. . . . Nothing in the statute suggests Congress wanted to complicate ordinary experience-proved principles of conflict pre-emption with an added 'special burden.'").

to Plaintiff, unfortunately it is not. Instead, her blueprint for resolution of preemption disputes requires each party to obtain an expert in that particular agency's regulations, who will then offer their own opinions as to what the subject regulations mean and how they should apply to the instant case. Afterwards, the factfinder would make its own determination based upon that testimony. In other words, Plaintiff's proposal requires not one but at least *two* layers of considerable speculation.

This off-the-cuff plan kicks judicial economy to the curb—the plain consequence of a conjectured system in which separation of powers and federalist principles carry little weight. Even more, the United States Supreme Court has repeatedly rejected the notion that preemption may be avoided simply because a district court is confident in its ability to predict what action a regulatory body might take on hypothetical facts. A leading example is *Arkansas Louisiana (Arkla) Gas Co. v. Hall*, 453 U.S. 571 (1981). In certain provisions of the Natural Gas Act, Congress granted the Federal Energy Regulatory Commission the sole authority to approve rates that natural gas sellers may charge in connection with the sale and transportation of their shipments. *Id.* at 576–77. The lower court in *Arkla* had awarded a natural gas seller higher retroactive rates than the Commission had previously approved when one of the seller's purchasers had breached a most favored nations provision. *Id.* at 575. The lower court reasoned that, by awarding

this higher penalty rate, state contract law and the federal rate regulations were not in conflict because "had [the seller] filed rate increases with the Commission," it was likely that those increases "would have been approved." *Id.* at 575.

Thus, the central issue in *Arkla* was whether a court can avoid a finding of preemption "based on an assumption that had a higher rate been filed, the Commission would have approved it." *Id.* at 573. The Supreme Court rejected that argument outright. "The court below," it explained, "usurped a function that Congress has assigned to a federal regulatory body. This the Supremacy Clause will not permit." *Id.* at 581–82. In the Supreme Court's own words, the lower court's award amounted to nothing more than a decision "based on speculation about what the Commission might have done." *Id.* at 578–79. To permit a court to make its own decisions as to whether certain proposals satisfied the regulations "would undermine the congressional scheme," because the proposal "was never filed with the Commission and thus never found to be reasonable." *Id.* at 579.[28]

More recently, the Supreme Court in held that state law claims alleging that an orthopedic device manufacture defrauded the FDA were conflict preempted by the FDA's own regulations. *Buckman Co. v. Plaintiffs' Legal Comm.*, 531 U.S. 341

[28] *See also Missouri Pacific R. Co. v. Stroud*, 267 U.S. 404, 408 (1925) ("It is elementary and well settled that there can be no divided authority over interstate commerce."); *Chicago & N.W. Transp. Co. v. Kalo Brick & Tile Co.*, 450 U.S. 311, 326 (1981) ("A system under which each State could, through its courts, impose on railroad carriers its own version of reasonable service requirements could hardly be more at odds with the uniformity contemplated by Congress.").

(2001). *Buckman* stands for the proposition that "the relationship between a federal agency and the entity it regulates is inherently federal in character because the relationship originates from, is governed by, and terminates according to federal law." *Id.* at 347. The state claims in *Buckman* were conflict preempted because the federal regulatory scheme "amply empower[ed]" the agency to remedy the complained-of harm *Id.* at 348. Neither does it matter if the parallel regimes exhibit varying levels of "rigor." *Id.* Instead, a state law claim is conflict preempted so long as the corresponding regulations "enable the [agency] to make its statutorily required judgment," while the state claim would "exert an extraneous pull on the scheme established by Congress." *Id.* at 349, 353.

Moreover, the United States submitted an amicus brief in support of Mutual Pharmaceutical in *Bartlett*.[29] Therein, the Government argued that design defect tort claims are strong candidates for conflict preemption, particularly where the agency conducts a rigorous, evidence-based evaluation process. *Id.* at 24–25. "In the face of this elaborate regulatory regime," the Government summarized, "it would be inconsistent . . . to conclude that a manufacturer must abandon a market it has been approved by [an agency] to enter in order to avoid violating a duty recognized by a jury under state law that deems its product unsafe." *Id.* at 27–28.

[29] https://www.americanbar.org/content/dam/aba/publications/supreme_court_preview/briefs-v2/12-142_pet_amcu_usa.authcheckdam.pdf.

According to that same amicus brief, neither is it advisable for lay juries to reconsider an agency's systematic regulatory judgment. "By requiring a jury to independently balance the health risks and benefits of [agency]-approved uses of a [product] and to determine if the [product] is "unreasonably dangerous" for those uses, a State with a pure design-defect product-liability law would force the jury to "second-guess" [agency] safety determination." *Id.* at 28. This is true, the Government suggested, even in cases where federal law "establish[es] merely minimum safety standards," so long as the underlying state tort laws "interfere with the federal balance." *Id.*

In addition to her argument in support of broad-based application of the clear evidence rule, the Plaintiff also has suggested that the FAA regulations are meant only to set minimum standards and that when fifty bodies of tort law begin to diverge from the regulations by, for instance, setting stricter standards than the FAA, such developments are permissible rather than preempted. That argument is unavailing for a number of reasons.

First, as Mr. O'Flanagan explained at oral argument before this Court, despite the terminology, "minimum" standards as contemplated by regulations in life-or-death fields, such as aviation or pharmaceuticals, are set substantially higher than might be the case in other less high-stakes arenas. Indeed, based upon the thorough regulatory regime reviewed earlier, it is difficult to imagine remedial

measures that aircraft manufacturers might take under state law that would exceed those "minimum" standards but would not already be demanded by the FAA's regulations.

Perhaps manufacturers could include, for example, working parachutes and lightning preparedness kits, but even Pennsylvania negligence law only requires a duty of reasonable care, not an absolute one. Indeed, Mr. O'Flanagan's observation is consistent with an earlier remark by the Supreme Court in which it instructed that the words "minimum standards" do not "furnish[ ] a litmus-paper test for resolving issues of preemption." *Ray v. Atlantic Richfield Co.*, 435 U.S. 151, 168 n.19 (1978). In fact, the United States Court of Appeals for the First Circuit, in the parallel context of regulations governing vehicle manufacturers, has previously remarked that this semantic "minimum standards" argument is a red herring, because "[a]lthough the standards are 'minimum' in the sense that a manufacturer may make a vehicle safer than required by federal law, the standards are not 'minimum' in relation to state law." *Wood v. Gen. Motors Corp.*, 865 F.2d 395, 414 (1st Cir. 1988). I also note that excessive focus on a hypothetical state tort law that might fall short of, overlap with, or exceed federal regulations very likely overlooks the key conflict preemption metric gleaned from *Arkla*, *Buckman*, *PLIVA*, and *Bartlett*: whether the regulated entity could independently implement the suggested remedial measure.

Further, courts confronting conflict preemption problems in the context of "minimum standards" regimes necessarily have balanced the benefits of uniform standards with the costs of occasionally disparate ones. *See, e.g.*, *Geier v. American Honda Motor Co.*, 529 U.S. 861 (2000). In such instances, the prevailing consideration is always the extent to which the originating statute "reflects a congressional determination" to permit nonuniformity or whether it evidences "a desire to subject the industry to a single, uniform set of federal safety standards." *Id.* at 871. Certainly, the set of regulations governing such core aspects of aviation as engine structure and maintenance ought to be consistent whether the plane takes off from the keystone state or a bit farther south in the palmetto one. *But see Sprietsma v. Mercury Marine*, 537 U.S. 51 (2002) (declining to find conflict preemption where, quite opposite from this case, the originating statue did "not require the Coast Guard to promulgate comprehensive regulations covering every aspect of recreational boat safety and design" or to "certify the acceptability of every recreational boat subject to its jurisdiction").

As our Court of Appeals has recognized in this matter, "Almost immediately after the airplane became a viable means of transportation, it became clear that certain aspects of aviation, such as air traffic control, required uniform federal oversight." *See Sikkelee*, 822 F.3d at 683–84 (citing Air Commerce Act of 1926, ch. 344, 44 Stat. 568)). *See also City of Burbank v. Lockheed Air Terminal Inc.*,

411 U.S. 624, 639 (1973) ("The interdependence of these factors requires a uniform and exclusive system of federal regulation if the congressional objectives underlying the Federal Aviation Act are to be fulfilled.").[30]

The typical justification for nonuniformity in regulatory cases is that such disparity may assist in adequately compensating accident victims. *See* FAA Ltr. Br. at 12. Federal courts should not contort the law in such a manner as to prioritize compensation over stability of our legal system and the efficient functioning one of our nation's largest industries. "It is unquestioned that [the plaintiff] sustained serious injury, but not all instances of injury automatically lead to an award of damages. Not all accidents are the legal fault of another." *Harlan v.*

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[30] In her supplemental briefing, Plaintiff also contends that certain "obstacle preemption" cases may not be relevant to my determination. That argument characterizes this matter through much too fine a lens:

> The Court has not previously driven a legal wedge—only a terminological one—between "conflicts" that prevent or frustrate the accomplishment of a federal objective and "conflicts" that make it "impossible" for private parties to comply with both state and federal law. Rather, it has said that both forms of conflicting state law are "nullified" by the Supremacy Clause. . . . We see no grounds, then, for attempting to distinguish among types of federal-state conflict for purposes of analyzing whether such a conflict warrants pre-emption in a particular case.

Geier, 529 U.S. at 873–74.

With that in mind, I note that the Supreme Court has previously construed the conflict preemption analysis as broad as to encompass an inquiry into whether the state law "interferes with the methods by which the federal statute was designed to reach this goal," *Int'l Paper Co. v. Ouellette*, 479 U.S. 481, 494 (1987), and "whether the [agency] has promulgated its own requirement on the subject or has decided that no such requirement should be imposed at all." *United States v. Locke*, 529 U.S. 89, 110 (2000).

Frazier, 635 F. Supp. 718, 723 (W.D. La. 1986), *aff'd*, 811 F.2d 601 (5th Cir. 1987), and *aff'd*, 811 F.2d 601 (5th Cir. 1987).

To be precise, such a strained adherence to the policy goal of compensation would be improper here for a number of reasons. For one, the need to compensate a victim, however admirable, cannot be so forceful as to require modifications that would have required Lycoming to simultaneously violate federal regulations. Perhaps this analysis could be different where the tort modification and the regulations were entirely congruous, but not here. Second, there are certainly other methods of compensation, such as life insurance or worker's compensation, which soften the blow for decedents' families in many aviation accident cases and that make state tort compensation significantly less attractive and necessary relative to nationwide consistency in flight standards. Last, although no amount of money can replace a loved one, it is undisputed that the Plaintiff has already received a $2 million settlement from Kelly, who conducted the 2004 carburetor overhaul.

Accordingly, with the foregoing discussion in mind, there is no genuine dispute of material fact that Lycoming could not independently comply with the FAA regulations and Pennsylvania state tort law. Thus, Plaintiff's tort claims are conflict preempted.

B. There Is No Genuine Dispute Of Material Fact As To Whether The Engine Was Defective When It Left Lycoming's Hands In 1969, Or Alternatively, As To Whether Lycoming Could Have Reasonably Foreseen Introduction Of The Alleged Defect.

Plaintiff contends that Lycoming is liable on both strict liability and negligence grounds. Neither claim survives summary judgment.

1. Strict Liability

In its 2014 decision *Tincher v. Omega Flex, Inc.*, 104 A.3d 328, 335, the Supreme Court of Pennsylvania declined to adopt the Third Restatement of Torts. In doing so, it confirmed that strict liability claims alleging manufacturing defects continue to be governed by § 402A of the Second Restatement. *See id.* at 383.

To prevail on such a claim under § 402A, a plaintiff must prove: (1) that the product was defective, (2) that the defect existed when it left the hands of defendant, and (3) that the defect caused the harm. *Ellis v. Chicago Bridge & Iron Co.*, 545 A.2d 906, 909 (Pa. Super. Ct. 1988). *Accord Barton v. Lowe's Home Centers, Inc.*, 124 A.3d 349, 354 (Pa. Super. Ct. 2015); *Hadar v. AVCO Corp.*, 886 A.2d 225, 228 (Pa. Super. Ct. 2005).

The element primarily at it issue in this case is the second, which Pennsylvania courts have taken verbatim from comment g to § 402A. Indeed, the Supreme Court of Pennsylvania in *Tincher* acknowledged comment g for its "reasoned consideration of factors relevant in Pennsylvania to explain the existence and nature of a seller's duty in tort." 104 A.3d at 383. *See also*

Wojciechowski v. Long-Airdox Div. of Marmon Grp., Inc., 488 F.2d 1111, 1115 (3d Cir. 1973) (Rosenn, J.) ("The Pennsylvania courts have also adopted comment g to Section 402A."); *Forry v. Gulf Oil Corp.*, 237 A.2d 593, 597 (1968) (linking tort plaintiff's burden of proof to comment g).

The requirement that a product be defective when it leaves the seller's hands is "[t]he focus of § 402A." *Eshbach v. W. T. Grant's & Co.*, 481 F.2d 940, 942 (3d Cir. 1973). In fact, that the product "was in the same condition . . . on the day of the accident as it was at the time of sale" is "a critical element" in § 402A cases. *Rooney v. Fed. Press Co.*, 751 F.2d 140, 143 (3d Cir. 1984) (Weis, J.).As such, that provision imposes no liability on manufacturers in a supply chain who precede the defect-causing entity. *Bialek v. Pittsburgh Brewing Co.*, 242 A.2d 231, 236 (1968).

Stated another way, a manufacturer is not liable "if a safe product is made unsafe by subsequent changes," unless it "could have reasonably expected or foreseen such an alteration." *Davis v. Berwind Corp.*, 690 A.2d 186, 190 (1997). This rule rings "particularly true" when the defect "arises from the manner in which the component is utilized by the assembler of the final product." *Jacobini v. V. & O. Press Co.*, 588 A.2d 476, 479 (1991).

If subsequent alterations were not reasonably foreseeable when the product entered the stream of commerce, the manufacturer is entitled to summary judgment

as a matter of law. *Myers v. Triad Controls, Inc.*, 720 A.2d 134, 135 (Pa. Super. Ct. 1998). This rule confirms that "[a] manufacturer is a guarantor of its product, not an insurer," and therefore, "it is not the purpose of § 402A to impose *absolute* liability." *Davis*, 690 A.2d at 190 (emphasis added).

These principles compel two inquiries: Was the engine defective when it left Lycoming's hands in the summer of 1969? And, alternatively, could Lycoming have reasonably foreseen introduction of the alleged defect? The answers to both questions ensure that summary judgment is appropriate.

The first question, whether the engine was defective in 1969, is more easily answered. In fact, Judge Jones granted summary judgment on this precise point. In his July 2012 Memorandum Opinion, Judge Jones wrote that Plaintiff "has offered no evidence . . . demonstrating that the engine was defective when it left the Lycoming's . . . plant in 1969." ECF No. 299 at 13. Plaintiff's counsel, David I. Katzman, Esquire, later conceded as much during the November 2013 evidentiary hearing before this Court:

> Mr. Katzman: In 1969 when you are selling it to Beagle, who doesn't make 172 airplanes, I agree, I couldn't prove it was defective at that point.

Nov. 2013 Tr. at 218:20–22.

A common-sense reading of the facts supports this conclusion. From its distribution in 1969 until 1998, the subject engine was not installed or used in

flight. No one, not even Lycoming, knows where the engine was during that time period or in what storage quality it was maintained. After its 1998 removal from that period of long-term storage, the engine only flew for 12 hours before maintenance was required. The engine then accumulated 6 years and 1,200 hours of problem-free flight between 1998 and 2004. In August 2004, the aircraft was struck by lightning, and the carburetor was completely overhauled by Kelly, who replaced it with conglomerate aftermarket parts. Less than 1 year and 400 flight hours later, the crash occurred. For all of these reasons, the dispositive issue is not whether the engine was defective in 1969 but whether Lycoming could reasonably have foreseen introduction of the allegedly defective carburetor in 2004. It could not have done so.

Summary judgment may be granted where the facts make it "so clear" that the manufacturer could not have foreseen eventual changes. *Davis v. Berwind Corp.*, 640 A.2d 1289, 1297 (Pa. Super. Ct.1994), *aff'd*, 690 A.2d 186 (1997). For instance, summary judgment is appropriate when the alteration may be "a supervening or intervening cause" of the accident. *Davis*, 640 A.2d at 1297. In that vein, foreseeability of a subsequent change "is part and parcel of a causation analysis." *Eck v. Powermatic Houdaille, Div. of Houdaille Indus., Inc.*, 527 A.2d 1012, 1020 (Pa. Super. Ct. 1987). "Notably, an alteration that can be reasonably anticipated is still a 'substantial change' within the meaning of § 402A if it is

negligently or improperly implemented." *Fisher v. Walsh Parts & Serv. Co.*, 296 F. Supp. 2d 551, 563 (E.D. Pa. 2003) (citing *Kuisis v. Baldwin–Lima–Hamilton Corp.*, 319 A.2d 914, 922 n. 15 (Pa. 1974)).

This determination is made retrospectively, "by looking back from the harm or injury and tracing the sequence of events by which it was produced . . . in light of surrounding circumstances that existed at the time of the accident." *Wilson v. Am. Chain & Cable Co.*, 364 F.2d 558, 561 (3d Cir. 1966). Changes "too remote to require reasonable prevision need not be anticipated." *Speyer, Inc. v. Humble Oil & Ref. Co.*, 403 F.2d 766, 771 (3d Cir. 1968) (Aldisert, J.) (quoting *Brady v. Southern Ry. Co.*, 320 U.S. 476, 483 (1943)).

An illustrative decision is that of the United States District Court for the Eastern District of Pennsylvania in *Fisher v. Walsh Parts & Serv. Co.* That case involved a metal press whose safety assembly bolts "had come loose" and had "backed out . . . so as to create a gap." 296 F. Supp. 2d 551, 557 (E.D. Pa. 2003). The path that the press had taken to get to its ultimate user was, like that of the engine here, a winding one. In particular, the press was sold in 1976, additional parts were supplied to the same buyer three years later, no one could tell from the records what had happened to the machine from 1979 through 1987, the press was purchased by the end user in 1987, and the accident occurred in 1999. *Id.* at 556. During that time, the press underwent at least four repairs. *Id.*

Speaking mechanically, the safety assembly on the press in *Fisher* consisted of a bracket held on the cast iron frame with two hex bolts. *Id.* at 555. The hex bolts were secured by lock washers and safety wiring. *Id.* Two of the known repairs involved removal of the safety assembly and replacement of one of its original connecting pieces with a rigidly-mounted, substitute two-piece part. *Id.* at 556. After the safety assembly malfunctioned and an employee was severely maimed, a post-accident inspection revealed that the safety assembly had separated from the frame, a likely consequence of loosened bolts conditioned by the rigid replacement fixture as well as missing washers and wire. *Id.* at 564.

The court held that these alterations amounted to substantial changes unforeseeable by the original manufacturer in 1976. *Id.* at 565. In particular, it concluded that repairs requiring the assembly's removal and overhaul were not foreseeable. *Id.* Still, the court went further, noting that judgment was appropriate on the independent ground that even if the changes were foreseeable, it was not foreseeable that they would have been performed incorrectly in a manner inconsistent with the assembly's initial design and components. *Id.* Thus, the court concluded that, in light of these modifications, it could not "lay blame on the shoulders" of the initial manufacturer. *Id.* at 568.

More recently, in *Schwartz v. Abex Corp.*, 106 F. Supp. 3d 626 (E.D. Pa. 2015), the United States District Court for the Eastern District of Pennsylvania

confronted the question of whether, under Pennsylvania law, a manufacturer could be liable on a strict liability theory for components part that it neither manufactured nor supplied but were nevertheless used within its product. The court held that Pennsylvania law does not support such a theory. *Id.* at 628.

The plaintiff in *Schwartz* was an airplane propeller mechanic and crew chief at two Pennsylvania Air Force bases. *Id.* at 629. The defendant manufactured airplane engines that used external insulation containing asbestos. *Id.* It was undisputed that the airplane engine manufacturer did not manufacture or supply the component part at issue. *Id.* This was an important concession, as the court ultimately held that the term "product" under § 402A does not embrace "an aftermarket component part." *Id.* at 653. This holding stemmed from the established principle that a manufacturer cannot be strictly liable "for a product it neither manufactured nor supplied." *Id.* (quoting *Schaffner v. Aesys Techs., LLC*, No. 1901 EDA 2008, 2010 WL 605275, at *5 (Pa. Super. Ct. Jan. 21, 2010)).

Just as importantly, the court concluded that, "*as a matter of law*, replacement of original component parts (and/or addition of a component part . . .) constitutes a 'substantial change' to the manufacturer's product, for purposes of strict liability." *Schwartz*, 106 F. Supp. 3d at 653 (emphasis added). Accordingly, the airplane engine manufacturer was entitled to summary judgment because "a

manufacturer is never strictly liable for injury caused by . . . aftermarket component parts." *Id.* at 664.

Similarly, in *Reese v. Ford Motor Co.*, No. CIV.A. 09-2948, 2011 WL 4572027 (E.D. Pa. Oct. 4, 2011), the United States District Court for the Eastern District of Pennsylvania granted summary judgment in favor of an automaker where "aftermarket parts" caused a vehicle fire. The court in *Reese* accepted expert testimony that the aftermarket wiring was installed after the automobile left manufacturer's possession. *Id.* at *2. The plaintiffs nevertheless attempted to hold the automaker strictly liable on the theory that installation of the aftermarket wiring was foreseeable. *Id.* at *5. The court rejected that argument, reasoning that installation of aftermarket wiring was not foreseeable, even if such installation was made by one of the manufacturer's authorized dealers. *Id.*

These recent decisions flow from a line of established precedent. *See Speyer, Inc. v. Humble Oil & Ref. Co.*, 403 F.2d 766, 771 (3d Cir. 1968) (Aldisert, J.) (affirming entry of judgment on substantial change grounds where replacement hose made of different material was installed on gas pump 9 years after sale); *Southwire Co. v. Beloit E. Corp.*, 370 F. Supp. 842, 858 (E.D. Pa. 1974) (Becker, J.) (granting judgment in favor of manufacturer where product's failure was attributable not to "self-contained . . . defect unreasonably dangerous at the time it left [the manufacturer]," but "to the changes that were made in it by the

counterweight welding"); *Merriweather v. E. W. Bliss Co.*, 636 F.2d 42, 43 (3d Cir. 1980) (substantial change defense applicable where switch that powered machine was "removed," and machine was "equipped" with new controls); *Hanlon v. Cyril Bath Co.*, 541 F.2d 343, 345 (3d Cir. 1975) (directed verdict warranted because "substitution" of "electrical starting device" for original starter was substantial change not reasonably foreseeable 17 years before accident at time of sale).

These authorities point toward a singular conclusion: in 1969, Lycoming could not foresee the substantial modifications its engine would ultimately undergo before the subject accident 36 years later. This lapse of time alone is enough to warrant a grant of summary judgment. *See Gumbs v. Int'l Harvester, Inc.*, 718 F.2d 88, 94 (3d Cir. 1983) (confirming that the key period in allegedly defective product's life cycle is "the time that it left the hands of the particular seller"); *Oquendo v. Bettcher Indus., Inc.*, 939 F. Supp. 357, 363 (D.N.J. 1996), *aff'd*, 118 F.3d 1577 (3d Cir. 1997) (granting summary judgment where manufacturer "only learned of [component's] removal post-manufacture" because "the relevant time period . . . is the time of design and fabrication").

In particular, Plaintiff took no issue with Lycoming's emphasis on the 12-year overhaul period when I asked at oral argument about the extent to which aircraft engines were durable or nondurable goods. As it were, the aircraft engine

here should have been overhauled three times in 12-year cycles during the 36-year timeframe after its sale. This is problematic in two ways. First, it indicates that the engine was subjected to a maintenance schedule contrary to Lycoming's best practices and therefore reached the end user in an unforeseen manner. Second, it plainly suggests that the delay in maintenance was potentially an intervening cause of the engine's alleged decline in airworthiness.

Further, the extreme extent of the modification here and the tortured life cycle of this particular engine also warrant the entry of summary judgment. In addition to obvious factors such as the physical or mechanistic breadth of a modification that tend to make it a substantial one, courts also look to whether it could "be reasonably anticipated." *Fisher*, 296 F. Supp. 2d at 563. *See also Harsh v. Petroll*, 840 A.2d 404, 421 (Pa. Commw. Ct. 2003), *aff'd*, 887 A.2d 209 (2005) (considering "extent of the effect of the modifications").

Here, the post-shipment modifications were not only extensive but they were also not objectively foreseeable. After a nearly 30-year period of storage, the engine was installed in an aircraft that did not even exist and for which it was not type certificated at the time of manufacture. After being struck by lightning, the engine and the carburetor were both completely overhauled. Recall that under 14 C.F.R. § 43.2, "overhaul" is a regulatory term of art, encompassing the entire process by which a component, using methods, techniques, and practices

acceptable to the FAA, has been disassembled, cleaned, inspected, repaired as necessary, and reassembled. During that process, the engine was removed from the aircraft, and the carburetor was removed from the engine. The carburetor was overhauled using Kelly's third-party aftermarket parts. In fact, recall that experts in this matter believe that the two core carburetor components were likely aftermarket replacement parts from two different decades, melded together to create one finished unit. That alone, in my view, is sufficiently extreme to warrant summary judgment in light of the preceding case law. By that stage, Lycoming was simply not the kind of seller § 402A is meant to reach.

Plaintiff's primary counterargument is that Lycoming can still be held liable for the aftermarket modifications, given that Kelly purports to have followed one of Lycoming's general service bulletins and maintenance manuals. That argument illustrates full well a strand of fallacious reasoning that I believe permeates Plaintiff's position: this is an exceptionally complex matter that cannot properly be resolved by resorting to vague generalities. In particular, the focus of this case has far too often been upon whether type certificate holders *generally* may be liable for aftermarket part installations, or whether those same manufacturers *generally* may be liable if they issue repair manuals and things go wrong. Of course the answer those questions is yes. But, this matter has long since progressed beyond general principles of products liability law. The question now is whether under the *specific*

circumstances at issue, tort liability may still lie. *See Berckeley Inv. Grp., Ltd. v. Colkitt*, 455 F.3d 195, 201 (3d Cir. 2006) ("In this respect, summary judgment is essentially 'put up or shut up' time for the non-moving party.").

"[N]othing precludes a court from determining proximate cause as a matter of law if a jury could not reasonably differ on the issue." *Chetty Holdings Inc. v. NorthMarq Capital, LLC*, 556 F. App'x 118, 121 (3d Cir. 2014) (Fisher, J.) "To put it another way, where there is no issue of fact, the issue of proximate cause is one for the court to determine as a matter of law." *Heeter v. Honeywell Int'l, Inc.*, 195 F. Supp. 3d 753, 758 (E.D. Pa. 2016), *aff'd* 2017 WL 3128488 (3d Cir. July 24, 2017). While every case turns on its facts, these general instructional material do not create a genuine dispute of material fact warranting the denial of summary judgment here.

Indeed, having previously read at length in Plaintiff's briefs about the purportedly decisive nature of the contested service bulletin, known as Service Bulletin 366, it was rather disappointing to lay eyes on it once again on remand. Its potency in this litigation, like that of a monstrous shadow emanating from a much smaller, harmless source, quickly dissipates upon closer inspection. Recall that the bulletin was broadly issued in 1973 to any and all parts manufacturers or end users who might be responsible for securing maintenance on "All AVCO Lycoming

engines equipped with Marvel-Schebler carburetors." In fact, it consists of three short paragraphs, together approximately one-half page in length.

The Bulletin is written generally and provides no direct guidance for the particular parts or methods eventually employed 31 years later by Kelly. Instead it merely notifies recipients that if leaking is evident or the screws are loose, the carburetor may be disassembled so that the gasket may be replaced and the screws retightened. It makes no mention of the specific types of components or the designs that should be used when an aftermarket parts manufacturer seeks a PMA pertaining to the carburetor. Of course, the service bulletin is also silent as to the type of conglomerate overhaul that Kelly undertook. Plaintiff's argument as to this service bulletin is therefore flawed in several respects: it cannot be said that the bulletin addresses the entirety of the carburetor maintenance performed during the overhaul; the bulletin is intended for engines that have been maintained using best practices; no reasonable person could find that Kelly faithfully followed the bulletin when it implanted the conglomerate carburetor; and Plaintiff has not shown that further instructional information on Lycoming's part would have materially altered Kelly's future design choices or maintenance decisions.[31]

[31] The same is true of certain letters Lycoming may have received from the FAA in the early 1970s regarding perceived defects in the engine. As Ms. Slavin rightly pointed out at oral argument, those concerns must have been *de minimis*, as the Administration continued approving Lycoming's same designs at that time and continuing for a period of at least 20 more years. May 2017 Tr. 44:07–17. Of course, the FAA also approved Kelly's PMA that used an imitation design similar to the one about which Plaintiff now complains. Generic

The thrust of this Memorandum Opinion does not mean to say that type certificate holders can never be liable for aftermarket work or that instructional manuals will never give rise to liability. To the contrary, the crux of this portion of my discussion is rather narrow: when an engine is lost, stored, overhauled, and the allegedly defective part has been entirely replaced with a suspect knock-off, liability simply cannot lie. This is not the type of case that § 402A is intended to reach. In fact, if this judgment cannot be entered here as a matter of law, it is hard to imagine what other scenarios would absolve manufacturers. Summary judgment is not limited to the fanciful scenario in which a midnight burglar penetrates the air hangers and meddles with the Cessna aircrafts. Rather, at some point, the tortuous life cycle of a product necessarily snuffs out any remaining liability early manufacturers once had. The engine here has undoubtedly passed that point.

2. Negligence

My analysis as to Plaintiff's negligence claims does not repeat, though it certainly rhymes with that above. "Proximate causation is a necessary element in proving a tort case under theories of strict liability or negligence." *Van Buskirk v. Carey Canadian Mines, Ltd.*, 760 F.2d 481, 492 (3d Cir. 1985) (Adams, J.) (citing *Sherk v. Daisy-Heddon*, 450 A.2d 615, 617 (Pa. 1982). Accordingly, the causal

recitations pertaining to foreseeability are inadequate at this stage of such a complex case as this one.

inquiry is "inescapable" in negligence and strict liability cases where subsequent modifications are at issue. *Van Buskirk,* 760 F.2d at 495 n.11.

"In *Tincher,* the Pennsylvania Supreme Court noted that the standard for establishing a strict liability claim in Pennsylvania is designed to be more easily satisfied than that for a negligence claim." *Schwartz v. Abex Corp.*, 106 F. Supp. 3d 626, 654 (E.D. Pa. 2015). "Pursuant to the guidance of the Pennsylvania Supreme Court, the standard for establishing liability of a product manufacturer under a negligence theory would be more stringent and, thus, more difficult to satisfy." *Id.*

"In order to show negligent design and negligent manufacture under Pennsylvania law, plaintiff must show that (1) the manufacturer owned a duty to the plaintiff, (2) the duty was breached and (3) such a breach was the proximate cause of plaintiff's injuries." *Soufflas v. Zimmer, Inc.*, 474 F. Supp. 2d 737, 753 (E.D. Pa. 2007) (citing *Phillips v. Cricket Lighters,* 841 A.2d 1000, 1008 (Pa. 2003); *Dauphin Deposit Bank & Trust v. Toyota,* 596 A.2d 845, 849–50 (Pa. Super. Ct. 1991). Further, "a claim for negligence under a failure-to-warn theory in products liability requires showing, unlike in a strict products liability claim, that the manufacturer was at fault" and that "the absence or inadequacy of the warnings was the factual or proximate cause of the injury." *Wright v. Ryobi Techs., Inc*, 175 F. Supp. 3d 439, 454–55 (E.D. Pa. 2016) (citing *Dauphin Deposit Bank & Tr. Co.*

v. Toyota Motor Corp., 596 A.2d 845, 849–50 (Pa. Super. Ct. 1991); *Moroney v. General Motors Corp.*, 850 A.2d 629, 633–34 (Pa. Super. Ct. 2004).

"A proximate, or legal cause, is defined as a substantial contributing factor in bringing about the harm in question." *Van Buskirk*, 760 F.2d at 492. "Pennsylvania courts utilize the 'substantial factor' test from the Restatement (Second) of Torts to ascertain proximate cause." *Heeter*, 195 F. Supp. 3d at 758. "The following considerations are deemed important under the Restatement's 'substantial factor' test to determine proximate cause: (1) the number of factors other than the actor's conduct that contributed to producing the harm and the extent of their contribution; (2) whether the actor's conduct created a force or series of forces that were in continuous and active operation up to the time of the harm, or created a situation harmless unless acted upon by other forces for which the actor is not responsible; and (3) the lapse of time between the actor's conduct and the harm." *Id.* at 759. "The questions of proximate cause and superseding cause are intended to further the same ultimate inquiry: how far should legal responsibility extend?" *Van Buskirk*, 760 F.2d at 495.

Thus, proximate causation as to negligence is further called into question based upon Kelly's own independent aftermarket actions. Recall that Kelly did not obtain its PMA by tying its approval strictly to that of Lycoming's through an identicality submission. To the contrary, Kelly submitted its own tests and

computations. To that end, the record reveals that the new parts installed during the carburetor overhaul all were Kelly parts. ECF No. 524 ¶¶ 4, 5, 7). The part numbers for the various new replacement carburetor parts contain the letters CF—for Consolidated Fuel Systems (an entity related to Kelly), and the data tag installed on the overhauled carburetor contains the letters KA—for Kelly Aerospace. *Id.* ¶¶ 7, 9.

Further, the foregoing analysis as to the time that elapsed since the engine left Lycoming's hands, as well as to the extent of the modification, is just as applicable to proximate cause analysis in the negligence context as it is to strict liability. However, negligence is distinct from strict liability—indeed, a more difficult cause of action upon which to succeed—because negligence requires something that strict liability does not: breach of a duty of *reasonable* care.

If Plaintiff's strict liability claims fail, and they undoubtedly should, it would be highly inadvisable to shoehorn these facts into a negligence cause of action. That, it seems to me, would amount to the imposition of a duty of *absolute* care. In my view, Plaintiff has not articulated what precise duty Lycoming breached and what precise remedial measures Lycoming could have taken that would have altered the eventual outcome. That Lycoming should have stopped selling

carburetors altogether or should have had omniscient foresight in 1969 are impermissible suggestions incongruous with the concept of reasonableness. [32]

Last, as the preceding authority makes clear, manufacturers are not insurers. Expansive liability for entities in a supply chain is recognized precisely so that plaintiffs are not foreclosed from recovering just because one manufacturer or seller may be illiquid. In that case, liability may reach proximate comparators. What that form of supply chain liability does not do in negligence cases, however, is stretch into space and time *ad infinitum*. That converts the Commonwealth's negligence law into a beast that it is not.

For these reasons, Lycoming is entitled to summary judgment on this second, independent ground.

IV. CONCLUSION

At this point in conflict preemption opinions, the court typically laments "the unfortunate hand that federal [ ] regulation has dealt" the plaintiff. *PLIVA*, 564 U.S. at 625. As her $2 million settlement evidences, such sympathy for unrealized

[32] In my view, Plaintiff's negligence claims would also fail when viewed through the lens of Pennsylvania's "*Althaus* test" for discerning, as a matter of law, whether a duty in tort exists. That test requires consideration of: (1) the relationships between the parties; (2) the social utility of the defendant's conduct; (3) the nature of the risk imposed and foreseeability of the harm incurred; (4) the consequences of imposing a duty upon the defendant; and (5) the overall public interest in the proposed solution. *See Althaus v. Cohen*, 756 A.2d 1166, 1169 (Pa. 2000). Straining to find liability in the present case would leave these factors entirely uncalibrated in that it would impose significant costs and uncertainty on aircraft manufacturers (and ultimately consumers and shareholders), solely to pay for the injuries of an individual who has already been compensated and whose connection to the manufacturer was slight and destroyed by several intervening events.

pecuniary losses is not in order for the Plaintiff here. As Ms. Slavin expressed at oral argument, "Kelly's hands placed the carburetor into the stream of commerce, and Mrs. Sikkelee . . . recovered $2 million. So everything that *Tincher* says should happen did happen as to the actual seller or supplier." May 2017 Tr. at 19:08–12. I agree.

An appropriate Order follows.

BY THE COURT:

s/ Matthew W. Brann
Matthew W. Brann
United States District Judge