

This chapter also introduces the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA), organizations that, although not technically regulatory agencies, play an important role in harmonizing technical standards for civil aviation worldwide.

FEDERAL ADMINISTRATIVE AGENCIES

The terrorist attacks of September 11, 2001, shook the United States to the core. Few industries—indeed, few aspects of American life—were untouched, though some were more deeply affected than others. Civil aviation, having been so infamously and effectively abused in these attacks as a weapon of terror, has borne the brunt of these changes.

One of the results of the attacks was the most sweeping reorganization of the federal government in over a half-century.

Transportation Security Administration (TSA) (www.tsa.gov)

Barely two months after the attacks and for the express purpose of improving security in all modes of transportation, including civil aviation, Congress enacted the *Aviation and Transportation Security Act of 2001*, creating the Transportation Security Administration (TSA). The TSA was originally established as an operating agency of the Department of Transportation (DOT), but moved into the Department of Homeland Security (DHS) when that agency was created.

Previously, operators of airports served by commercial airlines had been responsible for airport security, relying primarily on contractors, with some FAA oversight. The new law brought the responsibility for day-to-day screening of airline passengers, baggage and cargo into the federal arena, under the TSA, which immediately set about hiring and training security personnel. Most of the new federal screeners were the same individuals previously employed by those contractors that had been performing the function prior to its federalization. With a change of uniform and some additional training, they returned to the same work.

The TSA also took over from the FAA the responsibility for inspecting and testing security measures at airports, with the added responsibility for the same at other transportation facilities, including foreign aircraft repair stations. Congress also empowered the TSA to receive, assess, and distribute intelligence information related to transportation security. The new agency was directed to develop plans, policies, and

strategies for dealing with threats to transportation security and to coordinate countermeasures with other federal agencies. Congress also ordered that the federal Air Marshal program be beefed up and that steps be taken to increase the availability and use of explosive detection systems at air carrier airports.

Under the Secure Flight Program, the TSA is now responsible for maintaining the terrorist watch list and related No Fly and Selectee lists. The “watch list” of known and suspected terrorists is a uniform list used to identify persons who should be prevented from boarding (the No Fly List) or who should undergo additional security scrutiny (the Selectee List). The TSA began taking over the responsibility for the pre-boarding matching the names of airline passengers against these lists from the airlines in early 2009.

Transportation Security Oversight Board (TSOB)

Congress’ initial investigation into the terrorist attacks revealed that various federal law enforcement agencies had clues that, if assembled together and investigated coherently, might have revealed the plot and enabled prevention, but that these agencies tended to hoard, rather than share, potentially crucial intelligence information. In an effort to address that shortcoming, the Aviation and Transportation Security Act also created the Transportation Security Oversight Board (TSOB), an extremely high-level panel composed of the Secretaries of Homeland Security, Transportation, Defense, and Treasury; the Attorney General, and the CIA Director (or designees of any of the foregoing), along with a Presidential appointee representing the National Security Council (NSC). The TSOB was made responsible for assuring the coordination and sharing of intelligence relating to threats against transportation.

Department of Homeland Security (DHS) (www.dhs.gov)

Next, Congress and President George W. Bush created the new Department of Homeland Security (DHS), now the largest federal department. Paralleling President Truman’s epic 1947 merger of all branches of the U.S. armed forces into a new Department of Defense (DoD) to better coordinate the nation’s defense against military threats, 24 federal agencies were brought under the new DHS to protect the nation against further terrorist attacks and respond to natural disasters. Agencies

brought into the DHS include the following (*italics* indicate the agency's former home in the federal bureaucracy):

Secret Service

Coast Guard (*Department of Transportation*)

U. S. Customs Service (*Department of the Treasury*)

Immigration and Naturalization Service (INS) (part, from

Department of Justice)

Transportation Security Administration (TSA) (*Department of Transportation*)

Federal Protective Service (*General Services Administration*)

Federal Law Enforcement Training Center (*Department of the Treasury*)

Animal & Plant Health Inspection Service (part, from

Department of Agriculture)

Office for Domestic Preparedness (*Department of Justice*)

Federal Emergency Management Agency (FEMA)

Strategic National Stockpile & Disaster Medical System

(*Department of Health and Human Services*)

Nuclear Incident Response Team (*Department of Energy*)

Domestic Emergency Response Teams (*Department of Justice*)

National Domestic Preparedness Office (FBI)

CBN Countermeasures Program (*Department of Energy*)

Environmental Measures Laboratory (*Department of Energy*)

National Biological Warfare Defense Analysis Center (*Department of Defense*)

Plum Island Animal Disease Center (*Department of Agriculture*)

Critical Infrastructure Assurance Office (*Department of Commerce*)

Federal Computer Incident Response Center (*General Services Administration*)

Administration)

National Communications System (*Department of Defense*)

National Infrastructure Protection Center (FBI)

Energy Security and Assurance Program (*Department of Energy*)

The Aviation and Transportation Security Act originally assigned the attorney general responsibility for screening all aliens applying for training at U.S. flight schools for security risks. Due to comparatively low fuel costs, prevalent VFR weather, and abundant suitable airspace, the U.S. (and particularly Florida and the desert southwest) was a popular

destination for large numbers of foreigners wishing to learn to fly (and land). This new requirement hit U.S. flight schools—many of which were heavily reliant on foreign students—hard and hundreds closed their doors. This screening duty was later transferred to the new DHS and limited to students desiring to learn to fly aircraft with a maximum certificated gross takeoff weight of more than 12,500 pounds. As required by Congress, DHS now gives quick service to these prospective foreign students, acting on them within five days.

Aviation security law is discussed in much greater detail in Chapter 15.

Department of Transportation (DOT) (www.dot.gov)

The U.S. Department of Transportation houses a variety of federal agencies dealing with policy and regulation of various means of transportation of people and goods. DOT agencies having jurisdiction over various aspects of transportation include the Federal Aviation Administration (FAA), Federal Highway Administration (FHWA), Federal Motor Carrier Safety Administration (FMCSA), Federal Railroad Administration (FRA), Federal Transit Administration (FTA), Maritime Administration (MARAD), National Highway Traffic Safety Administration (NHTSA), Pipeline and Hazardous Materials Safety Administration (PHMSA), Research and Innovative Technology Administration (RITA), St. Lawrence Seaway Development Corporation (SLSDC), and Surface Transportation Board (STB). The head of the agency is the Secretary of Transportation.

The DOT issues foreign air carrier permits to foreign airlines designated by their nations to provide service to the United States pursuant to treaty. The DOT consults with the State Department in the approval process. Permit issuance requires presidential approval. The President may disapprove a specific foreign carrier only for foreign relations or national security reasons. Such permits have occasionally been denied or withdrawn in the application of U.S. foreign policy, as when Aeroflot's permit was suspended following the Soviet Union's invasion of Afghanistan.

Federal Aviation Administration (www.faa.gov)

In the Federal Aviation Act of 1958, Congress made the FAA primarily responsible for the safe and efficient use of the nation's airspace. The agency's influence on the entire aviation industry is pervasive.

The FAA Administrator is the head of the agency, and likely the single most influential person in U.S. civil aviation.

For many years, the FAA (and its predecessor, the Civil Aeronautics Authority or CAA) enjoyed independent agency status within the federal bureaucracy, an arrangement that afforded the administrator direct access to the president. But now that the FAA is but one of those many divisions of the DOT, the Secretary of Transportation is the sole voice for all of these subordinate agencies in the president's cabinet. Some aviation interests still feel that the development of sound aviation policy has suffered as a result of this organizational structure. A parade of proposals to liberate the FAA from the DOT has come before Congress, but none has passed and as the years go by, it appears even less likely that one will.

For several decades, the position of FAA Administrator was one of the plums of political patronage. The administrator served at the pleasure of the president, and turnover in the position was frequent, averaging about every two years—hardly sufficient time to accomplish anything in so ponderous a bureaucracy. Now, however, the individual appointed to the position is assured a 5-year term in office.

The FAA's activities cover a wide range, and include:

1. Regulation

The FAA regulates aviation safety, airspace use, and, to a certain extent, aircraft noise. The primary laws promulgated and enforced by the FAA are the Federal Aviation Regulations, found in Title 14 of the Code of Federal Regulations (14 CFR). This pervasive body of regulations addresses every conceivable aspect of aviation safety. Additionally, through those regulations prescribing airworthiness standards for the certification of new aircraft, the FAA has established aircraft noise limits. These regulations, developed in consultation with the Environmental Protection Agency (EPA), deserve credit as the primary incentive for development of the quieter high bypass ratio fanjet engines that came into use on the second generation of airline transport jets—the Boeing 747, Lockheed L-1011, and McDonnell Douglas DC-10. In comparison, the straight turbojet engines used on the first generation of jet transports, such as the Boeing 707, Douglas DC-8, and Convair 440, were positively thunderous. Indeed, as we'll see in Chapter 13, that first generation of airline jets (whose noise was not regulated by the FAA) appears largely responsible for creating the widespread enmity

that persists today between airports and their noise-sensitive neighbors. Although these noisy "Stage 1" jets are now banned from flying in the U.S. unless retrofitted with quieter new technology engines of "hush kits," the legacy of public hostility toward airports engendered decades ago by their noise remains an effective obstacle to the development of new and the expansion of existing airports in this country.

The FAA also recently imposed noise limits on propeller-driven light and commuter aircraft receiving FAA type certification in 2006 and later, based on criteria developed by the International Civil Aviation Organization (ICAO, discussed later in this chapter).

Congress has also given the FAA sole regulatory authority over suborbital spacecraft, in the Commercial Space Launch Amendments Act of 2004, intended to encourage private enterprise investment and participation by avoiding overregulation of this developing area of commercial activity, recognizing that spaceflight is inherently more risky than flight in the atmosphere. That authority is now exercised by the FAA's Office of Commercial Space Transportation.

In addition to the FARs, the FAA from time to time issues other mandatory orders having the force and effect of law on the subject of aviation safety. The primary examples are Airworthiness Directives (ADs), which are FAA orders requiring some inspection or modification of previously certified aircraft. An AD is usually issued when operating and maintenance experience reveals the need to change some element of the design or fabrication of a particular type of aircraft or component to improve flight safety. The need for such an improvement may be revealed by an accident (or series of accidents), or by reports of difficulties experienced or observed by aircraft operators, inspectors, and mechanics in the field.

2. Certification

It is virtually impossible for a person or business to participate in any aspect of civil aviation in the United States without first obtaining one or more certificates from the FAA. The FAA certifies not only flight crew members—including pilots (student, sport, recreational, private, commercial, and airline transport), flight engineers, flight instructors, flight navigators, and ground instructors—but also airmen other than flight crew members, including air traffic control tower operators, aircraft dispatchers, mechanics, repairmen, and parachute riggers. The FAA also issues a great variety of ratings to accompany these certificates,

as well as aviation medical certificates required of pilots and air traffic controllers (discussed in greater detail in Chapter 3).

The agency also certifies air carriers and commercial operators, including domestic, flag, and supplemental air carriers; foreign air carriers operating in the U.S., commuter and on-demand operators, rotorcraft external load operators, agricultural aircraft operators, and airports serving certificated air carriers; pilot schools and aviation training centers, aircraft and component repair stations, and aviation maintenance technician schools.

Additionally, each civil aircraft of U.S. manufacture is the product of three separate FAA inspection and certification processes. An aircraft manufacturer intending to introduce a new aircraft design into the marketplace must first produce prototype aircraft that are subjected to an intense program of both flight and static testing to prove the design's conformity to the certification standards contained in the FARs. Once this test program is completed to the satisfaction of the FAA, an FAA *Type Certificate* is issued, approving the design. Next, the manufacturer's production facilities and quality assurance program are submitted to FAA scrutiny. The agency must be convinced that the manufacturer's production and inspection methods are adequate to ensure that each aircraft produced will precisely replicate the design for which the type certificate was issued. Once this is accomplished, the FAA issues a *Production Type Certificate* and manufacturing can proceed. Next, each aircraft produced is inspected and tested for conformity with the original design and receives an FAA *Airworthiness Certificate* before being delivered to the customer. Subsequent modifications and improvements to the design require additional FAA certification, through amendments to the Type Certificate, by issuance of a *Supplemental Type Certificate*, or by a one-time field approval for modification of an individual aircraft under an FAA Form 337.

3. Registration

The FAA also operates a single centralized registry for all civil aircraft in the United States and for certain powerful aircraft engines and propellers. The FAA Aircraft Registry in the FAA Aeronautical Center in Oklahoma City maintains files on every aircraft that has ever been issued an "N-number" signifying U.S. registry (see Fig. 1.1). The files include the entire history of the sequence of owners of the aircraft and other legal interests in the aircraft, such as liens and encumbrances.



Fig. 1.1. If it has an "N-number," a title search through the FAA Aircraft Registry and the International Registry can reveal who owns it and who has recorded liens against it.

The utility and importance of this registry is explored in greater detail in Chapter 11.

4. Security

The Aviation and Transportation Security Act transferred the FAA's former air carrier security function to the TSA, but in that Act, Congress ordered the FAA to improve flight deck security by requiring airlines to strengthen flight deck doors and keep them locked except as necessary to permit authorized persons to enter or exit, and to develop guidance for training flight deck and cabin crews to deal with threats. Congress also ordered the FAA to explore the use of video monitors in the cabin, along with methods to prevent disabling of the aircraft's transponder in flight (as the 9/11 hijackers had done, to make tracking the aircraft more difficult) and improved methods for cabin crews to alert the flight deck of security breaches and other emergencies.

5. Cartography

Responsibility for the production of government aeronautical charts, once the domain of the Department of Commerce's National Ocean Service (NOS) has been transferred to the FAA. Along with that transfer of responsibility, over 300 NOS employees were transferred to the FAA's

National Aeronautical Charting Office (now called the Aeronautical Navigation Products Department or "AeroNav").

6. Education

The FAA educates members of the aviation community on new developments and matters pertaining to aviation safety through a system of publications, such as the Advisory Circulars (AC), and through safety seminars and recertification programs for flight instructors, pilot examiners, mechanics holding inspection authorization, and others. The FAA also trains its own employees at the FAA Academy in the Aeronautical Center in Oklahoma City and numerous programs at its various facilities.

7. Funding

Under the Airport Improvement Program (AIP), the FAA distributes federal matching funds for the construction of new airports, the improvement of existing airports, and related airport planning. These funds are appropriated by Congress from the Aviation Trust Fund comprising the proceeds of aviation fuel taxes paid by general aviation and passenger ticket taxes paid by persons traveling on U.S. commercial airlines. This funding program administers a trust fund currently valued at approximately \$15 billion, generally expended at a rate of over \$3 billion per year, and is discussed in greater detail in Chapter 13.

8. Investigation

The FAA investigates virtually all civil aircraft accidents in the United States, as well as some accidents outside the country involving U.S. built civil aircraft, in connection with the agency's air safety regulation and enforcement function. As more fully discussed in Chapter 10, the FAA also performs the on-site investigation of general aviation aircraft accidents under delegated authority on behalf of the National Transportation Safety Board (NTSB). The NTSB, however, has the exclusive authority to make the federal government's official finding of the "probable cause" of all civil aircraft accidents, regardless of whether the factual investigation was conducted by NTSB or FAA personnel.

The FAA also investigates incidents in which aviation safety may have been jeopardized but no accident occurred, as when two aircraft pass within such proximity as to create a collision hazard. The FAA also investigates all reports of violations of the Federal Aviation Regulations.

This process of investigation and enforcement in connection with alleged FAR violations is described in detail in Chapter 2.

9. Operations

The FAA operates a great variety of aviation facilities and equipment, including:

a. The Air Traffic Control (ATC) System

This system includes airport control towers, radar approach control (RAPCON or Approach) facilities, en route Air Route Traffic Control Centers (ARTCC or Center), the Air Traffic Control System Command Center (formerly known as Central Flow Control), and Flight Service Stations (FSS). There are some control towers operated by private enterprise and local governments at airports that do not meet activity-level criteria to qualify for a federal control tower, but most control towers and all RAPCONs and Centers are FAA operated. (Fig. 1.2) At this writing, Lockheed Martin is operating the FSS under contract to the FAA.

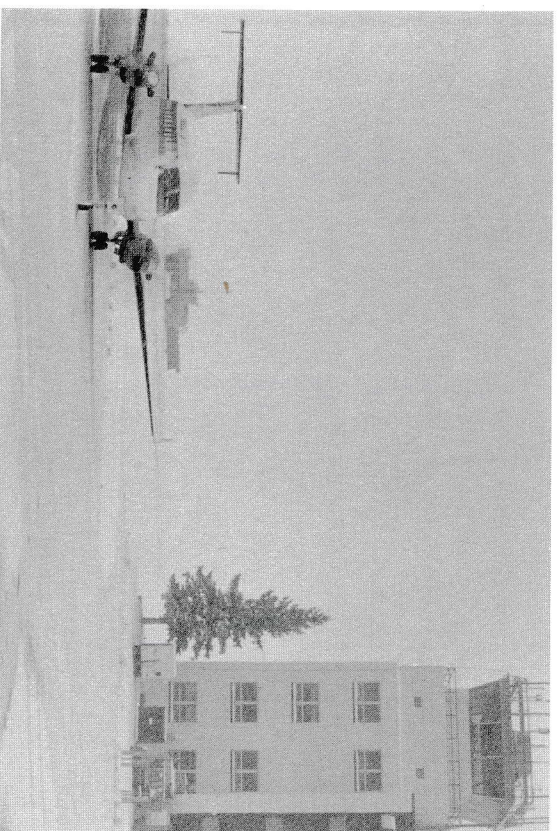


Fig. 1.2. Most ATC facilities, such as this control tower at the Cheyenne, Wyoming Regional Airport are operated by the FAA, although some towers at airports that are not busy enough to qualify for a federal tower are operated by private corporations under contract to local governments. More privatization of the ATC function is possible, as lawmakers search for ways to reduce federal spending.

b. Radio Aids to Navigation

The FAA also operates a vast network of ground-based radio aids to navigation ("navaids"), including radio beacons guiding aircraft over long distances (such as VORs and VORTACs), non-directional beacons (NDB) for imprecise navigation to some airports, and others that lead aircraft precisely to the runway in all weather, such as instrument landing systems (ILS), microwave landing systems (MLS), and the wide-area augmentation systems (WAAS) to improve the accuracy and reliability of satellite-based global positioning systems (GPS). Lockheed Martin operates the WAAS satellite for the FAA. Other radio aids to air navigation are operated by the Coast Guard (Loran C, although the U.S. has announced its intention to discontinue that service in favor of satellite-based navigation) and Department of Defense, which operates the constellation of GPS satellites. Local governments also operate some navaids, particularly NDBs, and private industry also owns and operates some approach aids, with several airlines having proprietary ILS or MLS equipment at remote airports they serve. With the increasing industry reliance on GPS navigation and impending implementation of the next generation air traffic control system (NextGen), it appears likely that a phase-out of many of these ground-based navaids may begin in this decade.

c. National Airports

For many years, the FAA was the operator of two of the major Washington, D.C. air carrier airports designated as the "National Airports" (Reagan—formerly known as Washington National—and Dulles). These airports are now operated by the Washington Metropolitan Airport Authority. (Fig. 1.3.)

d. Aeronautical Center

The FAA's Mike Monroney Aeronautical Center in Oklahoma City is a major record-keeping and training facility. There, you will find the Aircraft Registry (discussed more fully in Chapter 11), which maintains the records of ownership and other legal interests in every civil aircraft ever registered in the U.S. (see also Fig. 1.1 and accompanying text); the Airman Records Branch, which keeps a dossier on every person ever issued an FAA certificate; the FAA Academy, which trains air traffic controllers, air safety inspectors, and other FAA personnel; and the Civil Aviation Medical Institute (CAMI), which reviews and develops

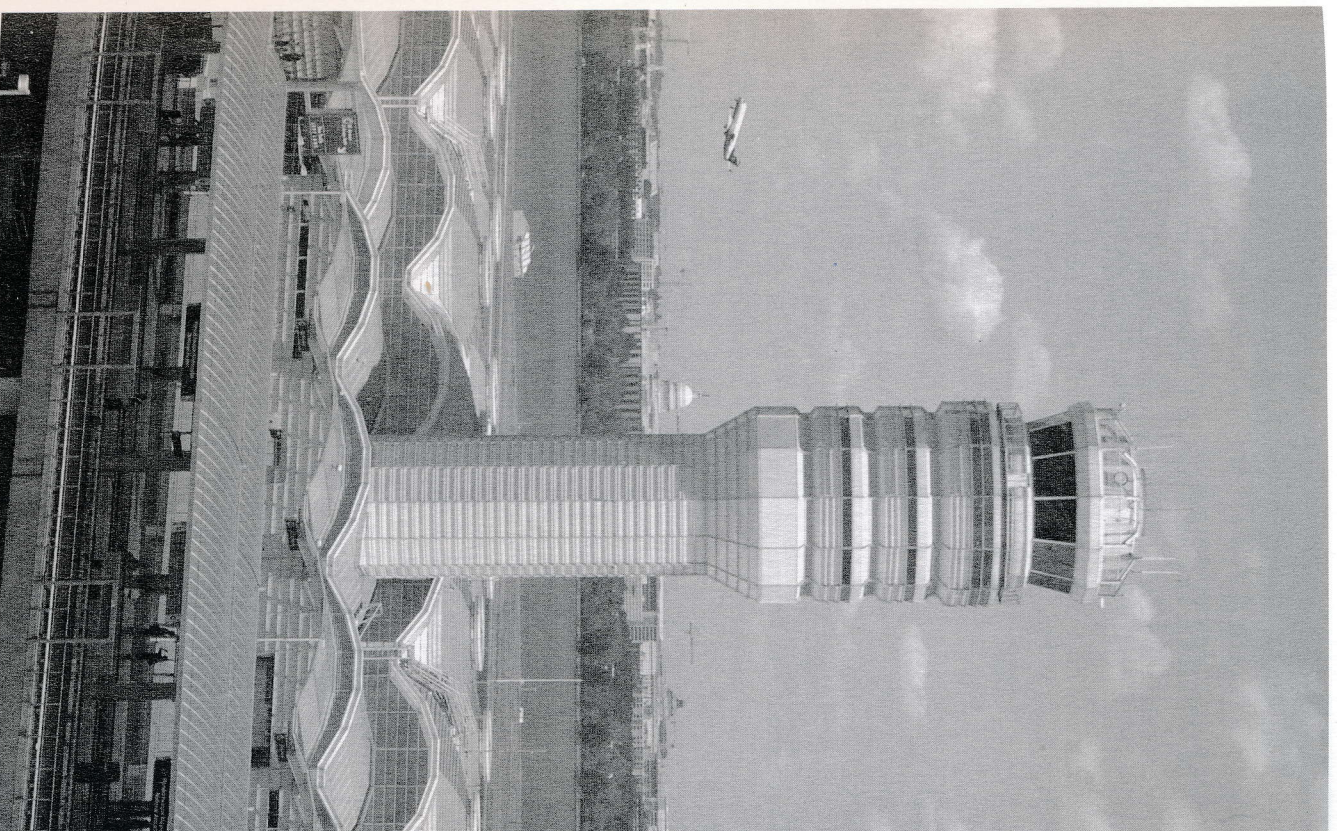


Fig. 1.3: Ronald Reagan Washington National Airport with national capitol building visible in the background to left of tower. (Washington Metropolitan Airport Authority photo)

medical certification standards along with drug and alcohol testing policy for persons in the aviation industry.

e. Technical Center

The William J. Hughes Technical Center (formerly known as the National Aviation Facility Experimental Center or NAFEC), located near Atlantic City, NJ, is the site of the scientific test base for FAA research and development, test and evaluation activities relating to air traffic control, communication, navigation, airports, aviation security, and flight safety. The facility is deeply involved in shaping the Next-Gen air traffic system. The FAA does no basic research on aircraft and flight system technologies, these being within NASA's area of research responsibility. Where FAA and NASA research and development (R&D) responsibilities abut or overlap, the two agencies work together closely to coordinate their efforts without duplication, conflict, or waste. Throughout the federal government there is increased emphasis on interagency cooperation. Examples in aviation include Safer Skies, an FAA initiative that involved a wide range of government and industry organizations in an effort to improve the safety record of general and commercial aviation. The initiative is developing recommendations for changes in training, technology, and procedures with the goal of reducing general aviation accidents. The Safer Skies initiative also lead the FAA, NTSB, NASA, and a variety of industry associations to form the General Aviation Data Improvement Team (GADIT) to gather better data on general aviation accidents, especially those involving human factors. Another example is the Advanced General Aviation Transport Experiments (AGATE), a consortium of industry, higher education, and government entities (organized by NASA and including the FAA) focusing on developing technologies for general aviation. AGATE is intended to help revitalize the general aviation industry by advancing the use of new technologies in aircraft and developing new training methods for pilots. A related NASA program, the Small Aircraft Transportation System (SATS), is discussed later in this chapter in the section describing that agency.

National Transportation Safety Board (NTSB) (www.ntsb.gov)

The National Transportation Safety Board is an independent federal agency whose primary responsibility is to investigate transportation accidents, determine the "probable cause" of the accident, and recom-

mend to the appropriate regulatory agencies (in the case of aviation, the FAA) measures that might prevent similar accidents in the future. Like the Department of Transportation, the NTSB's duties cover a broad range of civil transportation modes, including aviation, highway, marine, pipeline, and hazardous materials transportation accidents.

The NTSB is one of the smallest federal agencies, having only about 300 employees, only a fraction of whom are trained aircraft accident investigators. Therefore, the board must frequently delegate its on-site aircraft accident investigation duties to the better-staffed FAA. This is done particularly in non-fatal general aviation accidents, to allow the NTSB field investigators to concentrate on airline and other high-profile civil aviation accidents.

Regardless of which agency's employees conduct the on-site investigation, it is always the NTSB that must analyze the information and make the official finding of the probable cause of the accident. This process is discussed in greater detail in Chapter 10.

The NTSB also has the responsibility for coordinating and integrating the resources of the federal government and other organizations (such as the American Red Cross) to support the efforts of state and local governments and the airline to meet the needs of airline disaster victims and their families.

The NTSB also serves as the first level of appeal in cases where the FAA has taken enforcement action to suspend or revoke a certificate or, under certain circumstances, to impose a fine. This process is discussed in Chapter 2.

National Aeronautics and Space Administration (NASA) (www.nasa.gov)

Although NASA's name most commonly brings to mind the agency's space exploration activities, NASA continues to make important contributions in the areas of aerodynamics and aviation technology. In aerodynamics, NASA research & development led to the supercritical airfoil now in general use on high-performance aircraft (in both wing and propeller cross sections) and the "Whitcomb winglet" (Fig. 1.4), both of which increase aerodynamic efficiency and conserve aviation fuels. Much of the basic research that led to successive generations of increasingly quiet and fuel-efficient high bypass ratio fanjet engines was done at NASA.

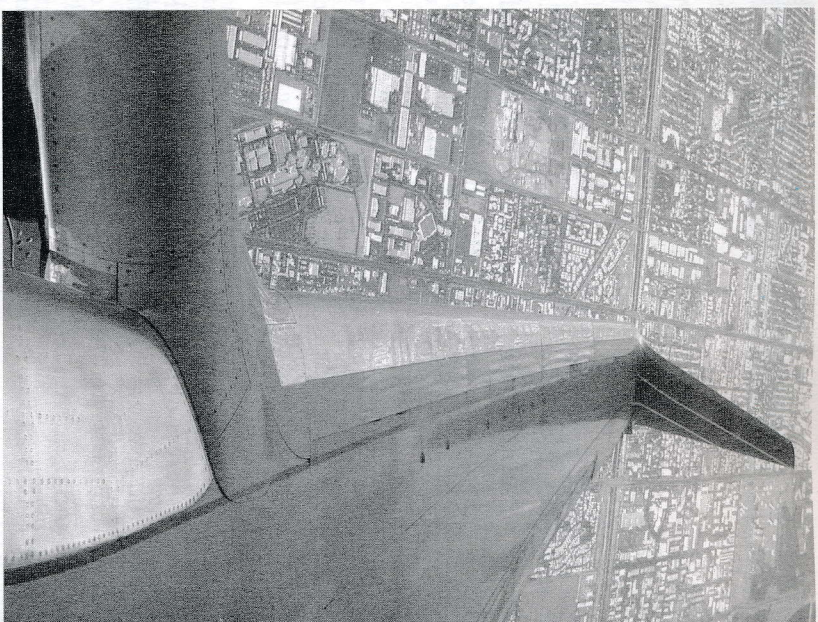


Fig. 1.4. Many airliners are sprouting winglets such as these, originally developed by NASA, to improve fuel efficiency.

The agency is also conducting research into alternative aviation fuels, helicopter blades made of shape-changing materials to reduce noise and smooth out the ride, blended wing/fuselage technology to improve the efficiency and reduce the carbon emissions and noise footprint of subsonic jet transports (*see* Fig. 1.5), and the design and propulsion of a second-generation (the British Aerospace Concorde, now retired from service, being the first) supersonic or hypersonic transport. NASA research and development efforts in aviation have also led to advanced flight control and aircraft deicing systems, along with improvements in civil aircraft airworthiness. NASA is now providing research support in connection with development of the NextGen ATC system.

- NASA's general aviation research activities focus on:
- Propulsion, noise and emissions improvements to reduce environmental impacts

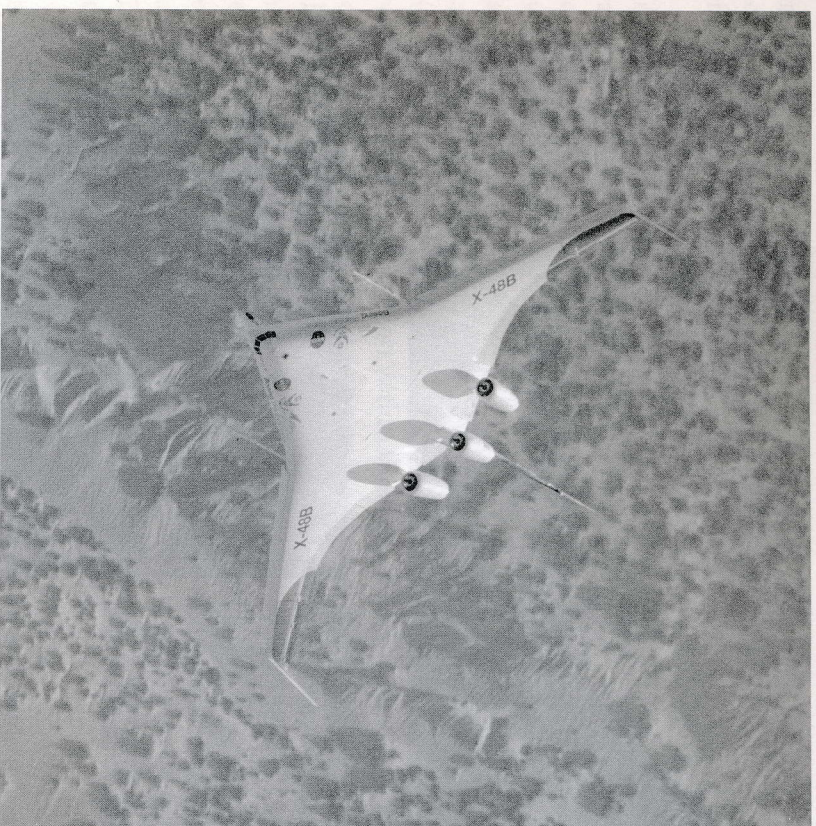


Fig. 1.5. NASA is currently researching a blended wing body design for quieter and more efficient transport category jets. Here, a subscale X-48B is seen banking over desert scrub at Edwards Air Force Base. (NASA photo)

- New flight deck displays to improve safety
- Advanced metals and composites for general aviation applications
- Aerodynamic improvements to increase aircraft speed, capacity, and fuel efficiency

Recent interrelated general aviation programs supervised or participated in by NASA include the Highway in the Sky program, intended to ease pilot workload and simplify air navigation through more sophisticated electronic displays; the Advanced General Aviation Transport Experiments (AGATE), focused on developing technologies for general aviation; and the Small Aircraft Transportation System (SATS) program, building on the others to demonstrate the viability of

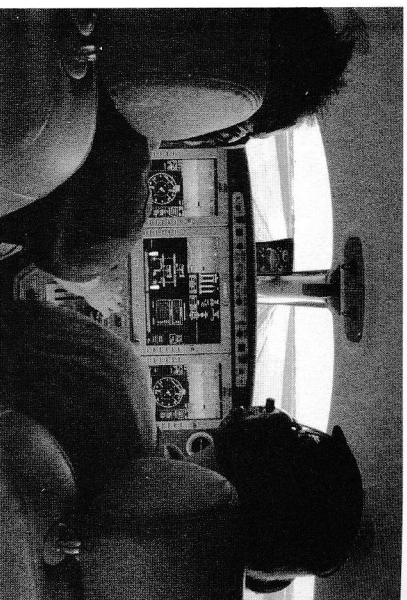
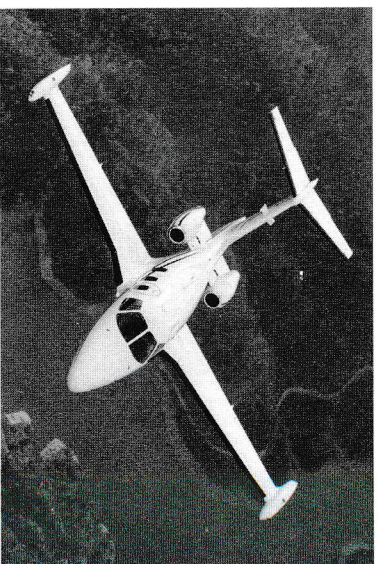


Fig. 1.6. The ergonomically designed high tech "glass cockpit" in this very light jet (VLJ) exemplifies the ease of operation goals of the AGATE and SATS programs. (Hyku Photo)

Fig. 1.7. Very light jets, such as this Eclipse 500, may fulfill the vision of NASA's SATS program of doubling the number of U.S. communities receiving air transportation. (Eclipse Aerospace, Inc. photo)



using increasingly-sophisticated light general aviation aircraft (Fig. 1.6), including very light jets (VLJs) (Fig. 1.7), to affordably reduce many of the expected problems in the nation's transportation system, such as increasing congestion on highways and at major airports served by the airlines, by providing point-to-point transportation between the thousands of existing public use airports not served by the airlines.

NASA also administers the confidential Aviation Safety Reporting Program (ASRP), designed to identify problems in the National Air Transportation System, especially those related to air traffic control. This program is described in greater detail in Chapter 2.

Civil Aeronautics Board (CAB)

Formerly the powerful and pervasive regulator of airline economics, including routes flown and routes served by U.S. airlines and foreign

airlines serving the U.S., the CAB was gradually wound down as a result of Congress' passage of the Airline Deregulation Act of 1978. The CAB finally ceased to exist on January 1, 1985.

Before deregulation, the Public Utilities Commissions (PUCs) of most states also exercised tight regulatory control over the economic aspects of intrastate operations of air carriers, duplicating the CAB's controls over interstate and foreign transport for air carriers operating within the states. For example, in Colorado there is a niche market for air transportation between Denver and the state's ski resort areas. One airline focusing on serving this market was Rocky Mountain Airways (RMA), which operated only within Colorado. Before adding or deleting service between any two points within Colorado, RMA was required to obtain a certificate of public convenience and necessity from the state's PUC. Before setting or changing the fare to be charged on any of these routes, RMA was required to obtain PUC approval. This duplicative, expensive, and time and resource wasting state regulatory process was specifically preempted by the Deregulation Act, which prohibited all states except Alaska (which, due to its size, geography, and extremely limited highway system, is uniquely reliant on commercial air transportation) from regulating federally certificated airlines.

This federal preemption does not, however, extend into the areas of registration and taxation of aircraft, so that state aircraft registration requirements and state personal property or specific ownership taxes on aircraft are lawful and commonplace. Typical state aircraft registration and taxation programs are discussed in Chapter 11.

Air Transportation Stabilization Board (ATSB)

Only 11 days after the terrorist attacks of September 11, 2001, Congress passed the Air Transportation Safety and System Stabilization Act to compensate victims of the attacks for their losses and to aid the recovery of U.S. airlines from the financial consequences of the attacks. Victim compensation provisions of the Act are discussed in detail in Chapters 8 and 9.

The Act created the Air Transportation Stabilization Board, composed of the Secretary of Transportation, Chairman of the Board of Governors of the Federal Reserve System (designated as Chair of the ATSB), Secretary of the Treasury, and Comptroller General of the United States (as a nonvoting member), or their designees.

The ATSB was empowered to issue up to \$10 billion in federal loan guarantees to the airlines and to compensate the airlines up to \$5 billion for direct losses resulting from federal action grounding the airlines in the wake of the attacks.

National Mediation Board (NMB) (www.nmb.gov)

Unlike most other industries, labor-management relations in the airlines (and railroads) are governed not by the National Labor Relations Board (NLRB) under the National Labor Relations Act, but by the National Mediation Board under the Railway Labor Act of 1926, made applicable to common carriers by air in 1936. The NMB supervises union efforts to organize workers, elections, and conducts the compulsory mediation procedures the RLA requires as a mandatory step toward resolving major labor-management disputes within the airline industry. These procedures are discussed in detail in Chapter 17.

National Labor Relations Board (NLRB) (www.nlr.gov)

The NLRB regulates labor-management relations in all U.S. industries except the airlines and railroads. Thus, the NLRB supervises union organizing efforts and elections, and rules on unfair labor practice claims in the aerospace manufacturing industry and general aviation (except general aviation operators conducting common carrier operations, such as on-demand charters and emergency medical air transportation). The NLRB's regulations and procedures are discussed in some detail in Chapter 16.

Federal Trade Commission (FTC) (www.ftc.gov) and Department of Justice (DOJ) (www.usdoj.org)

The Federal Trade Commission and Department of Justice police all industries for anticompetitive practices. In aviation, this mostly involves airline and aerospace manufacturer mergers and acquisitions and collusion among competitors in price-fixing.

The Department of Justice is also responsible for investigation and prosecution of federal crimes relating to aviation, such as aviation security and bogus parts cases. Crimes relating to aviation are discussed in Chapters 2 and 15.

In the Aviation and Transportation Security Act, Congress also directed the National Institute of Justice, the research and development

branch of the Department of Justice, to assess potential use of non-lethal weapons by flight deck crewmembers to temporarily incapacitate intruders.

Customs and Border Protection (CBP) (www.cbp.gov)

The Aviation and Transportation Security Act required all airlines providing international air transportation to the United States to secure their computer reservation systems against unauthorized access and to electronically transmit passenger and crew manifests to U.S. Customs prior to departure. Under the Secure Flight Program, implementation of which began in early 2009, the TSA now screens the names on these lists against its "watch list" of known and suspected terrorists to identify persons who should be prevented from boarding (the No Fly List) or who should undergo additional security scrutiny (the Selectee List).

The CBP's Air and Marine division, formed in 2005 to consolidate several federal law enforcement aviation programs, is the world's largest civilian law enforcement air force, with over 700 pilots operating more than 272 aircraft of 22 different types (including unmanned aircraft systems). (Fig. 1.8.) The division's mission is to detect, interdict, and prevent acts of terrorism and the unlawful movement of people, illegal drugs and other contraband toward or across the borders of the United States, and to conduct air operations in support of other federal, state, and local needs, such as disaster relief.

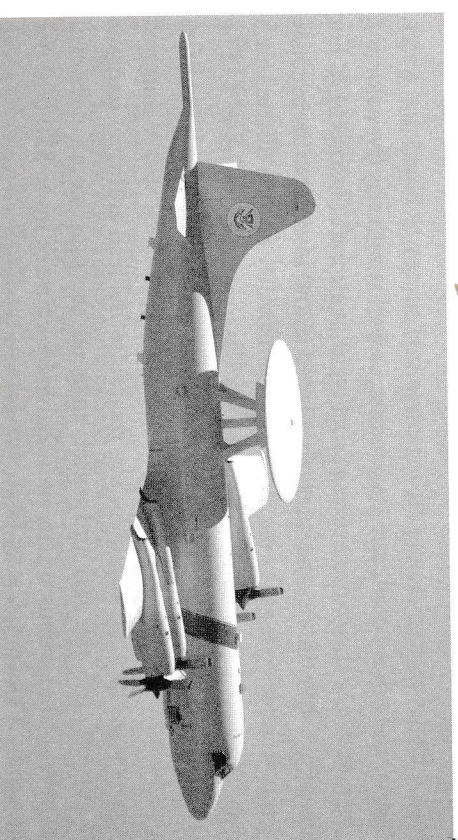


Fig. 1.8. U.S. Customs and Border Protection Lockheed P-3 Orion on offshore patrol. (Customs and Border Protection photo)

The State Department (www.state.gov) and the President

The State Department negotiates treaties between the United States and other nations. Examples relating to aviation include treaties relating to air piracy and air transport agreements providing for reciprocal international air service. Once the State Department has negotiated a proposed treaty, it must be approved and executed by the President and ratified by the Senate.

Foreign air carriers designated by their country to provide service to the U.S. under an international air service agreement must receive a foreign air carrier permit before commencing operations to the U.S. The DOT issues these permits, after consultation with the State Department and subject to presidential approval under limitations described above in our discussion of the DOT.

STATE ADMINISTRATIVE AGENCIES

State governments are also free to regulate commerce, so long as state rules do not conflict with federal law or unduly burden interstate or foreign commerce. (See Chapter 13 for detailed discussion of the application of this concept to the regulation of airport operations and airspace use.)

In one example of permissible state regulation, Florida's Department of Environmental Protection (DEP) initiated enforcement action against Embry-Riddle Aeronautical University (ERAU) for the age-old and then industrywide practice of "sumping and dumping." It is a crucial step in the preflight inspection of any powered aircraft to drain small fuel samples from the aircraft's various fuel sumps to check for water, debris, and other possible contaminants, as well as to verify (by color and odor) that it is the correct type of fuel for that aircraft ("sumping"). For virtually the entire first century of powered flight, it was routine practice throughout at least the general aviation community to then discard each small collected sample by pouring it on the ground ("dumping"). The problem is that fuel is toxic, flammable, and corrosive, which qualifies it as *hazardous waste*. Although most of such a small sample of dumped avgas evaporates, some (including the tetraethyl lead additive) remains to run off into the soil and water, making the practice an unlawful disposal of hazardous waste, punishable by a fine of up to \$50,000 per day under Florida law—enough to motivate anyone to make a focused effort to break an old bad habit. In consideration of ERAU partnering

with DEP and the Aircraft Owners & Pilots Association (AOPA) to develop an educational campaign to persuade pilots to break this old bad habit, the state reduced the university's fine for the past illegal practice.

INTERNATIONAL REGULATION

International Civil Aviation Organization (ICAO) (www.icao.org)

Although not technically a regulatory agency, the International Civil Aviation Organization, an organ of the United Nations headquartered in Montreal, has had a profound worldwide effect on aviation standards.

ICAO was organized in late 1944 at the Chicago Conference. There (with World War II still raging in Europe and the Pacific), representatives of 52 allied and neutral nations gathered to chart global civil aviation's postwar course.

The two specific goals of the gathering were:

1. *Establishment of international technical standards* for airworthiness certification, flight crew certification, communications, and radio aids to navigation, and
2. *Establishment of principles and procedures for the economic regulation of international civil aviation's routes, fares, frequency, and capacity.*

The delegates' philosophy was clearly expressed in the preamble to the resulting treaty, the *Convention on International Civil Aviation* (also known as the *Chicago Convention*):

WHEREAS the development of international civil aviation can greatly help to create and preserve friendship and understanding among the nations and peoples of the world, yet its abuse can become a threat to the general security; and

WHEREAS it is desirable to avoid friction and to promote that cooperation between nations and peoples upon which the peace of the world depends;

THEREFORE, the undersigned governments having agreed on certain principles and arrangements in order that international civil aviation may be developed in a safe and orderly manner and that international air transport services may be established on the basis of equal opportunity and operated soundly and economically;

HAVE ACCORDINGLY concluded this Convention to that end.

Today, virtually all nations (at least 185) have signed the Convention on International Civil Aviation and ICAO has succeeded famously in

achieving the first goal. ICAO-adopted technical standards, known as international Standards and Recommended Practices (SARPs), are published in a series of documents known as *Annexes* to the treaty. The smooth and efficient functioning of international civil aviation is largely attributable to ICAO's work. Wherever you fly on earth, you have ICAO to thank for communication and navigation systems that are compatible with the equipment in your aircraft and for the ability to communicate with air traffic controllers in the English language (an area ICAO has targeted for further improvement, because ATC English capabilities still vary widely across the globe). ICAO has also developed internationally accepted standards for the transport of hazardous materials by air and is actively pursuing agreement to achieve international harmonization of aircraft certification and operating rules as a goal to help reduce airlines' operating costs.

ICAO's Technical Cooperation Programme provides technical expertise, consultation, training, and airport and airway equipment to developing countries.

Concerns over global environmental deterioration have brought ICAO into the mix of organizations and businesses collaborating to minimize aviation's impact on the problem (quantified as about 2% of the emissions contributing to global warming).

Accomplishments in the area of the Chicago conferees' second goal were less sweeping, but significant. At that 1944 conference, The United States sought basically a free global market for the airlines, proposing that the nations of the world agree to recognize the **Five Freedoms of the Air** (see Fig. 1.9).

Although much of the world might jump at such a generous offer today, to gain greater access to comparatively lucrative U.S. markets, in late 1944 the United States was poised to dominate the international airline industry at war's end. At the beginning of World War II, there were only 365 transport aircraft in the U.S., but by war's end the U.S. had produced over 300,000 aircraft, of which over 11,000 were transports such as the C-47 (DC-3) and C-54 (DC-4), most of which would be taken out of service and disposed of as surplus shortly after the war's end. In the same time period, the U.S. had trained hundreds of thousands of aircrew members, including pilots, navigators, and loadmasters, along with mechanics, weather forecasters, dispatchers, and other essential support personnel. Many of these had operating experience on inter-

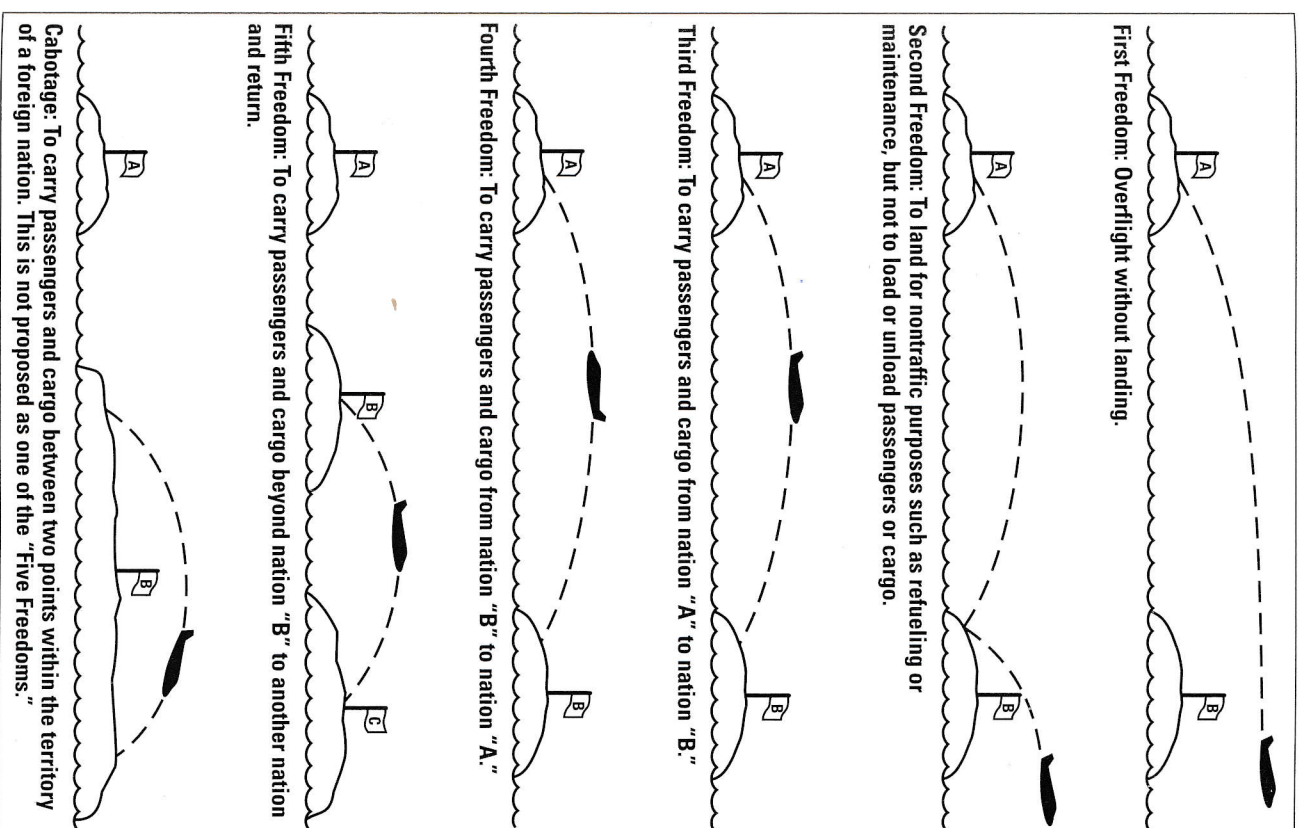


Fig. 1.9. The Five Freedoms of the Air, illustrated for an airline of nation A.

national routes and at foreign bases, and most would be mustered out of the armed forces and on the civilian job market shortly after the end of the war.

It would have required little more than a change of aircraft paint and crew uniforms to transform that military airlift fleet into civil airlines having a greater capacity than all of the other nations could hope to muster for many years. And unlike the other major powers on both sides of the war, America's aircraft manufacturing industry emerged intact, with plants undamaged, new designs in progress, and (with the abrupt cancellation of military orders) excess capacity to produce those new transports.

Thus it is not surprising that national protectionism prevailed over free market competition. The conferees agreed only on the principle of international sovereignty in airspace, providing that no scheduled international air service may be operated over or into a nation or its airspace without its permission.

A separate agreement known as the *Transit Agreement* was also signed at that time in Chicago by fewer than all of the conferees, agreeing to the first two Freedoms (overflights and nontraffic stops). Foremost among the nonsigners were the security-obsessed nations of the communist bloc. (Also understandable, considering the devastation they had received and were still receiving from Axis air power.) The other Freedoms were left to be negotiated between individual nations, although as part of the Chicago Conference, ICAO did develop a standard form of bilateral (between two nations) agreement for exchange of air routes. The form has been widely used since and is generally recognized as a significant contribution to the high degree of consistency in commercial international air service agreements for well over a half century. According to ICAO, over 3,500 bilateral air service agreements are in effect today.

Additional Freedoms discussed since the Chicago conference and included in some bilateral and multilateral (between more than two nations) air service agreements are:

- **Sixth Freedom:** The right to carry traffic from one nation through the homeland and on to a third nation.
- **Seventh Freedom:** The right to carry traffic between two foreign nations without going through the home country.
- **Eighth Freedom:** (Also called *cabotage*.) The right to carry traffic between two points in a foreign country, such as if a European

airline were permitted to operate commercial flights between New York and Los Angeles. If the origin and destination are located in geographically separated parts of that country, such as the route between Los Angeles and Anchorage, it is called *grand cabotage*.

In the United States, the President's National Commission to Ensure a Strong Competitive Airline Industry found that the prevailing bilateral agreement system was no longer conceptually sound or sufficiently growth-oriented in the global trade environment. The Commission recommended that U.S. negotiating efforts should focus on creating multilateral agreements.

Open Skies Agreements are the latest fashion in treaties for international air service. Unlike the bilateral agreements that were typical for many decades following the Chicago conference, open skies agreements (which may be either bilateral or multilateral) do not limit the service to be provided by airlines of signatory nations to specific city pairs (i.e., New York City–Paris), but give the airlines of both countries the right to operate between any point in one country and any point in another, as well as to and from third countries (“*beyond rights*”). Other features of open skies agreements designed to encourage competition include:

- **Free Market Competition:** No restrictions on number of airlines the signatory nations may designate to provide service under the treaty, or on capacity, frequency of service, or types of aircraft.
- **Pricing Determined by Market Forces:** A fare can be disallowed only if both governments concur—“*double disapproval pricing*”—only allowed for certain specified reasons intended to assure competition.
- **Fair and Equal Opportunity to Compete:** Carriers of all signatory nations may establish sales offices in all others, may convert earnings and remit them to the home country in hard currency and without restrictions, may provide their own ground handling services (“*self-handling*”) or choose among competing providers, may arrange ground transport of air cargo, and are guaranteed access to customs services.
- **Cooperative Marketing Arrangements:** Designated airlines may enter into code-sharing or leasing arrangements with airlines of other signatory countries, with those of third countries, and even with surface transportation companies.
- **Liberal Charter Arrangements:** Airlines may choose to operate under the charter regulations of any signatory country.

- **“Seventh Freedom” Rights:** Some open skies agreements include authority for an airline of one signatory nation to operate *all-cargo* services between another signatory nation and a third country via flights not linked to the airline’s homeland.

- **Safety and Security:** Each signatory government agrees to observe high standards of aviation safety and security, and to render assistance to the others in certain circumstances.

- **Dispute Settlement and Consultation:** The model text agreement (available on the State Department website, www.state.gov) includes procedures for settling differences that may arise under the agreement.

In 2007, the United States entered into an open skies agreement with the European Union. The agreement allows any airline of the E.U. and any airline of the U.S. to provide service between any point in the U.S. and any point in the E.U. The agreement favors U.S. carriers in that they are also allowed to fly between points in the E.U., while E.U. airlines are not permitted to provide service between points in the U.S. or own a controlling interest in a U.S. airline. The U.S. has concluded over 70 bilateral and multilateral open skies agreements to date.

First Freedom rights of overflight were granted by Russia beginning in 2001, allowing shorter and more efficient polar great circle commercial airline routes between North America and Asia, saving the airlines millions of dollars each year in fuel, staff costs, and landing fees at intermediate airports such as Anchorage.

Air piracy (hijacking and terrorism) has proved to be one of the most difficult and enduring problems facing ICAO. Such unlawful interference with civil aviation is hardly a recent phenomenon. The first reported episode occurred in 1784, when a young man forced his way into the basket of a Charliere (helium) balloon and demanded at swordpoint that he be carried aloft. ICAO statistics show that such incidents were extremely rare until 1968, when hijacking became a fad. Some 200 aircraft hijackings occurred worldwide from 1968 through 1970. The perpetrators were mostly criminals seeking to escape, mentally unstable persons, or political militants. A few acts of sabotage against airliners have simply been murders perpetrated in an attempt to collect on the life insurance of a targeted passenger. Politically-motivated terrorists have been responsible for the most recent hijackings and acts of sabotage against civil aviation, such as the blowing up of Pan Am flight 103 over Lockerbie, Scotland, and the hijacking of four U.S. airliners for use as

weapons to perpetrate the most lethal terrorist attack in human history on the twin towers of the World Trade Center in New York City and the Pentagon in Washington, D.C. (The fourth aircraft crashed in rural Pennsylvania after the passengers, learning of the fate of the first three, attempted to regain control of the aircraft from the terrorists and prevented it from reaching its still-unknown intended target, no doubt saving others’ lives in the process.)

The problem is one of global dimensions, which no single nation could effectively solve. Yet the frequent presence of a political motive for such acts has greatly complicated efforts to achieve global consensus on an appropriate approach to solutions. In such situations, although the nation whose airliner is attacked and others unsympathetic to the attackers’ particular cause may view the attackers as terrorists or common criminals, others sympathetic to their cause may view them as heroic freedom fighters or even religious martyrs.

Given the level of factionalism and hatred in the world, it sometimes seems amazing that any agreements can be reached over such emotional and politically-charged issues, but under ICAO’s leadership, about 100 nations have signed treaties agreeing to promptly return hijacked aircraft to their countries of origin, permit hijacked passengers to continue their journey as soon as possible, and hold suspected hijackers for investigation and either prosecute them under their own law or extradite them to the country whose aircraft was hijacked for prosecution under its law. While the threat has by no means been eliminated (because a significant number of nations have not signed the treaty and some continue to offer safe haven to hijackers and terrorists whose political agendas they support), significant progress has been made on the diplomatic front.

Meanwhile, as efforts continue to achieve world peace and improve international civil aviation safety and security, it appears certain that the role of ICAO will continue to increase in importance.

International Air Transport Association (IATA) (www.iata.org)

When the Chicago Conference failed to reach agreement on its second goal of regulating international civil aviation’s routes, fares, frequency, and capacity, the international airlines formed their own trade association, the International Air Transport Association, to address these issues. IATA is also headquartered in Montreal. Initially operating primarily as a cartel to divide up markets and fix prices on international air routes,

IATA soon came into conflict with U.S. antitrust laws. As a result, the association discontinued that function.

Today, IATA's most important function is its clearinghouse in London, which rapidly settles accounts amounting to over \$30 billion annually for interline transactions among member airlines and with their associated travel agents. (The Air Transport Association or ATA performs a similar clearinghouse function for U.S. airlines in domestic operations.) Without these clearinghouses, arranging travel requiring a change of airline would be an unbelievably complicated nightmare, particularly in the international arena where currency differences and fluctuating exchange rates add to the intricacy of the task.

IATA also works closely with ICAO on technical issues involving airline operations, safety, and security and has formed an alliance with the Flight Safety Foundation (FSF) to exchange information and promote the best airline safety practices.

IATA's *Aviation Training & Development Institute* offers a wide variety of courses in airline and airport management, aviation law, aviation security, airline safety, pilot selection, crew resource management, airport planning, and air navigation services. These courses are taught in 66 locations around the world, as well as by distance learning.

The association also publishes about 300 reference and training publications vital to the industry on topics such as safety, security, ground handling, transporting dangerous goods, and airport development.

2

FAA Enforcement

As we saw in the previous chapter, the Federal Aviation Regulations have always been the "law." The FAA employs thousands of aviation safety inspectors and hundreds of attorneys to enforce this body of law. Aviation professionals and general aviation operators are probably now more likely to encounter an FAA inspector than any other law enforcement officer.

The FAA issues certificates to a wide variety of specialized personnel (such as pilots, flight engineers and navigators, maintenance personnel, maintenance inspectors, air traffic controllers, aircraft dispatchers, ground and flight instructors, and parachute riggers); businesses (such as aircraft and component manufacturers, aircraft and component repair stations, commercial air carriers, air taxi and commercial charter operators, helicopter external load operators, and flight and aviation maintenance schools); operators of airports serving air carriers (most of which are regional or local governmental entities); and even products (such as individual aircraft, each of which receives an airworthiness certificate). The FAA also has the power to deny, suspend or revoke any and all of these certificates.

Because FAA actions to enforce the FARs are characterized as *administrative law* rather than *criminal law*, FAA inspectors are not required to advise suspects of their legal rights. In an effort to appear to be good cooperative citizens, aviators, maintenance personnel, aviation managers and others often make voluntary statements to FAA inspectors and air traffic controllers that are subsequently used by the agency to suspend or revoke their certificates or to punish them by imposing substantial fines.

The purpose of this chapter is to furnish a practical working knowledge of your legal rights in FAA investigation and enforcement situations.