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AEROBATICS, SPORT AVIATION AND STUDENT INSTRUCTION

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I. INTRODUCTION

THE SUBJECT of student instruction and the legal and factual problems arising out of this activity have received a certain amount of judicial scrutiny over the years. The other two subjects to be considered here (aerobatics and sport aviation), however, have not as yet occupied the judiciary to any significant extent, so that there is a paucity of decisions to consider. The purpose and scope of this paper is of necessity, therefore, limited. Future years will undoubtedly find the courts dealing more and more with problems arising out of aerobatic flight and the variety of activities which can be considered within the category of "sport aviation."

It will come as no surprise to any reader of this article that private aircraft are becoming increasingly popular as a mode of transportation in today's affluent society. It will be equally believable to the reader that in 1978 there exist a substantial number of thrill seekers in our society who seek "kicks" by engaging in activities loosely encompassed (and to purists uncomfortably so) within the definition of "sports aviation." Activities such as hang gliding, skydiving, and others not yet dreamed of are examples of conduct which will be the subjects of future decisions, regulations, and of great concern to those with less of the daredevil in them. It is quite surprising how little regulation of these activities exists at the present time.

II. AEROBATICS

According to recent Federal Aviation Administration (FAA)

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statistics there are approximately 744,000 pilots in the United States, including approximately 189,000 student pilots.[1] In addition, there are almost 180,000 small aircraft registered in the United States.[2] Of these pilots and aircraft, probably less than five percent are involved in aerobatic or sport aviation flying.[3] With the increase in light aviation already experienced and with that to be expected in the future, there has been and will be a concomitant upsurge in aerobatic or acrobatic flying.[4]

The most surprising (some might say shocking) aspect of aerobatic flying is the minimal regulation of it by the government. What regulation exists is limited principally to some very minimal restrictions on the pilot and the manfuacturers. The regulations applicable to the pilot have nothing to do with his qualifications to engage in this obviously hazardous activity, but only where he can perform such maneuvers. Federal Aviation Regulation (FAR) 91.71 provides as follows:

> ACROBATIC FLIGHT
>
> No person may operate an aircraft in acrobatic flight—
>
> (a) Over any congested area of a city, town, or settlement;
>
> (b) Over an open air assembly of persons;
>
> (c) Within a control zone or Federal airway;
>
> (d) Below an altitude of 1,500 feet above the surface; or
>
> (e) When flight visibility is less than three miles.
>
> For the purposes of this section, acrobatic flight means an intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight.[5]

A somewhat related regulation is FAR 91.15 which, in pertinent part, provides:

> (c) Unless each occupant of the aircraft is wearing an approved parachute, no pilot of a civil aircraft, carrying any person (other than a crewmember) may execute any intentional maneuver that exceeds—

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[1] U.S. DEPT. OF TRANSPORTATION, FAA STATISTICAL HANDBOOK OF AVIATION, CALENDAR YEAR 1976 at 90 (1978).

[2] *Id.* at 112.

[3] *See id.*; U.S. DEPT. OF TRANSPORTATION, FAA 1975 GENERAL AVIATION ACTIVITY SURVEY 12 (1976).

[4] The terms "aerobatic" and "acrobatic" are used interchangeably throughout this article.

[5] 14 C.F.R. § 91.71 (1977).

(1) A bank of 60° relative to the horizon; or

(2) A nose-up or nose-down attitude of 30° relative to the horizon.

(d) Paragraph (c) of this section does not apply to—

(1) Flight tests for pilot certification or rating; or

(2) Spins and other flight maneuvers required by the regulations for any certificate or rating when given by—

(i) A certificated flight instructor; or

(ii) An airline transport pilot instructing in accordance with § 61.169 of this chapter.[6]

The regulations can otherwise be searched in vain for any that state what qualifications must be demonstrated by a pilot before he can perform acrobatic maneuvers. Interestingly enough, demonstration of spins is not only *not* a requirement for a private or commercial pilot's certificate,[7] but the normal category aircraft utilized in student instruction are placarded against the performance of an intended spin.[8] As FAR 91.15(c)[9] implies, instructions in spin and spin recovery are required under some circumstances, most notably when a pilot is seeking a flight instructor's certificate with an airplane or glider instructor rating.[10]

Presently, therefore, we have a regulatory gap which allows a pilot to engage in maneuvers which most certainly test his ability to a degree far greater than that required for his private pilot's certificate. Yet this pilot, unskilled as he may be, is within the confines of the regulations in maneuvering an aircraft throughout its flight envelope[11] to the very ragged edge of the performance curve of that aircraft and perhaps beyond the edge to disaster.

As an example, let's consider for a moment this hypothetical case:

R. Baron, a private pilot with a grand total of 90 hours, perhaps 50 of which are as pilot in command, through an estate sale

[6] 14 C.F.R. § 91.15(c) and (d) (1977).

[7] *See* 14 C.F.R. §§ 61.107, 61.127 (1977).

[8] 14 C.F.R. § 23.1567(a) (1978). Utility category aircraft must bear a placard listing those acrobatic maneuvers for which the aircraft is approved. 14 C.F.R. § 23.1567(b) (1978).

[9] 14 C.F.R. § 91.15(c) (1977). *See* text accompanying note 6, *supra.*

[10] *See* FAA Advisory Circular No. AC-61-21 (1961) at 115.

[11] The "flight envelope" is a graphic representation of the various speed and load combinations which the structure of the aircraft is designed to withstand. *See* 14 C.F.R. § 23.333 (1978).

purchases his first aircraft, a Cessna Aerobat (an acrobatic Model 150). On his initial flight, alone in the aircraft and full of the enthusiasm and overwhelming confidence in his ability and skills which are so often found in the 90 hour pilot, he decides to see how the aircraft will handle in a loop. At the top of the maneuver the aircraft stalls out and spins to the ground, killing the intrepid R. Baron and injuring a bystander in a field. Upon investigation it is determined that the pilot was in violation of FAR 91.15(c)[12] in that he had failed to carry and use a parachute. The investigation also concludes that no mechanical design or structural defect contributed to the happening of the accident.

From the material previously cited it can be seen that the pilot was in violation of *no* regulation in performing the maneuver itself (assuming it was not performed in any of the airspaces defined in FAR 91.71[13]), but he would be in violation of FAR 91.15(c)[14] for the failure to wear a parachute. Whether this violation had anything to do with the proximate cause of the accident is highly unlikely; however, the violation would undoubtedly be relied on by the pilot's insurer in denying coverage under its policy for any claim made on behalf of the injured bystander.[15]

What considerations exist as to the manufacturer of an acrobatic aircraft? As far as regulations are concerned, there are, of course, numerous ones contained in FAR Part 23.[16] For older acrobatic aircraft the provisions of Part 3 of the Civil Air Regulations[17] in many instances will be applicable since, when the aircraft was manufactured, these regulations were in force and effect and controlled its manufacture. Naturally, if a violation of any of these regulations can be shown, there will be a solid basis for holding the manufacturer liable. On the other hand, compliance with these regulations does not necessarily exonerate a manufacturer from liability since the regulations are admittedly minimum standards. In order to delineate the complete scope of the manufacturer's responsibility then, reference must be made to common

[12] 14 C.F.R. § 91.15(c) (1977). *See* text accompanying note 6, *supra.*

[13] 14 C.F.R. § 91.71 (1977). *See* text accompanying note 5, *supra.*

[14] 14 C.F.R. § 91.15(c) (1977). *See* text accompanying note 6, *supra.*

[15] *See* Bruce v. Lumberman's Casualty Co., 222 F.2d 642 (4th Cir. 1955); Annot., 48 A.L.R.2d 704, 712 (1956).

[16] 14 C.F.R. §§ 23.1 *et seq.* (1978).

[17] *Former* 14 C.F.R. §§ 3.10-3.16, 3.19, 3.62-3.65. *See* 26 Fed. Reg. 10,698 (1961); 29 Fed. Reg. 17,955 (1964).

law principles of negligence, warranty and, most importantly of all, the modern doctrine of strict liability in tort for the marketing of a defective product.[18] It is far beyond the scope of this article to attempt to summarize the present state of the law in the various jurisdictions relating to the strict liability doctrine.[19]

Again, however, by way of an example which can serve illustratively to demonstrate some of the considerations which might be involved for the manufacturer of an aerobatic aircraft, consider the very recent pronouncement of the California Supreme Court in *Barker v. Lull Engineering Co.*[20] In this case the California Supreme Court, the court which has been so prominent in formulating the modern doctrine of strict liability, further refined the approach to a design defect in a product.

> [A] product may be found defective in design, so as to subject a manufacturer to strict liability for resulting injuries, under either of two alternative tests. First, a product may be found defective in design if the plaintiff establishes that the product failed to perform as safely as an ordinary consumer would expect when used in an intended or reasonably foreseeable manner. Second, a product may alternatively be found defective in design if the plaintiff demonstrates that the product's design proximately caused his injury and the defendant fails to establish, in light of the relevant factors, that, on balance, the benefits of the challenged design outweigh the risk of danger inherent in such design.[21]

The "relevant factors" referred to by the court include, but are not limited to, the following:

> the gravity of the danger posed by the challenged design, the likelihood that such danger would occur, the mechanical feasibility of a safer alternative design, the financial cost of an improved design, and the adverse consequences to the product and to the consumer that would result from an alternative design.[22]

To top it all off, the court shifted the burden of proof as to the adequacy of the product's design from the shoulders of the plain-

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[18] *See generally* RESTATEMENT (SECOND) OF TORTS § 402A (1965).

[19] For a capsule review of the adoption of strict products liability doctrine in various jurisdictions, *see* Annot., 13 A.L.R.3d 1057 (1967 & Supp. 1977).

[20] 20 Cal. 3d 413, 573 P.2d 443, 143 Cal. Rptr. 225 (1978).

[21] 20 Cal. 3d at 432, 573 P.2d at 455-56, 143 Cal. Rptr. at 237-38.

[22] 20 Cal. 3d at 431, 573 P.2d at 455, 143 Cal. Rptr. at 237.

tiff to the already heavily laden (according to the manufacturers and their counsel) shoulders of the manufacturer.[23]

To illustrate, in an admittedly extreme way, how this new approach might be utilized against the manufacturer of an acrobatic aircraft, consider another hypothetical. Today most acrobatic aircraft manufactured come equipped with a "G" meter to advise the pilot *visually* how many "G's" he is pulling in a given maneuver. Acrobatic aircraft, as you might suspect, are built more sturdily than the normal or utility category aircraft, but still have "G" limits which cannot be safely exceeded. Thus it is understandable that the pilot would want some way of determining when he is approaching a "G" loading which may exceed the structural integrity of the aircraft. Regulations provide that acrobatic category aircraft must have the capacity to withstand flight load factors of at least six "G's",[24] but most of such aircraft are designed (we trust) to somewhat greater tolerances. Nevertheless, the importance of providing the pilot some reliable indication of the "G" forces he is pulling cannot be gainsaid, and thus the "G" meter.

Unfortunately, the physiological effects of "G" loads on the human body include the phenomena of both "blacking out" and "redding out." This results in an impairment and sometimes total loss of the pilot's vision at a "G" loading which probably will be less than six "G's." Obviously, when this happens a visual indicator becomes useless. Since hearing remains unaffected by "G" forces, does the manufacturer then have a duty to install an aural warning device which will alert the pilot to the fact he is in a hazardous situation? Leaving aside, for the moment, the obvious warning which is provided the pilot by impairment of vision itself, the question posed, at least now in California, can only be answered by a consideration of the "relevant factors."[25] The reader will be left to draw his own conclusions after applying these factors. However, note that in California the manufacturer now will have the burden of establishing to the satisfaction of a jury that when these factors are applied, the installation of such an added safety device was not required.

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[23] *Id.*

[24] *See generally* 14 C.F.R. §§ 23.321-23.351 (1978).

[25] *See* text accompanying note 22 *supra.*

III. Sport Aviation

As indicated earlier, very few decisions are on the books relating to the activities involved in so-called sport aviation. A brief discussion follows, however, relating to some of the activities which are generally considered to be within the definition of sport aviation, and some of the more significant cases arising out of these activities are set forth.

A. *Parachute Jumping*

In an interesting and somewhat unusual case, *Dreyer v. United States*,[26] sixteen skydivers who were participating in a high altitude parachute jump from a B-25 aircraft were killed when they landed in the waters of Lake Erie. The proximate cause of the accident was found to be the failure on the part of an FAA radar controller to properly identify the drop plane. Following the misidentification, the controller gave the aircraft radar vectors to what was supposed to be the drop zone. When the signal to drop was given, the aircraft was five miles out over Lake Erie, ten miles north of the intended target area. The controller had been following the wrong target on his radar scope and issuing his vectors to the drop plane based upon the track of the wrong target. Plaintiffs recovered from the United States.

There are many skydiving facilities scattered throughout the United States where individuals may go, receive instructions, and on the same day perform their first jump. Obviously, potential liability exists on the part of these entities for inadequate instruction, unsafe equipment, inadequate aircraft, and sometimes for negligence in issuing instructions to a descending student. Such airborne instructions are frequently provided through headsets in a helmet worn by the skydiver.

The signing of a very broadly worded release, however, is generally required by these companies before the student's money is taken and although releases of this nature are suspect in the courts, it is rather unlikely that the courts in this connection would go out of their way to find such releases to be against public policy. Assumption of risk, where still viable as a defense in a given jurisdiction, would obviously be a defense raised to this type of action.

[26] 349 F. Supp. 296 (N.D. Ohio 1972), *aff'd sub nom.* Freeman v. United States, 509 F.2d 626 (6th Cir. 1975).

The inadequacy of handling or treatment following an injury suffered in a jump might also be pursued in an appropriate case as a theory of recovery. Certainly the risk of injury is eminently foreseeable, and skydiving schools and facilities should have trained personnel and at least a modicum of emergency equipment available on the scene so as to be capable of dealing with such foreseeable injuries.

Although there is surprisingly little federal regulation controlling parachuting and skydiving activities,[27] the various states are becoming more and more involved in promulgating regulations. In *Hammerlind v. Clear Lake Star Factory Skydivers Club*,[28] the Minnesota Supreme Court affirmed directed verdicts in favor of the pilot of an aircraft used in a skydiving exercise and an airport operator. The case arose out of the death of a parachutist who drowned when he landed in a lake. The plaintiff charged the pilot with negligence in permitting the decedent to jump without proper equipment and charged the airport operator with negligence in permitting skydivers to use his airport after he purportedly learned that jumpers were landing in the neighboring countryside, including the lake, rather than on target at the airport. The trial court found, and the Supreme Court agreed, that neither Minnesota Department of Aeronautics regulations nor the common law imposed a duty on the pilot to insure that each skydiver was properly outfitted. The court felt that this duty fell more to the individuals involved in instructing the decedent. A Minnesota regulation required a "Mae West or Coast Guard approved type flotation gear when parachuting into or within one mile of an open body of water."[29] Such a device was not worn by the decedent.

The theory against the airport operator was equally unsuccessful. The court ruled that the fact that jumpers often would land off the airport premises was not sufficient to impose liability on the airport for continuing to allow use of its facility. The fact that it was legally permissible under the Minnesota Department of Aeronautics regulations to parachute into a body of water played a considerable part in the court's reasoning.

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[27] *See* 14 C.F.R. §§ 105.1-105.43 (1977).

[28] 258 N.W.2d 590 (Minn. 1977).

[29] 14 M.C.A.R. [Minn. Code of Agency Rules] § 1.0036(k) (1977).

B. *Gliding, Hang Gliding, Ballooning, Etc.*

Regulations covering the piloting ratings for these activities can be found in FAR Part 61.[30] These regulations are extensive insofar as they relate to the training and experience necessary for the pilot to acquire the basic and advanced ratings of each category. In addition to the Part 61 requirements, the general operating rules of Part 91[31] will apply to the particular activity involved. Certain specific sections may also be applicable in a given situation, e.g., FAR 91.17[32] could come into play if an accident occurred during the towing of a glider.

No cases of any significance have been found by the author relating to these activities. The ordinary principles of strict liability in tort will apply, however, to the manufacturers of gliders, balloons and hang gliders. In light of the earlier discussion concerning the present state of California law, it is interesting to ponder the potential liability which might exist as against a hang glider manufacturer for a design defect in its product. In light of the "relevant factors" set forth in *Barker v. Lull Engineering Co.*[33] it is not difficult to imagine liability being established for the failure to incorporate some relatively modest (in cost at least) safety devices. On a more practical plane, however, it is unlikely that manufacturers of these products can obtain any products liability insurance coverage and their assets would undoubtedly be minimal.

IV. Student Instruction

As a general rule, student instruction will be given by a flight school which employs certified flight instructors. Such flight schools are usually operated as part of a fixed base operation at local fields. Pilots who possess a certified flight instructor's rating can, of course, give student instruction on their own, but the liability considerations from a legal standpoint would be identical.

When a student is receiving instruction in an aircraft equipped with dual controls and his instructor pilot is on board with him, the instructor pilot is the pilot in command and, as such, entirely

[30] 14 C.F.R. §§ 61.1 *et seq.* (1977).

[31] 14 C.F.R. §§ 91.1 *et seq.* (1977).

[32] 14 C.F.R. § 91.17 (1977).

[33] 20 Cal. 3d at 431, 573 P.2d at 455, 143 Cal. Rptr. at 237.

responsible for the safe operation of the aircraft. He owes a very high duty of care not only to his student, but also to third persons and property which could be endangered by the conduct of the flight. The high standard of care imposed by the courts in this situation is generally arrived at by analogy to the common carrier cases.[34]

One of the leading cases analyzing in detail the duties of flight schools is *Lange v. Nelson-Ryan Flight Service, Inc.*[35] In this case the deceased, a commercial pilot with an instructor's rating, undertook to rent an aircraft from the defendant. As a condition of the rental he was required to go on a checkout flight with a flight instructor before being permitted to fly alone in the plane he had rented. The aircraft was found in a cornfield a short distance from the runway in an inverted position with both occupants dead. In determining that the lessor's flight instructor was the pilot in command, the court declared:

> The evidence in the instant case is clear and uncontroverted that on a checkout flight, even of a commercial pilot, the pilot being checked out assumes a trainee status and the flight instructor is the pilot in command. Consequently, if there was negligence in the operation of the plane, it was proper for the jury to find the flight instructor, Percy, as the pilot in command, responsible for this negligence, and therefore to hold the defendant liable.[36]

This case and other cases which have involved the "right of control" issue have relied heavily on FAR 91.3[37] which provides: "*Responsibility and authority of the pilot in command.* (a) The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft."[38] In applying this regulation, the court in *Lange* held:

> The Civil Air Regulations do not and cannot establish rules for the imposition of liability. However, they do impose duties and responsibilities which in effect specify the standard of care that is imposed upon the pilot in command which in turn is im-

[34] *See* Furumizo v. United States, 245 F. Supp. 981 (D. Haw. 1965), *aff'd*, 381 F.2d 965 (9th Cir. 1967); Linam v. Murphy, 360 Mo. 1140, 232 S.W.2d 937 (1950).

[35] 259 Minn. 460, 108 N.W.2d 428 (1961).

[36] 108 N.W.2d at 433.

[37] 14 C.F.R. § 91.3 (1977).

[38] 14 C.F.R. § 91.3(a) (1977).

> posed by common law principles in defining negligence. Thus, the rule applicable to aircraft is that if the aircraft is operated in a negligent manner, the pilot in command is negligent regardless of whether or not he is at the controls at the time of the accident, at least in the absence of extenuating circumstances such as sudden illness.[39]

It thus can be seen that, while in other circumstances it is sometimes crucial to establish who is actually operating a dual control aircraft, in a student instruction situation with the instructing pilot on board it makes little difference, since the responsibility, in either event, is wholly possessed by the instructor pilot unless some unusual emergency situation exists.

In situations where the student is still undergoing instruction but flying the aircraft solo, liability can nevertheless exist on the part of the instructor. An instructor sending a student aloft on his first solo flight into a traffic pattern known to be extremely busy could easily be found liable for resulting injuries or death, not only to the student but to third parties as well. A case similar on its facts to this situation is *Weadock v. Eagle Indemnity Co.*,[40] where the soloing student sued his flight school for damages he sustained in a mid-air collision. The flight school was found negligent in allowing the student to take off while another student from a competing flight school was in the pattern practicing a dangerous training maneuver. The resulting mid-air collision was proximately caused, the court held, by the school's failure to warn its student of the specific danger involved in that situation. Similarly, if the school provides a defective aircraft to the student, liability can result.[41]

As to third parties, a school or instructor may be liable on a theory of negligent entrustment for permitting a student to embark upon a flight when not adequately trained or prepared for it, or, perhaps, when not in a suitable physical or mental condition to insure a safe completion of the flight. In addition, recovery is conceivable upon proof that the training received by the student was inadequate. An example of such a case might be an encounter with

[39] 108 N.W.2d at 432.

[40] 15 So. 2d 132 (La. App. 1943).

[41] *See, e.g.*, Johnston v. Canton Flying Services, Inc., 209 Miss. 226, 46 So. 2d 533 (1950); Aircraft Sales & Service, Inc. v. Gantt, 255 Ala. 508, 52 So. 2d 388 (1951).

wake turbulence by a low time private pilot carrying a passenger in the aircraft. If both occupants were killed as a result of this encounter, a wrongful death action brought on behalf of the passenger's heirs against the pilot's instructor and flight school could be successful on a showing that no training or warning was ever given the pilot concerning the phenomenon of wake turbulence during his training or in the recognized procedures available to a pilot to avoid such an encounter.