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## AN OVERVIEW OF RELEVANT ISSUES IN MID-AIR CRASH LITIGATION

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**T**HE GREEK historian Thucydides allegedly remarked that "a collision at sea can ruin your entire day." Whether his comment followed an unfortunate dunking, or was the result of a government-sponsored safety investigation, has not been recorded.

The modern counterpart of Thucydides' remark may be found on a poster or plaque at virtually any airport in the country: "One mid-air collision can ruin your whole day." Around airport lounges, jokes involving "aluminum showers" are almost as frequent as tales of near-misses and close calls. Behind the jocular tone though, pilots and air traffic controllers recognize that mid-air collisions represent the most deadly breakdown of the air traffic system.

A mid-air collision<sup>1</sup> was the primary impetus behind the

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<sup>1</sup> The crash, given lurid coverage by the media, involved a Trans World Airlines Constellation and a United Airlines DC-7. The two airplanes collided over the Grand Canyon killing all persons aboard. There were no witnesses to describe the crash. The facts of the crash and the subsequent investigation are presented in *Ahmann v. United Air Lines*, 313 F.2d 274 (8th Cir. 1963).

passage of the Federal Aviation Act of 1958,<sup>2</sup> which created the Federal Aviation Administration (FAA). Yet the problem of mid-air collisions continues, as more and faster aircraft compete for room in the same airspace. One only has to look at the history of the air carrier industry for the past 15 years to see the tragic results of mid-air collisions: An Allegheny Airlines DC-9 and a Cessna 172 at Fairland, Indiana; an Air West DC-9 and a Marine Corps F-4 at Duarte, California; an Air U.S. Jetstream and a Cessna 206 at Loveland, Colorado; or the PSA 727 and Cessna 172 collision at San Diego, with horrifying full color photos and agonizing cockpit voice recordings that were brought into millions of homes by the nightly news.

Obviously, mid-air collisions are not solely a problem of air carriers. There is no segment of the aviation community—commercial, military, or private—that has been untouched by the collision hazard.

Before proceeding further, it is necessary to articulate a more exact definition of the term "mid-air collision," (mid-air) so that the reader may gain a general familiarity with airspace designations and flight operating rules. Broadly speaking, a "mid-air" is any physical contact between two controlled airborne objects. By definition, a mid-air does not include collisions between aircraft and objects such as birds, broadcast towers, power lines, or bridges. It also does not include cases in which one or more of the aircraft involved is on the ground, such as the Pan Am/KLM Canary Islands disaster or the North Central/Delta collision at Chicago-O'Hare. For the purposes of this paper, a mid-air is any attempt by two or more piloted aircraft to occupy the same airspace at the same time—almost inevitably with calamitous results.

Pilots within the United States enjoy a remarkable freedom of access to our nation's skies. Given sufficient aircraft capabilities and weather conditions, virtually the entire atmosphere above this nation is open to use. Considering only the

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<sup>2</sup> Federal Aviation Act of 1958, Pub. L. No. 85-726, 72 Stat. 731 (1958), as amended, 49 U.S.C. §§ 1301-1504 (1976), amended by, Airline Deregulation Act of 1978, Pub. L. No. 95-504, 92 Stat. 1705 (1978).

lower altitudes used by non-military aircraft, there are more than 36,000,000 cubic miles to hold a comparatively miniscule number of aircraft. All of this vast U.S. airspace is subject to regulation by the Federal Aviation Administration.<sup>3</sup> The result, created over a quarter of a century, is a scheme of "Federal Aviation Regulations" (FARs),<sup>4</sup> which are of more than slight complexity.

Perhaps nowhere is the system more complex than in the definition of the airspace itself. Within a few miles (horizontally or vertically) of a given point, there might be airspace variously designated as a Control Zone,<sup>5</sup> an Airport Traffic Area,<sup>6</sup> a Terminal Control Area,<sup>7</sup> a Continental Control Area,<sup>8</sup>

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<sup>3</sup> Section 307(a) of the Federal Aviation Act of 1958 provides that the Administrator of the FAA is:

[A]uthorized and directed to develop plans for and formulate policy with respect to the use of the navigable airspace; and assign by rule, regulation, or order the use of the navigable airspace under such terms, conditions, and limitations as he may deem necessary in order to insure the safety of aircraft and the efficient utilization of such airspace. He may modify or revoke such assignment when required in the public interest.

49 U.S.C. § 1348(a) (1976). Section 307(d) of the Federal Aviation Act, 49 U.S.C. § 1348(d) (1976), makes FAA rule-making procedures subject to the provisions of the Administrative Procedures Act, 5 U.S.C. §§ 551-576 (1977).

<sup>4</sup> 14 C.F.R. §§ 1.1-1261.407 (1981). As administrative rules, FARs have the force and effect of law when duly adopted in accordance with the Administrative Procedures Act.

<sup>5</sup> Control Zones begin at the surface, and extend upward to the Continental Control Area. The Control Zone has a horizontal radius of about 5 miles, surrounding an airport with an operating air traffic control tower or a published instrument approach. 14 C.F.R. § 71.11 (1981).

<sup>6</sup> An Airport Traffic Area extends from the surface up to 3000 feet AGL (AGL stands for "above ground level") with a usual radius of 5 miles (concurrent with the Control Zone) surrounding an airport with an operating air traffic control tower. No aircraft may operate in an Airport Traffic Area unless it is in contact with the tower. 14 C.F.R. § 91.87(a), (b) (1981).

<sup>7</sup> Terminal Control Areas (TCAs) have been established at the busiest commercial terminal areas, such as Chicago, New York, Los Angeles, and Atlanta, and are far more restrictive and geographically extensive than either Traffic Areas or Control Zones. TCAs have the appearance of an upside-down wedding cake, with the smallest-radius tier in contact with the surface over the major airport(s). Tiers with wider diameters start at progressively higher altitudes, up to an upper limit usually between 7,000 and 10,000 feet AGL. In ideal (but not necessarily real-world) conditions, high-performance aircraft enter the top tiers of the TCA and remain within its confines until landing; slower traffic not bound for the primary airport(s) remain below the "floors" of the various tiers, separating those aircraft from the traffic within. Without

a Controlled Airspace, an Uncontrolled Airspace,<sup>9</sup> a Restricted Area, a Prohibited Area, a Warning Area, or an Air Defense Identification Zone, all fitting together like a three-dimensional jigsaw puzzle. The boundaries of the areas generally are detectible only by use of navigation charts, aircraft instruments, and electronic devices. Each of these areas is defined with both horizontal and vertical limits, ranging in size from a low altitude restricted area over a defense plant to the continental control area extending at higher altitudes over most of the continental United States. Complicating the matter even further, the areas may change regularly in the course of time (such as control zones effective only during daylight hours) or instantaneously by telegraphic "Notices to Airmen" (NOTAM's) transmitted to FAA facilities.

Each of the various types of airspace has particular usage rules. Some areas may be penetrated only by aircraft with radar transponders; others require radio contact with an FAA facility and compliance with route and altitude clearances. The *Airman's Information Manual* (an FAA publication containing a wealth of material of interest to both pilots and lawyers) describes each type of airspace and its general requirements and restrictions.

In addition to the problems of defining airspace, the Administrator of the FAA is burdened with creating and administering air traffic rules.<sup>10</sup> Regardless of the airspace and

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specific approval, no fixed-wing aircraft may operate within the tiers of a "stage one" TCA unless it is equipped with a radar transponder, a ground-interrogable altimeter, and appropriate radio communication equipment. 14 C.F.R. §§ 91.24, 91.90 (1981).

\* The Continental Control Area ranges over most of the United States, extending upwards from 14,500 feet above mean sea level (MSL). 14 C.F.R. § 71.9 (1981).

\* "'Controlled airspace' means airspace designated as a continental control area, control area, control zone, terminal control area, or transition area, within which some or all aircraft may be subject to air traffic control." 14 C.F.R. § 1.1 (1981). Controlled and uncontrolled airspace are perhaps confusingly named, and differ primarily in usage during restricted visibility conditions. During fair weather, aircraft may operate in most controlled airspace without ever contacting any FAA facility. If visibility is less than three statute miles at lower altitudes, aircraft must follow "Instrument Flight Rules" in Controlled Airspace and transit the area only in accordance with an FAA clearance. The visibility restriction for uncontrolled airspace is one mile. 14 C.F.R. §§ 91.105-.129 (1981).

<sup>10</sup> Section 307(c) of the Federal Aviation Act of 1958 provides that the Administrator is:

aircraft involved, all flight operations generally are governed by the flight rules of Part 91 of the Federal Aviation Regulations.<sup>11</sup> Pilots have absolute authority to deviate from those rules whenever safety requires, subject only to the duty to provide a subsequent written explanation for the deviation should the FAA so require one.<sup>12</sup> Air traffic control personnel are subject to the rules found in various FAA publications, which describe job functions in both general<sup>13</sup> and specific<sup>14</sup> terms.

Part 91 divides flight operations into two categories, with significantly different rules and responsibilities for each.<sup>15</sup> FAA personnel provide separation between aircraft operating under "Instrument Flight Rules" (IFR). Instrument flight may involve operations in cloud or in other conditions of restricted visibility, but may also occur in clear weather. IFR flights within controlled airspace must maintain radio contact with Air Traffic Control facilities and report their positions

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[F]urther authorized and directed to prescribe air traffic rules and regulations governing the flight of aircraft, for the navigation, protection, and identification of aircraft, for the protection of persons and property on the ground, and for the efficient utilization of the navigable airspace, including rules as to safe altitudes of flight and rules for the prevention of collision between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects.

49 U.S.C. § 1348(c) (1976).

<sup>11</sup> 14 C.F.R. §§ 91.1-.29 (1981).

<sup>12</sup> 14 C.F.R. § 91.3 (1981).

<sup>13</sup> See, e.g., Air Traffic Control Manual 7110.65C (January, 1982) which sets forth basic duties of air traffic control personnel with regard to aircraft separation, terminal operations, emergencies, radar usage, flight routings, and other fundamental concepts applicable on a nationwide basis. It should be noted that a number of courts have found that controllers have duties of due care which may extend beyond the specific functions and requirements set forth in this manual.

<sup>14</sup> See, e.g., Local Operating Letters (sometimes called Local Orders) which set forth controller duties for specific facilities or special circumstances, and Letters of Agreement between FAA facilities or between an FAA facility and airport or aircraft operators. Typically, a Letter of Agreement will be implemented by one or more Local Operating Letters which set forth specific controller duties regarding the subject of the Agreement. For example, a Letter of Agreement between a part-time air traffic control tower and the airport operator might specify that the operator will be responsible for runway lighting when the tower is closed; an accompanying Local Operating Letter might then direct tower personnel to advise the operator each time the tower opens or closes and to transfer control of the lighting to the operator's remote switch as necessary.

<sup>15</sup> 14 C.F.R. §§ 91.105-.109, 91.115-.129 (1981).

along assigned routes.<sup>16</sup> "Visual Flight Rules" (VFR) require sufficient flight visibility and cloud clearance to navigate and to "see and avoid" other air traffic.<sup>17</sup> Outside of airport traffic areas and TCA's, VFR operations may occur without FAA knowledge or intervention.<sup>18</sup> VFR flights make up the vast majority of all flight operations in the nation.

During VFR flight, or during instrument operations when flight visibility permits, it is the pilot-in-command who is primarily responsible for traffic separation.<sup>19</sup> The "see and avoid" rule of section 91.67(a)<sup>20</sup> is applicable even if FAA personnel are simultaneously providing mandatory or discretionary traffic control services to the aircraft. In general, each pilot must maintain a safe distance from all other traffic.<sup>21</sup> The FARs also provide "rules of the road" governing cruising altitudes, and giving right-of-way to less maneuverable categories of converging aircraft, to an aircraft being overtaken by another, or to the lower and nearer of two aircraft on final approach to landing.<sup>22</sup>

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<sup>16</sup> 14 C.F.R. § 91.87(b) (1981).

<sup>17</sup> 14 C.F.R. §§ 91.67(a), 91.105-109 (1981).

<sup>18</sup> Given appropriate weather conditions, a block of controlled airspace might contain IFR air carrier flights, general aviation aircraft ranging from two-place trainers to corporate jets operating either VFR or IFR, parachutists, gliders, and the Good-year blimp. Air traffic personnel generally only have radio contact with the IFR flights. Although controllers attempt to point out all traffic (identified or not) to IFR flights operating in VFR conditions, and also to provide separation information on a workload-permitting basis to VFR flights, the system is far from perfect.

<sup>19</sup> 14 C.F.R. § 91.3(a) (1981). FAR 91.67(a) provides:

When weather conditions permit, regardless of whether an operation is conducted under Instrument Flight Rules or Visual Flight Rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft in compliance with this section. When a rule of this section gives another aircraft the right of way, he shall give way to that aircraft and may not pass over, under, or ahead of it, unless well clear.

14 C.F.R. § 91.67(a) (1981).

<sup>20</sup> *Id.*

<sup>21</sup> FAR 91.65(a) provides that "No person may operate an aircraft so close to another aircraft as to create a collision hazard." 14 C.F.R. § 91.65(a) (1981). More generally, FAR 91.9 provides that "No person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another." 14 C.F.R. § 91.9 (1981).

<sup>22</sup> The right-of-way regulations of FAR 91.67 state:

(c) *Converging*.—When aircraft of the same category are converging at

That aircraft still collide, despite the comprehensive regulatory scheme, might surprise everyone except our fellow attorneys who concentrate on automobile collisions; their practices date back to the [fabled] day decades ago when the only two cars then existing in New York City managed to collide. Aircraft do collide—in bad weather and good, near airports and over desolate territory, under every possible combination of flight operating rules and aircraft types—and no doubt will continue to do so as long as either men or machines have frailties.

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approximately the same altitude (except head-on, or nearly so) the aircraft to the other's right has the right of way.

(1) A balloon has the right of way over any other category of aircraft;

(2) A glider has the right of way over an airship, airplane, or rotorcraft; and

(3) An airship has the right of way over an airplane or rotorcraft. However, an aircraft towing or refueling other aircraft has the right of way over all other engine-driven aircraft.

(d) *Approaching head-on*.—When aircraft are approaching each other head-on, or nearly so, each pilot of each aircraft shall alter course to the right.

(e) *Overtaking*.—Each aircraft that is being overtaken has the right of way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.

(f) *Landing*.—Aircraft, while on final approach to land, or while landing, have the right of way over other aircraft in flight or operating on the surface. When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right of way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land, or to overtake that aircraft.

14 C.F.R. § 91.67(c)-(f) (1981).

To avoid head-on conflicts at cruise altitudes between 3,000 feet AGL and 18,000 feet MSL, FAR 91.109 provides the "semi-circular rule":

Except while holding in a holding pattern of 2 minutes or less, or while turning, each person operating an aircraft under VFR in level cruising flight at an altitude of more than 3,000 feet above the surface shall maintain the appropriate altitude prescribed below. . . :

(a) When operating below 18,000 feet MSL and—

(1) On a magnetic course of zero degrees through 179 degrees, any odd thousand foot MSL altitude +500 feet (such as 3,500, 5,500, or 7,500); or

(2) On a magnetic course of 180 degrees through 359 degrees, any even thousand foot MSL altitude +500 feet (such as 4,500, 6,500, or 8,500).

14 C.F.R. § 91.109 (1981). Similar provisions are made for flights above 18,000 feet MSL. *Id.*



Just as there is no shortage of collisions, there is no shortage of litigation arising out of mid-air collisions. Not surprisingly, the courts have been far from unanimous in interpreting the FARs and defining the respective duties of pilots and controllers. Initially, it should be noted that many significant issues will be governed by state rather than federal law. While it would be eminently reasonable to apply a uniform rule of law to all mid-air, the Supreme Court has rebuffed attempts to create a federal common law applicable to aviation disasters when the United States is not a party.<sup>23</sup> Even when the United States is a party-defendant, the Federal Tort Claims Act also requires application of the law of the jurisdiction "where the act or omission occurred."<sup>24</sup> The liability effects of violations of Federal Aviation Regulations and contributory (or comparative) negligence are governed solely by state law. As a result, the choice of law may be partially or wholly determinative of the issues presented in any particular case.

The most straightforward type of mid-air cases are also among the most frequent: collisions between two aircraft operating VFR near an uncontrolled airport.<sup>25</sup> In most instances, liability will be based on a simple application of the FAR right-of-way rules. "Simple," however, is a relative term; development of the necessary evidence of right-of-way (or lack thereof) may be complex, particularly when there are no surviving witnesses. Even with witnesses available, it may still be necessary to establish the relative positions of the aircraft at and immediately prior to the collision by means of an accident reconstruction expert.<sup>26</sup>

Once the aircraft positions have been established, it may

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<sup>23</sup> *Miree v. DeKalb County*, 433 U.S. 25 (1977).

<sup>24</sup> 28 U.S.C. § 1346(b) (1976).

<sup>25</sup> "Uncontrolled," in this context, merely means an airport without an operating air traffic control tower. See 14 C.F.R. § 91.89 (1981). Less than five percent of the 10,000+ airfields in the United States have control towers.

<sup>26</sup> Particularly during reduced visibility conditions, the human optical system is notoriously deficient in depth perception. At least one court has found that even experienced air traffic controllers, with a vantage point superior to all others on an airport, would be visually unable to accurately determine distances to aircraft in the vicinity. *Thibodeaux v. United States*, 14 Av. Cas. 17,653 (E.D. Tex. 1976).

also be necessary for an expert to establish the respective visual fields of the two pilots.<sup>27</sup> The "see and avoid" right-of-way rules are predicated only on weather conditions, and make no explicit allowance for difficulties in spotting traffic against a stationary background, or for inability to see traffic hidden by part of the aircraft itself.<sup>28</sup> The federal courts are in conflict on the extent to which a pilot must maneuver in order to search for traffic otherwise hidden by the aircraft's structure.<sup>29</sup> There is general agreement that when other traffic is known to be in the immediate area (by sight or otherwise), there is a greater requirement for vigilance on the part of the pilot.<sup>30</sup>

From a litigation standpoint, perhaps the most difficult cases involving mid-air are those in which one or both aircraft are in contact with an FAA facility. The situations involve every possible mix of VFR and IFR traffic, with pilots operating with positive separation control or with no FAA control at all. The key issues, obviously, are the respective liabilities of the pilots and the air traffic control personnel.

The applicable standard of care is concurrent, with both pilots and controllers responsible for safe operations and traffic separation.<sup>31</sup> Controllers must not only be responsible for the procedures within the applicable FAA manuals, but also to some extent they must take additional steps to ensure safe

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<sup>27</sup> The right-of-way alone "cannot be considered a wholesale license to proceed without careful surveillance" for opposing traffic. *Allen v. United States*, 370 F. Supp. 992 (E.D. Mo. 1973).

<sup>28</sup> *United States v. Miller*, 303 F.2d 703 (9th Cir. 1962) (interpreting earlier similar CAB rules).

<sup>29</sup> Compare *Bibler v. Young*, 492 F.2d 1351 (6th Cir. 1974) with *Rudelson v. United States*, 431 F. Supp. 1101 (C.D. Cal. 1977), *aff'd*, 602 F.2d 1326 (9th Cir. 1979). The cases, which involved mid-air collisions near controlled fields, arguably can be distinguished by the relative knowledge of the pilots involved that other traffic was in the immediate area.

<sup>30</sup> *Hamilton v. United States*, 497 F.2d 370 (9th Cir. 1974); *Thibodeaux v. United States*, 14 Av. Cas. 17,653 (E.D. Tex. 1976); *Allen v. United States*, 370 F. Supp. 992 (E.D. Mo. 1973). Again, each of the cited cases involved mid-air collisions near controlled fields.

<sup>31</sup> *Mattschei v. United States*, 600 F.2d 205 (9th Cir. 1979); *Hamilton v. United States*, 497 F.2d 370 (9th Cir. 1974); *Spaulding v. United States*, 455 F.2d 222 (9th Cir. 1972).

operations.<sup>32</sup> There is little doubt that when a controller is aware of exceptional danger,<sup>33</sup> he must act to warn the pilots. The rule is particularly firm when the controller's own actions have innocently or negligently contributed to the hazard, as by directing aircraft onto collision courses.<sup>34</sup> The additional extent of a controller's duty to warn, if any, is one of the most disputed areas in mid-air litigation. It has been held that air traffic control personnel must warn pilots of any dangers reasonably apparent or known only to the controller,<sup>35</sup> or when the controller is in a better position than a pilot to evaluate the particular hazard.<sup>36</sup> In several instances, it has been held that controllers have a right to rely on pilots in VFR conditions to monitor appropriate radio frequencies, to see and avoid other announced traffic,<sup>37</sup> and to abide by all applicable FARs.<sup>38</sup> Nevertheless, several courts have found that the failure of a pilot to see and avoid other traffic in VFR conditions is foreseeable and gives rise to a controller's duty to monitor the progress of the aircraft and to warn the pilot of any nearby collision hazard.<sup>39</sup>

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<sup>32</sup> *Thibodeaux v. United States*, 14 Av. Cas. 17,653 (E.D. Tex. 1976); *Harris v. United States*, 333 F. Supp. 870 (N.D. Tex. 1971).

<sup>33</sup> *Spaulding v. United States*, 455 F.2d 222 (9th Cir. 1972); *Hartz v. United States*, 387 F.2d 870 (5th Cir. 1968).

<sup>34</sup> *E.g.*, *Allen v. United States*, 370 F. Supp. 992 (E.D. Mo. 1973).

<sup>35</sup> *Thibodeaux v. United States*, 14 Av. Cas. 17,653 (E.D. Tex. 1976).

<sup>36</sup> *Spaulding v. United States*, 455 F.2d 222 (9th Cir. 1972). *Cf.* Note, *FAA Controller Liability In Aviation Accidents—Duty to Warn*, 8 U.S.F.L. Rev. 452 (1973).

<sup>37</sup> *Hamilton v. United States*, 497 F.2d 370 (9th Cir. 1974); *Thibodeaux v. United States*, 14 Av. Cas. 17,653 (E.D. Tex. 1976).

<sup>38</sup> *Colorado Flying Academy, Inc. v. United States*, 506 F. Supp. 1221 (D. Colo. 1981).

<sup>39</sup> In *Fikejs v. Lickteis*, 13 Av. Cas. 17,657 (D.C. Kan. 1975), both a fixed-wing aircraft and a helicopter were in the traffic pattern under VFR conditions, but were communicating with air traffic personnel on different frequencies. The court held the United States liable for failure to warn the fixed-wing pilot of the nearby helicopter. Unlike the usual situation in which pilots become aware of traffic by overhearing radio communications between controllers and other pilots, the pilots in this instance had no such indirect traffic advisories. *Id.* at 17,663. The Ninth Circuit found controller liability in similar circumstances in *Mattschei v. United States*, 600 F.2d 205 (9th Cir. 1979).

In *Rudelson v. United States*, 602 F.2d 1326 (9th Cir. 1979), the decedent student pilot and his instructor were in the airport traffic pattern at one of the nation's busiest general aviation airports. In affirming the District Court's findings, the Ninth Circuit found that teaching exercises were a foreseeable distraction during training

Pilots operating while in contact with FAA facilities are held to the same "see and avoid" standards as those in uncontrolled airspace, in accordance with the applicable FARs.<sup>40</sup> Pilots are required to give accurate position reports upon request,<sup>41</sup> and to comply with all air traffic control directives.<sup>42</sup> A clearance is not, however, a guarantee of safety, and does not relieve the pilot of his duty to see and avoid conflicting traffic when weather conditions so permit.<sup>43</sup> That duty is arguably greater when traffic is known (whether by sight or by overhearing communications between controllers and other aircraft) or reasonably expected.<sup>44</sup> If more than one pilot has access to the controls, either or both can be found liable for failing to see and avoid other traffic<sup>45</sup> regardless of which was actually the pilot-in-command. When one of the two pilots is less experienced, as on a training flight,<sup>46</sup> the more experienced pilot may be held to a higher standard of care.<sup>47</sup>

In IFR operations, pilots are not responsible for detecting

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flights, and that the controllers were aware that the trainer was near the point in the traffic pattern where collisions were most likely. The court held that "given the dangerous realities of this situation, the traffic controllers owed the occupants of the trainer, as well as the pilots of nearby aircraft, a duty to monitor the trainer's position . . . [and] to transmit warnings by radio or light beam if the planes appeared to be heading on a collision course." *Id.* at 1329.

<sup>40</sup> 14 C.F.R. § 91.67 (1981).

<sup>41</sup> *Bibler v. Young*, 492 F.2d 1351 (6th Cir. 1974); *Thibodeaux v. United States*, 14 Av. Cas. 17,653 (E.D. Tex. 1976).

<sup>42</sup> *Sawyer v. United States*, 436 F.2d 640 (2d Cir. 1971).

<sup>43</sup> *Allen v. United States*, 370 F. Supp. 992 (E.D. Mo. 1973).

<sup>44</sup> See *supra* notes 29-30.

<sup>45</sup> *E.g.*, *Schwab v. United States*, 14 Av. Cas. 17,279 (W.D. Pa. 1976). In some instances, however, it may be essential to determine which of the decedents was manipulating the controls at the time of the collision. Medical experts may be able to determine that question based on the physical damage to the decedents' hands.

<sup>46</sup> An unusually large number of reported cases involve instrument flight training, with one of the aircraft being used for simulated instrument approaches or similar instructional maneuvers. If the student pilot is wearing a "hood" to block his vision of the surrounding airspace (and thus simulate flight in clouds), he is not responsible for collision avoidance. FAR 91.21 requires an appropriately-rated safety pilot to have adequate vision forward and to each side, or have a competent observer in the aircraft to supplement his search for traffic. 14 C.F.R. § 91.21 (1981). This responsibility places a heavy burden on the instructor, who, in accordance with the FARs, is both the pilot-in-command and observer, in addition to his role as an instructor.

<sup>47</sup> *Rudelson v. United States*, 602 F.2d 1326, 1330 (9th Cir. 1979).

traffic that cannot be seen due to weather conditions.<sup>48</sup> They must, however, continue to use due care in complying with air traffic control directives essential to traffic separation.<sup>49</sup> Fortunately, today's radar environment and the efforts to separate high-performance and low-performance traffic (such as TCA's) make such instrument condition collisions far less likely.

There are several other bases of potential liability relevant to mid-air collisions, such as a negligent designation of airspace<sup>50</sup> or a manufacturer's failure to provide aircraft with improved outside visibility.<sup>51</sup> For the most part, these areas have been explored only minimally in the reported cases.

The foregoing is presented only as a general commentary, and should not in any event be taken as an exhaustive survey of the issues or of the decisions in any particular jurisdiction. Mid-air collisions, involving at least twice the number of persons, aircraft, and other variables as all other air disasters, are potentially the most difficult and least predictable of all aviation litigation. Thorough investigation and preparation of expert testimony is absolutely essential. In addition, a reading of the cases presented in the footnotes will indicate the wide variance in interpretation given the Federal Aviation Regulations by the courts. It is therefore imperative that the attorney presenting his case before bench or jury have a clear under-

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<sup>48</sup> See *supra* note 19.

<sup>49</sup> *Sawyer v. United States*, 436 F.2d 640 (2d Cir. 1971).

<sup>50</sup> In *Colorado Flying Academy v. United States*, 506 F. Supp. 1221 (D. Colo. 1981), the court held that the FAA negligently established and maintained the Denver TCA without provision of a "buffer zone" between conflicting traffic on either side of the TCA boundary, and that such negligence was a proximate cause of a mid-air collision. The court further held, however, that the negligent acts and omissions were within the "discretionary function" exception of the Federal Tort Claims Act, 28 U.S.C. § 2680(a) (1976), and denied liability. Whether plaintiffs argued that the lack of a buffer zone should have given rise to a special duty of care, as in *Rudelson v. United States*, 431 F. Supp. 1101 (C.D. Cal. 1977), *aff'd*, 602 F.2d 1326 (9th Cir. 1979), is not reported.

<sup>51</sup> See *Bernard v. Cessna*, 614 F.2d 1075 (5th Cir. 1980). In *Bernard* the court affirmed a directed verdict for defendant when there was no evidence that a "window" in the floor of decedent's aircraft would have prevented him from overtaking and colliding with another aircraft.

standing of the applicable regulations, as well as the facts of his particular case.

