



LEXSEE 60 JALC 575 (1995)

Copyright (c) 1995 Southern Methodist University School of Law  
Journal of Air Law and Commerce

December, 1994 / January, 1995

*60 J. Air L. & Com. 575*

**LENGTH:** 12681 words

**ARTICLE:** TORT LIABILITY SURROUNDING HOMEBUILT, AMATEUR-BUILT, AND EXPERIMENTAL AIRCRAFT

**NAME:** Paul A. Lange \*

**BIO:**

\* Paul A. Lange received a B.A. and M.B.A. from C.W. Post College of Long Island University and was a flight instructor and commuter airline pilot prior to attending the University of Bridgeport School of Law, from which he obtained a J.D. in 1986. After graduation, Mr. Lange worked for the Federal Aviation Administration Eastern Regional Counsel's office. Upon leaving the government for private practice, Mr. Lange practiced in New York with Bigham Englar Jones & Houston and Katten Muchin Zavis & Dombroff prior to establishing his own firm with offices in New York City and Trumbull, Connecticut.

**SUMMARY:**

... In fact, the number of registered amateur-built aircraft has more than doubled in the last ten years, from 7,212 in 1983 to 15,437 as of July 1, 1993, while shipments of single engine production aircraft during the same period fell consistently and markedly, from 1,811 in 1983 to 510 in 1992. ... Why are homebuilt aircraft increasing in number while traditional production aircraft are not? There is certainly an argument that homebuilt designs are more attractive than those for production aircraft because homebuilts tend to be new and innovative while production aircraft designs may essentially be decades old. ... It is even conceivable that the completion center might be criminally implicated on a theory of conspiracy to defraud the FAA if it completed the aircraft itself, because it knew or should have known that the "amateur-builder" must certify to the FAA under penalty of perjury that he or she constructed the majority of the aircraft. ... With respect to the completion center, a partnership also serves to bypass the regulatory requirement that the amateur builder complete the majority of the work for certification, because the partnership has actually completed the majority of the work. ... Homebuilt aircraft present special problems that are similar, but not entirely common, to those typically affecting production aircraft. ... This is especially important in light of the fact that homebuilt aircraft are increasing as a percentage of the total aircraft population while production aircraft are decreasing. ...

**TEXT:**

[\*576]

## I. INTRODUCTION

IN THE LAST decade, we have seen a dramatic decrease in the number of light aircraft produced by traditional manufacturers such as Cessna, Piper, and Beech. n1 Conversely, the number of light aircraft commonly known as "homebuilts," "experimental," or "amateur-built" has markedly increased. n2 In fact, the number of registered amateur-built aircraft has more than doubled in the last ten years, from 7,212 in 1983 to 15,437 as of July 1, 1993, n3 while shipments of single engine production aircraft during the same period fell consistently and markedly, from 1,811 in 1983 to 510 in 1992. n4 Many in the aviation industry attribute this trend to the rising cost of product liability insurance, prompting numerous attempts at reform. n5 Even though accident rates of experimental aircraft are no different than [\*577] those for production aircraft, the increased quantity of experimental aircraft units dictates that an increasing number of accidents will occur in that aircraft category.

Because the identities of the designer and the manufacturer of a "homebuilt" are often not entirely clear, and because the entities involved are often small, under-capitalized and uninsured, any liability and damage analysis involving such an aircraft is different and potentially more complicated than for production aircraft accidents or accidents involving other types of products. Specifically, it is factually much more difficult to identify culpable individuals or entities with respect to experimental aircraft accidents. Moreover, the culpable individual or entity may not be able to satisfy a judgment. The purpose of this article is to explore these issues in order to provide a better understanding of the respective risks and liabilities involved.

## II. WHAT IS A HOMEBUILT, AMATEUR-BUILT, OR EXPERIMENTAL AIRCRAFT?

To the general public, the term "experimental" aircraft usually evokes images of a sleek, new, one-of-a-kind military aircraft being tested and flown by a professional test pilot. Though certification of military aircraft does not fall under Federal Aviation Administration (FAA) jurisdiction and therefore does not apply to this discussion, the FAA does have jurisdiction over designs for all new civilian aircraft, such as airliners, corporate jets, and general aviation aircraft. During the testing phase and prior to first flight, these aircraft receive an experimental airworthiness certificate from the FAA until such time as testing is complete and certification is conferred in a higher category. Nevertheless, the most common aircraft in the experimental category are what the FAA calls "amateur-built." n6 Though the [\*578] FAA's definition encompasses a wide spectrum, the term "experimental" is so commonly used to identify amateur-built aircraft that even the 136,000 member n7 organization representing the interests of amateur builders is entitled the "Experimental Aircraft Association." n8 Lastly, while the term "homebuilt" is not officially used by the FAA, this term has come to be used synonymously with "experimental", because many experimental aircraft are actually constructed in the home of the owner. n9

The aircraft discussed in this section are almost entirely of the light, single engine variety. n10 These aircraft can be constructed from a kit or from a purchased set of plans, or designed and constructed solely by a particular individual with no outside influence. n11 One should keep in mind, however, that the majority of amateur-built aircraft in use are constructed from kits. n12

Plans and kits are usually purchased in response to advertisements in industry publications such as Trade-A-Plane n13 or Sport Aviation, n14 the official magazine of the Experimental [\*579] Aircraft Association. After purchasing a separate set of plans, the purchaser must individually locate and buy construction materials. As previously indicated, however, most people purchase a kit produced by the designer of the aircraft. n15 A typical kit consists of most of the aircraft parts, absent the powerplant and anything other than the most basic instrumentation. n16 Since the majority of construction must be completed by the purchaser for the FAA to certify the aircraft as "amateur-built," most kits are sold with 49% of the finished aircraft construction completed. n17

Why are homebuilt aircraft increasing in number while traditional production aircraft are not? There is certainly an argument that homebuilt designs are more attractive than those for production aircraft because homebuilts tend to be

new and innovative while production aircraft designs may essentially be decades old. Notwithstanding their generally older designs, manufacturers of production aircraft such as Cessna, Beech, and Piper are relatively large companies with valuable assets and extensive insurance. Accordingly, if there is a verdict against one of the production aircraft manufacturers, it is likely that the plaintiff could actually collect on the resulting judgment. In the case of homebuilt aircraft, however, the designers and kit manufacturers tend to be very small businesses with few assets. n18 Further, because insurers do not provide product liability [\*580] coverage for homebuilt aircraft, n19 insurance money is not available to successful plaintiffs. Therefore, designers and sellers of kits, and the amateur builders themselves, are less inviting targets than their production brethren, because the risk of failing to recover on a judgment may outweigh all other considerations in deciding whether or not to litigate.

### III. THE REGULATORY SCHEME

#### A. Generally

While this article is primarily intended to explore tort liability, it is important to have a thorough understanding of the regulatory framework pursuant to which homebuilt aircraft are designed and constructed. The starting point is Federal Aviation Regulation (FAR) 21.191, n20 which states that the FAA issues experimental airworthiness certificates for the following purposes:

- a) Research and development. Testing new aircraft design concepts, new aircraft equipment, new aircraft installations, new aircraft operating techniques, or new uses for aircraft.
- b) Showing compliance with regulations. Conducting flight tests and other operations to show compliance with the airworthiness regulations including flights to show compliance for issuance of type and supplemental type certificates, flights to substantiate major design changes, and flights to show compliance with the function and reliability requirements of the regulations.
- c) Crew training. Training of the applicant's flight crews.
- d) Exhibition. Exhibiting the aircraft's flight capabilities, performance, or unusual characteristics at air shows, motion picture, television, and similar productions, and the maintenance of exhibition flight proficiency, including (for per [\*581] sons exhibiting aircraft) flying to and from such air shows and productions.
- e) Air racing. Participating in air races, including (for such participants) practicing for such air races and flying to and from racing events.
- f) Market surveys. Use of aircraft for purposes of conducting market surveys, sales demonstrations, and customer crew training only as provided in 21.195.
- g) Operating amateur-built aircraft. Operating an aircraft the major portion of which has been fabricated and assembled by persons who undertook the construction project solely for their own education or recreation.
- h) Operating kit-built aircraft. Operating a primary category aircraft that meets the criteria of 21.24(a)(1) that was assembled by a person from a kit manufactured by the holder of a production certificate for that kit, without the supervision and quality control of the production certificate holder under 21.184(a). n21

The portion of this regulation applicable to the present discussion is subsection (g) above, "Operating amateur-built aircraft." While subsection (h), "Operating kit-built aircraft," might seem to apply, it is distinguishable in that it applies

only to the recently created primary category aircraft, which are more highly regulated. n22 Specifically, the primary aircraft category requires engineering analysis, manuals, and flight, structural, propulsion and systems tests, among others, to show that the aircraft and its components function properly and to demonstrate that "no feature or characteristic makes it unsafe for its intended use." n23 Subsection (h) also requires the designer/seller of the kit to hold a production type certificate for the aircraft; n24 the same certificate required of other production aircraft manufacturers such as Cessna and Beech. Further distinguishing subsection (h) aircraft is the fact that the individual or individuals constructing them are not permitted any discretion with regard to design or construction changes. More [\*582] over, aircraft proposed for certification under this subsection must match the provisions of the production type certificate issued to the designer/seller of the kit. n25 These kits are generally produced in such a way that only assembly, rather than fabrication, of parts is required. n26

FAR 21.191(g) amateur-builders, on the other hand, are held to a much lower standard than those assembling FAR 21.191(h) aircraft. FAR 21.191(g) amateur-builders must provide the information requested for all experimental aircraft, n27 but are not subject to the additional information requirements of FAR 21.191(h), which requires that kit-built aircraft also show engineering analyses and test results pursuant to FAR 21.24. n28 In FAR 21.193, the FAA sets forth the information that all applicants for a Special Airworthiness Certificate in the experimental category must provide:

- a) A statement, in a form and manner prescribed by the Administrator setting forth the purpose for which the aircraft is to be used.
- b) Enough data (such as photographs) to identify the aircraft.
- c) Upon inspection of the aircraft, any pertinent information found necessary by the Administrator to safeguard the general public.
- d) In the case of an aircraft to be used for experimental purposes-
  - 1) The purpose of the experiment;
  - 2) The estimated time or number of flights required for the experiment;
  - 3) The areas over which the experiment will be conducted; and [\*583]
  - 4) Except for aircraft converted from a previously certificated type without appreciable change in the external configuration, three-view drawings or three-view dimensioned photographs of the aircraft. n29

For experimental aircraft, engineering and other data which would normally be expected for production aircraft simply are not required.

The FAA designed the amateur-built program to permit a person to build an aircraft solely for educational or recreational purposes. n30 Since the inception of this program, the FAA has allowed amateur builders the freedom to select their own designs. n31 The FAA does not approve designs, because it is not practical for the FAA to develop design standards due to the large number of individual and unique design configurations generated by the numerous kit manufacturers and the amateur builders themselves. n32

Nevertheless, the FAA polices the design, construction, certification, and operation of amateur-built aircraft through an inspection of the aircraft prior to first flight. n33 Designs having an empty weight of less than 254 pounds, however, are considered ultralight vehicles n34 and are not subject to the registration and certification requirements for aircraft. n35 There is also no requirement that an amateur-built aircraft have a "type" certificate. n36 The only certificate an amateur-built aircraft must have prior to flight (and the only one for which it is likely to be eligible) is a

special airworthiness certificate in the experimental category to permit operation of amateur-built aircraft. n37 An amateur-built aircraft is one in which the major portion of the aircraft has been fabricated and assembled by an individual [\*584] or individuals who undertook the construction project solely for their own education or recreation. n38 Commercially produced components and parts normally purchased for installation in aircraft may be used, including engines and engine accessories, propellers, tires, spring steel landing gear, main and tail rotor blades and other common parts, n39 though the aircraft itself may not be constructed by a commercial entity in the business of building aircraft. n40 Not surprisingly, even component parts not otherwise used in production aircraft, such as Volkswagen automobile engines, are sometimes popular for use in amateur-built aircraft. n41 Most, if not all, of these component part manufacturers carry product liability insurance. As discussed more fully later in this article, an important issue with respect to products liability is whether these components were intended for use in amateur-built aircraft.

Prior to 1983, the FAA inspected amateur-built aircraft at several stages during construction. n42 These inspections were commonly called precover inspections. n43 After reassessing the need for these inspections, the FAA decided to perform only one inspection prior to the initial flight test. n44 Since then, inspections have been limited to ensuring the use of acceptable workmanship methods, techniques and practices, and issuing operating limitations necessary to protect persons and property not involved in this activity. n45 To that end, the inspector and builder review all plans, drawings, bills for parts, and progress photographs of the construction. The FAA posits that despite the typical amateur-builder's lack of experience in aeronautical practices, workmanship, or design, the builder's voluntary consultation of persons having expertise with aircraft construction [\*585] techniques is an effective means of ensuring construction integrity. n46 In this regard, Experimental Aircraft Association (EAA) "Technical Counselors" are specifically recognized by the FAA for the purposes of inspecting particular components (e.g., wing assemblies, fuselages) prior to covering and conducting other inspections, as necessary. n47

The FAA has designated certain private individuals to act on its behalf in the inspection of these aircraft and in the issuance of airworthiness certificates. These persons, known as Designated Airworthiness Representatives (DAR's), are authorized to charge for their services and to act in the place of an FAA inspector when certification is sought. The names of DAR's in a particular area are provided by the FAA on request, but their fee is not governed by the FAA. n48 Interestingly, the FAA cannot be held liable under the Federal Tort Claims Act for acts or omissions on the part of these designees, n49 and the FAA considers them independent contractors.

Under this scheme, the FAA concluded that its safety objectives with regard to the amateur-built program can continue to be met by using the following criteria:

(1) Amateur builders should have knowledgeable persons (i.e., FAA certificated mechanics, EAA Technical Counselors, etc.) perform precover inspections and other inspections as appropriate. In addition, builders should document the construction using photographs taken at appropriate times prior to covering. The photographs should clearly show methods of construction and quality of workmanship. Such photographic records should be included with the builder's log or other construction records.

(2) The FAA inspector or DAR will conduct an inspection of the aircraft prior to issuance of the initial [airworthiness certificate] to enable the applicant to show compliance with [\*586] [the operating limitations of FAR 91.319]. This inspection will include a review of the information required by FAR 21.193, the aircraft builder's logbook, and an examination of the completed aircraft to ensure that proper workmanship has been used in the construction of the aircraft. Also, the appropriate operating limitations will be prescribed at this time in accordance with [FAR 91.319].

(3) An FAA inspector or DAR may elect to issue amateur-built airworthiness certificates on a one-time basis to the builder for showing compliance with [FAR 91.319] and continued operation under [FAR 21.191(g)]. Under this procedure, the aircraft will be inspected by the FAA only once prior to flight testing. The airworthiness certificate will be issued, but its validity will be subject to compliance with the operating limitations. The limitations will provide for

operation in an assigned flight test area for a certain number of hours before the second part of the limitations becomes effective, releasing the aircraft from the test area. n50

Lastly, the proponent of certification must place a placard in the aircraft which is in full view of each passenger and states the following:

PASSENGER WARNING - THIS AIRCRAFT  
IS AMATEUR-BUILT AND DOES NOT  
COMPLY WITH FEDERAL SAFETY  
REGULATIONS FOR STANDARD AIRCRAFT. n51

#### B. Design and Construction

The FAA permits an amateur builder to choose any engine, propellers, wheels, components, and materials in the construction of an amateur-built aircraft. n52 The FAA strongly recommends, however, that FAA-approved components and established aircraft quality material be used, especially in fabricating parts constituting the primary structure, such as wing spars, critical attachment fittings, and fuselage structural members. n53 The FAA further states [\*587] that inferior materials (the identity of which cannot be established) should not be used. n54 The use of major sections (e.g., wings, fuselage, empennage) from type certificated aircraft may be used in the construction as long as the sections are in a condition for safe operation. n55 The FAA inspector or DAR is to consider these sections in determining whether the builder completed the major portion of the aircraft, but no credit for fabrication and assembly of these individual parts will be given. n56

In its Advisory Circular on this subject, the FAA states that the design of the cockpit or cabin of the aircraft should avoid, or provide for padding on, sharp corners or edges, protrusions, knobs, and similar objects which may cause injury to the pilot or passengers in the event of an accident. n57 The FAA also strongly recommends that Technical Standard Order (TSO) approved or equivalent seat belts be installed along with approved shoulder harnesses. n58

With regard to engines, the FAA states that an engine installation should ensure that adequate fuel is supplied to the engine in all anticipated flight attitudes. n59 Also, a suitable means, consistent with the size and complexity of the aircraft, should be provided to reduce fire hazard wherever possible, and should include a fireproof firewall between the engine compartment and the cabin. n60 When applicable, a carburetor heating system should also be provided to minimize the possibility of carburetor icing. n61

Lastly, the FAA indicates that the builder should obtain the services of a qualified aeronautical engineer or consult with the designer of purchased plans or construction kits to discuss any aircraft design modifications proposed during construction. n62 [\*588]

#### C. Kits

Construction kits containing raw materials and some prefabricated components may be used in building an amateur-built aircraft. n63 Aircraft assembled entirely from kits composed of completely finished prefabricated components, parts, and precut and predrilled materials are not eligible for certification as amateur-built aircraft, however, because the major portion of the aircraft would not have been fabricated and assembled by the amateur builder. n64 Though not certifiable as amateur-built, such aircraft may be certifiable under FAR 21.191(h) if the kit producer holds a production type certificate n65 for the aircraft in addition to having the aircraft certified by the FAA in the primary category. n66 As of November, 1993, however, only the Quicksilver GT-500 kit met these requirements. n67

As previously discussed, an aircraft constructed from a kit may be eligible for amateur-built certification provided that the major portion of it has been fabricated and assembled by the amateur builder. n68 A kit owner may jeopardize eligibility for amateur-built certification under FAR 21.191(g) if the kit owner allows someone else to construct the aircraft. n69 Eligible kits may contain raw stock such as lengths of wood, tubing, and extrusions, which have been cut to an approximate length. n70 A number of prefabricated parts such as heat treated ribs, bulkheads, or complex parts made from sheet metal, fiberglass, or polystyrene are also acceptable, provided the kit still meets the FAR 21.191(g) major [\*589] portion criteria for fabrication and assembly, and the amateur builder satisfies the FAA inspector or DAR that completion of the aircraft kit is not simply an exercise in assembling parts. n71 The FAA also cautions that purchasers of partially completed kits should obtain all fabrication and assembly records from the previous owner, as this "may" enable the builder who completes the aircraft to obtain amateur-built certification. n72

The FAA does not certify aircraft kits or approve kit manufacturers. It does, however, evaluate popular kits for the sole purpose of determining whether an aircraft built from the kits will meet the major portion criteria set forth in FAR 21.191(g) (the 49% rule) and therefore be certifiable as amateur-built. A list of the kits evaluated is maintained at local FAA offices, and the FAA advises prospective amateur builders to check this list prior to ordering any kit in order to ensure that upon completion, the aircraft will be eligible for certification under current FAA rules and policy. n73 Prior to issuance of the airworthiness certificate, the FAA requires a builder to sign a statement indicating that he or she completed the majority of the aircraft assembly. n74 Moreover, this FAA form warns that any false, fictitious or fraudulent information provided by the builder will result in prosecution for up to \$ 10,000 in fines and up to five years in prison. n75 It is noteworthy, however, that no published cases exist on this issue.

#### IV. BACKGROUND LAW, STATUTES AND CASES

When seeking the appropriate law with which to analyze these issues, one quickly finds that there are no statutes that mention these aircraft, and amazingly few reported cases. Accordingly, any analysis must start with the applicable product liability statute in the forum or, for general purposes, the Restatement (Second) of Torts. [\*590]

##### A. Section 402A of the Restatement (Second) of Torts

Section 402A, Special Liability of Seller of Product for Physical Harm to User or Consumer, provides the following:

- (1) One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if
  - (a) the seller is engaged in the business of selling such a product, and
  - (b) it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.
- (2) The rule stated in Subsection (1) applies although
  - (a) the seller has exercised all possible care in the preparation and sale of his product, and
  - (b) the user or consumer has not bought the product from or entered into any contractual relation with the seller.

n76

B. Section 402B of the Restatement  
(Second) of Torts

While not cited as often as section 402A, section 402B, Misrepresentation by Seller of Chattels to Consumer, also may apply to some of the situations under discussion. Section 402B provides the following:

One engaged in the business of selling chattels who, by advertising, labels, or otherwise, makes to the public a misrepresentation of a material fact concerning the character or quality of a chattel sold by him is subject to liability for physical harm to a consumer of the chattel caused by justifiable reliance upon the misrepresentation, even though

- (a) it is not made fraudulently or negligently, and [\*591]
- (b) the consumer has not bought the chattel from or entered into any contractual relation with the seller. n77

Applicability of sections 402A and 402B to the various entities involved in this activity will be discussed along with the cases cited below in section V of this article, addressing liability analysis with respect to each entity in the distributive chain.

C. The Cases

Case law on the issues discussed herein is virtually nonexistent. One of the few cases helpful in the analysis, *Davis v. Hegar 4 Products, Inc.*, n78 involved the crash of a home-designed and homebuilt aircraft (not from a kit), after which the manufacturer of a drive belt was sued for failure to warn. The manufacturer was awarded summary judgment on the failure to warn claim, though the case continued toward trial on other issues. Gilbert Davis was at the controls of his experimental aircraft, the Davis Flying Wing, when the drive belt broke. The aircraft crashed and Davis was rendered a paraplegic. Davis sued both the manufacturer of the drive belt and the retailer who sold the belt to him. Both the manufacturer and the retailer knew that the belts were used to drive aircraft propellers. Davis claimed, inter alia, that the belt was defective because "it lacked a warning that it could fail at any time once overloaded." n79 Both the district court and the Ninth Circuit held that the danger was "exceedingly plain, open and obvious" as a matter of law, and thus no duty to warn was owed by the retailer or manufacturer. n80 Davis's failure to warn claim was therefore dismissed. n81 Since the judgment and appeal addressed only the failure to warn portion of Davis's various product liability claims, Davis continued to pursue the remainder of his claims at the district court level. n82 [\*592]

In *Mullan v. Quickie Aircraft Corporation*, n83 the plaintiff sustained personal injuries when the aircraft he constructed from a kit crashed on takeoff. The plaintiff sued the kit manufacturer in negligence, strict products liability, and warranty. After the trial jury found for the plaintiff, the defendant appealed on several issues, including: 1) that the district court's failure to issue a negligence per se instruction was reversible error; and 2) that the district court incorrectly ruled that the disclaimer language in the contract of sale was unconscionable. n84 The court of appeals found the error as to the negligence per se instruction harmless. n85 The court gave a thorough analysis, however, regarding the contractual disclaimer language stricken by the trial court. n86 The disclaimer set forth in Quickie's contract was as follows:

QUICKIE AIRCRAFT CORPORATION is not responsible, and makes no warranties, express or implied whatsoever, regarding the structural integrity, performance, flight characteristics, or safety of the buyer's completed aircraft and its component parts. QUICKIE AIRCRAFT CORPORATION has no control and assumes no control of the buyer's ability to successfully construct and test the QUICKIE AIRCRAFT. Buyer expressly waives any and all claims arising from structural integrity, performance, flight characteristics, mechanical failures, and safety against QUICKIE AIRCRAFT



CORPORATION. Buyer acknowledges awareness of the risks of flying a home built aircraft. Buyer acknowledges that the FAA must inspect the aircraft at construction intervals, as well as the completed project, prior to flight and should work with his local FAA representative regarding the construction and licensing of the aircraft. n87

The Tenth Circuit held that the foregoing disclaimer was a valid and conscionable exculpatory agreement in that the nature of the contract was for the sale of unassembled [\*593] goods, and the plaintiff had the opportunity to purchase similar goods elsewhere. n88 The court also held that the contract was fairly entered into and that the intention of the parties was expressed in clear and unambiguous language. n89 The court then remanded the matter, stating that "if one or more of the theories of liability are preserved [presumably the negligence and strict product liability theories], notwithstanding the disclaimer provision of the sales agreement, then the jury's verdict and the district court's judgment must stand." n90

Finally, the court confronted the issue of whether a strict products liability claim may be waived in an exculpatory agreement. It disposed of this issue in a single paragraph, stating that there was disagreement among courts nationwide on this issue and no Colorado cases on point. n91 Accordingly, it directed the district court to certify the waiver question to the Colorado Supreme Court for determination. n92 While the language of this decision could be clearer, the result is that a kit manufacturer may have liability even when it includes a valid waiver provision in its contract of sale.

## V. LIABILITY ANALYSIS OF EACH ENTITY IN THE CHAIN

### A. Generally

Any liability analysis for homebuilt aircraft first requires identification of the designer and manufacturer of the aircraft. For production aircraft, this determination is often relatively easy because the designer and manufacturer are usually the same entity. n93 Further, the appropriate informa [\*594] tion is obtainable with relative ease due to the relatively large size of the company, the highly regulated nature of the aircraft, and the likelihood that the company has been sued a number of times in the past. n94 If a component part is potentially at fault, the designer and manufacturer of that part are also readily identifiable because the part must be approved by the FAA and meet FAR Part 23 n95 standards. n96 The identification and analysis becomes more difficult, however, with respect to homebuilts.

The initial designer of a homebuilt aircraft is usually either an individual or a small, poorly capitalized company. n97 Further, no two aircraft are exactly alike when completed because different people with differing abilities have built the aircraft without the benefit of uniform quality control. n98 The builder has extensive control over construction and design, and is free to deviate from any plans or kit during construction. n99 Such changes are commonplace, [\*595] though their extent varies widely. n100 A builder or injured passenger bringing a lawsuit against a "designer" who had no relationship to a particular aircraft other than devising a set of plans would therefore need to rebut the designer's expected assertion that the accident was caused solely by the builder's faulty construction techniques, defective materials, design changes by the builder during construction, faulty maintenance or pilot error. Modification of a product after it leaves the control of the manufacturer will often prove exculpatory to that manufacturer if the modification in some way caused the injury. n101

It is also important to consider what is often called the "stream of commerce" defense, which relates to *sections 402A and 402B of the Restatement (Second) of Torts*. Specifically, these sections of the Restatement, by their terms, apply only where the seller is engaged in the business of selling a particular product, thereby placing the product in the "stream of commerce." n102 This is one of the more important concepts to consider when evaluating liability against an individual or entity involved in this activity, and will be discussed in greater depth in each subsection below. Finally, the as [\*596] sumption of the risk doctrine is traditionally seized upon as a complete defense to a negligence cause of

action, n103 but whether it will constitute a complete defense to strict products liability varies by state. n104 Assumption of the risk should be relatively easy to prove because the pilot will generally be hard pressed to deny knowledge of the inherent risks involved, especially since he or she is required by FAR [\*597] 91.319(d)(1) n105 to notify all passengers that they are in an experimental aircraft by boldly placarding the aircraft as follows:

PASSENGER WARNING - THIS AIRCRAFT  
IS AMATEUR-BUILT AND DOES NOT  
COMPLY WITH FEDERAL SAFETY

REGULATIONS FOR STANDARD AIRCRAFT. n106 The percentage of negligence and strict liability cases of any kind in which the plaintiff has actually been barred from recovery, however, is quite small. n107 Further, that issue will normally be submitted to a jury, which can often be expected to sympathize with the plaintiff to some degree. n108

#### B. The Designer and Kit Manufacturer

The potential liability for an individual or entity that creates a set of plans for an amateur-built aircraft is probably less than that of all others discussed in this section. Though a court would likely find that most designers are engaged in the business of creating and selling plans for the purpose of subjecting them to potential liability under sections 402A and 402B of the Restatement, n109 the numerous intervening and superseding causes that could exist in any accident, as well as the difficulty in tracing proximate cause to the plans themselves (unless defective on their face), will certainly assist in deflecting liability away from the designer. n110

With regard to the producer and seller of a kit, will it be considered the manufacturer of a partially completed aircraft or merely the seller of individual component parts and materials? While the answer will likely depend upon the individual kit involved, the jurisdiction, and the particular [\*598] fact pattern, some factors to consider are the extent to which individual parts are fabricated and the extent to which they are assembled before the kit reaches the purchaser/amateur-builder. At least one case indicates that the sale of a particular kit constitutes merely the sale of parts and not the sale of an aircraft, although that finding was not entirely exculpatory. n111 Moreover, in a case involving four wheel drive conversion kits designed for trucks, the kit seller, rather than the truck re-seller, was held subject to liability to future passengers for failure to warn of an unreasonably dangerous condition. n112

While individual parts would be subject to the same product liability standards as entire aircraft, the burden of proof may in effect be slightly more difficult to satisfy. For example, a particular component must always be identified and proven to have both failed and caused an accident, but the issues are significantly complicated with homebuilts due to the nature of their design and construction processes, which may introduce additional intervening or superseding causes. Because the construction of most kits is quite simple in terms of the types of material used (e.g., wood or metal and not composite), many kit producers feel that the only area for potential fault is in poor welds. n113

Notwithstanding that view, it seems that a kit seller could also face strict liability for defective raw materials included in the kit unless it can be clearly shown that all the seller did was assemble raw materials. n114 In addition to liability for failure to warn, the kit seller may also confront negligence liability for ambiguities in the instructional materials, composition of the kit (e.g., a few too many or too few [\*599] parts, such as screws or bolts, which may confuse the builder), or incorrect advice provided during the construction process. For any number of reasons, there are no reported cases on this particular issue involving aircraft.

A kit producer would also be unable to avail itself of the stream of commerce defense to strict liability under sections 402A and 402B of the Restatement, because advertising and repetitive sales of kits will almost certainly lead a court to conclude that the producer is engaged in the business of selling these items. n115 As a result, and assuming the kit producer is structured as a corporation, it should ensure that its corporate status is current and in good standing in order to reduce the possibility that a claimant could reach personal assets of the owners. Because these risks are

presently uninsurable, kit manufacturers should take additional precautions by either budgeting for lawsuits or by ensuring that their assets are so limited that the manufacturers are effectively judgment proof.

### C. The Homebuilder

When will a homebuilder incur liability as the result of an accident? Homebuilt aircraft are usually constructed by individuals who then operate the aircraft they themselves have built. n116 In that situation, if no passengers are in the aircraft and no damage is done other than to the pilot and his or her aircraft during an accident, no cause of action would be available against the homebuilder since that would require a suit against oneself. When a passenger is on board and is injured, or where damage occurs to persons or property other than the aircraft, however, the claim of negligent pilot error may be asserted in combination with claims for negligent design changes, negligent construction, and strict products liability. n117 In these situations, pilot errors are usually covered by insurance policies with \$ 100,000 limits. n118 The remaining claims involving product-based liability (both in negligence and in strict liability), however, are usually asserted in the same action and are not covered by insurance. Accordingly, these claims are likely to become effectively subordinated to the pilot error claims because the policy proceeds are then easier to obtain in the event of a judgment in favor of the plaintiff.

In a scenario such as that set forth above, where product liability issues rise to the forefront, the homebuilder can seemingly present a complete defense to strict liability under sections 402A and 402B of the Restatement by effectively asserting that he or she constructed the aircraft only as a hobby and is otherwise not in the business of building and selling aircraft. n119 This argument is weakened, however, as the individual builds and sells additional aircraft and increases advertising during that process. n120

A greater question of liability arises when a homebuilt aircraft is sold to another, because the only cause of action against the homebuilder would be in strict products liability. Since no insurance coverage is available to protect against this risk, n121 the personal assets of the homebuilder [\*601] (e.g., his or her home or car) are significantly at risk. Despite the "stream of commerce" defense to strict liability causes of action under sections 402A and 402B, if a plausible case for negligence in the process of building the aircraft can be made, the amateur builder's personal assets could potentially be available to satisfy a judgment, because such an individual is unlikely to be incorporated for this purpose, and even if incorporated, piercing the corporate veil would be a viable possibility.

While there are no reported cases of this sort against an amateur builder, that does not mean that this type of lawsuit does not occur. In fact, it is unlikely that a case against an individual would be reported due to the expense of both a trial and an appeal, as well as the potentially difficult and more limited chances of recovery against amateur builders. While a homebuilder might posit that he or she could simply file a petition in bankruptcy to escape the financial repercussions of an adverse judgment, that course of action will not often entirely insulate a person's personal assets from liability. n122 Though a few states such as Florida n123 and Texas n124 have homeowner exemptions in bankruptcy which effectively prohibit liquidation of the home in a majority of circumstances, most states limit the homeowner exemption to a specific amount, such as \$ 10,000 in New York, \$ 75,000 in Connecticut, and \$ 50,000 to \$ 100,000 in California. n125 This means that even if an amateur builder is successfully [\*602] sued and files for bankruptcy, the bankruptcy court may only protect the equity in that person's home up to the exemption amount, essentially turning the remainder over to the plaintiff/creditor.

### D. Completion Centers

There are a number of individuals and entities who offer varying services to assist those wishing to construct an aircraft. Commonly called "completion centers" or "build centers," they offer the builder assistance in a range of forms, including a place to store the aircraft during construction; access to tools, a workshop, and advice and assistance; and if desired, virtually total completion of the aircraft. n126 While the FAA is concerned that these centers are actually completing aircraft for the amateur builders and thereby skirting the regulations, n127 there has been little in the way

of enforcement in this area n128 and no related cases have been reported. Any liability analysis with respect to a completion center will therefore be fact intensive, and the degree of liability will vary from nonexistent in the case of a center that merely offers storage and sharing of tools, to substantial for those centers that actually complete the aircraft for a price, unassisted by the owner.

Where the aircraft is constructed entirely by the completion center for a fee, liability for negligent construction may attach, but strict liability under sections 402A and 402B of the Restatement probably will not. With regard to the Restatement provisions, the completion center would likely be successful in asserting that it merely provided a service, did [\*603] not sell a product, and that the Restatement therefore does not apply.

Moreover, while the Federal Aviation Regulations do not specifically prohibit a completion center from constructing an aircraft, such an aircraft will be difficult to certify and cannot be certified in the amateur-built category. This raises the possibility of an action by the owner against the completion center for the costs incurred. It is even conceivable that the completion center might be criminally implicated on a theory of conspiracy to defraud the FAA if it completed the aircraft itself, because it knew or should have known that the "amateur-builder" must certify to the FAA under penalty of perjury that he or she constructed the majority of the aircraft. n129

#### E. Federal Aviation Administration

At first blush, the FAA may seem a likely target for failing to properly and adequately oversee the design and construction of homebuilt aircraft. The discretionary function defense to the Federal Tort Claims Act (FTCA), however, will almost certainly apply as a complete defense. n130

In *Baxley v. United States*, n131 the surviving spouse of a pilot killed in the crash of an ultralight aircraft brought a Federal Tort Claims Act action against the Federal Aviation Administration. The Fourth Circuit held that the decision of the FAA not to immediately regulate ultralights but, instead, to postpone the decision and accept comments on proposed rules governing that type of aircraft was an exercise of its discretionary function, such that the federal government could not be held liable. n132 Under the discretionary function exception to the FTCA, the jurisdictional grant of 28 U.S.C. 1346(b) shall not apply to the following: [\*604]

Any claim based upon an act or omission of an employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid, or based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused. n133

The court in *Baxley* went on to quote from *Varig Airlines*, stating that "when an agency determines the extent to which it will supervise the safety procedures of private individuals, it is exercising discretionary regulatory authority of the most basic kind." n134 Because *Varig Airlines* is the seminal case on point and has been routinely applied to varying fact patterns involving ultralights, n135 it is a virtual certainty that the discretionary function defense would apply as a complete defense to any action against the FAA for negligent certification of an amateur-built aircraft.

#### VI. METHODS OF INSULATING AGAINST LIABILITY

Several methods have been suggested and are in use to limit liability on the part of entities involved with amateur-built aircraft. First, the designer, kit manufacturer or completion center may enter into a partnership with the purchaser/owner for the purposes of building and certifying the aircraft in an attempt to force the homebuilder to seek recourse against his or her own partnership. With respect to the completion center, a partnership also serves to bypass the regulatory requirement that the amateur builder complete the majority of the work for certification, because the

partnership has actually completed the majority of the work. Again, no reported cases address this issue. Though ways to attack such a method remain, the partnership approach would complicate matters in many conceivable claim scenarios.

A second potential approach to limiting liability is to include a disclaimer and waiver of liability in the contract of sale. As *Mullan v. Quickie Aircraft Corp.*<sup>n136</sup> demonstrates, however, even if a court in a particular jurisdiction finds the disclaimer valid, that determination still may not protect the entity from all likely causes of action.

A third approach sometimes used in the sale of a completed aircraft is to disassemble the aircraft to the extent possible and sell it as parts. In this scenario, a contract of sale should specifically reference the individual parts transferred and indicate that they do not constitute an aircraft or all the parts to an aircraft. Once again, however, there are no published cases on point.

Lastly, some homebuilders have taken precautions by refusing to sell the aircraft during their lifetime and by directing that the aircraft be sold as the last item from their estate. There is no published case law addressing this approach either.

## VII. SUMMARY AND CONCLUSION

Homebuilt aircraft present special problems that are similar, but not entirely common, to those typically affecting production aircraft. Lawsuits involving homebuilts will often, like those concerning their production brethren, contain allegations of negligent pilot error, strict products liability, breach of warranty, and possibly negligent design or manufacture. Unlike production aircraft, however, homebuilts will only be insured for the pilot error portion of a lawsuit. The remaining causes of action are often not able to reach insurance coverage and are therefore accompanied by little or no assets for defense or indemnity. This is especially important in light of the fact that homebuilt aircraft are increasing as a percentage of the total aircraft population while production aircraft are decreasing. Therefore, the total number of accidents involving [\*606] homebuilts is bound to increase as their numbers continue to grow, even though their safety record is comparable to that of production aircraft.

It therefore becomes more important with the passage of time to fully evaluate the litigation risks involved when injuries or death result from the crash of a homebuilt aircraft, because the chances of recovery on any judgment are reduced due to the lack of available insurance. Moreover, the liability exposure for those involved in this activity can be staggering, and it is entirely conceivable that an amateur builder's personal assets could be lost as a consequence of an adverse judgment.

### **Legal Topics:**

For related research and practice materials, see the following legal topics:

Insurance Law  
General Liability Insurance  
Coverage  
Products & Workmanship  
Transportation Law  
Air Transportation  
Certificates  
Airworthiness Certificates  
Transportation Law  
Air Transportation  
Preflight Duties & Inspections

### **FOOTNOTES:**

n1. Compare Gen. Aviation Manufacturers Ass'n, Year-End Shipment Rep. (1993) with Gen. Aviation Manufacturers Ass'n, Year-End Shipment Rep. (1983) [hereinafter GAMA Data] (GAMA can be contacted at Suite 801, 1400 K Street, N.W., Washington, D.C. 20005, (202) 393-1500).

n2. Experimental Aircraft Ass'n, Amateur-Built Gross Quantity, 1971- Oct. 1, 1994 (Dec. 16, 1994) [hereinafter EAA Data] (EAA can be contacted at EAA Aviation Center, P.O. Box 3086, Oshkosh, WI 54903-3086, (414) 426-4800).

n3. Id.

n4. GAMA Data, *supra* note 1.

n5. Earl Lawrence, EAA Action Update, *Sport Aviation*, Aug. 1994, at 14. Subsequent to the preparation of this article, Congress passed the General Aviation Revitalization Act of 1994, effectively limiting the time during which an aircraft manufacturer can be sued for alleged faulty design or construction to 18 years after delivery to the first purchaser or aftermarket replacement or addition. Pub. L. No. 103-298, *108 Stat. 1552 (1994)*. Although this legislation was intended to revitalize the general aviation industry, only time will tell if that goal has been achieved. Russ Meyer, the president of Cessna, has indicated on the record in various forums that it will take two years of "tooling up" before Cessna completes even one new production single engine aircraft. See, e.g., Paul Lowe, Clinton's Approval Signals a General Aviation Rebirth, *Aviation Int'l News*, Sept. 1, 1994, at 1. Product liability insurance rates at the time these aircraft are sold to consumers will ultimately determine whether the Act has met its goals and whether it has had any effect on the thesis of this article.

n6. See Federal Aviation Regulation (FAR) 21.191(g), *14 C.F.R. 21.191(g) (1994)*; Federal Aviation Administration (FAA) Advisory Circular 20-27D, Certification and Operation of Amateur-Built Aircraft, June 20, 1990 [hereinafter FAA Advisory Circular 20-27D].

n7. EAA Data, *supra* note 2.

n8. Id.

n9. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994).

n10. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994).

n11. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994).

n12. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews

with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994).

n13. Trade-A-Plane, 410 West 4th Street, Crossville, TN 38555, (615) 484-5137.

n14. Sport Aviation, c/o Experimental Aircraft Association, EAA Aviation Center, P.O. Box 3086, Oshkosh, WI 54903-3086, (414) 426-4800.

n15. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994).

n16. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994).

n17. See Federal Aviation Regulation (FAR) 21.191(g), *14 C.F.R. 21.191(g) (1994)*; FAA Circular 20-27D, supra note 6, 7.

n18. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994).

n19. Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994); Interview with Charles W. Hubbard, Executive Vice President, AVEMCO Ins. Co., and Gregg A. Pike, Vice President, Loss Management Servs., Inc. (AVEMCO's claims arm), in Frederick, MD (Oct. 1, 1993); Interview with John D. Young, Vice President, Aviation Claims Admins. (claims arm of Southern Aviation Underwriters), in Coeur d'Alene, ID (Sept. 24, 1993).

n20. *14 C.F.R. 21.191 (1994)*.

n21. Id.

n22. See generally FAR 21.24, *14 C.F.R. 21.24 (1994)*.

n23. FAR 21.24(a)(2)(i), *14 C.F.R. 21.24(a)(2)(i) (1994)*.

n24. FAR 21.191(h), *14 C.F.R. 21.191(h) (1994)*.

n25. Id.; FAR 21.24, *14 C.F.R. 21.24 (1994)*.

n26. Interviews with FAA officials [hereinafter FAA Interviews] (these officials provided information to the author in preparing this article on condition of anonymity); Telephone Interview with Lyle Byrum, President, Quicksilver Enters., Inc. (the Byrum interviews occurred on several occasions between October 5, 1993 and October 10, 1993). In August, 1993, the Quicksilver GT-500 became the first aircraft to be issued a production type certificate by the FAA in the primary aircraft category and is sold both in complete and in kit form.

n27. FAR 21.193, *14 C.F.R. 21.193 (1994)*.

n28. Compare FAR 21.193, *14 C.F.R. 21.193 (1994)* with FAR 21.24, *14 C.F.R. 21.24 (1994)*.

n29. *14 C.F.R. 21.193 (1994)*.

n30. FAA Advisory Circular 20-27D, *supra* note 6, 5(a).

n31. Id.

n32. Id.

n33. See generally *14 C.F.R. 21.191, 21.193, 91.203, 91.319 (1994)*.

n34. *14 C.F.R. 103.1(e)(i) (1994)*. For the purposes of this provision, empty weight excludes emergency floats and safety devices. Id.

n35. See *14 C.F.R. 103.7(a) (1994)*.

n36. See FAR 21.11- 21.29, *14 C.F.R. 21.11- 21.29 (1994)*.

n37. See FAR 21.175(b), *14 C.F.R. 21.175(b) (1994)*; FAR 21.191(g)-(h), *14 C.F.R. 21.191(g)-(h) (1994)*.

n38. *14 C.F.R. 21.191(g) (1994)*.

N39. FAA Advisory Circular 20-27D, *supra* note 6, 3, 6(b).

n40. Id. 3, 6(b), 7; see FAR 21.191(g), *14 C.F.R. 21.191(g) (1994)*.

n41. See *infra* notes 109-115 and accompanying text.

n42. FAA Advisory Circular 20-27D, *supra* note 6, 5(b).



n43. Id.

n44. Id.

n45. Id. 5(c).

n46. Id. 5(d).

n47. FAA Advisory Circular 20-27D, supra note 6, 5(d).

n48. Id. 5(e).

n49. *Leone v. United States*, 910 F.2d 46, 51 (2d Cir. 1990), cert. denied, 499 U.S. 905 (1991); *Berman v. United States*, 572 F. Supp. 1486, 1494 (N.D. Ga. 1983). The Berman court found the FAA immune from liability because the designees were performing a discretionary function and therefore did not need to determine whether the DAR's were acting as independent contractors for liability purposes.

n50. FAA Advisory Circular 20-27D, supra note 6, 5(f).

n51. Id. 12(a); see FAR 91.319(d)(1), 14 C.F.R. 91.319(d)(1) (1994).

n52. FAA Advisory Circular 20-27D, supra note 6, 6(b).

n53. Id.

n54. Id.

n55. Id.

n56. Id.

n57. FAA Advisory Circular 20-27D, supra note 6, 6(c).

n58. Id.

n59. Id. 6(d).

n60. Id.

n61. Id.

n62. FAA Advisory Circular 20-27D, *supra* note 6, 6(f).

n63. Id. 7(a).

n64. Id.

n65. See *14 C.F.R. 21.184(a) (1994)*.

n66. *14 C.F.R. 21.191(h) (1994)*.

n67. Telephone Interviews with Lyle Byrum, President, Quicksilver Enters., Inc. (the Byrum interviews occurred on several occasions between October 5, 1993 and October 20, 1993); FAA Interviews, *supra* note 26; see generally Mary Jones, Aviation Milestone Reached!, *Sport Aviation*, Oct. 1993, at 60-64, 75; Quicksilver GT-500: The Pioneer in the Primary Category, 36 *AOPA Pilot* 40, 40-48 (Nov. 1993).

n68. FAR 21.191(g), *14 C.F.R. 21.191(g) (1994)*; FAA Advisory Circular 20-27D, *supra* note 6, 7(b).

n69. FAA Advisory Circular 20-27D, *supra* note 6, 7(b).

n70. Id.

n71. Id.

n72. Id.

n73. FAA Advisory Circular 20-27D, *supra* note 6, 7(d).

n74. Id. 10(d)(3) & app. 7 (FAA Form 8130-12).

n75. Id. at app. 7 (FAA Form 8130-12).

n76. *Restatement (Second) of Torts 402A (1965)*.

n77. *Restatement (Second) of Torts 402B (1965)*.

n78. *No. 91-35788, 1993 WL 61394 (9th Cir. Mar. 8, 1993)*.

n79. *Id.* at \*1.

n80. *Id.* at \*2.

n81. *Id.*

n82. *Id.* at \*1.

n83. *797 F.2d 845 (10th Cir. 1986).*

n84. *Id.* at 846.

n85. *Id.* at 847.

n86. *Id.* at 847-53.

n87. *Id.* at 848 (court's emphasis).

n88. *Mullan, 797 F.2d at 852-53.*

n89. *Id.* at 853.

n90. *Id.*

n91. *Id.*

n92. *Id.*

n93. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994); GAMA Data, *supra* note 1; Information provided by Aircraft Owners & Pilots Ass'n, [hereinafter AOPA Data] (AOPA can be contacted at 421 Aviation Way, Frederick, MD 21701-4798, (800) 872-2672).

n94. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994); GAMA Data, *supra* note 1; AOPA Data, *supra* note 93.

n95. *14 C.F.R. 23.1-1589* (1994).

n96. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994); GAMA Data, *supra* note 1; AOPA Data, *supra* note 93.

n97. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994); GAMA Data, *supra* note 1; AOPA Data, *supra* note 93.

n98. Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994); FAA Interviews, *supra* note 26.

n99. See FAR 21.11, *14 C.F.R. 21.11 (1994)*; Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994); GAMA Data, *supra* note 1; AOPA Data, *supra* note 93.

n100. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994); GAMA Data, *supra* note 1; AOPA Data, *supra* note 93.

n101. *La Plante v. American Honda Motor Co.*, 27 F.3d 731, 735 (1st Cir. 1994); *Goree v. Winnebago Indus., Inc.*, 958 F.2d 1537, 1543 (11th Cir. 1992); *Johnson v. John Deere Co.*, 935 F.2d 151, 156 (8th Cir. 1991); *Trevino v. Yamaha Motor Corp., U.S.A.*, 882 F.2d 182, 184-85 (5th Cir. 1989); *Hines v. Joy Mfg. Co.*, 850 F.2d 1146, 1150 (6th Cir. 1988); *Saupitty v. Yazoo Mfg. Co.*, 726 F.2d 657, 659 (10th Cir. 1984) (stating that the manufacturer remains liable if such subsequent modification is foreseeable); *Beacham v. Lee-Norse*, 714 F.2d 1010, 1016 (10th Cir. 1983); *Randall v. Warnaco, Inc.*, 677 F.2d 1226, 1231 (8th Cir. 1982); *Merriweather v. E. W. Bliss Co.*, 636 F.2d 42, 46 (3d Cir. 1980); *Rich v. Shaw*, 391 S.E.2d 220, 222-23 (N.C. Ct. App. 1990); *Westover Products, Inc. v. Gateway Roofing Co.*, 380 S.E.2d 369, 374 (N.C. Ct. App. 1989); *Oanes v. Westgo, Inc.*, 476 N.W.2d 248, 251 (N.D. 1991); *Witthauer v. Burkhart Roentgen, Inc.*, 467 N.W.2d 439, 444-45 (N.D. 1991); *Peterson v. Safway Steel Scaffolds Co.*, 400 N.W.2d 909, 913-14 (S.D. 1987).

n102. See *Restatement (Second) of Torts* 402A(1)(a), 402B (1965).

n103. *Colantuoni v. Alfred Calcagni & Sons, Inc.*, No. 93-2344, 1994 WL 390135, at \*1-2 (1st Cir. July 25, 1994) (unpublished opinion).

n104. *Id.* (assumption of the risk a valid affirmative defense in Rhode Island); *Holt v. Deere & Co.*, 24 F.3d 1289, 1292-93 (10th Cir. 1994) (assumption of the risk a valid defense in Oklahoma); *Allen v. Minnstar, Inc.*, 8 F.3d 1470, 1476 (10th Cir. 1993) (assumption of the risk a valid defense in Utah); *Higgins v. American Honda Motor Co.*, No. 92-1093, 1992 WL 212147, at \*3 (4th Cir. Sept. 1, 1992)(unpublished opinion) (assumption of the risk a valid defense in West Virginia); *Dillinger v. Caterpillar, Inc.*, 959 F.2d 430, 445 (3d Cir. 1992) (assumption of the risk a valid defense in Pennsylvania); *Wagner v. Firestone Tire & Rubber Co.*, 890 F.2d 652, 657 (3d Cir. 1989) (assumption of the risk a valid defense in Pennsylvania); *Kathios v. General Motors Corp.*, 862 F.2d 944, 948 (1st Cir. 1988) (assumption of the risk a valid defense in New Hampshire); *Spittler v. Look Sports, Inc.*, Nos. 87-2313, 87-2387, 1988 WL 103284, at \*2 (9th Cir. Sept. 26, 1988) (unpublished opinion) (primary assumption of the risk not an available defense in California, but secondary assumption of the risk, as a form of comparative negligence, available though not a complete bar); *Zahrte v. Sturm Ruger & Co.*, 709 F.2d 26 (9th Cir.), cert. denied, 464 U.S. 961 (1983) (assumption of the risk a valid defense in Montana, but not a complete defense); *Young v. Up-Right Scaffolds, Inc.*, 637 F.2d 810, 815 (D.C. Cir. 1980) (assumption of the risk a valid defense in the District of Columbia); *Hart-Albin Co. v. McLees Inc.*, 870 P.2d 51, 53 (Mont. 1994) (assumption of the risk a valid defense in Montana); *Kupetz v. Deere & Co.*, 644 A.2d 1213, 1214 (Pa. Super. Ct. 1994) (assumption of the risk a valid defense in Pennsylvania); *Gibbs v. O'Malley Lumber Co.*, 868 P.2d 355, 360 (Ariz. Ct. App. 1994) (product misuse a valid defense in Arizona); *Milwaukee Elec. Tool Corp. v. Superior Court*, 19 Cal. Rptr. 2d 24, 33-34 (Cal. Ct. App. 1993) (secondary assumption of the risk a valid defense in California, but primary assumption of the risk is not); *Whiston v. Bio-Lab, Inc.*, 619 N.E.2d 1047, 1051 (Ohio Ct. App. 1993) (assumption of the risk a valid defense in Ohio); *Wint v. Fark*, No. 20-19-12, 1993 WL46376, at \*1 (Ohio Ct. App. Feb. 19, 1993) (unpublished opinion) (assumption of the risk a valid defense in Ohio); *Salt River Project Agric. Improvement & Power Dist. v. Westinghouse Elec. Corp.*, 861 P.2d 668, 674 (Ariz. Ct. App. 1993) (assumption of the risk a valid defense in Arizona); *Lamey v. Foley*, 594 N.Y.S.2d 490, 497 (N.Y. App. Div. 1993) (primary assumption of the risk not available as a defense to strict products liability claims in New York); *Larsen v. Pacesetter Sys., Inc.*, 837 P.2d 1273, 1291-92 (Haw. 1992) (only express assumption of the risk, and secondary implied assumption of the risk, akin to comparative negligence, are available); *Cleveringa v. J.I. Case Co.*, 595 N.E.2d 1193, 1208 (Ill. App. Ct. 1992) (assumption of the risk an available defense in Illinois); *Watson v. Navistar Int'l Transp. Corp.*, 827 P.2d 656, 678-79 (Idaho 1992) (primary assumption of the risk not available in Idaho, while secondary assumption of the risk available, but is not an absolute bar to recovery); *Spieker v. Westgo, Inc.*, 479 N.W.2d 837, 845 (N.D. 1992) (assumption of the risk a valid defense in North Dakota).

n105. 14 C.F.R. 91.319(d)(1) (1994).

n106. FAA Advisory Circular 20-27D, *supra* note 6, 12(a).

n107. William L. Prosser, *Handbook of the Law of Torts* 68, at 447-450, 524 (4th ed. 1971); see also W. Page Keeton et al., *Prosser and Keeton on the Law of Torts* 68, at 486-90 (5th ed. 1984).

n108. William L. Prosser, *Handbook of the Law of Torts* 68, at 447-450, 524 (4th ed. 1971); see also W. Page Keeton et al., *Prosser and Keeton on the Law of Torts* 68, at 486-90 (5th ed. 1984).

n109. See *supra* note 76-77 and accompanying text.

n110. See *supra* note 101 and authorities cited therein.

n111. *Mullan v. Quickie Aircraft Corp.*, 797 F.2d 845 (10th Cir. 1986).

n112. *Caudle v. Partridge*, 566 So. 2d 244 (Ala. 1990).

n113. Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994).

n114. *Kicklighter v. Nails By Jannee, Inc.*, 616 F.2d 734 (5th Cir. 1980) (supplier liable where kit seller merely assembled package of raw materials); see also *Brizendine v. Visador Co.*, 305 F. Supp. 157 (D. Or. 1969), aff'd, 437 F.2d 822 (9th Cir. 1970); *Beatty v. Trailmaster Prods., Inc.*, 625 A.2d 1005 (Md. 1993).

n115. See, e.g., *Perkins v. Northeastern Log Homes*, 808 S.W.2d 809 (Ky. 1991) (involving the seller of kits to build log homes).

n116. Telephone Interviews with Ben Owen, Office of Public Affairs, Experimental Aircraft Association (the Owen interviews occurred on several occasions between Oct. 15, 1993 and Oct. 30, 1993); Telephone Interviews with Paul Fiduccia, President, Small Aircraft Manufacturers Association (the Fiduccia interviews occurred on numerous occasions between October 15, 1993 and February 1, 1994).

n117. Though there are no reported cases on point, telephone interviews with insurers involved in these claims have revealed their concern that the policies covering pilot negligence end up subsidizing the uninsurable product-based claims. Interview with Charles W. Hubbard, Executive Vice President, AVEMCO Ins. Co., and Gregg A. Pike, Vice President, Loss Management Servs., Inc. (AVEMCO's claims arm), in Frederick, MD (Oct. 1, 1993); Interview with John D. Young, Vice President, Aviation Claims Admins. (claims arm of Southern Aviation Underwriters), in Coeur d'Alene, ID (Sept. 24, 1993).

n118. Interview with Charles W. Hubbard, Executive Vice President, AVEMCO Ins. Co., and Gregg A. Pike, Vice President, Loss Management Servs., Inc. (AVEMCO's claims arm), in Frederick, MD (Oct. 1, 1993); Interview with John D. Young, Vice President, Aviation Claims Admins. (claims arm of Southern Aviation Underwriters), in Coeur d'Alene, ID (Sept. 24, 1993).

n119. See *Kudlacek v. Fiat S.p.A.*, 509 N.W.2d 603, 610 (Neb. 1994); *Rahmig v. Mosley Machinery Co.*, 412 N.W.2d 56, 68 (Neb. 1987); *Newquist v. Palliser Furniture Corp.*, No. A-92-248, 1993 WL 482867, at \*9 (Neb. Ct. App. 1993).

n120. See *Kudlacek*, 509 N.W.2d at 610; *Rahmig*, 412 N.W.2d at 67.

n121. Only hull and liability coverage is available, and even then only through a limited number of insurers, with policy coverage limited to damage arising from pilot negligence and damage to the aircraft itself. Interview with Charles W. Hubbard, Executive Vice President, AVEMCO Ins. Co., and Gregg A. Pike, Vice President, Loss Management Servs., Inc. (AVEMCO's claims arm), in Frederick, MD (Oct. 1, 1993); Interview with John D. Young, Vice President, Aviation Claims Admins. (claims arm of Southern Aviation Underwriters), in Coeur d'Alene, ID (Sept. 24, 1993).

n122. See generally *Chrysler Fin. Corp. v. Fruit of the Loom, Inc.*, No. C.A. 91C-08-108-1-CV, 1993 WL 19659 (Del. Super. Ct. Jan. 12, 1993); *Dampier v. Department of Banking and Fin.*, 593 So. 2d 1101 (Fla. Dist. Ct. App. 1992); *In re White*, 49 B.R. 869 (Bankr. W.D. N.C. 1985); *Jensen v. Beaird*, 696 P.2d 612 (Wash. Ct. App. 1985).

n123. Fla. Const. art. X, 4; see also William L. Norton, Jr., *Norton Bankruptcy Law and Practice* 26 (2d ed. 1993).

n124. *Tex. Prop. Code Ann.* 41.001-41.002 (Vernon 1994); see also Norton, *supra* note 123, 46:10.

n125. See Norton, *supra* note 123, 117:3 (citing N.Y. Civ. Proc. L. & R. 5206(a) (Consol. 1994); *Conn. Gen. Stat. Ann.* 52-352b (1992), as amended by P.A. 93-301, June 5, 1993; and *Cal. Civ. Proc. Code* 704.720, 704.730 & 704.710 (West 1994) (respectively)).

n126. Telephone Interviews with various FAA officials; Interview with Charles W. Hubbard, Executive Vice President, AVEMCO Ins. Co., and Gregg A. Pike, Vice President, Loss Management Servs., Inc. (AVEMCO's claims arm), in Frederick, MD (Oct. 1, 1993); Interview with John D. Young, Vice President, Aviation Claims Admins. (claims arm of Southern Aviation Underwriters), in Coeur d'Alene, ID (Sept. 24, 1993).

n127. FAA Interviews, *supra* note 26. See generally FAA Advisory Circular 20-27D, *supra* note 6, 3, 6(b), 7.

n128. FAA Interviews, *supra* note 26.

n129. *14 C.F.R.* 21.2, 21.191(g) (1994); see also FAA Advisory Circular 20-27D, *supra* note 6, 10(d)(3) & app. 7 (FAA Form 8130-12).

n130. See generally *United States v. Gaubert*, 499 U.S. 315, 322-25 (1991) (holding the discretionary function defense applicable to the Federal Home Loan Bank Board's supervision of a Savings & Loan).

n131. *767 F.2d 1095* (4th Cir. 1985).

n132. *Id.* at 1096 (citing *United States v. S.A. Empresa de Viacao Aerea Rio Grandense (Varig Airlines)*, 467 U.S. 797 (1984)).

n133. *28 U.S.C.* 2680(a) (1988).

n134. *Baxley*, *767 F.2d at 1097* (quoting *Varig Airlines*, 467 U.S. at 819-20).

n135. See, e.g., *Allen v. United States*, 816 F.2d 1417, 1423 (10th Cir. 1987) (citing cases), cert. denied, 484 U.S. 1004 (1988).

n136. 797 F.2d 845 (10th Cir. 1986).