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DEFENDANT'S DISCOVERY PLAN IN MID-AIR CRASH LITIGATION

WALTER J. LACK*

I. INTRODUCTION

THIS PAPER reviews the discovery methods lawyers use in litigation arising out of a mid-air crash. While the focus is on the defense lawyer's point of view, the reader should remember that mid-air crashes rarely result from the conduct of only one pilot or one tortfeasor. Hence, the attorney's best defense strategy is to pursue every theory of liability that plaintiff's counsel would likewise pursue.

Defense attorneys generally enjoy the advantage of involvement in the post-accident investigation much earlier than plaintiff's counsel, especially in general aviation crashes. Insurance carriers recognize the high liability exposure and the inevitable litigation that mid-air collisions produce, and act quickly to involve counsel at the earliest possible time. All adjusters' reports are channeled through counsel to take advantage of the attorney-work product privilege that attaches in most jurisdictions. This process protects from later discovery most of what the adjuster learns during the course of his immediate post-accident investigation.

The defense attorney's discovery plan is formulated through consideration of what caused the two aircraft to collide. The lawyer must be aware, therefore, of the numerous informational sources and investigative tools available to aid in the determination of accident causation. After all is said and

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done, mid-air collisions are caused either by the failure of one or both pilots to "see and avoid" the other or by carelessness on the part of air traffic controllers employed by the Federal Aviation Administration (FAA).

II. MID-AIR COLLISIONS—THE UNIQUE CIRCUMSTANCES

Statistical studies compiled by the National Transportation Safety Board (NTSB) indicate that general aviation aircraft are involved in nearly ninety-seven percent of the mid-air collisions in United States civil aviation.¹ Surprisingly, approximately ninety-four percent of all mid-air collisions occur during daylight hours in visual flight rules (VFR) weather, and in more than seventy percent of the cases, no air traffic control was provided. In cases in which air traffic control was involved, the NTSB lists the air traffic control as a probable cause in less than four percent of the collisions. The probable cause listed for more than ninety-two percent of the collisions is the pilot's failure to "see and avoid" the other aircraft. When this statistic is combined with the number of accidents caused by pilot misjudgment, failure to follow approved procedures and instructions within a terminal control area (TCA), the figure approaches one hundred percent. Based on NTSB statistics, the inescapable conclusion is that the fault generally lies with one or both of the pilots. The pivotal liability question and primary focus of discovery, then, is why both pilots were unaware of the proximity of the other aircraft, and what function, if any, was performed by an air traffic controller.²

¹ See *Briefs of Accidents Involving Mid-Air Collisions*, NTSB REPORT NO. NTSB-AMM-80-2 at 1 (Aug. 5, 1980) (summary chart titled "Midair Collision Accidents: U.S. Civil Aviation 1958-78"). This document is available to the public through the National Technical Information Service, Springfield, Virginia 22151. Briefs of Mid-Air Collision Accidents for the years 1978, 1979 and 1980 are also available from the NTSB Accident Data Branch, Washington, D.C. See also Lawton, *Answers for Pilots*, AOPA PILOT 32-33 (April 1980).

² The causes of mid-air collisions are well known and several excellent articles have been published on the subject. See AOPA Air Safety Foundation, *How to Avoid a Midair Collision*, AOPA PILOT 49 (Jan. 1973). See also Lankford, *Collision Avoidance*, AOPA PILOT 71 (Nov. 1979).

A. Pilot-In-Command

Part 91 of the Federal Aviation Regulations (FARs) establishes that the pilot-in-command, not the air traffic controller, has the primary responsibility for preventing a mid-air collision.³ This responsibility is known as the "See-and-Avoid" rule, which reads as follows:

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 aircraft⁴

In addition, the FARs require further measures to prevent mid-air collisions. When air traffic is light, the pilot may not operate his aircraft so close to another aircraft as to create a collision hazard.⁵ In VFR conditions, when operating at altitudes exceeding 3,000 feet above ground level (AGL), aircraft on a magnetic heading of 0-179° are required to operate at an altitude of odd thousands plus 500 feet and those on a magnetic heading of 180-359° are required to operate at an altitude of even thousands plus 500 feet.⁶ Converging aircraft are required to pass on the right,⁷ and any aircraft overtaking another must yield the right-of-way to the aircraft being overtaken.⁸ If two aircraft are in the landing pattern, the aircraft with the lower altitude has the right-of-way.⁹

These "rules of the road" for aircraft operation establish the statutory standard of care that is required of a pilot. Violation of these FARs by either party usually entitles counsel

³ See 14 C.F.R. §§ 91.3, 91.67(a) (1981). See also *Coatney v. Berkshire*, 500 F.2d 290 (8th Cir. 1974); *Hamilton v. United States*, 497 F.2d 370 (9th Cir. 1974); *Penny v. United States*, 12 Av. Cas. 17,919 (S.D. Ohio 1973); AIRMAN'S INFORMATION MANUAL ¶¶ 224, 260c, 271b, 274d, 400b, and 407a(1) (July 1981). The *Airman's Information Manual* is available on a subscription basis from the Department of Transportation, Publication Section, M-433.1, Washington, D.C. 20590. A guide to all FAA publications, Order No. FAA-APA-PG-3, is available free of charge from the same address.

⁴ 14 C.F.R. § 91.67(a) (1981).

⁵ 14 C.F.R. §§ 91.65(a), 91.9 (1981).

⁶ 14 C.F.R. § 91.109 (1981). See also AIRMAN'S INFORMATION MANUAL ¶ 84 (July 1981).

⁷ 14 C.F.R. § 91.67(c), (d) (1981).

⁸ 14 C.F.R. § 91.67(e) (1981).

⁹ 14 C.F.R. § 91.67(f) (1981).

to a "negligence *per se*" instruction. The attorneys for both sides expend considerable time and effort in formal discovery, in an effort to prove a causal connection between the violation of an FAR and the crash.

While the FARs appear to eliminate the risk of mid-air collisions, the rules are far from foolproof. Accidents continue to occur.¹⁰ To understand why pilots do not "see and avoid" each other, counsel must explore whether one or both of the involved pilots took steps to compensate for vision limitations.¹¹

At a distance, an aircraft on a collision course will often appear to be motionless. Although motion can be detected by the eyes without focusing, in order to detect an object without apparent motion the eyes must focus at the appropriate distance. For normal vision, however, the scope of focus is quite narrow, ordinarily in the range of ten to fifteen degrees.¹² The problem is compounded by cockpit obstructions, dirty and glare-stricken windshields, haze, and cluttered backgrounds such as those found near most airport traffic areas.

As preventive measures, in addition to complying with the FARs, the prudent pilot will adhere to all standard operating procedures that are set forth at length in Part One of the *Airmen's Information Manual*.¹³ These procedures include: clearing turns, particularly when operating in high density traffic areas or landing patterns;¹⁴ monitoring the appropriate control frequencies;¹⁵ continuously scanning the windshield in a pattern of eight to ten vision stops while en route;¹⁶ keeping all windows clean; wearing appropriate sunglasses; and not

¹⁰ See, e.g., 14 C.F.R. § 91.67(f) (1981), which gives the right-of-way in the landing pattern to the lower aircraft and can lead to anomalous results when a lower aircraft is behind a higher aircraft. But, 14 C.F.R. § 91.67(f) also says that an aircraft shall not take advantage of this rule to cut in front of another aircraft. *Id.*

¹¹ See *supra* note 2.

¹² See AOPA Air Safety Foundation, *How To Avoid A Midair Collision*, AOPA PILOT 49 (Jan. 1973).

¹³ This document is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C., 20402.

¹⁴ See AIRMAN'S INFORMATION MANUAL ¶ 275 (July 1981).

¹⁵ *Id.* ¶ 571.

¹⁶ See *Id.* ¶ 605c.

placing charts on the glare-shield where the image will be reflected in the windshield.¹⁷ Standard operating procedures also include avoiding fatigue, which increases focus time and decreases perception,¹⁸ and equipping the aircraft with a strobe light and a transponder, preferably with altitude reporting capabilities.¹⁹

B. Air Traffic Control

It is now well settled that operational activities of air traffic controllers do not come within the discretionary function of the Federal Tort Claims Act. As stated with an economy of words, "[d]iscretion was exercised when it was decided to operate the tower, but the tower personnel had no discretion to operate it negligently."²⁰ Moreover, the government no longer appears to raise the jurisdictional defense exception of discretionary function in air traffic control cases.²¹ As previously noted, however, the primary responsibility for fair weather collision avoidance lies with the pilot, even if the aircraft is under air traffic control.²²

While at first blush this may seem to be a somewhat incongruous precept, because both pilots may be properly following instructions from an air traffic controller, the rule has been defended as follows:

The reasoning behind this elementary principle of VFR flight is obvious. The pilot is in a far better position to look out for potential conflicting traffic than is the tower controller; for the aircraft, as the facts of this case demonstrate, may be miles distant from the tower. Moreover, the pilot is in physical control of the aircraft, and is the only person who can safely and effectively maneuver that aircraft in order to avoid any traffic which he may encounter; while the tower controller is generally

¹⁷ See *Id.* ¶ 605b (3).

¹⁸ See *Id.* ¶ 600f.

¹⁹ See *supra* note 12.

²⁰ *Ingham v. Eastern Air Lines, Inc.*, 373 F.2d 227, 238 (2d Cir. 1967), *cert. denied*, 389 U.S. 931 (1967). See also 2 S. SPEISER & C. KRAUSE, AVIATION TORT LAW § 15.8, at 329 (1979).

²¹ See 2 S. SPEISER & C. KRAUSE, AVIATION TORT LAW § 15.8 (1979).

²² See *supra* note 3.

neither trained, qualified nor in a position from which to order a pilot to perform specific flight maneuvers. Finally, the pilot is operating his aircraft only, while the tower controller, by contrast, is attempting to observe, keep track of, and issue instructions and clearances to all of the aircraft operating within the airport traffic area.²³

Thus, an instrument flight rules (IFRs) flight plan does not automatically transfer the responsibility for collision avoidance from the pilot to the controller. The controller's duties are promulgated by the FAA in the *Terminal Air Traffic Control Manual* Section 7110.65C and Supplemental Directives,²⁴ which have been held to establish, as a matter of law, the separation criteria to be applied by the controller in the control of air traffic.²⁵ Consistent with the directives contained in the *Terminal Air Traffic Control Manual*, air traffic control is responsible only for establishing separation between aircraft that are operating either:

- 1) on IFR flight plans and not under VFR conditions; or
- 2) within terminal control areas, if the controller sees both aircraft and has not instructed the pilots to maintain separation.

Cases against air traffic controllers have been successful when the controllers failed to use all equipment available to prevent a collision, failed to perceive other aircraft in the pattern, failed to coordinate activities among themselves, failed to obtain all the necessary data from the pilot before issuing instructions, or failed to warn the pilots of the proximity of nearby aircraft or other impending danger.²⁶ A variety of problems other than oversight can plague the controllers. Shift changes may not be properly performed, supervision of inexperienced controllers may be insufficient, the workload

²³ Penny v. United States, 12 Av. Cas. 17, 919, 17,920 (S.D. Ohio 1973).

²⁴ See Voce v. United States, 13 Av. Cas. 17,189 (N.D. Cal. 1974). See also AIRMAN'S INFORMATION MANUAL ¶ 400 (July 1981).

²⁵ The failure of the FAA to follow its own regulation has been held to be negligence at an operational level. See Hoffman v. United States, 398 F. Supp. 530 (E.D. Mich. 1975). See generally 2 S. SPEISER & C. KRAUSE, AVIATION TORT LAW §§ 15.8-15.9 (1979).

²⁶ See L. KREINDLER, AVIATION ACCIDENT LAW § 5.08 (1981); 2 S. SPEISER & C. KRAUSE, AVIATION TORT LAW § 15.24 (1979).

may be excessive or the equipment may malfunction.

C. *The Focus of Discovery*

Although it is common practice in aviation cases to name a seeming myriad of defendants, in the final analysis, a mid-air collision will generate three potential defendants. These defendants are the pilot of the first aircraft, the pilot of the second aircraft, and the air traffic controller. The government will defend any claims brought against a controller, but with few exceptions, private defense counsel will represent the interests of one of the two pilots.

As previously noted, statistics show that three out of four mid-air collisions occur during daylight hours, under VFR conditions, and with no air traffic control services provided.²⁷ In the absence of air traffic control, the defense lawyer's objective is to establish that the defendant pilot was operating the aircraft in conformity with all the applicable flight rules. The attorney should also seek to show that the client pilot took every reasonable precaution to prevent a collision, while the pilot of the other aircraft did not.

The key to reconstructing a mid-air collision lies in the determination of the altitude and ground track of each aircraft at the time of the impact. The information sources around which a discovery plan is built include: (1) percipient witnesses who survive the crash or ground witnesses; (2) air traffic control data, if any; and (3) wreckage distribution as charted by the investigating authorities and expert analysts. If the collision involves an air carrier, evidence of the foregoing information will be recorded on the cockpit voice recorder (CVR) and Flight Data Recorder (FDR). In addition, a review of the aircraft logs and flight records for both aircraft may reveal impediments to vision or prior equipment malfunctions, or may lead to previous pilots of the aircraft who have such knowledge.

In the event an air traffic controller is involved, the objective with regard to the other pilot remains unchanged, but the

²⁷ See *supra* note 1.

objective in connection with the controller becomes very complicated. The defense lawyer representing the pilot will need to secure enough admissible evidence to establish a breach of duty on behalf of a federal employee that proximately caused the collision. The Federal Aviation Administration is the information source for determining this issue. Since air traffic control procedures are quite complex and questions of employee training or competence may well be involved, an air traffic control expert must be retained at the earliest opportunity to assist in the preparation of the case.

The key to establishing actionable negligence on behalf of air traffic control personnel lies in showing the following three elements: (1) the aircraft were properly within a terminal control area or on an IFR flight plan; (2) the flight conditions were such that the pilots were reasonably unable to see and avoid each other; and (3) by the exercise of reasonable diligence the air traffic control personnel could have recognized the impending danger and alerted the pilots in sufficient time to prevent the collision. The first element is easy to show, based on the air traffic controller's records. The second element, although somewhat more difficult to prove, can be established by the testimony of percipient witnesses, witnesses in the area, official weather records and the accident reconstructionist. The third element, of course, is the difficult one. To prove the third element, the pilot's attorney must present the appropriate air traffic control documents, expert testimony interpreting those documents, and expert testimony concerning standard air traffic control procedures.

D. *The Strategy Of Discovery*

Discovery for defense counsel begins at the moment that notice of the loss is received. Critical evidence can be lost forever if the lawyer does not take steps for its preservation. Defense counsel must immediately make arrangements for preservation of the aircraft wreckage; take steps to preserve the present air traffic control records and tapes; and retain and

consult the appropriate experts.²⁸

III. WRECKAGE PRESERVATION

Investigations performed by the NTSB or other investigating authority are not always totally reliable, and a formal NTSB report is inadmissible for purposes of civil litigation.²⁹ The objective of the NTSB is to promote safety in transportation and the NTSB has no interest in civil litigation or in preserving evidence for reasons related to litigation.³⁰ Thus, civil litigants need to perform, to the maximum extent possible, an independent investigation of the accident circumstances in order to preserve the evidence in admissible form.

The NTSB investigator-in-charge is authorized to designate additional parties to participate in the field investigation, but the code requires that any such persons have some particular expertise that will assist the investigation and specifically excludes any person who represents a claimant or an insurer.³¹ Defense counsel, however, usually has a head start on the accident investigation because the insurance carrier's adjusters will be on the scene shortly after the accident. Insurance adjusters ideally will arrive before the conclusion of the NTSB investigation, and in time to protect the carrier's interests.³²

²⁸ In addition to providing critical technical guidance, technical experts are often in short supply. An expert, once retained, will be unable to consult on behalf of other parties in the case.

²⁹ See 49 C.F.R. § 835 (1980). At the very least, the aviation attorney must duplicate the gathering and compilation of the information from the various sources drawn upon by the NTSB itself.

³⁰ See 49 C.F.R. § 800.3 (1980), where it is stated that the primary function of the NTSB is to promote safety in transportation.

³¹ See 49 C.F.R. § 831 (1980). Occasionally, when an accident involves structural failure of an aircraft or a major component, representatives of the FAA attend and work with the NTSB investigator. The NTSB investigator can also request additional NTSB or FAA specialists and organize the investigation into appropriate investigative groups, each generally supervised by another NTSB or FAA official. This approach is normally reserved for collisions involving air carriers, significant public impact, or other complex technical issues. See *McWorter, Airplane Accident Investigation*, 28 TENN. L. REV. 122 (1960).

³² Under 49 C.F.R. § 830.10 (1980), the operator is responsible for preserving to the extent possible, any aircraft wreckage and records pertaining to the operation or maintenance of the aircraft. The wreckage is not to be disturbed in the absence of exigent circumstances, prior to the NTSB taking custody. If it is necessary to move

While insurance adjusters and defense experts may be precluded by regulation from participating in the investigation, they are not precluded from furthering the defense objectives at the accident site. In dealing with a mid-air collision, adjusters should locate, in addition to the customary photographs and factual reports, the air and ground witnesses who have not presented themselves to the NTSB. The adjusters should also undertake a thorough search for pieces of the aircraft wreckage not in the custody of the NTSB, and prepare an accurate plot of the relative locations and positions of any such parts.

The accident reconstruction expert should document the wreckage distribution, paint transfer and paint scratch evidence, air impact and ground impact damage, and readings from aircraft instruments. The expert should also examine any other indications of the aircraft's altitude, heading, location or attitude. From these sources, aviation lawyers can attempt to determine the altitude and flight path of the respective aircraft, and whether the planes were functioning within the prescriptions of the applicable FARs.

If the wreckage has not yet been released by the NTSB, the NTSB should be put on immediate notice that all material in its possession, including parts, records, documents and air traffic control tapes are to be preserved, and the wreckage is to be returned to the custody of defense counsel as agent for the aircraft owner. When the NTSB has determined that it has no further need of the wreckage, the wreckage will be released to the aircraft owner or insurance adjusters at the accident site.³³

IV. ATC RECORDS AND TAPES

Air traffic control data is available from four separate facilities: airport control towers (towers);³⁴ terminal radar control

the wreckage, the person so doing shall maintain photographs, sketches and notes of the original, at-rest position.

³³ 49 C.F.R. § 831.10(b) (1980).

³⁴ Airport control towers are located on controlled airports for the purpose of regulating runway traffic.

facilities (TRACON);³⁵ air route traffic control centers (centers);³⁶ and flight service stations (FSS). All facilities have various controllers assigned to each operating position. Communications from each operating position customarily are recorded on multi-channel tapes,³⁷ each channel recording a different function, with one channel reserved for a coded time signal. The duration of a typical tape is sixteen hours, after which the tape is removed and preserved for fifteen days before being recycled.³⁸

All air traffic control facilities, with the exception of certain control towers, are equipped with computerized radar,³⁹ which may have data retention capabilities. All facilities maintain personnel logs showing when each controller's shift started and ended, and position logs kept on 3x5 cards at each position, which are initialled and time dated at shift changes by both the incoming and outgoing controllers. While basic air traffic control procedures are set forth in *FAA Order No. 7110.65, Air Traffic Control*,⁴⁰ circumstances unique to each airport and environment necessitate supplemental facility orders and personnel directives.⁴¹ These sources are generally in the form of memos from the chief controller, the regional office, and Washington, D.C., and are maintained in the "Reading Binder", which the controller must review and initial when coming on duty.

In the event an accident occurs, an Air Traffic Package is

³⁵ Terminal radar control facilities (TRACON) are located on controlled airports, but in separate facilities from the control towers. TRACON controls approaches and departures from the airport.

³⁶ Air route traffic control centers are generally at locations other than at controlled airports. Centers provide en route separation and instrument approaches to uncontrolled airports.

³⁷ Most towers have one recorder to cover all positions, generally ranging from 9 to 20 channels, depending upon the complexity of the air traffic control operations.

³⁸ This standard operating procedure is set forth in FEDERAL AVIATION ADMIN., *Facility Operation and Administration* ¶ 343, in *AIR TRAFFIC CONTROL HANDBOOK ORDER No. 7210.3f* (1979).

³⁹ Towers and TRACONS are designated as "Arts", and centers are designated as "NAS Stage A."

⁴⁰ Among controllers, *FAA ORDER No. 7110.65* (1981) is customarily known as "The Bible."

⁴¹ These orders and directives involve coordination between adjacent airports, boundaries of adjacent airspace, etc.

prepared, either formally or informally.⁴² A formal Accident Package is prepared when a serious case arises involving an air carrier or when an air traffic controller is obviously involved with the accident. The package will contain the following information:⁴³

1. Certified indexes;
2. Report of Aircraft Accident, FAA Forms 8020-6 and 8020-6-1;
3. Daily Record of Facility Operation, FAA Form 7230-4;
4. Position Log, FAA Form 7230-10;
5. Flight Progress Strips, FAA Forms 7233-5 and 7230-8;
6. Aircraft Accident/Incident Preliminary Notice, FAA Form 8020-9;
7. Personnel Statements;
8. Flight Plan, FAA Form 7233-1;
9. Flight Chart;
10. Transcription;
11. Facility Accident Notification Record, FAA Form 8020-3;
12. Weather reports and forecasts;
13. Pre-Flight Briefing Log, FAA Form 7233-2.

After reviewing the requirements for data retention, it appears that the FAA has taken the appropriate steps to preserve pertinent evidence. The aircraft accident package and certified re-recordings of the retained tapes are available upon request.⁴⁴ Relying on the FAA system for this critical evidence, however, can be dangerous from an evidentiary point of view.

In the preparation of the Aircraft Accident Package, FAA personnel are required to retain the pertinent documentation. The FAA, however, should not be left to make the determination of what material is "pertinent" to the accident. Moreover, the FAA, left unchecked, cuts and recycles the original tape at

⁴² See *Aircraft Accident and Incident Notification, Investigation, and Reporting*, FAA ORDER No. 8020.11 ¶ 164a, b (July 1976).

⁴³ For a sample Formal Accident Package, see *Aircraft Accident and Incident Notification, Investigation, and Reporting*, FAA ORDER No. 8020.11 app. 3 (July 1976).

⁴⁴ A letter of request should be addressed to the Regional Director of the FAA Region. The cost of the certified reproduction, at present, is \$25.00 for each channel requested.

a point five minutes before its determination of when the first contact with the aircraft accident took place, and at a point five minutes following its determination of when the accident occurred. Relevant conversations between controllers or other aircraft may have taken place long before or long after the five minute overlap. Nevertheless, unless steps are taken by the parties, the tape will be recycled by the FAA. Furthermore, a litigant must also trust FAA employees to handle the retained portion of the original tapes properly, to provide suitable reproduction equipment and to operate that equipment properly.

The air traffic control tapes and other data can be preserved, however, in their entire original form, if a letter of request under the Freedom of Information Act (FOIA) reaches the Regional Director of the FAA region within fifteen days of the accident, or before the Aircraft Accident Package is prepared.⁴⁵ The aviation lawyer or adjuster must move quickly, though, because the tapes or the remainder thereof can be recycled and returned to service as early as fifteen days following the accident. If the pertinent tapes are preserved, the air traffic control expert should go to the control facilities with the appropriate equipment to make recordings of the voice communications directly from the original tapes. In this way the expert will have the opportunity to review the tapes in their entirety and assure acquisition of a good copy as well. Thus, a letter of request under the FOIA to the Regional Director of the FAA should request preservation of the following: (1) the voice and radar computer tapes from all involved air traffic control facilities for two hours prior and two hours after the subject accident; (2) the personnel logs, position logs, Reading Binder, and Position Binder for the week preceding the accident; (3) the index of facility orders; (4) the complete Aircraft Accident Package; and, (5) a request for permission

⁴⁵ See FAA ORDER No. 8020.11 ¶ 164d(6) (July 1976), which instructs the facility not to cut the original tapes if notification of litigation has been received. Counsel should request that the tapes for a specified period of time before and after the accident be preserved as the accident tape may have been installed immediately before or withdrawn immediately after the accident.

allowing an expert to visit the air traffic control facilities to inspect the requested material and to copy those portions of the tapes and documents believed to be relevant.

V. WORKING WITH THE EXPERTS

After the air traffic control data has been collected and recorded, a complete typewritten transcript of the communications tapes should be prepared by the air traffic control expert. It should be noted that, for purposes of preparing the FAA typewritten transcript, the usual FAA interpretation of communications "pertinent" to the collision are those communications to and from the accident aircraft only, and generally exclude all other conversations. The transcript should be reviewed for substance by the accident reconstructionist and pilot expert,⁴⁶ and the audio tapes should be carefully analyzed for psychological indicators of confusion, disorientation, or mistaken assumptions by either of the pilots or on behalf of air traffic control.⁴⁷

The air traffic control documents should be reviewed by the air traffic control expert for any operational discrepancies, including: problems involving controller shift changes; facility orders or directives which were unread or never complied with; air traffic controllers on duty, including positions and times; and indications of who, if anyone, was in a position to prevent the collision.

The accident wreckage and distribution pattern will provide the preliminary impact information for the accident reconstruction expert who, through analysis of paint transfers, paint scratches, and impact damage, will seek to establish the relative flight positions, aircraft attitudes and collision angle. The attorney should also take care to insure that instrument readings from each involved aircraft are noted early. Instru-

⁴⁶ With computerized equipment, read-outs are possible in various forms. One such read-out is the D-Log, in which the inquiry into the computer memory is restricted by aircraft transponder code, time and geographical area. Thus, from the computer memory, the timed flight path of a given aircraft in a given location can be provided directly.

⁴⁷ The statements, generally, are well sanitized before production under an FOIA request.

ment settings often can give some indication of the positions of the aircraft at the moment of collision.

There can be an infinite variety of contributing factors involved in a mid-air collision. In all but a few cases, it is not economically feasible or necessary to retain an expert to cover every conceivable issue. If weather is a factor, a competent meteorologist should be hired to reconstruct the actual weather conditions prevailing at the time of the crash. If weather is not a factor, then certified copies of weather records at the closest National Weather Service Station will suffice.

In almost every case, it will be necessary to hire an expert pilot. While there are many sources for well qualified pilot experts, it is difficult to improve upon a chief pilot or senior captain for a major air carrier. In nearly all mid-air collisions, the testimony of an expert pilot will be given in conjunction with that of a visibility expert who is specially qualified on matters relating to reaction times, visual fields, and night vision. When pilot incapacitation or impairment is a potential issue, it is advisable to retain a forensic pathologist or some other medical specialist to review the coroner's autopsy protocol, as well as to develop a medical profile on one or both of the pilots.

There is one thing that the lawyer should do in every case. A model maker should be hired to build either a scale model of each aircraft, or to attempt to secure from the manufacturer a genuine scale model. These models can be invaluable both at trial and during formal discovery. When depositions of percipient witnesses or expert accident reconstructionists are taken, video tape and the aircraft models are useful to supplement with vivid accuracy, testimony involving the relative positions of each aircraft, as well as evidence of the location of physical damage and paint transfers found on each aircraft.

VI. SUMMARY AND CONCLUSION

The mid-air collision presents defense counsel with a unique opportunity to act early in a case and to develop all

facts necessary to establish the probable cause of the crash. This process normally occurs before the involvement of a plaintiff's lawyer and almost always before litigation ensues. Statistics show that nearly all mid-air collisions result from a failure of both pilots to see and avoid each other. Given that fact, the obvious strategy for any defense lawyer is to work on proving that the other pilot was responsible.