3 Air Transportation: Regulators and Associations

Introduction The Department of Transportation The Federal Aviation Administration The Transportation Security Administration The National Transportation Safety Board Major Aviation Associations

Chapter Checklist • You Should Be Able To:

- Discuss the primary role of the DOT, FAA, TSA, and NTSB
- Describe the major functions of the FAA, including some new developments in air traffic control and engineering
- Identify the steps involved in a major-accident investigation by the NTSB
- Compare and contrast the following airline associations: Airline Clearing House, Airline Tariff Publishing Company, and Air Cargo, Inc.
- Describe the primary purpose of the Air Transport Association and the Regional Airline Association
- Distinguish between the International Civil Aviation Organization and the International Air Transport Association

INTRODUCTION

In 1961 and 1962, seven major studies of transportation and its regulation were released by various federal agencies and study groups.¹ Although the recommendations of these studies varied, they generally supported relaxation of federal regulations and greater reliance on market forces.

In response to the continuing problems of the U.S. transportation system, President John F. Kennedy delivered a special transportation message to Congress on April 5, 1962. In that address, Kennedy criticized the existing regulatory structure as inconsistent and outdated and recommended a number of federal regulatory and promotional changes. He proposed more flexible carrier rate making and suggested that minimum rate regulation should be eliminated on bulk and agricultural shipments involving common carriers. He also recommended extension of the agricultural and fishery exemptions to all carriers. His message stressed what he perceived to be inconsistencies in taxation policies and user charges in transportation. To remedy this situation, he urged repeal of the 10 percent tax on railroad and bus transportation and simultaneously called for an increase in user charge program to recover federal outlays in that area. Additionally, Kennedy sought to promote more even-handed treatment of intercity transportation modes by reducing CAB subsidies to local-service carriers and abolishing such subsidies to trunk lines.

Obviously, President Kennedy believed that the future viability of the national transportation system required major regulatory and promotional changes. His suggestions were subsequently incorporated into legislation and submitted to Congress. In the hearings that followed, many of his recommendations met with resistance strong enough to kill the legislation in committee. Nevertheless, several of Kennedy's recommendations, particularly those related to expansion of the user-charge concept (that those who use the airways and airlines should bear the costs for the service received) were reflected in subsequent statutes.

In 1966, President Lyndon Baines Johnson also chose to deliver a special transportation message to Congress. Departing from Kennedy's economic regulatory theme, Johnson focused instead on the need for coordination of the national transportation system, reorganization of transportation planning activities, and active promotion of safety.

In his address, President Johnson contended that the U.S. transportation system lacked true coordination and that this resulted in inefficiency. He advocated creation of a federal Department of Transportation (DOT) to promote coordination of existing federal programs and to act as a focal point for future research and development efforts in transportation. The new agency would also become actively involved in transportation policy review and critique, although the economic regulatory functions of the Interstate Commerce Commission (ICC), Civil Aeronautics Board (CAB), and Federal Maritime Commission were to be unaffected. This was not a new proposal. In fact, a cabinet-level transportation agency had first been proposed in 1870. Another major focus of President Johnson's remarks was transportation safety. He suggested creation of a National Transportation Safety Board to investigate major accidents and to make relevant recommendations to the appropriate federal bodies. The board was to be placed under the auspices of the secretary of transportation yet remain independent of DOT operating units. In another

¹See Roy J. Sampson and Martin T. Farris, *Domestic Transportation: Practice, Theory, and Policy,* 3rd ed. (Boston: Houghton Mifflin, 1975), p. 486.

safety matter, Johnson called for establishment of a new highway safety program to be administered by the DOT.

Other recommendations contained in the Johnson message dealt with a broad range of topics, including development of supersonic aircraft, control of aircraft noise, and research and development involving high-speed ground transportation.

THE DEPARTMENT OF TRANSPORTATION

Congressional hearings were held on several bills involving most of President Johnson's recommendations. Although some opposition was expressed to specific proposals, there was general support for creation of the Department of Transportation. The legislation creating the agency was approved in October 1966. The DOT commenced operations on April 1, 1967, and Alan S. Boyd was appointed the first secretary of transportation.

The objectives that Congress set for the organization were stated in the act that created the DOT:

To assure the coordinated, effective administration of the transportation programs of the Federal government; to facilitate the development and improvement of coordinated transportation service, to be provided by private enterprise to the maximum extent feasible; to encourage cooperation of Federal, State, and local governments, carriers, labor, and other interested parties toward the achievement of national transportation objectives; to stimulate technological advances in transportation; to provide general leadership; to develop and recommend to the President and Congress for approval national transportation policies and programs to accomplish these objectives with full and appropriate consideration of the needs of the public, users, carriers, industry, labor, and the national defense.

The secretary of transportation is a cabinet member appointed by the president with the advice and consent of the Senate. The secretary reports directly to Congress.

Figure 3-1 illustrates the organization of the DOT, including its main components. The department has more than 70,000 full-time, permanent employees and maintains more than 3,000 field offices in the United States and foreign countries. The secretary of transportation oversees and coordinates the activities of 10 administrations within the department.

The Federal Aviation Administration

Chief among the day-to-day operations of the Federal Aviation Administration (FAA) is promotion of aviation safety while ensuring efficient use of the nation's navigable airspace. (See the more detailed description of FAA activities later in this chapter.)

The FAA carries out its responsibilities in aviation safety by doing the following:

- 1. Issuing and enforcing safety rules and regulations
- 2. Certificating "aviators," aircraft, aircraft components, air agencies, and airports
- 3. Conducting aviation safety-related research and development
- 4. Managing and operating the national airspace system



FIGURE 3-1 Organization of the U.S. Department of Transportation.

There are over 580,000 active FAA-licensed pilots, including more than 100,000 student pilots; in addition, the FAA issues licenses for approximately 60,000 other pilots annually.

The FAA operates and maintains 24 air route traffic control centers, 684 airport traffic control towers, 135 flight service stations, 3 international flight service stations, 1,041 VHF Omnidirectional Range (VOR), 1,344 nondirectional beacons, 310 airport surveillance radars, and 1,231 instrument landing systems. It also has a technical center in Atlantic City, New Jersey, where new aeronautical equipment is tested, and a training academy in Oklahoma City.

Of the 19,200 airports in the United States, about 5,000 are publicly owned. Of these, 850 serve both airline and general aviation activity. The remainder primarily serve general aviation.

The FAA also reviews blueprints and specifications of all new aircraft designs and certifies their fitness to fly after extensive ground and air tests.

The Federal Highway Administration

Approximately one out of two people in the United States old enough to drive owns an automobile today, and approximately four out of five have driver's licenses. When they drive, they use the finest, most extensive system of streets and highways in the world.

Most of these roads, including the limited-access interstate system, were built with assistance from the Federal Highway Administration (FHA). Federal-aid highways make up a network of some 900,000 miles and carry about two-thirds of the nation's motor vehicle traffic.

The FHA is responsible for administering the federal-aid program with the states and for working with them in planning, developing, and coordinating federal-aid construction of primary, secondary, urban, and interstate roads. It also regulates and enforces federal requirements for the safety of trucks and buses engaged in interstate or foreign commerce and governs the safe movement over the nation's highways of such hazardous cargoes as explosives, flammable materials, and toxic substances.

The agency also works with the U.S. Forest Service, the National Park Service, and other federal agencies in designing and building principal roads in national forests, parks, and Native American reservations and assists foreign governments in the various phases of highway engineering and administration.

The organization of the FHA extends from its headquarters in Washington, D.C., to encompass a broad regional and field structure. The field organization consists of nine regions, each of whose regional headquarters office oversees a geographic group of states. In addition, an operating division office is located in each state (usually in the state capital), the District of Columbia, and Puerto Rico.

The Maritime Administration

The Maritime Administration (MARAD) became an operating unit of the DOT on August 6, 1981. Like its predecessor agencies dating back to the creation of the U.S. Shipping Board in 1916, the MARAD is responsible for developing and maintaining a merchant marine capable of meeting U.S. requirements for both commercial trade and national defense. This dual government role supports the principle that a well-balanced merchant marine

and maritime industry is vital to U.S. seapower and contributes to the nation's economic strength and security.

To accomplish its objectives, the MARAD performs these functions:

- 1. Administers financial aid programs to assist U.S. shipbuilders and ship operators
- 2. Sponsors research and development programs to enhance the maritime industry's productivity and competitiveness
- 3. Develops promotional and marketing programs to generate shipper support for U.S.-flag vessels engaged in foreign trade
- 4. Promotes the domestic shipping industry and U.S. port development
- 5. Trains ships' officers at the U.S. Merchant Marine Academy at Kings Point, New York, and provides support to state maritime schools
- 6. Negotiates bilateral maritime agreements and participates in international maritime forums
- 7. Maintains the National Defense Reserve Fleet for timely deployment in national emergencies

The St. Lawrence Seaway Development Corporation

With the Atlantic Ocean at one end and the Great Lakes at the other, the St. Lawrence Seaway provides a 2,300-mile staircase, carrying ships from sea level to an elevation of 600 feet through an intricate series of locks and dams. The seaway is operated jointly by the U.S. St. Lawrence Seaway Development Corporation and the Canadian St. Lawrence Seaway Authority.

The St. Lawrence Seaway Development Corporation was created by legislation in 1954 to construct the U.S. facilities of the St. Lawrence Seaway navigation project. Since 1959, when the seaway was opened to deep-draft navigation, the Seaway Corporation has been charged with the operation and maintenance of that part of the seaway between Montreal and Lake Erie within U.S. territorial limits and with development of the full seaway system from the western tip of Lake Superior to the Atlantic Ocean—a distance of 2,300 miles.

All operations, maintenance, and capital improvement costs are paid from revenues obtained from tolls charged to vessels that pass through the Montreal–Lake Ontario section of the seaway. The U.S. share of these tolls is 29 percent. Seaway Corporation offices are located in Washington, D.C., and Massena, New York. The two U.S. seaway locks, which are named after President Dwight D. Eisenhower and Congressman Bertrand H. Snell, are located on the St. Lawrence River near Massena.

Bulk cargoes represent the largest percentage of the seaway's traffic volume, and among these, grains and iron ore predominate. Export coal from the United States, however, is a rapidly growing bulk cargo. Iron and steel compose most of the seaway's general cargo traffic. In recent years, the number of commercial vessels moving through the Seaway Corporation's locks have averaged 4,500 annually, and they carry over 50 million tons of cargo. A large number of recreational boats also travel through the seaway each year. The

normal shipping season runs from early April through mid-December, when the seaway freezes over. The Seaway Corporation has approximately 170 employees, most of whom work in Massena.

The Federal Transit Administration

Mass transportation is more than just buses and subways. It includes streetcars, ferries, carpools, and commuter trains. And it is vital to millions of people who use this means of travel to get to work, shop, or obtain essential services.

The Federal Transit Administration (FTA) encourages planning and establishment of areawide urban transportation systems and provides assistance to state and local governments in financing such systems. It helps develop improved mass transportation facilities and provides financial assistance for equipment. A large part of its work is in developing new techniques and methods to be used in the mass transportation field.

Urban transportation investments by the federal government began on a modest level in 1961. All major elements of the mass transportation programs were transferred to the DOT and the Urban Mass Transportation Administration (UMTA) in 1968.

Since 1970, urban mass transportation assistance has been significantly expanded. New legislation passed in Congress in 1978 established a \$16.4 billion grant-and-loan program for public transit capital and operating assistance and small urban and rural programs through 1982. A discretionary capital grant program was authorized through 1990. The Intermodal Surface Transportation Efficiency Act of 1991 renamed the Urban Mass Transportation Administration as the Federal Transit Administration.

Since the capital assistance programs began, more than 5,400 new rail cars, 43,000 new buses, and 18 ferry boats have been purchased by hundreds of local transit authorities and systems. Many other capital investments have also been made in renovated facilities and equipment. All of these programs have helped improve the mobility of citizens, conserve energy, reduce traffic congestion, and improve the nation's environment.

The United States Coast Guard

Created by Alexander Hamilton in 1790 to apprehend smugglers, the United States Coast Guard over the years has seen its role and mission expand tremendously. Coast Guard personnel go out on more than 70,000 search-and-rescue missions each year and save hundreds of lives, and they have become world famous for their life-saving skills.

But the Coast Guard's assignments are many. It patrols for oil spills, inspects ships for safety defects, enforces fishing laws, operates the nation's only fleet of icebreakers, and plays a vital role in law enforcement by interdicting drug smugglers attempting to enter the country by sea. It also plays a continuing role in intercepting illegal immigrants who try to reach this country by ship. In addition, the Coast Guard operates a worldwide marine navigation system and guards the nation's ports against sabotage, subversive acts, accidents, and other threats.

An important task for the Coast Guard is boating safety, which benefits the hundreds of thousands of recreational boaters in this country. It operates a national boating safety program that encompasses research and development of safer boating practices and equipment, enforces boating safety standards, and conducts a vast educational program on safety practices for the boating public.

The Coast Guard Auxiliary, a volunteer organization of civilians, assists in the boating safety program.

The National Highway Traffic Safety Administration

The National Highway Traffic Safety Administration is the agency within the DOT responsible for reducing highway accidents and the deaths and injuries that result from them. The agency carries out its congressional mandate by working to improve the safety characteristics of motor vehicles and conducting a national safety program in cooperation with state and local governments, industry, and private safety organizations.

The agency, created by Congress in 1966, is authorized to issue motor vehicle safety standards based on specified levels of performance and to investigate possible safety defects in vehicles and to direct their recall and repair without cost to consumers.

In its highway safety activities, the agency has identified six types of state and local safety programs that are most effective in reducing accidents alcohol countermeasures, police traffic services, occupant protection, traffic records, emergency medical services, and safety construction on and improvements to existing roads. The alcohol countermeasures program, which seeks to get drunk drivers off the roads, and a nationwide effort to induce motorists to wear their safety belts are currently the two top-priority programs of the agency.

The Federal Railroad Administration

The Federal Railroad Administration (FRA) ensures that the nation has a safe, efficient, and progressive railroad network. The FRA issues standards and regulations to enhance railroad safety and conducts safety research and development. It also fosters growth of an efficient and economically viable system for movement of freight throughout the country.

Since its beginning in 1967, the agency also has provided major policy guidance for the DOT on legislative matters affecting rail transportation. The FRA helped guide through Congress legislation establishing the quasi-public corporation Amtrak to manage and operate intercity rail passenger service. Under provisions of the Northeast Rail Service Act of 1981, Amtrak is now engaged in carrying commuter rail passengers.

Under the Railroad Revitalization and Regulatory Reform Act of 1976, the FRA assists railroads that are unable to obtain necessary funds for track and equipment rehabilitation in the private capital market. The FRA also has the authority to provide assistance to states to enable them to maintain local rail freight service. Currently, the FRA is reducing the size of these two programs to reflect the railroad industry's lessened need for federal assistance.

The Research and Special Programs Administration

Established in 1977, the Research and Special Programs Administration (RSPA) coordinates federal involvement in transportation issues transcending the separate modes of transportation. The RSPA is responsible for a number of programs involving safety regulation, emergency preparedness, and research and development. Emphasis is

given to hazardous material transportation and pipeline safety, transportation emergency preparedness, safety training, and multimodal transportation research and development activities, including programs with the university community.

The Bureau of Transportation Statistics

Established in late 1992 under the Intermodal Surface Transportation Efficiency Act of 1991, the Bureau of Transportation Statistics (BTS) is the newest operating administration of the DOT. The BTS compiles and publishes statistics on all transportation modes, conducting long-term data collection programs and identifying the need for transportation data. Annually the BTS also issues the Transportation Statistics Annual Report, in which it summarizes the state of the U.S. transportation system.

THE FEDERAL AVIATION ADMINISTRATION

Now an operating arm of the Department of Transportation, the Federal Aviation Administration traces its ancestry back to the Air Commerce Act of 1926, which led to the establishment of the Aeronautics Branch (later reorganized as the Bureau of Air Commerce) in the Department of Commerce, with authority to certificate pilots and aircraft, develop air navigation facilities, promote flying safety, and issue flight information (see Chapter 2). The government acted just in time. In May 1927, Charles Lindbergh bridged the North Atlantic in 33 hours, generating new interest and enthusiasm for aviation in both Europe and the United States.

Aviation continued to grow and expand at a very rapid rate in the decade after Lindbergh's historic flight, creating a need for new machinery to regulate civil flying. The result was the Civil Aeronautics Act of 1938, which established the independent Civil Aeronautics Authority with responsibilities in both the safety and economic areas. In 1940, the machinery was readjusted, and the powers previously vested in the Civil Aeronautics Authority were assigned to a new Civil Aeronautics Administration (CAA), which was placed under an assistant secretary in the Department of Commerce, and to the semi-independent Civil Aeronautics Board (CAB), which had administrative ties with the Department of Commerce but reported directly to Congress.

The CAA performed yeoman service during World War II but proved unequal to the task of managing the airways in the postwar years because of the tremendous surge in civil air traffic and the introduction of new high-performance aircraft. In 1958, the same year jets entered commercial service, Congress passed the Federal Aviation Act, which created the independent Federal Aviation Agency with broad new authority to regulate civil aviation and provide for the safe and efficient utilization of the nation's airspace.

In April 1967, the Federal Aviation Agency became the Federal Aviation Administration and was incorporated into the new DOT, which had been established to give unity and direction to a coordinated national transportation system. The FAA's basic responsibilities remain unchanged, however. While working with other administrations in the DOT in long-range transportation planning, the FAA continues to concern itself primarily with the promotion and regulation of civil aviation to ensure safe and orderly growth. Figure 3-2 shows the organizational chart for the Federal Aviation Administration.



FIGURE 3-2 Organization of the Federal Aviation Administration.



Major Responsibilities

Air Traffic Control. One of the FAA's principal responsibilities is the operation and maintenance of the world's largest and most advanced air traffic control and air navigation system. Almost half the agency's work force of more than 52,000 people are engaged in some phase of air traffic control. They staff 400 airport control towers, 24 air route traffic control centers, and 91 flight service stations. The FAA also employs 12,000 technicians and engineers to install and maintain the various components of this system, such as radar, communications sites, and ground navigation aids. The FAA operates its own fleet of specially equipped aircraft to check the accuracy of this equipment from the air.

Almost all airline flights and many general aviation flights operate under **instrument flight rules (IFR)** regardless of weather conditions. This means that they are followed from takeoff to touchdown by air traffic control to ensure that each flies in its own reserved block of airspace, safely separated from all other air traffic in the system.

A typical transcontinental flight from Los Angeles to New York, for example, involves almost a dozen air traffic control facilities. From the air traffic control tower at Los Angeles International Airport, the flight is transferred, or "handed off," first to the terminal radar control room and then to the air route traffic control center at Palmdale, California. The Salt Lake City center takes control next, and depending on the route, it may be followed by the Denver, Kansas City, Chicago, Cleveland, and New York centers. Approximately 30 miles from John F. Kennedy International Airport, the flight is handed off to the radar approach control facility serving all New York airports and, finally, to the JFK air traffic control tower, which issues final landing instructions. Only when the aircraft is safely on the ground and has taxied clear of other traffic does the FAA's responsibility for the safety of the passengers and crew on that particular flight end.

When weather conditions permit, many general aviation pilots follow **visual flight rules** (VFR), which means they maintain separation from other aircraft on a "see and avoid" basis. Although VFR flights essentially are outside the air traffic control system except in busy terminal areas, they must follow well-established rules designed to maximize the safety of such operations. VFR flight also is banned from certain heavy-use airspace, such as along the jet routes above 18,000 feet.

VFR pilots rely heavily on the FAA's network of 91 flight service stations to obtain preflight and in-flight briefings, weather information, suggested routes, altitudes, and other information important to flight safety. The flight service station also is a friend in need to VFR pilots who are lost or otherwise in trouble. In addition, these facilities will initiate search-and-rescue operations when a VFR aircraft is overdue at its reporting station or destination airport.

To keep pace with the rapid growth of aviation, the FAA has implemented a computerbased, semiautomated air traffic control system at all of the 20 en route centers that service the contiguous United States and at all major terminal facilities. The system tracks controlled flights automatically and tags each aircraft with a small block of information written electronically on the radar scopes used by controllers. Included in this data block are aircraft identity and altitude, information that previously had to be acquired by voice communications, thereby imposing a burden on both pilots and controllers, contributing to radio frequency congestion and providing the possibility of human error.

Similar automated radar systems, tailored to the varied traffic demands of terminal locations, already have been installed and are operational at more than 60 large- and medium-hub airports. Another 80 systems have been installed at airports in the small-hub category.

FAA plans call for the en route and terminal systems to be tied together nationwide in a common network for the exchange of data. The capabilities of the automated system also are being upgraded to include additional air traffic management functions, such as automatic prediction and resolution of air traffic conflicts, metering and spacing of en route aircraft, and flow control of aircraft in the terminal area.

Aircraft and Aviator Certification. No air traffic control system, no matter how automated, can function safely and efficiently unless the people and machines using the system measure up to certain prescribed standards. The FAA therefore has been charged with responsibility for establishing and enforcing standards relevant to the training and testing of aviators and the manufacture and continued airworthiness of aircraft.

There are almost 180,000 civil aircraft in the United States, and the FAA requires that each be certificated, or licensed, as airworthy by the agency. Both the original design and each subsequent aircraft constructed from that design must be approved by FAA inspectors. Even home-built aircraft require FAA certification.

In the case of new transport airplanes, such as the new breed of fuel-efficient jets (Boeing 777 and 787, Airbus A380 and A350), the certification process may take years. The FAA's involvement begins when the aircraft is still in the blueprint stage. FAA aeronautical engineers work side by side with factory engineers throughout the entire building process, checking on the progress of the numerous components, such as the fuselage, wings, landing gear, and tail surfaces, to ensure quality of workmanship and conformity to an approved design. The same watchfulness is exercised over the design and manufacture of aircraft engines, propellers, and instruments.

When the new aircraft prototype is finished, it must pass an extensive series of ground and flight tests. If all goes well, the airplane receives a **type certificate** to show that it meets FAA standards of construction and performance. This is followed by the issuance of a **production certificate** to the manufacturer when its capability of duplicating the type design has been established. Finally, each airplane off the line receives an **airworthiness certificate** attesting to the fact that it conforms to the type certificate and is safe to fly.

Small aircraft get the same close attention during design, construction, testing, and production as do big ones. Some factories do a sufficient volume of business to require FAA inspectors on the job full-time; others may not, but the inspection procedures are identical, and FAA inspectors personally make final checks.

Once an aircraft starts flying, the FAA is concerned that it remain airworthy. Therefore, the FAA approves airline maintenance programs, setting the times for periodic inspections and overhauls of various aircraft components such as engines, propellers, instruments, and communications and flight systems. The FAA also certifies repair stations that perform the required maintenance checks and the needed repairs and alterations on general aviation aircraft—those flown by businesspersons, commercial and industrial operators, air taxi operators, and private individuals. All of these facilities are checked at regular intervals by FAA inspectors.

The end result of all these efforts is reflected in statistics that show that mechanical or structural defects account for only a relatively small percentage of aviation accidents. The key element in the safety equation is still the human one. For this reason, the FAA requires that everyone directly involved in the operation, maintenance, and direction of airplanes have a valid certificate from the agency with appropriate ratings. Included are pilots, flight engineers, navigators, aviation mechanics, air traffic controllers, aircraft dispatchers, and

parachute riggers. In addition, the FAA certifies both pilot and mechanic schools and the instructors who teach in these institutions.

Airport Aid and Certification. One of the FAA's most significant efforts is aimed at expanding and modernizing the nation's airport facilities to meet projected traffic demands. The agency was given broad power to pursue this objective by the Airport and Airway Development Act of 1970, which replaced the Federal Airport Act of 1946 and established both the Airport Development Aid Program (ADAP) and the Planning Grant Program (PGP). The act expired at the end of fiscal 1980, and appropriations have been made on an annual basis since then.

Although the present airport system in the United States includes some 18,200 facilities, only one-third of these are publicly owned. The rest are in private hands, and the majority are closed to the public.

Under the ADAP, the FAA was authorized to allocate funds for airport improvement and construction projects. During this 10-year program, the agency allocated more development money than it did during the entire 26-year history of the previous Federal Aid Airport Program. Funds were allocated on a cost-sharing basis for such projects as acquisition of land; construction of runways, taxiways, and aprons; purchase of fire and crash-rescue equipment; and installation of lighting and navigation and landing aids.

The purpose of the PGP was to promote the orderly and timely development of the nation's airport system by assisting state and local authorities in identifying present and future air transportation requirements. Grants were made for two types of planning projects: (1) preparation of master plans at individual airports and (2) development of statewide or regional airport system plans. The FAA paid three-fourths of the cost of a planning project, with the local agency contributing the remainder.

The Airport and Airway Development Act of 1970 also authorized the FAA to issue operating certificates to airports receiving service to ensure their safe operation. In keeping with this directive, the agency subsequently adopted new regulations that set safety standards in 18 areas, including the availability of firefighting and rescue equipment, reduction of bird hazards, marking and lighting of runways and taxiways, handling and storage of dangerous materials, and marking and lighting of obstructions.

The first phase of the certification program was limited to the approximately 500 airports that receive regularly scheduled service by certificated air carriers using large aircraft and account for 96 percent of all airline passenger enplanements in the United States. The FAA completed certification of these airports in May 1973. The second phase involved those airports serving certificated air carriers that conduct operations on an irregular or unscheduled basis or operations with small aircraft. FAA operating certificates had been issued to more than 700 airports by the end of 1980. The FAA also assists airport owners in designing, constructing, and maintaining airports in keeping with aviation requirements, national safety standards, and state-of-the-art design and engineering technology. This is accomplished by the issuance of standards, published in the form of advisory circulars, that are mandatory for grant recipients and have worldwide acceptance as technical advisory documents. Advisory circulars cover such areas as airport paving, drainage, and lighting, and runway, taxiway, and apron design.

Environmental Protection. In addition to safety, the FAA also has important responsibilities to make airplanes compatible with the environment by controlling noise and engine emissions. The agency considers these efforts of critical importance in ensuring the future growth and development of civil aviation in the United States.

Significant progress has already been made since the introduction of wide-body jets, such as the Boeing 747, the DC-10, and the Lockheed 1011, in the early 1970s. Although the engines that power these aircraft generate 2.5 times the thrust of any engine previously used in commercial service, they are only about half as loud as their predecessors. In addition, they are virtually smoke-free.

The FAA also has initiated regulatory action designed to quiet older jets presently in service by requiring that they either be modified with noise suppression devices or phased out of service. In addition, engine noise standards have been developed for the new generation of aircraft and the supersonic transports.

Civil Aviation Security Program. Another major FAA responsibility is the Civil Aviation Security Program. Efforts in this area are aimed at preventing or deterring such criminal acts as air piracy, sabotage, extortion, and other crimes that could adversely affect aviation safety. Key elements of the program include required screening of all enplaning airline passengers and a search of their carry-on baggage. A law enforcement officer also must be present at each screening station during the boarding process. In addition, airport operators are required to establish a security system that will keep unauthorized persons from gaining access to air operations areas.

Implementation of these regulations in early 1973 and negotiation of an agreement with the Cuban government on the disposition of hijackers at about the same time produced a dramatic turnaround in the hijacking situation. After averaging almost 30 per year from 1968 to 1972, the number of hijacking attempts dropped to 5 in 1977 and has remained at around that number ever since.

Civil aviation security was strengthened further in August 1974 when Congress passed the Anti-Hijacking Act of 1974, which gave statutory force to the FAA's security regulations. And in July 1978, the industrialized nations of the world agreed at a summit meeting in Bonn, Germany, to act together to cut off all air service to and from countries that refuse to extradite or prosecute aircraft hijackers. In addition, the secretary of transportation is authorized to act against foreign carriers operating in the United States that do not meet minimum security standards.

Engineering and Development. The FAA supports all of its safety, security, and environmental programs with extensive engineering and development (E & D) projects, conducted in part through contracts with industry, other government agencies, and universities. Much of the E & D work, however, is done in-house at the FAA technical center in Atlantic City, New Jersey, and the transportation systems center in Cambridge, Massachusetts. Aeromedical research is done at the FAA's Civil Aeromedical Institute in Oklahoma City.

A continuing priority of the agency's E & D work is further automation of the air traffic control system to help controllers keep aircraft safely separated as air traffic increases. Warning systems, for instance, have been added to the automated systems at the busiest air traffic facilities to alert controllers when aircraft under their control are dangerously close to the ground or to one another. Work is under way to develop other computer systems

that will assist controllers in handling higher traffic loads with increased efficiency and safety.

The FAA has also developed **collision avoidance systems** that operate independently of the air traffic control system but are compatible with it. These electronic devices warn pilots directly of potential conflicts with other aircraft and show how to avoid them. The first of these systems, designed for use in en route airspace and at airports with light to moderate traffic, were in operation by 1981. The FAA continues to develop and test more sophisticated collision avoidance systems for effective operation in congested airspace.

An important element in an effective collision avoidance system for high-use airspace is the discrete address beacon system (DABS), which is being developed by the FAA to upgrade the present air traffic control radar beacon surveillance system. Essentially, DABS is an improved transponder, but it will provide a data link for use with a groundbased anticollision system. It will also be the basis for other system improvements, such as automatic metering and spacing to improve the flow of traffic and automatic weather reporting.

Supplying pilots with accurate and timely weather information, particularly in hazardous weather, is another major E & D program goal. Among the efforts under way to achieve this safety goal are the development and demonstration of automated weather observation systems for airports without control towers, testing of a wake vortex advisory system that warns pilots of potentially dangerous air turbulence in approach and departure paths, and low-level wind shear alert systems to help pilots cope with wind shear during the critical stages of approach and landing. In addition to enhancing safety, these weather systems will help reduce delays and conserve fuel and will enable more efficient use of airport capacity.

The FAA also has an extensive aeromedical research program to explore the human factors that affect the safety and advancement of civil aviation. Current research efforts include studies of crash impact and survival, the toxic hazards of burning cabin materials after a crash, and the effect of aging and stress on pilots' performance.

In addition, the FAA conducts a comprehensive health program for more than 24,000 air traffic control specialists. The program provides a complete annual physical examination and certain laboratory procedures to determine whether controllers are fit to perform their demanding duties and to preserve their usefulness by early detection of correctable diseases.

Other FAA Activities

Because the United States is the recognized world leader in aviation, the FAA has a vital role to play in international aviation matters. For example, in cooperation with the State Department's Agency for International Development, it sends civil aviation assistance groups abroad to provide technical aid to other nations. The FAA also trains hundreds of foreign nationals every year at the Mike Monroney Aeronautical Center in Oklahoma City.

The FAA also works with the International Civil Aviation Organization (ICAO) in establishing worldwide safety and security standards and procedures, provides technical advice on the export and import of aviation products, and handles certification of foreignmade aircraft engines and parts under the terms of bilateral airworthiness agreements.

The FAA also participates with the National Transportation Safety Board (NTSB) in the investigation of major aircraft accidents to determine if any

immediate action is needed to correct deficiencies and prevent a recurrence. In addition, the agency investigates most nonfatal and many fatal general aviation accidents on behalf of the NTSB, although the responsibility for determining probable cause remains with the board. The FAA also operates a public-use airport at its technical center outside Atlantic City, New Jersey.

THE TRANSPORTATION SECURITY ADMINISTRATION

On November 19, 2001, President George W. Bush signed into law the Aviation and Transportation Security Act, which among other things established a new Transportation Security Administration (TSA) within the Department of Transportation headed by the undersecretary of transportation for security. In March 2003, the TSA was moved to the Department of Homeland Security. This act was implemented to achieve a secure air travel system and was formed as a result of the tragic events of September 11, 2001. For the first time in U.S. aviation history, airport security became a direct federal responsibility. The TSA protects the nation's transportation systems to ensure freedom of movement for people and commerce by setting the standard for excellence in transportation security through its people, processes, and technologies.

The TSA is responsible for federal security screening operations for passenger air transportation and intelligence information related to transportation security; managing and carrying out program and regulatory activities; discovering, preventing, and dealing with threats to transportation security; research and development activities related to enhancing transportation security; coordinating intermodal transportation security, including aviation, rail, other surface transportation, and maritime transportation; and overseeing most transportation-related responsibilities of the federal government during a national emergency.

The TSA issues and administers Transportation Security Regulations (TSR), which were formerly rules of the FAA. These rules were transferred to the TSA when the TSA assumed control of the FAA's civil aviation security function on February 17, 2002. The general contents of the TSR cover the responsibilities of the undersecretary of transportation for security, investigative and enforcement procedures, passenger civil aviation security service fees, aviation security infrastructure fees, protection of sensitive security information, civil aviation security, airport security, aircraft operator security (air carriers and commercial operators), foreign air carrier security, indirect air carrier security, and aircraft security under general operating and flight rules.

THE NATIONAL TRANSPORTATION SAFETY BOARD

Created by the Department of Transportation Act of 1966, the NTSB officially came into being by executive order on April 1, 1967. Actually, it was on May 2 that the first fivemember board, appointed by the president with the advice and consent of the Senate, was sworn into office.

The board was to be independent in its operations, but for housekeeping purposes, it was made a part of the new Department of Transportation. Nearly eight years later, the Transportation Safety Act of 1974 established the board as an entirely independent agency and broadened the board's statutory mandate for investigation of certain surface



FIGURE 3-3 Organization of the National Transportation Safety Board.

transportation accidents. The new act also strengthened the NTSB's position in pressing for action by the DOT on board safety recommendations. The secretary of transportation was required to respond, in writing, within 90 days of each recommendation to the DOT and to give detailed reasons whenever the DOT rejected a recommendation. The NTSB, in turn, instituted a formal procedure for monitoring responses to recommendations and for evaluating them.

In 1982, the 1974 legislation was amended to give the NTSB "priority over all other investigations-... by other Federal agencies" in surface transportation cases. Provision was made for participation of other agencies in board investigations, and the board's rights to examine physical evidence were extended specifically to "any vehicle, rolling stock, track, or pipeline component" involved in an accident. Figure 3-3 shows the organizational chart for the NTSB.

The board is composed of five members appointed by the president and confirmed by the Senate, two of whom are designated by the president for two-year terms to serve as chair and vice-chair. The full term of a member is five years. The board's headquarters are in Washington, D.C., and field offices are located in Anchorage, Atlanta, Chicago, Denver, Fort Worth, Los Angeles, Miami, Kansas City, New York City, and Seattle.



Scope and Responsibilities

The NTSB is required to determine the probable cause of the following:

- 1. Civil aviation accidents
- 2. Highway accidents selected in cooperation with the states
- 3. All passenger train accidents, any fatal railroad accident, and any railroad accident involving substantial damage
- 4. Major marine accidents and any marine accident involving a public and a nonpublic vessel
- 5. Pipeline accidents involving a fatality or substantial property damage

Under the Transportation Safety Act of 1974, the board is required to take these actions:

- 1. Conduct special studies on safety problems
- 2. Evaluate the effectiveness of government agencies involved in transportation safety
- 3. Evaluate the safeguards used in the transportation of hazardous materials

4. Review appeals from aviators and merchant sailors whose certificates have been revoked or suspended

Safety Board Publications. The board's Public Inquiries Section maintains a public docket at its headquarters in Washington, D.C. The docket contains the records of all board investigations, all safety recommendations, and all safety enforcement proceedings. These records are available to the public and may be copied, reviewed, or duplicated for public use. The board makes public all of its actions and decisions in the form of accident reports, special studies, safety effectiveness evaluations, statistical reviews, safety recommendations, and press releases.

Aviation Safety. Aviation is the largest of the NTSB's divisions. The board investigates hundreds of accidents annually, including all air carrier accidents, all in-flight collisions, fatal general aviation accidents, and all air taxi commuter accidents. The major share of the board's air safety recommendations are directed to the FAA. The recommendations have resulted in a wide range of safety improvements in areas such as pilot training, aircraft maintenance and design, air traffic control procedures, and survival equipment requirements. The board also is empowered to conduct special studies of transportation safety problems, widening the focus on a single accident investigation to examine a safety problem from a broader perspective. In the past, for example, the board has conducted special studies in the areas of weather, crash worthiness, in-flight collisions, and commuter airlines.

In 1967, the NTSB inherited the entire Bureau of Safety of the Civil Aeronautics Board, a professional staff with a history of more than 50 years of pioneering work in civil aviation accident investigation. Its go-team organization and its emphasis on specialized study of all facets of an accident had been recognized for its excellence and emulated throughout the world.

In the NTSB's 35-year history, airline safety has improved steadily. In 1967, the airline fatal accident rate was 0.006 per million aircraft miles flown. By 1980, it was down to 0.001 per million miles, a reduction of 83 percent. And on January 1, 1982, U.S. airlines completed 26 months without a catastrophic crash of a pure-jet transport; never before had there been two calendar years without such an accident. The airlines flew more than a half-billion passengers on over 10 million flights in that 26-month period—more than a half-trillion passenger miles. The aerial transportation involved would have taken every man, woman, and child in the country on a flight of more than 2,000 miles.

In 1985, there were four fatal accidents, including two by the major carriers, ending the downward trend in accident rates. The fatal accident rate declined during the late 1980s, reaching another low of 0.023 per 100,000 departures by year-end 2005. The chance of a passenger on a major carrier being involved in a fatal accident is still about 1 in 3 million.

Steps Involved in a Major Accident Investigation

In the event of a major accident, the NTSB follows clearly delineated procedures, as outlined here.

1. *The go-team.* One of the more publicly visible aspects of a major NTSB accident investigation is the board's use of the **go-team** concept. The go-team, which is on

24-hour alert, is a group of board personnel whose members possess a wide range of accident investigation skills. In aviation, for example, a go-team roster could include one of the five members of the safety board, an air traffic control specialist, and experts trained in witness interrogation, aircraft operations, and aircraft maintenance records. In the case of a railroad accident, the go-team is similar, but the specialties vary, typically consisting of track engineers, locomotive and signal experts, and operations specialists. Some go-team members are intermodal in that their area of expertise is applicable to each transportation mode. Human-factors experts fall into this category, as do the board's metallurgists, meteorologists, and hazardous materials experts.

- 2. *At the site.* The length of time a go-team remains on the accident site varies with need, but generally a team completes its work in 7–10 days. However, accident investigations often can require off-site engineering studies or laboratory tests that may extend the fact-finding stage.
- 3. *In the laboratory.* The NTSB operates its own technical laboratory to support investigators in the field with unbiased analysis. For example, the laboratory has the capability to read out aircraft cockpit voice recorders (CVRs) and decipher flight data recorders (FDRs). These so-called black boxes provide investigators with a profile of an aircraft during the often crucial last minutes of flight. But the board's readout capability is not confined to aviation. Similar techniques are applied to marine course recorders taken from ships involved in accidents. Metallurgy is another of the laboratory's skills. Board metallurgists perform postaccident analyses of wreckage parts ranging from aircraft components to railroad tracks. The laboratory is capable of determining whether failures resulted from inadequate design strength, excessive loading, or deterioration in static strength due to metal fatigue or corrosion.
- The safety recommendation. The safety recommendation is the NTSB's end 4. product. Nothing takes a higher priority; nothing is more carefully evaluated. The recommendation is vital to the board's basic role of accident prevention, because it is the lever used to bring changes in procedures and improvements in safety to the nation's transportation system. With human lives involved, timeliness also is an essential part of the recommendation process. As a result, the board issues a safety recommendation as soon as a problem is identified, without necessarily waiting until an investigation is completed and the probable cause of an accident determined. In its mandate to the board, Congress clearly emphasized the importance of the safety recommendation, stating that the board shall "advocate meaningful responses to reduce the likelihood of recurrence of transportation accidents." Each recommendation issued by the board designates the person or the party expected to take action, describes the action the board expects, and clearly states the safety need to be satisfied. To emphasize the importance of the safety recommendation, Congress has required the DOT to respond to each board recommendation within 90 days.
- 5. *The public hearing*. After an accident, the NTSB may decide to hold a public hearing to collect additional information and to air at a public forum the issues involved in an accident. The hearing is presided over by a member of the board, and witnesses testify under oath. Every effort is made to hold the hearing promptly and close to the accident site.

6. *The final report.* With the completion of the fact-finding phase, the accident investigation enters its final stage—analysis of the factual findings. The analysis is conducted at the NTSB's Washington headquarters, and the result is a statement of what the board terms "the probable cause of the accident." The **final report** on the accident is then presented to the full five-member board for discussion and approval at a public meeting in Washington. The entire process, from accident investigation to final report, normally takes several months. Accidents investigated by the board's field investigators are reported in brief format.

MAJOR AVIATION ASSOCIATIONS

Airline-Related Associations

Air Transport Association of America 1301 Pennsylvania Avenue NW Washington, DC 20004 http://www.airlines.org

Founded in 1936, the **Air Transport Association of America (ATA)** is the trade and service organization of the scheduled airlines of the United States. Through the ATA, member airlines pool their technical and operational knowledge to form a single, integrated airline system serving thousands of communities nationwide.

Of all ATA activities, safety is foremost. Other objectives include the improvement of passenger and cargo traffic procedures, economic and technical research, and action on legislation affecting the industry. Planning the airlines' role in augmenting the national defense is another important ATA concern, as are such matters as facilitating the movement of passengers and cargo across international borders, improving the environmental aspects of airline operations, and ensuring the accessibility of the airlines to adequate sources of energy to meet public transportation needs.

The ATA is divided into nine departments: (1) Operations and Airports, (2) Traffic Services, (3) Economics and Finance, (4) International Affairs, (5) Legal, (6) Federal Affairs, (7) Public Affairs, (8) Public Relations, and (9) Office of Enforcement.

The interests and goals of the airlines as an industry are achieved through a system of councils and related committees made up of airline and ATA staff members working together. The committee structure also includes the Air Traffic Conference, whose function is to develop industry standards through intercarrier agreements. These agreements make it possible for a member of the public to walk into the office of virtually any airline or travel agent in any city and buy a ticket that will take him or her to any point served by that airline or any other scheduled airline throughout the world. The same service is available to a person making a shipment by air freight.

Regional Airline Association 1200 19th Street NW Washington, DC 20036 http://www.raa.org

The **Regional Airline Association (RAA),** renamed in 1981 (formerly the Commuter Airline Association of America), represents those airlines engaged in the scheduled air transportation of passengers and cargo primarily in local, feeder, and short-haul markets

throughout the United States and its territories. The RAA is chartered to promote a healthy business climate for the growth of regional and commuter services by working with government, other organizations, and the public on issues affecting the industry. Through cooperation and education, the RAA seeks to foster the development of the industry.

Other Airline Associations

Airline Clearing House 1301 Pennsylvania Avenue NW Washington, DC 20004

The **Airline Clearing House** is a corporation, wholly owned by the larger certificated airlines, through which the interline accounts of airlines, certificated and regional, are settled on a net basis each month. Regional airlines, by participating as associate members, are able to realize all the billing and clearance benefits without the necessity of purchasing stock in the corporation.

Each member air carrier submits a recap sheet on the fifteenth of each month to the Airline Clearing House bank showing accounts due from every other member, covering both passenger and freight. The bank nets these accounts and notifies each airline on the twentieth of the month of their net debit or credit position in the Clearing House. Settlement is made on the twenty-eighth, with penalties levied for failure to pay. Flight coupons and air bills are sent to the appropriate airline for a follow-up audit, with an opportunity for subsequent Clearing House adjustments.

Each participating carrier is requested to maintain an account at the Airline Clearing House bank. The Airline Clearing House performs the clearing functions without charge. The cost of such items as printing, postage, bulletin correspondence, and maintenance of the manual of procedures is nominal. Reimbursement for such costs is billed to all members and associate members on an annual basis. When making application as an associate member, commuter airlines are required to have interline agreements with at least one member or associate member of the Clearing House.

Airline Tariff Publishing Company Dulles International Airport Box 17415 Washington, DC 20041 http://atpco.net

The **Airline Tariff Publishing Company (ATPCO)**, wholly owned by 35 certificated air carriers, is employed by the airlines to publish and distribute fares and cargo rates to the travel industry. ATPCO publications list joint fares tariffs, commuter local fares tariffs, commuter airline cargo local rules and rates, small-package rates, and air cargo memorandum tariffs. ATPCO distributes these tariffs to travel agents, airline rate desks, and other companies in the business.

Air Cargo , Inc. 1819 Bay Ridge Road Annapolis, MD 21403

Air Cargo, Inc. is a service organization owned by the scheduled airlines of the United States. Air Cargo, Inc.'s complete system of airline and air freight services involves three

distinct areas: local air freight pickup and delivery, air and truck and container pickup and delivery, and loading and unloading. Regional airlines may contract for the services of Air Cargo, Inc. as associate members.

Aeronautical Radio, Inc. 2551 Riva Road Annapolis, MD 21401

Aeronautical Radio, **Inc.**, more familiarly known as **ARINC**, is dedicated to serving the communications needs of the air transport community. The company's services, once used almost exclusively by major U.S. airlines, now are employed by a variety of corporations, government agencies, and domestic and foreign carriers ranging in size from major trunks to commuter air carriers. ARINC's services continue to be provided on a not-for-profit basis, as was the case when the company was incorporated in 1929.

ARINC provides such benefits as advanced technology, high-quality service, cost-based charges, and long-standing relationships with the regulatory bodies and the aviation community. ARINC also provides many services.

- 1. *Weather wire service* distributes several forms of weather data to the aviation community. The information includes hourly sequence reports, upper atmospheric wind and temperature data, foreign weather information, and reprints of weather satellite pictures.
- 2. Air/ground domestic service is the original service provided by ARINC. Radio operators stationed in New York, Chicago, and San Francisco control a series of networks of radio stations. Virtually uninterrupted air-ground-air VHF voice communications are provided throughout the contiguous United States. Regular service consists of the exchange of messages between users' aircraft and flight operations or other offices via ARINC operators. In addition, radio-phone patches, permitting direct contact between air and ground personnel, are made via ARINC networks. Messages consist of operational information.
- 3. *Air/ground international service* is similar to air/ground domestic. Voice service is provided outside the contiguous United States through the use of both VHF and HF radio. Messages consist of users' operational information and air traffic control instructions.
- 4. ACARS (ARINC communications addressing and reporting system) is the newest service. Using state-of-the-art technology, special equipment in aircraft automatically collects numerous operational characteristics. Digital messages containing the information are transmitted automatically or on request via the ARINC radio network and message-switching system to the respective ground offices. Currently, a number of domestic trunk and regional airlines use the service.
- 5. *Point-to-point service* is a system of low- and medium-speed dedicated and shared general-purpose communications channels. Links exist between the contiguous United States and centers in Alaska, Hawaii, Puerto Rico, the Caribbean, Central and South America, and the south and west areas of the Pacific Ocean. The channels

connect with the ESS (see the next item). They permit the exchange of messages and operational information between users operating in each of the areas.

- 6. *ESS* (electronic switching system) is one of the largest message-switching services. Over 300 users, including domestic and foreign airlines, hotel and rental car chains, and government agencies are tied together through an extensive network of communications links. A battery of computers, located in Chicago, automatically switch messages between users. Much of the traffic consists of interline reservations.
- 7. *PLIN* (private-line intercity network) is an extensive network of communications links throughout the contiguous United States. ARINC purchases services from telephone companies and other common carriers and is able to provide low-cost foreign exchange lines and private-line telephone and data circuits to all carriers.
- 8. Local-area VHF air/ground communications service incorporates a number of radio stations licensed by ARINC but staffed by the user's personnel. The radio stations are used for the exchange between air crews and ground personnel of such operational information as gate assignments, arrival and departure times, special handling arrangements for passengers, and so forth. This service is made available to users under one of two arrangements:
 - a. *ARINC-owned service* permits users to opt for ARINC-owned, -licensed, -installed, and -maintained radio equipment. ARINC also selects the best frequency for operation.
 - b. *Leased contracts* allow users to own, install, and maintain the equipment. ARINC, as the licensee, handles the administrative activities associated with holding and maintaining FCC licenses for aeronautical en route and local radio stations.
- 9. Supp. svcs (supplemental services) are extensions of basic services provided by ARINC. Special services tailored to individual users' requirements make up this service. Examples include ARINC-owned local VHF radio stations and the terminal devices and connecting circuitry for a user of the ESS network. ARINC provides maintenance service on radio systems, flight information display systems (FIDS), data terminals, multiplex systems, and a variety of other types of electronic equipment. Maintenance can be purchased on a time-and-material basis or at an established rate per month that is subject only to annual review.

Aircraft-Manufacturing Associations

Aerospace Industries Association 1250 Eye Street NW, Ste. 1200 Washington, DC 20005 http://www.aia-aerospace.org

The **Aerospace Industries Association (AIA)** is the national trade association that represents U.S. companies engaged in research, development, and manufacture of such aerospace systems as aircraft, missiles, spacecraft, and space-launch vehicles; propulsion, guidance, and control systems for the flight vehicles; and a variety of airborne and

ground-based equipment essential to the operation of the flight vehicles. A secondary area of industry effort, grouped under the heading "nonaerospace products," consists of a broad range of systems and equipment generally derived from the industry's aerospace technological expertise but intended for applications other than flight.

The AIA functions on national and international levels, representing its membership in a wide range of technological and other relationships with government agencies and the public. To facilitate its work at the national level, the AIA is a member of the Council of Defense and Space Industry Associations (CODSIA), a coordination medium for six industry associations with mutual interests related to federal government procurement policies. In international activities, the AIA cooperates, whenever it is practical, with trade associations in other countries, both individually and through the International Coordinating Council of Aerospace Industry Associations (ICCAIA), an informal body of the world's national aerospace associations. The AIA also serves as secretariat for TC 20, the aircraft/space group of the International Organization for Standardization (ISO).

General Aviation Manufacturers Association 1400 K Street NW Washington, DC 20005 http://www.generalaviation.org

The **General Aviation Manufacturers Association (GAMA)** is an independent trade organization representing 52 U.S. companies that produce over 95 percent of the nation's general aviation aircraft and equipment. The GAMA represents the joint interests of the general aviation sector in Washington and provides insight into the industry's role in the U.S. transportation system.

Aviation Distributors and Manufacturers Association 1900 Arch Street Philadelphia, PA 19103 http://www.adma.org

The **Aviation Distributors and Manufacturers Association (ADMA)** represents distributors and manufacturers of aviation parts, supplies, and equipment in all matters of national importance. The ADMA cooperates with various government agencies, including the FAA, and represents this segment of the industry in all issues relating to federal legislation, regulations, orders, and other government activities. Like the GAMA, it provides a focal point for all other elements in the industry to determine what can be done through industry efforts to make prospective purchasers and the public at large aware of the advantages and usefulness of given aviation products. The ADMA conducts research in connection with operations of members to promote efficiency and economy in the distribution of aviation parts, supplies, and equipment.

General Aviation Associations

National Business Aircraft Association 1200 18th Street NW, Ste. 400 Washington, DC 20036 http://www.nbaa.org The **National Business Aircraft Association (NBAA)** represents more than 4,000 businesses and corporations that generate more than one-third of the gross national product of the United States. Members fly more than 5,500 aircraft in the conduct of business, from single-engine planes and helicopters to intercontinental jets of airliner size. More than half the members own and operate one or more aircraft.

At the national level, the NBAA is concerned with fuel allocation and availability, discrimination in the use of airports and airspace, aircraft noise and the environment, flight service station requirements, weather reporting services, federal taxes for the use of airports and air traffic control system, customs services, and any federal regulation that has a bearing on business aircraft use.

There is no other spokesperson for business aviation before Congress, the DOT, the FAA, the Department of Energy, the IRS, the U.S. Customs Service, or any other federal agency. Staff members interpret business aviation's requirements, accomplishments, and activities; analyze government proposals, rules, and regulations for the effect on members; generate public information programs; and coordinate, when appropriate, with other national aviation associations. As needed, staff members turn to the entire membership for assistance.

Aircraft Owners and Pilots Association 421 Aviation Way Frederick, MD 21701 http://www.aopa.org

The **Aircraft Owners and Pilots Association (AOPA)** represents more than 265,000 members who own or fly general aviation aircraft and fly for personal and business purposes.

The AOPA works closely with the FAA, the DOT, the NTSB, Congress, and other aviation organizations, both local and national, to ensure that the interests of its members and the entire general aviation community are well represented.

Safety in flying has always been of prime concern to the AOPA. By 1950, that area of activity had expanded to the degree that a separate organization, the AOPA Foundation, Inc., was developed to concentrate on aviation safety and educational programs. In 1967, the foundation was redesigned and named the AOPA Air Safety Foundation.

During the 1960s, AOPA's success in effectively representing the general aviation population gained worldwide recognition. Spearheaded by the AOPA, the International Council of Aircraft Owner and Pilot Associations (IAOPA) was formed. The goal was to bring to other nations around the globe the same flying freedom and professional representation that the AOPA obtained in the United States.

Although service to its members remains its primary consideration, the AOPA aggressively pursues the total public acceptance of general aviation.

National Association of State Aviation Officials 8401 Colesville Road, Ste. 505 Silver Spring, MD 20910 http://www.nasao.org

The National Association of State Aviation Officials (NASAO) represents 47 state aviation agencies, as well as Puerto Rico's Aviation Department. Its members are the

aeronautics commissions and departments created under the laws of the various states to foster, develop, and regulate aviation at the local and state levels.

The primary purpose of the NASAO as an association is to foster and encourage cooperation and mutual aid among the states, as well as federal and local governments, in developing both state and national air transportation systems that will be responsive to the needs of all users of aviation. By working to coordinate various state laws, regulations, and programs with those of the federal government, the NASAO seeks to develop operational uniformity among the states and to minimize conflict between and duplication of state and federal efforts in the development of an integrated national air transportation system.

International Aviation Associations

International Civil Aviation Organization Place de L'Aviation Internationale PO Box 400 Montreal, P.Q., Canada H3A2R2 http://www.icao.org

The principal aim of the **International Civil Aviation Organization (ICAO)** is to develop the principles and techniques of international air navigation and to foster the planning and development of international air transportation. The specific goals of the ICAO include the following:

- 1. Ensure the safe and orderly growth of international civil aviation throughout the world
- 2. Encourage the arts of aircraft design and operation for peaceful purposes
- 3. Encourage the development of airways, airports, and air navigation facilities for international civil aviation
- 4. Meet the needs of the peoples of the world for safe, regular, efficient, and economical air transport
- 5. Prevent economic waste caused by unreasonable competition
- 6. Ensure that the rights of contracting states are fully respected and that every contracting state has a fair opportunity to operate international airlines
- 7. Avoid discrimination between contracting states
- 8. Promote safety of flight in international air navigation
- 9. Promote generally the development of all aspects of international civil aeronautics

The ICAO has a sovereign body, the Assembly, composed of 182 countries (contracting states), and a governing body, the Council, made up of 36 contracting states. The Assembly meets at least once every three years and is convened by the Council. Each contracting state is entitled to one vote, and decisions of the Assembly are made by a majority of

the votes cast except where otherwise stipulated in the convention. At this session, the complete work of the organization in the technological, economic, legal, and technical-assistance fields is reviewed in detail, and guidance is given to the other bodies of the ICAO for their future work.

The Council is a permanent body responsible to the Assembly. Contracting states are elected by the Assembly for three-year terms. In the election, adequate representation is given to states of chief importance in air transport. States not otherwise included that make the largest contribution to the provision of facilities for civil air navigation or whose designation will ensure that all the major geographic areas of the world are included also are represented on the Council.

The Council, the Air Navigation Commission, the Air Transport Committee, the Committee on Joint Support of Air Navigation Services, and the Finance Committee provide the continuing direction of the work of the organization. One of the major duties of the Council is to adopt international standards and recommended practices and to incorporate these as annexes to the Convention on International Civil Aviation. The Council may act as an arbiter between member states on matters concerning aviation and implementation of the convention, and it may investigate any situation that presents avoidable obstacles to the development of international air navigation. In general, it may take whatever steps are necessary to maintain the safety and regularity of operation of international air transportation.

International Air Transport Association 800 Place Victoria PO Box 113 Montreal, P.Q., Canada H421M1 http://www.iata.org

Whereas the ICAO's major focus is on setting standards for the safe and orderly flow of air transportation throughout the world, the **International Air Transport Association (IATA)** is primarily concerned with tariff coordination, including the coordination of fares, rates, and charges, and rates and levels of travel agent commissions. It provides a forum for member states to discuss these matters collectively and to enable them, if they wish, to develop and adopt agreements on fares, rates, and commissions that are submitted to their respective governments for approval.

The IATA's work begins only after governments have promulgated a formal exchange of traffic and other rights (bilateral air transport agreements) and have licensed the airlines selected to perform the service. But from that point on, the activity of the IATA spreads through virtually every phase of air transport operations.

The basic source of authority in the IATA is the annual general meeting, in which all active member states have an equal vote. Year-round policy direction is provided by an elected executive committee (of airline chief executives), and its creative work is largely carried out by its traffic, technical, financial, and legal committees. Coordination of fares and rate agreements is entrusted to the IATA tariff coordination conferences, with separate meetings addressing passenger and cargo issues and establishing agreements valid for periods of up to two years.

Members of IATA committees are nominated by individual airlines, and, subject to the regulation and review of the executive committee, they serve as experts on behalf of the entire industry. In the traffic conferences, however, delegates act as representatives of their individual companies. Although the executive committee fixes the terms of reference of these conferences, their decisions are subject only to the review of governments and cannot be altered by any other part of the association. The day-to-day administration of the IATA is carried out by a nine-member executive management board, headed by a director general.

KEY TERMS

instrument flight rules (IFR)	Airline Tariff Publishing Company
visual flight rules (VFR)	Air Cargo, Inc.
type certificate	ARINC
production certificate	AIA
airworthiness certificate	GAMA
collision avoidance system	ADMA
go-team	NBAA
safety recommendation	AOPA
final report	NASAO
ATA	ICAO
RAA	IATA
Airline Clearing House	

REVIEW QUESTIONS

- 1. Describe some of the events that led to the creation of the Department of Transportation. What are the primary objectives of this department? Briefly describe the major role of each of the nine administrations under the DOT.
- 2. The FAA has its roots in which early piece of legislation? When was the FAA created as an agency? Describe some FAA functions with regard to air traffic control, aircraft and aviator certification, airport aid and certification, environmental protection, civil aviation security programs, and engineering and development. How does the FAA interface with the ICAO and the NTSB?
- 3. Briefly describe the genesis of the NTSB. What is the board's primary function? What are some of its other functions? Give the steps involved in a major accident investigation. What is included in a safety recommendation? A final report? Describe the accident experience of U.S. scheduled air carriers and general aviation over the period 1973–85.
- 4. What is the primary function of the following associations: the ATA, RAA, AIA, GAMA, ADMA, NBAA, and AOPA? Describe the functions performed by the following airline associations: Airline Clearing House; Airline Tariff Publishing Company; Air Cargo, Inc.; and ARINC. What are some of the services provided by ARINC?
- 5. What is the primary purpose of the NASAO?
- 6. Compare the roles of the ICAO and the IATA. How are they similar? Different?

7. What is the primary purpose of the TSA?

WEB SITES

http://www.iata.org http://www.icao.org http://www.aopa.org http://www.airlines.org http://www.airlines.org http://www.airlines.org http://www.aa.org http://www.atpco.net http://www.abaa.org http://www.generalaviation.org http://www.adma.org http://www.aia-aerospace.org

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