

FAA HISTORICAL CHRONOLOGY, 1926-1996

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*1926

May 20, 1926: President Calvin Coolidge signed the **Air Commerce Act** of 1926 into law. The act instructed the Secretary of Commerce to foster air commerce; designate and establish airways; establish, operate, and maintain aids to air navigation (but not airports); arrange for research and development to improve such aids; license pilots; issue airworthiness certificates for aircraft and major aircraft components; and investigate accidents. (See Introduction.)

May 23, 1926: **Western Air Express (WAE) became one of the first U.S. airlines to offer regular passenger service**, flying from Los Angeles to Salt Lake City via Las Vegas. WAE had begun flying on Apr 17 as the fourth carrier to begin operations under a **new air mail contract system** that became the major source of income for the era's small but growing airline industry (see Jun 3, 1926).

Over twelve years earlier, the St. Petersburg-Tampa Airboat Line had offered the world's first regularly scheduled airline service using heavier-than-air craft. This enterprise lasted for only the first three months of 1914. On Mar 1, 1925, T. Claude Ryan's Los Angeles-San Diego Air Line had begun the first scheduled passenger service operated wholly over the U.S. mainland and throughout the year.

Jun 3, 1926: **Amended legislation introduced a more workable method of paying airlines for carrying mail.** The Air Mail Act of Feb 2, 1925, commonly known as the Kelly Act, had provided for transportation of mail on the basis of contracts between the Post Office Department and individual air carriers, a system that was to prove a great boon to America's fledgling airlines. Under the original Kelly Act, however, the carrier's compensation was computed as a percentage of the actual postage affixed to the mail carried. Since this computation proved cumbersome, the 1926 amendment substituted a procedure under which the airlines were paid by the pound for mail carried. (See May 17, 1928.)

Jun 11, 1926: The **Ford Trimotor made its first flight.** The famous "Tin Goose" was a high-wing monoplane with all-metal construction and a corrugated skin. The original 4-AT model seated eight passengers, later increased to twelve, and the improved 5-AT seated up to thirteen passengers. The Trimotor became a workhorse for U.S. airlines and remained in production until 1933.

Jul 2, 1926: A drop of tree seeds over a burned area in Hawaii on this date was the first recorded instance of **reforesting by airplane.**

Jul 3, 1926: A congressional **joint resolution authorized the President to detail officers of the Army Air Corps to the Commerce Department** to help in promoting civil aviation, provided the details did not exceed one year.

Jul 16, 1926: The Philadelphia Rapid Transit Company inaugurated the **first daily passenger air service between Philadelphia and Washington, D.C.**, in connection with the celebration of the 150th anniversary of Declaration of Independence. Both passengers and mail were carried on a schedule of three trips in each direction daily, using three-engine Fokker monoplanes seating 10 passengers. The flying time was approximately 1 hour 30 minutes each way, and the passenger fare was \$15 one way and \$25 roundtrip. The service lasted for five months.

Aug 11, 1926: **William P. MacCracken, Jr., took office as the first Assistant Secretary of Commerce for Aeronautics** (see Oct 1, 1929). He thus became the first head of the Aeronautics Branch, created in the Department of Commerce by Secretary Herbert Hoover to carry out the Secretary's responsibilities under the Air Commerce Act of 1926. MacCracken, who had assisted in drafting that act, brought to the position experience as a World War I Army pilot, as chairman of the American Bar Association's committee on aviation law, and as general counsel of National Air Transport, a contract mail carrier he helped organize in 1925.

With the appointment of MacCracken as its chief, the **organization of the Aeronautics Branch** proceeded rapidly. Secretary Hoover believed that the duties imposed by the Air Commerce Act should be carried out by existing Department of Commerce components. Although five principal units made up the Aeronautics Branch, which ranked as a bureau, only two were structurally part of the new Branch--the Air Regulations Division and the Air Information Division. The other three units followed directions from the Branch concerning work to be undertaken, but received detailed guidance and administrative support from other bureau-level components of the Department. Thus, the Airways Division was organized within the Bureau of Lighthouses, the Aeronautical Research Division within the Bureau of Standards, and the Air Mapping Section within the Coast and Geodetic Survey.

Oct 1, 1926: **Northwest Airways began service** as a contract mail carrier. The company began passenger service the following year, and expanded its routes in the late twenties and early thirties, changing its name to **Northwest Airlines** on Apr 16, 1934. Further expansion included routes to Asia, beginning in the 1940s, and for a time the carrier used the name Northwest Orient Airlines.

Nov 15, 1926: The Post Office invited **bids from private operators to take over the transcontinental air mail route** in two sections: San Francisco-Chicago and Chicago-New York. Although no satisfactory bids were received for the Chicago-New York route, the contract for the San Francisco-Chicago route went to the organizers of Boeing Air Transport on Jan 29, 1927. After new bidding, the Post Office on Apr 3, 1927, announced the award of the Chicago-New York route to the newly formed National Air Transport. (See Aug 31, 1927.)

Nov 16, 1926: Dr. Louis Hopewell Bauer became the **first Medical Director of the Aeronautics Branch**. A major in the Medical Corps at the time of his appointment, Dr. Bauer had spent more than half of his 13-year Army career in the Air Service. (See Feb 28, 1927.)

Dec 7, 1926: The **first airway light beacon erected by the Aeronautics Branch began operation**. The beacon was located 15 miles northeast of Moline, Ill., on the Chicago-Dallas air mail route. By Jun 30, 1927, there were 4,121 miles of lighted airways, including 2,041 miles on the transcontinental airway that had been previously lighted by the Post Office Department. (See Apr 1973.)

Dec 7, 1926: The Aeronautics Branch made its **first official airworthiness inspection of an American aircraft** when Inspector Ralph Lockwood tested a Stinson Detroiter before its delivery to Canadian Air Express.

Dec 18, 1926: The **first issue of Domestic Air News**, the Aeronautics Branch official publication, appeared. (See Jul 1, 1929.)

Dec 31, 1926: The **first Air Commerce Regulations** of the Aeronautics Branch, Department of Commerce, became effective. Promulgated under provisions of the Air Commerce Act of 1926, these regulations resulted from many conferences between the Aeronautics Branch and pilots, operators, manufacturers, the Army, the Navy, and the Post Office Department.

The regulations required all aircraft engaged in interstate or foreign commerce to be licensed and marked with an assigned identification number. Pilots of licensed aircraft were required to hold private or commercial licenses. Commercial pilots were classed as either transport or industrial. Mechanics repairing aircraft engaged in air commerce were required to secure either engine or airplane mechanic licenses, or both. Owners, pilots, and mechanics affected had until Mar 1 (later extended to May 1), 1927, to place their applications on file. Pending action on these applications by the Aeronautics Branch, those applying by the specified date could continue operating as previously until Jul 1, 1927. Failure to apply as required was punishable by a \$500 fine. The regulations also prescribed operational and air traffic safety rules. (See Mar 22, 1927.)

***1927**

Feb 28, 1927: Domestic Air News published a list of 57 physicians qualified to give medical examinations for pilot licenses. Scattered over the United States, these physicians (soon to be known as **aviation medical examiners**) had been selected and qualified by Aeronautics Branch Medical Director Louis H. Bauer. By Oct 1, 1927, the number of qualified physicians had grown to 188, and additional appointees were added from time to time. Besides these civilian medical examiners, all Army and Navy flight surgeons were qualified ex officio to give airman medical examinations. (See Jun 1, 1945.)

Mar 22, 1927: The **first general amendments to the Air Commerce Regulations** took effect (see Dec 31, 1926). Among the many mandated changes were the addition of a **limited commercial pilot license** classification to the existing categories of transport, industrial, and private. The new category

permitted pilots to carry passengers within a ten mile radius of their base while building up flight time for a transport license.

The amendments altered the original system under which the **identification numbers for licensed aircraft** would be preceded by the letter "C" (commercial), "S" (state), or "P" (private). The "P" designation was now dropped and "X" (experimental) was added. The regulations also required the identification number of an aircraft engaged in foreign air commerce be preceded by the letter "N" (denoting U.S. registry in accordance with a 1919 international convention). The "N" was optional at this time for other licensed aircraft. Later, the identification numbers of all U.S. licensed aircraft began with "N", followed by numbers and/or letters under systems that varied as the registration process evolved.

Mar 29, 1927: The Aeronautics Branch issued **Aircraft Type Certificate No. 1** to the Buhl Airster C-A3, a three-place open biplane. The plane had an empty weight of 1,686 pounds and its engine had a horsepower rating of 200. By the end of fiscal year 1927, the total of aircraft type certificates issued had reached nine. The rate of type certification then progressively increased. By the end of fiscal year 1928, the total had reached 47; by the end of fiscal 1929, 170; by Jan 15, 1930, 287.

Apr 6, 1927: William P. MacCracken, Jr., Assistant Secretary of Commerce for Aeronautics, received **Pilot License No. 1**, a private pilot license, from the Aeronautics Branch. MacCracken thus became the first person to obtain a pilot license from a civilian agency of the U.S. Government.

(During World War I, the Joint Army and Navy Board on Aeronautic Cognizance had issued flying licenses to civilian individuals and companies. The Board acted under the authority of a Presidential proclamation, issued on Feb 28, 1918, which described the program as a wartime security measure; however, the proclamation remained in effect until Jul 31, 1919, more than eight months after the Armistice.)

Before accepting License No. 1, MacCracken had offered this honor to Orville Wright, promising to waive the fee and examination. Wright declined because he no longer flew and did not think he needed a Federal license to show that he had been the first man to fly. Like Secretary Hoover, Wright believed MacCracken should receive License No. 1. (See Aug 19, 1940.)

Apr 30, 1927: The **Aeronautics Branch announced that it had recently acquired three aircraft**: two Buhl Airsters (open cockpit) and one Stinson-Detroit (cabin plane). The Branch planned to add one Wright Travel Air (open cockpit) and one Fairchild FC-1A (cabin plane).

May 20-21, 1927: Charles A. Lindbergh, a former air mail pilot, made the **first nonstop solo flight across the Atlantic** in an airplane, a Ryan monoplane dubbed the Spirit of St. Louis. He flew the 3,610 miles from Roosevelt Field, Long Island, N.Y., to Le Bourget Field, Paris, France, in 33 hours 29 minutes.

Lindbergh's feat provided a strong stimulus to U.S. aviation, and made him a world hero whose fame overshadowed earlier Atlantic crossings by air. The first transatlantic flight had been made in stages on May 16-27, 1919, from Newfoundland to Lisbon, via the Azores, by a U.S. Navy Curtiss NC-4 seaplane, flown by a six-man crew commanded by Albert C. Read. That same year, on Jun 14-15, Royal Air Force pilots John Alcock and Arthur Whitten Brown crossed the Atlantic nonstop from Newfoundland to Ireland in a Vickers Vimy. The following month, another Royal Air Force crew, commanded by G. H. Scott, flew the airship R-34 from Scotland to New York (Jul 2-6), then returned to England (Jul 9-13). Between Jul 30 and Aug 31, 1924, two U.S. Army Douglas World Cruiser seaplanes (manned by Lowell H. Smith, Leslie P. Arnold, Erik H. Nelson, and John Harding), flew from England to Labrador during the course of history's first round-the-world flight. Three other aircraft with multiple crew members had also crossed the Atlantic before Lindbergh's "Lone Eagle" flight.

Jun 4-5, 1927: Charles A. Levine, a New York businessman, became the **first person to cross the Atlantic by airplane as a passenger** when he flew nonstop between New York and Germany in a Bellanca monoplane piloted by Clarence Chamberlin, whom he had sponsored.

Jun 25, 1927: Construction of the **Propeller Research Tunnel** was completed at the Langley Memorial Aeronautical Laboratory of the National Advisory Committee for Aeronautics (NACA). The largest research facility of its kind up to that time, the wind tunnel could accommodate the entire fuselage of a full-sized airplane, making it possible to conduct aerodynamic tests on full-scale fuselages, propellers, and other airplane parts. The facility, which was to make great contributions to aeronautical development (see Nov 1928), was part of a **series of wind tunnels**. NACA had begun operating its first wind tunnel on Jun 11, 1920. Later developments included a refrigerated tunnel,

which NACA placed in operation in 1928 for study of icing on wings and propellers. In the spring of 1931, NACA began operating a Full Scale Tunnel large enough to test the performance of actual aircraft.

Jun 28-29, 1927: Army lieutenants A. F. Hegenberger and L. J. Maitland made the **first nonstop flight between the U.S. mainland and Hawaii**, taking off from Oakland, Calif., in a Fokker three-engine monoplane.

Jun 30, 1927: The Aeronautics Branch announced that its **first airways strip map** was available for purchase: Moline, Ill., to Kansas City, Mo.

Jun 30, 1927 The Aeronautics Branch issued Transport License No. 199 to Phoebe Fairgrave Omlie, probably the **first woman to obtain a pilot license from a civilian agency of the U.S. government**. (Other American women had previously received pilot licenses from the Joint Army and Navy Board on Aeronautic Cognizance, which issued civilian flying licenses during 1918-19, as well as from organizations such as the Federation Aeronautique Internationale.) The Aeronautics Branch also issued one of the early aircraft and engine mechanic's licenses to Omlie.

Jul 1, 1927: The **transcontinental airway was transferred to the Department of Commerce** from the Post Office Department. Extending from New York to San Francisco, the airway was 2,612 miles long, with 2,041 miles lighted (see Jan 29, 1929). Its facilities included 92 intermediate landing fields, 101 electric beacons, and 417 acetylene beacons. Also included were 17 radio stations (see Mar 1, 1960). Personnel involved in the transfer included 45 radio operators, 14 maintenance mechanics, and 84 caretakers. At the same time, the **Post Office relinquished air mail operations along the western section--Chicago to San Francisco--of the transcontinental route** to Boeing Air Transport.

Jul 1, 1927: Frank Gates Gardner of Norfolk, Va., received the **first Federal aircraft mechanic license**.

Jul 1, 1927: The Secretary of Commerce appointed **Clarence M. Young as Director of Aeronautics** to administer the Aeronautics Branch under the general supervision of the Assistant Secretary for Aeronautics. A lawyer from Des Moines, Iowa, Young had served as a pilot on the Italian front in World War I and was later active in civil aeronautics. (See Oct 1, 1929.)

Jul 4, 1927: The **Lockheed Vega first flew**. The single-engine, high-wing monoplane seating up to six passengers marked an important step toward the low-drag designs with which U.S. manufacturers were to revolutionize airliners in the 1930s. The Vega went into passenger service on Sep 17, 1928, with International Airlines.

Aug 31, 1927: The **Post Office Department turned over operation of its last air mail route**, New York to Chicago, to National Air Transport (see Nov 15, 1926). Private operators under contract to the Post Office Department now conducted the entire service, a system that promoted the growth of the airline industry.

Sep 1, 1927: American Railway Express and major airlines began **air cargo express operations**. Referring to the importance of this event, the Cleveland Plain Dealer wrote that though it was "much less spectacular than the long transoceanic flights, the beginning of real commercial aviation is, from the practical point of view, the most worthy development of all."

Oct 19, 1927: **Pan American Airways began its operations with an air mail flight between the United States and Cuba**, accomplished with a rented plane to meet a contract deadline. The company began regular air mail service between Key West and Havana on Oct 28, and scheduled passenger service on the route on Jan 16, 1928.

Oct 1927: The **International Radio Convention** met in Washington, D.C. During sessions that lasted into November, the conferees secured international agreements on the use of certain frequencies by aircraft and airway control stations. As a result, it was necessary to reassign frequencies to the Airways Division of the Aeronautics Branch and to other U.S. Government agencies. The Aeronautics Branch assisted the Interdepartmental Radio Advisory Committee in making these reassignments.

***1928**

Jan 15, 1928: The Aeronautics Branch published a list of newly licensed pilots that included James Herman Banning as holder of a limited commercial license. Banning was the **first known African American to receive a Federal pilot license**. The first Federal transport pilot license issued to an African American is believed to have been received by C. Alfred "Chief" Anderson in 1932.

Black aviators had been active in the United States as early as the years preceding World War I, an era when nearly all pilots were unlicensed. The first African American to receive a pilot certificate of any type was probably Eugene Bullard, who was licensed by the French air corps in 1917 and served as a

combat pilot. In 1921, Bessie Coleman became the first African American to receive a pilot's certificate from the Federation Aeronautique Internationale, an international organization based in Paris.

Jan 31, 1928: The Aeronautics Branch's Domestic Air News reported an early instance of **airplane noise nuisance**. The proprietor of the Cackle Corner Poultry Farm, Garrettsville, Ohio, complained to the Postmaster General that low-flying planes were disrupting egg production. The Postmaster General forwarded the letter to National Air Transport, Inc., the private company operating the New York-Chicago air mail route, suggesting it make a special effort to maintain altitude over Garrettsville.

Mar 8, 1928: The **Foreign Air Mail Act** expanded the U.S. Post Office's role in international mail by giving it new authority to award contracts for periods of up to ten years for transport of mail to foreign countries and U.S. insular possessions.

Mar 20, 1928: The Department of Commerce announced the award of contracts for equipment that included 12 **new radio stations** capable keeping pilots advised of changes in weather conditions while they were in flight. At that time, the Department was operating 17 radio stations that had been received when it assumed responsibility for the transcontinental airway (see Jul 1, 1927). Known as Airway Radio Stations under Commerce, the facilities served as gathering points for data on weather and flights for use in pre-flight briefings for pilots. The stations transmitted this information along the airways by radiotelegraphy. (Soon, however, teletypewriter communications via ground lines began to be used for this purpose: see Jul 1, 1928) During Jan 1929, the Department reported that three stations were now broadcasting hourly voice weather reports to aircraft in flight. When necessary for safety, the stations also accepted messages from operating companies and transmitted them to pilots aloft. By Jun 30, 1929, 11 new standard stations had replaced older stations with obsolete arc-type equipment, and new radio equipment was installed at nine other locations. All these stations transmitted scheduled voice broadcasts. By mid-1933, there were 68 radio communication stations, and a growing number of pilots were able to send as well as receive transmissions. At the end of the following year, radio-equipped aircraft flying the airways included 326 with two-way radio and 449 with receiving sets only.

Mar 28, 1928: Assistant Secretary of Commerce MacCracken called a special conference of representatives of the Army Air Corps, Navy Bureau of Aeronautics, Weather Bureau, Bureau of Standards, and the National Advisory Committee for Aeronautics to **study the causes and prevention of ice formation on aircraft**, and to discuss the possible development of an instrument to indicate when ice forms on an aircraft in flight.

Apr 12-13, 1928: Hermann Koehl, a German, and James Fitzmaurice, an Irishman, accompanied by one passenger, made the **first nonstop east-to-west crossing of the Atlantic** by airplane, flying from Ireland to a crash landing on Greenly Island, Labrador, in the Junkers W-33L Bremen.

Apr 15-21, 1928: George Hubert Wilkins, an Australian explorer, and Carl Ben Eielson, an American pilot, made the **first flight across the Arctic in a heavier-than-air craft**, flying from Point Barrow, Alaska, to Spitsbergen, Norway, in a Lockheed Vega. Later in the year, Wilkins and Eielson flew the same Vega along the eastern coast of the Antarctic Peninsula, earning the distinction of being the **first to operate an airplane in Antarctica**.

May 1, 1928: **Pitcairn Aviation began operations** along the Atlantic seaboard as a contract mail-hauler. The airline inaugurated passenger operations between New York and Washington on Aug 18, 1930, under the name Eastern Air Transport. The growing carrier acquired New York Airways in 1931 and Luddington Air Lines in 1933, and later **took the name Eastern Air Lines in 1934**. Eastern subsequently absorbed Colonial Airlines in 1956 and Mackey Air Lines in 1967.

May 16, 1928: **Transcontinental Air Transport (TAT)** came into being. Backed by powerful financial groups that allied manufacturers with operating airlines, TAT was unusual for its time in giving priority to passenger service rather than mail. The airline was popularly known as the "Lindbergh Line" because of its association with the famous aviator. (See Jul 7, 1929, and July 19, 1930.)

May 17, 1928: Another amendment to the Air Mail Act of 1925 (see Jun 3, 1926) provided that air carriers that had operated satisfactorily on mail routes for two years could exchange their contracts for "**air mail route certificates**" for a period not to exceed 10 years. The amendment protected the investment of the airlines in the equipment necessary for carrying out their original contracts since the

life of that equipment was considerably longer than the life of those contracts. At this time, mail contracts provided virtually the only profitable form of airline operation. (See Apr 29, 1930.)

May 31-Jun 9, 1928: Australian pilots Charles E. Kingsford-Smith and Charles T. P. Ulm, accompanied by a navigator and a radioman, both Americans, made the **first transpacific crossing by air**. They flew from Oakland, Calif., to Brisbane, Australia, with stopovers at Hawaii and the Fiji Islands, in a modified Fokker F.VII.

Jun 11, 1928: Friedrich Stamer made the **first rocket-powered piloted flight**, in a tailless glider, at Wasserkuppe, Germany. Takeoff was assisted by an elastic launching rope. The craft traveled approximately one mile.

Jun 17-18, 1928: Wilmer Stultz piloted a pontoon-equipped Fokker from Newfoundland to Wales on the **first nonstop transatlantic flight by a seaplane**. He was accompanied by a mechanic and by **Amelia Earhart, the first woman transatlantic air passenger**.

Jun 20, 1928: **Braniff Air Lines began operations**. Organized by brothers Thomas and Paul Braniff, the airline carried passengers between Tulsa and Oklahoma City. The brothers soon sold their airline, but later organized **Braniff Airways**, which began operations on Nov 13, 1930, in the same region. After expanding and acquiring Latin American routes, the company changed its name to **Braniff International Airways** on Jun 4, 1948.

Jun 30, 1928: During the quarter that ended on this date, the Commerce Department's Aeronautics Branch established a five-member **Aircraft Accident Board** to investigate and analyze civil aircraft accidents with a view to determining and eliminating their causes.

Jun 30, 1928 During fiscal 1928, which ended on this date, the Commerce Department succeeded in developing a **practical radio navigation beacon system**. Two series of flight tests were conducted on the New York-Cleveland airway between Jul 1927 and Feb 1928. During fiscal 1929, the Aeronautics Branch standardized a type of four-course radio range system in which pilots listened to aural signals to determine if they were on course. By Jun 30, 1929, the Branch was able to report that seven of these standard radio beacons were in operation, providing a continuous radio-marked course from Omaha to New York and from Key West to Havana. The Branch stepped up installation of four-course radio ranges in the early 1930s. This type of facility became the standard civil air navigation aid, and retained that status until after World War II (see Calendar year 1952 and Sep 5, 1974).

Jul 1, 1928: The Commerce Department began using **teletype machines to transmit aviation weather information**. Among the first airport stations to receive teletypes were those at Hadley Field, N.J., Cleveland, Ohio, Chicago, Ill., and Concord, Calif. Those units were all connected with the central office at Washington, D.C., from which data were exchanged for all locations. By Oct 1938, the teletype weather communications system had been extended to a total of 21,790 miles, covering all 48 states except Maine, New Hampshire, and South Dakota.

Aug 1, 1928: As a first step toward promoting **uniform state aeronautical legislation** consistent with Federal law, the Aeronautics Branch issued Aeronautics Bulletin No. 18 reviewing the characteristics of various state statutes and setting forth suggested drafts of required laws. At this time, 20 states had no aeronautical legislation. (See Dec 16, 1930.)

Sep 15, 1928: The Aeronautics Branch published **civil aviation accident statistics** for the first half of 1928. There was a total of 390 accidents, of which 34 occurred in scheduled flying, 69 in student instruction, 17 in experimental operations, and 270 in miscellaneous flying. Assigned causes blamed pilot error for 43.29 percent of the accidents, engine failure for 16.59 percent, weather for 10.23 percent, and airport or terrain for 8.72 percent. There was a total of 153 fatalities and 276 injuries. Only six of the fatalities occurred in scheduled flying.

Sep 18, 1928: The **Graf Zeppelin**, the most successful rigid airship ever built, first flew. By the time it was retired in 1937, this craft had flown more than a million miles, spent 16,000 hours in the air, and carried 13,100 passengers.

Sep 19, 1928: The Packard Motor Car Company flight tested the **first diesel engine to power heavier-than-air craft**. Diesel aircraft engines seemed promising but proved too heavy, and interest in their development waned during the 1930s.

Oct 31, 1928: Statistics published by the Aeronautics Branch indicated that of the 3,659 **pilots holding active licenses**, nine states and the District of Columbia accounted for 2,343: California, 633; New York, 347; Illinois, 216; Michigan, 194; Ohio and Pennsylvania, 180 each; Texas, 176; District of Columbia, 161; Missouri, 150; and Virginia, 105. Of the overall total, 2,426 (66.3 percent) were transport pilots, 385 (10.5 percent) limited commercial, 63 (1.7 percent) industrial, and 785 (21.5

percent) private. One year previously, transport pilots had accounted for 85 percent of the total. The reduced percentage was due to the faster growth of private flying.

Nov 1928: Fred E. Weick, an aerodynamicist at the Langley Memorial Aeronautical Laboratory, described in National Advisory Committee for Aeronautics (NACA) Technical Note No. 301 the testing of **long-chord cowling that significantly reduced drag**, the retarding force acting on an airplane moving in air. Unlike conventional cowlings of that period, which covered the crankcase and the lower portion of the cylinders, the NACA cowl totally enclosed the engine. In actual flight tests, a Curtiss AT-5A trainer equipped with NACA's cowling increased its maximum speed from 118 to 137 mph--the equivalent of providing the aircraft with 83 additional horsepower without an added expenditure in fuel. The NACA cowl had a very positive effect on airline economics when it appeared on the modern transports of the early 1930s.

Dec 4, 1928: The Aeronautics Branch issued regulations covering the **entry and clearance of aircraft carrying foreign cargo and passengers into the United States**. The rules became effective Feb 1, 1929.

Dec 12-14, 1928: The **International Civil Aeronautics Conference** held sessions in Washington, D.C. The President had suggested the conference, and Congress had authorized it by a joint resolution. The 441 participants included 77 official and 39 unofficial delegates from foreign countries. The conference provided an opportunity to exchange views on problems pertaining to aircraft in international commerce, and the program included presentations on a variety of aviation topics. Another purpose was to commemorate the 25th anniversary of the first flight of the Wright brothers. Orville Wright was guest of honor, and the membership of the conference attended ceremonies at Kitty Hawk, N.C., on the Dec 17 anniversary.

Dec 19, 1928: Harold F. Pitcairn made the **first autogiro flight** in the United States at Willow Grove, Pa. Designed by Spain's Juan de la Cierva, the rotary-wing aircraft obtained its support in flight from a rotor turned by the air forces resulting from its motion. Propulsion came from a conventional engine and airscrew. On Feb 12, 1931, the Detroit News placed the first order for a commercial autogiro in the United States, the Pitcairn PC A-2. The Aeronautics Branch type-certificated the plane on Apr 2, 1931, and Pitcairn's Autogiro Company of America built 51 autogiros in 1931.

*1929

Jan 14, 1929: The Commerce Department's **Aeronautics Branch received the Aero Club of America Trophy** for 1928 for its outstanding development of airways and air navigation facilities. Robert J. Collier had established the award, first presented in 1912, to honor the previous year's most outstanding contribution to U.S. aeronautics or astronautics. In 1922, the Aero Club of America was incorporated as the National Aeronautic Association (NAA), which assumed administration of the award and renamed it the **Robert J. Collier Trophy** in 1944.

Jan 29, 1929: The Airways Division of the Department of Commerce turned on Beacon #25 at Miriam, Nevada, on the San Francisco-Salt Lake City Airway, **completing the lighting of the transcontinental airway** by closing the final twenty mile unlighted gap. (See Jul 1, 1927.)

Feb 4, 1929: The Aeronautics Branch established a **Field Service Section** which assumed certain duties performed by the former Airport Section, including **assistance to municipalities and other organizations desiring to establish or improve airports**. Five airport specialists, including the section chief, toured the U.S. to inspect sites, confer with officials, and address civic groups. The creation of the Field Service Section was part of a general reorganization of the Division of Airports and Aeronautic Information, formerly known as the Information Division, during fiscal 1929. (See Nov 1929.)

Feb 21, 1929: Colonel **Charles A. Lindbergh** was appointed **Technical Adviser** to the Aeronautics Branch, Department of Commerce.

Feb 28, 1929: The Air Commerce Act was amended to provide for **Federal licensing of flying schools**. Instructors were divided into two classes, flying and ground, each of which was rated separately. Regulations were promulgated in April and went into effect in June 1929.

Mar 2, 1929: Domestic Air News reported that **Pan American-Grace Airways (Panagra)** successfully bid to carry air mail three times weekly from Cristobal, C.Z., to Santiago, Chile, the **longest designated air mail route in the world**. Created on Jan 25, 1929, Panagra was jointly controlled by Pan American Airway's holding company and the W.R. Grace shipping company of New York. Its bid of \$1.80 per mile, plus \$0.90 per pound per thousand miles, was not the lowest submitted. Postmaster General Harry S. New explained, however, that the lowest bidder was not

equipped to carry out the contract, and failure in the project would harm the prestige of U.S. aeronautical enterprise.

Mar 4, 1929: **Herbert C. Hoover became President**, succeeding Calvin Coolidge.

May 9, 1929: An **Interdepartmental Committee on Airways** was established to study and pass on applications for extension of civil airways in the United States. Totalling six members, the committee consisted of three representatives each from the Post Office and Commerce Departments.

Jun 17, 1929: **Delta Air Service made its first passenger flight**, with a six-passenger Travel Air, from Dallas, Tex., to Monroe, La. As it broadened its passenger operations, the company (which originated as an aerial crop dusting operation, the Huff Daland Dusters) changed its name to Delta Air Corporation and then, in 1945, to **Delta Air Lines**. On May 1, 1953, Chicago and Southern Airlines merged into Delta.

Jun 30, 1929: During the fiscal year that ended on this date, the Airways Division of the Commerce Department's Bureau of Lighthouses established an office at Fort Worth, Tex., under an airways engineer, for maintenance of aeronautical aids on certain specified airways. A similar office had previously been established at Salt Lake City during fiscal 1927. These were **the only two organizations concerned exclusively with the maintenance of aeronautical aids**. For the remainder of the nation's airways, maintenance of facilities was apportioned among the Third, Sixth, Tenth, Twelfth, Seventeenth, and Eighteenth Lighthouse Districts. Although part of the Bureau of Lighthouses, these organizations received pertinent directions from the Aeronautics Branch (see Aug 11, 1926, and Jul 1, 1933).

Also during this fiscal year, the **field organization of the Inspection Service of the Aeronautics Branch was reduced** from eleven to nine districts, each under the direction of a supervising aeronautical inspector. The headquarters of the numbered districts were located at Garden City, N.Y.; Camden, N.J.; Atlanta, Ga.; Detroit, Mich.; Chicago, Ill.; Kansas City, Mo.; Dallas, Tex.; Oakland, Calif.; and Los Angeles, Calif.

Jul 1, 1929: The **first issue of the Air Commerce Bulletin**, the official journal of the Aeronautics Branch, was published, superseding the Domestic Air News. (See Dec 18, 1926, and Jan 15, 1940.)

Jul 7, 1929: Transcontinental Air Transport inaugurated **48-hour coast-to-coast passenger transportation service**, with air travel by day and rail travel by night. Charles A. Lindbergh flew the first plane over the route. (See May 16, 1928, and Oct 25, 1930.)

Aug 8-29, 1929: The **Graf Zeppelin made the first round-the-world flight by a rigid airship**, leaving from and returning to Lakehurst, N.J., in 21 days 7 hours 34 minutes. This was the second round-the-world flight; two U.S. Army Douglas World Cruisers had first performed the feat during Apr 6-Sep 28, 1924. (See Jun 23-Jul 1, 1931.)

Sep 1, 1929: **New regulations affecting transport pilots** became effective, stating that a pilot "may operate any type licensed aircraft but shall not carry persons or property for hire in licensed aircraft other than those specified on his license." A later amendment, effective Feb 8, 1930, required transport and limited commercial pilots carrying passengers to have special authority from the Department of Commerce.

Sep 24, 1929: At Mitchel Field, N.Y., Army Lt. James H. Doolittle became the **first pilot to use only instrument guidance to take off, fly a set course, and land**. Doolittle received directional guidance from a radio range course aligned with the airport runway, while radio marker beacons indicated his distance from the runway. He relied on a sensitive altimeter to determine his altitude, and controlled the attitude of his aircraft with guidance from a directional gyro and an artificial horizon. Doolittle made the flight as part of research he conducted for the Daniel Guggenheim Fund for the Promotion of Aeronautics, with cooperation from the Bureau of Standards, the Aeronautics Branch of the Department of Commerce, and other organizations. He flew in a hooded cockpit, but was accompanied by a check pilot who could have intervened in an emergency. On May 9, 1932, Capt. A. F. Hegenberger flew without a check pilot to make the **first blind solo flight on instruments only**, at Dayton, Ohio.

Oct 1, 1929: **William P. MacCracken, Jr., resigned as Assistant Secretary of Commerce for Aeronautics and was succeeded by Clarence M. Young** (see Jul 1, 1927), who had been serving as Director of Aeronautics. (See May 23, 1933.)

Oct 1, 1929: **Allocation of radio frequencies by the Federal Radio Commission** cleared the way for air transport companies to develop a communications network supplementing Federal facilities. At

the close of the year some major transport lines were maintaining two-way voice communication with their planes in flight. (See Dec 2, 1929.)

Oct 1, 1929: The Aeronautics Branch issued a set of "**Uniform Field Rules**" for air traffic control that were recommended for adoption by states, counties, cities, and other agencies operating airports.

Oct 10, 1929: The Aeronautics Branch inaugurated **position-reporting service** for planes flying the Federal airways.

Oct 21, 1929: Colonial Flying Service and the Scully Walton Ambulance Company of New York, N.Y., inaugurated an **Air Ambulance Service**.

Oct 24, 1929: A **stock market convulsion** gripped Wall Street. The initial crash was followed by another severe break on Oct 29, and by a continuing slide that heralded the onset of the Great Depression. Aviation stocks, as others, were strongly affected.

The **Depression's impact on the budget of the Aeronautics Branch** was not immediate. To get underway in fiscal 1927, the Branch had received \$550,000, and this was increased to \$3,791,500 in fiscal 1928 and \$5,575,400 in fiscal 1929. The increases continued after the Depression began: fiscal 1930, \$6,676,320; fiscal 1931, \$9,208,030; and fiscal 1932, \$10,362,300.

The economizing ax fell in fiscal 1933, when Congress reduced the Aeronautics Branch allocation to \$8,533,500. For fiscal 1934, the Branch received only \$7,660,780., and this was cut still further by the Bureau of the Budget, which limited actual expenditures to \$5,172,500--the smallest of the Depression budgets for aeronautic activities. The nation had passed the lowest point of the Depression in March 1933, however, and the budgets of Bureau of Air Commerce--as the Aeronautics Branch was renamed on Jul 1, 1934--began a rising trend that lasted into World War II. (See Jul 1, 1937).

Nov 1929: As a result of increased activities, Assistant Secretary of Commerce for Aeronautics **Clarence Young reorganized the Aeronautics Branch**. He abolished the position of Director of Aeronautics and divided the principal functions of the Branch among three executives who reported directly to the Assistant Secretary and, under his chairmanship, constituted the executive board of the Branch. These three officials were: the Director of Air Regulation, whose responsibilities included the Inspection Service and the Licensing Division, as well as the Engine Testing Section; the Chief Engineer of the Airways Division; and the Director Aeronautic Development, whose responsibilities included the Aeronautic Information Division and the Aeronautics Research Division. The Director of Aeronautic Development also gave direction to special research committees, the Airways Mapping Section, and the Airport Section, which on Dec 2, 1929, took over the duties of the Field Service Section established ten months earlier. (See Feb 4, 1929.)

Nov 28-29, 1929: Richard E. Byrd, with pilot Bernt Balchen and two other crew members, became the **first to fly over the South Pole**, operating a Ford Trimotor from the U.S. base at Little America. Earlier, on May 9, 1926, Byrd and Floyd Bennett had made a **flight credited as the first over the North Pole**, in a Fokker F.VII.

Dec 2, 1929: Fifteen air carriers pooled \$100,000.00 to set up the not-for-profit organization, **Aeronautical Radio, Inc. (ARINC)**, to serve as the single coordinator of aeronautical communications for the air transport industry, using a common network of ground stations.

Dec 20, 1929: Pan American Airways placed orders for the **Sikorsky S-40**, a large four-engined flying boat. These were the **first airplanes that Pan American christened "Clipper,"** the subsequent trade mark name of the airline's planes.

***1930**

Jan 16, 1930: Frank Whittle, a British Royal Air Force officer and engineer, received a **patent for his design of a turbojet aircraft engine**. Manufacture of an experimental version of the engine began in 1936. On May 15, 1941, the Gloster E28/39, a British turbojet powered by a Whittle W/X jet engine, made its first official flight, at Cranwell, England. However, this **first Allied jet flight** came nearly two years after Germany had accomplished the feat. On Aug 27, 1939, the **first air-breathing jet flight** of an aircraft had occurred, accomplished by a German Heinkel He 178 aircraft with a jet engine by designed by Hans von Ohain.

Jan 25, 1930: An amendment to the Air Commerce Regulations set **500 feet as the minimum altitude** at which aircraft might fly, except when landing and taking off.

Jan 25, 1930: **American Airways** was formed out of a group of carriers that had operated separately under the Aviation Corporation (AVCO), a holding company chartered on Mar 3, 1929. American Airways **changed its name to American Airlines on Apr 11, 1934.**

Feb 1, 1930: The **Daniel Guggenheim Fund for the Promotion of Aeronautics terminated its activities**. Established in Jan 1926 to support the development of American aviation in its formative years, the fund had promoted aeronautical education, subsidized research projects, and assisted efforts to develop commercial aircraft. Daniel Guggenheim intended that the fund be closed when private enterprise would find it "practicable and profitable to carry on."

Feb 15, 1930: The Aeronautics Branch announced that it had issued the **first rating under the Airport Rating Regulations** to the municipal airport at Pontiac, Mich. The airport received the highest possible rating, A-1-A. The designation system enabled pilots to know at a glance what facilities to expect at any of the rated airports, which the Branch inspected in response to voluntary applications by airport operators. The program was part of the Aeronautics Branch's efforts to encourage airport development through promotional activities, disseminating technical and statistical information, and giving expert advice to municipalities.

Mar 26, 1930: The Aeronautics Branch issued the **first two approved repair station certificates** to Boeing Air Transport of Oakland, Calif., and National Air Transport of Chicago, Ill. The certificate entitled a station to repair only aircraft of types for which it was adequately equipped. Previously, anyone making repairs on licensed aircraft had been obliged to submit to the Branch detailed drawings of the repairs made and, in some cases, a stress analysis. By mid-1931, the Aeronautics Branch had certificated forty-eight repair stations.

Apr 29, 1930: The **Watres Act** further amended the Air Mail Act of 1925 (see May 17, 1928), replacing the weight basis for computing compensation to air carriers with a space-mile formula. The new act gave the Postmaster General very broad regulatory control over route locations, route consolidations and extensions, contract bidding conditions, service conditions, equipment and personnel accounts, and compensation. (See May 19, 1930.)

May 5, 1930: The Post Office Department, hoping to stimulate air passenger traffic, issued an order calling for the installation of at least **two passenger seats in each mail plane** operated by day.

May 15, 1930: Boeing Air Transport inaugurated the **first airline stewardess service**. The first stewardess was a registered nurse, Ellen E. Church, who has been described as the first female crew member aboard a commercial airliner.

May 15, 1930: In regulations effective on this date, the **Department of Commerce required airlines to obtain a certificate of authority to operate** if they engaged in interstate passenger service. To qualify, an airline was required to demonstrate that it possessed aircraft that were properly equipped and maintained, a sufficient number of qualified airmen, and an adequate ground organization for the services provided. The routes served were required to possess such air navigation facilities as the Department deemed necessary for safe and reliable operations. Airlines were required to apply for the certificate by Jul 15, a deadline later extended to Aug 15, 1930.

May 19, 1930: Postmaster General Walter Folger Brown held the first of a **series of meetings with representatives of the large commercial airlines to discuss air mail routes** to be awarded under the Watres Act (see Apr 29, 1930). All but two of the twenty-two air mail contracts awarded under the act went to airlines in attendance at the meetings, which were subsequently attacked as "spoils conferences." (See Feb 9, 1934.)

Jun 20, 1930: Aeronautics Branch **certificated its first glider**, the Detroit Gull, Model G-1.

Jul 1, 1930: **Rules governing the use of intermediate landing fields and a parachute supplement** to the Air Commerce Regulations went into effect.

Jul 19, 1930: Incorporation action took place as a first step in the merger of Transcontinental Air Transport and Western Air Express to form **Transcontinental and Western Air (TWA), which later changed its name to Trans World Airlines on May 17, 1950**. Western Air Express, meanwhile, had retained its corporate identity on some routes and evolved into **Western Airlines**, a name it adopted in 1941.

Sep 10, 1930: The **Taylor E-2 Cub made its first flight**. This design evolved into the famous **Piper Cub**, which was introduced in 1938 and became one of the world's most popular general aviation airplanes.

Oct 25, 1930: The **first all-air transcontinental through passenger service** to link coastal cities began. Aircraft of Transcontinental and Western Air took off simultaneously from Newark Airport, serving New York, and from Los Angeles. On Oct 15, the American Airways system had begun to offer all-air service between Atlanta and Los Angeles.

Dec 16, 1930: The Aeronautics Branch opened the **National Conference on Uniform Aeronautic Regulatory Laws**. Representatives from 45 states, Washington, D.C., Puerto Rico, and the Philippine Islands attended the two-day meeting to discuss uniformity of air regulations. (See Aug 1, 1928, and Mar 23, 1933.)

Dec 31, 1930: **Airworthiness regulations for aircraft components and accessories** became effective.

Calendar year, 1930: By this year, **Cleveland Municipal Airport had established radio control of airport traffic**. In the next five years approximately 20 cities followed Cleveland's lead.

***1931**

Feb 12, 1931: An amendment to existing regulations covering interstate airline operations **required a copilot** on all aircraft flying a schedule of five or more hours with eight or more passengers. (See Oct 1, 1931.)

Feb 12, 1931: The Department of Commerce placed the **radio range beacon at Medicine Bow, Wyo., into continuous operation**, completing the directional radio marking of the entire route from San Francisco to New York.

Feb 20, 1931: The Senate ratified the **Havana Convention** in which 21 Western Hemisphere nations guaranteed the right of innocent passage of aircraft without discrimination. The Convention formulated the rules for international air navigation between the contracting states relating to the marking of aircraft, landing facilities, prohibited transport, competency of airmen, and the right of each country to prescribe the route to be flown over its territory. The Convention had been prepared at the Pan American Convention on Civil Aviation at Havana, Cuba, in February 1928.

Mar 31, 1931: A **Fokker F-10A operated by Transcontinental and Western Air (TWA) crashed** near Bazaar, Kans. The accident killed all eight persons aboard, including Notre Dame football coach **Knute Rockne**. After an investigation disclosed defective wing construction, the Aeronautics Branch took the F-10A out of passenger service on May 4. Although most of the grounded planes eventually returned to service, the loss of public confidence and the costly periodic inspection required by the Aeronautics Branch led to the demise of the once popular airplane.

Jun 23-Jul 1, 1931: With Harold Gatty as navigator, **Wiley Post piloted a Lockheed Vega dubbed Winnie Mae around the world**, flying from Roosevelt Field, N.Y., and back with eight stopovers. Post's course took him near the Arctic Circle, and his distance of 15,447 miles was too short to qualify as a round-the-world flight as defined by the Federation Aeronautique Internationale. His time of 8 days 15 hours 51 minutes was nevertheless far below the record set by the Graf Zeppelin (see Aug 8-29, 1929), and he received great popular acclaim. During Jul 15-22, 1933, Post flew Winnie Mae in what is often regarded as the **first solo flight around the world**. He traveled from Floyd Bennett Field, N.Y. and back in 7 days 18 hours 49 minutes, following a course similar to his 1931 trip. (See Jul 10-14, 1938.)

Jun 30, 1931: During the fiscal year that ended on this date, the Aeronautics Branch established an **Engineering Section branch office at Los Angeles** to expedite the examination and approval of aircraft types. The office was created to allow owners and manufacturers in the West the same opportunity for contact with engineering officials as the main office in Washington provided east of the Rockies.

Jul 1, 1931: **United Air Lines** was formally established as a management company coordinating four component air carriers that had already begun operating as a single entity. United was one of **domestic aviation's "Big Four,"** which also included Eastern Air Transport, American Airways, and Transcontinental and Western Air (TWA).

Jul 27, 1931: A convention of "Key Men" involved in organizing the **Air Line Pilots Association (ALPA)** voted for affiliation with the American Federation of Labor. On Aug 10, the AF of L formally granted affiliation to ALPA, which became the largest union representing airline pilots. **ALPA's presidents** and the dates of their election were: David L. Behncke, 1931; Clarence N. Sayen, 1952; Charles H. Ruby, 1962; John J. O'Donnell, 1970; Henry A. Duffy, 1982; and J. Randolph Babbitt, 1990.

Aug 29, 1931: Tests begun this day and continued through Apr 8, 1932, showed that **transmission of weather maps over the teletypewriter circuits** of the Federal Airways System was practicable. Using an experimental circuit, the Aeronautics Branch tested equipment and procedures by sending maps three times daily from compilers in Cleveland and Kansas City to facilities in New York, Washington, and Chicago. Map transmission required equipment that printed on pages rather than on

the usual tape, but page-type and tape-type machines could operate on the same circuits. On Dec 1, 1932, the Aeronautics Branch inaugurated regular transmission of U.S. Weather Bureau weather maps via teletypewriter circuits to 78 U.S. air terminals. Six times daily, the service provided a complete weather map of the United States, divided into three sections.

Sep 5, 1931: The **first instrument landing by a system incorporating a glide path** was made at College Park, Md. The glide path was achieved by aligning an inclined radio beam with the runway, providing a path approximating the gliding angle of an airplane. (See Sep 24, 1929.)

Oct 1, 1931: The Department of Commerce promulgated a regulation prescribing a **cockpit crew complement of two**, a pilot and copilot, on all scheduled air transports capable of carrying fifteen or more passengers or having a gross takeoff weight of 15,000 pounds or more. (See Feb 12, 1931, and Nov 1, 1937.)

Oct 3-5, 1931: Clyde E. Pangborn and Hugh Herndon, Jr., made the **first nonstop transpacific flight**, as well as the first nonstop flight between Japan and the United States, in a Bellanca Pacemaker. The two men took off from Samushiro Beach, 300 miles north of Tokyo, and landed at Wenatchee, Wash., covering 4,448 miles in 41 hours 13 minutes.

Nov 1931: The Aeronautics Branch established a **branch office of its medical section** at Kansas City, Mo., to keep medical examiners of the Middle Western states in close touch with Commerce Department policies on medical requirements and examinations.

*1932

Jan 1, 1932: The first **Air Commerce Regulations governing gliders and gliding** became effective.

May 16, 1932 The official **Air Commerce Bulletin** published a rule providing for a new **scheduled air transport pilot rating**. Those receiving the rating had to demonstrate their ability to use airway navigation aids and to **fly specified maneuvers guided entirely by instruments**. Effective Jan 1, 1933, the Aeronautics Branch required the new rating for all pilots on scheduled interstate passenger service. To meet this deadline, 330 pilots obtained the rating by the end of 1932. Fifty years later, on Dec 31, 1982, the estimated number of certificated airline transport pilots was 73,741.

May 21-22, 1932: Amelia Earhart became the **first woman to make a solo crossing of the Atlantic** by airplane, flying from Harbor Grace, Newfoundland, to Londonderry, Northern Ireland, in a Lockheed Vega.

Jun 30, 1932: During the fiscal year that ended this date, the **first two installations of a new type of radio marker beacon** were completed and placed in experimental operation

--one at Archbold, Ohio, and one at Sidney, Neb. Sixteen others were ready for installation. Known as class B radio markers, or as radio landing ranges, these new radio marker beacons had 50-watt transmitters equipped with loop antennas, which permitted operation as short-range radio range beacons. They were also equipped for telephone as well as for automatic code transmission. In contrast to the Class A, 7.5-watt sets, which had a voice range of 5 to 10 miles, the 50-watt sets had a range of 30 to 40 miles. Class B marker beacons serve primarily to mark intermediate landing fields and to furnish, upon request, information on landing and weather conditions.

Jul 2, 1932: Franklin D. Roosevelt became the **first U.S. presidential candidate to fly** when he chartered a Ford Trimotor from Albany to Chicago to address the Democratic National Convention. (See Jan 14, 1943.)

Calendar Year 1932: The Aeronautics Branch created the **first formal system for the flight inspection of U.S. airway navigation aids** by assigning six pilots to regular airway patrol duty. Operating from Airway Patrol Headquarters offices in six widely dispersed cities, the pilots were each responsible for 3,000-3,500 miles of airway. The early flight inspection fleet is believed to have included five Bellanca Pacemakers, a Curtiss-Wright Sedan-15, several Stearman C-3Bs, and three Stinson SM-8As. Beginning in 1937, the remaining five aircraft of this original fleet were replaced by Stinson SR-8B Reliants and some SR-9E Reliants. (See Calendar Year 1940.)

*1933

Feb 8, 1933: **The Boeing 247 first flew**. Often considered the first modern airliner, this single-wing airplane of all-metal construction was powered by two Pratt & Whitney Wasp air-cooled radial engines. It had a gross takeoff weight of 12,650 pounds and accommodated 10 passengers. The Aeronautics Branch type-certificated the plane on Mar 16, 1933, and it entered scheduled airline service on Mar 30, 1933.

Mar 1, 1933: At the Newark Municipal Airport, N.J., the Aeronautics Branch demonstrated a **radio system that it had developed for the blind landing of aircraft**. The Branch made the system

available for service testing by aircraft equipped with the necessary radio receivers. Later that month, Aeronautics Branch pilot James L. Kinney completed the **first cross-country test of an all instrument flight and landing** when he arrived at Newark from College Park, Md. Kinney was accompanied by Harry Diamond, a Bureau of Standards scientist who helped develop the instrument landing system, and William LaViolette, a radio technician. (See Sep 13, 1934.)

Mar 2, 1933: A regulatory amendment announced on this date **increased the solo flying time required for a private pilot's license** from 10 to 50 hours. Holders of private pilot licenses had until Jun 1, 1933, to meet the new requirement. The amendment also **abolished grade of industrial pilot and created the new grade of solo pilot**. Students with 10 hours of flying time who passed specified tests could qualify for this grade. (See Aug 15, 1933).

Mar 4, 1933: **Franklin D. Roosevelt became President**, succeeding Herbert C. Hoover.

Mar 23, 1933: Enactment of legislation by the State of Georgia meant that **all of the 48 States had laws dealing with aeronautics** (see Aug 1, 1928, and Mar 1946). Georgia's new law included a requirement that all airmen and aircraft operating within the state have Federal licenses. This provision was included in most, but not all, of the other state aeronautical laws (see Dec 1, 1941).

Mar 28, 1933: The Aeronautics Branch gave **permission to aircraft engine manufacturers to conduct endurance tests on their own equipment**. Before this date, manufacturers seeking a type certificate for new engines had to ship them to the Bureau of Standards, in Washington, D.C., for endurance testing.

Mar 30, 1933: The **Sikorsky S-42**, a four-engine flying boat designed for Pan American Airways, made its first flight. The S-42, which entered scheduled service on Aug 16, 1934, weighed over 20 tons, and could carry 32 passengers and a full load for a distance of 750 miles. (See Apr 28, 1937.)

May 23, 1933: **Clarence M. Young resigned** as Assistant Secretary of Commerce for Aeronautics, effective Jun 15. (See Jun 10, 1933.)

Jun 10, 1933: President Roosevelt issued an **order changing the designation and broadening the duties of the Commerce Department's Assistant Secretary for Aeronautics**, effective 61 days from this date. The position was given the simpler title of Assistant Secretary of Commerce and made responsible for bureaus dealing with surface transportation as well as air transportation. A second Assistant Secretary had charge of bureaus dealing with trade and industry.

On **Jun 15, the position of Director of Aeronautics became head of the Aeronautics Branch**. (For earlier use of this same title, see entries for Jul 1, 1927, and Nov 1929.) The Director was to be assisted by three new Assistant Directors in charge of the divisions of Air Regulation, Airways, and Aeronautic Development.

On Jun 16, the President announced the appointment of Ewing Y. Mitchell to be the Assistant Secretary of Commerce responsible for transportation, and also named the three Assistant Directors of Aeronautics. The Director of Aeronautics position remained vacant until Sep 19, 1933 (see that date).

Jun 30, 1933: During the fiscal year that ended this date, substitution began of a **new T-L antenna for the old loop antenna** used to transmit radio range beacon signals to guide airmen flying through conditions of poor visibility. The new antenna satisfactorily disposed of the problem of night errors associated with the loop antenna. By the fiscal year's end, six of the T-L antennas were in operation, 38 were about to be placed in service, and equipment was available for installation at six additional sites.

Remote control of radio aids to air navigation also began during the fiscal year. Heretofore, operators of such aids were located on the premises of each radio facility. Since the facilities were far removed from the air terminals, owing to the hazard radio towers posed to aircraft, the operators seldom came into personal contact with the people they served. Installation of remote control enabled them to be located in the teletypewriter station, operating airways radio broadcasting stations and the radio beacon transmitters by means of a dial switch and leased telephone lines. This centralization of control and close contact with the flying public promoted efficiency and reduced operating and maintenance costs.

By the end of Jun 1933, three remote control installations had been completed. The equipment for 63 additional stations had been purchased and delivered for installation.

Jul 1, 1933: The Commerce Department's **Aeronautics Branch assumed sole responsibility for constructing and maintaining airways**, ending the arrangement under which the Airways Division was structurally part of the Bureau of Lighthouses. Under the Aeronautics Branch, the number of districts in which this function was organized was reduced from eight to six.

Jul 1, 1933: The **Douglas DC-1**, a forerunner of the famed DC-3, made its first flight. Transcontinental and Western Air (TWA) purchased the only one of these monoplanes built by Douglas. The **DC-2**, an improved version of the DC-1, made its maiden flight on May 11, 1934, and promptly went into service with TWA. CAA type-certificated the plane on Jun 29, 1934.

Aug 15, 1933: The Aeronautics Branch announced the **abolition of solo pilot licenses** and gave the solo flying privileges of that license to student pilots. The change was part of the Branch's response to curtailed appropriations. (See Sep 15, 1933.)

The Aeronautics Branch also announced that it now required airlines to make **detailed reports of all forced landings** experienced on interstate scheduled passenger flights. Previously airlines had been requested only to report the number of forced landings.

Aug 1933: The **first practical variable-pitch propeller**, developed by Frank W. Caldwell of Hamilton Standard Propeller Company in 1930, was introduced into airline service, on a Curtiss Condor biplane. The new propeller improved the propulsive efficiency of modern aircraft with highly supercharged engines, giving them more thrust than a fixed-pitch propeller when taking off and permitting adjustment to a more efficient setting for flight at different altitudes and speeds.

Sep 15, 1933: The Aeronautics Branch announced in the Air Commerce Bulletin a **streamlining plan for the Air Regulation Service** aimed at saving \$500,000. in the current fiscal year. The plan: reduced the number of inspection districts from nine to eight; cut personnel in the Service by fifteen percent; generally required applicants to travel to inspection locations as opposed to inspectors travelling from airport to airport; placed fourteen Department of Commerce aircraft in storage; closed an aircraft maintenance base; and completely segregated airline inspection, licensing, and regulation services. The Aeronautics Branch also announced that the wattage of rotating beacon lights would be cut in half for an annual savings of about \$75,000.

Sep 19, 1933: President Roosevelt appointed **Eugene L. Vidal head of the Aeronautics Branch** with the title of Director of Aeronautics (see Jun 10, 1933). Vidal was educated at the University of South Dakota and at West Point. Graduating from the latter institution in 1918, he served in the Army Corps of Engineers for two years before transferring to the Air Service and becoming a pilot. In 1926 he resigned his commission to take a position with a commercial aviation company. He continued in commercial aviation until he joined the Aeronautics Branch as Assistant Director of Aeronautics for Air Regulation in June 1933 (see Feb 28, 1937).

With Vidal's appointment as Director, the post of Assistant Director for Aeronautic Development was abolished and the number of Assistant Directors was reduced to two: the Assistant Director for Air Navigation and the Assistant Director for Air Regulation. All the principal functions of the Branch were divided between these two officials. Only the Administrative Section and the Aeronautic Information Section reported directly to the Director.

Oct 24, 1933: In an unprecedented feat for air transports, a **Douglas DC-2 and a Boeing 247D finished second and third in a field of twenty in the MacRobertson International Air Race**. The 18,500 pound DC-2 negotiated the course from Mildenhall, England, to Melbourne, Australia, in 90 hours 13 minutes. It finished 19 hours 41 minutes behind the first place finisher, a de Havilland DH-88 Comet, a long-range twin-engine racer designed expressly for the competition. Even more remarkable, the Douglas carried three revenue passengers and 900 pounds of mail and made 18 stops along a doglegged course approximately 1,000 miles longer than that flown by the Comet. The superiority of American transports over those of British or European manufacture was demonstrated by advanced design features such as NACA cowls, all-metal stressed-skin construction, light-alloy fuselage, a single low wing, retractable landing gear, and variable pitch propellers.

Nov 8, 1933: Director of Aeronautics Vidal announced a **plan to make low-priced aircraft available for widespread private ownership**. Vidal followed his announcement with a survey that indicated strong consumer interest in a plane priced at about \$700. On Dec 28, the Public Works Administration (PWA) announced that \$500,000 had been set aside for the development of such an airplane. U.S. aircraft manufacturers denounced the plan as unrealistic, however, and the PWA funds never materialized. The "Poor Man's Airplane" project collapsed, but the Department of Commerce continued to promote development of affordable aircraft. (See Jul 19, 1934.)

Nov 24, 1933: The Aeronautics Branch announced an **airport development program** to be undertaken in cooperation with the Civil Works Administration. Since one purpose of the program was to provide work immediately to the unemployed, the Branch urged municipalities wishing to acquire landing fields to apply within the next two weeks. (See Apr 15, 1934.)

Dec 7, 1933: Regulatory amendments effective this date included a provision that **persons under 21 years of age were required to obtain the consent of parents or guardians before receiving any type of pilot license** (see May 1, 1967). The amendments also created a new **amateur pilot license** requiring only 25 hours of solo flying time, compared to 50 hours then needed for a private license. The new grade, which was subsequently discontinued, was intended for personal and pleasure flying.

Dec 20, 1933: The **Martin M-130 made its first flight**. CAA type-certificated this four-engine, transoceanic flying boat designed for Pan American Airways, on Oct 9, 1935. The aircraft began service with Pan American on Nov 22, 1935.

***1934**

Feb 6, 1934: A new **Inter-Departmental Advisory Committee on Aviation** met to study the establishment of a uniform Federal aviation policy. The Committee consisted of representatives of the Departments of Commerce, War, Navy, and the Post Office, plus the Interstate Commerce Commission.

Feb 9, 1934: Postmaster General James A. Farley, carrying out the wishes of President Roosevelt, announced the **cancellation of all existing air mail contracts, effective midnight, Feb 19, 1934**. His action followed disclosures made by a special Senate investigating committee chaired by Senator Hugo L. Black (D-Ala.) and investigations made by Farley himself. The general basis for cancellation of the air mail contracts was the charge that competitive bidding had been bypassed and contract awards had been made as a result of collusion in a series of conferences of operators with Postmaster General Walter Folger Brown (see May 19, 1930).

The following day, noting that the air mail contracts had been canceled and that the continuing need for air mail service had created an emergency, President Roosevelt issued an Executive order directing the Secretary of War to make available the planes and pilots necessary to carry the air mail during the emergency. In response to the President's Executive Order, the **Army Air Corps began carrying the air mail** when the contracts expired. (See Mar 10, 1934.)

Feb 23, 1934: The **Lockheed Electra L-10 first flew**. On Aug 10, the Bureau of Air Commerce type-certificated the aircraft, which featured twin fins and rudders. Scheduled airline service with the L-10 began on Aug 11, 1934.

Mar 10, 1934: President Roosevelt ordered **temporary curtailment of air mail service by the Army Air Corps** (see Feb 9, 1934) after accidents had taken the lives of ten Army fliers, four on the mail routes and six in related flying (training exercises and ferrying personnel). On Mar 19, the Air Corps resumed carrying the mail on reduced schedules. **On May 8, mail service by commercial air companies began again on certain routes**. Pending new air mail legislation, the companies operated under temporary, three-month contracts, renewable for three months (see Jun 12, 1934). The Air Corps's participation was phased out, and its last scheduled mail flight was Jun 1, 1934.

Mar 26, 1934: Senator Pat McCarran (D-Nev.), a member of the Black Committee (see Feb 9, 1934), introduced a Senate bill (S. 3187) as a substitute for the bill that was to become the Air Mail Act of 1934 (see Jun 12, 1934). McCarran's bill, defeated in the Senate, provided for the creation of a "Federal Aviation Commission" to carry out the economic regulation of scheduled air carrier operations. The bill had no provision to repeal any existing laws and none relating to air safety. (See Jan 21, 1935.) This was the **first of a series of bills Senator McCarran was to introduce to create an independent aviation regulatory agency**. His efforts, along with those of Representative Clarence Lea (D-Calif.) in the House (see Jan 31, 1935) and others, finally bore fruit in the Civil Aeronautics Act of 1938.

Apr 15, 1934: **Airport development with Federal aid** was transferred to the Federal Emergency Relief Administration for completion of projects started under the Civil Works Administration. (See Nov 24, 1933.)

Apr 17, 1934: As a result of recent developments connected with flying the air mail (see Mar 10, 1934), the Secretary of War appointed the **Baker Committee** to report on "the operation of the Army Air Corps and the adequacy and efficiency of its technical flying equipment and training for the performance of its mission in peace and in war." Named for its chairman, former Secretary of War Newton D. Baker, the committee was composed of six civilian and five military members. It was directed to include in its report a study of the proper relationship between the Army and civil aviation. (See Jul 18, 1934.)

Jun 12, 1934: The President signed the **Air Mail Act of 1934** into law (see Feb 9, 1934). The principal provisions were:

* Contracts were to be awarded for an initial period of one year; if the contractor performed satisfactorily during that time, the contract could be extended indefinitely. Existing three-month contracts could be extended by the Postmaster General for a period or periods not exceeding a total extension of nine months (see Mar 10, 1934, and Aug 14, 1935).

* The Interstate Commerce Commission was brought into the administration of air law for the first time. The Commission was required to fix fair and reasonable rates of compensation for each route, within the upper limit prescribed in the act, which linked rates to airplane miles, with a sliding scale of increases based on load. Rates were to be reviewed at least annually. The commission had authority upon 60 days notice and hearing to terminate any contract that had been extended beyond the initial period.

* The Postmaster General and the Interstate Commerce Commission were authorized to regulate the accounting practices of the carriers.

* Air mail contractors were prohibited, after Dec 31, 1934, from holding an interest in any other aviation enterprise except landing fields and appurtenances thereto. Conversely, other aviation enterprises were prohibited from holding any interest in air mail contracts.

* Contractors were prohibited from employing any person in a managerial capacity who had entered into any unlawful combination to prevent air mail bidding. Each bidder for a contract was required to furnish the Postmaster General a list of all stockholders owning more than 5 percent of the bidder's capital stock, a financial statement, and, in the case of a corporation, the original amount paid to the corporation for its stock.

* The Secretary of Commerce was to specify the speed, load capacity, and safety features of equipment to be used on each air mail route, and to regulate the hours and benefits of pilots and mechanics.

* The President was authorized to appoint a commission of five members "for the purpose of making an immediate study and survey and to report to Congress not later than Feb 1, 1935, its recommendations of a broad policy covering all phases of aviation and the relation of the United States thereto." (See Jul 11, 1934.)

* The National Labor Board's Decision 83, which, among other things, set a maximum flying time of 85 hours per month for airline pilots, was imposed on air mail carriers. The Board had handed down Decision 83 on May 10, 1934, but its provisions had not possessed the force of law. Later, the Civil Aeronautics Act of 1938 applied Decision 83 to all interstate air carriers. (See Apr 29, 1942).

Jun 19, 1934: An amendment to the Air Commerce Act of 1926 gave the Aeronautics Branch **stronger authority to investigate civil aircraft accidents**. The amendment empowered the Secretary of Commerce or his representative to subpoena witnesses to testify or produce documentary evidence at public hearings into the causes of such accidents. If the accident involved a fatality or serious injury, the Secretary was required to issue a statement of the probable cause. In other cases, issuance of such a statement was left to the Secretary's discretion. The amendment also gave the Secretary additional safety-rulemaking powers. (See Oct 1, 1934.)

Jul 1, 1934: The **name of the Aeronautics Branch was changed to Bureau of Air Commerce**. At the same time, the title of the Director of Aeronautics was changed to Director of Air Commerce. The new name more accurately reflected the duties of the organization, which enjoyed the status of a bureau but had not been so designated. Also by this date there were no longer any major aeronautical functions that were structurally part of other Commerce Department bureaus.

Jul 11, 1934: The **Federal Aviation Commission**, appointed by President Roosevelt in accordance with section 20 of the Air Mail Act of 1934 (see June 12, 1934), held its first meeting. The members were: Clark Howell, editor in chief of the Atlanta Constitution and a member of the National Transportation Committee of 1932; Edward P. Warner, a leading aeronautical engineer and the former first Assistant Secretary of the Navy for Aeronautics; Albert J. Berres, a labor relations expert; Jerome C. Hunsaker, a former naval officer with executive experience in civil aviation business enterprises; and Franklin K. Lane, a lawyer with both Army and Navy aviation experience. The Commission's Secretary was J. Carroll Cone, Director of Air Regulation, Bureau of Air Commerce. The Commission's assignment was to make "an immediate study and survey" and to recommend "a broad policy covering all phases of aviation and the relation of the United States thereto." (See Jan 22, 1935.)

Jul 15, 1934: The Southwest Division of Varney Speed Lines began operations, flying a mail route between Pueblo, Col., and El Paso, Tex. The organization later evolved into **Continental Air Lines**, a name that it adopted on Jul 1, 1937.

Jul 18, 1934: The **Baker Committee** (see Apr 17, 1934), having taken the testimony of 105 witnesses, visited various aviation centers, and received 536 communications from Air Corps officers, filed its report. The Committee found that the United States surpassed other countries in "general," commercial, and naval aviation, but that U.S. military aviation needed financial support. Practically all deficiencies in Air Corps armament, equipment, and munitions, the Committee found, were traceable to lack of funds.

Considering the aviation industry essential to national defense, the committee recommended that the Federal government refrain from competition with private industry. It further recommended that in addition to purchase by open competitive bids, purchase by design competition and by negotiation should be lawful. Moreover, since the committee believed that commercial equipment and methods would continue to lead the way, it recommended that the Air Corps take steps to keep abreast of and adopt the latest such equipment and methods and that Army cargo and transport planes be converted or developed from commercial types. It also recommended that Army pilots be trained to use the national airways.

Jul 19, 1934: The Bureau of Air Commerce announced the **creation of a Development Section** to conduct and promote work on new types of aircraft, engines, and accessories, with specialization in the development of a low-priced airplane for general public use (see Nov 8, 1933). The new section reported directly to the Director of Air Commerce.

Jul 1934: The Bureau of Air Commerce designated the **first full-time aeronautical inspector for permanent duty in Alaska**. Heretofore, Department of Commerce responsibilities in Alaska under the Air Commerce Act had been accomplished in the course of an annual visit by an inspector. The duties of the inspector included examination of airmen and aircraft for licensing, enforcement of airline regulations and air traffic rules, inspection of flying schools, rating of airports, and all other matters under the jurisdiction of the Department of Commerce. An important part of these duties was to cooperate closely with the territorial government in seeking to develop airports and stimulate interest in flying.

Sep 5, 1934: Wiley Post, the **first pilot to use a successful pressure suit**, reached about 40,000 feet over Chicago. Although this flight did not set a new altitude record, Post demonstrated the future of pressurized flying with this and later stratospheric operations.

Sep 13, 1934: Following a conclusive demonstration of an Army Air Corps **blind-landing system**, the Bureau of Air Commerce adopted that system as its standard. The demonstration marked the conclusion of eleven months work by the Bureau in which it tested various systems and modifications for blind landing using a Ford tri-motor transport. (See Mar 1, 1933, and May 2, 1940.)

Oct 1, 1934: **Revised safety requirements for airlines** became effective. The revision resulted from an amendment to the Air Commerce Act of 1926, effective in Jun 1934, which strengthened and made more explicit the authority of the Secretary of Commerce to prescribe safety regulations.

The new provisions included the requirement for airline pilots to use multi-engine aircraft capable of operating with one engine not functioning when flying at night or over terrain not readily permitting emergency landings. Instrument or "blind" flying was permitted only for multi-engine airliners equipped with two-way radio.

The rules also required every airline to set up its system in operating divisions, with each division's operating procedure subject to the approval of the Bureau of Air Commerce. The divisions were to have approved operations manuals dealing with such safety matters as minimum altitudes of flight over specific airways, minimum ceiling for landing at specific airports, procedures for takeoff in the event of forced landing, and weather minimums for specific routes. New flight duty time limitations for airline pilots included a maximum of 100 hours per month. This was lower than the previous 110 hour monthly maximum and closer to the 85 hours required by law for pilots of air mail carriers (see Jun 12, 1934). Other provisions included a requirement that dispatching procedures and personnel receive Department of Commerce approval.

Oct 15, 1934: The **National Airline System, later known as National Airlines, began operations** as a Florida intrastate carrier. National's transformation into a trunk airline began in 1944, when the Civil Aeronautics Board awarded it authority to serve the New York/Florida market.

Jan 1, 1935: The Bureau of Air Commerce announced a new policy for the **classification of airports**, under which only those airports serving scheduled interstate airlines would be examined for compliance with its requirements.

Jan 11-12, 1935: Amelia Earhart took off in a Lockheed Vega from Honolulu and landed in Oakland, Calif., 18 hours 15 minutes later--making the **first solo flight from Hawaii to the U.S. mainland**.

Jan 21, 1935: After closely following the work of the Federal Aviation Commission (see Jul 11, 1934, and Jan 22, 1935), Senator **Pat McCarran (D-Nev.) introduced a bill (S. 1932) to create a Civil Aeronautics Commission** to regulate the economic phases of both scheduled air transportation and aircraft operations in furtherance of a business. Safety regulation of civil aviation would also be turned over to this commission, but the Secretary of Commerce would retain his duties under existing law with regard to airways and air navigation facilities. (See Jun 7, 1935.)

Jan 22, 1935: The **Federal Aviation Commission** (see Jul 11, 1934) **submitted its report** to the President, recommending the establishment of an independent Air Commerce Commission that would eventually be absorbed, along with agencies regulating other forms of transportation, into an overall transportation agency. The commission also suggested that Congress empower the Department of Commerce to install lights and other navigational aids at selected airports, and recommended that Congress ban holding-company operations and other monopolistic practices in the aeronautical industry. On Jan 31, 1935, in forwarding the report to the Congress, President Roosevelt said he was unable to concur in the commission's recommendation for creating what he called a "temporary" Air Commerce Commission. Until a permanent transportation agency was created, the President said the needs of air transportation could be well served by a division of the Interstate Commerce Commission. Congressman Clarence Lea (D-Calif.) introduced legislation to enact the commission's recommendations, but the bill died in 1936.

Jan 22, 1935: The Bureau of Air Commerce appointed an **inspector in South America** to renew licenses for U.S. airmen and aircraft of U.S. registry.

Feb 12, 1935: The U.S. Navy's **rigid airship Macon crashed** at sea off the California coast. This crash, coupled with the loss of the Macon's sister ship, the Akron, two years earlier, ended U.S. interest in rigid airship development.

May 6, 1935: A **Transcontinental and Western Air (TWA) DC-2 crashed** near Atlanta, Mo., killing five of the eight persons aboard. **Senator Bronson M. Cutting (R-N.Mex.) was among the fatalities**. A Bureau of Air Commerce report cited the accident's causes as the U.S. Weather Bureau's failure to predict hazardous weather and misjudgments by the pilot and TWA ground personnel. In June 1936, however, a committee chaired by Sen. Royal S. Copeland (D-N.Y.) issued a report alleging that the tragedy was caused by malfunctioning navigational aides and voicing other criticisms of the Bureau of Air Commerce. The controversy gave impetus to legislative efforts that eventuated in the Civil Aeronautics Act of 1938. (See Jun 23, 1938.)

Jun 7, 1935: In recommending extension of the Emergency Railroad Transportation Act to Congress, President **Roosevelt repeated his views on the regulation of aviation** (see Jan 22, 1935). "Air transportation," he wrote, "should be brought into a proper relation to other forms of transportation by subjecting it to regulation by the same agency." He said it was his hope "that the Interstate Commerce Commission may, with the addition of the new duties that I have indicated, ultimately become a Federal Transportation Commission with comprehensive powers." This reorganization, he believed, should not be delayed beyond the second session of the 74th Congress, or 1936. On Jun 10, in an effort to carry out President Roosevelt's wishes, Senator **Pat McCarran (D-Nev.) introduced a new bill** to replace the one he had introduced on Jan 21. The revised proposal placed all regulatory authority in the Interstate Commerce Commission. During hearings, considerable interdepartmental differences of opinion came to light, particularly between the Commerce and Post Office Departments and the Interstate Commerce Commission. After being rewritten, the bill was reported out of committee, but failed to reach a vote on the floor of the Senate and died with the adjournment of the 74th Congress in 1936.

Jun 19, 1935: Gathering at the invitation of the Department of Commerce, a group of governmental and industry representatives formed the **Radio Technical Committee for Aeronautics (RTCA)**. The Department had organized the meeting to address a need for coordination of research in the development of aeronautical radio. The new RTCA agreed to launch a continuing study of radio problems affecting air navigation. It began by forming subcommittees to consider such issues as reducing rain static interference and allocating frequencies.

As it evolved, **RTCA made two changes to its name**. On Jan 15, 1942, the group adopted a constitution and changed the word "Committee" to "Commission." On Nov 14, 1991, the organization became a non-profit corporation and shortened its name to RTCA, Inc.

Jun 20, 1935: President Roosevelt ordered the creation of the **Interdepartmental Committee on Civil International Aviation** to gather information and make recommendations pertaining to civil international aviation. The committee was terminated upon the creation of the Civil Aeronautics Authority on Aug 22, 1938.

Jun 25, 1935: The first flight of the Breguet-Dorand Gyroplane, an aircraft with two rotors mounted one above the other, took place in France. The Gyroplane is sometimes cited as the **first true helicopter**, but its achievements were surpassed by Germany's Focke-Achgelis Fa-61. Often considered the **first practical helicopter**, the Fa-61 first flew on **Jun 26, 1936**, and went on to set many records. During 1937, it made the first helicopter flight of over one hour.

Jun 27, 1935: The Supreme Court of the United States handed down its ruling in the case of **Rathbun (Humphrey's Executor) v. United States**--a ruling that was to have a direct effect on the structure of the Civil Aeronautics Authority (see Jun 23, 1938). The Court held that President Roosevelt had exceeded his power in dismissing William E. Humphrey, a Republican member of the Federal Trade Commission, without assigning a statutory cause. The decision was based on the Court's finding that the FTC, since it included quasi-legislative functions among its responsibilities, was a creature of Congress; therefore, Congress had been within its powers in specifying by law the basis for removal of appointees. This decision was in contrast to that in the case of **Myers v. United States** (1926), in which the Court had upheld President Wilson's dismissal of a postmaster on the ground that the latter was an agent of the presidential power. (See Jan 12, 1937.)

Jul 23, 1935: Britain's Defense Research Committee received a key report on technology that became known as **radar (radio detecting and ranging)**. By the time World War II began, Britain had established a chain of radar stations and equipped British aircraft with a device called IFF (identification, friend or foe) to help the radar stations distinguish British from hostile aircraft. (See Jun 30, 1945.)

Aug 14, 1935: An **amendment to the Air Mail Act of 1934** (see Jun 12, 1934) became law, permitting the Postmaster General to award air mail contracts for a three-year period. The amendment also authorized moderate increases in route mileage, which had been frozen at 25,000 miles in the 1934 act to prevent extension abuses.

Aug 15, 1935: **Pioneer aviator Wiley Post and humorist Will Rogers were killed** when an aircraft piloted by Post -- a hybrid, pontoon-equipped Lockheed Orion-Explorer -- plunged into a lagoon on takeoff, 16 miles north of Point Barrow, Alaska.

Aug 29, 1935: The Bureau of Air Commerce began discharging its responsibilities in the **Works Progress Administration airport development program**, providing technical advice and recommendations on all projects submitted. On Oct 1, the Bureau announced the appointment of seven regional supervisors and thirteen district advisors to oversee the assistance work, which came under the general supervision of the chief of the permanent Airport, Marking, and Mapping Section.

Sep 5, 1935: Simultaneous transmission of **radio beacon signals and voice** was first put into regular service at Pittsburgh, Pa. (See Jul 1, 1937.)

Nov 1, 1935: Due to increased air traffic, Bureau of Air Commerce director Eugene Vidal ordered **all airway users, except airline operators, to refrain temporarily from making instrument flights** within 25 miles of the center line of a radio beam or within 25 miles of an air carrier airport. (See Nov 12-14, 1935.)

Nov 12-14, 1935: Representatives of all segments of the aviation community, except manufacturers, met at the Commerce Building in Washington, D.C., with Bureau of Air Commerce officials to discuss **airway traffic control**. Although the conferees agreed that the Bureau should establish a uniform system of air traffic control, a lack of funding prevented it from assuming control. Director of Air Commerce Vidal convinced the airline operators to establish airway traffic control immediately and promised that in 90 to 120 days the Bureau of Air Commerce would take over the operations. (See Mar 24, 1936.) On Nov 15, Vidal approved an **interairline air traffic agreement** between carriers flying the Chicago-Cleveland-Newark airway. He also relaxed the general ban on instrument flying by private fliers (see Nov 1, 1935). Those pilots could now fly by instruments if they filed a flight plan with the Bureau of Air Commerce and with at least one airline flying over the route they planned to use.

Nov 22-29, 1935: Pan American Airway's China Clipper made the **first transpacific air mail flight** from San Francisco to Honolulu, Midway, Wake, Guam, and Manila. (See Oct 21, 1936.)

Dec 1, 1935: A consortium of airline companies organized and manned the **first airway traffic control center** at Newark, N.J. It provided information to airline pilots on the whereabouts of planes other than their own in the Newark vicinity during weather conditions requiring instrument flying. Two additional centers, similarly organized and staffed, opened several months later: Chicago in Apr 1936, Cleveland in Jun 1936. (See Jul 6, 1936, and Nov 12-14, 1935.)

Dec 17, 1935: The **Douglas DC-3 first flew**. One of the most successful aircraft in history, the DC-3 was the first plane that allowed airlines to begin basing their profits squarely on passenger service rather than on carrying mail. The Bureau of Air Commerce certificated this aircraft on May 21, 1936, and American Airlines became the first to place it in service (using the berth-equipped DST version) on Jun 25, 1936. By 1942, the DC-3 represented 80 percent of the U.S. airline fleet. When production of the DC-3 and its modifications ended in 1945, 10,926 aircraft had been built, 803 as commercial airliners, and the rest as military versions (called C-47 in the U.S. Army, R4D in the U.S. Navy, Dakota or Dakota I by the British).

*1936

Jan 3, 1936: Executives of scheduled U.S. airlines met in Chicago to form the **Air Transport Association of America** as a separate trade association for air carriers. Until the end of 1935, the founding airlines had belonged to the Aeronautical Chamber of Commerce (see Calendar Year 1945). The new Association's first president was Edgar S. Gorrell, whose effective lobbying was soon to play an important role in the passage of the Civil Aeronautics Act (see Jun 23, 1938). Gorrell served until 1945, and was succeeded by: Emory S. Land, 1946-53; Earl D. Johnson, 1954-55; Harold L. Pearson, 1955; Stuart E. Tipton, 1955-72; Paul R. Ignatius, 1972-84; Norman J. Phillion, 1985; William S. Bolger, 1986-88; Robert J. Aaronson, 1989-92; and James E. Landry, who began serving in 1992.

Mar 24, 1936: At a meeting before a subcommittee of the House Appropriations Committee to ask for supplemental funds, Director of Air Commerce Eugene L. Vidal, convinced the committee of the **necessity for the Federal Government to take over Air Traffic Control**. Vidal succeeded in ultimately obtaining \$175,000 for the takeover of three existing control centers early in fiscal 1937. (See Jul 6, 1936).

Apr 10, 1936: The President signed legislation that **extended the jurisdiction of the Railway Labor Act to airline employees**. The act guaranteed the right of collective bargaining and provided mechanisms, such as mediation and arbitration, for settling labor-management issues. It also provided for investigation of representation disputes and for certification of employee organizations as representatives of crafts or classes of carrier employees.

May 9, 1936: The German rigid airship Hindenburg moored at Lakehurst, N.J., after a nonstop transatlantic passage of 61 hours 38 minutes from Fiedrichshafen, Germany. The flight marked the **inauguration of regularly scheduled transatlantic air service**. The Hindenburg, which had first flown two months earlier, on Mar 4, made ten roundtrips between Germany and the United States during her 1936 season, carrying 1,021 passengers across the North Atlantic. (See May 6, 1937.)

Jun 6, 1936: The Socony-Vacuum Oil Company began using **the catalytic cracking method to produce aviation gasoline**, a step forward in the technology of aviation fuel production.

Jul 6, 1936: Federal air traffic control began as the **Bureau of Air Commerce took over operation of the three airway traffic control centers** at Newark, Chicago, and Cleveland. Up to this time, these centers had been operated by private airline companies (see Dec 1, 1935). The centers were placed under Earl F. Ward, whose appointment as Supervisor, Airway Traffic Control, had been announced on Mar 6, 1936. Ward reported to the chief of the Airline Inspection Service within the Air Regulation Division. When the Bureau assumed control of the centers, it hired fifteen center employees to become the original Federal corps of airway controllers.

Aug 15, 1936: Bureau of Air Commerce **regulations governing instrument flight** became effective. Under the new rules, all civil pilots desiring to fly intentionally by instruments over a civil airway were required to have an instrument rating and a Federally licensed aircraft equipped with two-way radio and approved instrument flying equipment. Pilots were required to file a flight plan if they intended to fly by instruments or along a civil airway when visibility was less than one mile. At this time, almost all general aviation pilots lacked instrument ratings and equipment for instrument flying. During bad weather, therefore, the new rules generally kept them off airways used by air carriers.

Sep 10, 1936: Deutsche Luft Hansa's twin-engine Dornier Do.18 flying boat Zephyr alighted offshore of Port Washington, N.Y., after a flight of 22 hours 18 minutes from Horta in the Azores, where it had been catapulted from the deck of a depot ship. This was the **first a series of German survey flights for possible transatlantic air mail service**. The Germans continued such experimental flights into 1938.

Sep 30, 1936: Three reporters left New York City to **journey around the world as passengers**. Herbert R. Ekins, who made all major links by air, arrived back in 18 days, 14 hours, 56 minutes. Dorothy Kilgallen and Leo Kieran made surface connections that included a sea voyage from Hong Kong to Manila. Keiran's time of 24 days, 14 hours, 20 minutes was 1 hour 45 minutes slower than Kilgallen's, but he claimed to be the only one of the three who used only regular transportation available to all citizens.

Oct 19, 1936: The Bureau of Air Commerce commissioned the **Detroit air route traffic control center** on this date, followed by the **Pittsburgh center** on Nov 16.

Oct 21, 1936: Pan American Airways initiated regular weekly **transpacific passenger service** as the Hawaii Clipper took off from Alameda, near San Francisco, arriving at Manila on Oct 27. (See Nov 22-29, 1935, and Apr 28, 1937.)

Nov 1, 1936: Central Airlines and Pennsylvania Airlines merged to form **Pennsylvania-Central Airlines**. The company **changed its name to Capital Airlines on Apr 21, 1948**. (See Jun 1, 1961.)

Calendar year, 1936: For the first time in their history, **U.S. domestic airlines carried a million or more passengers** (1,042,042) in scheduled air operations in a single year.

***1937**

Jan 12, 1937: Franklin Roosevelt submitted to Congress the Report of the President's Committee on Administrative Management, popularly known as the **Brownlow Report**, named after chairman Louis Brownlow, a public administration expert. The committee had examined the proliferation of Federal boards, commissions, and agencies that operated independently of the President's executive powers, and constituted a "fourth branch of Government." The committee had no quarrel with the Congress's intent in creating these agencies--they were needed to perform quasi-legislative and quasi-judicial functions. But the committee did take exception to the fact that these agencies also exercised executive or administrative powers that, in its opinion, properly belonged to the President. The committee recommended that those entities be placed within executive departments and divided into judicial and administrative sections. The judicial section would be independent of executive branch control; the administrative section, however, would be headed by a chief directly responsible to a member of the President's cabinet. The Brownlow Report had a profound influence on the organizational structure of the Civil Aeronautics Authority, as set forth in Civil Aeronautics Act of 1938 (see Jun 23, 1938).

Feb 28, 1937: **Eugene L. Vidal announced his resignation** as Director of Air Commerce. **He was succeeded the following day by Fred D. Fagg, Jr.** Fagg came to the Bureau of Air Commerce as an authority on aviation law. In 1929 he had founded the Air Law Institute at Northwestern University, and since then he had been its director in addition to editing or helping to edit its publication, the Journal of Air Law. Before his appointment as Director of Air Commerce, Fagg had served as consulting expert to the Department of Commerce on revision of the air commerce regulations, as an advisor to the Copeland Senate committee on aircraft safety, and as one of the advisers to the Federal Aviation Commission (see Jul 11, 1934). He was a member of the Illinois Aeronautics Commission, secretary of the National Association of State Aviation Officials, and a member of the American Section, International Technical Committee of Aerial Legal Experts. (See Apr 16, 1938.)

Mar 1, 1937: The Bureau of Air Commerce commissioned the **Los Angeles air route traffic control center** on this date, followed by the **Washington (D.C.) center** on Apr 1 and the **Oakland center** on May 15.

Apr 28, 1937: The Pan American Hong Kong Clipper, a Sikorsky S-42B flying boat, arrived at Hong Kong from Manila. Linking with the existing Pan Am route from San Francisco to Manila, this new service completed the **first commercial airline route from the United States to a point close to the Asian mainland**. (See Oct 21, 1936.)

Apr 29, 1937: The Commerce Department announced a **new plan of organization for the Bureau of Air Commerce**. The reorganization placed all activities under the Director of Air Commerce, assisted by an Assistant Director, with supervision over seven principal divisions: Airways Engineering; Airways Operation; Safety and Planning; Administrative; Information and Statistics; Certificate and

Inspection; and Regulation and Enforcement. A Policy Board composed of top Bureau officials and a Technical Assistant and an Advisory Board of representatives of aviation interests assisted the Director. A second Assistant Director position was added during fiscal 1938.

May 6, 1937: The German **airship Hindenburg burst into flames** while mooring at Lakehurst, N.J., the U.S. terminal for its regular transatlantic service, killing 35 of the 97 persons aboard. The tragedy signaled the end of serious efforts to use rigid airships in commercial air transportation.

May 7, 1937: The **first flight by a fully pressurized airplane**, the Lockheed XC-35, occurred. The Army used the plane, a modified Electra, to test equipment and material for use in high altitude operations. A few aircraft prior to the XC-35 had been fitted with experimental pressure cabins, but none of the earlier models flew successfully.

May 28, 1937: **National Aviation Day occurred for the first time, on a one-time basis**, pursuant to a Presidential proclamation issued in accordance with Public Resolution No. 32, 75th Congress, approved May 25, 1937. May 28 was selected because it marked the 20th anniversary of the decision to design what later became known as the Liberty engine, the principal U.S. contribution to aeronautics during World War I. (See Aug 19, 1939.)

Jun 16, 1937: Commercial passenger service was inaugurated reciprocally between New York and Bermuda by Pan American Airways, using the Sikorsky S.42B flying boat Bermuda Clipper, and by Imperial Airways, using the Short S.23 flying boat Cavalier. This was the **first scheduled airplane service over a segment of the North Atlantic**.

Jul 1, 1937: The Bureau of Air Commerce launched a two-year comprehensive **airways modernization and extension program**, allocating five million dollars to modernize the existing airways, and \$2 million to extend the airways system. Under the program, the Bureau converted the existing airway broadcast and radio range stations to the simultaneous system of transmission in which a pilot could receive radio range signals and radiotelephone information on weather conditions at the same time. By the end of fiscal 1938, six simultaneous-transmission stations had been completed, with the remaining 159 scheduled for completion at the rate of 12 to 15 per month. (See Sep 5, 1935, and May 1, 1939.) This program followed a period of several years during which stringent curtailment of funds had brought development of the nation's airways to a virtual standstill.

Jul 2, 1937: A Lockheed Electra 10E carrying navigator Fred J. Noonan and famed pilot **Amelia Earhart was reported overdue** at Howland Island in the Pacific, a stop on an eastward trip planned as the first flight to follow an equatorial path around the globe. A massive search failed to locate the aircraft, and theories as to its fate abound.

Aug 23, 1937: At the Army's Wright Field, Dayton, Ohio, the **first wholly automatic landing** was made by Capt. Carl J. Crane, the system's inventor, Capt. George Holloman, pilot, and Mr. Raymond K. Stout, project engineer. The landing was made without intervention from the human pilot or from the ground.

Sep 15, 1937: President Roosevelt appointed an **Interdepartmental Committee on Civil Aviation Legislation** to review the executive branch legislation proposed for the economic regulation of the air carrier industry and make recommendations (see Jun 7, 1935). Representatives from the State, Treasury, War, Navy, Post Office, and Commerce Departments served on the committee. On Jan 4, 1938, the committee incorporated the result of its hearings and deliberations in a proposed bill. That bill underwent various modifications and became in large part the basis of the Senate and House bills sponsored by Senator Pat McCarran (D-Nev.) and Congressman Clarence F. Lea (D-Calif.). Early in 1938, President Roosevelt informed McCarran and Lea that he had changed his mind concerning regulation of air commerce by the Interstate Commerce Commission (see Jan 31 and Jun 7, 1935) and now favored the idea of a separate commission to regulate all phases of civil aeronautics. These moves by the President and the two members of Congress were key events in the several years of efforts to obtain legislation providing for all or part of the regulation of civil aeronautics to be performed by the Interstate Commerce Commission or a new independent agency. Between Mar 26, 1934, when McCarran introduced his first bill for such a purpose, until the passage of the Civil Aeronautics Act, more than 30 bills dealing with this subject had been introduced in Congress, and many of these bills had more than one version as a result of modification during hearings. The act, as it finally emerged from Congress, embraced the contributions of many persons and represented many compromises. (See Jun 23, 1938.)

Nov 1, 1937: A Department of Commerce rule went into effect that required **scheduled air carriers to employ a copilot** on multi-engine aircraft with retractable landing gear or wing flaps, and on

single-engine aircraft incorporating both retractable landing gear and wing flaps. It also required a copilot in scheduled service during instrument flying and during flights that exceeded a certain duration. (See Oct 1, 1931 and Jul 8, 1940.)

Nov 1, 1937: The main part of the **Civil Air Regulations (CARs)**, representing a thorough revision and codification of the Air Commerce Regulations, went into effect. Classification of the regulations into parts and sections numbered by an expansible decimal system began at this time.

The need for this revision and codification had become quite urgent. Since 1926, various individuals within the Aeronautics Branch, the Bureau of Air Commerce, or the Department of Commerce had issued regulations without any system for clearance through a central office. As a result, there was no convenient or standard compilation; sometimes, regulations could be found only in Departmental or Bureau correspondence. Moreover, the enforceability of most of the regulations was open to question in case of contest because most of them had been issued by persons other than the Secretary of Commerce, the official designated in the Air Commerce Act. The staff of the Bureau of Air Commerce and its predecessor, the Aeronautics Branch, were well aware of the situation but too burdened with routine duties to exert the major effort required to correct it.

Finally, through the interest of Colonel J. Monroe Johnson, Assistant Secretary of Commerce, the Bureau invited two consulting experts from Northwestern University to undertake the task of revision. Fred D. Fagg, Jr., and John H. Wigmore, Dean Emeritus of Northwestern's School of Law, began the work in Jul 1936. When Fagg became Director of Air Commerce on Mar 1, 1937, he was replaced by Howard C. Knotts, Editor in Chief of the Journal of Air Law. (See Mar 22, 1927, and Oct 18, 1960.)

Calendar year, 1937: **Reciprocal air transport service across the North Atlantic was the subject of an exchange-of-notes agreement** consummated between the governments of the United Kingdom, Canada, the Irish Free State, and the United States. Provision was made for the British and American air carriers to operate the service, each participating carrier to fly not more than two round trips per week. (See May 19, 1939.)

*1938

Jan 1, 1938: An **Airport Traffic Control Section** was created in the Airways Operation Division of the Bureau of Air Commerce. The new section was to standardize airport control tower equipment, operation techniques, and personnel. Forty airport control tower operators had been certificated by Jun 30, 1938.

Apr 16, 1938: **Denis Mulligan became Director of Air Commerce**, succeeding Fred D. Fagg, Jr. (see Feb 28, 1937), who had resigned the previous day. Mulligan brought to this position broad experience in aviation, business, and law. A 1924 graduate of West Point, he qualified as an Army Air Corps pilot and observer. After resigning from the Army, he was active in insurance work, commercial aviation, and admiralty law. He joined the Bureau of Air Commerce in 1934 as chief of the Enforcement Section, became Chief of the Regulations and Enforcement Division, and in Oct 1937 became the Bureau's Assistant Director. Mulligan resigned as the last Director of the Bureau on Aug 21, 1938, the day before the Civil Aeronautics Act became operative. (See Jul 7, 1938.)

Jun 7, 1938: **The Boeing 314 first flew**. On Jan 25, 1939, the Civil Aeronautics Authority type-certificated the aircraft, and the airliner entered service with Pan American Airways on May 20, 1939. Made to the specification of Pan American for transoceanic travel, the four-engine flying boat had a gross empty weight of 50,286 pounds and a maximum carrying capacity of 74 passengers and 10 crew members. In 1939, the 314 became the largest production airplane in regular scheduled service in the world.

Jun 23, 1938: President Roosevelt signed the **Civil Aeronautics Act** of 1938 into law. Most of its provisions, however, were to become effective 60 days later (see Aug 22, 1938). The law created a new kind of Federal agency--one designed, in the light of the Brownlow Report (see Jan 12, 1937) and court decisions (see June 27, 1935), to keep its functions as the agent of Congress distinct from its functions as the agent of the President. This new Civil Aeronautics Authority was composed of three elements.

To perform the quasi-legislative and quasi-judicial functions of safety and economic regulation, the law created a five-member entity designated the **Civil Aeronautics Authority**, the same term used to describe the agency as a whole. The law also established an **Administrator of the Authority**, who was independent of the five-member Authority and had responsibility for the executive and operational functions of the agency. Finally, an **Air Safety Board** of three members operated

independently within the agency and had quasi-judicial powers for investigating accidents, determining their probable cause, and making recommendations for accident prevention.

The President appointed all nine of these officials with the concurrence of the Senate. The Administrator, as the agent of the presidential power, could be removed by the President at will, the others only for cause.

As assigned to the five-member Authority, safety regulation functions were essentially those previously performed by the Bureau of Air Commerce, but revised and enlarged. Economic regulation was made much more comprehensive and thorough than that authorized by the Air Mail Act of 1934 (see Jun 12, 1934). The Authority was given regulatory powers applying to: air mail rates; airline rates, fares, and routes; and the business practices of airlines--the last involving inspection or regulation of such matters as accounts, records, consolidations, mergers, or other forms of control, and methods of competition. Interstate air carriers were required to obtain from the Authority a certificate of public convenience and necessity permitting them to operate over specified routes.

The Administrator's functions under the law were the encouragement of civil aeronautics and commerce, establishment of civil airways, provision and technical improvement of air navigation facilities, and the protection and regulation of air traffic along the airways. Airports were not excluded from the facilities that the Administrator could establish and maintain, as they had been under the Air Commerce Act; however, the Administrator was prohibited from acquiring any airport by purchase or condemnation. The law directed the Administrator to make a field survey of the existing system of airports and to present definite recommendations by Feb 1, 1939, on whether and how the Federal government should participate in the development, operation, or maintenance of a national system of airports. (See Sep 14, 1938.)

Jun 30, 1938: During the fiscal year that ended this date, the Department of Commerce established **teletype network Schedule B** connecting airway traffic control centers with airway communication stations and with military airbases. By the end of the year this teletype network comprised approximately 10,000 miles of circuits. Prior to this time, the airway traffic control centers were served by only a party-line telephone circuit connecting the center with the local airline radio ground stations, the control tower, and the Department of Commerce radio range stations. Control of airway traffic was limited to aircraft that were in communication with the radio stations operating at the same location as the airway traffic control center.

Establishment of the Schedule B network permitted teletype transmission of flight data independently of the increasing load of weather data being transmitted on Schedule A circuits. It became apparent, however, that improved telephone communication was also needed for airway traffic control. By the end of fiscal 1940, the government had leased 1,760 miles of private-line telephone circuits connecting airway traffic control centers and other facilities. By 1942, there were 29,124 miles of these "interphone circuits" in operation.

Jul 1, 1938: The Bureau of Air Commerce created a **new field organization** that decentralized administrative authority. The Bureau abolished the nine general inspection districts and the six airway districts and consolidated their functions into seven regional offices headquartered at Kansas City (Mo.), Los Angeles, Newark, Atlanta, Chicago, Fort Worth, and Seattle. Each region was placed under the general direction of a regional manager responsible for a host of matters that had previously been the province of Washington officials. The reorganization was in line with the recommendations of the President's Committee on Administrative Management, headed by Louis Brownlow (Jan 1, 1937), which had urged the decentralization of the Washington departments along geographical lines and the creation of regional units to cover all parts of the United States to carry out "more and more of the administrative work." In that way, the committee stated, government would be brought closer to the people. When the Civil Aeronautics Authority began operations it retained the Bureau's newly decentralized field organization. (See Aug 1, 1941.)

Jul 7, 1938: President Roosevelt named **the five members of the Civil Aeronautics Authority** (see Jun 29, 1938). **The Chairman was to be Edward J. Noble**, a Connecticut industrialist who had long had an interest in aviation and was one of the first private owners of an autogiro. The other members were Grant Mason, Harllee Branch, Oswald Ryan, and Robert H. Hinckley. (See Apr 12, 1939.)

On the same day, the President named **Clinton M. Hester**, of Montana, as the **first Administrator of the Civil Aeronautics Authority**. A veteran public servant, Hester was in his 20th year of Federal service in Washington. He had previously served in six different agencies and was, at the time of this

appointment, assistant general counsel of the Department of the Treasury. He did not formally begin his new duties until Aug 22, 1938, the effective date of the Civil Aeronautics Act. (See Jul 11, 1940.)

Jul 10-14, 1938: With a crew of four, **Howard Hughes flew a Lockheed L-14 around the world** from Floyd Bennett Field, N.Y., and back with stops at Paris, Moscow, Omsk, Yakutsk, Fairbanks, and Minneapolis. This celebrated flight of 14,824 miles took 3 days 19 hours, about half the time achieved by Wiley Post over a similar course in 1934 (see entry for Jun 23-Jul 1, 1931).

Jul 11, 1938: The **British Empire led the world in miles covered by air route operations** (80,000), according to an annual report on civil aviation published this date. The runner-up was the United States, with 63,000 miles. France had 38,750; Germany, 31,900; Italy, 19,450; and Holland, 19,000.

Jul 17, 1938: Douglas Corrigan took off from Floyd Bennett Field, N.Y., on a 28-hour solo flight to Dublin, Ireland. The pilot had failed to receive clearance for a transatlantic flight, and his persistent claim that he had intended to fly to California earned him the sobriquet "**Wrong Way**" Corrigan.

Jul 29, 1938: Pan American's **Hawaii Clipper disappeared** between Guam and Manila, and searchers failed to find a trace of the aircraft. The frequency of transpacific service was reduced as a result of the clipper's loss.

Aug 22, 1938: The **Civil Aeronautics Act of 1938 became operative** (see Jun 23, 1938). To implement the act, the Bureau of Air Commerce was transferred from the Department of Commerce, and the Bureau of Air Mail from the Interstate Commerce Commission to the Civil Aeronautics Authority.

Sep 27, 1938: The Civil Aeronautics Authority announced that President Roosevelt had approved its recommendation for the immediate construction of a close-in airport to serve the District of Columbia--the **Washington National Airport**. Expected to serve as a model for the rest of the nation, the new airport would be located at Gravelly Point on the Potomac River. The site of approximately 750 acres would include 500 acres of "made" land from dry fill and dredging. The project was to begin immediately and was scheduled for completion by the end of 1940. (See Jun 16, 1941.)

Dec 27, 1938: President Roosevelt announced an **experimental Civilian Pilot Training Program** involving 330 pilots and 13 colleges and supported by National Youth Administration funds. (See Jun 27, 1939.)

Dec 31, 1938: The **Boeing 307 Stratoliner, the first airliner with a pressurized cabin, made its initial flight**. Derived from the B-17 bomber, this long-range transport had four engines and a carrying capacity of 33 passengers. CAA type-certificated the aircraft on Mar 13, 1940, and on Jul 8, 1940, it entered scheduled service with Transcontinental and Western Air. Besides the prototype, which was lost in a crash, Boeing built only 9 Stratoliners: 5 for TWA, 3 for Pan American, and 1 for Howard Hughes.

*1939

Mar 1, 1939: The Civil Aeronautics Authority commissioned the Fort Worth **air route traffic control center** on this date, the Salt Lake City center on Apr 1, the St. Louis center on May 1, and the Atlanta center on Oct 1.

Mar 23, 1939: The Civil Aeronautics Authority submitted to Congress its final report on a **detailed nationwide survey of airports** mandated by the Civil Aeronautics Act of 1938. The report indicated that the number of municipal and commercial airports had increased from 823 at the end of 1927 to 1,833 at the end of 1938, and that Federal relief programs had been responsible for most airport development since 1933.

The Authority recommended that the development and maintenance of an adequate system of airports (including seaplane bases) should be recognized as a matter of national concern and a proper object of Federal expenditure. Currently, the Authority believed that airports should receive \$100 million of regular public-works or work-relief funds, as well as \$25 million to increase the Federal share of joint Federal-local projects. Important airport projects should also be eligible for special funding in the form of grants to state authorities. Plans for the location and development of any airports benefiting from a Federal contribution should be approved by the Federal agency responsible for civil airways. The Federal government should not contribute to the cost of maintaining non-Federal airports; however, the Civil Aeronautics Authority might, as funds permitted, assume the cost of operating airport lighting equipment or other air navigation facilities as a part of the cost of operating the Federal airway system.

Apr 12, 1939: President Roosevelt named **Robert H. Hinckley** of Utah, to be **Chairman of the Civil Aeronautics Authority**. He succeeded Edward J. Noble (see Jul 7, 1938), who resigned to become

Executive Assistant to the Secretary of Commerce. Hinckley was serving as an original member of the Authority at the time of his appointment to the chairmanship. Previously, he had been Assistant Administrator of the Works Progress Administration and had been in charge of WPA activities in the West. Hinckley was Chairman of the Civil Aeronautics Authority at the time of the reorganization of Jun 30, 1940 (see that date). He became Assistant Secretary of Commerce for Air on Jul 8, 1940, and served in that post until Jul 1, 1942.

Apr 18, 1939: The **minimum age requirement for a private pilot's license was increased** from 16 to 18 years. The rule change resulted from a protracted campaign by the father of Edward Mallinckrodt. In 1932, the 16-year-old Mallinckrodt took a friend on a flight that ended in an accident costing both their lives. The young man's parents had been unaware that their son possessed a pilot's license, since parental consent was not then required for pilot applicants (see Dec 7, 1933). The elder Mallinckrodt failed to convince the Department of Commerce that the age requirement should be raised to 18. Eventually, however, he enlisted the support of CAA board member Oswald Ryan, who pushed the reform through the Authority. The change prevented 16- and 17-year-olds from carrying passengers, but they could still qualify as students and fly solo. (See Jul 1, 1945.)

Apr 1939: The National Institute of Municipal Law Officers issued the **first model Airport Zoning Act**, prepared with CAA assistance, to encourage enactment of such legislation by state governments. By Nov 1944, when a fifth revision of the Model Act was published, 12 states and one territory had passed similar acts. (See Sep 1, 1946.)

May 1, 1939: The Civil Aeronautics Authority completed a **\$7 million airways modernization and improvement program** begun Jul 1, 1937. The Federal Airways System now covered 25,500 miles and included a total of 231 radio range stations, 100 ultra-high-frequency cone-of-silence markers, and 21 ultra-high-frequency fan markers. The program also involved modernization of all the full-power radio ranges to permit simultaneous voice and range broadcasts. (See Jul 1, 1937.)

May 9, 1939: Dale E. White and Chauncey E. Spencer took off in a Lincoln-Paige biplane from Harlem Airport in Oak Lawn, Ill., on a flight to Washington, D.C., as part of a **campaign for inclusion of African Americans in aviation training programs**. A number of black colleges were subsequently selected as participants in the Civilian Pilot Training Program (see Jun 27, 1939).

May 15, 1939: The **Aircraft Owners and Pilots Association (AOPA)**, an organization devoted to the interests of general aviation, was founded. C. Townsend Ludington became the association's first president. The first major organization of its kind, AOPA would assume in the years to come a large voice in aviation affairs.

May 19, 1939: The Civil Aeronautics Authority announced issuance of a certificate of public convenience and necessity to Pan American Airways **authorizing transatlantic air transport service** of two round trips per week. Before any passengers were to be carried, Pan American was required to complete a minimum of five trips as proving flights (see Jun 28, 1939); however, Pan American began the **first regular transatlantic airplane mail service on May 20**.

May 29, 1939: CAA's **Indianapolis Experimental Station opened** with the mission of seeking improvements in ultra-high-frequency radio ranges, transmitters, receivers, instrument landing systems, airport lighting methods, and other air navigation aids. Located on a landing area contiguous with the municipal airport, the station was made available by the city of Indianapolis through a long-term lease arrangement. Its facilities included a hangar, laboratory, and shop building constructed in accordance with the Authority's specifications.

Jun 27, 1939: President Roosevelt signed the **Civilian Pilot Training Act** of 1939 into law. The act authorized the Civil Aeronautics Authority to conduct a program for the training of civilian pilots through educational institutions and to prescribe pertinent regulations with the objective of providing sufficient training to prepare a student for a private pilot certificate. The act authorized \$5,675,000 to be appropriated for the program during fiscal years 1939 and 1940, and specified that thereafter the appropriation should not exceed \$7 million for any one fiscal year. The act was to expire on Jul 1, 1944. On the basis of this legislation, CAA's program for the 1939-1940 school year called for training 11,000 civilian pilots, although considerably fewer were actually trained the first year. (See May 16, 1940, and Dec 12, 1941)

In what proved to be an important development for African Americans in aviation, the act contained a provision introduced by Representative Everett M. Dirksen (R-Ill.) stipulating that "none of the benefits of training or programs shall be denied on account of race, creed, or color."

Jun 28, 1939: Pan American Airways inaugurated the **first regularly scheduled transatlantic passenger airline service by heavier-than-air craft** (see May 19, 1939). A Boeing 314 flying boat made the flight from New York to the Azores, Lisbon, and Marseilles. Pan American opened passenger service between New York and Southampton, England, on Jul 8. The outbreak of World War II in Europe soon forced curtailment of these routes, and by Oct 3, 1939, only the New York to Lisbon portion was operating. (See Jun 1, 1945.)

Jul 6, 1939: Eastern Air Lines began the world's **first scheduled air mail service by a rotary winged aircraft**, using a Kellett autogiro to fly from the roof of the Philadelphia Post Office to the airport at Camden, N.J. This experimental service lasted about one year. (See Oct 1, 1947.)

Aug 19, 1939: **National Aviation Day occurred for the first time on a continuing basis.** In 1937, President Roosevelt had designated May 28 as National Aviation Day for that year only (see that date). No day had been designation in 1938. In a proclamation dated Jul 25, 1939, President Franklin Roosevelt applied this designation to Aug 19, 1939, and to Aug 19 of each succeeding year, in honor of Orville Wright's birthdate. The proclamation was issued pursuant to Public Resolution No. 14, 76th Congress, approved May 11, 1939 (53 Stat. 739).

Sep 1, 1939: Germany invaded Poland, **beginning World War II.** (See Dec 7, 1941.)

Nov 30, 1939: **CAA issued Private Pilot's License No. 93258 to Major Dwight D. Eisenhower**, U.S. Army (Infantry), at Fort Lewis, Wash. He had begun his flight training while on the staff of General Douglas MacArthur in the Philippines. Although he let his license expire, Eisenhower became the first Chief Executive to have held an airplane pilot's license.

Dec 2, 1939: **New York Municipal Airport - La Guardia Field opened** for commercial traffic on the improved site of the former Glenn H. Curtiss Airport at North Beach, Long Island, N.Y. The facility was renamed La Guardia Airport in 1947.

Dec 4, 1939: At the direction of President Roosevelt, the Bureau of the Budget's Division of Administrative Management began a **study of the organization of the Civil Aeronautics Authority.** The Bureau reported its findings to the President the following spring. Roosevelt approved the Bureau's recommendations and transmitted them as **Reorganization Plans III and IV** to Congress in April, 1940, under the Reorganization Act of 1939. The plans would take effect 60 days after the President submitted them to Congress unless the House of Representatives and Senate passed a concurrent resolution stating that Congress did not approve the reorganization.

Plan III involved the transfer of certain functions from the Authority to the Administrator. Plan IV included: combining the Authority and Air Safety Board into a new Civil Aeronautics Board with authority to prescribe and revise safety rules and to suspend or rescind the certificates of carriers and airmen; and transferring the Administrator to the Department of Commerce. While Plan III encountered no opposition in Congress, Plan IV attracted strong criticism and was voted down in the House. Ultimately, however, the Senate approved the plan on May 14, 1940, by a 46-34 vote. (See Jun 30, 1940.)

Calendar year, 1939: **Extension of airways radio facilities into Alaska** got underway.

***1940**

Jan 1, 1940: The Civil Aeronautics Authority assumed operation of **communication stations at Anchorage and Fairbanks**, Alaska.

Jan 15, 1940: The **first issue of the official Civil Aeronautics Journal** appeared, superseding Air Commerce Bulletin (see Jul 1, 1929). The publication was **retitled CAA Journal** on Aug 15, 1944. (See July 20, 1952.)

Feb 9, 1940: A CAA order established a system under which qualified private persons were designated as flight examiners and empowered to conduct flight tests and written examinations for private pilot certificates. This permitted CAA inspectors to "spot check" trainees rather than examine each applicant. Such delegation of authority to private individuals was new (with the exception of the medical examiner program: see Feb 28, 1927), and it began a trend. Another step in **CAA's growing use of designees** was an order on Dec 17, 1940, authorizing the appointment of representatives to perform certain regulatory functions regarding the manufacture of military aircraft for export. On Aug 1, 1941, CAA announced the appointment of its first 50 aircraft inspection representatives to facilitate clearance of civil airplanes for flight after they had been repaired. As the United States entered World War II, a CAA order of Dec 8, 1941, gave broad authority to the Director, Safety Regulation, to

designate persons outside of the agency to make examinations, tests, inspections, or reports. (See Jan 15, 1946.)

Feb 16, 1940: Radio station WSY, the Civil Aeronautics Authority's **first overseas and foreign airways communications station (OFACS)** began regular operations. Capable of two-way radio communications with aircraft flying the Atlantic Ocean, the powerful facility could also communicate with various points in Europe, Bermuda, and Newfoundland. The station's high-frequency transmitting equipment, located at Bayville, Long Island, initially included four 4-kilowatt transmitters and two 400-watt transmitters. The receiving equipment was spread over 600 acres at Barnegat Light, N.J. A CAA office at La Guardia Field operated both receivers and transmitters by remote control. During World War II, the station proved extremely valuable to U.S. ferrying operations over the North Atlantic. WSY set the pattern for the establishment during the war years of similar overseas communications stations at San Francisco, Seattle, Miami, New Orleans, Anchorage, Honolulu, San Juan, and Balboa, Canal Zone.

Apr 14, 1940: The **first Air Corps detachment assigned to Alaska** arrived at Fairbanks.

May 2, 1940: President Roosevelt gave final approval for development of a version of the **instrument landing system (ILS)** favored by CAA. Deployment of the system was delayed, however, by continued disagreements with the military and by World War II defense priorities. ILS did not become available for civil airliners until after the war.

May 13, 1940: The **VS-300**, precursor of today's fully mature helicopter, **made its first free flight**, at Stratford, Conn. As designer Igor I. Sikorsky continued to improve the aircraft, which employed a single main rotor, it set records that included a world flight endurance record of over 1 hour, 32 minutes on May 6, 1941. The VS-300's first flight in its final configuration took place on Dec 8, 1941.

May 16, 1940: President Roosevelt called for the **production of 50,000 airplanes a year**. Since there were only about 30,000 pilots in the country, CAA subsequently announced that it would **expand the Civilian Pilot Training Program** to provide pilots for the increased number of planes. In 1940, the CPTP graduated 9,885 pilots, and in the 18 months before the United States entered the war, the number of pilots in the country rose from 31,000 to over 100,000, primarily through the CPTP. (See Jun 27, 1939, and Dec 12, 1941.)

Jun 20, 1940: Pan American inaugurated regular **air mail service between Seattle and Juneau, Alaska**, with a Sikorsky S-42 flight via Ketchikan. Passenger service began on Jun 24.

Jun 30, 1940: The **reorganization of the Civil Aeronautics Authority**, under President Roosevelt's Reorganization Plans III and IV, went into effect. The President's announced purpose was to clarify the relations of the Civil Aeronautics Authority's Administrator and its five-member board (which was designated the Civil Aeronautics Authority, the same term used to describe the agency as a whole). The new legislation divided the responsibility of regulating civil aviation between two new organizations.

The five-man board was transferred to the Department of Commerce and renamed the **Civil Aeronautics Board (CAB)**. The Air Safety Board was abolished and its accident-investigating functions assigned to the new CAB. Though the CAB was to report to Congress and the President through the Secretary of Commerce, it was to exercise its functions of safety rulemaking, adjudication, investigation, and airline economic regulation, independently of the Secretary.

The **Administrator**, with the new title Administrator of Civil Aeronautics, was also **transferred to the Department of Commerce**, and placed under the supervision of the Secretary. The Administrator's functions now included those initially assigned to him by the Civil Aeronautics Act (see Jun 23, 1938), plus certain safety-regulating duties the Authority had delegated to him after appointing him Supervisor of the Bureau of Safety Regulation in the Authority. These safety-regulating duties did not involve rulemaking or the power to suspend or revoke certificates. To deal with his changed responsibilities, the Administrator informally placed an interim organizational scheme in effect on Aug 24. Eighteen units reported directly to him: the Management Planning Section; the Personnel Section; Washington National Airport; the Federal Airways Service; the Certificate and Inspection Division; the Civilian Pilot Training Division; the Legal (Compliance) Division; the Aviation Medical Division; the Information and Statistics Division; the Administrative Division; a Coordinator of Field Activities; and the seven regional managers. Subsequent modifications of this structure included the creation on Nov 1 of an Executive Officer position to handle internal managerial activities (see Dec 4, 1939 and May 15, 1945).

On **Aug 29**, Department of Commerce Order 52 designated the functions of the Administrator as the **Civil Aeronautics Administration**. The Civil Aeronautics Authority continued to exist on paper as an entity embracing the CAB and the Civil Aeronautics Administration, but it performed no functions as the Authority.

Jul 8, 1940: TWA employed the **first flight engineer** in U.S. scheduled domestic passenger service, on the Boeing 307B Stratoliner. The flight engineer took over system support functions, including the operation of the pressurization system, from the pilots. (See Nov 1, 1937 and Jul 10, 1945.)

Jul 11, 1940: The Senate confirmed **Col. Donald H. Connolly, U.S. Army, as the first Administrator of Civil Aeronautics**, following President Roosevelt's reorganization of the Civil Aeronautics Authority. Clinton M. Hester, who had served as the Administrator in the Authority (see Jul 7, 1938), had resigned to enter private law practice. Educated at the University of California and at West Point, from which he graduated in 1910, Connolly had served in the Corps of Engineers since leaving the Military Academy. He had had previous executive experience in civilian government as Director of the Civil Works Administration in Los Angeles in 1934 and as Administrator of the Works Progress Administration for Southern California from 1935 to 1939. During the year and a half immediately preceding his assignment to CAA, he had commanded the Second Engineers, U.S. Army. (See Jul 20, 1942.)

Jul 12, 1940: A Pan American Boeing 314 left San Francisco for Auckland, beginning **service between the United States and New Zealand** for air mail. Passenger service began Sep 13, 1940.

Aug 19, 1940: **CAA presented Orville Wright honorary Pilot Certificate No. 1** during a National Aviation Day ceremony dedicating the Wright Memorial at Dayton, Ohio. (See Apr 6, 1927.)

Aug 31, 1940: **a Pennsylvania-Central Airlines DC-3 crashed** into a ridge near Lovettsville, Va., killing all 25 persons aboard, including Sen. Ernest Lundeen (Farmer-Laborite, Minn.). The Civil Aeronautics Board cited the probable cause as disabling of the crew by a severe lightning discharge near the aircraft. **The crash ended an unprecedented 17 fatality-free months** for U.S. domestic scheduled air carriers, who flew 1.4 billion passenger-miles during the period. (See Dec 31, 1970.)

Oct 1, 1940: CAA commissioned the Seattle **air route traffic control center** on this date, followed by the Cincinnati center on Nov 11.

Oct 4, 1940: The Commerce Department's new **Aeronautical Advisory Council** concluded its first meeting on this date. A permanent body to consult with Commerce officials on aviation policy, the Council included members from all sections of the country and all phases of civil aviation.

Oct 9, 1940: In the first appropriation made directly to CAA for airport development, Congress appropriated \$40 million for the construction, improvement, and repair of up to 250 public airports determined to be necessary for national defense. Under this **Development of Landing Areas for National Defense (DLAND)** program, the Administrator of Civil Aeronautics had responsibility for qualifying airports with the approval of a board composed of the Secretaries of War, Navy, and Commerce.

In fiscal year 1941, Congress allocated funds for developments at 193 sites in the United States and its possessions. To expedite results, CAA made cooperative arrangements with the Work Projects Administration (WPA) and the War and Navy Departments, since these agencies performed the actual construction in many cases. The total expenditure for the DLAND program was ultimately \$383 million for 535 airports. After WPA aid to other agencies was suspended on Feb 1, 1943, the continuation of some of the DLAND projects came into question. In January 1944, however, an amendment to a war appropriations bill provided money to complete about 30 airports left unfinished by the WPA. Under that program, the **Development of Civil Landing Areas (DCLA)**, CAA spent \$9.5 million on 29 airports.

Dec 17, 1940: The first annual observance of **Pan American Aviation Day** took place in accordance with legislation enacted on Oct 10 (see Dec 17, 1963).

Dec 23, 1940: United Air Lines began what was probably the **first all-freight service** by a U.S. airline, supplementing its regular service with a daily all-cargo flight westbound from New York to Chicago. This experiment in freight service ended May 31, 1941. (See Aug 12, 1949.)

Calendar Year 1940: CAA obtained the first of 15 Cessna T-50 Bobcats, which became the agency's primary **flight inspection aircraft** during World War II. The T-50s were retired after the war, when CAA began receiving surplus Beech 18s and DC-3s. (See Calendar Year 1932 and Oct 6, 1956.)

Jan 1941: CAA established a **Standardization Center** at Houston, Tex., to promote uniformity in the agency's inspection and instruction methods and in examinations for all types of pilot certificates. The Center provided mandatory refresher courses for all flight and inspecting personnel, as well as required classes for new employees before they went to their regular post of duty. With the outbreak of war, the center expanded its regular program to instruct multi-engine pilots for ferrying duty with the Army Air Forces. It later also trained flight officers and Link Trainer instructors.

Apr 7, 1941: The War Department-sponsored **Interdepartmental Air Traffic Control Board** began operations on this date. The IATCB included representatives of the Army, Navy, CAA, and CAB, and became an important coordinating agency for the location of military air installations. Forerunner to the later Air Coordinating Committee (see Mar 27, 1945), IATCB helped evolve many of the procedures for the control and regulation of air traffic used during the war. The Board was abolished on May 31, 1946.

May 1, 1941: CAA announced that **six new airports in Alaska** currently under construction or scheduled to begin would each have at least one usable runway by the following winter. The new airports (at Juneau, Cordova, Boundary, Big Delta, West Ruby, and Nome) were part of the Development of Landing Areas for National Defense program (see Oct 9, 1940). They would double Alaska's available airport facilities and radio aids to flying.

May 1, 1941: After successful tests during the previous year, CAA's **first ultra-high-frequency radio range system** opened for scheduled airline use on the New York-Chicago airway. The airway was the first link in the eventual conversion of the entire 35,000 miles of Federal airways from intermediate to ultra-high frequencies. U.S. involvement in World War II, however, delayed immediate expansion of the system because the Army took over all available equipment for these frequencies. In 1944, incorporating wartime radio advances, CAA began testing an improved, static-free, **very high frequency omnidirectional radio range (VOR)** at its Experimental Station in Indianapolis. Using the new system, a pilot could remain on course by watching a dial on his instrument panel instead of listening to the signal from the four-course aural range. The new range also sent signals in all directions from the station, instead of merely four courses as with the low frequency range. (See Calendar Year 1947.)

Jun 16, 1941: **CAA officially opened Washington National Airport** for full-time operations. By the end of the year, almost 300,000 passengers had enplaned or deplaned at the airport, and scheduled air carrier operations reached a high of 192 daily in the month of September. Spectator interest was very high, and by the first of December over 2,225,000 persons had visited the airport.

Jul 1941: Lt. H. A. Boushey, Army Air Forces, made the **first successful jet-assisted takeoff (jato)** in the United States, at March Field, Calif., in an Ercoupe with pressed-powder-propellant jato rockets developed by the California Institute of Technology.

Aug 1, 1941: CAA added a **new region, the Eighth** to its organizational structure. The region covered the territory of Alaska, with headquarters at Anchorage. Prior to this time, direction for aeronautical activities in Alaska had been provided partly by the Seventh Regional Office in Seattle, and partly by CAA's Bureau of Federal Airways in Washington, D.C. (See Jun 1, 1938.)

Aug 18, 1941: President Roosevelt announced that Pan American Airways would operate an **air ferry service** to fly aircraft, cargo, and passengers to the African continent in support of the Allied war effort. At the President's direction, CAA on Sep 10 granted temporary authority to Pan American to operate the ferry service, flying from Miami, Fla., via Puerto Rico and Brazil, to Liberia and Nigeria. The rights would expire in 5 years, or 6 months after the Secretary of War notified CAA that the service was no longer required.

Aug 25, 1941: President Roosevelt signed the First Supplemental National Defense Appropriation Act carrying a budget item of \$12,186,000 for **CAA to construct, operate, and maintain airport traffic control towers**. A procedure, worked out earlier in the year and incorporated into the Appropriation Bill, required the Secretaries of War and Navy to certify a list of airports as essential to national defense before CAA could assume control of the towers. According to a CAA-Army-Navy agreement, the CAA airport traffic controller had full charge of tower operations, except in event of military emergency. The initial appropriation provided funds for the control of 39 control towers, while additional congressional funding was required to cover any additional towers recommended by the Army and Navy for CAA control.

The following day, CAA released the list of 39 locations where CAA would assume jurisdiction over traffic activities. CAA anticipated that the transfer of operations would become effective Jan 1, 1942. (See Nov 1, 1941.)

Sep 1941: Following evaluation of British jet engine development, the **U.S. Army Air Forces decided to produce a Whittle-type jet engine.** (See Jan 15, 1930, and Oct 1, 1942.)

Nov 1, 1941: **CAA began operating airport traffic control towers.** (Prior to this time, towers were operated by local airport authorities, except at CAA-managed National Airport.) By Nov 15, the Agency controlled towers at Albuquerque, N.Mex.; Atlanta, Ga.; Charlotte, N.C.; Floyd Bennett Field, N.Y.; Orlando, Fla.; Portland, Ore.; Salt Lake City, Ut.; and Savannah, Ga. CAA was to take over control of towers at 19 additional airports in Jan 1942, and at 12 other fields in Apr 1942. The total of wartime CAA-operated towers reached a peak of 115 during fiscal year 1944. As the military need for use of civil airports began to gradually decline in 1945, the War and Navy Department funds underwriting CAA's airport activities decreased. The Agency returned some towers to local jurisdiction, and in a few cases accepted municipal reimbursement for the service. In fiscal year 1947, Congress replaced the military support with the first of many direct appropriations for CAA airport traffic tower control. (See Aug 25, 1941).

Dec 1, 1941: President Roosevelt ordered the creation of the **Civil Air Patrol (CAP)** as a division of the Office of Civilian Defense. In 1943 the President transferred the CAP to the War Department as an auxiliary of the Army Air Forces.

Dec 1, 1941: Beginning on this date, **all U.S. pilots and aircraft using the nation's airspace were required to be Federally certificated.** (Up to this time, lack of pertinent legislation in certain states had allowed uncertificated U.S. pilots and aircraft to operate so long as they stayed within state borders and did not enter a Federal civil airway.) Alien pilots could operate a foreign aircraft in U.S. airspace if they possessed a valid certificate issued by the country in which the aircraft was registered, if there was a reciprocity arrangement between the United States and that country, and if CAB had issued a permit for such operation.

Dec 7, 1941: The **Japanese attacked Hawaii and the Philippines.** The following day the U.S. Congress declared a state of war with Japan. On Dec 11, Germany and Italy declared war on the United States.

Dec 7, 1941: CAA commissioned the Boston **air route traffic control center** on this date, followed by the Jacksonville center on Dec 15. (See Dec 18, 1941.)

Dec 12, 1941: President Roosevelt signed Executive Order 8974, **transforming the Civilian Pilot Training Program into a wartime program.** Henceforth, the CPTP would be "exclusively devoted to the procurement and training of men for ultimate service as military pilots, or for correlated non-military activities." (See May 16, 1940, and Dec 7, 1942.)

Dec 13, 1941: The President directed the Secretary of Commerce "to exercise his **control and jurisdiction over civil aviation** in accordance with requirements for the successful prosecution of the war, as may be requested by the Secretary of War." The Executive order also authorized the latter "to take possession and assume control of any civil aviation system, or systems, or any part thereof, to the extent necessary for the successful prosecution of the war."

Dec 18, 1941: The Secretary of War requested that long-range CAA projects for commissioning air route traffic control centers and completing the interphone and teletype network "be expedited to the fullest extent possible in the interest of National Defense." By mid Mar 1942, CAA had established **seven new centers:** Memphis, Jan 15; Kansas City, Feb 1; San Antonio, Feb 15; Denver and Albuquerque, Mar 1; and Great Falls and Minneapolis, Mar 15. (See Appendix V for listing of all ARTCC commissionings.)

Calendar year, 1941: CAA's first **Inter-American Aviation Training Program** began as part of the national defense effort. By the end of the fourth program, completed after the close of hostilities, 894 Latin Americans had received training in aeronautical sciences, including 365 pilots, 386 mechanics, and 99 airways technicians. (See Jul 16, 1947.)

Calendar Year, 1941: Oscar Holmes, the **first known African American to become a Federal air traffic controller,** joined CAA.

***1942**

Jan 6, 1942: Pan American Airways Pacific Clipper landed at New York, the **first commercial airplane to circle the globe, exclusive of the continental United States.** The aircraft had left San

Francisco on Dec 2, 1941, and was operating in the South Pacific when the Pearl Harbor attack forced it to return to home territory by flying west.

Feb 14, 1942: The **Douglas DC-4 Skymaster** made its initial flight, thereafter becoming prominent in a generation of four-engine U.S. transports that advanced long-haul air travel. The plane was a scaled-down version of a prototype developed in 1939. The DC-4 carried a crew of six and up to forty-two passengers. Unlike the Boeing 307 and 307B, it did not have a pressurized cabin. The DC-4 entered military transport service with the military designation of C-54.

Apr 29, 1942: Reflecting wartime requirements, an amendment to the Civil Aeronautics Act increased the **maximum permissible monthly number of flying hours of airline pilots** to 100. The former monthly limit for had been 85 hours (see Jun 12, 1934). This lower maximum was later reinstated by congressional action on Jul 25, 1947.

May 16, 1942: Congress enacted legislation aimed at **regulating air freight forwarders**. The act prohibited such forwarders from establishing, or the Civil Aeronautics Board from approving, joint rates with common carriers subject to the Interstate Commerce Act.

Spring, 1942: CAA Experimental Station in Indianapolis flight tested a **stall-warning indicator** for general aviation aircraft. The agency believed that some minor modifications in construction were desirable before a marketable device would be available. (See Feb 25, 1947.)

Fiscal year, 1942: CAA began a test program to develop a means of **preventing damage to aircraft windshields from collision with birds** in flight.

Jul 20, 1942: **Charles I. Stanton was sworn in as Administrator of Civil Aeronautics**. Nominated on May 27, he had been Acting Administrator since the Jan 15 resignation of Brig. Gen. Donald H. Connolly (see Jul 11, 1940). Connolly had resigned to serve on the staff of Lt. Gen. Henry H. Arnold, Chief of the Army Air Forces. As Military Director of Civil Aviation, Connolly coordinated all civil aviation activities with the program of the Army Air Forces.

Stanton had received a B.S. degree from Tufts College in 1917, and had served as a World War I aviator with the 122d Aero Squadron, U.S. Army. His civil aviation career began in 1918, when he was employed in the air mail operations of the U.S. Post Office Department. After leaving the U.S. Air Mail Service in 1923, he became executive officer of the National Aeronautic Association, and later worked for the U.S. Corps of Engineers and in private engineering firms. In 1927 he joined the Aeronautics Branch of the Department of Commerce as an airplane and engine inspector, transferring soon afterward to the Airways Division. He served continuously with the Branch and its successor organizations until becoming CAA Deputy Administrator, the post he held at the time of his appointment as Administrator. (See Sep 23, 1944.)

Aug 18-20, 1942: Letters from the Acting Secretary of War and the Secretary of the Navy to the Secretary of Commerce formalized the decision that **CAA would perform its war support functions** in a civilian status.

Sep 14, 1942: To meet the increased tempo of military requirements, CAA established a **Pacific Islands Office** at Honolulu under the general supervision of the Sixth Region, headquartered at Los Angeles.

Oct 1, 1942: Robert Stanley piloted the initial flight of the **first U.S. jet-propelled aircraft, the Bell XP-59A Airacomet**, at Muroc, Calif. The aircraft was powered by two I-A engines developed by General Electric from the Whittle design. (See Sep 1941.)

Oct 22, 1942: Westinghouse Electric began development of two 19A axial-flow turbojet powerplants, the **first practical jet engine wholly American in design**.

Dec 1, 1942: CAA commissioned the **airport traffic control tower at Anchorage, Alaska**.

Dec 7, 1942: CAA's Civilian Pilot Training Program became the CAA **War Training Service**, a redesignation that recognized changes in progress for some time to gear the program more closely to the needs of the armed services (see Dec 12, 1941). Beginning Jul 1, 1942, and lasting until the following Dec 15, training under the program was given only to members of the inactive reserve of either the Army Air Forces or the Naval Reserve. On Dec 15, 1942, the Navy placed its trainees under the program on active duty. The Army took this step in the summer of 1943. In all, some 300,000 pilots were trained in the War Training Service phase of the program, which lasted until Jun 30, 1944, for the Army and until Aug 4, 1944, for the Navy.

Calendar year, 1942: At the request of the War Department, the Civil Aeronautics Administration assisted the Signal Corps in stepped-up **efforts to set up worldwide airways** for Air Transport Command operations. High priority was initially assigned to extending the Northeast Airway and

establishing the Crimson Airway to guide the mounting flow of military aircraft to the British Isles. Before the African invasion, CAA engineers installed radio communications and air navigation facilities at nine large air bases in South America and Africa on the Southeast Airway. Radio ranges and other facilities also carried military airways services to Pacific battlefields--southwest to Australia and north from Seattle to Attu. In response to Army and Navy requests, CAA had established by the end of 1945 facilities at some 200 locations outside the United States at a total cost of \$38 million, exclusive of the DLAND airport program.

*1943

Jan 9, 1943: The **Lockheed C-69 first flew**. After the war, this four-engine, military transport was converted into a successful commercial airliner, the **L-049 Constellation**. In Dec 1945, CAA type-certificated the Constellation, which entered commercial passenger service on Jan 14, 1946, with Pan American. Model L-649, the first version manufactured entirely for civil use, carried 60 passengers and had a range of over 3,000 miles with 8 tons of payload. On Nov 26, 1968, a Western Air Lines "Connie" completed the type's last scheduled airline flight in North America.

Jan 11, 1943: Franklin D. Roosevelt became the **first U.S. President to fly** while holding office when he took off from Miami, Fla., aboard Pan American's Dixie Clipper. On Jan 14, Roosevelt arrived in French Morocco to attend the Casablanca Conference. (See Jul 2, 1932.)

Feb 1, 1943: CAA inaugurated an expanded **flight advisory service** at all air route traffic control centers. The centers originated advisories on weather changes and hazardous conditions, and airway communication stations relayed this information to nonscheduled pilots. The service provided these pilots with some of the assistance that airline pilots received from their dispatchers. In Jul 1943, CAA's communication stations also began a **flight communications service**. When contacting pilots by radio, communicators were instructed to volunteer information on important weather changes or inoperative facilities along their route.

Oct 3, 1943: The National Advisory Committee for Aeronautics' Lewis Flight Propulsion Laboratory completed the **first U.S.-built afterburner for jet engines**.

Dec 1943: National Advisory Committee for Aeronautics researcher John Stack conceived the rocket aircraft research program to investigate the flight characteristics of aircraft flying faster than the speed of sound. A NACA proposal to service representatives the following spring led ultimately to the **X-1 research airplane project**.

Calendar Year, 1943: By the end of the year, CAA had established, as a matter of military necessity, the nucleus of a complete **air traffic control system in Alaska**. CAA commissioned the airport traffic control tower at Fairbanks on Feb 1, the air route traffic control center at Ladd Field (Fairbanks) Oct 14, and a similar center at Anchorage on Sep 15. The U.S. Weather Bureau began operations at Merrill Field, Anchorage, on Feb 4.

*1944

Jan 15, 1944: CAA commissioned the **Honolulu air route traffic control center** on this date, followed by the **Miami center** on Aug 16.

May 1, 1944: In United States v. Drumm, a U.S. District Court found that Andrew D. Drumm, Jr., had repeatedly violated Parts 60.30 and 60.31 of the Civil Air Regulations (CARs) by piloting a civil aircraft without a valid pilot certificate and flying an aircraft lacking an airworthiness certificate. Drumm maintained that the CARs did not apply to him since he did not fly on civil airways or over restricted areas. He further contended that the Civil Aeronautics Board had exceeded its statutory authority by promulgating Parts 60.30 and 60.31. The judge found these arguments without merit, upholding Federal authority to certificate every pilot and aircraft using U.S. airspace.

May 15, 1944: CAA announced that it had **trained** 1,536 men of the Armed Forces in **air traffic control work**: 605 Army and 628 Navy enlisted control tower operators and 303 Army flight control officers.

Jul 11, 1944: CAB issued a report concluding that an experiment in providing short-haul and local scheduled air service should be conducted. The experiment involved the establishment of a new airline category, known as "**feeder**" or "**local service**" carriers. On Aug 1, 1945, Essair (later known as Pioneer Air Lines until merged into Continental on Apr 1, 1955) became the first airline to fly under the new classification, operating with a temporary certificate. Not until May 19, 1955, did legislation provide for permanent certification of local service carriers. (Later legislation extended permanent certification in 1956 to local service carriers in Alaska and Hawaii and in 1957 to certain carriers operating between Alaska and the United States.) In 1970, the local service category included

nine airlines carrying 27 million passengers annually. By that time, the local service airlines had begun referring to themselves as "regionals," a term later adopted by the commuter airlines (see Jul 1, 1969) and also used by CAB as part of a system that categorized airlines by their revenue levels (see Oct 2, 1980).

Aug 21, 1944: CAA established a **Ninth Region** with headquarters at Honolulu. The new office had jurisdiction over the territory of Hawaii and the Pacific Ocean area not within the boundaries of the Eighth Regional Office in Alaska.

Sep 10, 1944: The first airplane designed in World War II exclusively to carry cargo, the **C-82**, was successfully test-flown at the Fairchild aircraft plant in Hagerstown, Md. Fairchild manufactured 220 planes for the Air Force before discontinuing production in 1948.

Sep 23, 1944: **Theodore P. Wright was sworn in as Administrator** of Civil Aeronautics. Nominated on Aug 22, Wright succeeded Charles I. Stanton (see Jul 20, 1942), who submitted his resignation on Aug 18 and, on its acceptance, reverted to his former position of Deputy Administrator. Wright was educated at Lombard College and the Massachusetts Institute of Technology. He was commissioned in the Naval Reserve Flying Corps in 1918, and was superintendent of naval aircraft construction for the New York district during 1921, his last year of naval service. He then joined the Curtiss Aeroplane and Motor Corporation (later renamed the Curtiss-Wright Corporation) as executive engineer. During his subsequent tenure as chief engineer, the firm produced a number of outstanding aircraft types. In World War II, Wright served with the Advisory Commission for the Council of National Defense as Assistant Chief of the Aircraft Branch of the Office of Production Management (later WPB), and as Director of the Aircraft Resources Control Office of the Aircraft Production Board. He published extensively on topics related to aircraft manufacturing. (See Jun 1, 1948.)

Oct 1944: CAA issued the first edition of its **Statistical Handbook of Civil Aviation**, a one volume compilation of essential civil aviation statistics, later superseded by the **FAA Statistical Handbook of Aviation**.

Nov 28, 1944: CAA submitted to Congress a **National Airport Plan proposing Federal and state support for airport improvements** needed for a forecast increase in civil aviation. The plan was based on cooperative studies that the agency had carried out with local governmental or private interests seeking assistance in postwar airport planning. Its publication helped to stimulate the introduction of congressional bills on airport development. (See May 13, 1946).

Nov 1-Dec 7, 1944: The **International Civil Aviation Conference** met in Chicago, attended by representatives of 52 countries. The conference agreed upon the Convention on International Civil Aviation, known as the **Chicago Convention**. Rejecting the "blue skies" doctrine and reaffirming the principle of national sovereignty in airspace, this **agreement laid the groundwork for the first truly global organization for civil aviation**--the Provisional International Civil Aviation Organization (PICA0)--and created machinery to assure uniform standards and practices for flight safety and operations. (See Jun 6, 1945)

***1945**

Jan 11, 1945: Administrator Theodore P. Wright of the Civil Aeronautics Administration announced the formation of an **Advisory Committee on Non-Scheduled Flying**, composed of representatives from the aviation industry and the private flyer sector, to assist CAA in planning for increased postwar private flying.

Mar 27, 1945: An interdepartmental memorandum between the State, War, Navy, and Commerce Departments set up an **Air Coordinating Committee (ACC)** for the purpose of achieving an integrated and coordinated Federal aviation policy. In May 1946, the ACC established an airspace subcommittee to carry on the work of the Interdepartmental Air Traffic Control Board (IATCB), which had functioned during the war to resolve civil-military airspace-use problems. On Sep 19, 1946, the President formally chartered the ACC. Membership now included the State, War, Navy, Post Office, and Commerce Departments, the Civil Aeronautics Board, and the Bureau of the Budget (nonvoting member), although subsequent executive orders made changes in the ACC's membership from time to time until the committee was abolished in Oct 1960.

Apr 12, 1945: President Franklin D. Roosevelt died suddenly at Warm Springs, Ga. Vice President **Harry S Truman took the oath as President**.

Apr 19, 1945: Forty-one airlines from twenty-five nations created a voluntary organization, the **International Air Transport Association (IATA)**, at Havana, Cuba, to prevent airlines from

practicing unethical methods of setting rates and schedules. Other international airlines subsequently joined the association. IATA succeeded the International Air Traffic Association, which had been formed at The Hague in 1919.

May 8, 1945: President Truman proclaimed the **end of the war in Europe**.

May 12, 1945: CAA announced the initiation of **tests to determine the radius of interference from low- and high-frequency radio stations on radio reception by airplanes**. The tests were considered highly important because of their general applicability to the airport construction program being considered by Congress.

May 15, 1945: Effective this date, CAA Administrative Order No. 34 formalized the **first steps of an extensive reorganization** intended "to meet urgent problems, domestic and foreign, of postwar expansion of civil aviation." The revised organizational structure redesignated the Federal Airways and Safety Regulation Services as "offices" and established an Office of Airports and an Office of Field Operations. Assistant administrators directed the Washington program offices, and a regional administrator replaced the regional manager in supervising each of the nine regions. Based on a concept of decentralized administration, the new pattern of organization placed responsibility upon the regional administrators for the executive direction of CAA programs in their respective regions. The role of the Washington office involved "establishing the broad over-all plans, general policies, and standardization of equipment and procedures." (See Nov 3, 1948, and Jun 2, 1949.)

Jun 1, 1945: Ending a monopoly by Pan American Airways, **CAB granted three U.S. airlines the authority to serve North Atlantic routes to Europe**. The three were Pan American, Transcontinental & Western Air (TWA), and American Export Airlines. On the same day, CAB approved American Airlines' acquisition of the control of American Export. (See Jun 28, 1939, and Oct 24, 1945.)

Jun 1, 1945: Effective this date, CAA permitted the **physical examination for private and student pilots to be made by any registered physician**. (See Feb 28, 1927, and Jun 15, 1960.)

Jun 6, 1945: Representatives from 26 countries created the **Provisional International Civil Aviation Organization (PICA)**. (See Nov 1-Dec 7, 1944, and Apr 4, 1947.)

Jun 29, 1945: CAA announced that it was conducting **extensive tests of six different types of airport approach lighting systems** under development at its Experimental Station at the Indianapolis Municipal Airport.

Jun 30, 1945: During the fiscal year that ended on this date, CAA began development work on **adapting radar to civil aviation** at the Indianapolis Experimental Station, using equipment supplied by the Armed Forces. (See Jul 23, 1935 and May 24, 1946.)

CAA drafted comprehensive proposals for **revision of the Civil Air Regulations** and submitted them to the Civil Aeronautics Board. The Board was engaged in revising safety regulations to reflect wartime advances in aviation.

CAA also resumed its **air marking program**, suspended during the war because of security restrictions. The Agency installed markers at 66 points in N.C., Conn., Tex., Ill., Pa., Ohio, and Wash. during the fiscal year.

Jul 1, 1945: **CAA reduced the minimum age requirement for a private pilot license** from 18 to 17 years. Application for a student pilot certificate could be made at age 16. Any applicant under age 21 was required to submit the written consent of a parent or guardian. At the same time, CAA also **lowered the flying time necessary for a private license** from 43 to 40 hours for conventional planes and 30 to 27 hours for nonspin type planes. (See April 18, 1939, and May 1, 1967.)

Jul 3, 1945: CAA created the new position of **private pilot examiner** to meet the anticipated flood of postwar demands for private pilot examinations.

Jul 10, 1945: The Civil Aeronautics Board adopted a rule requiring a **flight engineer** on certain international flights. (See Jul 8, 1940 and Feb 15, 1946.)

Jul 16, 1945: The United States Government exploded the **first atomic device** at Alamogordo, N. Mex.

Jul 28, 1945: Flying in fog over New York City, a U.S. Army Air Forces **B-25 bomber crashed into the Empire State Building**, causing the deaths all three persons on the plane and eleven in the building.

Aug 6, 1945: The United States dropped an **atomic bomb** on Hiroshima, Japan, followed by a second on Nagasaki on Aug 9. These attacks, and the Soviet declaration of war against Japan on Aug 8, led to **Japan's surrender on Aug 14** and the end of World War II. As a result of the war, a total of 1,961

men and 70 women, representing nearly 20 percent of CAA's personnel, left the agency during 1939-45 to serve in the Armed Forces.

Sep 20, 1945: The **first turboprop-powered aircraft flight** was completed in Britain by a Gloster Meteor experimentally equipped with Rolls-Royce Trent engines.

Oct 1, 1945: CAA commissioned the **New Orleans air route traffic control center**.

Oct 24, 1945: A DC-4 operated by American Export Airlines landed at Hurn Airfield, England, after a flight from New York, inaugurating the **first scheduled landplane commercial service between North America and Europe**. (Pan American had earlier begun the first regular seaplane transatlantic service: see Jun 28, 1939.) After beginning the new service, American Export adopted the name **American Overseas Airlines** on Nov 10, 1945. (See Jun 1, 1945, and Sep 25, 1950.)

Dec 31, 1945: Dr. **Luis W. Alvarez** received the 1945 Collier Trophy for his outstanding initiative in the conception of the **Ground Controlled Approach (GCA)** system and his contribution to its use for the safe landing of aircraft. The Armed Forces had introduced the system during World War II. After the conflict, some urged GCA's use by civil aviation, while CAA continued to favor the Instrument Landing System (ILS). (See May 2, 1940, Mar 30, 1947, and Apr 3, 1947.)

Calendar Year, 1945: The principle trade association of U.S. aviation manufacturers adopted the name **Aircraft Industries Association of America, or AIA**. (It had previously been known as the Aeronautical Chamber of Commerce of America (ACCA), founded in Dec 1921. ACCA itself had been preceded by the Aircraft Manufacturers Association, founded in 1917 and later known as the Manufacturers Aircraft Association.) In 1959, AIA changed its name again to the Aerospace Industries Association of America, reflecting a membership broadened to include manufacturers of space-related products.

*1946

Jan 15, 1946: CAA announced **streamlined inspection procedures** intended to prevent bottlenecks in the extensive civilian aircraft production underway. The new procedures provided for appointment from the industry of designated manufacturing inspection representatives and designated aircraft maintenance inspectors. **CAA's increasing use of designees** included other regulatory areas. By Jun 30, 1948, 9,965 representatives of the Office of Aviation Safety were in the designee program, including 2,050 commercial aviation medical examiners, 6,222 airman rating examiners, and 1,693 aircraft service representatives. (See Feb 9, 1940, and Nov 25, 1947.)

Jan 29, 1946: CAA Administrator T. P. **Wright received the Daniel Guggenheim Medal** for 1945 for notable achievement in the advancement of aeronautics.

Feb 1, 1946: Association of Aviation Underwriters announced a 30 percent **rate reduction in personal accident insurance for domestic airline passengers**.

Feb 11, 1946: The **United States and Great Britain signed the Bermuda Agreement**, an Air Service Agreement for the operation of commercial air services, which set a pattern for the conclusion of subsequent bilateral civil aviation treaties by the United States. (See Jul 23, 1977.)

Feb 15, 1946: The **Lockheed L-049 Constellation** went into U.S. domestic passenger service. Designed for a three-man crew, the Constellation had a separate panel and side-facing seat for a flight engineer. (See Jul 10, 1945 and Feb 21, 1947.)

Feb 28, 1946: The Civil Aeronautics Board approved for one year, beginning on this date, the **rate-setting machinery of the International Air Transport Association (IATA)**. The approval was later extended.

Mar 4, 1946: The first of a continuing series of **international regional air navigation planning meetings** sponsored by the Provisional International Civil Aviation Organization began at Dublin, Ireland, to determine standard operating procedures for North Atlantic air services. This meeting was followed by similar meetings in the other nine regions of the world. By Apr 1949, an initial meeting had been held in all ICAO regions.

Mar 15, 1946: CAA announced the selection of Will Rogers Field, Oklahoma City, Okla., for the location of its **new aeronautical center for training and maintenance**. The agency immediately relocated the Standardization Center (Houston), the general aircraft maintenance base for the Midwest, and the Signals Division School, and planned eventually to move all Federal airways schools and similar Agency activities to this central location. Oklahoma City had agreed to build an administration building and two new hangars for CAA's use.

Mar 21, 1946: The Army Air Forces, the Navy's Bureau of Aeronautics, CAA, the National Advisory Committee for Aeronautics (NACA), and the aircraft industry formulated a **National Aeronautical**

Research Policy. Promulgated largely to clarify the relationships of NACA with other research and development agencies, the policy statement charged NACA with responsibility for "research in the aeronautical sciences," the military services with "the evaluation of military aircraft and equipment and the exploration of possible military applications of research results," CAA with "expediting the practical use in civil aeronautics of newly developed aircraft and equipment," and the aircraft industry with "application of research results in the design and development of improved aircraft equipment, both civil and military."

Mar 29, 1946: Executive Order 9709 authorized the Department of Commerce to take over and operate the 200 **air navigation facilities in 68 foreign countries** installed during the war for military purposes. This interim arrangement was later extended to include Alaska. A previous order in Dec 1945 had transferred responsibility for air navigation facilities and functions in Iran from the War Department to CAA.

Mar 1946: Agreement on certain **principles governing Federal-state relationships in aviation law enforcement** resulted from meetings of CAA, CAB, and Department of Justice representatives with the National Association of State Aviation Officials. The conferees agreed that CAA would continue to enforce regulations concerning airworthiness of aircraft, competency of airmen, operating standards, and air traffic rules, with the states cooperating in administering punishment for the reckless operation of aircraft in their jurisdictions. States could adopt and enforce their own safety regulations if they were not in conflict with Federal rules (see Dec 13, 1956). It was also agreed that states could require registration of aircraft provided that the fee was moderate and would be in full substitution for any state, county, and municipal property taxes on the aircraft. State registration of pilots would be permitted if the fee was nominal. CAA reaffirmed its position that it was the states' function to license airports (see May 21, 1970).

Apr 1, 1946: Standards for the Control of Instrument Flight Rule Traffic, a manual approved by the operations executives of the Army Air Forces, Navy, Coast Guard, and CAA, became effective. Its adoption recognized the need for **common procedures in the control of civil-military air traffic**.

Apr 1, 1946: CAA assumed custody from the Army of the files and records relating to **instrument approach procedures**, and became responsible for processing and approving standardized instrument approach procedures for all civil airports under CAA's jurisdiction. (See May 1, 1945.)

Apr 24, 1946: Winged Cargo, Inc. began the **first glider commercial freight service**, using a DC-3 to tow a Waco glider. The flight took off from Philadelphia and made stops at Miami, Havana, and San Juan.

Apr 1946: CAA began biweekly publication of a new **Airman's Guide**, consolidating into one comprehensive volume for private and commercial pilots information formerly issued in three separate publications. This publication contained current and standard data on communications and navigational aids, airport facilities, air traffic control procedures, airspace hazards, and other information needed to plan and conduct safe flights. (See Dec 10, 1964.)

May 8, 1946: The Bell Aircraft Corporation's Model 47 became the **first helicopter to receive a CAA airworthiness type certificate**, authorizing mass production.

May 13, 1946: President Truman signed the **Federal Airport Act establishing the Federal-aid airport program (FAAP)**, the first peacetime program of financial aid aimed exclusively at promoting development of the nation's civil airports. Sen. Pat McCarran (D-Nev.) and Rep. Clarence F. Lea (D-Calif.) had introduced the legislation. The Act authorized appropriations of \$500 million for the contiguous United States and \$20 million for Alaska and Hawaii over a period of seven years, beginning Jul 1, 1946. Federal allotments were to be matched by local funds. For fiscal year 1947, Congress appropriated \$45 million for construction and nearly \$3 million for preliminary planning and surveys. (See Appednix VIII and Oct 8, 1946.)

May 24, 1946: The Civil Aeronautics Administration gave an initial demonstration of the **first radar-equipped control tower for civilian flying** atop the agency's Experimental Station at Indianapolis Municipal Airport. Raytheon had built the basic radar equipment for the Navy, and the company's engineers directed modifications at Indianapolis that included improvements lately developed for that service. Among these were an improved search antenna and a feature that eliminated ground clutter by permitting only moving targets to appear on the screen. (See Jun 30, 1945.)

May 27, 1946: The U.S. Supreme Court ruled in *Causby v. United States* that flights over private land represent the taking of an air easement if they are "so low and so frequent as to be a direct and immediate interference with the enjoyment and use of the land." Causby owned a small chicken farm

near a municipal airport used by military aircraft that passed over his property at an altitude below 100 feet. The noise from these flights frightened the chickens, caused a drop in production, and eventually forced Causby to close down his chicken-raising operation. The Court found that the United States had taken an air easement over Causby's property that interfered with its normal use. Causby's Fifth Amendment rights had been violated, it held, because his property had been put to public use without just compensation. (See Dec 13, 1956, and Mar 5, 1962.)

May 31, 1946: CAA announced that **production certificates** would be handled by the regional offices rather than from Washington to speed issuance to aircraft manufacturers.

Jun 9, 1946: CAA regional offices, rather than Washington headquarters, became the approving authority for flying schools, repair stations, ground schools, mechanic schools, and parachute lofts. The increasing number of applications for CAA aircraft and airman certificates had made this **further decentralization of CAA services** necessary.

Jun 11, 1946: The **Administrative Procedure Act** became law, prescribing more uniform and publicized procedures for executive agencies to use in rulemaking, adjudicatory proceedings, and similar administrative actions. Federal agencies engaged in rulemaking were required to publish a notice of proposed rulemaking (NPRM) in the Federal Register, unless this would be "impracticable, unnecessary, or contrary to the public interest." The notice must include: a statement of the time, place, and nature of the public rulemaking proceedings; a reference to the authority under which the rule was proposed; and the substance of the proposed rule. After publishing the NPRM, the rulemaking agency was to give interested persons an opportunity to submit written comments on the proposed rule. The act also made every executive agency action for which no adequate court remedy was provided subject to review by an appropriate national court.

Jun 29, 1946: The **Douglas DC-6 made its first flight**, and CAA certificated the plane nine months later. The DC-6 entered U.S. domestic passenger service on Apr 27, 1947. The aircraft, the first Douglas plane with a pressurized cabin, could seat approximately 50 passengers.

Jun 30, 1946: CAA announced the opening of its first two **regional medical offices** at Santa Monica, Calif., and New York, N.Y. The Agency planned to open a third office in Fort Worth, Tex., in July.

Jul 10, 1946: The Civil Aeronautics Administration announced plans to establish **nine new foreign offices** during the next year. The locations selected included Paris, London, Cairo, Shanghai, Sidney, and Mexico City. CAA stations already existed at Lima, Rio de Janeiro, and Balboa (C.Z.).

Jul 11, 1946: **CAA grounded the Lockheed L-049 Constellation** immediately following a crash that killed four of the five crew members of a TWA plane near the airline's training base at Reading, Pa. This was the most recent in a series of accidents involving fires in the Constellation's engines. CAA ordered modifications, mainly to the plane's electrical system and power plants, and the 58 grounded aircraft returned to service on Aug 24.

Jul 15, 1946: CAA Administrator T. P. Wright invited the National Advisory Committee for Aeronautics (NACA), the Air Transport Association, and the Aircraft Industries Association to participate in a joint attack on the problem of **aircraft engine noise**, which "threatens to undermine aviation progress." Earlier he had recommended to NACA, in which he served as vice chairman, that consideration be given to research directed at reduction of airplane noise levels. Largely as a result of this recommendation, NACA's Langley Laboratory initiated a research project to investigate propagation of noise from light airplanes.

Aug 1, 1946: A British civil aviation bill was approved, giving the **monopoly of British scheduled air services** to three state-owned corporations. In addition to the already existing British Overseas Airways Corporation, the British European Airways Corporation, and the British South American Airways Corporation were established.

Aug 2, 1946: An act of Congress established the **National Air Museum** under the Smithsonian Institution. In 1976, the name changed to National Air and Space Museum.

Aug 8, 1946 An amendment to the Civil Aeronautics Act facilitated the participation of the Weather Bureau in international meteorology and gave the Bureau the responsibility of acting as a clearinghouse for research in **aeronautical meteorology**. The Bureau was also charged with providing for the collection and dissemination of weather observations made by pilots in flight. (See Sep 15, 1950.)

Aug 15, 1946: For the first time, **CAA began charging for certain of its services**. The agency began requiring a fee of \$5 for registering and recording aircraft titles, with an additional fee of \$5 for recordations involving liens or other encumbrances. CAA charged \$5 for certificating parachute lofts

and \$10 for certificating flying and ground schools, mechanic schools, and repair stations. On May 1, 1947 the Agency lowered the aircraft title recording fee to \$4.

Sep 1, 1946: The National Association of State Aviation Officials (NASAO) published a **model State Aeronautical Commission (or Department) Act** incorporating changes suggested by CAA. In October, NASAO approved in principle a CAA redraft of the **Model Municipal Airport Act**, originally issued by NASO in 1944. The model airport act was intended to promote uniform state legislation enabling cities and other political subdivisions to build and operate airports and to obtain aid under the Federal Airport Act. NASAO had also previously approved a model State Airport Zoning Act (see Apr 1939).

Sep 6, 1946: The **United States and Brazil signed an air transportation agreement**, the first such agreement to be made with a South American country.

Sep 15, 1946: **CAA required all nonscheduled air carriers to apply for an operating certificate** by this date, when a new Civil Air Regulations Part 42 governing this category of operator became effective. The nonscheduled carriers had also been required to file a registration statement and financial/traffic report with CAB by Sep 3. The actions introduced greater oversight of the "nonskeds," charter operators that offered transport services on an irregular basis. The nonskeds had grown in number and importance due to the post-war availability of surplus aircraft and ex-military pilots. Although now required to have a CAA safety certificate, the nonskeds continued to operate without certification under CAB's system of economic regulation. **Effective Jun 10, 1947, CAB created the category of noncertificated irregular air carriers** as a new designation for the nonskeds. The irregular carriers were divided into two classes according to the size of their aircraft, with those using heavier planes subject to greater economic reporting requirements. (See Nov 15, 1955.)

Oct 1, 1946: CAA commissioned the **El Paso air route traffic control center**.

Oct 8, 1946: CAA announced the opening of 44 new district offices for the administration of the **Federal-aid airport program (FAAP)**. Of these, 43 were located within the United States and one in Puerto Rico. CAA also established Airport branches in its regional offices at Honolulu and Anchorage. (See May 13, 1946 and Jan 9, 1947.)

Oct 10-23, 1946: At the request of the Provisional International Civil Aviation Organization (PICA), **representatives of 60 foreign countries attended demonstrations of U.S. air navigation and air traffic control equipment and techniques** at CAA's Technical Development and Evaluation Center at Indianapolis. These detailed demonstrations helped influence the decision, taken later by the delegates at Montreal, to recommend acceptance of the systems and techniques proposed by the United States as international standards.

Nov 1946: CAA activated **air traffic control over the North Atlantic** in conjunction with the establishment of the North Atlantic Region of ICAO. The agency's New York oceanic air traffic control center assumed control of that portion of the North Atlantic Region assigned to the United States, assisted by oceanic ARTCC sectors established in Boston, Washington, and Jacksonville. During the previous fiscal year, CAA had already assumed responsibility for certain Atlantic and Pacific oceanic air traffic control services formerly provided at the request of the Army.

Nov 22, 1946: CAA Administrator Wright and CAB Chairman James M. Landis established a **CAA-CAB Committee**, a six-man group created to facilitate coordination between the two bodies.

Nov 23, 1946 The **Martin 2-0-2 made its first flight**. On Aug 13, 1947, CAA type-certificated the aircraft, a two-engine transport designed for the short-haul passenger market. The airplane entered service a year later with Northwest Airlines. The Martin was the first airliner to operate on postwar passenger routes that had not seen service during World War II.

***1947**

Jan 9, 1947: Regulations governing the **administration of the Federal Airport Act** received final approval, and two days later CAA announced the 1947 construction program, listing 800 airports for either construction or improvement. Published in February, the first National Airport Plan under the program contained a three-year forecast of requirements involving 4,431 locations. Twin Falls, Idaho, became the first community to receive a grant when, on May 7, the CAA Administrator signed papers for the construction of a class 3 airport at a cost of about \$647,000, of which \$384,000 was in Federal funds. (See May 13, 1946, Jun 30, 1954, and Appendix VII.)

Feb 21, 1947: The **Air Line Pilots Association** adopted a resolution providing that all four-engine aircraft be required to carry a flight engineer. (See Feb 15, 1946 and Jun 15, 1947.)

Feb 25, 1947: CAA demonstrated a **new stall warning instrument** which it had developed. (See Spring 1942.)

Mar 15, 1947: CAA established, "in the interest of safety in air commerce," **airport traffic control zones** having radii of three or five miles. In addition to cancellations of airport approach zones, the Agency redesignated a large number of civil airways.

Mar 27, 1947: Figures released by the CAB indicated the **strong U.S. position in transatlantic air transport**. Three American airlines--Pan American, American Overseas, and Trans Continental and Western Air (TWA)--had made 84 percent of the flights and carried 86 percent of the passengers on transatlantic routes during the preceding year.

Mar 30, 1947: CAA Administrator T. P. Wright announced that he had **lowered ceilings and visibility requirement for airlines using the instrument landing system, known as ILS** (see May 2, 1940, and Jul 11, 1947). Scheduled airlines with the proper equipment and training in use of the ILS could now make straight in approaches when the ceiling was 100 feet below the present minimum (400 feet at most airports) and with visibility one-quarter less than present regulations required (generally one mile). After an airline had six months of satisfactory experience with the ILS, its ceiling minimum might be dropped another 100 feet and permissible visibility reduced another one-quarter mile. CAA had no plans to reduce ceilings below 200 feet or visibility below one-half mile. On Nov 1, Braniff became the first airline to receive permission to lower its ceiling minimum to 200 feet and one-half mile visibility. (See Oct 2, 1964.)

Apr 3, 1947: CAA began in service testing of **GCA (ground controlled approach) radar systems** at Washington National and Chicago Municipal Airports. This modified radar precision landing equipment had been developed for military use, loaned to CAA by the Army Air Forces, and installed by the Airborne Instrument Laboratory of the Air Transport Association. New York's La Guardia Airport received similar equipment later in the year. (See Dec 31, 1945, and Apr 9, 1947.)

Another operational service test, started about the same time at Washington National Airport, involved a **microwave early-warning radar (MEW)**, one of the best long-range sets developed during the war. A joint CAA/Army Air Forces undertaking, this test aimed at developing effective means of coordinating MEW data and information from ATC flight progress boards.

Apr 4, 1947: CAB certificated **Piedmont Airlines** as a local service carrier. The airline, whose original routes ran along the Piedmont-Appalachia area, began operations on Feb 20, 1948. Piedmont expanded steadily during the succeeding decades, then grew rapidly after airline deregulation was introduced in the late 1970s. (See Oct 30, 1987.)

Apr 4, 1947: The **Convention on International Civil Aviation came into force** after being ratified by 26 countries. (Among these was the United States, which had ratified the Convention on Aug 9, 1946.) The Convention had been drawn up at a conference in Chicago over two years before (see Nov 1-Dec 7, 1944). The fact that it was now in force officially created the **International Civil Aviation Organization (ICAO)** to succeed its temporary predecessor, PICA0 (see Jun 6, 1945). The first General Assembly of ICAO was held in Montreal during May 6-28.

Apr 8, 1947: American Overseas Airlines obtained rights for **commercial service to Finland**, the first U.S. route to the Soviet sphere in Europe.

Apr 9, 1947: CAA granted its first approval of the Air Forces' **Ground Control Approach (GCA) radar device** for commercial planes, authorizing its use by Pan American Airways at Gander, Newfoundland. (See Apr 3, 1947, and Jul 11, 1947.)

May 13, 1947: **Dr. Lewis H. Bauer**, a pioneer in aviation medicine who had served as the first medical director of the Aeronautics Branch (1926-1930), **received the Theodore C. Lyster award** for "outstanding achievement in the general field of aviation medicine," becoming the first person to receive that prestigious award. The award was established in honor of Brig. Gen. Theodore C. Lyster, the first Chief Surgeon of the Aviation Section of the Signal Corps, U.S. Army, a man generally considered to have been "the father of aviation medicine in America."

Jun 12, 1947: At the request of the Air Coordinating Committee, the Radio Technical Commission for Aeronautics established a **special committee (SC-31) to study and develop recommendations for the safe control of expanding air traffic**. This action followed acceptance by the ACC of an Air Transport Association report on the same problem. (See Feb 17, 1948.)

Jun 15, 1947: President Harry S Truman appointed a **Special Board of Inquiry on Air Safety**, headed by CAB Chairman James M. Landis. The action followed a series of three DC-4 airline accidents that claimed the unprecedented total of 145 lives between May 29 and Jun 13, 1947. On

Aug 15, Landis suggested that the Civil Aeronautics Board immediately hold hearings on **airline crew complement** to determine whether a flight engineer was required on all four-engine air transports in scheduled domestic passenger service. Between Oct 6-8, CAB held such hearings, and as a result, in April, 1948, adopted the so-called **80,000-pound rule**. Effective Dec 2, 1948, (subsequently extended to Mar 31, 1949), all airplanes certificated for a maximum takeoff weight of more than 80,000 pounds were required to carry an airman holding a flight engineer's certificate. Airmen with a pilot's or a mechanic's background could qualify for the certificate. By the end of 1949, the airlines had divided into three groups in implementing the rule. Pan American, Eastern, TWA, American, Chicago & Southern, Continental, National, Northwest, and Western used people with mechanical backgrounds as flight engineers. Braniff, Capital, Delta, Northeast, and Panagra employed pilots. United Air Lines used both pilots and mechanics. (See Feb 21, 1947 and Oct 24, 1955.)

Jun 17, 1947: Pan American Airways inaugurated **round-the-world scheduled passenger service, exclusive of the continental United States**, as a Lockheed Constellation took off from New York and flew eastward on a route that led to San Francisco. The gap in the circle between San Francisco and New York could not be closed because of a provision in Pan Am's certificate excluding domestic service. (See Jan 14, 1958.)

Jun 24, 1947: A reported sighting of "flying saucers" near Mt. Ranier, Wash., began widespread interest in **unidentified flying objects (UFOs)** among the American public. In 1948, the Air Force began gathering data on UFO reports under its Project Blue Book. In 1969, a study sponsored by the Air Force rejected the theory that UFOs were extraterrestrial visitors, and Blue Book was discontinued on Dec 17 of that year.

Jun 30, 1947: During the fiscal year ending on this date, the U.S. Army Air Forces inaugurated a **military flight communications system**, which relieved CAA of responsibility for handling the majority of Army flight plans under visual flight rules and reporting arrivals on the civil communications system. CAA's handling of communications relating to flights under instrument flight rules remained unchanged.

In view of the trend toward larger and more complex aircraft, CAA completed plans regarding certification of **three new classes of flight personnel**: flight radio operators, flight navigators, and flight engineers.

CAA also installed the **first high-powered, low-frequency, long-range navigation facility**, on Nantucket Island, Mass., using temporary radio equipment. Construction materials and 300-foot towers had been procured for this and similar facilities to be built at: San Juan, P.R.; Omaha, Neb.; San Francisco, Calif.; and Honolulu, Hawaii.

Jun 1947: Fifty students from the Philippine Republic began training at the Aeronautical Training Center at Oklahoma City under the **Philippine Rehabilitation Act**. Courses of instruction included air traffic control, airways communications, and airways facilities maintenance. Under the same legislation, CAA also opened an office in the Philippines during 1947 to aid that nation in establishing airway aids.

Jul 8, 1947: The prototype **Boeing 377 Stratocruiser first flew**. The 377, an outgrowth of the military B-29 Superfortress and the C-97 military transport, received its CAA type-certificate on Sep 3, 1948, and first saw service with Pan American World Airways on Apr 1, 1949. The plane had a spiral staircase leading down to a first class lounge in the lower fuselage. It could carry approximately 100 passengers or could be converted into a sleeper plane with 28 full-sized Pullman berths.

Jul 11, 1947: The House Subcommittee of the Committee on Interstate and Foreign Commerce, chaired by Representative Carl Hinshaw (R-Calif.), submitted a **report recommending creation of a single instrument landing system** to safely and economically serve the requirements of both commerce and national defense simultaneously. Addressing the controversy regarding the merits of CAA's Instrument Landing System, known (ILS) and the military's Ground Control Approach (GCA) system, the committee recommended that CAA stop installation of additional ILS equipment. The committee suggested further that the United States proceed with the development of an instrument landing system satisfactory for fully automatic landing, and that the most modern GCA be installed at selected airports. Congress endorsed the report through its Aviation Policy Board in Mar 1948, and recommended, through the Board, that the "single system" program be undertaken. Meanwhile, on Jul 15, 1947, CAA Administrator Theodore Wright had announced a **new civil-military instrument landing system policy**. ILS would remain the primary CAA landing aid, but the agency would supplement ILS at busy airports with an element of GCA designated precision approach radar (PAR),

along with airport surveillance radar. The Air Force, however, would still rely primarily on GCA, using ILS for heavy planes and as a backup to GCA. (See Mar 30, 1947, and Feb 4, 1949.)

Jul 16, 1947: CAA announced a program under which **Latin American aviation leaders would come to the United States to study** both the governmental and private phases of the nation's aviation industry. The effort was closely related to the continuing Inter-American Aviation Training Program (see Calendar Year 1941).

Jul 18, 1947: President Truman established a temporary **Air Policy Commission**, chaired by Thomas K. Fineletter of New York, to assist in formulating an integrated aviation policy. On Dec 27, 1947, the commission submitted its report, Survival in the Air Age, to the President. Released to the public on Jan 13, 1948, the report recommended immediate action to increase the military air arm and suggested major changes in the organization of civil aviation agencies. The Commission recommended the creation of a Department of Civil Aviation and a Department of Industry and Trade, both headed by Secretaries reporting directly to the Secretary of Commerce. CAA functions plus the Civil Aeronautics Board's responsibility for safety regulations were to be vested in the new aviation department, and CAB's responsibilities would be narrowed primarily to rate and route decisions. An Air Safety Board would be established with responsibility for accident investigations. The CAB and the Safety Board would be independent, but placed within the Civil Aviation Department for housekeeping. The report further proposed that a Government Aircraft Development Corporation be set up within the Department of Civil Aviation to encourage the development of a suitable cargo aircraft, and recommended that a decision be made as to whether military or civil air authorities should have responsibility for the future development of a common system of air navigation.

Jul 25, 1947: President Truman approved the National Security Act, which provided for the unification of U.S. Armed Forces, including **an Air Force coequal with the Army and Navy, under a new Department of Defense**.

Jul 30, 1947: The President signed Public Law 289, an amendment to the Surplus Property Act of 1944, to help speed the **conversion to civil use of airports, airport facilities, and aviation equipment** no longer needed by the military. Recognizing that maintenance of the airports would require substantial funds, the law authorized transfer of surplus property to develop sources of revenue from non-aviation businesses at such airports.

Aug 25, 1947: CAA announced that survey flights would begin on Sep 8 for "**Skyway One**," a pair of 40-mile-wide paths from Washington to Los Angeles that were to be dotted liberally with air markers to encourage cross-country contact flights by private pilots. Sponsored by a government and civic committee, the project was intended to serve as a model for other such skyways. During 1948, CAA designated a "Skyway No. 2" with terminals at Seattle, Wash., and Boston, Mass.

Sep 1947: CAA took over the maintenance and **operation of airport facilities at Midway, Wake, and Guam**, which became part of the Federal airways and links in the air routes over the Pacific. Pan American Airways had operated the airports at Wake and Guam after military authorities had relinquished them after the war. (See Mar 29, 1950.)

Oct 1, 1947 **Los Angeles Airways began the world's first regularly scheduled mail service by helicopter** (as distinct from autogiro service: see Jul 6, 1939). The carrier operated Sikorsky S-51s within a radius of roughly 50 miles of Los Angeles International Airport. (See Jul 9, 1953.)

Oct 8, 1947: **New air traffic rules** resulting from a revision of Part 60 of the Civil Air Regulations went into effect. Besides substantially altering visual flight rules, the new regulations made some changes in instrument flight rules operations. One section of the regulation set up rules for water operation of aircraft and others applied specifically to helicopter flight rules.

Oct 11, 1947: Representatives of 42 nations signed a convention in Washington, D.C., establishing the **World Meteorological Organization (WMO)**, which superseded the International Meteorological Organization. A focal point for international efforts toward such goals as common technical standards and a worldwide meteorological network, WMO became a specialized agency of the United Nations in Dec 1951.

Oct 11, 1947: **Trans-Texas Airways began operations** as a local service carrier. The airline at first served routes within Texas, reached outside the state in 1953, and acquired routes to Mexico in 1966. It adopted the name **Texas International Airlines** following a change of ownership in 1968.

Oct 14, 1947: Maj. Charles E. Yeager, USAF, piloting the Bell X-1 rocket-propelled research aircraft at Muroc, Calif., became the **first pilot to exceed the speed of sound in level flight**.

Oct 24, 1947 **In-flight fire caused the crash of a United Air Lines DC-6** at Bryce Canyon, Utah, with the loss of all 52 persons aboard. **On Nov 11, another in-flight fire** caused an American Airlines DC-6 to make an emergency landing at Gallup, N.M. Immediately following this second incident, the **three airlines using DC-6 aircraft voluntarily withdrew them from service**. The CAB determined that the fires had been caused by fuel leaking into the cabin heater system through an air intake scoop. After the problem had been remedied, the DC-6 returned to service in Mar 1948.

Nov 3, 1947: A commission of the International Civil Aviation Organization met in Geneva to consider **proposals for a multilateral civil aviation agreement** to replace the existing system of bilateral agreements by which traffic rights for scheduled commercial air services were established. Differing views concerning the so-called **Fifth Freedom**--the privilege of picking up or discharging in a second nation cargo destined to or coming from the territory of a third nation---prevented the commission from concluding any agreement. It recommended, however, that the subject be studied further.

Nov 25, 1947: CAB published a regulatory amendment permitting CAA to use a **Technical Standard Order (TSO) system** to facilitate aircraft production. After consultation with industry, CAA would publish TSOs setting specifications for aviation appliances, materials, parts, and processes. Manufacturers need no longer receive CAA type certification for items covered by TSOs. Instead, the manufacturers themselves could certify that their product met the TSO specifications. (See Jan 15, 1946, and Sep 29, 1950.)

Dec 17, 1947: A **prototype of the Boeing B-47 Stratojet made its maiden flight**. Designed for the War Department as a bomber, the aircraft had thin swept wings and six externally mounted jet engines. The B-47A entered service with the Air Force in May 1951. The Air Force retired the last B-47 operated as a bomber on Feb 11, 1966, but B-47s continued in service as weather reconnaissance and research aircraft.

Calendar year, 1947: CAA commissioned the **first very high frequency omnidirectional radio ranges (VORs)**. During 1946, the agency had applied wartime technology on an experimental basis when it converted eight radio range stations on the New York and Chicago airway to VOR omnirange stations (see May 1, 1941). As a result of those tests, CAA adopted the VHF omnirange for standard use and began general installation of the new system in 1947. (See Oct 15-21, 1950.)

*1948

Jan 16, 1948: The **Airport Operators Council** was established as an association of operators of U.S. commercial airports. In 1967, the association added the word "International" to its name to reflect a broadened membership. Later, in 1991, the Airport Operators Council International merged with the International Civil Airports Association to form a federation with headquarters in Geneva and six regional affiliates. The new organization adopted the name Airports Association Council International, later becoming simply the **Airports Council International (ACI)**. One of ACI's six affiliates was a Washington-based organization representing members in the United States, Canada, and Bermuda. This regional organization adopted the name **Airports Council International--North America** on Jan 1, 1993.

Jan 30, 1948: **Orville Wright died** at age 76. His brother Wilbur had died of typhoid 36 years earlier, at age 45.

Feb 17, 1948: The Executive Committee of the Radio Technical Commission for Aeronautics (RTCA) accepted a special committee **report on air traffic control** (see Jun 12, 1947). Prepared by top government-industry representatives and technicians in the field of aeronautical telecommunications, the report outlined "interim" and "target" **requirements for a common military-civil air traffic control system**. In its recommendations for the transition period, the special committee recommended implementation of very high frequency omnidirectional ranges (VORs) and distance measuring equipment (DME). The plan called for the ultimate development of reliable all-weather navigation and landing aids, integrated into an ultramodern airways traffic control system. The report's recommendations were accepted by Congress and all major users of the airspace. The RTCA received the 1949 Collier Trophy for these efforts. (See Dec 1949.)

Mar 1, 1948: The **Congressional Aviation Policy Board (Brewster Board)** released its report. Established pursuant to Public Law 80-287 on Jul 30, 1947, the Board was to study the current and future needs of American aviation. In its report, the commission concluded "that a strong, stable, and modern civil aviation component is essential" to national security. The report formulated nearly 100 recommendations relating to military and civil aviation, aircraft manufacturing, research and

development, and government organization. Realizing the airways system of the country was near the saturation point even for the existing fleet of 1,000 airliners, the board endorsed rapid implementation of the RTCA SC-31 program as a first priority step toward the establishment of a common civil-military system. (See Feb 17, 1948.)

Apr 1, 1948: CAA assumed administrative control of the **Landing Aids Experimental Station** at Arcata, Calif. The station was a joint civil-military, government-industry facility concerned primarily with testing equipment and techniques for bad-weather landings.

Apr 15, 1948: CAA conducted flight demonstrations at Washington National Airport with four types of aircraft equipped with **crosswind landing gear** developed by the agency through contracts with industry. CAA hoped that availability of the casted gear would encourage wider use of single-strip airports, substantially reducing the large landing areas required for multidirectional runways. On Oct 15, 1949, CAA's official journal reported that, as a result of further tests, the agency had approved a new component for DC-3s equipped with a cross-wind undercarriage. CAA stated that planes so equipped could land directly across a wind as high as 40 mph, and hence provide more regular airline service to single-strip airports.

May 1, 1948: The Air Force, Navy, Coast Guard, and CAA officially adopted a revised edition of an Apr 1, 1946, **Army-Navy-Civil (ANC) Manual on air traffic control procedures** designed to standardize ATC procedures.

May 23, 1948: The Secretaries of Defense and Commerce announced preliminary agreement to set up an **Air Navigation Development Board (ANDB)**. The action resulted from a six-month study by the Research and Development Board of the National Military Establishment. In October and November, the two secretaries signed a charter of agreement concerning the Board, and the Secretary of Commerce formalized its creation with an order dated Jan 19, 1949. The ANDB's mission was to formulate a unified program of research and development of "aids for a common national system of air navigation and air traffic control" that would serve both civil and nontactical military aviation but be capable of integration with any air defense system established. The Board was also charged with supervising research and development projects for the common system. While the ANDB investigated the best technology for the common system, CAA continued deployment of VORs, and the Navy continued development of its tactical air navigation system (TACAN), which it had begun to develop in 1947. Military exigencies brought on by the Korean War in 1950 resulted in a deemphasis of common system development and an acceleration of TACAN development. (See Jan 1954 and Oct 29, 1957.)

May 28, 1948: The President approved legislation directing **CAA to construct and operate public airports at or near Anchorage and Fairbanks** "adequate for the needs of air-transportation services and air commerce of the United States serving the territory of Alaska and foreign countries by way of points within the territory of Alaska." The act also authorized the Administrator to provide for facilities, roads, and services necessary to the operation of the airports. The two airports opened for commercial service in 1951, initially using temporary terminal buildings. The state of Alaska assumed responsibility for operating the two facilities in 1960.

Jun 1, 1948: **Delos W. Rentzel became CAA Administrator**. He succeeded Theodore P. Wright (see Sep 23, 1944), who had submitted his resignation on Jan 11. Before his appointment, Rentzel had served as president of Aeronautical Radio, Inc., from 1943 to 1948, and for 12 years prior to that he had been director of communications for American Airlines. During World War II, he served as a consultant to the Secretary of War on navigational aids and to the Secretary of the Navy on Pacific routes. He was educated at Texas A. & M., where he studied electrical engineering. (See Oct 4, 1950.)

Jun 1, 1948: Limited operations began at a major new airport built on the site of Idlewild golf course at Jamaica, N.Y. Regular commercial operations started on Jul 1. The facility was dedicated on Jul 31 as **New York International Airport**, but was unofficially known as **Idlewild**. (See Dec 24, 1963.)

Jun 16, 1948: The **International Aviation Facilities Act** became law. It authorized the CAA Administrator to improve air navigation facilities abroad and to train foreign nationals to operate such facilities whenever it benefited U.S. air carriers. The act gave the Administrator responsibility for maintaining a record of deficiencies in aviation facilities used by U.S.-flag carriers and to plan appropriate programs for their correction.

Jun 16 and 19, 1948: President Truman signed two amendments to the Civil Aeronautics Act of 1938 to **encourage the financing of aircraft purchases**. The first limited the liability of owners not

actually exercising control over the operations of the aircraft; the second provided a system for the recording of liens on aircraft engines and spare parts used by air carriers.

Jun 24, 1948: The Soviet Union stopped rail and road traffic between Berlin and the West. The Western Powers began airlifting vital supplies to the beleaguered city. The following month, at the request of the Air Force, CAA dispatched an initial group of 20 volunteer air traffic controllers to Frankfurt and Berlin for duty in the airlift operation. CAA also provided VHF air navigation aids. The **Berlin blockade** was officially lifted on May 12, 1949.

Jun 29, 1948: The President approved legislation that authorized and funded a training program for **air traffic control tower operators**. It also empowered the CAA Administrator to conduct studies and research to determine the most desirable qualifications for such operators. (See Calendar Year 1968.)

Jun 30, 1948: The Bell Telephone Laboratories made the first public demonstration of the **point contact transistor**, developed by two Bell scientists, John Bardeen and Walter Brattain. The background of this achievement included work by another Bell scientist, William Shockley, who in 1951 invented a simpler and improved amplifying device, the **junction transistor**. Great advances in electronics resulted from the introduction of the transistor, which virtually replaced the vacuum tube.

Jul 1, 1948: New **amendments to the Civil Aeronautics Act** of 1938 became effective which authorized CAB to delegate to the CAA Administrator certain of its safety rulemaking and accident investigating functions; removed the restriction that air navigation facilities be established only on airports and along civil airways; and redefined and clarified a number of administrative and investigative responsibilities of the Administrator.

Jul 29, 1948: Approval of a **CAA mission to Venezuela** brought the number operating in South America to four. In order of their establishment, they included missions to Peru, Colombia, Bolivia, and Venezuela.

Aug 1, 1948: The Secretary of Defense issued an **order abolishing the 32-year-old Aeronautical Board**, composed at the time of three members each of the Air Force and Navy and one Army member. Its functions were transferred to the Munitions Board and the Research and Development Board.

Aug 29, 1948 A Northwest Airlines **Martin 2-0-2 crashed** near Winona, Minn., with the loss of all 37 persons aboard. The accident showed structural problems with the wings, and **all 2-0-2s were withdrawn from service**. After extensive modification, they returned to service on September 1, 1950, with the designation 2-0-2A, but airline confidence in the model had been weakened.

Sep 13, 1948: To speed certification of aircraft and aircraft parts, CAA announced that **type certificates would be issued in its nine regions** rather than at headquarters in Washington, D.C.

Nov 3, 1948: CAA announced that Wallace Clark and Company, a management consultant firm, would conduct an impartial **survey of the agency's management practices**. Submitted in Mar 1949, the study concluded that the Administrator was involved in too much routine contact with subordinates. Results of the study included a reduction in the number of officials reporting directly to the Administrator. (See Jun 2, 1949.)

Nov 22, 1948: The Wright brothers' Kitty Hawk airplane, the **Flyer I, arrived at the Smithsonian Institution** after 20 years in the South Kensington Museum, London.

Nov 30, 1948: The Curtiss-Wright Corporation demonstrated its new **reversible-pitch propellers**, which permitted a DC-4 transport to make a controlled descent from 15,000 to 1,000 feet in 1 minute 22 seconds.

Dec 1, 1948: CAA commissioned the **San Juan air route traffic control center**.

Dec 7, 1948: The American Federation of Labor chartered the **Flight Engineers International Association (FEIA)**, comprised largely of flight engineers with backgrounds in mechanics. Flight engineers had originally sought to join the Air Line Pilots Association, but had been rebuffed by the pilots. Eventually, FEIA represented flight engineers at eight major U.S. airlines.

Dec 28, 1948: CAA ordered a complete **end to racial segregation at Washington National Airport** following a Department of Justice opinion that the Administrator had authority to issue such a ruling notwithstanding the apparent incorporation of the Virginia segregation statute in the Federal law governing the airport.

Dec 29, 1948: CAA revealed details of a U.S.-U.K. agreement based on previous action by the International Civil Aviation Organization (ICAO). The **United Kingdom agreed to install an airway and traffic control system similar to that then in use in the United States**. The United States

would procure four low-frequency radio ranges to supplement the three already operating in the British Isles, and assist in installing the facilities as requested.

Calendar year, 1948: CAA type-certificated the **Allison model 400-C-4** jet engine this year, the first jet engine to receive CAA approval for commercial transport operations.

***1949**

Jan 11, 1949: The Civil Aeronautics Board granted a certificate of convenience and necessity as a local service carrier to **All American Airways**, which had been founded in 1937 as All American Aviation. Beginning operations under its new certificate on Mar 7, All American served the northeastern United States. On Jan 1, 1953, the carrier changed its name to **Allegheny Airlines**. It subsequently absorbed Lake Central Airlines on Jul 1, 1968, and Mohawk Airlines on Apr 12, 1972. (See Oct 28, 1979.)

Feb 4, 1949: CAA granted authorization for commercial planes to use **ground control approach (GCA) radar** as a "primary aid" for bad-weather landings. (See Apr 9, 1947.)

Feb 25, 1949: The **U.S. and Greek Governments concluded an agreement** that provided for a civil aviation mission to Greece under the sponsorship of the Economic Cooperation Administration. The thirteen CAA specialists named to the mission left for Greece in April to aid in the establishment, maintenance, and operation of civil aviation facilities. CAA team also was to train Greek personnel in the operation and maintenance of the facilities, which were to provide at least minimum requirements for safe international air transportation.

Feb 26-Mar 2, 1949: The **Lucky Lady II**, a USAF Boeing B-50 commanded by Capt. James Gallagher, made the **first nonstop round-the-world flight**, covering 23,452 miles in 94 hours 1 minute. The aircraft, which took off from and returned to Carswell Air Force Base, in Fort Worth, Tex., was refueled in flight four times. (See Dec 23, 1986.)

Mar 1, 1949: The **Hoover Commission (Commission on Organization of the Executive Branch of the Government)** submitted to Congress its recommendations concerning reorganization of the Commerce Department. Disagreeing with the suggestion of its task force that a new Department of Transportation be created, the Commission recommended grouping within the Commerce Department all major nonregulatory transportation activities of the Federal government. The report visualized replacing CAA with a Bureau of Civil Aviation having the authority to promulgate and enforce all air safety rules, while the Civil Aeronautics Board exercised only review responsibility with respect to such rules. It also recommended that the aeronautical research function as well as the National Advisory Committee for Aeronautics (NACA) be brought into the proposed Bureau of Civil Aviation. (See Feb 9, 1950.)

Mar 30, 1949: The President approved legislation providing for construction of a permanent **radar defense network** for the United States.

Apr 4, 1949: The **North Atlantic Treaty** was signed by the U.S. Secretary of State and the Foreign Ministers of Britain, Belgium, Canada, Denmark, France, Holland, Iceland, Italy, Luxembourg, Norway, and Portugal. Article 5 of the treaty specified that "an armed attack against any one or more of them in Europe or North America shall be considered an attack against them all."

May 1-Jun 30, 1949: **Operation Blackjack**, a joint Air Defense Command/CAA training exercise, was conducted in the northeastern part of the United States to develop effective procedures for separating "unfriendly bombers" from normal air traffic moving in the area.

May 18, 1949: New York's **first helicopter station** began operating at pier 41 on the East River.

May 31, 1949: **Earl F. Ward died** at age 56. An American Airlines executive, Ward organized the nation's first air traffic control center (see Dec 1, 1935). In Mar 1936, he joined the Commerce Department as Supervisor, Airway Traffic Control, and during the next year became head of the new Airways Operations Division. Ward played an important part in conceiving and organizing the early en route traffic control system. At the time of his death, he was assisting in aviation planning in Chicago on behalf of the Civil Aeronautics Administration.

Jun 2, 1949: Administrator D. W. Rentzel announced **completion of a CAA reorganization** begun in May 15, 1945 (see that date). The change was intended to centralize policy control to assure uniformity, while allowing technical supervision of programs to continue in the field. The Administrator was now assisted by two deputies, one charged with general supervision of personnel, budget, and management functions. The other deputy coordinated the activities of Washington offices in planning all programs and evaluating their implementation in the field. Additional steps to insure a closely knit organization included establishment of a staff school where technical personnel would

receive uniform training in administrative procedures, and placement of Washington representatives on regional boards for approving new types of aircraft.

The principle headquarters offices now were: Federal Airways (building, maintaining, and operating the air navigation and air traffic control system); Airports (the Federal Aid Airport Program and airport advisory services); Aviation Safety (airworthiness, airman competency, medical certification, flight operations, and other safety issues); Technical Development (development and testing of air navigation devices and other aviation products); General Counsel (legal affairs); Aviation Information (information, publications, and audio-visual services); and Aviation Development (a recently formed office bringing together the developmental functions of aviation education, air marking, personal flying promotion, and flight information). The Office of Field Operations was abolished. A new International Region, with headquarters in Washington, was given responsibility for CAA's international affairs and missions abroad. The reorganization also involved a sharper delineation of the responsibilities of the Administrator's "special" and "program" staff officials.

Jul 1949: CAA inaugurated the **first direct radiotelephone communications service** between aircraft and an Air Route Traffic Control Center at the Chicago ARTCC. Extension of this capability to all ARTCCs was completed in 1955.

Aug 12, 1949: Effective this date, CAB awarded experimental five-year certificates authorizing **scheduled all-freight operations** to four airlines: Slick Airways, the Flying Tiger Line, U.S. Airlines, and Airnews. The four were among the few independent freight lines that had survived a rate war with the scheduled air carriers. In the long term, the most successful of them proved to be the **Flying Tiger Line**, which had been formed on Jul 25, 1945, by veterans of the American Volunteer Group that had served in Asia under Gen. Claire Chennault.

Sep 23, 1949: President Truman announced that within recent weeks the **Soviet Union had succeeded in exploding a nuclear device**.

Oct 1949: CAA issued to Compania Mexicana de Aviacion, Mexico City, the **first certificate authorizing a foreign repair station** to perform work on U.S. aircraft. The authority to issue foreign repair station certificates was provided by Civil Air Regulations Amendment 52-1, which became effective Mar 10, 1949. By Jun 30, 1952, CAA had certificated 17 foreign repair stations.

Nov 1, 1949: An Eastern Airlines Douglas **DC-4** and a **Lockheed P-38** **collided on final approach to Washington National Airport** as the P-38 overtook the airliner. All 55 people aboard the air carrier died, a higher toll than in any previous U.S. air accident. The fatalities included Congressman George J. Bates (R-Mass.) and former Congressman Michael J. Kennedy (D-N.Y.). The P-38, a twin-engine fighter had been recently purchased for delivery to the Bolivian government. Its pilot, a Bolivian citizen on a familiarization flight, survived. CAB's report cited the probable cause of the accident as the P-38 pilot's execution of a straight-in final approach without proper clearance and without exercising the necessary vigilance.

Six weeks later, **on Dec 12, Washington National was the scene of another fatal accident** when a Capital Airlines DC-3 carrying 20 passengers and a crew of three stalled during approach and crashed into the Potomac River, killing the pilot, copilot, and four passengers.

Nov 25, 1949: CAA's Administrator enunciated the **"single runway policy"** covering the use of Federal matching funds in the Federal-aid airport program. In substance, the new policy stated additional runways that provided only wind coverage or conveniences without increasing traffic capacity were not of sufficient value to justify the cost of construction. (See Jan 9, 1947.)

Dec 1949: The Air Coordinating Committee authorized the establishment, under its **Air Traffic Control and Navigation Panel**, of a full-time special working group to develop a specific and detailed transitional "common system" based on the recommendations of the RTCA SC-31 report (see Feb 17, 1948). The group included operational and technical specialists representing both government and industry and both civil and military aviation. During the week of Oct 22, 1950, at Wright-Patterson Air Force Base, the group conducted an operational demonstration of the air traffic principles recommended for use during the transitional period. Its report, **Air Traffic Control and the National Security**, completed in Dec 1950, recommended that radar be put into immediate use for monitoring and expediting air traffic control in terminal areas.

Calendar year, 1949: The Brookings Institution issued a **study entitled National Transportation Policy**, a study that was an outgrowth of the participation of authors Charles L. Dearing and Wilfred Owen in the activities of the Hoover Commission (see Mar 1, 1949). The report recommended that Congress establish four offices for the water, highway, aviation, and railroad modes and a Transport

Regulatory Commission that would take over the rate setting and other economic regulatory functions of the Civil Aeronautics Board, the Maritime Commission, and the Interstate Commerce Commission. The study also recommended against an independent accident investigation board. (See Oct 15, 1966)

***1950**

Jan 3, 1950: Pan American Airways changed its name to **Pan American World Airways**. Nine days later, on Jan 12, the company completed its **round-the-world radio-telephone communications system**, which the Civil Aeronautics Administration had approved for air-ground operations. This long-term project for conversion from code to voice involved 19,687 miles of voice radio link and 32 high-frequency ground stations.

Feb 9, 1950: A CAA Program Planning Staff report recommended that Congress establish a **government corporation to operate Washington National Airport** and any other Federal airport established in the Washington, D.C. area in the future. The recommendation, first put forward a year earlier by the Hoover Commission, died only to be revived more than three decades later. (See Jan 29, 1971, and Oct 30, 1986.)

Mar 9, 1950: CAA awarded its largest contract in history for the purchase of 450 **distance-measuring equipment (DME) ground stations**. The \$4,210,750 contract to the Hazeltine Electronics Corporation included spare parts.

Mar 18, 1950: President Truman approved legislation (Public Law 463) authorizing the **Secretary of the Interior to acquire, construct, operate, and maintain public airports** near national parks and monuments in cooperation with local government agencies and with the assistance of CAA in accordance with the Federal Airport Act (see May 13, 1946).

Mar 29, 1950: CAA announced that it would close its facilities at **Midway Island** on May 1 due to the Navy's decision to withdraw from the island. (See Sep 1947.)

May 6, 1950: To improve communications between CAA and the general aviation community, Administrator Rentzel established an **Aviation Development Advisory Committee**. The Director of CAA's Office of Aviation Development served as executive secretary of the Committee, which consisted of 12 qualified private citizens representing manufacturers, users, and others interested in the utilization of aircraft for personal, agricultural, and other non-air-carrier purposes.

May 15, 1950: A **conference between British aviation officials and representatives of CAA and Civil Aeronautics Board** opened in Washington to seek agreement on a number of technical problems related to **airworthiness and certification requirements**. (See Feb 10, 1953.)

May 24, 1950: **Reorganization Plan No. 5** became effective. The plan, one of a number put into effect under the Reorganization Act of 1949, stemmed in part from recommendations of the Hoover Commission (see Mar 1, 1949). It transferred to the direct control of the Secretary of Commerce all functions of all agencies and officers within his Department except those of CAB and certain similar agencies having rulemaking and adjudicatory powers. The Secretary redelegated to the CAA Administrator those functions affected by the reorganization. (See Mar 30, 1953.) **Reorganization Plan No. 13** also became effective this date, transferring to the Chairman of CAB executive and administrative functions formerly held by the entire Board.

Jun 25, 1950: **North Korean forces launched an invasion of South Korea**. Two days later, President Truman announced that he had ordered the U.S. Air Force to assist South Korea, beginning U.S. involvement in the war.

Jul 11, 1950: The air forces of the United States and Canada concluded a two-day conference on which they agreed to the erection of the **Pinetree radar network** on Canadian soil. Also on Jul 11, CAA and the U.S. Air Force formed the **Air Defense Planning Board** to plan for civil participation in air defense.

Aug 1, 1950: CAA commissioned the **Wake Island air route traffic control center**.

Aug 3, 1950: Legislation enacted on this date provided **criminal sanctions for knowing and willful display of false or misleading marks** as to an aircraft's nationality or registration.

Aug 8, 1950: To help CAA personnel keep pace with swift advances in aeronautical science, Congress enacted legislation allowing the Secretary of Commerce to detail **agency personnel for advanced training** at civilian or other institutions or at schools which the Secretary operated.

Aug 8, 1950: Following field tests, **CAA consolidated airport traffic control towers and airway communications stations** at 16 smaller airports in the continental United States. The agency subsequently expanded the program, reaching a peak of 84 combined station-towers in 1958. (See Nov 30, 1981.)

Sep 7, 1950: President Truman approved Public Law 762, which directed the Secretary of Commerce "to construct, protect, operate, improve, and maintain" a **second public airport** for the Washington, D.C., area. The act authorized appropriations not to exceed \$14 million (see Jul 11, 1958), and Congress subsequently authorized \$1 million to launch the project. By the end of 1951, 1,046 of the required 4,570 acres had been purchased at Burke, Va. When local opposition to the project developed, Congress refused to appropriate additional funds. Further studies were made in the 1953-1955 period. (See Dec 1955.)

Sep 9, 1950: Amendments to the Civil Aeronautics Act allowed the Secretary of Commerce and CAB, as directed by the President, to develop and implement a plan for **security control of air traffic** when U.S. security was endangered, while permitting the maximum flow of air traffic. The Secretary was authorized to establish **security zones in the airspace** and, in consultation with CAB and the Departments of Defense and State, prohibit or restrict flights which could not be effectively identified, located and controlled with available facilities. (See Dec 20, 1950.)

Sep 15, 1950: CAA and the U.S. Weather Bureau issued a Memorandum of Understanding delineating responsibilities for **weather and communications services** carried out cooperatively by the two organizations. (See Aug 2, 1965.)

Sep 25, 1950: Overruling the Civil Aeronautics Board, President Truman permitted the **merger of American Overseas Airlines into Pan American World Airways**. (See Oct 24, 1945.)

Sep 29, 1950: President Truman signed an amendment to the Civil Aeronautics Act authorizing the Secretary of Commerce and the CAA Administrator to **delegate to qualified private persons the authority to perform examinations, tests, and inspections and to issue certificates** under the Act's Title VI (Safety Regulations). As the House report covering this legislation noted, the great postwar increase in civil aircraft and pilots had already caused CAA to enlarge its designee program in recent years. Using the provisions of the new legislation, CAA placed new **delegation option procedures** in effect on Nov 3, 1951 for small aircraft weighing no more than 5,000 lb. and carrying no more than five persons. Under these procedures, manufacturers of such aircraft could choose to apply for authority to submit information that would serve as the basis for CAA certification. On Nov 2, 1956, the delegation option procedures were revised to include aircraft and gliders weighing less than 12,500 lb., as well as small aircraft engines and propellers. (See Nov 25, 1947, and Oct 8, 1965.)

Sep 30, 1950: **The Prototype Aircraft Act** (Public Law 867) declared that congressional policy was to promote the development of improved transport aircraft, particularly those that were turbine-powered, especially adapted to economical cargo operations, or suitable for feeder-lines. The act authorized appropriations of up to \$12.5 million for a five-year period. The Secretary of Commerce was directed to consult with interested government, labor, and industry groups in carrying out the act, and the **Prototype Aircraft Advisory Committee** was accordingly established in December.

Oct 4, 1950: **Donald W. Nyrop became Administrator of Civil Aeronautics**. He succeeded Delos W. Rentzel (see Jun 1, 1948), who had submitted his resignation on Sep 18 to become Chairman of the Civil Aeronautics Board. Nyrop was Deputy Administrator when nominated to be CAA Administrator, and had previous service in the General Counsel's office of both CAA and CAB. He received his B.A. degree from Doane College in 1934, and a law degree from George Washington University in 1939. (See May 18, 1951.)

Oct 15-21, 1950: During this seven-day period, CAA put into operation the **first omnirange (VOR) airways** (see Calendar Year 1947). Although 271 omniranges had already been commissioned in different parts of the United States, this marked the initial designation of a chain of these ranges as a controlled airway. The new routes, approximately 4,380 miles long, linked such major terminals as Kansas City, Denver, Albuquerque, El Paso, Omaha, and Oklahoma City. (Jun 1, 1952.) During fiscal year 1951, CAA began enhancing the VOR airways with distance measuring equipment (DME) to assist in low visibility approaches.

Oct 1950: The U.S. Air Force announced a program to **replace all its piston-engine fighter aircraft in Europe with jets**.

Dec 20, 1950: Executive Order No. 10197, prepared and issued this date at the request of the Department of Defense, directed the Secretary of Commerce to exercise **security control over aircraft in flight**. Subsequent regulations promulgated by the CAA Administrator under delegation from the Secretary of Commerce made mandatory the filing of flight plans for aircraft entering or flying within designated **air defense identification zones (ADIZs)** over and adjoining the continental

United States. A system for voluntary filing of plans for flights within ADIZs had been in effect previously. (See Sep 9, 1950, and Jun 1952.)

Dec 1950: Langley Aeronautical Laboratory made a worldwide analysis of **atmospheric turbulence** and gusts on the basis of data obtained from NACA-developed recorders carried on commercial airliners on transpacific and South American routes.

Calendar year, 1950: CAA began the installation of **mechanical interlock devices** in areas with high-density traffic. Developed by CAA, the new push button system eliminated most of the verbal coordination formerly required between the air traffic control center and the airport tower in assigning flight altitudes during IFR conditions.

*1951

Jan 21, 1951: CAA created an **Office of Aviation Defense Requirements** to administer priorities and allocations for civil aviation under the Defense Production Act of 1950. The immediate task of the new office was to handle Defense Order rating authorizations for new air carrier aircraft and for necessary spare parts and equipment to keep U.S. and allied foreign carriers in operation during the Korean emergency.

Feb 28, 1951: A U.S.-Canadian memorandum of agreement concluded on this date simplified notification procedures for private and non-scheduled aircraft **flights from Canada to the United States**. The United States negotiated a similar agreement with Mexico in Feb 1952. Effective May 15, 1953, an expansion of the agreement with Canada made transborder flight notification service available to pilots flying in either direction across the border.

Mar 1951: Pratt & Whitney began flight tests of its new 10,000-pound thrust **J57 jet engine**, which eventually powered the B-52, YB-60, F-100, F-101, YF-105A, KC-135, Boeing 707, F4D, and A3D, as well as the Snark missile.

Apr 21, 1951: The experimental **Chase XC-123A**, powered by four J47 turbojet engines, made its first flight. Designed as a troop and cargo transport for the Air Force, the XC-123A was fitted with four turbojet engines, installed as pairs in pods.

May 18, 1951: **Charles F. Horne became Administrator of Civil Aeronautics**. He succeeded Donald W. Nyrop (see Oct 4, 1950), who became Chairman of the Civil Aeronautics Board on this same day. (Nyrop had submitted his resignation from the CAA post on Mar 18.)

Horne, a regular Navy officer, graduated from the U.S. Naval Academy in 1926 and received an M.S. degree in communications and electronics from Harvard in 1935. On loan from the Navy, he became Acting Director of CAA's Airways Division in 1949. From 1950 to 1953, he served as vice chairman of the Radio Technical Commission for Aeronautics. Horne went on the retired list of the Navy in May 1951 as a Rear Admiral. (See Apr 27, 1953.)

May 31, 1951: **Roosevelt Field, on Long Island, N.Y., closed**. The facility had opened 40 years previously and had subsequently been named for Quentin Roosevelt, a son of Theodore Roosevelt killed in World War I. Lindbergh took off from this field in 1927 for his epochal flight to Paris, and other famous aviators who used it included Richard E. Byrd, Clarence Chamberlin, and Amelia Earhart. The 250-acre site eventually became the home of the Roosevelt Shopping Center.

Jun 14, 1951: A new Title XIII of the Civil Aeronautics Act authorized the Secretary of Commerce to provide **war risk insurance** to U.S. air carriers when such insurance could not be obtained commercially on reasonable terms and conditions. Under the Federal Aviation Act of 1958, the war risk insurance program remained with the Secretary of Commerce rather than becoming a function of the new Federal Aviation Agency (FAA). In 1967, the program was transferred from Commerce to the new Secretary of Transportation, who delegated the function to FAA. Under the program, FAA maintained a premium standby insurance plan that would make aviation war risk insurance available at the outbreak of war to civil aircraft engaged in operations deemed in the national interest. The program also included non-premium war risk insurance for aircraft under contract to the Departments of Defense and State or committed to Defense for emergency use. (See Jul 31, 1970.)

Jun 27, 1951: CAA demonstrated the **Ag-1, the first airplane designed exclusively for agricultural use**. The Personal Aircraft Research Center at Texas A. & M. College constructed the plane under CAA contract.

Jun 30, 1951: During fiscal year 1951, which ended on this date, CAA assisted the Federal Civil Defense Administration (FCDA) in formulating **plans for the use of civil aircraft in civil defense**. In

cooperation with FCDA and the National Association of State Aviation Officials, CAA distributed a suggested uniform State Plan for Civil Aviation Mobilization and Civil Defense.

Jul 10, 1951: **Negotiations aimed at ending the Korean conflict began.** Fighting continued, however, and hostilities were not formally ended until the signing of an armistice in Panmunjom on Jul 27, 1953.

Jul 26, 1951: The three U.S. armed services agreed to the establishment of **Project Lincoln**, a study of the air defense program by the Massachusetts Institute of Technology. (See Apr 10, 1953.)

Sep 11, 1951: The National Security Resources Board completed its **air transport mobilization survey.** Developed by a large group of aviation leaders from government and industry, the program outlined requirements for rapid mobilization of the U.S. air transport industry in the event of expanded war. (See Dec 15, 1951.)

Oct 10, 1951: The President approved the **Mutual Security Act** of 1951 to maintain security and promote foreign policy by furnishing military, economic, and technical assistance to friendly nations in the interest of international peace and security. The plan included a number of aviation assistance programs. The Mutual Security Act of 1952 continued the Mutual Security Agency, established to administer the act, until Aug 1, 1953, when its functions were transferred to the Foreign Operations Administration. The State Department's International Cooperation Commission and the Department of Defense assumed FOA's responsibilities on Jun 30, 1955.

Nov 12, 1951: Pursuant to Executive Order 10219 (Feb 28), the Department of Commerce established the **Defense Air Transportation Administration** to plan and direct the mobilization of U.S. civil aviation resources for effective utilization in the event of war.

Dec 10, 1951: The Kaman K-225, the world's **first turbine-powered helicopter**, made its initial flight. The Kaman Aircraft Corporation had developed the K-225 under contract for the U.S. Navy.

Dec 15, 1951: The Secretaries of Commerce and Defense signed the **Civil Reserve Air Fleet Plan.** The plan, developed in consultation with the airlines, stipulated that the airlines would provide ninety-one aircraft to the Military Air Transport Service within forty-eight hours of notification. An additional 271 aircraft were to be provided 30 days later. The plan was the result of an executive order issued by President Truman on Mar 2, 1951, which, in part, authorized the Secretary of Commerce to transfer or assign civil air carriers to the Department of Defense during mobilization.

Calendar year, 1951: CAA placed the first nine **DME (distance-measuring equipment) ground transponders** in experimental operation along the Chicago-New York airway.

For the first time in U.S. history, **air passenger-miles** flown (10,679,281,000) exceeded passenger-miles traveled in Pullman cars (10,224,718,000)

CAA heart specialist Dr. J. E. Smith developed the **ballistocardiograph**, a machine that made the electrocardiograph more effective in detecting heart abnormalities.

***1952**

Jan 5, 1952: Using Douglas DC-6As, Pan American World Airways inaugurated the **first all-cargo air service across the North Atlantic.**

Jan 7, 1952: CAA inaugurated **radar departure control procedures** at the Washington air route traffic control center. Use of radar for approach began Jul 1, 1952.

Feb 3, 1952: CAA put into effect a plan to **consolidate aviation safety functions** under one chief in each of its seven continental regions and to reorganize the Washington Office of Aviation Safety. Under development for more than a year, the program was intended to achieve better coordination between CAA's field services and the public and the industry. Designed also to keep pace with rapid changes in technology, the reorganization placed air carrier and general aviation specialists in separate groups.

Feb 20, 1952: **President Truman established a temporary Airport Commission** under the chairmanship of James H. Doolittle, with CAA Administrator C. F. Horne and J. C. Hunsaker of NACA as members. The **action responded to a series of crashes**, due to varied causes, in the New York-New Jersey metropolitan area. These events had raised residents' fears and prompted authorities to close Newark Airport temporarily:

* On Dec 16, 1951, a Miami Airlines C-46 crashed in Elizabeth, N.J., shortly after takeoff from Newark, killing all 56 people on board.

* On Jan 14, 1952, a Northeast Airlines Convair 240 approaching La Guardia Airport crashed into Flushing Bay with no fatalities.

* On Jan 22, 1952, an American Airlines Convair 240 crashed in Elizabeth, killing seven people on the ground and all 23 in the airplane.

* On Feb 10, 1952, a National Airlines DC-6 crashed in Elizabeth after taking off from Newark, killing four people on the ground and 29 of the 63 persons on the airplane.

Truman asked the Commission to restudy the nation's policy on airport location and use, considering the well-being of people living near airports, as well as national defense requirements and the economic importance of a progressive and efficient aviation industry. The Commission was also instructed to take into account: (1) the Federal, State, and local investment in existing civil and military airports and the factors affecting the utility of airports to adjacent communities; (2) governmental actions to lessen hazards surrounding existing civil and military airports; (3) assignment of newly activated military units to existing airports, with particular regard for potential hazards to the communities involved; (4) site selection for new civil and military airports and the factors affecting relocation of existing airports; (5) joint civil/military use of airports; and (6) legislation and appropriations necessary to carrying out appropriate policy. (See May 16, 1952.)

Mar 5, 1952: CAA commissioned the **Norfolk air route traffic control center**.

Apr 1, 1952: All CAA facilities began using a **new phonetic alphabet** replacing the familiar "Able-Baker-Charlie." Recently adopted by the International Civil Aviation Organization, the new alphabet used words with almost the same pronunciation in all languages.

May 1, 1952: The **first tourist class air service over the North Atlantic** began, in accordance with an agreement between eleven International Air Transport Association member airlines that had been announced on Dec 5 of the previous year.

May 2, 1952: The British Overseas Airways Corporation (BOAC) inaugurated the **first scheduled air service with turbojet airliners**, de Havilland Comet I's, operating between London and Johannesburg. (See Jan 10, 1954.)

May 16, 1952: The **Airport Commission** forwarded its report, The Airport and Its Neighbors, to the President. Calling for greater Federal and local support of airport development, the report made 25 specific recommendations for improvements, including integrated municipal and airport planning, effective zoning laws, positive air traffic control, Federal certification of airports, preferential runways and flight patterns, and development of helicopters for civil use.

May 1952: J. B. "Doc" Hartranft, Jr., was named president of the **Aircraft Owners and Pilots Association (AOPA)**. He had served as general manager of the organization since its founding in 1939, and succeeded the original president, C. Townsend Ludington. With AOPA vice president Max Karant, Hartranft would become a vigorous advocate in behalf of general aviation in the face of growing airspace demands from commercial and military aviation. After Hartranft's retirement in May 1977, John L. Baker became AOPA president, and was in turn succeeded by Phil Boyer in 1991.

Jun 1, 1952: Forty-five thousand miles of **very-high-frequency (omnirange) airways**, referred to as "Victor" airways, were put in operation. Like the then existing 70,000 miles of Federally maintained low-frequency airways, the "Victor" routes were 10 statute miles in width. (See Oct 15-21, 1950 and Jun 29, 1961.)

Jun 17, 1952: The Council of the International Civil Aviation Organization (ICAO) adopted a recommendation that, pending development of a more suitable form of speech, **English should be used as a universal language in aeronautical radiotelephony** and should be available for communications involving international air services. This recommended practice, which became applicable on Apr 1, 1953, was contained in an amendment to Annex 10 of the Convention on International Civil Aviation (Vol. II, Section 5.2.1.1.2).

Jun 1952: The U.S. Air Force and the Civil Aeronautics Administration worked out an agreement under which 11 CAA air route traffic control centers would furnish appropriate air defense units with flight movement **data on aircraft penetrating or operating within air defense identification zones (ADIZs)**. This agreement followed tests conducted by experimental aircraft movement identification sections (AMIS) established at the Boston and Seattle ARTCC centers. (See Dec 20, 1950, and Dec 1, 1955.)

Jul 1, 1952: All CAA facilities and services were scheduled to begin using **knots and nautical miles** on this date, establishing a single military-civilian standard measurement for speed and distance used in air navigation. The change had been announced in the *CAA Journal* on Aug 15, 1950.

Jul 15, 1952: The Secretaries of Defense and Commerce approved a plan for the **security control of air traffic (SCAT)** during various defense warning conditions. Adopted by the Joint Chiefs of Staff

in collaboration with representatives of civil aviation groups, the plan aimed at permitting the maximum of civilian and military flying consistent with national defense requirements. (See Jul 20, 1957.)

Jul 20, 1952: Because of a curtailment of operating funds, **CAA ceased publication of its CAA Journal**. (See Jan 15, 1940.)

Jul 15-31, 1952: Two USAF Sikorsky H-19 helicopters made the **first transatlantic helicopter flight**, flying from Westover Field near Boston to Prestwick, Scotland, with stopovers in Maine, Labrador (for 10 days), Greenland, and Iceland. (See May 31-Jun 1, 1967.)

Aug 1952: CAA established a **hemisphere headquarters for technical cooperation** in the field of civil aviation in Panama City, Panama. This office acted as a pool of technical talent to assist Latin American countries participating in civil aviation development projects under the Point Four program, and supplemented the work of CAA missions in Colombia, Bolivia, Ecuador, Panama, Costa Rica, and Honduras.

Oct 20, 1952: **Pan American World Airways announced its order for three British jet airliners**, de Havilland Comet IIIs, to be delivered in 1956. (See Oct 13, 1955.)

Nov 1, 1952: The U.S. exploded the **first hydrogen bomb** on Eniwetok Island. On Aug 20, 1953, the U.S.S.R. announced it had tested an H-bomb "within the last few days."

Dec 4, 1952: CAA Administrator C. F. Horne established a **Turbine-Powered Transportation Evaluation Team** to: (1) assure uniformity in the handling of turbine-powered transport certification projects between regions and for all manufacturers, (2) make its members unquestioned authorities in this field by intensively supplementing their past specialized training, and (3) make the team a central source of information on turbine-powered transport developments through maintaining contact with manufacturers, the military, experimental laboratories, foreign governments, and other appropriate bodies. After studies and discussions with more than 400 specialists in government and industry, the team completed a comprehensive report at the end of the following year.

Calendar year, 1952: CAA began its program of **decommissioning the low and medium frequency four-course radio ranges**, and replacing them with the very high frequency omnidirectional ranges. (See Jun 30, 1928, and Sep 5, 1974.)

*1953

Jan 20, 1953: **Dwight D. Eisenhower became President**, succeeding Harry S Truman.

Jan 20, 1953: A specially recruited team of Italian-speaking **CAA air traffic control experts left for Italy** to assist that country in improving the operation of its airways.

Feb 10, 1953: CAA and British aircraft experts concluded extensive discussions of technical problems relating to **airworthiness certification of turbine-powered transports**. The meetings, termed "exploratory," sought eventual agreement on standards for U.S. certification of the airworthiness of jet transports, such as the British Comet. (See May 15, 1950.)

Feb 1953: The American Medical Association authorized the American Board of Preventive Medicine to establish **aviation medicine as a distinct specialty** and to grant certification for those physicians properly qualified.

Mar 30, 1953: The Commerce Department's **Office of Transportation was abolished** and its function thereafter focused directly in the Office of the Under Secretary for Transportation. (See May 24, 1950.)

Apr 10, 1953: The U.S. Air Force decided to proceed with the production of **SAGE (Semiautomatic Ground Environment)**, an electronic defense system developed by MIT's Lincoln Laboratory. (See Jul 10, 1956.)

Apr 18, 1953: The **first turboprop airliner, the Vickers V-701 Viscount**, entered scheduled passenger service with British European Airways. On Jul 26, 1955, Capital Airlines introduced the British-made plane on its Washington-Chicago route. The Viscount was the first turboprop-powered aircraft to be used in U.S. scheduled service.

Apr 27, 1953: **Frederick B. Lee was sworn in as CAA Administrator**. He succeeded Charles F. Horne (see May 18, 1951), who resigned on Mar 6, 1953, because of the change in administration following President Eisenhower's election. Lee received his A.B. degree from Stanford in 1928 and a law degree from Harvard in 1931. A naval aviator in World War II, he rose to the rank of commander, authored a manual for naval flight instructors, and supervised training in night fighters and torpedo units. He joined CAA in 1946 as Program Planning Officer, was made executive assistant to the

Administrator in Jan 1947, and became Deputy Administrator the same year. He was still Deputy Administrator when nominated on Mar 11, 1953, to be Administrator. (See Dec 8, 1955.)

Jun 1, 1953: Under the provisions of the Reorganization Act of 1949, President Eisenhower submitted **Reorganization Plan No. 10** to the Congress. The plan provided for the **separate payment of airline subsidies and fees** by the Post Office Department for transportation of mail; such subsidies and fees had previously been paid as a lump sum by the Post Office. The plan went into effect Oct 1, 1953.

Jul 1, 1953: CAA moved its medical research function to the **Civil Aeromedical Research Laboratory (CAMRL)**, established on the campus of the Ohio State University School of Medicine. On Jun 30, 1958, CAMRL moved back to the Aeronautical Center in Oklahoma City, by order of CAA Administrator James T. Pyle.

Jul 9, 1953: **New York Airways became the first scheduled passenger helicopter air carrier** to operate in the United States. (See Oct 1, 1947.)

Aug 1953: The first operational installation of a **transmissometer, an electronic device for measuring visibility**, was completed at Washington National Airport. The transmissometer was developed by the National Bureau of Standards, purchased and installed by the Weather Bureau, and used by CAA control tower operators to provide pilots with accurate information on visibility changes.

Sep 1, 1953: The Belgian airline Sabena opened the **first international helicopter services**, from Brussels to Rotterdam, Lille, and Maastricht.

Oct 1, 1953: **CAA made extensive changes in its field organization**, reducing the continental regions, excluding Alaska, from seven to four During the following year, the agency revamped its Washington headquarters organization. (See Aug 17, 1954.)

Calendar year, 1953: A study made of **changes in the air carrier fleet** between Jun 1950 and Jun 1953 indicated that while the number of aircraft had increased by 17 percent, the available lift capacity had increased by 42 percent, representing an annual gain of a billion ton-miles.

***1954**

Jan 1, 1954: Effective this date the Civil Aeronautics Board delegated to the **Civil Aeronautics Administration responsibility for the investigation of accidents** involving small airplanes. The Board retained its responsibility for investigating accidents involving fixed-wing aircraft of over 12,500 pounds, aircraft used in Alaskan air carrier operations, and helicopters or non-fixed-wing aircraft.

Jan 1954: The **Air Navigation Development Board (ANDB)** was reconstituted with members from higher levels of Government (see May 23, 1948). The revised Board, chaired by Donald A. Quarles, Assistant Secretary of Defense (R. & D.), included: an Under Secretary of Commerce for Transportation; Assistant Secretary of the Navy for Air; Assistant Secretary of the Air Force (R. & D.); and a Special Assistant to the Secretary of the Army (see Oct 29, 1957). During its first meeting, the ANDB established a committee to study the military tactical air navigation system (TACAN) and the civilian very high frequency omnidirectional range/distance measuring equipment (VOR/DME) to determine which system offered the most benefits for the development of a common system of air navigation (see Jan 14, 1955). The committee consisted of representatives from all the military agencies, the Departments of Commerce and Defense, the National Business Aircraft Association, and the Aircraft Owners and Pilots Association, and was chaired by Milton W. Arnold of the Air Transport Association.

Jan 10, 1954: A British Overseas Airways Corporation (BOAC) de Havilland **Comet I jetliner fell into the Mediterranean Sea** with the loss of all 35 on board. BOAC temporarily suspended Comet operations after the accident, but resumed them on Mar 23. **On Apr 8, a second Comet I crashed** into the Mediterranean, killing all 21 occupants. Comet services were discontinued again when the Minister of Transport and Civil Aviation withdrew the jet transport's airworthiness certificate. On Feb 11, 1955, a Court of Inquiry into the two accidents announced that testing had revealed that the aircraft's fuselage shell was prematurely vulnerable to metal fatigue. De Havilland engineers subsequently corrected the deficiencies, but the setback helped American manufacturers to overtake the British in the commercial jetliner race. (See May 2, 1952, and Dec 20, 1957.)

Feb 25, 1954: The delegates to the International Civil Aviation Organization (ICAO) conference in Paris signed a **new agreement on the maintenance of North Atlantic weather stations**. After Jul 1, 1954, the number of weather stations would be reduced from 10 to 9 and weather ships from 25 to 21.

Mar 1954: A team of **CAA experts arrived in Formosa (Taiwan) to assist the Nationalist Chinese Government** in developing omnirange air routes and in training Chinese personnel to operate and maintain the airways system. Although other CAA missions already operated under Foreign Operations Administration auspices in Bolivia, Chile, Colombia, Costa Rica, Ecuador, Greece, Honduras, Italy, Panama, and Turkey, this was the first CAA group to be assigned to the Far East under the FOA's Technical Cooperation Program.

May 1, 1954: The Air Coordinating Committee submitted its **study on Civil Air Policy** in response to a Presidential request of Sep 23, 1953, for a comprehensive review of U.S. policies in the primary areas of aviation interest in consultation with appropriate industry, local government, and private aviation groups. The committee's report covered a variety of topics and recommended the development of a single national common civil-military system of air navigation and air traffic control. On May 26, 1954, the President approved the report "as a guide in the future consideration of questions related to the subject of civil aviation and in making appropriate recommendations to Congress."

Jun 30, 1954: During fiscal year 1954, which ended on this date, the Eisenhower Administration's **retrenchment cut CAA's budget** to \$115.9 million, \$20 million less than the agency received in fiscal 1953 and the lowest amount since 1949. The reduction was achieved by eliminating 1,500 positions, discontinuing control tower operations at airports with light commercial traffic, decommissioning nonessential communications stations, and curtailing services to private fliers.

Congress appropriated no new funds for the **Federal-aid airport program** during fiscal 1954, but work proceeded on projects already funded. CAA reviewed and revised its policies toward future grants, concluding that they should concentrate on airports important from an overall national aviation standpoint. Federal funds should be used primarily for improvements contributing directly to safety and efficiency of aviation operations and to national defense, and improvements to airport terminal buildings should be excluded. An appropriation of \$22 million reactivated the program for fiscal 1955. (See Jan 9, 1947, and Aug 3, 1955.)

Jul 1954: CAA launched an **Aviation Incentive Movement (AIM)** designed to stimulate interest in aeronautics among precollege students. Prompted by CAA's concern over the shortage of engineers and other trained aeronautics personnel, AIM proposed to equip grade schools with aviation displays, conduct a series of nationwide clinics and competitions in the building and flying of model airplanes, and award flight or technical-training scholarships. Budgetary restraints limited the program to a modest effort. (See Sep 30, 1964.)

Jul 12, 1954: CAA and the Air Force announced the completion of plans for CAA to operate **radar approach control centers (RAPCONs)** at 18 military bases, to serve both civil and military traffic. The first joint RAPCON had been commissioned at MacDill Air Force Base, Tampa, on Apr 4, 1954.

Aug 2, 1954: The Convair XFV-1, an experimental VTOL aircraft, made the **first free vertical takeoff and landing** by a fixed wing aircraft at Moffett NAS, Calif.

Aug 6, 1954: CAB announced the signing of an **agreement with Norway, Sweden, and Denmark** for the operation of an air route by U.S. and Scandinavian airlines between Los Angeles and Scandinavia via Greenland.

Aug 17, 1954: Administrator Frederick B. Lee placed in effect a **reorganization of CAA** (see Jun 2, 1949). He established a position of Assistant Administrator for Operations in the Office of the Administrator to exercise direct supervision over the Office of Airports, Office of Federal Airways, Office of Aviation Safety, and the Washington National Airport. The administrative staff offices were placed under an Assistant Administrator for Administration, also responsible for supervising the Aeronautical Center. An Assistant Administrator for Program Coordination (later redesignated Assistant Administrator for Planning, Research, and Development) supervised the Technical Development and Evaluation Center. The line of authority was officially defined as running through the program directors to the regional administrators. Effective Jan 1, 1955, Lee gave the program directors authority to take individual personnel actions involving professional or technical employees in any grade level at headquarters or in the field. (See Sep 4, 1956.)

Sep 1, 1954: CAA commissioned the **Indianapolis air route traffic control center**.

Dec 1954: CAA and the Air Force launched a program to accelerate the **certification of Air Force air traffic controllers** and promote greater standardization of air traffic control techniques for both civil and military operations. Under the plan, CAA delegated for one year to each group commander

of the USAF Airways and Air Communications Service authority to administer CAA written examinations for control tower operators.

***1955**

Jan 14, 1955: The VORTAC Committee of the Air Navigation Development Board (ANDB) reported its inability to reach a unanimous decision to resolve the **TACAN/VOR-DME controversy** (see Jan 1954). Despite the split report of its committee, the ANDB favored development of TACAN. On Feb 8, however, the ANDB issued a press release stating that TACAN was under consideration to replace VOR-DME, the civil system in operation. This was the first public announcement of the TACAN/VOR-DME controversy, and it sparked a series of hearings in public and executive session by the Transportation and Communications Subcommittee of the House Committee on Interstate and Foreign Commerce. (See Aug 30, 1956.)

Mar 14, 1955: The first type-certification board meeting to be held in connection with the **certification of a foreign-built aircraft** under U.S. regulations met in Washington. Representatives of the Royal Netherlands Aircraft Factories, having applied for a U.S. type certificate on its Fokker F-27, met with the CAA engineering staff for preliminary discussions. Previous certification negotiations, such as those involving the British-built Viscount, had focused on U.S. acceptance of certification by the country of manufacture.

Mar 15, 1955: CAA commissioned the **first of 15 very high frequency omnidirectional radio ranges (VORs) planned for Southeast and South Asia** at Manila International Airport. Additional VORs programmed by CAA along routes followed by U.S.-flag carriers included 3 ranges for Formosa, 1 in Bangkok, and 10 for India.

May 3, 1955: Preliminary plans were announced for sending **CAA specialists to assist Pakistan** in developing its airways system under an agreement between Pakistan and the U.S. Foreign Operations Administration.

May 4, 1955: President Eisenhower, acting through the Director of the Bureau of the Budget, requested **William Barclay Harding to serve as a consultant** to study long-range needs for aviation facilities and aids. On Dec 31, 1955, Harding's **Aviation Facilities Study Group** submitted its report to the Director of the Bureau of the Budget. Concluding that the need to improve air traffic management had already reached critical proportions, the group recommended that an individual of national reputation, responsible directly to the President, be appointed to provide full time leadership in developing a program for solving the complex technical and organizational problems facing the government and the aviation industry. On Feb 10, 1956, following approval of the Harding Committee recommendations, President Eisenhower named **Edward P. Curtis his Special Assistant for Aviation Facilities Planning**. Curtis was to direct and coordinate "a long-range study of the Nation's [aviation facility] requirements," to develop "a comprehensive plan for meeting in the most effective and economical manner the needs disclosed by the study," and "to formulate legislative, organizational, administrative and budgetary recommendations to implement the comprehensive plan." (See Apr 11, 1957.)

May 5, 1955: An agreement between the United States and Canada provided for the construction and operation of a new **distant early warning (DEW) radar defense line** in northern Canada.

Aug 3, 1955: President Eisenhower signed Public Law 211, making major **changes in the Federal-aid airport program** and removing the 1958 time limit prescribed by the original act, as amended in 1950. The changes established a four-year program which placed the total funding for fiscal 1956 at \$62.5 million and provided \$63 million for each of the fiscal years 1957-59. The law also made all types and sizes of airports eligible for aid, included development of airport buildings as eligible items, and provided that funds apportioned yearly to States under an area population formula would remain available for two years. (See Jun 30, 1954, Oct 18, 1955, and Jan 21, 1959.)

Oct 13, 1955: The aviation industry learned that Pan American World Airways had placed the **first order for jet airliners to be produced in the United States**, ordering both the Boeing 707 and Douglas DC-8. (See Oct 20, 1952.)

Oct 18, 1955: CAA announced **new policies regarding airport grants** in a booklet entitled "Federal-Aid Airport Program Policies and Procedures." Airports were to be considered eligible for matching Federal funds on the basis of the actual or potential aeronautical need of the community rather than, as previously, according to a level of activity equivalent to 3,000 annually enplaned passengers or 30 based aircraft. Airport terminal buildings, and any other buildings (except hangars) that were necessary to serve the public, were eligible for Federal aid. Federal funds could also be used to share

the cost of automobile parking areas required for users of the airport. (See Aug 3, 1955, and Jan 21, 1959.)

Oct 24, 1955: **United Airlines' flight engineers went on strike**, due to the carrier's decision to require all future flight engineers to possess a pilot's certificate. After 51 days, the strike was broken when pilots belonging to the Air Line Pilots Association crossed the picket lines of the flight engineers union to occupy the seats vacated by the strikers. (See Jun 15, 1947 and Nov 8-14, 1956.)

Oct 30, 1955: The first commercial flights began at the **new O'Hare Field, Chicago International Airport**, which had been under construction since 1949. The facility was named for Lt. Commander Edward H. O'Hare, who won the Medal of Honor as a naval aviator in World War II. Subsequent years saw major improvements at the site, and the expanded Chicago-O'Hare International Airport was dedicated on Mar 23, 1963.

Nov 1, 1955: A **bomb destroyed a United Air Lines Douglas DC-6B airliner** after it took off from Denver, Colo., killing all 44 people on board. The Federal Bureau of Investigation later arrested J. G. Graham, who had taken out a large life insurance policy on his mother, a passenger on the ill-fated aircraft. Graham was subsequently convicted and sentenced to death.

Nov 15, 1955: The Civil Aeronautics Board gave the new name of **supplemental air carriers** to those charter operators previously designated large irregular carriers (see Sep 15, 1946). At the same time, the Board granted an interim exemption allowing the supplementals to offer, in addition to charter flights, a limited number of flights for which tickets or freight services were sold individually. The Board granted this interim exemption pending determination as to which operators would ultimately receive this operating authority. (See Jan 29, 1959.)

Dec 1, 1955: Major changes in the structure of the U.S. **air defense identification zones (ADIZs)** became effective, superseding substantial changes already established on Jan 15, 1953. Increased military capability made it possible to revise the structure in such a way as to exempt a substantial volume of flying from ADIZ requirements. Rules governing the security of air traffic were eased further on Jan 1, 1957. (See Jun 1952 and Apr 1, 1959.)

Dec 8, 1955: **CAA Administrator Frederick Lee resigned** after months of widening personal and policy differences with the Secretary and Under Secretary of Commerce (see spring 1956). The President accepted his resignation two days later. **On Dec 12, 1955, Charles J. Lowen took the oath as Lee's successor.** With Congress not in session, President Eisenhower had given Lowen an interim appointment on Dec 9.

A 1938 graduate of the University of Colorado, Lowen had worked in aviation sales and service until 1942, then served during World War II with the Air Transport Command. His experience after the war included three years as an executive with Capital Airlines and a period as Director of Aviation for Denver, as well as positions unrelated to aviation. He joined CAA as a consultant in May 1955 and became Deputy Administrator in July.

Lowen underwent surgery for cancer in May 1956, shortly before the Senate confirmed him as Administrator on Jun 6, and he died on Sep 5 of that same year. (See Feb 11, 1957.)

Dec 20, 1955: The **Douglas DC-7C first flew**. On May 15, 1956, CAA type-certificated the four engine, propeller-driven aircraft. Dubbed the "Seven Seas," the transport was able to fly nonstop between the United States and many European cities and had a maximum capacity of 99 passengers. The plane entered scheduled airline service with Pan American World Airways on Jun 1, 1956.

Dec 21, 1955: CAA and the Air Force announced an agreement under which CAA would for the first time use **USAF Air Defense Command radar** for civil air traffic control. Under the arrangement, CAA used information from the Air Defense Command radar at the Olathe, Kan., Naval Air Station to maintain approach control at nearby airports. CAA commissioned the facility for this use on Jan 15, 1957.

Dec 1955: Following Senate hearings in July on a **second public airport for Washington**, CAA reiterated its earlier position that the Maryland site occupied by Andrews Air Force Base would be the best location, but again recommended Burke, Va., as the next best alternative. A request for \$34.7 million to complete the Burke project was turned down when strong opposition to that site continued at Senate hearings in July 1956. (See Sep 7, 1950, & Aug 1957.)

Dec 1955: The Civil Aeronautics Administration released its **first five-year plan** (1957-1961) for the expansion and modernization of the Federal airways system.

Calendar year, 1955: Bendix Aviation Corporation began manufacturing a transistorized **automatic pilot** for commercial and military sales. Prototype testing of the equipment had occurred the previous

year on a B-25 flying laboratory. Automatic pilots had been installed previously in aircraft as accessory equipment, but the Bendix equipment was the first completely transistorized automatic flight control system designed for high performance aircraft.

For the first time on record, **water sprayed from an airplane put out a forest fire**. The plane completely suppressed a blaze covering 50 acres on a steep slope near Wenatchee, Wash.

*1956

Jan 11, 1956: Civil Aeronautics Administration officials convoked the **first CAA jet age symposium** as an initial step toward planning for the introduction of jets in civil operations. On Apr 20, **CAA established a Jet Age Planning Group** to work with industry and Government on potential civil jet transport problems.

Feb 20, 1956: CAA and the Air Force announced a joint study under Air Navigation Development Board auspices to evaluate the **use of Air Defense Command (ADC) radar for civil air traffic control purposes**. The evaluation included use of a microwave link to remote radar information between an ADC installation at Rockville, Ind., and the CAA ARTCC at Indianapolis, a distance of some 50 miles. This was the **first use of a microwave link to transfer radar information** between distant points for air traffic control. (See Nov 16, 1956.)

Feb 23, 1956: The Civil Aeronautics Board, noting the increasing frequency of near-collisions in the air and wishing to gain more information about such incidents, adopted Special Civil Air Regulation No. SR-416, which granted **immunity from disciplinary proceedings to pilots reporting near misses**. The identity of the pilot or other person making the report would be held in confidence by the Board. In cases where information about a violation of Civil Air Regulations was obtained by other means, however, the fact that the violation was voluntarily reported would not preclude enforcement, disciplinary, or remedial proceedings on the basis of such other information. In an attempt to gather information on near misses, some airlines had previously started their own anonymous reporting programs, but that effort had failed because pilots feared possible Federal disciplinary action. The CAB grant of immunity was intended to overcome this problem. (See Jul 10, 1959.)

Mar 31, 1956: The **Air Traffic Control Association (ATCA) was established** as a nonprofit professional organization to promote the advancement of air traffic control. Originally composed only of controllers, ATCA broadened its membership to include governmental agencies, private companies, and other individuals and organizations worldwide.

May 27, 1956: The Sud-Aviation **SE 210 Caravelle made its first flight**. The first short-haul jet plane to go into general use, the Caravelle's rear-mounted engine configuration set a design trend for jet transports.

Jun 25, 1956: Its interest kindled by the Harding Report (see May 4, 1955), the Legal and Monetary Affairs Subcommittee of the House Committee on Government Operations, chaired by Rep. Robert H. Mollohan (D.-W.Va.), began extensive **hearings on the Federal role in aviation**. The hearings centered on: the adequacy of the Federal-aid airport program; problems in air traffic control and air navigational aids, with particular reference to the TACAN/VOR-DME controversy (see Aug 30, 1956); the effect of introducing commercial jets; the organization for aviation matters within the executive branch; the operational efficiency of CAA, including the effectiveness of its five-year program; and the problem of joint military and civil use of airports.

Jun 30, 1956: A **Trans World Airlines Super Constellation and a United Air Lines DC-7 collided over the Grand Canyon, Ariz.**, killing all 128 occupants of the two airplanes. The collision occurred while the transports were flying under visual flight rules (VFR) in uncongested airspace.

The accident dramatizing the fact that, even though U.S. air traffic had more than doubled since the end of World War II, little had been done to expand the capacity of the air traffic control system or to increase safeguards against midair collisions. Sixty-five such collisions had occurred in the United States between 1950 and 1955. This was partly because the ATC system did not have the ability to segregate VFR traffic from instrument flight rules (IFR) traffic, or slow-moving flights from faster ones. Many experts recognized a need to institute positive control -- requiring instrument flight over certain portions of the airspace irrespective of weather conditions.

In the wake of the tragedy, Congress opened hearings to probe its relationship to the general problems of airspace and air traffic control management. (See Apr 11, 1957.)

Jun 1956: The first radar in a CAA **program to "circular polarize" airport surveillance** was completed at La Guardia Airport. The modification program would permit the radar to "see" aircraft

passing through rain and snow. With the unmodified equipment, aircraft operating in storm areas often failed to show on the scope.

Spring, 1956: The Senate Aviation Subcommittee, chaired by A. S. "Mike" Monroney (D-Okla.), held **hearings relating to the resignation under fire of CAA Administrator Frederick Lee** (see Dec 8, 1955) and to the larger allegation of the neglect of CAA by the Department of Commerce.

Jul 10, 1956: CAA announced the establishment in the Boston area of a **Military Integration Branch of the Technical Development Center**. The new office was created to provide closer coordination with military development programs, such as the SAGE Air Defense System, at Lexington and Deer Island, Mass. (See Apr 10, 1953, and Sep 21, 1959.)

Jul 24, 1956: CAA placed the **Central Altitude Reservation Facility (CARF)** in operation at Kansas City to handle all requests for temporary altitude reservations for military aircraft. Creation of this new facility marked a significant advance in controlling airspace at higher altitudes.

Aug 1, 1956: The President signed into law a bill permitting the Armed Forces to include **flight instruction in Reserve Officer Training Corps (ROTC) programs**.

Aug 30, 1956: The Air Coordinating Committee approved a study panel's recommendation that **VOR and TACAN**, the separate civil and military air navigation systems, **be combined**. **VORTAC** (an acronym used to describe a short-range navigation system, using the VOR directional component and the distance component of TACAN) would become a key element of the civil-military common system of air navigation and air traffic control. (See Jan 14, 1955, and Sep 16, 1985.)

Sep 4, 1956: **CAA announced a reorganization** designed to streamline the Administrator's office and place greater reliance on a direct line of command as the basic core of CAA organization. The reorganization abolished the Assistant Administrator positions for Operations and for Planning, Research, and Development, and grouped most CAA functions under six major program offices. The Office of Air Navigation Facilities and the Office of Air Traffic Control were created from the former Office of Federal Airways, a change that had been previously announced. (One reason for creating a separate ATC Office, according to Administrator Lowen, was "to reverse completely the approach of having the operations of the air traffic control system governed by the kind of tools the engineers give the operators." Lowen believed that the men who operate the system should develop broad performance specifications for the equipment they need and then the engineers should devise and perfect such equipment.) The Office of International Cooperation was established to replace the International Region, and the Office of Aviation Safety was redesignated the Office of Flight Operations and Airworthiness. The two other two major program offices were the Office of Airports and the Technical Development Center.

In addition, the Office of Aviation Information was abolished and its duties were divided between the Office of General Services and a Press and Publications Officer reporting to the Deputy Administrator. The reorganization extended to the regional offices, where counterparts to Washington program offices were to be established wherever there was a clear cut program that required field execution.

Sep 27, 1956: CAA announced the formation of a team of aviation specialists to provide **technical assistance and guidance to Afghanistan** in developing a national airways system. Under the sponsorship of the International Cooperation Administration, the modernization program called for loans and expenditures totaling \$14,560,000 to expand Afghanistan's air transportation facilities.

Oct 6, 1956: Upgrading its fleet of **flight inspection aircraft**, CAA announced that it would obtain five Convair 440s, with delivery in Dec 1957 and Jan 1958. To calibrate and evaluate the performance of airway navigation aids, the agency had previously used DC-3s and Beech 18s, which had an operating ceiling of only 12,000 feet. The pressurized Convairs (later re-engined to the Convair 580 configuration) permitted testing in altitudes up to 20,000 feet. For higher altitudes up to 50,000 feet, the agency had already borrowed two Martin B-57s from the Air Force, and began operations with these in 1957. During 1956-57, CAA also obtained 40 more surplus DC-3s, most of which were eventually modified for flight inspection duty. Other changes to the flight inspection fleet in this era included the acquisition in 1958 of the first two of five Lockheed L-749 Constellations, which were used primarily in the Pacific area. (See Calendar Year 1940 and Jan 1962.)

Oct 1956: CAA leased a computer (**IBM type 650**) for installation in the **Indianapolis ARTCC** to assess the value of computers for the preparation of flight progress strips and to familiarize its personnel with this type of equipment.

Nov 8-14, 1956: At its annual convention, the **Air Line Pilots Association changed its policy to allow mechanic-trained flight engineers eligible for membership**. The union also adopted as mandatory policy a resolution declaring that no turboprop or turbojet aircraft be operated unless "manned at all flight stations by a qualified pilot." (See Oct 24, 1955 and Jul 21, 1958.)

Nov 16, 1956: CAA and the USAF Air Defense Command agreed on ground rules to guide a permanent **Joint Radar Planning Group** charged with developing programs for the joint use of civil and military radar in air traffic control. The agreement followed extensive study by the two agencies, including joint surveys and tests of operating radar facilities and operational evaluation programs conducted at CAA's Technical Development Center at Indianapolis. (See Feb 20, 1956, and Jan 9, 1958.)

Nov 20, 1956: CAA announced that it had awarded a **\$9 million contract for 23 long-range radars**, the agency's largest single purchase of electronic equipment to that date. The new radars were to be used primarily for en route air traffic control purposes.

Dec 13, 1956: In **Allegheny Airlines, Inc., v. Village of Cedarhurst**, the U.S. Court of Appeals for the Second Circuit upheld a lower court judgment that permanently voided a Cedarhurst ordinance prohibiting flights over the village at an altitude under 1,000 feet. Cedarhurst, situated near New York International Airport (Idlewild), argued that the flights over the village constituted a "taking," as set forth by the Supreme Court in the Causby case (see May 27, 1946). In declaring the ordinance invalid, the Appeals Court said that airplanes using Idlewild did not impact on Cedarhurst to such a degree as to constitute a "taking" within the doctrine of the Causby case." The court further held that Congress had preempted the regulation of air traffic and that any local regulations contrary to Federal rules were precluded. As a consequence of the Federal government's intervention in the case -- along with 10 airlines, the Port of New York authority, and other groups -- the Chairman of CAB with the concurrence of the CAA Administrator took action to repudiate a previous recognition of State authority to adopt and enforce their own safety regulations. (See Mar 1946.)

On Mar 10, 1964, with the Federal courts having consistently struck down locally imposed altitude restrictions, the Town of Hempstead, N.Y.-- a community near the same airport, now named John F. Kennedy International -- tried a new tack: it enacted a noise ordinance that prohibited the operation of any mechanism (including aircraft) that created noise in excess of a specified level of perceived noise decibels. Though the ordinance prescribed no flight patterns, on Jul 17, 1968, the U.S. Court of Appeals for the Second Circuit found in **American Airlines v. Hempstead** that adhering to the ordinance would have forced aircraft to deviate from existing traffic patterns and FAA procedures. The court concluded, therefore, that the Hempstead ordinance was invalid because it (1) operated in an area preempted by Federal legislation and regulation, (2) posed an unconstitutional burden on interstate commerce, and (3) was in direct conflict with valid Federal regulations. (See May 14, 1973.)
Calendar Year, 1956 The **Cessna Aircraft Company introduced its Model 172**, a four-seat general aviation aircraft. During the next 30 years, sales of all versions of the 172s built in the United States totaled an estimated 37,000.

*1957

Feb 11, 1957: The Senate confirmed **James T. Pyle as Administrator of Civil Aeronautics**. He succeeded Charles J. Lowen, who died Sep 5, 1956 (see entry for Dec 8, 1955). Pyle had been Deputy Administrator under Lowen. He was nominated as Lowen's successor on Dec 20, 1956, and took the oath of office on an interim appointment on Dec 26, 1956.

Pyle studied business law and accounting at Princeton and Columbia Universities, aircraft mechanics at the Casey Jones School of Aeronautics, and meteorology and transportation at the Daniel Guggenheim School of Aeronautics, New York University. From 1935 to 1944 he had worked for Pan American Airways, and during World War II he had served in the Pacific with the Naval Air Transport Service. He returned briefly to Pan American after the war, then became president of the Air Charter Company in Denver, Colo., and later president of the Denver Air Terminal Corporation. In 1953, he became a special assistant to the Assistant Secretary of the Navy for Air, and in 1956 he joined CAA as Deputy Administrator. (See Dec 31, 1958.)

Feb 13, 1957: CAA held ground-breaking ceremonies for construction of an **expanded Aeronautical Center** at Oklahoma City. Financed by the city with a \$10,665,000 bond issue, the new buildings replaced temporary construction, mostly World War II metal barracks. CAA ultimately concentrated the shop and warehousing activities of the four continental regions and many of its new training programs at the enlarged facility. (See Mar 15, 1946.)

Feb 1957: CAA began **installation of the first "narrow band" radio receivers** under a program designed to double the number of civil communications channels available for air traffic control use. The new receivers made it possible to space transmissions 100 rather than 200 kilocycles from the adjacent channel.

Apr 11, 1957: President Eisenhower transmitted to Congress an **interim report by Edward P. Curtis**, Special Assistant for Aviation Facilities Planning (see May 4, 1955). The report proposed the **establishment of an Airways Modernization Board** as a temporary organization to unite scattered responsibilities for system development and selection. Eisenhower stated that his Administration would submit legislation for the establishment of such a board and urged its early enactment.

On May 10, 1957, Curtis submitted to the President his **final report on aviation facilities planning**. The report warned of "a crisis in the making" as a result of the inability of the airspace management system to cope with growing congestion and complex patterns of civil and military traffic. **Curtis recommended the establishment of an independent Federal Aviation Agency** "into which are consolidated all the essential management functions necessary to support the common needs of the military and civil aviation of the United States." Until such a permanent organization could be created, the Airways Modernization Board would function as an independent agency responsible for developing and consolidating the requirements for future systems of communications, navigation, and air traffic control. (See Jul 17, 1957.) Curtis's specific recommendations for improving air traffic including setting aside all airspace above a designated altitude for controlled separation at all times, and dividing certain airspace below this zone into "funnels" and "cylinders" reserved for Instrument Flight Rule (IFR) traffic.

Apr 22, 1957: CAA commissioned the **Spokane air route traffic control center**.

May 1957: Using CAA and USAF aircraft, CAA conducted a **service test of VOL-SCAN** (a computer for automatic scheduling of aircraft approaching for landing) to evaluate the possible application of such military tactical equipment to air traffic control use in the common system.

Jun 20, 1957: CAA made public a plan for the **security control of air traffic and electromagnetic radiations (SCATER)** during an air defense emergency. The joint product of CAA, CAB, the Air Force, and the Navy, it was based on a plan that had been approved in 1952, expanded to include air traffic security control rules. (See Jul 15, 1952.)

Jun 30, 1957: For fiscal 1957, which ended on this date, **CAA received increased funding** after several years of declining or stable budgets. The agency's airway facility funds grew from \$16 million in FY 1956 to \$75 million in 1957, raising the overall CAA budget for 1957 to \$278.4 million. Further major increases in facilities and equipment funds the next two years brought the total CAA budget to \$565 million, reflecting heightened urgency concerning air traffic control problems.

Jul 6, 1957: CAA announced that **high speed teletypewriters** able to transmit 100-word-per-minute would be installed along its three aeronautical weather networks. The new equipment was to replace 75-word-per-minute teletypewriters used for services designated "A," "C," and "O." These three functions made up the basic weather distribution systems for the entire country's military and civil aviation. On Oct 17, 1958, CAA announced the award of a contract for 600-word-per-minute teletypewriters and related equipment to further speed the dissemination of aeronautical weather information. (See Jan 16, 1961.)

Jul 17, 1957: **President Eisenhower appointed Elwood R. Quesada as his Special Assistant for aviation matters** and charged him with "taking the leadership in securing the implementation of the Curtis plan of action." (See Apr 11, 1957.)

Jul 25, 1957: **Dynamite exploded in the lavatory of a Western Airlines Convair 240** flying at 7,500 feet over California, blowing the person who had detonated the charge through the side of the aircraft. The plane landed successfully without further casualties.

Aug 1, 1957: The United States and Canada informally established the **North American Air Defense Command (NORAD)**. The two countries ratified a formal agreement the following May. The organization was renamed the North American Aerospace Defense Command on May 12, 1981.

Aug 5, 1957: The Civil Aeronautics Board adopted a **rule requiring an approved Flight Data Recorder (FDR)** aboard air carrier and commercial airplanes of more than 12,500 pounds maximum certificated

takeoff weight, with compliance by Jul 15, 1958. The FDRs were to be capable of recording time, air speed, altitude, vertical acceleration, and heading. In adopting the rule, CAB stated that FDRs would be invaluable in investigating accidents and such incidents as extreme vertical accelerations. (At first, the rule applied only to aircraft certificated for operations above 25,000 feet, but this limitation was dropped in an amendment issued on Jul 12, 1960.)

On two previous occasions, CAB had rescinded a similar rule. Effective Apr 1, 1941, CAB had required a simpler type of FDR on certain carriers; but on Jun 9, 1944, the board found that operators could not properly maintain their recorders because of wartime material shortages. On Sep 15, 1947, the board again adopted a rule requiring FDRs on aircraft in scheduled air transportation. Contrary to expectations, however, no recording device of proven reliability was readily available, and CAB rescinded the rule on Jun 30, 1948, one day before its effective date. (See Aug 12, 1970.)

Aug 14, 1957: President Eisenhower signed the **Airways Modernization Act** (Public Law 85-133). **The act established the Airways Modernization Board** charged with "the development and modernization of the national system of navigation and traffic control facilities to serve present and future needs of civil and military aviation." The AMB was to select such systems, procedures, and devices as would promote maximum coordination of air traffic control and air defense systems. The act provided for a three-member board consisting of a chairman, appointed by the President with the advice and consent of the Senate, the Secretary of Defense, and the Secretary of Commerce. The act further provided for its own expiration on Jun 30, 1960. Since the AMB was an interim organization, the act also contained the following provision: "It is the sense of Congress that on or before Jan 15, 1959, a program of reorganization establishing an independent aviation authority, following the objectives and conclusions of the Curtis report, entitled 'Aviation Facilities Planning,' be submitted to the Congress."

The Senate confirmed the **appointment of Elwood R. Quesada as chairman** on Aug 16. In the following month, Malcolm A. MacIntyre, Under Secretary of the Air Force, and Louis S. Rothschild, Under Secretary of Commerce for Transportation, were designated respectively by the Secretaries of Defense and Commerce to act in their stead as members of the Board. (See Apr 11, 1957, and Nov 1, 1958.)

Aug 1957: Congress appropriated \$12.5 million for a **second airport for Washington, D.C.**, to be built on a site to be recommended by President Eisenhower. (See Dec 1955 & Jan 16, 1958.)

Sep 7, 1957: The President signed **legislation establishing an aircraft loan guarantee program** to aid local service and territorial carriers unable to obtain private loans to purchase new and modern equipment. The act authorized CAB to guarantee loans of up to \$5 million for each such airline. (see Oct 15, 1962.)

Sep 9-13, 1957: CAA held demonstrations of **scan conversion equipment** under evaluation at its Technical Development Center, Indianapolis. The equipment was designed to improve radar display techniques. (See Apr 27, 1960.)

Oct 4, 1957: The Soviet Union launched **Sputnik I, the first manmade earth satellite**, into orbit. (See Jan 31, 1958.)

Oct 29, 1957: The President approved actions of the Airways Modernization Board, taken in accordance with provisions of its basic statute, which **transferred to the AMB certain funds and all functions of the Air Navigation Development Board** along with several research and development programs of the Departments of Defense and Commerce relating to air traffic control. Subsequent presidentially approved orders transferring additional funds and ATC projects from the DOD. (See May 23, 1948, Jan 1954, and Aug 14, 1957.)

Nov 26, 1957: The board of directors of the **Air Transport Association** passed a resolution **favoring the creation of an independent Federal agency** to make safety rules and develop a common civil-military system of airspace control and use.

Dec 1, 1957: After receiving authority from the Civil Aeronautics Board, CAA designated all the airspace in the continental United States at or above 24,000 feet (exclusive of prohibited and restricted areas) as the **"continental control area" and planned twelve "superskyways"** that would provide direct, controlled high-altitude routes for transcontinental commercial flights. Positive control on these routes, however, was mandatory only during instrument conditions; during visual flight rule conditions it was provided at the option of the pilot. This meant that CAA could guarantee separation only between aircraft that filed an IFR

flight plan. But these aircraft would have no protection from military and private airplanes that could still choose to fly the same airspace under visual flight rules, so long as weather permitted such flight. In any event, genuine positive control could not be implemented without CAB first permitting it by amending Part 60 of the Civil Air Regulations. (See May 28, 1958.)

Dec 6, 1957: The **Lockheed 188A Electra first flew**. The transport, a four-engine turboprop airliner of short-to-medium range with a maximum capacity of 99 passengers, received its type certificate on Aug 22, 1958, and entered scheduled airline service with Eastern Air Lines on Jan 12, 1959.

Dec 20, 1957: The **first U.S.-made turbojet airliner, the Boeing 707, first flew**. (Boeing's 367-80, the prototype for both the 707 and the military KC-135 Stratotanker, had first flown on Jul 15, 1954.) CAA certificated the aircraft, a four-engine, long-range plane with a maximum capacity of 189 passengers on Sep 23, 1958. The 707 entered scheduled airline service, on Oct 26, 1958, with Pan American World Airways (see Oct 4, 1958). On Aug 30, 1991, Boeing announced an end to production of the 707. The company built 857 of the 707s, selling the last as a radar surveillance plane earlier in 1991.

*1958

Jan 9, 1958: The Secretaries of **Commerce and Defense concluded a joint-use agreement** to: avoid duplicating facilities, equipment, and overlapping functions; increase the capability of each function; and create an air traffic control system functionally compatible with the nation's defense facilities in peace and war. They agreed that each department would "make its respective surveillance, data processing, situation display, communications, identification processes and facilities mutually and fully available for the early attainment of the objective above." They also agreed that the Airways Modernization Board would develop criteria for the practical application of this national policy. (See Nov 16, 1956, and Sep 2, 1958.)

Jan 14, 1958: Australia's Qantas Empire Airways began the **first completely round-the-world scheduled passenger service**, using Super Constellations. (See Jun 17, 1947.)

Jan 16, 1958: In a report to Congress, President Eisenhower endorsed the recommendation of his special assistant for aviation, E. R. Quesada, that **Washington's second public airport be built at Chantilly, Va**. Land acquisition began Jan 27, 1958. (See Aug 1957 and Jul 11, 1958.)

Jan 31, 1958: The United States successfully launched **Explorer I, the first U.S. earth satellite**. (See Oct 4, 1957.)

Feb 13, 1958: The Civil Aeronautics Board issued an amendment to the Civil Air Regulations that reaffirmed and clarified the authority and responsibility of the Civil Aeronautics Administration's Administrator in the **designation and use of restricted airspace areas**. A concurrent amendment recognized that under defense-emergency circumstances it might be necessary for the military to deviate from the CARs. But all other military flights, such as training, were to be conducted under the terms of a waiver issued by the Administrator. The action became effective Apr 1.

Apr 19, 1958: CAA commissioned the **Phoenix air route traffic control center**.

Apr 21, 1958: An **Air Force jet fighter collided with a United Air Lines DC-7 near Las Vegas, Nev.**, killing both occupants of the fighter and all 47 persons aboard the airliner. **Another midair collision between a military jet and an airliner occurred on May 20** when a T-33 trainer and a Capital Airlines Viscount collided over Brunswick, Md. This second accident cost the lives of one of the two persons aboard the T-33 and all 11 aboard the Viscount. The twin tragedies spurred governmental action already underway to improve air traffic control and to establish a comprehensive Federal Aviation Agency. (See May 21 and May 28, 1958.)

May 21, 1958: Senator A. S. Mike Monroney (D-Okla.) introduced S. 3880, a bill "to create an **independent Federal Aviation Agency**, to provide for the safe and efficient use of the airspace by both civil and military operations and to provide for the regulation and promotion of civil aviation in such a manner as to best foster its development and safety." By the next day 33 Senators were listed as cosponsors of the bill, and Representative Oren Harris (D-Ark.) introduced the same bill as H.R. 12616.

On Jun 13, President Eisenhower, in a message to Congress, recommended early enactment of such **legislation** to consolidate "all the essential management functions necessary to support the common needs of our civil and military aviation." (See Aug 23, 1958.)

May 28, 1958: CAB adopted Special Civil Air Regulation 424, which authorized the CAA Administrator to designate as a **"positive control route segment"** any portion of the airspace

between 17,000 and 35,000 feet to a width of not more than 40 miles. Within airspace so designated, all visual flight rule (VFR) flights would be prohibited regardless of weather; only instrument flight rule (IFR) operations, conducted with the prior approval of air traffic control, were to be permitted. This ruling took into account the extreme closure rates of high performance aircraft, and represented a major modification of the long-established, "see-and-be-seen" philosophy applicable to VFR operations. Until that time Board rulings on the subject had dealt primarily with meteorological conditions affecting a pilot's ability to see other aircraft.

On Jun 15, CAA designated five positive control routes on trial basis. Although only a stopgap measure to improve safety, the designation of these airways marked the beginning of positive control. On Sep 15, 1959, FAA made these positive control routes permanent, and began plans to develop more positive control in both a route and area basis. (See Oct 15, 1960-Mar 1, 1961.)

May 30, 1958: **The Douglas DC-8 first flew.** On Aug 31, 1959, FAA type-certificated this four-engine long-range jet airliner with a maximum capacity for 189 passengers. The plane entered scheduled airline service with Delta on Sep 18, 1959.

Jun 15, 1958: **CAA began using Greenwich mean time** for all domestic air traffic control operations.

Jul 1, 1958: The Airways Modernization Board established the **National Aviation Facilities Experimental Center** (NAFEC) near Atlantic City, N.J. The fledgling Federal Aviation Agency assumed all functions of the Board, including control of NAFEC, on Nov 1, 1958 (see that date). Beginning in early 1959, the Technical Development Center that CAA had operated in Indianapolis was gradually deactivated, and many of its resources, functions, and personnel were transferred to NAFEC during that year.

Jul 11, 1958: Congress removed the ceiling of \$14 million (see Sep 7, 1950) for the **construction of a second Washington airport.** On Aug 1, 1958, the U.S. Government took official possession of the 8,200-acre Washington international airport site at Chantilly, Va. Construction on what was eventually to become Dulles International Airport began the following month. (See Jan 16, 1958, and Jul 15, 1959.)

Jul 21, 1958: A Presidential Emergency Board issued its report on a dispute between the Eastern Air Lines and unions representing its pilots and flight engineers. President Eisenhower had appointed the board the previous January to mediate the controversy over the **qualifications of the flight engineer on turbojet transports.** The board concluded that a flight engineer on jetliners should have piloting qualifications and recommended that Eastern train its flight engineers to qualify for a commercial pilot's certificate. Despite the board's report in the Eastern dispute, American Airlines decided to give the third seat on the Boeing 707 to mechanic-trained flight engineers. Reacting to that decision, American's pilots walked off the job on Dec 19. After 23 days, the strike ended when American agreed to add a third pilot (a fourth crew member) to the 707 cockpit. Other airlines that traditionally employed mechanic-trained flight engineers (Pan Am, Western, Eastern, and TWA) signed similar labor agreements with the Air Line Pilots Association requiring them to employ a fourth person in the jet cockpit. (See Jul 21, 1958 and Jun 7, 1960.)

Aug 23, 1958: President Eisenhower signed the **Federal Aviation Act of 1958** (P.L. 85-726) into law. Treating comprehensively the Federal role in fostering and regulating civil aeronautics and air commerce, the new statute repealed the Air Commerce Act of 1926, the Civil Aeronautics Act of 1938, the Airways Modernization Act of 1957, and those portions of the various Presidential reorganization plans dealing with civil aviation. The act assigned the functions exercised under these repealed laws, which had been dispersed within the Federal structure, to two independent agencies--the Federal Aviation Agency (FAA), which was created by the act, and the Civil Aeronautics Board (CAB), which was freed of its administrative ties with the Department of Commerce.

FAA came into existence with the signing of the Act, but assumed its functions in stages. Pursuant to the legislation, it also took over the responsibilities and personnel of the Airways Modernization Board, which were transferred to it by Executive Order 10786, on November 1. FAA inherited as a nucleus the organization and functions of CAA on Dec 31, 1958. Later (on August 11, 1960), Executive Order 10883 terminated the Air Coordinating Committee, transferring its functions to FAA. Section 103 of the act concisely stated the Administrator's major powers and responsibilities as follows:

"(a) The regulation of air commerce in such manner as to best promote its development and safety and fulfill the requirements of national defense;

"(b) The promotion, encouragement, and development of civil aeronautics;

"(c) The control of the use of the navigable airspace of the United States and the regulation of both civil and military operations in such airspace in the interest of the safety and efficiency of both;

"(d) The consolidation of research and development with

respect to air navigation facilities, as well as the installation and operation thereof;

"(e) The development and operation of a common system of air traffic control and navigation for both military and civil aircraft."

CAB, though retaining responsibility for economic regulation of the air carriers and for accident investigation, lost under the act most of its former authority in the safety regulation and enforcement field to FAA. The law provided, however, that any FAA order involving suspension or revocation of a certificate might be appealed to CAB for hearing, after which CAB could affirm, amend, modify, or reverse the FAA order. Provision was made for FAA participation in accident investigation, but determination of probable cause was to be the function of CAB alone. When the FAA assumed full operational status on Dec 31, 1958, it absorbed certain CAB personnel associated with the safety rulemaking function. (See Nov 1 and Dec 31, 1958.)

Sep 2, 1958: The CAA Administrator and the Commander of the Air Force's Air Defense Command announced the establishment of a program for **joint use of 31 new high-power, long-range radar facilities** and plans for such joint use of additional facilities in the future. Under the extensive joint-use program, each agency was to budget for special equipment or modifications to meet its particular requirements, with ADC providing security guards and CAA maintaining the primary radar and other facilities used in air traffic control. (See Jan 9, 1958, and May 1959.)

Oct 1, 1958: The **National Aeronautics and Space Administration (NASA) was established** under the National Aeronautics and Space Act of 1958. Passage of the Space Act (signed into law by President Eisenhower on Jul 29, 1958) settled the question of whether space exploration should be under civilian or military control. The National Advisory Committee for Aeronautics (NACA), which had been in existence since 1915, was absorbed by and formed the nucleus for the new civilian space agency.

Oct 4, 1958: British Overseas Airways Corporation inaugurated **the first transatlantic jet passenger service**, using de Havilland Comet 4 aircraft flying between New York and London. On the 26th of the same month, Pan American World Airways began **the first U.S. scheduled jet service** with Boeing 707 flights between New York and Paris. On Dec 10, 1958, National Airlines used leased 707s to begin the **first U.S. domestic scheduled jet airline service**, flying between New York and Miami.

Oct 4, 1958: CAA issued a Technical Standard Order containing **revised standards for the design of runways** to meet the requirements of both conventional and turbine-powered air carrier aircraft. Superseding an October 1948 standard, the new TSO (N6b) reduced the number of airport classifications for air carrier service from six to four, with corresponding changes in runway lengths, widths, and strength.

Nov 1, 1958: **Elwood R. Quesada became the first Administrator of the Federal Aviation Agency**. The son of a Spanish businessman and an Irish-American mother, "Pete" Quesada was born in Washington, D.C., in 1904, and attended Maryland and Georgetown universities. He joined the Army in 1924, received his pilot's wings, and returned to civilian life before reentering active duty in 1927. Quesada was a member of the flight crew of the Army C-2 Question Mark, which, under the command of Major Carl Spaatz, broke world endurance marks in Jan 1929 by remaining in the air for more than 150 hours. During World War II, Quesada flew many combat missions and held a series of important commands, including the 12th Fighter Command, the 9th Fighter Command, and the 9th Tactical Air Command. Units under his leadership made important contributions to the success of the Normandy invasion and other campaigns by achieving air superiority, flying interdiction missions, and providing close air support to ground troops. Quesada's assignments after the war included: Commanding General, Tactical Air Command (1946); chairman of the Joint Technical Planning Committee of the Joint Chiefs of Staff (1949); and Commanding General of Joint Task Force Three (1951). He held, with various other awards, the Distinguished Service Medal with one cluster and the Distinguished Flying Cross. After retiring from the Air Force in 1951 with the rank of Lieutenant General, Quesada held a variety of positions in private industry before returning to government as Special Assistant to the President for aviation matters (see Jul 17, 1957) and later Chairman of the Airways Modernization Board (see entry for Aug 14, 1957). To qualify as FAA Administrator,

Quesada complied with the provisions of the Federal Aviation Act by resigning his commission as a retired regular military officer. (Congress later restored his commission after he left FAA.) Sixty days after Quesada's appointment, FAA assumed the full scope of its responsibilities (see Dec 31, 1958). Quesada served as Administrator for the remainder of the Eisenhower Administration, resigning effective Jan 20, 1961 (see that date).

Nov 1, 1958: Executive Order No. 10786 **transferred all functions of the Airways Modernization Board to the Administrator of the Federal Aviation Agency**. This action was taken in accordance with the Federal Aviation Act of 1958. (See Aug 23, and Dec 31, 1958.)

Dec 31, 1958: The **Federal Aviation Agency assumed the full scope of its statutory responsibilities**. Under the provisions of the Federal Aviation Act (see Aug 23, 1958) the effective date of appointment of the first FAA Administrator (see Nov 1, 1958) determined the effective date of most of the operative provisions of the act, which were to take effect 60 days from the qualification of the first Administrator. On this date FAA superseded CAA and absorbed certain CAB personnel associated with safety rulemaking. **James T. Pyle, the last CAA Administrator, became Deputy Administrator of FAA**, a post he continued to hold until Nov 30, 1961 (see Feb 21, 1962).

Dec 31, 1958: The FAA Administrator signed an agreement with the military departments setting forth the conditions for **assignment of members of the Armed Services to FAA**.

Calendar year, 1958: This was the first year that the total number of **transatlantic passengers traveling by air exceeded the number traveling by sea**. (See Calendar Year 1966.)

***1959**

Jan 3, 1959: **Alaska entered the Union** as the 49th State.

Jan 4, 1959: A published report described the successful use of **Doppler navigation techniques** in aerial explorations for oil in remote areas.

Jan 7, 1959: **The Federal Aviation Agency began an extensive air traffic survey** covering all segments of U.S. aviation--air carrier, military, and general aviation. Goals of the survey were to develop estimates of air activity through 1980 and to formulate a scientific method of forecasting air activity. FAA's sampling of a period having the lowest level of air activity was followed in July and August by a second survey providing data on the summer peak.

Jan 15, 1959: Agency Order 1 prescribed FAA's **basic organizational structure**. The Administrator and his Deputy were assisted by three staff offices headed by Assistant Administrators: Management Services; Personnel and Training; and Plans and Requirements (the name of which was shortened to Plans on July 10, 1960). Other staff officials reporting to the Administrator included the General Counsel, the Civil Air Surgeon, and the heads of the Offices of Public Affairs, Congressional Liaison, and International Coordination. The agency's major programs were entrusted to four Bureaus whose Directors reported to the Administrator: Research and Development (testing and development of new equipment); Flight Standards (certification of airmen, aircraft, and air carriers); Air Traffic Management (planning and operation of the airspace system); and Facilities (acquisition and maintenance of air navigation facilities and related equipment). FAA's initial field structure retained the Civil Aeronautics Administration's system of six numbered regions headed by Regional Administrators reporting to the agency chief. Three large field facilities were exempt from regional control: the National Aviation Facilities Experimental Center (NAFEC), the Aeronautical Center, and Washington National Airport.

Jan 21, 1959: The FAA Administrator submitted to Congress **draft legislation to extend the Federal Airport Act** to Jun 30, 1963. Intended to effect an "orderly withdrawal" from the airport grant program, the bill authorized \$200 million graduated downward over the four-year period. The bill proposed to revise the apportionment of funds among the States, increasing from 25 to 50 percent the proportion of funds that could be allocated at the Administrator's discretion regardless of geographical location. The proposal also limited grants under the act to construction of landing area facilities such as runways and control towers, while excluding such items as terminal buildings, parking lots, and entrance roads. (See Aug 3, 1955, Oct 18, 1955, and Jun 20, 1959.)

Jan 25, 1959: **Transcontinental jet airliner service began** as American Airlines inaugurated Boeing 707 flights between New York and Los Angeles. The new service also made American the first U.S. airline to begin domestic scheduled jet flights using its own aircraft (see Oct 4, 1958). **High-altitude radar advisory service** was also established, using FAA-military radar teams based at 17 military installations across the United States.

Jan 27, 1959: The **Convair 880 (Model 22) first flew**. On May 1, 1960, FAA certificated this four-engine medium-range jet airliner with a maximum capacity of 110 passengers. The plane, built by General Dynamics Corporation, entered scheduled service on May 15, 1960, with Delta Air Lines.

Jan 29, 1959: The Civil Aeronautics Board issued the **first certificates to supplemental air carriers**. The certificated supplemental operators were authorized to offer unlimited domestic charter service, as well as up to ten round trips per month between any pair of U.S. points for individually ticketed passengers or individually waybilled cargo. The Board awarded the certificates of public convenience and necessity on a two- or five-year basis to 23 applicants, most of whom were already offering substantially the same types of services under an interim exemption. (See Nov 15, 1955, and Jul 10, 1962.)

Feb 3, 1959 A **Pan Am 707 entered a steep dive** toward the Atlantic after its autopilot disengaged at 35,000 feet. The captain, who had been in the passenger cabin when the dive began, fought powerful gravity forces to return to the cockpit. Taking command from the copilot, he was able to end the dive at 6,000 feet. Prompted by this near-disaster, FAA in April began rigorously enforcing an often-disregarded rule requiring all flight-crew members to remain at their stations "except when the absence of one is necessary in connection with his regular duties."

Feb 8, 1959: FAA announced **plans to coordinate Federal research and development in aviation weather forecasting and reporting**. The announcement followed general agreement between FAA, the Department of Commerce (Weather Bureau), and Department of Defense on the need for such a joint research program.

Feb 25, 1959: In a special conference at Montreal, **the International Civil Aviation Organization (ICAO), approved the distance-measuring element (DMET)** as a complement to the very high frequency omnidirectional radio range (VOR). Over protests of the British delegation, which favored its own Decca Navigator System, the conferees adopted the American-developed system as a navigational-aid standard for the world's airlines until 1975. This action extended a 1949 ICAO agreement not to require replacement of basic VOR equipment prior to January 1, 1966 to 1975.

Mar 27-28, 1959: At FAA's Aeronautical Center, Administrator Elwood R. Quesada held a **meeting on rulemaking and enforcement** attended by nearly 200 regional administrators, regional attorneys, and key Flight Standards personnel. Quesada announced plans for a concentrated **aviation safety drive** and full use of the agency's rulemaking powers. The Administrator stated his "4-F" philosophy that FAA enforcement activities must be "firm, fair, fast, and factual."

Apr 1, 1959: British Overseas Airways Corporation completed the **first turbine-powered airline passenger flight around the world**, (in this case, both turbojet and turboprop aircraft were used). The airline began this service on a regular basis on Aug 22, 1959. (See Oct 10, 1959.)

Apr 1, 1959: Three **air defense identification zones (ADIZs)** were eliminated and flight requirements within the remaining zones were relaxed effective this date. Elimination of the Western, Eastern, and Presque Isle Identification Zones became possible by the complete encirclement of the United States following establishment of an ADIZ in the Gulf of Mexico on Feb 1. (See Dec 1, 1955.)

Apr 2, 1959: FAA announced the adoption of a new **"mobile lounge" concept** of transporting airline passengers between the terminal building and parked aircraft at Washington's planned jet airport at Chantilly, Va. Making possible a reduction in terminal building size, the mobile lounge system was intended to eliminate finger docks, tunnels, and other devices to get passengers to their airplane. Although passengers at some European airports traveled between terminal and aircraft on buses, this was the first time that a specially designed vehicle had been proposed for this purpose. On Nov 27, 1961, FAA reaffirmed the concept for use at the new airport and announced a \$4.7 million contract award for 20 mobile lounges.

Apr 8, 1959: CAB ruled that **foreign airlines could not carry commercial traffic moving only between U.S. cities**. Consistent with U.S. international commitments, the ruling was viewed as strengthening the stand of U.S. airlines against further invasion of domestic markets by foreign carriers.

Apr 27, 1959: FAA announced a contract award for development of an **air height surveillance radar (AHSR-1)** to automatically provide air traffic controllers with information on aircraft altitudes up to a range of 50 nautical miles. This data would add a third dimension to the distance and bearing data provided by radar currently in use. The AHSR-1 would have a three-sided fixed antenna 150 feet in height, with each of the three sides 60 feet wide. FAA completed development and testing of the AHSR-1 during fiscal 1963, but the project was placed on standby as a possible backup system due to

a decision to use secondary radar as the primary means of acquiring aircraft height data. (See Sep 10, 1959.)

May 1, 1959: Installation of an **experimental runway barrier** for commercial aircraft began at FAA's National Aviation Facilities Experimental Center near Atlantic City. Aimed at developing an effective barrier for civil aircraft in case of overruns on landings or takeoffs, the program--the first to be sponsored by the Federal government--called for a six-month evaluation of the arresting device.

May 11, 1959: The **Vertol 107 helicopter**, a twin-turbine-powered transport, was demonstrated in flight at Philadelphia International Airport.

May 15, 1959: **New procedures for allocating airspace** to meet civil and military requirements became effective. In keeping with the authority vested solely in the FAA Administrator by the Federal Aviation Act, the revised rules superseded procedures under which airspace matters were processed through the Air Coordinating Committee and its regional counterparts. The new regulation also established procedures for assignment of airspace in accordance with provisions of the Administrative Procedure Act. **By the end of calendar 1960, approximately 25,100 square miles of restricted- and prohibited-area airspace had been restored to common use.** Approximately 123,700 square miles of restricted-airspace blocks remained.

May 1959: In keeping with its mandate to develop a common civil-military airspace system (see Aug 23, 1958), **FAA initiated "Project Friendship."** Consultations were begun with the Defense Department to determine which military functions pertaining to air navigation and air traffic control -- both domestic and overseas -- should be transferred to FAA and when the transfers should be made. (See Oct 7, 1959.)

Jun 1, 1959: FAA commissioned the **Guam air route traffic control center.**

Jun 3, 1959: FAA announced that the agency had **commissioned UNIVAC file computers for use in air traffic control** at its New York and Washington air route traffic control centers (ARTCCs). Additional systems were scheduled to be installed in late summer at the Pittsburgh, Cleveland, and Boston ARTCCs. These general purpose electronic computers were to be used in preparing flight progress strips, exchanging information with one another, and generally aiding air traffic controllers in their "bookkeeping chores."

Jun 14, 1959: FAA established a **Bureau of National Capital Airports** to provide management responsibility for Washington National Airport and the new Washington International Airport, then under construction at Chantilly, Va, and soon to be renamed (see Jul 15, 1959). Establishment of the new bureau was viewed as an interim measure pending enactment of legislation to set up a government corporation, within the framework of FAA, to handle the management and operational functions of both airports.

Jun 20, 1959: The President approved a **two-year extension of Federal-aid to airport program (FAAP)** at the current \$63 million level of funding. An administration bill had proposed \$200 million for a four-year period of "orderly withdrawal" from the aid program, while the Senate originally passed a four-year \$465 million program. The House approved a \$297 million plan for the four-year period. Refusal of the President to expand the FAAP commitment and the failure of the Senate-House conferees to resolve their differences resulted in this stopgap compromise measure. (See Jan 21, 1959 and Sep 20, 1961.)

Jul 1, 1959: A new safety rule became effective requiring that holders of first class medical certificates--airline transport pilots--must submit to an **annual electrocardiogram.**

Jul 10, 1959: The Federal Aviation Agency, which had assumed the safety rulemaking functions of the Civil Aeronautics Board, announced an **end to the three-year near miss reporting program** that had granted immunity from prosecution to pilots reporting their own involvement in near-collisions (see Feb 23, 1956). The purpose of the program had been to compile data on the numbers and causes of such incidents. Believing that the program had outlived its usefulness, FAA Administrator Quesada directed that future reports of near misses be handled by FAA in accordance with the normal investigative procedures established for other safety violation reports. (See Jun 7, 1961.)

Jul 15, 1959: President Eisenhower signed an order designating Washington's international airport under construction at Chantilly, Va., as the **Dulles International Airport** in memory of his late Secretary of State, John Foster Dulles. (See Jul 11, 1958, and Nov 17, 1962.)

Jul 26, 1959: FAA consolidated responsibility for the planning, coordination, and utilization of radio frequencies in a newly established **Frequency Management Staff Division** within its Bureau of

Facilities. In addition to these functions, the new staff division was assigned responsibility for representing FAA before the Interdepartmental Radio Advisory Committee.

Jul 31, 1959: Effective this date, **FAA required that one pilot at the controls of a turbine-powered airliner operating above 25,000 feet wear and use an oxygen mask**, and that the other cockpit crew members wear masks ready for immediate use. This rule was modified as experience with jet operations grew and oxygen mask design evolved. Effective Feb 1, 1960, the altitude above which one pilot was required to use a mask was raised to 30,000 feet if all cockpit crew members wore masks designed for fast donning when needed. Effective Sep 30, 1965, the altitude above which these requirements applied to turbine aircraft equipped with fast-donning masks was raised to 41,000 feet.

Aug 21, 1959: **Hawaii entered the Union** as the 50th State.

Sep 10, 1959: To aid in the control of civil and military air traffic, FAA put into operation in the New York area a 64-code **air traffic control radar beacon system**, commonly known as **secondary radar**. A descendant of the World War II IFF (Identification, Friend, or Foe), the new equipment was designed to reinforce primary radar signals and permit positive identification of individual aircraft carrying transponders. By May of the following year, 20 radar beacons had been put in operation at 16 air route traffic control centers. (See Apr 7, 1961.)

Sep 15, 1959: FAA adopted **new procedures for handling temporary airspace reservations** for mass movements of military aircraft and extended the altitude reservation service to oceanic areas. Reflecting the growing use by civil jets of altitudes above 24,000 feet--airspace previously used almost exclusively by military aircraft--the new rules required the filing of airspace reservation requests four to twelve days in advance of the mission. Missions not airborne within 30 minutes past the scheduled time of departure would be subject to FAA cancellation to make the airspace available to other users.

To supplement the work of its Central Altitude Reservation Facility (CARF) in Kansas City, Mo. (see Jul 24, 1956), FAA established gateway sectors at the Honolulu air route traffic control center and at the New York ARTCC to handle altitude reservations for military flights over the Pacific and North Atlantic Ocean areas, respectively.

Sep 20, 1959: FAA commissioned the **San Antonio air traffic control center's new building, the first in a program to construct 32 new center facilities**. Located in most cases away from airports to permit more space and to withstand nuclear attack on critical target areas, the buildings had an expandable design to facilitate installation and use of the latest equipment. By the end of 1960, 15 of the centers were under construction or completed.

Sep 21, 1959: FAA announced that its representatives and those of DOD and the Air Force had signed an agreement to establish nine FAA **air route traffic control centers at Air Force SAGE supercombat centers**. The supercombat centers were part of the SAGE (semiautomatic ground environment) system for radar surveillance and identification of air traffic for air defense. (See Jul 10, 1956, and Apr 12, 1960.) Sep 29, 1959: A Braniff **Lockheed Electra lost a wing and exploded in flight** over Buffalo, Tex., with the loss of all 34 persons aboard. (See Mar 17, 1960.)

Oct 7, 1959: Speaking on the theme "**Project Friendship**," FAA Administrator Quesada announced that FAA was preparing to assume the operation of about 2,095 military air traffic control facilities at 337 global locations. Under the "Friendship" plan, four types of military functions would be scheduled for transfer: air navigation and air traffic control services; military flight service; air traffic controller training; and facilities flight inspection. FAA and DOD would coordinate time phasing for absorbing military facilities, and implementation of certain parts of the project depended on further understandings with DOD and agreements with foreign countries. (See May 1959, and Dec 15, 1960.)

Oct 10, 1959: Pan American World Airways inaugurated **round-the-world jet service** (excluding the continental United States) using intercontinental versions of the Boeing 707. On Oct 27, Australia's Qantas Empire Airways began operating the first jet service to completely circle the globe.

Oct 15, 1959: FAA adopted an amendment to Civil Air Regulations Part 29 that clarified the **physical and mental conditions disqualifying an airman from holding a medical certificate**. The disqualifying medical conditions spelled out in the new revision included: diabetes mellitus requiring insulin; coronary artery disease; a history of psychosis; or certain other mental or nervous diseases such as behavior disorders, chronic alcoholism, drug addiction, or epilepsy.

Oct 31, 1959: FAA announced plans to establish a Civil Aeromedical Research Center (later named the **Civil Aeromedical Research Institute**) at the Aeronautical Center, Oklahoma City, to carry out its assigned responsibilities for research in aviation medicine. CARI's research would aim at

developing medical data needed to meet operational problems anticipated as civil air operations moved into higher altitudes and greater speeds. (See Jul 1, 1953 and Oct 21, 1962.)

Nov 22, 1959: An extensive **reorganization of FAA's Bureau of Research and Development** became effective. In place of the six previous divisions plus the National Aviation Facilities Experimental Center (NAFEC) at Atlantic City, N.J., the new structure embodied ten divisions consisting of the following five staff and five program divisions, respectively: Plans, Operations, Contracts, Budget, and Administrative Services; Research, Test and Experimentation, Systems Engineering, Air Defense Integration, and Development.

Nov 23, 1959: The Strategic Air Command began using seven special air routes established for its use by FAA to carry out day and night, all-weather, low-altitude training missions. The routes for **Operation Oil Burner**, code name for these SAC radar bomb runs over simulated targets throughout the country, were laid out to avoid congested population and airport centers to the maximum extent possible.

Nov 23, 1959: **The Boeing 720 first flew**. On Jun 30, 1960, FAA certificated the 720, a four-engine medium-range jet transport with a maximum capacity of 140 passengers. The plane entered scheduled service with United Airlines on Jul 5, 1960.

Dec 7, 1959: FAA began a **stepped-up safety inspection program** of all scheduled air carrier flight operations and training programs, placing its safety inspectors on a round-the-clock schedule. The concentrated 30-day program was prompted by a rash of accidents and was intended to underscore FAA's intensified commitment to air safety.

Dec 13, 1959: Effective this date, FAA **realigned responsibilities for its materiel functions, management of FAA aircraft, and activities at the Aeronautical Center**, Oklahoma City, Okla. The Bureau of Facilities--with "Materiel" added to its designation--was assigned expanded responsibility for procurement of materiel for the establishment, maintenance, and repair of air navigation and air traffic control equipment. The task of monitoring agencywide the application of materiel practices and policies was given to the Office of Management Services.

Reporting directly to the Bureau of Facilities and Materiel, a Facilities and Materiel Depot was established at the Aeronautical Center to perform overhaul and heavy maintenance on all FAA aircraft, centrally warehouse and distribute materiel, and operate shops for repair and fabrication of airways equipment. Responsibility for the management and light maintenance of all FAA aircraft was assigned to the Bureau of Flight Standards. The Bureau of Personnel and Training controlled the extensive training programs at the Aeronautical Center, which were grouped together as the FAA School (later known briefly as the Training Center before being renamed the **FAA Academy** in early 1962).

Under the new concept of organization, the Director of the Aeronautical Center was responsible for providing the physical plant and administrative and supporting services for the various agency bureaus and offices conducting programs at the Center. The operating bureaus and offices, however, exercised line authority over the programs.

Dec 1959: FAA established the **world's first helicopter air traffic control service** in the New York area to aid in an intensive government-industry test of all-weather helicopter operations.

***1960**

Jan 1, 1960: A major **realignment of responsibilities for Federal Aviation Agency field operations** became effective. Under the **new centralized concept of operations**, the Washington Bureaus of Air Traffic, Facilities and Materiel, and Flight Standards, as well as the Office of the Civil Air Surgeon, received authority to exercise direct supervision over all program activities in the field except in Alaska, Hawaii, and at the Aeronautical Center and National Aviation Facilities Experimental Center. FAA abolished the position of Regional Administrator and created, in its place, the post of **Regional Manager** to carry out the administrative and support functions required by the program divisions in the field. In March, FAA prescribed a standard organization for the regional headquarters under the new system. At the same time the agency gave managers in Region 1 through 4 authority to foster coordination and exchange of information among all field divisions.

Jan 6, 1960: **A National Airlines DC-6B crashed near Bolivia, N.C.**, killing 34 passengers and crew. The Civil Aeronautics Board accident investigation revealed that the plane had disintegrated in flight **as a result of a dynamite explosion**. Bomb fragments were found imbedded in the body of passenger Julian Frank, who, in the preceding year, had taken out more than a million dollars in life insurance. The indication of sabotage sparked demands for the use of baggage-inspection devices and

moved FAA to clamp a ceiling of \$165,000 on the amount of airline trip insurance a passenger could purchase at Washington National Airport. (See Nov 10, 1964.)

Jan 8, 1960: The New York Times reported that Pan American World Airways had put into operation near Shannon, Ireland, the first unit in a planned worldwide **radio transmission system using the "forward scatter" technique**. This was the first such very-high-frequency ground station to be put into operation by an airline.

Jan 9, 1960: FAA announced a **rule requiring airborne weather radar on most U.S. airliners in passenger service**. Deadlines for installation were: (a) Jul 1, 1960 for turbojet and turboprop airliners; (b) Jan 1, 1961, for the Douglas DC-6 and DC-7 series and the Lockheed Constellation 1049 and 1649 series; and (c) Jan 1, 1962, for all other affected aircraft. The rule exempted the Curtiss C-46, Douglas DC-3, and Lockheed L-18, as well as aircraft operated only within Alaska or Hawaii. An **FAA rule issued on Apr 8, 1966, extended the requirement to large transport aircraft used for cargo only**. Turbojets were required to comply by the end of 1966, and all others by the end of 1967. This rule also exempted certain older aircraft as well as operations solely in Alaska or Hawaii.

Mar 1, 1960: FAA announced that it was giving its Air Traffic Communications Stations (ATCS) and International Air Traffic Communication Stations (IATCS) the new names **Flight Service Stations (FSS) and International Flight Service Stations (IFSS)** respectively to identify properly the primary functions of those stations.

The **history of these evolving facilities** can be traced to Aug 20, 1920, when the U.S. Post Office Department issued orders to establish the first Air Mail Radio Stations along the transcontinental air mail route. The first 10 stations were ready by Nov 1, and all 17 stations were operational by the end of 1921. When the Department of Commerce became responsible for the transcontinental airway (see Jul 1, 1927), it assumed operation of the stations, which it renamed Airway Radio Stations (see Mar 20, 1928). With other airway facilities, the stations were transferred to the Civil Aeronautics Authority in 1938 and to the Civil Aeronautics Administration in 1940. They were redesignated as Airway Communication Stations in 1938, and were later known as Interstate Airway Communication Stations (INSACS) and Overseas and Foreign Airway Communication Stations (OFACS). After becoming part of the new FAA in 1958, the facilities initially received the ATCS and IATCS designations until renamed as described above.

Mar 1-14, 1960: **FAA transferred from Washington to Oklahoma City certain organizational elements** responsible for: aircraft registration; preparation and administration of knowledge examinations for certification of airmen and ground instructors; and the issuance of airman certificates.

Mar 15, 1960: FAA's **"age-60 rule" went into effect**, barring individuals who reached their 60th birthday from serving as a pilot on aircraft engaged in certificated route air carrier operations or on large aircraft engaged in supplemental air carrier operations. The rule did not apply to commuter or on-demand air taxi operations, which employed smaller aircraft. In adopting the rule, FAA declared that a progressive deterioration of certain physiological functions normally occurs with age and that sudden incapacity due to certain medical defects such as heart attack and strokes becomes significantly more frequent in any group reaching age 60. The agency therefore imposed the age-60 rule until science provided better tests to determine individual pilots' susceptibility to these problems.

The Air Line Pilots Association sought an injunction against the new rule on the grounds that it was arbitrary and discriminatory. The courts found the rule reasonable, however, and this view was upheld by the Supreme Court in Jun 1961. (See Jun 21, 1968.)

Mar 16, 1960: **New requirements regarding instrument flying skills** became effective. Persons receiving a commercial pilot certificate were required to have a minimum of 10 hours of instrument flight instruction and to demonstrate their ability to control their aircraft manually while relying solely on instrument guidance. Successful applicants for private pilot certificates were required to have dual instruction in the basic control of the aircraft by the use of instruments, and to demonstrate their manual capability in attitude control in simulated emergencies involving the loss of visual reference during flight. The added requirements applied only to new applicants, not holders of existing certificates.

Mar 17, 1960: A **Lockheed Electra lost a wing in turbulent air and crashed** near the towns of Tell City and Cannelton, Ind. All 63 persons aboard the Northwest Airlines flight were killed. On **Mar 20, FAA reduced the top cruising speed of the Electra Model 188 series turboprop airliners** from 373 to 316 m.p.h., pending determination of the cause. Additional restrictions effective on Mar 25

included a further cutback in permissible speed (down to 259 m.p.h., or 225 knots) and a series of rigid tests and inspections. These measures seemed warranted by similarities between the Tell City crash and the crash of another Electra in Texas (see Sep 29, 1959). On Apr 12, the Civil Aeronautics Board unanimously recommended grounding all Electras not inspected since the Tell City accident. FAA Administrator Quesada decided, however, that the aircraft could safely continue to operate under the Mar 25 restrictions. On May 12, Lockheed announced its conclusion that the two aircraft destroyed in the accidents had sustained prior damage. This had permitted their power-package nacelles to wobble, allowing development of a "**whirl-mode**" **phenomenon** that overstressed their wings. (See Oct 4 and Dec 31, 1960.)

Mar 21, 1960: FAA announced the appointment of 21 of the nation's leading forensic pathologists as consultants to help determine involvement of **human factors in aircraft accidents**. This nationwide system of consultants supplemented an already-existing program of aeromedical investigation of aircraft accidents by FAA's Office of the Civil Air Surgeon with the assistance of pathologists from the Armed Forces Institute of Pathology.

Mar 24, 1960: The Federal Aviation Agency established a new **Bureau of Aviation Medicine** to replace the former Office of the Civil Air Surgeon. The elevation to bureau status pointed to the growing significance of the role of the medical program in the agency's primary mission of air safety. During the following three months, work began on a series of new aeromedical research projects concerned with the effects of aging on pilot proficiency, selection criteria for and environmental stress factors experienced by air traffic controllers, and in-flight fatigue affecting flight engineers on jet aircraft.

Mar 25, 1960: FAA Administrator Elwood R. Quesada revealed details of a new program under which agency **air carrier operations inspectors were being trained as specialists** in the operation of specific types of high-performance turbine-powered aircraft. The specialist program called for increased ground and flight training and type rating of selected inspectors in the Convair 880, Fairchild F-27, Vickers Viscount, Douglas DC-8, Lockheed Electra, and the KC-135, the Air Force jet tanker version of the Boeing 707.

Apr 1, 1960: The United States launched **Tiros I, the first of a successful series of weather satellites**. Equipped with long-range television cameras, the satellite transmitted 22,952 cloud-cover photos during the 78 days that its instruments functioned.

Apr 1, 1960: In answer to an Oct 1958 suggestion by the United States, **the Soviet Union informed Washington that it was ready to negotiate for regular airline traffic** between the two countries. **On May 1, however, an American U-2 spy plane was shot down** inside the Soviet Union. Soviet Premier Nikita Khrushchev used the incident as grounds for pulling out of the Paris summit conference scheduled for later in the month. Khrushchev subsequently made increasing verbal attacks on the United States, and a U.S. RB-47 was shot down over international waters off Soviet territory. **Because of this deterioration in relations, the United States on Jul 14 postponed scheduled talk on a bilateral agreement for the exchange of commercial air rights**. On Aug 2, however, a Soviet delegation arrived in the United States in an **exchange program** between the two countries in the field of civil air transportation. The visit was part of the cultural and scientific exchange agreement signed in November 1959. In mid-September, a group of U. S. aviation experts headed by the FAA Administrator began a three-week tour of Soviet civil air transport operations and facilities. (See Nov 4, 1966.)

Apr 4, 1960: FAA placed in effect the **first of a series of regulations designed to minimize aircraft noise at major airports** by procedural methods while retaining safety as the primary objective. This Special Civil Air Regulation No. 438 set up rules for both civil and military aircraft operating at Los Angeles International Airport, including minimum altitudes, preferential runways, and approach and departure routes over the least populated areas. Similar special regulations covering operations at New York International (Idlewild) and at Washington National Airport were issued Oct 15 and Nov 29, 1960 respectively. (See Jul 18, 1960, and Dec 4, 1967.)

Apr 6-May 20, 1960: FAA conducted a management experiment called **Project Straight-Line** in the Cleveland air route traffic control center area. Limited to the Bureau of Air Traffic Management and the Bureau of Facilities and Materiel, the experiment tested the feasibility of transferring operational responsibilities in the field to a new echelon, the **area office**, below the regional level. (See Sep 2, 1960.)

Apr 12, 1960: FAA announced the start of a **live test of the SAGE air defense system** as a means of improving high-altitude air traffic control services. A part of a joint FAA-USAF project called **Trailsmoke**, the flight advisory service test (FAST) aimed essentially at evaluating the capability of the SAGE system to provide civil and military radar advisory information on potential air traffic conflicts. Specific operating positions would be occupied by FAA controllers at two SAGE direction centers of an Air Defense Division monitoring air activity in the Midwest section of the nation. (See Sep 21, 1959, and Apr 17, 1960.)

Apr 12, 1960: The Defense Department released a **report recommending Air Force contracts with commercial airlines** for most passenger and cargo flights being operated by the Military Air Transport Service. The report was prepared by a committee appointed by the Secretary of the Air Force.

Apr 17, 1960: FAA announced a contract award totaling nearly \$6 million to the MITRE Corporation, Lexington, Mass., for advanced **experimentation on automated air traffic control**. Work to be performed under the contract included research and experimentation on joint use of military SAGE equipment and facilities for air traffic control, as well as for air defense purposes. FAA and the Air Force would share the cost of the project. (See Apr 12, 1960, and Sep 11, 1961.)

Apr 27, 1960: FAA announced a contract with the General Instrument Corporation for 38 **radar bright display systems** for Air Route Traffic Control Centers. The equipment used a dual purpose scan converter/storage tube to present a brighter display that would help controllers work more efficiently in lighted rooms. FAA and its predecessors had been involved in developing bright displays as early as Aug 18, 1952, when CAA's Technical Development and Evaluation Center reported favorably on using storage tube techniques for the purpose. At the time of the 1960 order, bright display units were already in service at 10 ARTCCs and 4 towers. On Jul 9, 1961, FAA announced an order for 40 more of the systems. (See Sep 9-13, 1957, Jul 15, 1968, and Apr 5, 1988.)

Jun 7, 1960: **A wildcat strike broke out at Eastern Air Lines** when an FAA safety inspector boarded an Eastern DC-8 flight and took the forward observer's seat from the third pilot. The Air Line Pilots Association had previously protested this practice as a threat to safety. FAA, however, maintained that the Douglas DC-8 and Boeing 707 had been certificated for air carrier operations with a crew of two pilots and a flight engineer and that the third pilot was superfluous. The agency immediately promulgated a regulation requiring the third pilot to give up the forward observer's seat to an FAA inspector. Meanwhile, the strike spread to Pan American but ended on Jun 21 following an injunction. (See Jul 21, 1958 and Feb 7, 1961.)

Jun 15, 1960: Regulations became effective that required **applicants for a student or private pilot (class 3) medical certificate to take their medical examinations solely from FAA-designated aviation medical examiners**. Applicants for airline transport pilot (class 1) and commercial pilot (class 2) medical certificates were already required to be examined by designated medical examiners. During the past 15 years, however, student and private pilot applicants had been permitted to receive their physical examinations from any registered physician. (See Jun 1, 1945).

Jun 30, 1960: The House Committee on Science and Astronautics recommended that Congress support a **Federal program for the development of a commercial supersonic transport (SST)**. The committee report called for completion of the B-70 bomber program, which it considered justified on defense grounds and which was expected to blaze a technological trail for the SST. The report also recommended that NASA assume leadership in devising a program for SST development. (See Jan 9, 1961.)

Jul 1, 1960: Effective this date, **5 additional megacycles of radio frequencies were allocated for FAA air traffic control communications**. This was the first increase in the VHF radio spectrum allocated for communications in the common air traffic system since Oct 1946. The additional 5 megacycles (126.825 to 128.825 and 132.025 to 135.0) added 100 channels to the air traffic control system.

Jul 6, 1960: FAA certificated the single-turbine **Sikorsky S-62**, an amphibious helicopter, for commercial operations on passenger and mail routes.

Jul 18, 1960: As part of its noise abatement program, FAA issued a new series of detailed **takeoff and landing instructions for jet airliners**. Applying to individual aircraft by type and intended for inclusion in pilot training programs, the new instructions were designed to become standard methods of operating the Boeing 707, the DC-8, the Convair 880, the Lockheed Electra, the Fairchild F-27, the Viscount, and the Napier Eland Convair. The new procedures were drawn up and voluntarily agreed

upon by all elements of the aviation industry during an FAA-sponsored meeting in the spring of 1960. Further such meetings were planned for reviewing and updating the procedures. (See Apr 4, 1960, and Jan 25, 1967.)

Aug 1, 1960: FAA launched **Project Searchlight**, an intensive and comprehensive study of its activities involving maintenance of equipment in the Federal Airways System. The agency conducted the study in several phases, completing it in early 1962. The resulting recommendations led to several improvements (see Jan 1963 and May 1, 1963), including the creation of a separate Systems Maintenance Service (see May 16, 1962).

Aug 11, 1960: Executive Order 10883, signed by President Eisenhower this date, but effective Oct 10, 1960, **abolished the Air Coordinating Committee** (see Sep 19, 1946). In a memorandum accompanying the Executive Order, the President made **future coordination of aviation matters in the Federal Government the responsibility of the FAA Administrator**. Since the need for such coordination would be greatest in the international area, the President suggested that the Administrator form an interagency group to develop recommendations on international aviation questions for the Secretary of State. The President stated that continuing membership in this group should be small, but ad hoc membership should be open to any other agencies having a substantial interest in matters under consideration by the group. (See Dec 19, 1960.)

Aug 25, 1960: FAA commissioned the first **ASR-4 airport surveillance radar** at Newark. Scheduled for installation at 34 of the nation's airports, the new radar system had a range of 60 miles, the capability of reaching an altitude of 25,000 feet, a 16-inch picture tube, and controller's-option display of either fixed or moving objects. The Civil Aeronautics Administration, FAA's predecessor agency, had commissioned the first ASRs during fiscal year 1951. (See Jun 1975.)

Sep 2, 1960: FAA Administrator Quesada approved a field reorganization of the Federal Aviation Agency in accordance with the recommendations of **Project Straight-Line** (see Apr 6- May 20, 1960), to be completed in phases by Jun 30, 1961. Intended to decentralize many regional responsibilities to **a new and lower echelon, the area office**, the reorganization would establish a **"straight line" of command** between the bureaus at FAA headquarters in Washington and the field facilities. Involved in the reorganization would be the field of the Bureau of Air Traffic Management, the facility maintenance and field supply functions of the Bureau of Facilities and Materiel, and the flight inspection and procedures activities and services of the Bureau of Flight Standards. The area organization was to be based on the geographic boundaries of air traffic flight advisory areas and located physically near the air route traffic control centers within the then existing 27 flight advisory areas in FAA's four domestic regions. The functions of 74 airway technical district offices and 27 air traffic supervisory offices were to be merged into the new area offices. FAA issued orders to implement the new area concept of administration on Nov 11, 1960, and Feb 6, 1961. (See Apr 7, 1961.)

Sep 8, 1960: FAA adopted the British RAE **visual glide path indicator landing lights** as a national standard for use at U.S. airports. Developed by the Royal Aircraft Establishment in England, the RAE system required no equipment of any kind in the aircraft cockpit. Where installed at airports, it promoted air safety by reducing the possibility that aircraft might overshoot or undershoot the runway, and it helped abate noise by keeping aircraft as high during landing approach as safety factors permitted.

Sep 8, 1960: FAA issued a new **aircraft noise abatement technical planning guide** for use by Federal and local officials. The guide discouraged certain kinds of construction in areas around large airports, such as residential subdivisions, schools, churches, hospitals, and other places of public assembly. Land lying immediately under the takeoff and landing patterns of jet runways, the guide recommended, should be utilized wherever possible for industrial, commercial, agricultural, or recreational purposes.

Sep 9, 1960: FAA permitted **aviation medical examiners (AMEs) to deny, as well as issue, medical certificates** to applicants that they examined. Previously, applicants whose fitness was questioned by the AME were automatically referred to the FAA Civil Air Surgeon in Washington. Under the new procedure, such referral ceased to be automatic, but the AME-denied airman could still appeal to the Civil Air Surgeon. Denial by the Civil Air Surgeon also remained appealable, to the Civil Aeronautics Board, as provided by the Federal Aviation Act of 1958. On Dec 14, FAA named nine members to a **Medical Advisory Panel** to assist the Administrator with the cases of applicants for airman certification who petitioned for exemption from medical standards.

On Oct 25, meanwhile, FAA had also announced the establishment of a **Medical Advisory Council** of 11 prominent doctors. The Council was appointed by the Civil Air Surgeon and assisted in developing and coordinating the aviation medicine program.

Sep 10, 1960: The Department of Defense conducted **Operation Sky-Shield**, a giant air defense drill, which necessitated the grounding of all commercial and general aviation aircraft throughout the North American continent for a six-hour period.

Sep, 1960: FAA commissioned its **first Airport Surface Detection Equipment (ASDE-2)** at Newark, N.J. Originally developed for the Air Force, ASDE was a radar system that provided air traffic controllers with information on the position of aircraft and other vehicles on the ground, even during darkness and fog. The ASDE antenna picked up this data for display on a scope in the airport tower. FAA's specifications for ASDE-2 were based largely upon an improved developmental model that had been operated under the agency's cognizance at New York International Airport (Idlewild). Besides Newark and Idlewild, eight other major U.S. airports were also scheduled to receive ASDE-2 in this initial installation program: Washington (Washington National and Dulles International), Boston, Seattle, San Francisco, Cleveland, Los Angeles, and Portland. (See Jul 5, 1977.)

Oct 4, 1960: **An Eastern Air Lines Electra plunged into Boston Harbor** shortly after taking off from Logan Airport, killing all but 10 of the 72 persons aboard. The accident marked the fifth Electra crash in two years and touched off renewed demands to ground the aircraft, which was being allowed to operate by FAA under a reduced speed regime (see Mar 17 and Dec 31, 1960). The presence of many dead birds on the Logan runway helped to convince FAA Administrator E. R. Quesada that the accident had probably been caused by ingestion of birds into the aircraft's engines rather than structural failure. Quesada decided not to ground the Electra. This judgement was later supported by laboratory tests that pointed conclusively to bird ingestion. Following the Boston crash, FAA engaged in studies and research on the bird hazard and methods of protecting aircraft from the effects of bird strikes.

Oct 9, 1960: FAA commissioned the **Oakland air traffic control center's new building**, followed by the **Atlanta center's new building on Oct 15**.

Oct 15, 1960-Mar 1, 1961: FAA successfully tested **positive control on an area basis**, as distinguished from a route basis (see May 28, 1958 and Apr 6, 1961), in **Operation Pathfinder**. As a result, area positive control was continued as a regular service in the location used for the test: airspace between the altitudes of 24,000 and 35,000 feet overlying 120,000 square miles surrounding FAA's air route traffic control centers at Chicago and Indianapolis. Any aircraft entering this airspace, whether on or off the airways, were required to be equipped with (1) a radio permitting direct communication with controllers at the centers, and (2) a **radar beacon transponder** for identifying the aircraft, independently of voice communications, on the controllers' radarscopes. In addition, such aircraft were required to fly on instruments regardless of weather, remaining under control of the centers while in the positive control area. Under these conditions of constant radar surveillance, aircraft required as little as half the standard separation interval.

The launching of Operation Pathfinder was preceded by more than a year of special preparations at the Chicago and Indianapolis centers--including intensive controller training, installation of additional radar and communications equipment, development of air traffic control procedures and phraseology, and an exhaustive analysis of the program through simulation studies.

Oct 18, 1960: FAA announced a comprehensive **project to consolidate and simplify aviation safety regulations**. The regulations had evolved without a coordinated plan, and interested persons might have to consult as many as 11 different publications to secure the desired information. Redundant and obsolete provisions and unnecessarily complicated or technical language also made it difficult to use the regulations. The purpose of the project was to eliminate these faults without changing the substance of the regulations. (See Nov 1, 1937, and Aug 31, 1961.)

Oct 29, 1960: A chartered **Curtiss-Wright Super C-46F crashed at Toledo, Ohio**, killing 22 of the 48 persons aboard, including 18 members of the California State Polytechnic College football team. CAB cited the probable cause as loss of control during premature liftoff, with contributory factors that included zero-visibility fog. The pilot's license had been revoked by FAA for a series of previous violations, but he had continued flying pending an appeal before CAB. The operator, Artic-Pacific, lost its certificate as a result of the crash. After the accident, FAA instructed its tower controllers to withhold takeoff clearance from commercial aircraft under specified conditions of low visibility.

Nov 3, 1960: FAA certificated the **Beech 95-55 Baron**, a four- to five-place aircraft powered by two Continental 260 h.p. fuel-injection engines. The plane had first flown on Feb 29, 1960.

Dec 15, 1960: FAA began the assimilation of six Military Flight Service Centers manned by approximately 500 men of the USAF Airways and Air Communications Services. Completed the following spring, the transfer was a part of the overall FAA-DOD plan labeled "**Project Friendship**" (see Oct 7, 1959, Jan 1962, and Feb 17, 1962).

Dec 16, 1960: **A United DC-8 and a TWA Super Constellation collided in midair over Brooklyn, N.Y.**, killing all 128 occupants aboard the planes and eight persons on the ground. CAB determined that the probable cause was that the United flight proceeded beyond its clearance limit and confines of the airspace assigned by Air Traffic Control. The DC-8's high speed, coupled with a change of clearance which reduced the distance which the aircraft needed to travel by approximately 11 miles, contributed to the crash. The Board concluded that the crew did not take note of the change of time and distance associated with the new clearance. The crew's workload was increased by the fact that one of their two Very High Frequency radio navigational receivers was inoperative, a fact unknown to Air Traffic Control. FAA actions taken as a result of the accident included: **a requirement that pilots operating under instrument flight rules report malfunctions of navigation or communications equipment**, effective Feb 17, 1961; **a program to equip all turbine-powered aircraft with distance measuring equipment, or DME** (see Jun 15, 1961); **a speed rule**, effective Dec 18, 1961, prohibiting aircraft from exceeding 250 knots when within 30 nautical miles of a destination airport and below 10,000 feet, except for certain military jets requiring a higher minimum speed for safe operation; and other steps to strengthen air traffic control procedures.

Dec 19, 1960: **The Martin Company delivered its last airplane**, a Marlin Patrol Boat, to the Navy. Since the company's founding by Glenn L. Martin in 1912, it had produced more than 12,000 aircraft. Since 1948, the company had also been active in the missile-space field, and it would continue in that field.

Dec 19, 1960: FAA Administrator Quesada announced the establishment of the **Interagency Group on International Aviation (IGIA)**. With the Administrator as chairman, the group included one representative each from the Civil Aeronautics Board and the Departments of State, Defense, and Commerce, and one ad hoc representative each from any other agencies having a substantial concern in business before the group. The IGIA was to develop recommendations for the Secretary of State on international aviation questions involving the substantial interest of two or more agencies other than the Department of State. The work to be done by IGIA had formerly constituted part of the function of the Air Coordinating Committee. (See Aug 11, 1960.)

Dec 30, 1960: FAA and Air Force jointly announced a U.S. Air Force program to develop a long-range all-cargo aircraft designed to meet civil and military needs. Part of a program to modernize the Military Air Transport Service (MATS) with long-range jet transports, the aircraft was to be developed in such a way as to be qualified, upon completion, for immediate FAA certification as a commercial carrier. On Dec 17, 1963, the U.S. Air Force's **C-141A first flew**, and on Apr 23, 1965, the Air Force accepted delivery of its first C0141. On Jan 19, 1965, FAA had type-certificated the civil version, the **Lockheed Model 300-50A-O1 (StarLifter)**.

Dec 31, 1960: **FAA lifted the speed restriction on Lockheed Electras** when modification to prevent recurrence of the nacelle-wing whirl mode phenomenon had been accomplished (see Mar 17, 1960). The agency informed all known operators of the Electra by telegram and published the airworthiness directive in the Federal Register on Jan 17, 1961.

***1961**

Jan 9, 1961: The Federal Aviation Agency released a **report on the commercial supersonic transport (SST)**, prepared by FAA with the assistance of DOD and NASA. The report concluded that a Mach 3 (2,000 m.p.h.) transport could and should be built by U.S. industry, with governmental financial support limited to demonstrated needs. Although he had been unable to persuade the outgoing Eisenhower Administration to request funds for SST development, Administrator Quesada recommended prompt and careful consideration of the immediate establishment of such a program. (See Jun 30, 1960, and Jul 24, 1961.)

Jan 9, 1961: Pursuant to Executive Order 10902, signed on this date, the Office of Civil and Defense Mobilization Preparedness issued its Order No. 3 charging the FAA Administrator with preparation for **emergency management of the nation's civil airports and civil aviation operating facilities**. On Feb 16, 1962, Executive Order 11003 continued and extended this responsibility by directing the

Administrator to prepare national emergency plans and preparedness programs for the nation's civil airports, civil aviation operating facilities and services, and civil aircraft other than air carriers.

Jan 13, 1961: AN FAA directive gave the Bureau of Research and Development full **responsibility for the improvement and modification of air navigation aids, communications, and related equipment** used in the Federal airways system. While continuing to procure, install, and maintain such facilities, the Bureau of Facilities and Materiel, which had previously shared or performed certain R&D functions, would henceforth provide only required "immediate" engineering support.

Jan 16, 1961: FAA introduced a new **Automatic Data Interchange System (ADIS)**, a multi-point high-speed teletypewriter network capable of transmitting weather data at 850 words per minute. The new network connected interchange centers located at Cleveland, Atlanta, Fort Worth, Kansas City, and San Francisco that served five national "weather areas." The new high-speed circuit would be used for Service A, the most complex of FAA's three weather communications networks. (See Jul 6, 1957, and Jun 1979.)

Jan 20, 1961: **John F. Kennedy became President**, succeeding Dwight D. Eisenhower. **The resignation of FAA Administrator Elwood R. Quesada became effective**, and Deputy Administrator James T. Pyle became Acting Administrator. (See Mar 3, 1961.)

Jan 24, 1961: **The Convair 990 (model 30) first flew**. On Dec 15, FAA certificated the four-engine jet airliner of medium-to-long range with a maximum capacity of 121 passengers. The plane, built by General Dynamics Corporation, entered scheduled service on Mar 9, 1963, with Swissair.

Feb 7, 1961: Affirming the decision of a neutral committee, the U.S. National Mediation Board ruled that the **pilots and flight engineers of United Air Lines constituted one craft** for purposes of representation. The Board ordered an election in which the Flight Engineers International Association (FEIA) faced certain defeat by the more numerous members of the Air Line Pilots Association (ALPA). On Feb 17, **flight engineers walked off the job** at seven airlines to protest the board's decision, which they feared would set an industry-wide precedent. On Feb 21, with several wildcat strikes still in progress, President Kennedy appointed a **three-man investigative commission headed by law professor Nathan Feinsinger**. On May 24 and Oct 17, the commission issued two reports recommending that: all four-man cockpit crews be gradually reduced to three men; flight engineers on jets should take pilot training at airline expense; FEIA and ALPA should merge or take other cooperative action to settle their dispute over flight deck jurisdiction; and no disciplinary action should be taken against the flight engineers who struck in February. ALPA gave formal acceptance to only part of these recommendations, while FEIA accepted them as suggestions rather than binding solutions. All the airlines except Western, which refused to rehire its striking engineers, accepted the recommendations. By negotiations or strike-breaking, all the carriers that had been using a four-man cockpit crew had succeeded in eliminating the fourth man by the end of 1964. (See Jun 7, 1960 and Apr 21, 1965.)

Feb 7, 1961: FAA commissioned the **Cleveland air traffic control center's new building**, followed by the **Jacksonville center's new building on Feb 25**.

Feb 21, 1961: Effective this date, an amendment to Part 60, Civil Air Regulations, made it possible for FAA to **raise the floor of control areas (airways) from the existing 700 feet to at least 1,200 feet above the surface**, on a case-by-case basis. Such actions would provide an additional 500 feet or more of uncontrolled airspace. The additional uncontrolled airspace would be available to pilots operating under visual flight rules (VFR) when flight visibility was as low as one mile, in contrast to a three-mile visibility required for VFR operations in controlled airspace.

Feb 26, 1961: FAA and the U.S. Weather Bureau announced the **expansion of aviation weather services**. Under the joint program, direct weather briefing service would be made available to pilots at hundreds of additional airports. The expanded program involved training FAA's 4,000 flight service specialists to handle preflight briefing and to answer air-ground requests for weather information.

Mar 3, 1961: **Najeeb E. Halaby became the second FAA Administrator**, succeeding Elwood R. Quesada (see Nov 1, 1958). The appointment, which President Kennedy had announced on Jan 19, was submitted to the Senate on Feb 13 and confirmed on Feb 24.

Born in Dallas, Tex., Halaby received a B.A. from Stanford in 1937 and a law degree from Yale in 1940; however, his aviation career had already begun in 1933 when, at the age of 17, he received his student pilot certificate. Early in World War II (1942-1943), he served as a test pilot for the Lockheed Aircraft Corporation. After becoming a naval aviator in 1943, he served at the Naval Air Test Center, Patuxent, Md. He participated in the first flights of U.S. jet-powered aircraft. Among the positions in

which Halaby served the Federal government after the war were: foreign affairs adviser to the Secretary of Defense; special assistant to the Administrator of the Economic Cooperation Administration; Deputy Assistant Secretary of Defense for International Security Affairs; and vice chairman of the Aviation Facilities Study Group (see May 4, 1955). In 1953, Halaby was selected by the Junior Chamber of Commerce for an award as the "outstanding young man in Federal Service." His private business activities included the practice of law with a Los Angeles firm in 1940-1942 and, after World War II, service as: an associate of Laurence Rockefeller; executive vice president and director of Servomechanisms, Inc.; president of American Technological Corporation, a technical ventures corporation; secretary-treasurer of Aerospace Corporation, a firm that was principal adviser to the Air Force missile and space program; and director of his own law firm in Los Angeles.

Halaby headed FAA for over four years, the longest tenure of any of the agency's first twelve Administrators, before resigning effective Jul 1, 1965 (see that date).

Mar 3, 1961: President Kennedy requested Administrator Halaby to develop a statement of **national aviation goals** for the period 1961-70 which would define the technical, economic, and--excluding matters of peculiar concern to combat operating forces--military objectives of the Federal government throughout the broad spectrum of aviation. To undertake the study, called **Project Horizon**, an eight-member task group of aviation experts was formed under the chairmanship of Fred M. Glass, business executive and former member of the Harding Aviation Facilities Study Group. (See Sep 10, 1961.)

Mar 8, 1961: President Kennedy requested FAA Administrator Halaby "to conduct a scientific, engineering review of our aviation facilities and related research and development and to prepare a practicable long-range plan to insure efficient and safe control of all air traffic within the United States." In response to this directive, the Administrator established the **Project Beacon** task force--a study group that brought together eight recognized experts in aeronautic and related technologies under the chairmanship of Richard R. Hough, vice president-operations of the Ohio Bell Telephone Company. (See Sep 11, 1961.)

Mar 9, 1961: Administrator Halaby launched an "**air share**" program under which he and other top FAA officials met the general aviation community in a series of "hangar sessions" to discuss changes in the Civil Air Regulations. These meetings afforded airmen the opportunity to "air" their views and "share" the benefits of improved rules for safe flying. In Oct 1961, 90 air share meetings were held throughout the nation on a single day.

Mar 13, 1961: The Civil Aeronautics Board, rendering a decision in the **Southern Transcontinental Service Case**, awarded Delta Air Lines and National Airlines additional route segments that allowed both airlines to begin transcontinental service on Jun 11, 1961.

Mar 29, 1961: Administrator Halaby requested a four-man group of **consultants to review FAA rulemaking and enforcement** procedures. This **Project Tightrope** study group, headed by Lloyd N. Cutler of Washington, D.C., was composed of prominent attorneys experienced in administrative law and aviation problems. Submitted in October, the Tightrope report made a number of recommendations that resulted in important changes in these procedures. Among the group's recommendations were: establishing a Regulatory Council directly under the Administrator; appointing advisory committees for major rulemaking projects; eliminating the practice of keeping the rules docket closed until the end of the public comment period; publishing the proposed rule early in the rulemaking process; and having a trial-type hearing before an independent examiner prior to suspension or revocation of a certificate. (See Jan 8 and 17, 1962.)

Apr 6, 1961: **FAA established a three-layer airways system and lowered the floor of the continental control area** from 24,000 to 14,500 feet. A new intermediate system covering altitudes between 14,500 and 24,000 feet was designed primarily to provide express airways for long- and medium-haul operations. The high-altitude jet route system extended above 24,000 feet; the low-level system, in operation for many years, extended up to 14,500 feet. The lowering of the floor of the continental control area put into effect more stringent weather minimums for visual flight rule (VFR) operations above 14,500 feet. (See Oct 15, 1960-Mar 1, 1961, and Sep 17, 1964.)

Apr 7, 1961: FAA rescinded previous orders that had authorized the establishment of field area offices in accordance with recommendations of **Project Straight-Line**. (See Sep 2, 1960 and Oct 1, 1963.)

Apr 7, 1961: FAA adopted the **side-lobe suppression feature** as a national standard for the **air traffic control radar beacon system**. The side-lobe suppression technique would permit ground facilities to

interrogate and receive a radar reply only from the aircraft being queried. This ability expanded the radar beacon system's capacity to handle air traffic. (See Sep 10, 1959, and Sep 11, 1961.)

Apr 12, 1961: Soviet Cosmonaut Yuri Gagarin became the **first man in space** when he rode the Vostok I for a single orbit of earth before landing safely. Astronaut Alan B. Shepard became the **first American in space with a May 5 suborbital flight**. The following year, John H. Glenn, Jr., piloted the **first U.S. manned orbital flight on Feb 20, 1962**.

Apr 10-14, 1961: The first FAA-sponsored **International Aviation Research and Development Symposium**, convened at Atlantic City, covered subjects relating to advances in electronics and their application to air navigation and air traffic control systems. Attendees included officials of some 20 foreign governments and representatives of the electronics and aviation communities.

Apr 17, 1961: Air traffic control training for a group of military ATC trainees began at FAA's Aeronautical Center in Oklahoma City. The purpose of the experimental program was to determine whether FAA, in line with the Project Friendship plan, should eventually assume responsibility for training all **military air traffic controllers**. (See Oct. 7, 1959, and Mar 1, 1963.)

May 1, 1961: The **first series of aircraft hijackings in the U.S.** began when a passenger on a flight to Key West, Fla., forced the pilot to fly to Cuba. Four other "skyjacking" incidents took place before the end of Aug. In concert with other agencies, FAA actively supported congressional efforts to remedy a lack of criminal laws applicable to these and other threats to air safety. **On Sep 5, President Kennedy signed Public Law 87-197**, an amendment to the Federal Aviation Act of 1958. The law prescribed death or imprisonment for not less than 20 years for interference with aircrew members or flight attendants in the performance of their duties. Pertinent parts of the U.S. Code were made applicable to certain other crimes aboard aircraft in flight. To help enforce the act, a special corps of FAA safety inspectors were trained for duty aboard airline flights (see Aug 10, 1961).

May 2, 1961: The FAA Administrator and the CAB Chairman issued a **joint policy statement favoring the use of a single air carrier airport serving adjacent communities** when such an arrangement might cut costs and improve service. The statement indicated that this policy should be increasingly important in considering applications for airport construction grants and for certificated airline service. (See Sep 1965.)

May 4, 1961: FAA issued orders providing for the organization and operation of a **comprehensive flight information service** to ensure that current and complete information required for operations in the navigable airspace was available in the most suitable form.

May 5, 1961: Navy aeronauts Malcolm Ross and Victor Prather set a **balloon high altitude record** of 113,740 feet while testing space suits developed for use by Project Mercury astronauts. They landed as planned in the Gulf of Mexico, but Prather drowned during the recovery phase of the operation.

May 25, 1961: A Special Civil Air Regulation effective this date **banned the use of portable FM radios on U.S. civil aircraft**. Radios having oscillators operating within or very near the Very High Frequency (VHF) band affected the VHF radio navigation system of the aircraft.

May 26, 1961: FAA Administrator Halaby disclosed his intention to **decentralize the agency's operational responsibilities** and broaden the authority of regional executives. He selected FAA's Region One, with Headquarters in New York, for the pilot program, and chose Oscar Bakke, head of the Bureau of Flight Standards, to develop the program and to submit a transition plan which would be used as a model for reorganization of the other regions. Bakke assumed the title of Assistant Administrator for the Eastern Region, effective Jul 1 (see that date).

Jun 1, 1961: **United Air Lines absorbed Capital Airlines** in the biggest U.S. domestic airline merger up to that time.

Jun 5, 1961: FAA announced a program of **improvements to Washington National Airport** that would include easier highway access, upgraded baggage handling, enclosure of walkways, and a new taxiway near the North Terminal, a facility that had been added in 1958.

Jun 7, 1961: FAA signed a contract with the Flight Safety Foundation for a **survey of near-collisions in the air** during a one-year period, including compilation of statistical data, analysis, and recommendations. The resulting **Project Scan** began on Jul 1. To ensure a free flow of information, the Foundation protected the identity of those reporting the near misses. A final report released on Aug 31, 1962, analyzed more than 2,500 of the incidents. It recommended an educational program for pilots, improvements in equipment and procedures, and continued collection of anonymous reports "to provide a broad background of information on the near mid-air collision hazard." (See Jan 1, 1968.)

Jun 8, 1961: FAA announced plans to establish an additional regional office, with headquarters in Atlanta, Ga. The new **Southern Region** office would have responsibility for FAA activities in Georgia, Florida, North Carolina, South Carolina, Tennessee, Alabama, Mississippi, Puerto Rico, the Virgin Islands, and Swan Island--areas currently under the supervision of FAA Region 2 headquartered at Fort Worth, Tex. The Southern Region would be a controlled installation with minimum staffing, designed to serve as a model for reducing regional headquarters cost through prudent management. At the same time, FAA disclosed that its **regions would be identified by geographical rather than numerical designations**. Thus, Region 1 would become the Eastern Region; Region 2, Southwest Region; Region 3, Central Region; Region 4, Western Region; Region 5, Alaskan Region; and Region 6, Hawaiian Region (subsequently changed to Pacific Region)

Jun 15, 1961: Following installation of **distance-measuring equipment (DME)** on the entire jet fleet of American Airlines, FAA began using DME air traffic control procedures for the first time on a nationwide basis. While these procedures had been in effect since Jan 1960, their use had been limited by the small number of DME-equipped civil aircraft. (See Dec 16, 1960, and Jul 1, 1963.)

Jun 26, 1961: FAA announced that as a result of a recent decision by the U.S. Civil Service Commission, **many air traffic controller positions** in approach control towers and air route traffic control centers **would be raised one grade** to reflect increased job requirements and complexity. Primarily affected were the positions of certain controllers performing coordination and radar control duties as well as facility chiefs and other supervisors. (See Dec 15, 1968.)

Jun 29, 1961: FAA commissioned the **first Doppler VOR** system, for service at Marquette, Mich. The Doppler version of the very-high frequency omnidirectional radio range, a primary navigational aid of the Federal airways system, was developed for installation at sites where standard VOR's could not be used. (See Jun 1, 1952.)

Jul 1, 1961: An extensive **reorganization of the Federal Aviation Agency began**. Termed "evolutionary" and keyed to a revised concept of Washington-field relationships, the reorganization was intended to strengthen agency management by centralizing development of programs, policies, and standards in Washington and delegating broad operational responsibilities to regional offices. The seven regional offices would be headed by assistant administrators responsible for the executive direction of all FAA programs in the field within the framework of the national guidelines established by Washington. To assist the Administrator in the overall management of specific functional areas, the posts of Deputy Administrator for Plans and Development and Deputy Administrator for Administration were established. In an earlier action, the FAA Administrator had named Alan L. Dean, formerly Assistant Administrator for Management Services, as the new Deputy Administrator for Administration. The following April, Robert J. Shank, an engineer-executive from private industry, was selected to head the redesignated post of Deputy Administrator for Development. The statutory Deputy Administrator was to serve as general manager of the agency's operations, coordinating the activities of the regional offices and the operating programs in Washington. James T. Pyle, former CAA Administrator and Deputy Administrator under Quesada, would continue to occupy this post until his resignation in Oct 1961. General **Harold W. Grant was selected as the new Deputy Administrator** in February 1962. Except for the Bureau of National Capital Airports, all of the former bureaus and the Office of International Coordination were redesignated as services, each headed by a director. Other changes involved the former Budget Division of the Office of Management Services, which became the Office of Budget.

Jul 1, 1961: FAA, with the cooperation of the U.S. Weather Bureau, inaugurated **pilot-to-forecaster weather service** as a test program in the Washington, D.C., and Kansas City areas. The service allowed pilots to request weather information via a special radio frequency.

Jul 1, 1961: FAA commissioned the **Balboa (C.Z.) air route traffic control center**.

Jul 12, 1961: Findings of a recently completed U.S. Civil Service Commission **review of the functions and operations of FAA flight service stations** were released. The CSC study concluded that changes in the functions and responsibilities of specialists at these facilities warranted in many instances one or two-grade salary increases.

Jul 13, 1961: FAA issued **new procedures for the emergency operation of the DC-8 hydraulic system** in a telegram to the aircraft's users. The action followed a United Air Lines accident fatal to 17 persons on Jul 11 and a non-fatal accident on Jul 12.

Jul 15, 1961: **The "tall tower" rule** (Part 626, Regulations of the Administrator) became effective. This was the first single regulatory document containing criteria and procedures for determining

potential hazards to air navigation which might be created by proposed tall structures. The controversial rule was regarded as a firm rejection of the broadcast industry's contention that such regulation invaded Federal Communications Commission jurisdiction. On Jul 21, 1961, FAA Administrator Halaby and FCC Chairman Newton N. Minow announced agreement on a number of measures to insure coordination of the new rule with FCC requirements to prevent unnecessary restriction.

Jul 24, 1961: A joint FAA-DOD-NASA *Commercial Supersonic Transport Aircraft Report* was issued. Based on a review of information gathered from industry and Federal government sources, the report concluded that development of a commercial transport aircraft to fly three times the speed of sound (Mach 3) was feasible and could be done by 1970-71. **During August, Congress made its first appropriation for FAA research on the Supersonic Transport (SST).** (See Jan 9 and Sep 25, 1961.)

Jul 25, 1961: FAA requested contract bids for the development of a **compact airborne radar beacon** for light aircraft. The transponders became commercially available during fiscal year 1965. The equipment, designated SLATE (small lightweight altitude-transmitting equipment), provided air traffic controllers with altitude information, permitting users to receive positive separation service in busy terminal area controlled airspace.

Jul, 1961: Work began at Anchorage on the installation of an automatic telecommunications system to modernize FAA's **aeronautic communications in the Alaskan area.** The new system was able to automatically switch reports coming in from 65 stations to the proper receiving station. It would handle mainly messages in FAA's Service B, which covered primarily aircraft movements, flight plans, and messages related to air traffic control and aviation safety. Additional steps were taken in September to modernize major portions of FAA's Alaskan telecommunications network with the award of a contract for 200 high-speed teletypewriters and associated equipment.

Aug 10, 1961: For the first time **the Federal government employed armed guards on civilian planes.** (See May 1, 1961.) The first such guards were border patrolmen from the U.S. Immigration and Naturalization Service. In Mar 1962, Attorney General Robert F. Kennedy swore in FAA's first "peace officers," as Special U.S. Deputy Marshals. Graduates of a special training course at the U.S. Border Patrol Academy, all of the men worked as safety inspectors for Flight Standards and only carried out their role as armed marshals on flights when specifically requested to do so by airline management or the FBI. (See Feb 21, 1968.)

Aug 13, 1961: **Standard instrument departure (SID) procedures** went into effect for the first time for civil aircraft at New York International Airport. In the form of pictorial charts, the SID's simplified pilot-controller exchange of complex clearance information.

Aug 28, 1961: FAA issued type and production certificates for the **Lockheed Model 1329 JetStar**, powered by four Pratt & Whitney JT12A-6 engines. The JetStar was the first four-engine turbojet executive-type transport designed and developed in the United States to be certificated.

Aug 31, 1961: FAA issued orders setting up an **accelerated program to codify the agency's safety rules.** The purpose of the program was to replace an ungainly mass of regulatory material with one streamlined body of rules. Primary responsibility was assigned to a Director of Rules Codification reporting to the agency's General Counsel. (See Oct 18, 1960, and Dec 31, 1964.)

Sep 7, 1961: FAA approved in principle the **use of Doppler radar and other flight deck nav aids to guide airliners across the North Atlantic.** Authorization to operate on these routes without a navigator was contingent on satisfactory completion of a pilot training program and a refinement of procedures. The announcement resulted in a strike threat by airline navigators, who would be replaced by the all-electronic navigation systems. In Feb 1962, however, Trans World Airways became the first carrier to obtain FAA authorization to employ the Doppler navigational system in lieu of celestial navigation. (See Jul 21, 1964.)

Sep 10, 1961: The White House released the **Project Horizon** task force report (see Mar 3, 1961) on aviation goals for the 1960s with a presidential endorsement and instructions to the FAA Administrator to take the lead in its implementation. At the same time, the President instructed the Secretary of Commerce to take Horizon proposals fully into account in preparing a report on overall transportation policies, thus aiding in the quest for "an integrated national aviation program within a broad national transportation policy."

The 239-page report defined 24 national aviation goals and outlined various programs aimed at helping to achieve those important objectives. Among the major points were those that called for:

* Maintaining U.S. leadership in world aviation. * Basic reorientation of the Federal government's approach to the economic regulation of the airlines to avert the threatened collapse of the industry's financial structure.

* Development of a Mach 3 supersonic commercial transport.

* More emphasis on the aeronautical as opposed to astronautical aspects of the Federal R&D effort.

* A comprehensive study of international aviation relations, commissioned by the President.

* Enactment of legislation tailored to aviation's needs to replace the Railway Labor Act.

* Continued effort to achieve a common civil-military air traffic control and air navigation system, including the establishment of a Federal Aviation Service within the FAA that would become an integral part of the military services in time of war.

* Implementation of pending Project Beacon recommendations on air traffic control (see Sep 11, 1961).

Sep 11, 1961: The **Project Beacon** task force on Air Traffic Control (see Mar 8, 1961) submitted its report to the FAA Administrator. While finding that the air traffic control system was "being expertly operated by a highly skilled organization," the report concluded that substantial improvements were needed to meet the future challenge of aviation's projected growth. FAA urgently needed an overall systems plan. In effect, the recommended improvement involved a major reorientation of the modernization effort that had been launched in 1957 following the Curtis report. Keyed to the use of an **air traffic control radar beacon system (ATCRBS)** as a primary means of providing controllers with aircraft position information, the new concept found little promise in ground-based altitude measuring devices such as the 3-D radar under test as part of the earlier program (see Apr 7, 1961, and Dec 27, 1963). The report also urged expanded use of general purpose computers rather than special computer systems formerly under development for air traffic control. Rejecting the idea of fully merging air traffic control with the SAGE air defense system, **the report urged that only radar elements of SAGE be used for the air traffic control system** (see Apr 17, 1960, Feb 21, 1962, and Dec 1, 1963). The task force also urged a variety of changes involving airports, the segregation of controlled traffic, navigation and all-weather landing systems, a new category of flight known as controlled visual rules (CVR), and the extension of positive control and weather information.

On Nov 7, having reviewed the Project Beacon report, President Kennedy directed FAA Administrator Halaby to begin carrying out the report's recommendations. With respect to unresolved differences of opinion between FAA and DOD concerning integrating the SAGE air defense and air traffic control systems--a matter which had delayed release of the report by some two months--Kennedy asked Halaby "to consult with the Secretary of Defense and the President's Scientific Advisor, Dr. [Jerome B.] Wiesner, so that the optimum application of all resources of the Government in the safe and economical use of the airspace may be assured."

Sep 15, 1961: The White House announced establishment of a **steering committee to study "economic, political, military, and prestige interests" related to U.S. international aviation policies**, as recommended by Project Horizon. FAA Administrator Halaby chaired the committee, which included: Kenneth R. Hansen, Assistant BOB Director; Alan S. Boyd, Chairman, CAB; C. Daniel Martin, Jr., Under Secretary of Commerce for Transportation; Edwin M. Martin, Assistant Secretary of State for Economic Affairs; F. Haydn Williams, Deputy Assistant DOD Secretary; and James P. Grant, Deputy AID Director for Program and Planning. In October, a contract was jointly awarded to Robert P. Nathan Associates and the Systems Analysis and Research Corporation to conduct a broad study of international aviation problems for the use of the steering committee. Completed in early 1963, the committee's report led to a new presidentially approved statement of U.S. policy on international air transportation. (See Apr 24, 1963.)

Sep 20, 1961: The **Federal Airport Act was amended to extend the Federal-aid airport program** through fiscal year 1964. The new law authorized appropriations of \$75 million each for fiscal years 1962-64. See Appendix VII for subsequent appropriations under this Act until its repeal in 1970. (See Jun 20, 1959, and May 21, 1970.)

Sep 21, 1961: Senator A. S. Mike Monroney (D.-Okla.) introduced legislation proposed by FAA Administrator Halaby for creation of a **Federal Aviation Service (FAS) to assure the continuity of essential airways services during any national emergency**. Representative Oren Harris (D.-Ark.) introduced a similar bill in the House. The proposal was submitted in accordance with section 302(g) of the Federal Aviation Act of 1958, which directed the Administrator, in consultation with other affected Federal agencies, to study the special personnel problem inherent in the functions of the FAA

and make recommendations to the Congress. Though basically civilian in character, the recommended FAS could be placed in military status by the President if necessary for defense purposes. DOD viewed such legislation as prerequisite to the eventual transfer of military air traffic control and air navigation facilities to FAA contemplated by the Federal Aviation Act. (See Feb 17, 1962.)

Sep 25, 1961: FAA, NASA, and the Defense Department agreed on a **plan for the research and study phase of the commercial supersonic transport (SST) program**. Assigning FAA responsibility for overall program leadership and management direction, the plan provided for a **Supersonic Transport Steering Group**--headed by the FAA Administrator and including the Assistant Secretary of the Air Force for Materiel and NASA's Director of Advanced Research Programs--to formulate broad policy and give overall guidance for the Federal role in the program. The Steering Group would be supported on the working level by the SST task group, which had been in operation for some time. Comprised of designated FAA-DOD-NASA representatives, the task group was to continue coordinating the SST activities of the three agencies. (See Jul 24 and Dec 11, 1961.)

Oct 13, 1961: FAA commissioned a **CONSOLAN long-range navigation aid** for service at Miami, Fla. The new station reduced the gap in radio navigation facilities covering the North and South Atlantic, the Gulf of Mexico, and the Caribbean, in addition to strengthening coverage of the U.S. east coast.

Oct 21, 1961: A new rule made airline management responsible for **banning passengers appearing to be intoxicated**. Although the pilot still retained his authority as captain in command, the new rule took into account the fact that the pilot was normally occupied with preflight checks during the time passengers were boarding.

Nov 6, 1961: Reflecting increased emphasis on the Federal-aid-to-airports program (see Sep 20, 1961), **FAA established an Airports Service** to replace the former Airports Division of the Aviation Facilities Service.

Nov 8, 1961: An **Imperial Airlines L-049 Constellation crashed** after stalling while attempting an unscheduled landing at Richmond, Va. The crash, which claimed 77 lives, was the **latest in a series of accidents involving supplemental ("nonsked") carriers**. It triggered investigations by Congress, CAB, and FAA into the supplementals' safety record, financial status, and business practices. (See Jul 9 and 10, 1962.)

Dec 1, 1961: FAA began an **operational evaluation of aircraft powerplant reliability** in a program jointly developed with the airline industry. The new program was designed to substitute continuous records of operational reliability for the older system of establishing minimum overhaul times as a measure of safety for aircraft powerplants.

Dec 11, 1961: A **Supersonic Transport Advisory Group** established in November held its first formal meeting with the joint Supersonic Transport Steering Group. The new group was headed by General Orval R. Cook (USAF Ret.) and included aviation industry leaders. Its major tasks were: to assess basic technical background material of the supersonic transport (SST); to define Federal-industry roles in program management; to consider the impact on U.S. and world markets if a European Mach 2 SST flew before the American SST; to develop a plan for financing development; to prepare a blueprint for development, production, and entry into airline service; and to consider methods for airline financing of SST purchases. (See Sep 25, 1961, and Jan 16, 1963.)

Dec 26, 1961: Air traffic rules establishing the **first national standards for conducting flight operations on and around all controlled airports** throughout the country became effective. At airports providing Federal traffic control tower service, the new rules established airport traffic areas, approach and departure procedures, and pattern altitudes; required two-way radio communications; and set airspeed limits within the airport traffic area. The airport traffic area affected was defined as airspace within a five-mile horizontal radius from the airport's center extending from the surface up to 2,000 feet.

***1962**

Jan 1, 1962: As a step in the Federal Aviation Agency's decentralization of operational activities to the field (see Jul 1, 1961), **FAA transferred to its seven regions the additional responsibility of processing enforcement actions** arising from violations of the Civil Air Regulations by air carriers, air carrier airmen,

manufacturers, or military personnel. The regions already had authority to process actions in the general aviation field.

Jan 8, 1962: FAA established an **Agency Regulatory Council** to facilitate rulemaking and to insure the implementation of the Administrator's rulemaking policies. The agency also established the position of Executive Director to provide full-time management for the Council. Besides the Executive Director, original regular membership consisted of: the Administrator (as chairman); the Deputy Administrator; the Director, Air Traffic Service; the Director, Flight Standards Service; the Civil Air Surgeon; and the General Counsel. Added as regular members later were: the Director, Airports Service; the Director, Systems Research and Development Service; the Associate Administrator for Programs; and the Assistant Administrator, International Aviation Affairs. The other Associate Administrators and other office and service heads participated individually as ad hoc members in matters of substantive concern to them. Establishment of the Regulatory Council implemented one of the principal recommendations of **Project Tightrope** (see Mar 29, 1961). The Council's first meeting took place on Jan 10, 1962.

Jan 17, 1962: As recommended by **Project Tightrope** (see Mar 29, 1961), **FAA established the positions of chief hearing officer and hearing officers** to make available to airmen a trial-type proceeding when charged with a violation of the Civil Air Regulations for which their certificate might be suspended or revoked. Appearance before a hearing officer would not prejudice the airman's statutory right to appeal an FAA decision to the Civil Aeronautics Board. In July 1963, FAA broadened hearing officer duties to include the conduct of such other public and intra-agency hearings as the Administrator might direct. Three hearing officers began their new duties about Mar 1, 1962. Based one each at Los Angeles, Kansas City, and Atlanta, they held hearings at various locations within their respective jurisdictions, which covered the contiguous 48 states. Pending the appointment of a chief hearing officer, the hearing officers reported to the Administrator through the Executive Director of the Agency's Regulatory Council (see Jan 8, 1962).

Jan 17, 1962: President John F. Kennedy issued Executive Order 10988, which guaranteed the **right of Federal employees to join organizations**--i.e., any lawful association, labor union, federation, council, or brotherhood "having as a primary purpose the improvement of working conditions among Federal employees"--and engage in collective bargaining. The order also made provision for Federal agencies to accord informal, formal or exclusive recognition to employee organizations. FAA Administrator Halaby argued unsuccessfully before Kennedy Administration councils that air traffic controllers, because they served a national defense function, should be excluded from the provisions of the order. (See Jan, 1968.)

Jan, 1962: FAA began using **semiautomatic flight inspection (SAFI)** equipment for all-weather flight inspection at high altitudes, initially on a limited basis. By the end of fiscal 1963, SAFI-equipped aircraft performed almost all inspections of those air navigation facilities in the 48 contiguous states used purely for en route navigation. (As the dependability of the en route system became established, the SAFI program was reduced until by 1990 it was conducted by a single aircraft.)

Meanwhile, an Executive Order of Aug 28, 1962, formally authorized the **transfer of flight inspection responsibilities from the Defense Department to FAA**, as planned under Project Friendship (see Oct 7, 1959). This process had already begun during the first half of calendar 1961, when FAA had undertaken flight inspection for the Army and Navy, initially on reimbursable basis. During fiscal 1963, the agency also took over routine inspection of air navigation aids for the Air Force, although that service retained some flight inspection aircraft of its own (see Oct 1, 1991). At the end of fiscal 1963, FAA's worldwide flight inspection fleet consisted of: 55 Douglas DC-3s; 6 DC-4s (C-54s); 8 Convair 240s (T-29s); 5 Convair 440s (C-131s); 2 Boeing 707s (KC-135s); 4 Lockheed 749 Constellations; and one Fairchild C-123. (See Oct 6, 1956, and Jul 8, 1973.)

Feb 17, 1962: The Director of the Bureau of the Budget proposed appointment of a **joint Bureau of the Budget/Department of Defense/Federal Aviation Agency Steering Committee** to study outstanding problems and recommend further action in the matter of the proposed mass transfer of military air navigation facilities to FAA and consolidation of air traffic management functions in that agency as part of **Project Friendship** (see May 1959).

In the course of the following month, such a Steering Committee was appointed, consisting of the Assistant Director of the Bureau of the Budget, DOD's General Counsel, and FAA's Deputy Administrator (later, Associate Administrator) for Administration. On Apr 4, 1962, the Steering

Committee approved a prospectus for the study drawn up by a working group from the three agencies. In the same month, on recommendation of the Steering Group, FAA advised the appropriate Senate and House committees that hearings on the bill to establish a **Federal Aviation Service** to provide centralized operation of all air navigation facilities should be deferred pending the Steering Committee's findings. (See Sep 21, 1961, and Mar 1, 1963.)

Feb 21, 1962: **The U.S. Senate confirmed Major General Harold W. Grant, USAF, as FAA's Deputy Administrator**, succeeding James T. Pyle (see Dec 31, 1958). A specialist in communications, General Grant was Commander of the Air Force Communications Service when the President selected him, on Feb 1, for the FAA position. Born in Louisville, Ky., General Grant received a bachelor of science degree from Northwestern University in 1928, and was commissioned in the Army Air Corps the following year. In World War II, he served as U.S. Air Signal Planner for Combined Operations in the European Theater and as Deputy Signal Officer in Chief of the Southeast Asia Command in India. During the Korean conflict, he was Vice Commander of the Japan Air Defense Force. After other assignments of high responsibility in the Far East and the United States, he became, in mid-1958, director of communications and electronics in the Office of the Deputy Chief of Staff for Operations, U.S. Air Force Headquarters. From this position he was assigned in July 1961 to the command from which he came to FAA. His decorations include the Legion of Merit with two clusters and the Order of the British Empire. (See Jul 1, 1965.)

During the two years after his appointment, Grant helped to work out **a series of agreements with military commands that provided close integration of communication systems and joint use of facilities**, especially radar. Under an agreement with the Continental Air Defense Command, FAA handled the ATC operations of interceptor flights going to and returning from a target. These agreements reduced the chances of civil-military midair collisions and provided better defense readiness. The improved coordination of military and FAA activities helped to ease tensions that had developed over the **FAA decision to make only limited use the military's SAGE system in the national ATC system** (see Sep 11, 1961, and Dec 1, 1963).

Feb 27, 1962: FAA announced **Project Little Guy**, a three-year program aiming at development of a simpler, more efficient cockpit layout for light aircraft. The results of this research and development effort would be available to future aircraft designers.

Feb 28, 1962: FAA received the **Project Pipeline** report, a study to improve and modernized FAA's supply system. The final report, based on an extensive study of the supply systems of private industry and Federal agencies, established guidelines for subsequent improvements in FAA's supply-materiel. A parallel project, titled the **Harbridge House study** (for the Boston management firm which produced it), was also undertaken and completed in the spring. The Harbridge study reviewed FAA's materiel activities with respect to organization for management of the materiel function, training requirements for materiel programs, and problem areas in procurement. During fiscal year 1963, FAA formulated a comprehensive **Materiel Systems Improvement Plan**. According to the agency's FY63 annual report, FAA began a two-year implementation process of that plan, streamlining business methods, increasing the use of electronic automatic data-processing equipment, and improving distribution and storage techniques.

Mar 1, 1962: Los Angeles Airways began the world's **first airline service by a multi-engine turbine-powered transport helicopter**. The airline used the new **Sikorsky S-61L**, which had first flown on Dec 6, 1960, and which became the first twin-turbine helicopter to receive an FAA commercial type certificate on Nov 2, 1961. An important competitor to the S-61L was the **Boeing-Vertol 107-II**, which had first flown in prototype on Oct 25, 1960, and received certification on Jan 26, 1962. The Vertol 107-II entered scheduled service with New York Airways on Jul 1, 1962.

Mar 5, 1962: In **Griggs v. Allegheny County**, the U. S. Supreme Court held that noise from low-flying aircraft had interfered with the use and enjoyment of Grigg's residential property near a runway to such an extent as to constitute a "taking" of an air easement for which compensation must be made. In **Causby v. United States** (see May 27, 1946), the Court had ruled that such an easement had been taken by the Federal government, which was the owner/operator of the aircraft in that case. In **Griggs**, however, the Court asserted that Allegheny County, Pa., as the "the promoter, owner, and lessor of the airport" took the air easement. The Court absolved the airlines and the Federal government of any taking, stating that it was Allegheny County that decided, subject to Civil Aeronautics Administration approval, "where the airport would be built, what runways it would need, their direction and length, and what land and navigation easements would be needed." The Court concluded that, in designing

the airport, the County had not acquired enough private property to satisfy constitutional standards. (See Dec 13, 1956, and May 14, 1973.) Mar 16, 1962: Effective this date, FAA abolished the Office of Plans, and transferred its personnel to other FAA components (see Jan 15, 1959 and Aug 28, 1967). Mar 23, 1962: FAA type-certificated **North American Aviation's Sabreliner (Model 265)**, an executive type jet aircraft. It thus became the first executive-type aircraft with twin turbojet engines to be designed, developed, and certificated in the United States.

Late Mar, 1962: FAA Administrator N. E. Halaby added a **Special Assistant for General Aviation** to his personal staff. A recognition of general aviation's great growth and continuing expansion, this appointment carried out one of the recommendations of the **Project Horizon** study (see Sep 10, 1961).

Apr 1, 1962: FAA commissioned the **Fort Worth air traffic control center's new building. Other new center buildings commissioned during 1962 were: Kansas City, Apr 30; Denver, May 1; Memphis, May 5; Minneapolis, Jul 1, Seattle, Aug 1; Salt Lake City, Oct 1; Indianapolis, Nov 1; and Chicago, Dec 1.**

Apr 11, 1962: **Simultaneous code-identification and voice broadcasts** from air navigation facilities would soon be standard, FAA announced, as a result of modifications being made to VORs and VORTACs. Simultaneous broadcasts had been recommended for international adoption by the Seventh Session of the International Civil Aviation Organization's Communications Division.

Apr 11, 1962: Administrator Halaby announced the formation of a **Technical Advisory Board** to assist FAA in keeping abreast of science and technology in general, and to help in particular with the agency's planning for modernizing the airspace system on the basis of the Project Beacon recommendations (see Sep 11, 1961). Richard R. Hough, Vice President for Engineering of the American Telephone and Telegraph Company served as chairman of the committee. Mr. Hough had previously served as chairman of the Project Beacon task force. Joseph D. Blatt, Director of FAA's Aviation Research and Development Service became executive secretary. The five other members were drawn from the air carrier and aircraft-manufacturing industries and the academic community.

Apr 11, 1962: FAA announced that the **first appointee as Assistant Administrator for Appraisal** would assume his duties on Apr 16, with responsibility for evaluating the agency's operations both in Washington and the seven regions. On May 16, 1962, a formal order set forth the functions of the **new Office of Appraisal.**

Apr 16, 1962: The new FAA **Internal Directives System** became effective. It substituted a single, uniform, agencywide system in place of the previous diversity of directive types, formats, and numbering schemes.

May 16, 1962: **In accordance with the recommendations of Project Searchlight (see Aug 1, 1960), the Aviation Facilities Service ceased to exist.** FAA reorganized the service's diverse component parts by function, combining them with other organizational units to form two new specialized services. The new **Installation and Materiel Service** had responsibility for the acquisition, construction, and installation of air navigation, air traffic control, and aeronautical communication facilities, whether for the National Airspace System, international programs, or foreign governments. The service was also responsible for procurement and management of real and personal property, transportation, and procurement of services in support of all agency programs. The new **Systems Maintenance Service** received the mission of maintaining facilities and equipment for air traffic control, air navigation, and aeronautical communications.

May 16, 1962: FAA formally established a new **Office of Policy Development** with the mission of developing broad policy and objectives and the plans required to carry them out. On the same day, FAA created an **Office of Compliance and Security** in an action that consolidated these two functions organizationally. Previously, compliance matters had been handled by a staff assistant to the Deputy Administrator (later Associate Administrator) for Administration, and security matters were the concern of a division in the Office of Personnel and Training. The new office had the mission of assuring the highest possible standards of ethical, trustworthy, and nondiscriminatory conduct among employees, the physical security of information and property, and the conduct of investigations to meet the agency's needs. (See Nov 18, 1969.)

May 22, 1962: An **explosion blew the tail off a Continental Air Lines 707** flying over southern Iowa, killing all 45 persons aboard. Officials later cited the probable cause as a dynamite detonation in a rear lavatory. On Jun 5, a government/industry steering committee headed by FAA Administrator Halaby convened to review efforts to combat the aircraft bombing hazard.

Jun 19, 1962: The FAA Administrator approved a **standard organizational configuration for regional headquarters** for FAA's seven regions, to be implemented by Oct 1, 1962. Besides the regional assistant administrator and his deputy, the organizational plan provided for an executive officer and divisions in large measure paralleling the office and service structure at the national headquarters. Any deviation from the standard pattern that might be needed to meet special local conditions would require specific approval by the Administrator.

Jun 29, 1962: The British Aircraft Corporation's **VC-10 first flew**. On Apr 29, 1964, this long-range jet airliner with four engines in lateral pairs on each side of the rear fuselage entered scheduled service with a BOAC flight from London to Lagos, Nigeria.

Jun, 1962: FAA established a **Psychiatric Services Staff** within its Aviation Medical Service to assure that the agency's medical program would give proper emphasis to the psychological dimension and needs of the nation's airmen.

Jul 9, 1962: Effective this date, a new FAA **rule required supplemental ("nonsked") airlines to conduct proving flights on new or materially altered aircraft** before placing them in service. In effect, the new rule extended to the supplementals the provisions of a rule already applying to the scheduled airlines, requiring such aircraft to be flight tested a total of 100 hours, including 50 hours of en route operation and at least 10 hours at night. The new rule was one of several tightening-up measures deemed necessary when the supplementals' safety record, which had been excellent, deteriorated in 1960 and 1961. (See Nov 8, 1961, and Jul 10, 1962.)

Jul 10, 1962: An amendment to the Federal Aviation Act regularized the **role in U.S. air commerce of the supplemental carriers** (see Jan 29, 1959) after a court decision made new legislation necessary. The new law authorized the Civil Aeronautics Board to issue to such carriers limited charter certificates and to grant temporary authority for individually ticketed service where required to meet special public needs for air transportation. **Increased emphasis on the safety of supplementals** was reflected in provisions of the law that mandated certain fitness requirements and permitted the Board to require these airlines to carry adequate insurance and to furnish performance bonds.

Aug 31, 1962: FAA Administrator Halaby created the **Office of Assistant Administrator for General Aviation Affairs** to supersede the function of Special Assistant for General Aviation (see late Mar 1962). The mixed nature of the agency's programs involving general aviation made their grouping in a line-of-authority relationship under one office impractical; hence, the new office functioned as the focal point in matters concerning the general aviation field. The new office also had responsibility for congressional relations and for aviation education matters.

Sep 4, 1962: Executive Order 11048 vested authority for the **civil administration of Wake Island** in the Secretary of the Interior and made effective an earlier agreement between the FAA Administrator and the Secretary of the Interior. Under the agreement, FAA assumed responsibility for the civil administration of this Pacific island, exercising executive, legislative, and judicial authorities. The FAA Administrator also promulgated a new Wake Island Code, which greatly strengthened the legal system and reduced previous administrative uncertainty. (See Jun 24, 1972.)

Oct 12, 1962: At the Administrator's direction, the **Office of the General Counsel assumed sole responsibility for drafting of FAA safety rules**. This action ended a situation in which the Office of the General Counsel had shared rule drafting responsibility with other major FAA components.

Oct 15, 1962: Public Law 87-820 transferred final responsibility for the **aircraft loan guarantee program** from the Civil Aeronautics Board to the Secretary of Commerce. (See Sep 7, 1957, and Jun 13, 1968.)

Oct 15, 1962: An **experiment testing FAA's capability to provide air traffic control service to interceptor aircraft of the Air Force's Air Defense Command (ADC)** during military operations got underway in FAA's Central Region. The experiment was born of the need to end a situation in which two organizations--FAA, controlling civil aircraft, and ADC, controlling its interceptor aircraft--were directing aircraft movements in the same airspace at the same time. This need, which had caused concern for some time, was intensified by the implementation of the area positive control program (see Oct 15, 1960-Mar 1, 1961). In the test, ADC's pilots received air traffic control service from FAA controllers for scramble, flight en route to target, and recovery; for actual intercept, they were handed off to ADC intercept directors. The test ended successfully on Apr 6, 1963, and pending formalization of the program, FAA continued providing services as during the test period. (See Sep 9, 1963.)

Oct 21, 1962: FAA Administrator Halaby dedicated **the Civil Aeromedical Research Institute's new \$8.5 million custom-designed building** at the Aeronautical Center, Oklahoma City (see Oct 31, 1959). Key programs continued in the new facility included investigation of such topics as: the "true" age of pilots as opposed to their chronological age; effects of certain prescription drugs on aircrew members; crash-impact survival; methods for selecting trainee controllers, stress experienced by controllers, and the bearing of such stress on the desirability of an early retirement program.

Oct 21, 1962: Under the air route traffic control center consolidation program first announced in 1959, **FAA phased out the Pittsburgh center** and transferred its operational responsibilities to the Cleveland center.

Oct 22, 1962: President Kennedy made a national broadcast on the **Cuban missile crisis** and U.S. "quarantine" of Cuba. On the previous day, FAA had set up a temporary air traffic control tower at Key West about 5 hours after receiving a request for this action to assist military operations. During the crisis, the Miami air route traffic control center became a focal control point for air operations to support preparedness. The center also administered a special regulation, placed in effect on Oct 24, banning civil flights over the southern two-thirds of Florida and adjacent waters without a flight plan or functioning navigational equipment and two-way radio.

Nov 5, 1962: FAA announced acceptance of a **design concept for a standard air traffic control tower**. Prepared by the New York architectural firm I. M. Pei and Associates, the concept featured a free-standing tower providing greater visibility from the cab, improved space for operating radio and radar equipment, and a better environment for air traffic control personnel. Acceptance of the Pei design was recommended by FAA engineers and the agency's Design Advisory Committee, a group of citizens prominent in the fields of architecture or design. (See Dec 14, 1964.)

Nov 17, 1962: Ceremonies marked the **opening of Dulles International Airport**. Scheduled airline service began two days later. Air carrier operations reached a daily level of 72 by mid-1963, and operations of all types for fiscal 1964 totaled 111,071. (See Jul 15, 1959.)

Nov, 1962: **FAA Administrator Halaby invited the civil aviation heads of 93 friendly foreign countries to meet individually with him** in Washington during 1963. The aim was to discuss developments in aeronautical matters and stimulate thinking on measures to advance world progress in civil aviation. By the end of 1963, 25 such officials had visited FAA or were planning visits.

Dec 15, 1962: FAA authorized **simultaneous instrument approaches and landings on parallel runways** at Chicago's O'Hare International Airport to relieve traffic backup during peak-activity periods. The agency approved this air traffic control innovation only after extensive testing under both simulated and actual conditions. Participating pilots had to operate under instrument flight rules, regardless of weather. They were radar vectored by the tower's approach controllers from four outer fixes to one of the two final approach ILS courses.

***1963**

Jan 16, 1963: The Federal Aviation Agency's **Supersonic Transport Advisory Group recommended U.S. development of a commercial supersonic transport (SST)** as a top-priority Federal-industry program in a report made public this date. In acknowledging the report, Administrator Halaby said that it made a "powerful" case for proceeding with SST development, but he asked for additional conclusions and recommendations in the following areas: cost of development and testing up to the preproduction stage for each airplane; unit cost which should be charged to the air carriers by manufacturers after the production stage was reached, "assuming production of some 200 aircraft"; direct operating costs; and management organization for development of an SST. The group submitted this supplementary report in May 1963 before dissolving in July. At the end May 1963, a Cabinet-level committee headed by Vice President Lyndon B. Johnson submitted recommendations to President Kennedy that were favorable to the program. (See Dec 11, 1961, and Jun 5, 1963.)

Jan, 1963: Implementing a **Project Searchlight** recommendation, FAA began using a new reporting system to provide comprehensive data on circumstances associated with **outages of air navigation facilities** because of equipment failures. Initially using punchcard accounting machinery to obtain data summaries from some 30,000 reports per month, FAA early began to convert the system to a computer. Analyses of the data identified equipment deficiencies, established the basis for equipment modifications, provided a means of evaluating cost-benefit ratios for facility and equipment proposals, and led to an improvement in maintenance productivity. (See Aug 1, 1960.)

Feb 1, 1963: In a formal agreement effective this date, the Deputy Secretary of Defense and the FAA Administrator called for **joint FAA-DOD use of operational point-to-point communications networks on a worldwide basis**. As the first step, leasing of FAA's commercial-wire communications requirements was phased in as an activity of the Defense Communications Agency. The phase-in was complete by the following Jun 30. The integration of FAA-DOD telecommunications facilities was undertaken to enhance the efficiency and reliability of both agencies' communications. Specific benefits foreseen included cost savings, greater protection for FAA's communications against service disruption, and an optimum balance of operational and economic considerations in a system satisfying both military and FAA cryptographic requirements.

Feb 9, 1963: **The Boeing 727 first flew**. On Dec 24, 1963, FAA certificated the 727, a three engine jet airliner of short/medium range with a basic capacity of 94 and a maximum capacity of 119 passengers. The plane entered scheduled airline service with Eastern Air Lines on Feb 1, 1964, and achieved worldwide popularity. By 1988, U.S. air carriers alone were operating 1,246 of the 727s.

Feb 14, 1963: The **Civil Aeronautics Board disapproved agreements reached by the International Air Transport Association** at its Chandler, Ariz., conference the previous fall to increase certain passenger fares on North Atlantic and Pacific routes. The CAB stand for lower fares resulted in a major controversy among international air carriers and their governments. Most European governments approved the higher fares and took steps to require U.S. carriers to charge the increased tariffs as a condition of entry into their respective countries. The controversy was temporarily resolved by a compromise agreement worked out by the carriers at Montreal in late May and subsequently approved by CAB.

Mar 1, 1963: The BOB-DOD-FAA Interagency Steering Committee (see Feb 17, 1962) reported to Administrator Halaby its **findings concerning air traffic control and related functions of the Department of Defense and the Federal Aviation Agency**. In summary, the Committee concluded: (1) a general assimilation of military traffic control functions by FAA could not be justified by cost or operational considerations; (2) assumption of operational and maintenance responsibilities by FAA for individual military facilities or classes of facilities might be advantageous, and the continuation of assimilation programs in such cases on a selective and mutually agreeable to basis was desirable; and (3) that it was desirable to further explore the feasibility of such joint programs as the training of traffic controllers and the establishment of common technical performance standards for equipment. By the time of this report, the opposing views of the air traffic controllers and the military had produced a **deadlock that destroyed prospects for a Federal Aviation Service** (see Sep 21, 1961.).

Mar 12, 1963: FAA published the **first issue of Intercom**, a weekly newsletter to keep employees at headquarters abreast of agency business. The issue announced that Intercom's for field personnel would be developed at the regional level by adding regional news to that reported in the headquarters version. In May of the same year, FAA also distributed the first issue of **Horizons**, a longer publication for employees. Horizons appeared monthly until biweekly publication began during 1967. In January 1971, it was superseded by the monthly **FAA World**. Publication of World was suspended after May 1986, but resumed in December of that year and continued through April 1994.

Apr 1, 1963: As an initial move in decentralizing its international aviation activities, FAA established a **Europe, Africa, and Middle East region**. Within its geographical area, the new regional organization represented the Administrator and unified authority for all FAA activities except the supervision of technical assistance programs. The new region assumed responsibility for the European, African, and Middle Eastern activities of the agency's international field offices, the Committee for European Airspace Coordination representatives, systems research and development offices, and air traffic control advisers. Headed by an Assistant Administrator, the new organization became fully operational on Sep 1, 1963. By that date, London had been selected as its headquarters. (See Jul 17, 1963, and May 1, 1965.)

Apr 4, 1963: Under the air route traffic control center consolidation program, **FAA completed a phase-out of the Spokane center** and transferred its responsibilities to the Seattle center. The agency completed two similar phase-outs on Jun 22 (El Paso, with responsibilities transferred to the Albuquerque center) and Jun 30 (Norfolk, with responsibilities transferred to the Washington center).

Apr 20, 1963: FAA commissioned the **Albuquerque air traffic control center's new building** on this date. **Other new center buildings commissioned during 1963 included: Washington** at Leesburg, Va., on Apr 28 (FAA held formal dedication ceremonies on Jun 15) and **Miami** on Sep 2.

Apr 24, 1963: President Kennedy approved a **new statement of U.S. international air transport policy** based on a report submitted earlier by an Interagency Steering Committee, chaired by the FAA Administrator (see Sep 15, 1961). A change in emphasis rather than in fundamental approach, the new statement stressed the necessity for keeping the environment of the international air transport industry as free as possible from restrictions, whether imposed by government or intercarrier agreement. U.S. policy was to seek an atmosphere of free enterprise that would benefit U.S. international air carriers and strengthen the entire system generally. As a follow-up action, the President, on Jun 22, 1963, directed the Secretary of State to organize an **Interagency Committee on International Aviation Policy**. The new body was to assist in the continuing task of developing and updating this and related U.S. policies. Chaired by the Under Secretary of State for Political Affairs and with the FAA Administrator as vice chairman, the committee consisted essentially of membership representing the same agencies as those of the Interagency Group on International Aviation (see Aug 11, 1960), which continued to handle technical matters affecting international aviation.

Apr 26, 1963: A split occurred within the Air Line Pilots Association, resulting in the formation of a separate union, the **Allied Pilots Association**, that gained the right to represent the pilots of American Airlines.

May 1, 1963: Effective this date, FAA revised Part 45 of the Civil Air Regulations to **require commercial operators of large aircraft to file financial statements** and to demonstrate their financial fitness. The new requirement grew from the agency's belief that an operator suffering severe financial difficulties might tend to relax safety standards. Recent accidents involving supplemental air carriers operating had strengthened this belief (see Nov 8, 1961, and Jul 10, 1962).

May 1, 1963: A year-long **VOR maintenance study recommended by Project Searchlight** (see Aug 1, 1960) got underway to determine whether VOR outage time occasioned by routine periodic maintenance work could be reduced without impairing the reliability of VOR service to users. The study showed that the equivalent of 135 personnel, or \$1,120,000 annually, could be saved by using a revised maintenance schedule.

May 18, 1963: Effective this date, FAA required **aircraft of Cuban registry** engaging in nonscheduled international service in U.S. airspace to follow designated routes and to land at designated airports for inspection. FAA issued the rule at the request of the Departments of State and Defense as a measure necessary to national security. Its content was disseminated on May 20 in an international notice to airmen.

Jun 5, 1963: President Kennedy announced his **decision to proceed with the development of a U.S. supersonic transport (SST)** in an address at the Air Force Academy's commencement exercises. In a Jun 14 letter to Congress, Kennedy wrote that the national interest required a U.S. SST superior to any comparable transport, and he formally recommended a program to develop such an aircraft. He suggested that private industry bear 25 percent of the development costs, with the Federal government paying the remaining 75 percent. To provide this Federal share, the President on Jun 24 requested Congress to appropriate \$60 million. The money was subsequently included in FAA's appropriation for fiscal 1964. (See Jan 16, 1963, and Jul 29, 1963.)

Jun 5, 1963: Administrator Halaby announced the establishment of an **aviation mechanic safety awards program**, to be administered by FAA in conjunction with the Flight Safety Foundation of New York City. Under the program, annual awards would honor airline and general aviation mechanics at state, regional, and national levels on the basis of their suggestions for improving either maintenance procedures or the mechanical reliability of aircraft and component systems. State aviation officials and representatives of FAA and industry would select the winners at the state and regional levels. FAA, the Flight Safety Foundation, and a committee of prominent members of the aviation community would select national winners.

Jun 12, 1963: The Administrator announced the appointment of David D. Thomas to the **new FAA position of Deputy Administrator for Programs**. Thomas would be responsible for planning and coordinating the operating programs of FAA's Air Traffic Service, Flight Standards Service, Airport Service, and Systems Maintenance Service. The title of the position was **changed on Jun 28, 1963, to Associate Administrator for Programs, at the same time that the positions of Deputy Administrator for Administration and Deputy Administrator for Development were redesignated Associate Administrators** for Administration and for Development.

Jul 1, 1963: FAA established the **Office of Headquarters Operations**, consolidating under a single managerial responsibility the personnel, accounting, data processing, and other administrative and support services required by FAA's Washington headquarters.

Jul 1, 1963: AN FAA safety rule requiring **distance-measuring equipment (DME)** on all airline turbojets and on all other civil aircraft flying instrument flight rules (IFR) above 24,000 feet in the contiguous 48 States went into effect. (See Jun 15, 1961, and Sep 18, 1965.) FAA stated that the rule would be extended to Alaska and Hawaii when the necessary ground equipment became available in those States. The agency extended the rule to all air carrier aircraft operating IFR, regardless of altitude, beginning with turboprops on Jan 1, 1964; pressurized piston-engine airplanes on Jul 1, 1964; and other planes having a maximum takeoff weight above 12,500 pounds on Jul 1, 1965.

Jul 17, 1963: FAA reconstituted its International Aviation Service as the **Office of International Aviation Affairs**, under an Assistant Administrator for International Aviation Affairs reporting to the Administrator. The same order directed decentralization of operational responsibility for the agency's international aviation activities to the regions. Full implementation was achieved in September 1963. As a result, the mission of the new Washington headquarters organization changed from an operating function to a staff activity; however, the new office retained responsibility for the management of FAA's role in technical assistance programs.

Jul 21, 1963: FAA commissioned a **new building for the New York air route traffic control center** at Islip, N.Y. This new building brought into service the first real-time solid-state computer to be used by the FAA in air traffic control. Formal dedication ceremonies took place Sep 7-8, 1963. The New York center's old building, in use since 1956, had been located at New York International Airport (Idlewild).

Jul 29, 1963: FAA Administrator Halaby announced the appointment of Gordon M. Bain to the **new position of Deputy Administrator for Supersonic Transport Development**. Bain was to head the organization within the FAA charged with overall responsibility for the Federal-industry program to develop a commercial supersonic transport (SST) aircraft. A division-level organization had previously handled the agency's role in the feasibility and research phase of the program, which was conducted jointly with NASA and the Defense Department. (See Jun 5, 1963, Aug 15, 1963, and Sep 15, 1965.)

Jul, 1963: FAA issued a *Guide to Drug Hazards in Aviation Medicine*, the first work of its kind. Dr. Windsor Cutting, professor of therapeutics at Stanford University, prepared the work for the agency with the assistance of other eminent pharmacologists and staff members of FAA's Aviation Medical Service. A comprehensive listing of all commonly used drugs, both prescription and nonprescription, the *Guide* treated these by groups with similar pharmacological characteristics. For each group there was a concise statement of side effects, if any, making the drugs undesirable for fliers, and recommendations concerning the length of time a pilot should wait after taking a drug before resuming flight activity.

Aug 15, 1963: FAA issued a request for proposals (RFP) that established **performance objectives for the United States supersonic transport (SST)**, providing the basis for design competition among airframe and engine manufacturers. The program timetable called for initial submission of manufacturers' designs based on this RFP by Jan 15, 1964. By Sep 10, 1963, three major airframe manufacturers and three major engine builders had notified FAA of their intention to submit proposals. (See Jul 29, 1963, and Nov 19, 1963.)

Aug 20, 1963: The **BAC 1-11 first flew**. The plane received a British type certificate on Apr 6, 1965. On Apr 15, 1965, FAA typed certificated the twin-engine, short-range jetliner with a maximum passenger capacity of 79, the first airliner since the 1940s to be certificated for operation with a two-man cockpit crew. Braniff Airways pressed the aircraft into U.S. domestic service on Apr 25, 1965.

Sep 9, 1963: FAA issued interim policy and guidance to cover an **expansion of air traffic control services to the peacetime activities of the Continental Air Defense Command (CONAD)**. Limited thus far to the Central Region (see Oct 15, 1962), these FAA services would become available to CONAD in all regions after necessary preparations. The agency would provide air traffic control for a large part of intercept operations, but leave the control of critical phases to military air defense facilities. On Oct 7, 1963, Administrator Halaby hailed this development as "a milestone in air traffic control and in FAA-CONAD relations," and stated that **the new procedures would become effective on Feb 1, 1964**.

Sep 14, 1963: The Convention on Offenses and Certain Other Acts Committed on Board Aircraft (known as the **Tokyo Convention**) was opened for signature at a diplomatic conference held under the auspices of the International Civil Aviation Organization (ICAO). AN FAA official representing President Kennedy signed the document on behalf of the United States. The Legal Committee of ICAO had spent many years drafting the convention, which clarified certain jurisdictional issues concerning hijacked aircraft, and recognized the authority of aircraft commanders to use reasonable force to preserve law and order aboard their aircraft. The agreement also obligated signatory nations in which a hijacked aircraft might land to restore that aircraft to its lawful commander and to permit passengers and crew to continue their journey as soon as possible. The convention was to become effective 90 days after the twelfth signatory state deposited its instrument of ratification. (See Dec 4, 1969.)

Sep 30, 1963: A **National Aircraft Accident Investigation School**, jointly established by the Civil Aeronautics Board and FAA, opened at Oklahoma City with a prototype class of 16 students. The six-week course in accident investigation techniques and procedures was primarily for CAB-FAA personnel, with participation by a limited number of foreign students.

Oct 7, 1963: **The Learjet 23 made its initial flight.** FAA certificated the twin-engine executive aircraft in July of the following year, and the company made its first delivery in October. The success of Model 23 and later Learjets helped to popularize corporate jet transportation.

Oct 1, 1963: FAA began **Project FOCUS (field organization configuration study)**, a set of working tests of alternative modes of field organization which were conducted simultaneously through Apr 1, 1964. The tests were the core of a study to address the problem of administrative decentralization at FAA's subregional level. Since each of the tested concepts offered different advantages and costs, the agency required an extensive period of evaluation following the tests to determine which provided the best cost-benefit ratio and greatest potential for meeting the future needs of the agency and the aviation public.

While Project FOCUS was conducted only within the 48 contiguous states, three FAA regions took action to establish **area offices outside the contiguous states** during fiscal 1964. The Southern Region established area offices at Balboa (for the Canal Zone) and San Juan (for Puerto Rico and the Virgin Islands); the Alaskan Region, at Anchorage, Juneau, Fairbanks, Nome, Sitka, and 16 other locations; the Pacific Region, at Wake Island, Canton Island, Guam, and American Samoa. Area offices were expected to provide prompt and more locally responsive actions, a reduced regional headquarters workload, and generally more effective supervision of field offices and facilities. Area managers, the heads of these offices, had line authority over four basic operating programs--air traffic, flight standards, airway facilities, and airports. These programs had previously been in the hands of the regional directors and the regional program division chiefs. (See Apr 7, 1961, and May 18, 1965.)

Oct 30, 1963: FAA announced a proposed **program to stimulate development of a new passenger/cargo aircraft for the short haul market**, still dominated by the venerable DC-3. A preliminary design competition was completed in June 1964, but FAA did not consider any of the designs submitted a sufficient advance in the state of the art to warrant a detailed design contract.

Nov 1, 1963: At New York International Airport (Idlewild), FAA began operational tests of **automatic broadcasts of routine, noncontrol terminal information** using the voice channel of the navaid serving the airport. The agency later extended the new procedure to other busy terminal areas to reduce pilot-controller frequency congestion.

Nov 19, 1963: Responding to requests from U.S. and foreign carriers for **priority deliveries of the U.S. supersonic transport (SST)** when it became available, FAA established a delivery priorities system for the first 70 airliners to come off the production line. The agency stated it was acting as intermediary for the airlines pending final selection of a manufacturer to make the SST available at an early time to the broadest possible market, while maintaining a reasonable balance of distribution between U.S. and foreign carriers. (See Aug 15, 1963, and Jan 15, 1964.)

Nov 22, 1963: **President John F. Kennedy was assassinated, and was succeeded by Lyndon B. Johnson.**

Nov 22, 1963: **FAA's Washington headquarters staff began moving into the newly completed Federal Office Building 10A**, at 800 Independence Avenue, SW. Completed in December, the move brought together under one roof personnel formerly housed in several widely dispersed buildings, including some "temporary" buildings of World War II vintage.

Dec 1, 1963: FAA's air route traffic control center at Great Falls, Mont., began joint use with the Air Force of facilities originally installed to serve the latter's SAGE direction center at Malmstrom Air Force Base, Great Falls. Under this arrangement the same facilities served the dual purpose of air traffic control and air defense. This marked the **first use of SAGE data for air traffic control by an FAA facility**. (See Sep 11, 1961.)

Dec 8, 1963: A **lightning-induced fuel tank explosion caused the crash of a Pan American Boeing 707** near Elkton, Md., with the loss of all 81 persons aboard. FAA's response included a Dec 18 telegram to air carriers and aircraft operators requiring installation of static dischargers on aircraft using turbine fuels. The accident led to research into methods of preventing such explosions, and to a debate on the safety of JP-4 (Type B) jet fuel. (See Jan 15, 1965.)

Dec 17, 1963: As a result of a congressional joint resolution and a Presidential proclamation, **Wright Brothers Day** occurred for the first time as a continuing annual observance on this 60th anniversary of the brothers' epocal first flight. (The anniversary had previously received this official designation on a one-time basis for the year 1959.) Dec 17 also remained Pan American Aviation Day (see Dec 17, 1940).

Also on this date in 1963, "**First Flight Airport**" was dedicated at Kill Devil Hills, N.C., near the scene of the achievement commemorated in the facility's name. To build this general aviation airport, contributions of \$44,444 each were made by the state of North Carolina, FAA, and the National Park Service.

Dec 24, 1963: New York International Airport (known as Idlewild) was renamed **John F. Kennedy International Airport**.

Dec 27, 1963: The civil-military common system of air navigation and air traffic control moved forward a step with a final action on FAA-DOD agreements defining the use, technical standards, and equipment characteristics of a key component--the **air traffic control radar beacon system (ATCRBS)**. (See Sep 11, 1961, and Mar 4, 1976.)

Dec 30, 1963: FAA made public a study completed for the agency by a private research firm with the cooperation of the Air Transport Association. The study concluded that **airport surface congestion was the principal cause of airport delays**, a finding that corroborated an Aug 1962 FAA staff study. The firm found that runways, taxiways, ramp space, and gate positions were inadequate for modern-day air traffic, particularly during the evening rush hour. Only about one in five flights encountered delay, however, and significant delays were concentrated within a relatively few large airports.

Calendar Year, 1963: Marlon Green became the **first African American to be hired as a pilot by a major U.S. passenger airline**, after winning a discrimination suite against Continental Airlines. Earlier black pilots to fly for airlines had included August Martin, hired by a cargo line in 1955, and Perry Young, who joined a helicopter air carrier in 1956.

***1964**

Jan 9, 1964: The Federal Aviation Agency stated that its recent tests indicated that **crash locator beacons** could effectively aid in the location of downed aircraft. (See Feb 26, 1968.)

Jan 15, 1964: Six companies submitted **supersonic transport (SST) design proposals** to FAA in response to the agency's Aug 1963 request for such proposals. The companies included three airframe manufacturers (Boeing, Lockheed, and North American Aviation) and three engine manufacturers (General Electric, Pratt & Whitney, and Curtiss-Wright). (See Nov 19, 1963, and Apr 1, 1964.)

Jan 20, 1964: The **Beech King Air first flew**. The aircraft received type certification on May 19, becoming the first U.S. light twin-engine turboprop business aircraft to be type-certificated.

Jan 30, 1964: FAA established a **staffing validation program** to provide a systematic and standardized agencywide approach to the problem of developing accurate staffing requirements. Under this program, staffing standards would largely be determined by onsite factfinding studies conducted by specialists trained in the program's concepts and techniques.

Feb 3, 1964: A **series of sonic boom studies** began as FAA launched a six-month project to test public reaction to the phenomenon in Oklahoma City, using regularly scheduled overflights by Air Force supersonic jets. On Aug 5, the National Academy of Sciences announced the establishment of a committee to study effects of sonic boom as related to the development of the supersonic transport. On Nov 18, FAA launched a three-month study of the effects of sonic boom on typical structures in White Sands, N.M. (See Jan 27, 1965.)

Feb 4, 1964: As part of a continuing effort to modernize the National Airspace System, FAA announced the first phase of a long range **plan to gradually reduce the number of flight service**

stations (FSSs) in the contiguous 48 states from 297 to 150 hard-core stations backed up by a network of manned and remote communications links. The resulting consolidated FSS system, made possible by advances in communications technology, would require between 500 and 600 fewer flight service specialists than the existing system and would save approximately \$3 million annually, according to FAA estimates. In the first consolidation phase, 42 stations would be replaced either by manned information and communications facilities (MANICOMs) or airport information desks (AIDs), which would function as satellites of hard-core stations.

President Johnson approved the plan, and on Apr 14, 1964, instructed FAA Administrator Halaby to "move as rapidly as possible to close unnecessary flight service stations." The plan, however, encountered strong resistance from general aviation organizations, individual private pilots, and communities where FSSs were scheduled to be closed. Critics of the plan argued that the remote, impersonal service provided by AIDs was no substitute for on-the-spot service offered by manned stations. In view of this opposition, Congress attached a rider to the fiscal year 1965 Independent Offices Appropriations Act restraining FAA from closing any flight service stations during fiscal 1965. After restudying the plan, **FAA in August 1965 informed Congress that it would not implement the consolidation program**; instead, it would evaluate the service needed in each FSS area on a case-by-case basis. (See Feb 1976.)

Mar 16, 1964: A manpower study conducted by FAA revealed an approaching **shortage of aircraft maintenance personnel**. The survey, "Report of 1962 Survey of Maintenance Airmen," revealed that only 3 percent of the total aviation mechanic work force was between 18 and 24 years of age, and relatively few members of this age group were entering the aviation mechanic career field. The survey found that many aviation mechanics were discovering lucrative job opportunities in the missile and space fields. (See Sep 30, 1964, and Mar 17, 1965.)

Mar 27, 1964: The **severe "Good Friday" earthquake** destroyed the Anchorage airport traffic control tower. One FAA employee died in the quake, which registered between 8.5 and 8.7 on the Richter scale. As a result of widespread damage in the Alaska area, Congress authorized FAA to retain **jurisdiction for two more years over 15 airports in Alaska**. The agency operated these airports under the Alaska Omnibus Act of 1959, which funded the reimbursement of Federal agencies performing services for the new state of Alaska normally performed by state or local governments. Authorization for these funds had been due to expire on Jun 30, 1964, but was extended to Jun 30, 1966 by Public Law 88-311, enacted May 27, 1964.

Apr 1, 1964: Executive Order 11149 established the **President's Advisory Committee on Supersonic Transport (SST)** to advise President Lyndon B. Johnson on "all aspects of the supersonic transport program." The committee's original membership included Defense Secretary Robert S. McNamara (chairman), Treasury Secretary C. Douglas Dillon, Commerce Secretary Luther H. Hodges, NASA Administrator James E. Webb, FAA Administrator N. E. Halaby, CIA Director John A. McCone, and two private citizens: Eugene R. Black, former president of the World Bank, and Stanley de J. Osborne, Chairman of the Board of Olin Mathieson. The committee remained in existence until Sep 5, 1968, when it was terminated by the President.

Also on Apr 1, 1964, FAA's Deputy Administrator for SST Development Gordon Bain reported on the results of an evaluation made in **Phase I of the SST design competition**. A 210-person Federal team gave the highest competitive scores to the Boeing variable-sweep wing airframe design and the General Electric after-burning turbojet engine design. In transmitting these results to Administrator Halaby, Bain recommended that the two companies be selected to go into a one-year noncompetitive detailed-design phase. (See Jan 15 and May 20, 1964.)

Apr 15, 1964: FAA established a **Value Engineering Staff** to achieve engineering objectives at the lowest overall cost. Value engineering (or value analysis) was to be applied to design, construction, installation and other activities involved in FAA's programs for establishing air navigation and air traffic control facilities.

Apr 17, 1964: Geraldine ("Jerrie") Mock completed the **first solo flight around the world by a woman**. Mock made the 23,103-mile flight in 29 days 11 hours 59 minutes, landing at Port Columbus Airport, Ohio. Later, on Apr 10, 1966, she set a **world nonstop distance record for women** of 4,550 miles.

Apr 24, 1964: The **deliberate wrecking of a Douglas DC-7** near Phoenix, Ariz., began a testing program in which FAA and the Flight Safety Foundation attacked the problem of **preventing postcrash fatalities**. FAA crashed a Lockheed 1649 Constellation at the same site in Sep 1964. These

experiments reflected a growing realization that fatalities in takeoff or landing accidents could be reduced if passengers were prevented from colliding with the aircraft's interior structure or furnishings and protected from postcrash fire and smoke. The test aircraft crashed through manmade barriers and then into a rocky slope, carrying dummy passengers, cameras, and instruments for recording impact forces, G-forces, hydrostatic pressures, and other stresses. The tests provided valuable data on such matters as fuel spillage, safety characteristics of rear-, forward-, and side-facing passenger seats, and the efficacy of passenger-restraining devices. Beginning in Apr 1965, FAA used the wrecked Constellation's fuselage for emergency evacuation tests. (See Jun 7, 1965, and Sep 20, 1967.)

May 4: , 1964 President Johnson announced the formation of a 32-member **FAA Women's Advisory Committee on Aviation**, created to advise the FAA Administrator on problems and matters relating to women in civil aviation. On Jan 23, 1975, the name of the group was changed to **Citizens Advisory Committee on Aviation**, and the membership expanded to include men. The committee was terminated on Jan 23, 1977.

May 7, 1964: A **passenger shot the captain and first officer of a Pacific Air Lines Fokker F-27** en route from Reno, Nev., to San Francisco, Calif. The aircraft crashed near San Ramon, Calif., killing all 44 occupants. (See Aug 6, 1964.)

May 20, 1964: President Johnson gave his approval for the U.S. **supersonic transport (SST) development program to proceed into Phase IIA**--a six-month design competition between two airframe manufacturers (Boeing and Lockheed) and two engine manufacturers (General Electric and Pratt & Whitney). The President based his decision on the recommendations of the President's Advisory Committee on Supersonic Transport made on May 15, 1964. On Jun 1, the four competitors signed the six-month Phase IIA contracts. The contracts authorized each air frame manufacturer to spend at the rate of \$1 million per month during the contract period and each engine manufacturer at a rate of \$835,000 per month. All four manufacturers agreed to bear 25 percent of the contract costs. **The design competition was subsequently extended for an additional six month period designated Phase IIB.** (See Apr 1, 1964, and Jul 1, 1965.)

Jun 1, 1964: **La Guardia Airport opened to scheduled air carrier jet operations.** Jet air carriers had begun operating at John F. Kennedy International Airport on Oct 4, 1958, and at Newark Airport on Sep 11, 1961. (See Apr 24, 1966.)

Jun 1, 1964: The **French-Anglo-United States Supersonic Transport (FAUSST) group** opened its first meeting. The group was established to exchange information on airworthiness and environmental matters in SST development, certification, and operation. FAA represented the United States in the group.

Jun 26, 1964: FAA issued a **rule requiring Cockpit Voice Recorders** to be installed in certain aircraft used by air carriers or commercial operators. The rule applied to large turbine-powered aircraft and to large pressurized aircraft with four piston-type engines. The compliance date, as subsequently amended, was Mar 1, 1967. In the event of an accident, the voice recorder could provide the cockpit conversation of the aircrew during the preceding half-hour, which might give investigators clues to the nature and cause of the mishap. The information from this device would supplement that provided by the aircraft's Flight Data Recorder. (See Aug 5, 1957, and May 4, 1970.)

Jul 1, 1964: Continuing its **consolidation of air route traffic control centers**, FAA decommissioned the St. Louis center and transferred its functions to the Kansas City center. The agency subsequently decommissioned the Detroit center on Jul 5 (transferring its responsibilities to the Cleveland center) and the Phoenix center on Aug 20 (transferring responsibilities to the Albuquerque center).

Jul 7, 1964: President Johnson issued Executive Order 11161 directing **FAA and the Department of Defense (DOD) to plan on the basis of the probability that in time of war FAA would become an adjunct of DOD.** Under the guiding concept, FAA would remain organizationally intact and the Administrator would retain responsibility for his statutory functions, "subject to the authority, direction, and control of the Secretary of Defense to the extent deemed by the Secretary to be necessary for the discharge of his responsibilities" The Secretary of Defense was explicitly authorized to direct the Administrator to place operational elements of FAA under the direct control of military commanders. The order also required the Secretary and the Administrator to assure that during any national emergency short of war the functions of FAA would be performed in a manner satisfying essential national defense requirements. As a step in executing the order, FAA and DOD agreed on a memorandum of understanding on Apr 13, 1966. The understanding covered the

relationship between the two agencies in the event that FAA became an adjunct of DOD, and provided for planning for this eventuality and for lesser emergencies.

Jul 20, 1964: To decentralize and thus speed up operational decisionmaking in **airspace management**, FAA transferred the responsibility for designating controlled airspace in terminal areas from Washington to the regional headquarters.

Jul 21, 1964: Pan American World Airways announced that **inertial navigation systems** would be installed on most of its jet aircraft. (See Sep 7, 1961, and Dec 15, 1969.) An inertial navigation system, being independent of external referents, permitted increased accuracy in navigation over oceans and other expanses where surface navigation aids were not available and where the conventional magnetic compass was unreliable (as in transpolar flight).

Aug 6, 1964: An FAA rule effective this date required the **closing and locking of crew compartment doors** of scheduled air carriers and other large commercial aircraft in flight to deter passengers from entering the flight deck either intentionally or inadvertently (see May 7, 1964). The agency made exception for takeoffs and landings of certain aircraft in which the door involved led to a required passenger emergency exit. On Dec 18, 1965, FAA published a rule that extended this exception to aircraft in which the crew compartment door led to a floor level exit that was not a required emergency exit, but which might nevertheless assist passenger evacuation.

Aug 7, 1964 Congress passed the **Tonkin Gulf Resolution** supporting intervention in the Vietnam conflict. U.S. involvement in the war had begun with the assignment of advisors to South Vietnam in the mid-1950s, and its scope increased greatly in the mid-1960s. The last U.S. troops left Vietnam in March 1973. (See Spring 1975.)

Sep 7, 1964: Effective this date, FAA prescribed **more rigorous safety standards for air-taxi operators and commercial operators of small aircraft** weighing 12,500 pounds or less. The **new directive was designated Part 135 of the Federal Aviation Regulations** in accordance with an ongoing recodification (see Dec 31, 1964), and its scope included the larger scheduled air taxis later designated commuter airlines (see Jul 1, 1969). Part 135 contained provisions on pilot qualifications, operational procedures, and aircraft equipment. Need for the new standards was underscored by a marked increase in the complexity and volume of air-taxi operations. The scheduled air taxi was becoming a popular means of transportation where small airports were located near industry or population centers, or where route-carrier scheduling did not meet local need. Aircraft manufacturers contributed to the growth of this mode of transportation by designing small aircraft especially suited for air-taxi operations. Route carriers, recognizing the potential of the air taxi as a feeder to main terminals, also contributed by entering into operating agreements with air-taxi operators. (See Feb 1968 and Calendar year 1968.)

Sep 17, 1964: FAA implemented a simplified **two-layer airway route structure, replacing** the previous three-layer system (see Apr 6, 1961). The lower layer of the new structure extended generally from an altitude of 1,000 feet to 18,000 feet, and the jet route portion from 18,000 to 45,000 feet. Airspace above 45,000 feet was reserved for point-to-point operations on a random routing basis. Besides requiring fewer aeronautical navigation charts, the new system reduced pilot-controller workload by requiring fewer radio contacts and navigational checkpoints. As a necessary complement, FAA revised rules governing use of the standard altimeter setting by lowering the base altitude for such settings from 24,000 to 18,000 feet above mean sea level. (See Mar 4, 1965.)

Sep 21, 1964: The Air Force **XB-70A supersonic aircraft made its first flight**. Subsequent flights of this steel-bodied airplane, which had been conceived as a bomber but recast as a research aircraft, provided the FAA-managed U.S. supersonic transport development program with useful technical data. (See Jun 8, 1966.)

Sep 26, 1964: The Bureau of Budget released the first significant amount of hardware-procurement **funds for modernizing the National Airspace System (NAS)**. These funds were specifically designated for installing the first complete NAS En Route Stage A configuration (FAA's semiautomated system for en route air traffic control) at the ARTCC at Jacksonville, Fla. (See Feb 1, 1967.) Modernization of both the en route and terminal air traffic control subsystems of NAS had been recommended in 1961 by the **Project Beacon** task force (see Sep 11, 1961). The modernization was a long-range program that would require a decade or longer to fully implement.

The air traffic control system targeted for replacement was essentially a manually operated system employing radar, general purpose computers, radio communications, and air traffic controllers. Only five ARTCCs (New York, Boston, Washington, Cleveland, and Indianapolis) had computers capable

of processing flight data, calculating flight progress, checking for errors, and distributing flight data to control sectors. The old system had a two-dimensional radar display, which permitted controllers to view only an aircraft's range and bearing. Vital information such as altitude and identity was obtained through voice contact with the pilot or from the flight plan. To retain the correct identity of an aircraft target, controllers were required to tag the targets with plastic markers (known as "shrimp boats") and move the markers by hand across the radar display. The planned semiautomated system would perform these functions automatically, faster, and more accurately than the controller. Properly equipped aircraft would report their altitude, identity, and other flight data automatically at any given time. The computer processed messages would appear on a radar display next to the aircraft they identified, in the form of alphanumeric symbols which would make the radar display three-dimensional in effect. (See Oct 6, 1964, May 24, 1965, and Dec 30, 1968.)

Sep 29, 1964: The **tilt-wing XC-142A** (LTV-Hiller-Ryan VHR-447), a triservice assault transport, made its first flight, flying horizontally. This **V/STOL (vertical/short takeoff and landing)** aircraft was capable of taking off, landing, and flying like a helicopter or a conventional aircraft. The craft made its first hovering flight on Dec 29, 1964, and its first transition flight--from hover to horizontal flight and return--on Jan 11, 1965.

Sep 30, 1964: FAA released the **Project Long Look study by the Aviation Human Resources Study Board** that Administrator Halaby had created on Feb 6, 1964. The study warned of deficiencies in career planning and training of both flight and mechanic personnel, citing a decrease in the number of schools offering aviation training and in aviation course enrollment. Most new pilots were business people over age 35, few persons under 30 were learning to fly, and the percentage of young student pilots going on to earn pilot certificates was relatively small. Estimating that demand for air carrier and other commercial aircraft pilots would increase some 73 percent between 1965 and 1980, the Board recommended a government/industry program to encourage young people to choose aviation careers, including establishment of scholarships for pilot and aviation mechanic trainees. (See Mar 16, 1964, and Mar 17, 1965.)

Sep, 1964: FAA's **Pacific Region** headquarters staff moved into the newly completed headquarters building in Honolulu, bringing together personnel formerly housed in four widely dispersed buildings.

Oct 2, 1964: Taking another step toward the goal of all-weather landing, FAA announced qualifying **criteria for Category II landing operations**. Air carrier and commercial aircraft operators meeting these criteria could land at properly equipped airports under weather conditions permitting a decision height (vertical visibility) as low as 100 feet and a runway visibility range (horizontal visibility) as low as 1,200 feet. Hitherto, under Category I weather minimums, landing operations were permitted only when the decision height was at least 200 feet and the runway visibility range was at least 1,800 feet (four-engine jets required a runway visibility range of 2,600 feet). An operator able to qualify would first be permitted to land with a decision height of at least 150 feet and a runway visibility range of at least 1,600 feet. After six months of successful operation with these minimums, the operator could be authorized to use the lower minimums of 100 and 1,200. **On Oct 29, 1965, United Air Lines became the first to qualify for the initial step** of the Category II approval process, receiving authorization to use the 150 and 1,600 minimums with its DC-8 aircraft. (See Mar 30, 1947, and Aug 7, 1967.)

Oct 2, 1964: President Johnson proclaimed 1965 as **International Cooperation Year (ICY)** within the United States, in support of a similar action by the United Nations on a global basis. FAA was represented on the President's ICY Cabinet Committee, which planned and coordinated United States participation in ICY, and chaired the ICY Aviation Committee.

Oct 3-4, 1964: The Eastern and Southern regions jointly conducted a general aviation airlift exercise, called "**Survival East and South 1964**," to test the effectiveness of general aviation in support of military operations and civil survival efforts in a national emergency.

Oct 6, 1964: **FAA established the National Airspace System Special Projects Office (NASSPO)** to provide the management leadership and coordination necessary for the effective and timely implementation of the semiautomated air traffic control subsystem of the National Airspace System. (See Sep 26, 1964, and Apr 25, 1966.)

Oct 6, 1964: The Sikorsky S-61L and S-61N became the **first civil helicopters in the non-communist world to be certificated for instrument flight rules (IFR) operations**. (See Mar 1, 1962.)

Oct 16, 1964: The **regulation of air cushion vehicles, or hovercraft**, fell within the Federal Maritime Commission's jurisdiction -- not FAA's or CAB's -- according to a statement issued by seven Federal agencies and bureaus. (See Nov 1967.)

Oct 18, 1964: FAA dedicated the **Aviation Records Building** at the Aeronautical Center, Oklahoma City.

Oct 30, 1964: **FAA and Eurocontrol signed an agreement** to increase their cooperative efforts in the area of air safety. The agreement opened the way for a free exchange of technical information and air traffic statistics between the two organizations. Eurocontrol was an organization of six European States established in 1963 for the unified control of air traffic in the upper airspace of Europe. Its members were Belgium, France, the Federal Republic of Germany, Luxembourg, the Netherlands, and the United Kingdom.

Nov 10, 1964: FAA announced the results of a **study concluding that neither eliminating nor limiting air-trip insurance would solve the airline sabotage problem**. (See Jan 6, 1960.) The study was conducted for the agency by Clarence C. Pell, Jr., head of the aviation division of a New York insurance firm. In his view, the value of restrictions on air-trip insurance would be nullified by the availability of other types of insurance and by the irrational nature of airline saboteurs. These conclusions were in general agreement with those reached by the Government-Industry Steering Committee on Airline Sabotage on Mar 8, 1963.

Nov, 1964: FAA commissioned the **first distance-measuring equipment (DME) combined with an instrument landing system (ILS)** at John F. Kennedy International Airport. The **ILS-DME** combination provided the pilot of an appropriately equipped aircraft with continuous information on his distance from the runway.

Dec 1, 1964: **United States International Aviation Month** began under a Presidential proclamation commemorating the twentieth anniversary of the signing of the Convention on International Civil Aviation. (The proclamation, issued on Jul 28, 1964, came at the request of the Council of the International Civil Aviation Organization.) As part of the observance, the heads of aviation of 19 nations toured U.S. aviation facilities as guests of the FAA Administrator during Dec 14-16. (See Nov 1-Dec 1, 1944.)

Dec 4, 1964: **FAA relaxed sport parachuting rules**. Parachutists were no longer required to obtain a certificate of authorization from an FAA District Office before drifting over congested areas, open-air assemblies, or airports without functioning control towers. Before making a parachute jump over any airport, however, parachutists were still required to receive permission from the airport's management. All other rules governing intentional parachute jumps remained in force. (See Mar 24, 1967.)

Dec 8, 1964: A United Air Lines Caravelle jet made the **first computer landing (automatic touchdown)** at Dulles International Airport. (See Jun 10, 1965.)

Dec 10, 1964: The **Airman's Information Manual (AIM)** replaced three basic FAA flight information publications: the **Airman's Guide** (see Apr 1946), the **Directory of Airports and Seaplane Bases**, and the **Flight Information Manual**. The AIM was divided into five sections that were revised either monthly, quarterly, or semiannually. In 1978, Parts 2 and 3 were discontinued as parts of the AIM and were published as the **Airport/Facility Directory**. Parts 3A and 4 were also separated from the AIM and published under the title **Notices to Airmen**. The Part 1 data, concerning basic flight information and air traffic control procedures, continued to be issued as the AIM. On Jul 20, 1995, the AIM's title was changed to **Aeronautical Information Manual**.

Dec 14, 1964: The **first FAA-designed and -constructed airport traffic control tower** was commissioned at Lake Tahoe (Calif.) Airport. Previously, the airport sponsor designed and constructed the tower structures, with FAA participating in the financing. The Lake Tahoe tower had a pentagonal cab to provide an unobstructed view of the entire airport. (See Nov 5, 1962, and Feb 1965.)

Dec 21, 1964: The General Dynamics **F-111 fighter, the world's first variable-wing aircraft**, made its first flight.

Dec, 1964: FAA and DOD established an Air Traffic Controller Training Council to develop recommendations on joint or cooperative efforts by the two agencies in the **training of civilian and military air traffic controllers**. A secretariat representing both agencies was located at the FAA Academy, Oklahoma City.

Dec, 1964: FAA began operating its first **single-sideband (SSB) air-ground equipment** at Point Barrow, Alaska, for aircraft flying the northern polar air route. Designed for remote operation, the

Point Barrow transmitter beamed vital air traffic control information, weather, and other messages to pilots flying "on top of the world."

Dec 31, 1964: FAA completed its codification of previous aviation regulatory issuances into a single body of rules, **the Federal Aviation Regulations (FAR's)**. FAA had reorganized and streamlined the regulations to eliminate duplicate, obsolete, and unnecessary provisions of multiple regulatory systems inherited from the Civil Aeronautics Board (CAB) and the Civil Aeronautics Administration (CAA). The FARs consolidated and simplified the former Civil Air Regulations (CARs), Civil Aeronautics Manuals (CAMs), and Regulations of the Administrator.

The codification program had occupied several years (see Aug 31, 1961), and the various parts of the new FARs were published as completed. Examples were **Part 135**, covering air taxis and commercial operators of small aircraft, which was published on Mar 5 and became effective on Sep 7, 1964 (see that date). The last major part to be published was **Part 121**, which appeared on Dec 31, 1964. Part 121 covered domestic, flag, and supplemental air carriers and commercial operators of large aircraft over 12,500 lb.

***1965**

Jan 4, 1965: Under a rule effective this date, **FAA required approved survivor lights on all life preservers and liferafts** carried by U.S. air carriers and other large commercial aircraft flying more than 50 miles from shore, to assist in the rescue of passengers in the event of a night ditching. (See Jan 28, 1966.)

Jan 15, 1965: AN FAA-sponsored study by the Coordinating Research Council of New York, reported all aviation fuels equally safe, and that no basis existed for the contention that kerosene offered more overall safety than **JP-4 aviation fuel** (a mixture of gasoline and kerosene). Despite this finding, TWA announced on Jan 21, 1965, that it was suspending use of JP-4. Earlier, on Jan 7, 1965, Pan American World Airways had announced that it would make kerosene its standard jet fuel because of public mistrust of JP-4. The Airways Club, a New York organization of frequent air travelers, had long urged banning JP-4 as a commercial jet fuel because of its alleged high volatility.

Jan 18, 1965: FAA released a study concluding that transport-aircraft **fuel tanks could be designed to reduce the fire hazard of crash landings**. Conducted for the agency by General Dynamics, the study involved tests in which experimental tanks survived crashes of up to 57Gs without rupturing. The study estimated that such tanks would increase wing weight and production costs by as little as one percent, and recommended consideration of fuel-containment principles during preliminary design of future aircraft.

Jan 27, 1965: The National Academy of Sciences' **Committee on Supersonic Transport Sonic Boom concluded that prototype development of a supersonic transport (SST) was "clearly warranted"** by evidence from research, tests, and studies of sonic boom phenomena (see Jul 1, 1965). This finding was largely based on data collected by FAA in the Oklahoma City area (see Feb 3, 1964).

On Apr 25, 1965, FAA made public a summary of its Oklahoma City sonic boom study, in which U.S. Air Force jets had subjected residents to 1,253 booms during daylight hours. Most boom intensities ranged between 1.0 and 2.0 pounds of overpressure per square foot, but adverse atmospheric influences caused approximately 11 percent to exceed the intended limit of 2.0 pounds of overpressure. FAA also released an interim report on the **related test at White Sands, N.M.**, in which Air Force jets subjected 16 representative structures to 1,494 booms varying in intensity from 2.0 to 20.0 pounds of overpressure. The findings of the two tests included:

- * Sonic booms of less than 5 pounds of overpressure caused no discernible damage to structurally sound buildings; however, booms of this intensity probably triggered cracks in faultily constructed walls, breaks in cracked windows, and other damage in structurally unsound buildings.

- * Booms of the order of those expected to be generated by the U.S. supersonic transport (SST) had no measurable physiological effect on humans.

- * The subjective reaction of individuals to sonic boom would be the area of greatest concern for the U.S. SST program.

- * Fully 27 percent of the people polled in the Oklahoma City area during the closing weeks of testing declared they could not live with sonic boom; additionally, 40 percent of those polled were unconvinced that booms did not cause damage to buildings.

In releasing the information, Administrator Halaby stated his conclusion that a supersonic transport could be designed in terms of configuration, operating attitude, and flight paths so as to achieve public

acceptance in the early 1970s. On Mar 8, 1969, the Federal government lost its appeal in a class action suit involving claims for property damage allegedly caused by the Oklahoma City tests. (See Apr 27, 1973.)

Feb 25, 1965: The **Douglas DC-9 made its maiden flight**. On Nov 23, 1965 FAA type-certificated the aircraft, a twin-engine turbojet transport designed for short- to medium-haul market for operation with a two-man crew. The plane entered service with Delta on Dec 9.

Feb, 1965: FAA commissioned the **first nonradar control tower to be constructed according to a standard design**, adopted by FAA in 1962, at Lawton Municipal Airport, Lawton, Okla. This was also the first control tower of standard design to be built entirely with FAA funds. The nonradar towers were freestanding and featured a control cab placed atop a pentagonal supporting steel structure that housed five floors of operating space beneath the cab floor. (See Dec 14, 1964, and Jun 30, 1967.)

Mar 4, 1965: Under an amendment to a rule effective this date, FAA consolidated positive control of nearly all of the airspace in the contiguous 48 states between 24,000 and 60,000 feet into one area known as the **continental positive control area**. FAA had begun nationwide implementation of positive air traffic control in Oct 1962. (See Oct 15, 1960-Mar 1, 1961 and Nov 9, 1967.)

Mar 6, 1965: A Navy Sikorsky SH-3A made the **first helicopter nonstop flight across the North American continent**, covering 2,116-miles in 15 hours 52 minutes. The helicopter flew from an aircraft carrier at San Diego, Calif., to another carrier at Mayport, Fla.

Mar 17, 1965: FAA announced that it had joined with CAB, the Department of Labor, and the Department of Health, Education, and Welfare in a project to establish a national data bank for interagency exchange of information on **civil aviation manpower resources**. The undertaking had been prompted by **Project Long Look** (see Sep 30, 1964). On Apr 20, 1965, FAA outlined government-industry cooperative efforts to implement the Project Long Look recommendations, primarily by promoting youth interest in aviation careers and improving training opportunities and standards.

Mar 20, 1965: FAA's first **regulation providing penalties for cheating and improper conduct in connection with airman tests** and related records became effective. The new rule imposed an automatic one-year disqualification from receiving a certificate or rating as a sanction for cheating or other irregularities. Such misconduct might also result in the suspension or revocation of certificates or ratings already held.

Mar, 1965: Los Angeles Airways became the **first helicopter air carrier certificated by FAA to conduct instrument flight rules (IFR) operations**. This initial approval was limited to IFR departures from, and approaches to, Los Angeles International Airport. (In Apr 1950, CAA had authorized the same carrier to fly on instruments at night for periods up to 15 minutes when moving through "smog" in Southern California.)

Apr 1, 1965: A British Overseas Airways Corporation **BAC Super VC-10** became the first British-built turbojet to cross the Atlantic (London to New York) on a scheduled passenger run since the Comet IV ceased transatlantic operations in 1961.

Apr 6, 1965: The British government disclosed it had abandoned the **TSR-2 tactical-strike-reconnaissance jet program**. The Ministry of Defence stated that the program's cost "was out of all proportion to the aircraft's military value." The loss of technical experience resulting from this decision was perceived as a setback for development of the supersonic transport Concorde (see Dec 11, 1967).

Apr 8, 1965: FAA demonstrated, with the manufacturer's assistance, a **McDonnell Aircraft Corporation 188 STOL (short takeoff and landing) aircraft** at Dulles International Airport as part of the agency's long-range study of interurban air transportation (see Apr 1966). The aircraft, a U.S. version of the Breguet 941, took off and landed at the 500-foot Dulles helistrip. Known as a blown-wing aircraft, the 188 had large propellers for high static thrust; the propeller slipstream covered the aircraft's entire wing area. It employed highly deflected, full-span, triple-slotted flaps to produce the required lift for low takeoff and landing speeds as well as safe maneuverability. One commercial version of the aircraft could accommodate 55 passengers and take off with a maximum gross weight of 58,422 pounds.

Apr, 1965: FAA reported that a **new nongyroscopic blind flight instrument** could prevent a significant number of accidents caused by disorientation, a conclusion based on evaluation in a Civil Aeromedical Research Institute aircraft.

Apr 11, 1965: The Federal government **terminated subsidies that had been paid to three certificated helicopter airlines**, New York Airways, Los Angeles Airways, and Chicago Helicopter Airways. The action was followed by the demise of Chicago Helicopter Airways at the end of 1965.

Apr 17, 1965: Homeowners of North Caldwell, N.J., flew war-surplus weather balloons over their homes to **protest the noise created by low-flying aircraft** using neighboring Caldwell-Wright Airport.

Apr 21, 1965: Administrator Halaby issued a **statement of FAA's long-range policies** that included such basic principles as respect for the rights of airspace users and the general public. Among other points, the statement recognized a favorable balance of benefits versus cost as a guide in actions affecting the National Airspace System.

Apr 21, 1965: FAA **eliminated the rule requiring a three-man crew on all transports with a takeoff weight over 80,000 pounds** (see Jun 15, 1947), and substituted a rule that set forth workload criteria as the standard for determining the size of an air transport cockpit crew. On Nov 23, FAA type-certificated the Douglas DC-9 for operation with a two-man crew (see Feb 25, 1965). Earlier in the year, FAA had certificated the BAC 1-11, a British-made transport, for operations with a two-man crew. (See Feb 7, 1961 and Nov 20-29, 1966.)

Apr 29, 1965: FAA established an **Office of Audit**, which was under the administrative direction of the Associate Administrator for Administration and reported directly to the FAA Administrator on substantive matters. The rapid evolution of the audit function from division to staff to office within a period of seven months reflected the growing emphasis placed by FAA on cost reduction and financial management.

Apr 29-May 10, 1965: The Miami Air Route Traffic Control Center provided air traffic control service for an emergency **Air Force airlift to the Dominican Republic** during U.S. intervention in civil conflict in that country. In 1,710 missions, the airlift carried 14,699 tons of cargo and 17,921 passengers.

May 1, 1965: FAA completed **transfer of the Europe, Africa, and Middle East Region headquarters** from London to Brussels. At the same time, the agency consolidated various elements that had been located in Washington, D.C., New York, and Paris with the regional headquarters group. (See Apr 1, 1963.)

May 13, 1965: FAA advised homeowners that **radio-controlled garage doors** could be hazardous to air navigation since a pilot might inadvertently "home in" on the radio signal emitted by the equipment. Effective Sep 7, 1965, the Federal Communications Commission barred the use of radio-controlled door openers operating within the frequencies reserved for radio navigation of aircraft.

May 14, 1965: The formation of a 12-member **NASA-FAA Coordinating Board** for the exchange of research and development information and for joint planning of related activities was announced. The aim of the Board was to strengthen the coordination, planning, and exchange of information between the two agencies.

May 18, 1965: FAA announced a plan to establish 18 **area (or subregional) offices** in the contiguous 48 states, as part of plans to decentralize FAA which had begun in 1961. Elements of the decentralization plan had been tested during **Project FOCUS** (see Oct 1, 1963). Under the plan, an area manager would head each of the 18 area offices, and would have line responsibility over four basic operating programs: air traffic, flight standards, airway facilities, and airports--programs that had previously been in the hands of the regional directors and the regional program division chiefs. FAA selected as area office headquarters sites: Boston, Cleveland, New York, and Washington in the Eastern Region; Atlanta, Memphis, and Miami in the Southern Region; Chicago, Kansas City, and Minneapolis in the Central Region; Albuquerque, Fort Worth, and Houston in the Southwest Region; Denver, Los Angeles, Salt Lake City, San Francisco, and Seattle in the Western Region. In September 1965, nine area offices opened for business; all 18 offices were fully operational by the end of the following month. (See Jun 30, 1965.)

May 18, 1965: An FAA-DOD agreement effective this date provided for **exchange of mobile flight facilities equipment and services** between the Air Force and FAA in such circumstances as defense readiness, natural emergencies, and equipment outages affecting the aviation community.

May 21, 1965: The **Interagency Air Cartographic Committee (IACC)** was created to standardize Governmental aeronautical charts and thus avoid duplication. The committee was to be chaired by FAA with the Departments of Defense and Commerce as members.

May 24, 1965: FAA announced the start of the first **field appraisal of prototype alphanumeric**s using automated air traffic control equipment. **ARTS** (advanced radar traffic control system--later changed to **automated radar terminal system**), the terminal prototype, would go through an 18-month evaluation at the Atlanta ATCT. **SPAN (stored program alphanumeric**s), the en route prototype, would go through a 10-month evaluation at the Indianapolis ARTCC. These field tests were part of FAA's program to replace an essentially manual air traffic control system with a semiautomated system. ARTS electronically tagged radar targets with luminous letters and numbers, indicating the identity and altitude of each target aircraft. The electronic tags moved with the corresponding aircraft blip across the controllers' radarscopes. To be so tagged, an aircraft had to be equipped with a transponder. (See Sep 26, 1964, and Feb 1966.)

May 26, 1965: In the U.S. Army's closely contested light observation helicopter competition, the Hughes Model 369 (YOH-6A) was announced the winner over two other entries, the Bell 206 (OH-4A) and the Fairchild-Hiller 1100 (OH-5A1). During 1964, FAA had type-certificated all three of these **new turbine-powered light helicopters**, which were expected to expand civil use of rotorcraft.

May, 1965: Findings of **Project Taper (turbulent air pilot environmental research)**, a joint FAA-NASA research effort, showed flight through turbulent air required improved instrumentation and pilot capabilities for longitudinal control, trimming, and control of oscillation. These findings were based on data collected by instrumented FAA jet aircraft flying through areas of known turbulence.

Jun 7, 1965: **New rules governing the rapid evacuation of passengers** from aircraft became effective this date. The new regulations required all carriers and commercial operators using aircraft with a seating capacity of more than 44 passengers to demonstrate, among other things, the ability under simulated emergency conditions to evacuate a full passenger load through only half of the airplane's exits within two minutes. Operators were required to assign each crewmember specific emergency evacuation duties. The minimum number of flight attendants on an aircraft was raised according the following formula: one attendant for planes with 10-44 passenger seats; two for 45-99; three for 100-149; and four for more than 149 (see Jun 15, 1972). Operators were also required to brief passengers on the location of emergency exits and provide them with cards showing their operation. The new regulations also set emergency equipment requirements. Aircraft were required to be equipped by Jul 1, 1966, with battery-powered megaphones, increased emergency lighting capacity, larger emergency-exit signs, and ropes or approved equivalent devices at overwing exits. (See Sep 20, 1967.)

Jun 7, 1965: FAA announced progress in the **use of chemicals to remove snow, ice, and slush on runways**. The agency found that a mixture of 75 percent tripotassium phosphate and 25 percent formamide was best for use at temperatures as low as -10 degrees.

Jun 8, 1965: Administrator Halaby dedicated the **helipad atop FAA's Headquarters building (FOB-10A)** at ceremonies attended by six former FAA/CAA administrators and William F. McKee, President Johnson's nominee to succeed Halaby. The helipad was designed to serve Federal officials who might be called upon to make sudden trips during emergencies. The facility was not heavily used, and in 1984 was listed as closed until further notice.

Jun 9, 1965: FAA conducted a one-day **national symposium on aircraft noise** in New York City. The symposium, attended by all segments of the aviation community, considered current and proposed programs to alleviate aircraft noise and related problems.

Jun 10, 1965: A British European Airways Trident I landing in London made the first **automatic touchdown** by a scheduled commercial airliner carrying fare-paying passengers. (See Dec 8, 1964, and Jul 7, 1967.)

Jun 10, 1965: FAA's Pacific Region established **an area office on each of five Hawaiian Islands having FAA activities**: Oahu, Kauai, Molokai, Hawaii, and Maui. Because of **FAA's withdrawal from Canton Island**, however, the area office there was disestablished. On Jul 1, the agency ceased operations for Canton and relinquished responsibility for the island to the National Aeronautics and Space Administration. (See Oct 1, 1963, and Jun 17, 1966.)

Jun 26, 1965: The **new Houston air route traffic control center** assumed the functions of the New Orleans center and some of the responsibilities of the San Antonio Center. The remainder of San Antonio's control area was transferred to Houston on Jul 10. The personnel of the two defunct centers were reassigned.

Jun 29, 1965: FAA established an **Office of Congressional Liaison**. Since Aug 31, 1962, congressional liaison responsibilities had been a function of the Office of General Aviation Affairs. (See Aug 31, 1962.)

Jun 30, 1965: During fiscal year 1965, which ended on this date, FAA established seven **area offices** in the Europe, Africa, and Middle East Region: Beirut, Frankfurt, London, Paris, Rome, Lagos, and New York. (See Oct 1, 1963 and May 1, 1965.) Also during fiscal 1965, FAA transferred five FAA-operated **intermediate landing fields** to local sponsors to be turned into public airports. The one remaining FAA-operated intermediate field in the contiguous United States was at Hanksville, Ut. The state of Utah assumed operation of that facility on Jun 23, 1974.

Among other actions in this fiscal year, FAA compiled a list of nearly 500 "safe haven" airports for **air carrier fleet dispersal** in the event of a national emergency. The Office of Emergency Planning (subsequently renamed Office of Emergency Preparedness) aided the project, and FAA coordinated the list with the Air Force to insure the integration of military and civil dispersal plans. FAA also developed a special-purpose **vehicle for measuring surface-friction** characteristics of airport runways as part of a program to improve the stopping capability of civil transport aircraft under adverse runway conditions.

Jul 1, 1965: **General William F. McKee (USAF, Ret.) became the third FAA Administrator**, succeeding Najeeb E. Halaby (see Mar 3, 1961). President Johnson had announced his selection of McKee on Apr 27, but did not submit his name for Senate confirmation until Congress passed special legislation exempting the general from a provision of the Federal Aviation Act that required the Administrator to be a civilian. This legislation cleared Congress on Jun 22, after prolonged debate. Johnson formally nominated McKee on Jun 23, and the Senate confirmed the nomination on Jun 30.

Born in Chilhowie, Va., in 1906, "Bozo" McKee graduated from West Point in 1929. He began his career with the U.S. Army Coast Artillery Corps, but transferred in 1942 to the Army Air Forces. McKee received his first star in 1945. The following year, he was appointed Chief of Staff of the Air Transport Command. In 1947, when the Air Force became a separate service, McKee became Assistant Vice Chief of Staff, Air Force, a position held for six years. He was serving as Commander of the Air Force Logistics Command when selected for the Vice Chief of Staff post, the second highest military position in the Air Force. At the time he received his fourth star, he was the only Air Force officer to have attained that rank without holding an aeronautical rating. Upon his retirement from the military in 1964, he joined the National Aeronautics and Space Administration as Assistant Administrator for Management Development.

The selection of McKee to head FAA was linked to the need for an experienced executive to oversee the development of the U.S. supersonic transport (see Jul 1, 1965, entry on this topic, below). He served as Administrator for three years and one month (see Jul 31, 1968).

Jul 1, 1965: **David D. Thomas became FAA's Deputy Administrator**. Thomas was FAA's Associate Administrator for Programs when President Johnson selected him for the new post. He succeeded Lt. Gen. Harold W. Grant (see Feb 21, 1962), who had resigned the previous day. (Grant was barred from serving under Gen. McKee, because the Federal Aviation Act prohibited the filling of the Deputy Administrator's post with a military officer on active duty, a retired regular officer, or a former regular officer if the Administrator himself is a former regular officer.)

A career civil servant, Thomas began his Federal service in 1938 as an air traffic controller with the Civil Aeronautics Authority in the Pittsburgh air route traffic control center. After a number of other field assignments, Thomas came to CAA headquarters in 1946, serving successively as Deputy Chief of the International Services Office, Chief of CAA's Planning Staff, and Deputy Director, Office of Federal Airways. Following the breakup of the Office of Federal Airways in 1956, he was elevated to Director, Office of Air Traffic Control. With the creation of FAA in 1958, he became Director, Bureau of Air Traffic Management. In 1961, after an FAA administrative reorganization, he became Director, Air Traffic Service, the position he was holding when selected, in 1963, to be Associate Administrator for Programs.

Thomas served as Acting Administrator between the tenures of Administrators McKee and Shaffer (see Jul 31, 1968, and Mar 24, 1969). He then continued as Deputy Administrator until retiring from Federal service on Feb 15, 1970.

Jul 1, 1965: President Johnson announced that the **supersonic transport (SST) development program would move into Phase IIC**, an 18-month detailed design phase costing approximately \$220 million. The President's decision, which was made known during General William F. McKee's

swearing-in as FAA Administrator, was based on the recommendations of the President's Advisory Committee on Supersonic Transport.

The decision postponed prototype development and fabrication for at least 18 months, prolonging the program's competitive phase by retaining the two airframe competitors (Boeing and Lockheed) and the two engine competitors (General Electric and Pratt & Whitney) selected in 1964. Unlike the previous design phases, however, Phase IIC was not purely a "paper" competition. The airframe manufacturers would construct full-scale mock-ups, and the engine manufacturers would build and test full-scale demonstrator engines.

The President enumerated four primary objectives of the new competitive design phase: (1) to provide a sound foundation for realistic estimates of operating performance and production costs; (2) to take advantage of the flight experience of the SR-71, the XB-70, and the variable swept-wing F-111; (3) to reduce developmental risks and developmental costs, while retaining the capacity to accelerate the program in its later phases; (4) and to provide a better basis for judgment as to the manner in which the program should proceed after the 18-month period. The President asked Congress for \$140 million to initiate the 18-month program. (See May 20, 1964, and Dec 31, 1966.)

Jul 1, 1965: A new communications system linking virtually every non-Communist airline in the world went into operation. Known as the **Electronic Switching System**, it was connected to the interline teletype transmission systems of major U.S. airlines and foreign carriers serving the United States. All interline teletype communications involving reservations and internal administrative messages automatically were directed to a computer in Chicago, which scanned the messages for correctness and electronically forwarded them to the proper airline.

Jul 17, 1965: A 16-year absence of air service between the United States and any part of the Communist bloc by United States or Communist-bloc airlines ended this date when **Pan American World Airways began serving Prague, Czechoslovakia**.

Jul 24, 1965: FAA announced **Project GAPE, a General Aviation Pilot Education program** aimed at reducing general aviation accidents by upgrading pilot knowledge and proficiency. The program, developed in cooperation with the Flight Safety Foundation, disseminated letters and safety kits to aircraft operators, published accident summaries, bulletins, and special studies, and conducted a vigorous publicity campaign through radio, television, and printed media.

Aug 2, 1965: FAA and the Department of Commerce signed a formal agreement on this date updating all FAA and U.S. Weather Bureau working arrangements in the areas of **aviation weather services and meteorological communications**. (See Sep 15, 1950.)

Aug 4, 1965: In a letter to Senator A. S. "Mike" Monroney (D-Okla.), FAA Administrator William F. McKee revealed an FAA decision not to incorporate **emergency arresting systems** for large air carrier aircraft into the National Airspace System.

Development of arresting gear devices had first been explored by the Airways Modernization Board in 1958. FAA continued this work and, in 1962, demonstrated the technical feasibility of arresting large transport aircraft on airport runways by means of a tail hook and a cross-runway cable connected to an arresting engine. The issue of whether this emergency gear should be mandatory at large air carrier airports came into sharp focus in Apr 1964, when three airliners at two New York airports skidded off slippery runways in one 12-hour period. In May 1964, FAA officials opened discussions with aviation industry representatives on arresting gear, and in July the agency formed a committee to work with the air transport industry in studying the question. The committee's recommendation that the arresting system be integrated into the National Airspace System was reinforced in Jan 1965 by the results of an FAA-sponsored study conducted by the Flight Safety Foundation. The study concluded that 17 of 87 accidents in the past five years could have been prevented by an emergency arresting system, and forecast 55 jet transport accidents resulting from runway overshoots on takeoff or landing over the next 10 years. In the end, however, FAA decided that the system could not be justified on a cost-versus-benefit basis, a judgment supported by virtually all elements of the aviation industry except the Air Line Pilots Association. The estimated cost of equipping 65 major jetports with two emergency arresting systems and retrofitting all four-engine air carrier jet aircraft with tail hooks was about \$47 million. FAA held that this money would buy more safety if spent in such other ways as developing better brakes, removing water from runways through drying and blowing techniques, or eliminating aircraft hydroplaning on runways by grooving or ribbing the pavement (see Apr 23, 1967). Meanwhile, FAA relied on a new wet-runway rule to reduce potential landing hazards (see Jan 15, 1966).

Aug 10, 1965: San Francisco-Oakland Helicopter Airlines initiated the **first scheduled air cushion vehicle (hovercraft) service in the United States** between Oakland and San Francisco. The service began a year-long test authorized by the Civil Aeronautics Board to determine the feasibility of using air-cushion vehicles in ferrying passengers in metropolitan areas. (See Nov 1967.)

Aug 16, 1965 **A series of three Boeing 727 accidents within three months** began as a United Air Lines flight crashed into Lake Michigan for undetermined reasons, killing all 30 people aboard. On Nov 8, an American 727 crashed in Kentucky on approach to Greater Cincinnati Airport, killing 58 of the 62 people aboard. CAB later determined the probable cause was the crew's failure to properly monitor the altimeters. On Nov 11, a United 727 crash landed at Salt Lake City. All 91 occupants survived the impact, but 43 died of the effects of postcrash flames and smoke (see Sep 20, 1967). CAB later cited the probable cause as the pilot's failure to arrest an excessive descent rate. On Nov 12, FAA declared it could find no pattern in the mishaps and hence it would be premature to ground the 727, about 190 of which were in operation.

Aug 25, 1965: A **Curtiss-Wright X-19**, an experimental vertical takeoff and landing aircraft, one of two X-19 prototypes developed by Curtiss-Wright, crashed during its first extended test flight, at FAA's National Aviation Facilities Experimental Center. It had first flown on Jun 26, 1964.

Aug 30, 1965: CAB assumed responsibility for a factfinding **investigation of nonfatal aircraft accidents** involving air-taxi operators and other commercial operators of small aircraft. By this action, CAB withdrew a delegation of this function made to FAA on Dec 31, 1958. FAA continued to conduct under a CAB delegation of authority factfinding investigations of nonfatal accidents involving noncommercial fixed-wing aircraft with a maximum takeoff weight of 12,500 pounds or less.

Aug 31, 1965: The world's largest cargo plane, the Aero Spacelines **B-377SG Super Guppy** completed its maiden flight. A converted Boeing 377 Stratocruiser with a capacity of 49,790 cubic feet, the Super Guppy was under contract to NASA for use in hauling rockets and other space equipment.

Sep 1, 1965: An **inspector or other authorized flight examiner conducting a flight test is an observer**, and normally not considered to be the pilot in command, according to a rule effective this date.

Sep 3, 1965: After withholding Federal funds from the Port of New York Authority (PNYA) for two years, FAA announced resumption of annual grants under the Federal-aid airport program (FAAP). In Aug 1963, FAA had notified the PNYA of the tentative allocation of \$4.3 million in FAAP matching funds for lengthening the runways at La Guardia Airport, one of New York City's three major airports, on the condition that PNYA develop a plan for improving **airport facilities for general aviation in the metropolitan New York area**. PNYA did not submit such a plan acceptable to FAA. Eventually, the differences between the two agencies narrowed down to the continued operation (desired by FAA) of Teterboro, a general aviation airport in northeastern New Jersey which PNYA owned and operated at a loss. When Pan American World Airways leased this airport from the Port Authority and agreed to keep it in operation, FAA considered all outstanding issues between itself and PNYA resolved.

Sep 7, 1965: FAA presented its **first type certificate for a Japanese-made aircraft** to the Nihon Aeroplane Manufacturing Company, Ltd., for its NAMC YS-11, a twin-turboprop short/medium-range transport with a maximum seating capacity of 59 passengers. The YS-11 had first flown in Aug 1962, and had received its Japanese type certificate on Aug 25, 1964. (See Mar 14, 1955.)

Sep 15, 1965: Deputy Administrator for Supersonic Transport Development Gordon Bain resigned from FAA effective this date. Brig. Gen. Jewell C. Maxwell (USAF) was assigned to replace Bain with the new title **Director of Supersonic Transport Development**. The new designation entailed no change in responsibilities or organizational relationship. (See Jul 29, 1963, and Apr 6, 1970.)

Sep 18, 1965: FAA required **distance-measuring equipment** on turbine-engine aircraft and pressurized piston-engine aircraft when operated by foreign air carriers within the contiguous United States after Dec 31, 1966. The agency required other foreign air carrier aircraft having a maximum certificated takeoff weight of more than 12,500 pounds to have this equipment after Dec 31, 1967. All foreign civil aircraft not engaged in air carrier operations were required to have this equipment after Dec 31, 1966, when flying at or above 24,000 feet. (See Jul 1, 1963.)

Sep 26, 1965: A rule effective this date required **biennial requalification of all flight instructors**. It also required instructors to assume additional responsibilities for the supervision of student-pilot solo flight operations.

Sep, 1965: **The Texas cities of Dallas and Fort Worth agreed on a site for a regional airport**, culminating more than a decade of disagreement and negotiation over this issue. The site chosen had been recommended by a consulting firm called into the dispute by a Civil Aeronautics Board examiner. It contained 18,000 acres lying approximately equidistant from the two cities, but overlapping part of Fort Worth's Greater Southwest International Airport. The agreement was a victory for the regional airport concept advocated by FAA and the Civil Aeronautics Board (see May 2, 1961, and Feb 2, 1967). Construction began on the **Dallas-Fort Worth Regional Airport** in Dec 1968 (see Jan 13, 1974).

Oct 1, 1965: FAA created the position of **Associate Administrator for Personnel and Training**. The new associate administrator reported directly to the FAA Administrator; previously, the head of the agency's personnel and training functions reported to the Associate Administrator for Administration. (See Jan 19, 1968.)

Oct 1, 1965: As part of the agency's continuing decentralization program, FAA placed the **Aeronautical Center in Oklahoma City under a director** reporting directly to the FAA Administrator. **A similar change on Oct 22 placed the National Aviation Facilities Experimental Center in Atlantic City, N.J., under a director** reporting the Administrator. Both centers had previously been headed by a manager, and had been under the jurisdiction of various offices or services in Washington.

Oct 8, 1965: In two separate but related rulemaking actions, FAA authorized **increased industry participation in the certification of aeronautical products**. One rule permitted FAA to delegate authority to qualified manufacturers in certification of helicopters, small turbine engines, and aeronautical parts. Previously, delegation procedures were permitted only in the certification of airplanes and gliders weighing 12,500 pounds or less, small piston engines, and propellers manufactured for use with these engines (see Sep 29, 1950). The other rule provided for the establishment of **Designated Alteration Stations** by qualified manufacturers, air carriers, commercial operators of large aircraft, and domestic repair stations. FAA authorized the stations to: issue supplemental type certificates for already type-certificated products; issue experimental airworthiness certificates for aircraft they altered; and amend standard airworthiness certificates for such aircraft. In Jun 1966, FAA made the first issuance of a "Designated Alteration Station" authorization to the American Airlines repair station in Tulsa, Okla.

Oct 15, 1965: FAA established a comprehensive new **air traffic controller health program**. The previous practice had been to examine only terminal controllers, under standards originally designed for airman certification. Under the new program, every controller and flight service specialist would receive an annual physical examination, including a chest X-ray, electrocardiogram, audiogram, measurement of intraocular tension, and psychological screening. Psychophysiological data generated by these examinations would be used to formulate administrative policies on selection, employment, and retirement.

Oct 21, 1965: Effective this date, **FAA clarified its regulations governing the issuance of limited operations medical certificates**. The previous language of the rule had led some applicants to believe that they had a right to attempt to demonstrate their ability to fly safely regardless of the nature of their limiting deficiency. The new wording made it clear that certain disases and disabilities could not be compensated for under any circumstances.

Oct 22, 1965: The Air Force-operated USAF/USN Central NOTAM (Notice to Airmen) Facility (CNF) began operations in FAA Headquarters Building, Washington, D.C., after moving from Tinker AFB, Okla. The **military NOTAM facility was co-located with the FAA-operated civil NOTAM system** (National Flight Data Center), and the two were eventually consolidated into a single National NOTAM System managed by FAA.

Nov 1, 1965: FAA announced that it had **recovered the entire cost of developing a low-cost, light-weight transponder** for general aviation use. The Wilcox Electric Company made the repayment in accordance with a special clause in the 1960 contract under which the equipment was developed. This represented perhaps the first time that a Federal civilian agency had recovered the entire cost of developing a device produced under government contract by a private manufacturer and sold to the public. The money was deposited into the U.S. Treasury's general fund.

Nov 9-10, 1965: New York's La Guardia and John F. Kennedy airports were forced to shut down when the overloading of a switch at an electrical generating plant in Ontario, Canada, set off a chain reaction that caused **a massive power failure in the northeast**, blacking out for 13 hours or longer an 80,000-square-mile area. The power failure hit during the evening rush hour, but several factors combined to head off disaster: clear weather, a moonlit night, and the fact that FAA's air route traffic control centers in the blacked out area continued to operate. Relying on secondary commercial suppliers, the ARTCCs guided aircraft to Newark, Philadelphia, Washington, and other airports not affected by the failure.

Prior to the blackout, the agency had believed that a standby engine generator was not as desirable as a second source of commercial power when two or more such sources were available, for the simultaneous loss of multiple sources was considered highly improbable. The power failure, however, demonstrated the need for generators at individual facilities. On Mar 2, 1966, FAA announced a program to install **standby engine generators** to power essential services at 50 airports in the contiguous United States. The 50 airports, chosen on the basis of their activity and location, would receive standby engine generators capable of powering a control tower, airport surveillance radar, approach-light system, instrument landing system, and runway lights on the primary runway.

The following year, FAA began planning a similar program for the air route traffic control centers. Over the past three years, ARTCCs had suffered more than 1,300 power failures lasting long enough to impair the operational use of critical equipment. Recognizing that power loss would be a potentially more serious safety threat in the future due to increased reliance on automation, FAA planned to equip all 20 centers in the contiguous U.S. with adequate auxiliary power sources and uninterruptible power units. (See Jun 27, 1969.)

Nov 14-17, 1965: In a flight sponsored by Rockwell-Standard, a Boeing B-707 became the **first aircraft to girdle the globe going north to south**, covering 26,230 miles in 62 hours 28 minutes. Beginning in Honolulu, the flight flew over the North Pole, made stops at London, Lisbon, and Buenos Aires, flew over the South Pole, and returned to Honolulu by way of Christchurch, New Zealand.

Nov 15, 1965: The **United States served a formal notice of denunciation of the Warsaw Convention, effective six months later, because of the inability to substantially raise the liability limit** above the approximately \$16,600 per international passenger set by the 11-year-old Hague Protocol to the Convention. The United States stated that it would withdraw the notice if there were reasonable prospects for ICAO to amend the convention to raise the liability limit to at least \$100,000, and if the international carriers worked out an interim agreement for a liability limit of \$75,000, with strict liability. Although a 1966 ICAO meeting failed to reach an agreement on an acceptable limit, the International Air Transport Association, in consultation with U.S. officials, reached an interim agreement with international carriers providing for a **liability limit of \$75,000 per passenger**. The U.S. Civil Aeronautics Board (CAB) approved the interim agreement on May 13, 1966, and the United States withdrew its notice of termination. Participation in the agreement was mandated by the U.S. CAB in permit and certificate conditions, and later generalized by regulation (14 CFR 203). Subsequent attempts to raise the Warsaw liability limit by a new Protocol were unsuccessful. In 1996, the U.S. Department of Transportation approved three agreements, proposed by the International Air Transport Association and Air Transport Association, under which carriers agreed to waive the Warsaw passenger liability limits in their entirety. Widespread implementation of these agreements was anticipated in early 1997.

Nov 21, 1965: FAA renamed the Civil Aeromedical Research Institute (CARI) the **Civil Aeromedical Institute (CAMI)**. (See Oct 21, 1962.)

Dec 16, 1965: Under a rule effective this date, **FAA required pilots flying large aircraft (12,500 pounds or more) to hold a type rating** for that aircraft. Previously, the agency required only pilots in command of large aircraft carrying passengers or freight for remuneration to hold such a type rating. The new rule also required pilots in command of small turbojet aircraft to be type rated for such aircraft after Mar 31, 1966. The purpose of the rule was to insure that pilots were fully qualified to serve in command of aircraft that handled differently from those in which they had acquired their flying experience.

Dec 31, 1965: Effective this date, FAA required scheduled **helicopter air carriers to assign individual emergency evacuation duties** to their crewmembers. The new regulations also included **rules on drinking** on helicopter airlines similar to those already in effect for fixed-wing airlines:

passengers were prohibited from drinking alcoholic beverages unless served by the carrier, and carriers were prohibited from allowing persons who appeared intoxicated to board flights or to be served alcoholic beverages on board.

Dec, 1965: FAA published three **studies concerning human circadian rhythms** (biological rhythms with a period of about 24 hours, linked to mental and physical efficiency). The studies were based primarily on biomedical assessments of human subjects aboard a series of intercontinental flights. The subjects selected had daily work and sleep habits representative of the adult male population. The flights traveled across multiple time zones from east to west and from west to east, as well as from north to south within the same time zone. Subjects on all the flights displayed subjective fatigue. Those travelling east-west or west-east experienced shifts of circadian periodicity that required various periods for readjustment. The east-west travelers displayed a significant impairment of psychological performance not shown by those on the other flights.

Calendar year, 1965: **Forty-two million people, or 38 percent of the adult population of the United States, had flown in a commercial aircraft**, according to a survey made during 1965 by the Gallup Organization for Trans World Airlines. In 1962, a similar TWA-sponsored survey had shown that 33 percent of the adult population had flown in a commercial aircraft. (See Jun 1970.)

*1966

Jan 1, 1966: Part 137 of the Federal Aviation Regulations, "**Agricultural Aircraft Operations**," became effective on this date, establishing for the first time national standards and requirements for private and commercial agricultural operator certificates, operating rules, aircraft airworthiness, and pilot qualifications.

Jan 10, 1966: Reliance on radar for controlling air traffic advanced when a **rule effective this date permitted pilots flying Instrument Flight Rules in a radar environment to omit routine position reports**.

Jan 11, 1966: FAA announced that **Washington National Airport would be opened to jet aircraft** on Apr 24, 1966 (see that date). The decision was supported by a study entitled "Economic Feasibility of Alternative Programs for Washington National Airport," published on Jan 26. The study discussed modernization of the airport and concluded that a continued ban on jet airline operations would reduce its function to virtually that of a general aviation field, with greatly decreased passenger traffic and revenues.

Jan 15, 1966: Effective this date, a **rule intended to prevent runway overruns** required turbojet transport aircraft landing on wet or slippery runways to have available 15 percent more runway length than considered adequate in dry weather. If the increased runway length was not available at an arrival airport and weather reports indicated slippery or wet runways during a transport's anticipated arrival time, the aircraft was required to compensate for the shorter runway length by carrying less payload or fuel. (See Aug 4, 1965.)

Jan 28, 1966: FAA published a **rule requiring a life preserver** or some other approved flotation device for each occupant of large aircraft used by air carriers or other commercial operators in all overwater operations. The compliance deadline was Mar 1, 1967, subsequently extended to Sep 1, 1967. Such devices had already been required for operations of large aircraft conducted over water at a horizontal distance of more than 50 miles from the nearest shoreline. (See Jan 4, 1965.)

Jan, 1966: FAA and the Department of Defense signed an agreement on development of **DAIR (direct altitude and identity readout)**, an automated air traffic control configuration for military facilities and low-density civil terminals. Unlike more sophisticated automated ATC configurations designed to provide alphanumeric, DAIR would employ only numerics. During fiscal 1970, the Air Force contracted for 304 production models of the system, now renamed the **AN/TPX-42**, and FAA exercised an option to acquire 56 of the systems over a five-year period.

Feb 3, 1966: The Soviet Union's unmanned spacecraft LUNA IX made the **first soft landing on the moon**. (See Jun 2, 1966.)

Feb 13, 1966: AN FAA-developed **mobile air traffic control tower** began operating at the Lockheed Air Terminal, Burbank, Calif., within 40 hours after a fire had destroyed the Lockheed tower.

Feb 18, 1966: The **National Committee for Clear Air Turbulence** was established to determine operational needs for the detection and prediction of this hazard, known as CAT. Formed at the instigation of the Defense Department, the committee was composed of representatives from the National Science Foundation and seven Federal agencies, including FAA. In a Dec 1966 report, the committee called for a coordinated national effort to understand and remedy the CAT problem. The

report's recommendations included a national data collection project to gather information needed to achieve CAT detection and forecasting. On Mar 29, 1967, the CAT hazard was illustrated by the death of an unbelted passenger when a **United Airlines jet reportedly plunged 8,000 feet after encountering turbulence**. Subsequent FAA actions regarding CAT included participation in joint research on forecasting methods.

Feb 22, 1966: Under a rule effective this date, FAA required newly certificated **flight engineers to have an aircraft class rating** for each class of aircraft (piston-engine, turboprop, or turbojet) in which they flew. Currently active flight engineers had until Feb 22, 1968, to exchange their existing certificate for one with a class rating.

Feb, 1966: FAA completed a 10-month evaluation of **SPAN (stored program alphanumerics)** at the Indianapolis air route traffic control center. The agency subsequently dismantled and shipped this prototype ATC system to the New York ARTCC to help cope with the extremely high air traffic density in the New York area. (See May 24, 1965, and Spring 1968.)

Mar 1, 1966: An unmanned Soviet spacecraft entered the atmosphere of Venus, becoming the **first space probe to reach another planet**.

Mar 2, 1966: President Johnson recommended to Congress the creation of a Cabinet-level **Department of Transportation**. The President noted that the United States lacked a coordinated transportation system permitting travelers and goods to move conveniently from one means of transportation to another, using the best characteristics of each. The responsibility for transportation within the Federal government, he observed, was fragmented among many agencies resulting in a series of uncoordinated modal policies. What was needed was a single department to develop and carry out comprehensive policies and programs for transportation in its totality.

The President proposed that the following agencies and functions be consolidated in the new department: the Office of the Under Secretary of Commerce for Transportation; the Bureau of Public Roads; the Federal Aviation Agency; the U.S. Coast Guard; the Maritime Administration; the safety functions of the Civil Aeronautics Board (CAB); the safety functions and car service functions of the Interstate Commerce Commission (ICC); the Great Lakes Pilotage Administration; the St. Lawrence Seaway Development Corporation; the Alaska Railroad; and certain minor transportation-related activities of other agencies. The President also recommended the creation within the Department of a National Transportation Safety Board, which would absorb the safety functions transferred from CAB and ICC. (See Oct 15, 1966.)

Mar 16, 1966: Gemini VIII, a U.S. manned space flight, achieved the **first space docking**.

Mar 17, 1966: The **Bell Triservice X-22A**, a tilting-duct Vertical/ Short Takeoff and Landing (V/STOL) aircraft, made its maiden flight. On Jun 30, 1966, with the tilting ducts at an angle of 30 degrees, the aircraft made its first STOL takeoff, and subsequently attained a top speed in excess of 100 miles an hour.

Mar 17, 1966: FAA type-certificated the **Learjet 24**, a two-engine turbine-powered business aircraft seating eight (two crewmembers and six passengers). In the first flight of its kind by a business jet, a Learjet 24 completed a 17-leg, 23,002-statute-mile, **round-the-world flight on May 26, 1966**. The global flight took 65 hours 40 minutes (actual flying time, 50 hours).

Apr 8, 1966: FAA established a **Noise Abatement Staff**, under the Associate Administrator for Programs, to lead the agency's response to a call by President Johnson for a government-wide effort to alleviate the problem of aircraft-engine noise. The President's call came on the heels of a recommendation by the Jet Aircraft Noise Panel of the Office of Science and Technology that the Federal government take the lead in seeking solutions to the problem. Shortly after this recommendation, the President established an interagency aircraft noise abatement program under the Office of Science and Technology. FAA served on three interagency committees set up under this program. The various projects developed under this program fell into three categories: developing quieter engines; revising aircraft operating procedures; and promoting land uses around airports compatible with airport operations.

Later in the year, FAA drafted legislation empowering it to prescribe noise standards as part of the criteria for aircraft certification. The administration's noise abatement bill was introduced in the 89th Congress, but did not come to a vote. (See Jul 21, 1967, Dec 4, 1967, and Jul 21, 1968.)

Apr 17, 1966: FAA commissioned the **San Juan air route traffic control center's new building**.

Apr 24, 1966: Scheduled air carrier **jet operations began at Washington National Airport** (see Jan 11, 1966). FAA limited air carrier jet use of the airport to two- and three-engine aircraft with short- and medium-range. A further limitation--agreed to voluntarily by the twelve certificated route air carriers serving National and approved by the Civil Aeronautics Board--required the first stop for these air carrier jet flights to be within a radius of 650 miles from Washington, D.C., except that nonstop service in effect on Dec 1, 1965, to eight specified cities outside that radius could continue. These eight cities, all within 1,000 miles, were Memphis, Minneapolis, St. Louis, Miami, Orlando, Tampa, and West Palm Beach, and Hamilton, Bermuda. (Flights to and from Hamilton were later forced to operate out of Dulles International.) The 650-mile radius agreement expired on Jan 1, 1967; however, all parties to the original agreement continued to adhere to its provisions, thus fixing National's role as that of a short-haul airport. The introduction of jet air carrier service at this airport required special arrival and departure procedures, based on the Potomac River as the natural flyway for reducing noise disturbances. In addition, a curfew on jet operations was imposed between the hours of 10 p.m. and 7 a.m. (See Sep 1, 1966 and Mar 23, 1978.)

Apr 25, 1966: FAA established the **National Airspace System Program Office**, replacing the NAS Special Projects Office as a staff element under the Associate Administrator for Development. Headed by the Deputy Associate Administrator for Development, NASPO had responsibility for design, engineering, procurement, and installation--in addition to central programming, planning, and scheduling--of designated program elements of the air traffic control subsystem of the National Airspace System. (See May 18, 1970 and Feb 10, 1972.)

Apr, 1966: The United States and New Zealand signed the **first agreement for flight inspection of U.S. air navigation facilities by a foreign country**. New Zealand's flight inspection of U.S. nav aids in American Samoa was expected to save FAA \$15,000 per year.

Apr, 1966: AN FAA published a **study examining the technological and economic feasibility of a V/STOL (vertical/short takeoff and landing) transport system**. Prepared for the agency by the McDonnell Aircraft Corporation, the report concluded that a 100-passenger V/STOL aircraft operating from small airports close to downtown city areas could play a major role in meeting increasing needs for short-distance transportation. (See Apr 8, 1965, and Nov 5, 1966.)

May 19, 1966: According to a Senate Committee on Aeronautical and Space Sciences staff report entitled, "Policy Planning for Aeronautical Research and Development," **civil aeronautics was served by technology in a haphazard manner**. For civil aviation to advance as rapidly as technology will allow, the report recommended: taking civil requirements into greater account during military aircraft development planning; Federal underwriting of the increasing financial risks in civil aeronautical development; providing tax credits and other incentives to the aeronautical industry; and carrying out of transportation systems planning on the Federal level.

May 20, 1966: A \$2.50 charge for **in-flight motion picture entertainment** on international flights received the approval of the Civil Aeronautics Board. The charge, covering the audio portion of the entertainment, had been put in effect by U.S.-flag carriers on Apr 1, 1966.

Jun 2, 1966: Surveyor I became the **first U.S. spacecraft to make a soft landing on the moon**. The spacecraft transmitted television pictures back to earth. (See Feb 3, 1966.)

Jun 8, 1966: A **midair collision** with an F-104 over Barstow, Calif., destroyed one of the two XB-70 experimental aircraft built by North American Aviation. (See Sep 21, 1964, and Mar 25, 1967.)

Jun 17, 1966: FAA consolidated the **Pacific Region area offices** on the Hawaiian Islands of Hawaii, Maui, Oahu, Kauai, and Molokai into one area office in Honolulu. (See June 10, 1965.)

Jun 28, 1966: The design of the **Dulles International Airport terminal building won for Eero Saarinen and Associates one of three "first honors" awards** for architectural excellence presented by the American Institute of Architects for 1966. The awards jury cited the Dulles terminal for conveying the "free and graceful movement that we associate with flight," and stated that the entire project set "a new high in architectural achievement by the Federal Government." (See Feb 22, 1978.)

Jun 30, 1966: The **Lockheed L-286 helicopter** became the first rigid-rotor helicopter to receive FAA type certification.

Jun 30, 1966: During fiscal 1966, which ended on this date, **FAA's interests in 21 airports owned, operated, or maintained by the agency were transferred to the state of Alaska**. The FAA-owned facilities transferred to the state were intermediate airports at Cold Bay and 7 other locations. FAA continued for a time to own 7 other intermediate airports in Alaska, but by 1996 the agency owned only one of these facilities.

During the same fiscal year, FAA also returned the **international field office at San Francisco** to the line control of the Pacific Region's Flight Standards Division. In fiscal 1965 the field office had been assimilated to the area-manager concept by being placed under an FAA representative responsible directly to the Director, Pacific Region.

Jun, 1966: FAA implemented the **performance and reliability system (PAR)** designed to monitor mechanical reliability in the airline industry as represented by 15 participating airlines. Regularly updated information on selected safety parameters were displayed in graphs and charts for each airline. The performance patterns thus revealed allowed inspectors to concentrate on problem areas and reduce routine inspections.

In a related effort to improve monitoring of air carrier compliance with operational and maintenance rules, FAA partially implemented the **Systemworthiness Analysis Program (SWAP)** on Jul 1. Under this program, the agency strategically based teams of inspectors within an inspection area to complement small cadres of inspectors domiciled at the carriers' main operations and maintenance bases. The resident cadres maintained routine surveillance, while the SWAP teams, periodically and as necessary, performed in-depth inspections of air carrier programs for keeping their personnel and materiel up to standards. FAA fully implemented SWAP during fiscal 1968.

Jul 1, 1966: **The Slick Corporation ceased air transport operations**, transferring most of its assets to Airlift International. The company had begun flying on Mar 4, 1946, under the name Slick Airways. It had become the nation's largest all-cargo commercial airline by 1951, but had encountered difficulties as passenger airlines increasingly competed for air freight.

Jul 8-Aug 19, 1966: A **strike by the International Association of Machinists** halted for 43 days the flight operations of Eastern, National, Northwest, TWA, and United. This was the longest and costliest strike in U.S. airline history to that date.

Jul 11, 1966: A joint planning document effective on this date set forth the responsibilities of FAA and DOD in developing plans and procedures for **using non-air-carrier civil aircraft to support civil defense** during a national emergency.

Jul 12, 1966: Effective this date, FAA established a policy that television towers or other **structures in excess of 2,000 feet** above the ground were presumed to be **hazards to air navigation**. The agency would only rule that no hazard existed in exceptional cases in which an applicant had shown clearly that the structure would cause no danger of inefficient use of airspace.

Aug 18, 1966: FAA commissioned the nation's **300th civilian airport traffic control tower** at Hillsboro, Ore. Dedication ceremonies were held on Aug 28.

Sep 1, 1966 **A voluntary agreement effective this date limited operations at Washington National Airport** to a maximum of 60 Instrument Flight Rules operations per hour--40 for air carriers and 20 for general aviation. If air carrier IFR operations dropped below 40 per hour, general aviation would assume the unused "slots." The agreement had been reached between FAA and the aviation groups using the airport, and approved by CAB.

The need to limit operations at Washington National had risen from crowded conditions in the terminal buildings and on the runways, and from the rise in noise complaints since the introduction of jets into the airport. On Jul 1, 1966, FAA had issued a new operating policy, to be effective Aug 7, 1966, which required flights originating or departing from National to land on their first stop within a radius of 500 miles from Washington, D.C. This would have reduced the 650-mile radius agreed to in Apr by the airlines serving National (see Apr 24, 1966, and May 26, 1981). Shrinking the perimeter served by National, FAA had calculated, would have reduced the flow of passenger traffic through the terminal from 22,000 people daily to a manageable 18,000. FAA decided, however, to drop the more restrictive perimeter rule in favor of a rule limiting operations at National to 60 per hour. The quota rule was never issued because the airport users' voluntary agreement made it unnecessary. With FAA's and CAB's blessing, a scheduling committee composed of representatives of carriers serving the airport was constituted to distribute slots among its membership. The agreement formally expired on Dec 1, 1966, but its terms were continued in force voluntarily. (See Spring 1967 and Jun 1, 1969.)

Sep 9, 1966: The **Interagency Bird Hazard Committee**, formed to exchange and consolidate data useful in developing methods for reducing the danger of collisions between birds and airplanes, held its first meeting. Represented on the committee were FAA, NASA, the Civil Aeronautics Board, the Department of Interior, the Department of Health, Education, and Welfare, and the three armed services.

Sep 11, 1966: Tracy Barnes completed the **first hot-air-balloon flight across the contiguous United States**, landing near Villas, N.J., near the eastern shore of the Delaware Bay. He had departed San Diego, Calif., on Apr 10, 1966. The flight took twice the time Barnes had originally estimated due to mishaps, including one that hospitalized him for three days, and unfavorable winds. Hot air ballooning had emerged as a popular sport in the early 1960s. (See Aug 11-17, 1978.)

Sep 19, 1966: AN FAA rule effective this date required U.S.-registered civil aircraft operating outside the United States to meet basically the same **operational and maintenance standards** as those prescribed for operations within the United States.

Sep 30, 1966: FAA **consolidated its aeromedical research function into one location** by transferring such activities at the Georgetown Clinical Research Institute, Washington, D.C., to the Aeronautical Center's Civil Aeromedical Institute (CAMI) in Oklahoma City. (See Nov 21, 1965.)

Oct 15, 1966: President Johnson signed the **Department of Transportation Act** (Public Law 89-670), bringing 31 previously scattered Federal elements, including FAA, under the wing of one Cabinet Department. The purpose of the new Department was to: assure the coordinated, effective administration of the transportation programs of the Federal Government; facilitate the development and improvement of coordinated transportation service, to be provided by private enterprise to the maximum extent feasible; encourage cooperation of Federal, State, and local governments, carriers, labor, and other interested parties toward the achievement of national transportation objectives; stimulate technological advances in transportation; provide general leadership in the identification and solution of transportation problems; and develop and recommend to the President and the Congress national transportation policies and programs to accomplish these objectives with full consideration of the needs of the public, users, carriers, industry, labor, and the national defense.

The legislation provided for five initial major operating elements within the Department. Four of these organizations were headed by an Administrator: the Federal Aviation Administration (previously the independent Federal Aviation Agency); the Federal Highway Administration; the Federal Railroad Administration; and the Saint Lawrence Seaway Development Corporation. The new Department also contained the U.S. Coast Guard, which was headed by a Commandant and had previously been part of the Treasury Department.

The DOT Act also created within the new Department a five-member National Transportation Safety Board. The act charged the NTSB with (1) determining the cause or probable cause of transportation accidents and reporting the facts, conditions, and circumstances relating to such accidents; and (2) reviewing on appeal the suspension, amendment, modification, revocation, or denial of any certificate or license issued by the Secretary or by an Administrator. In the exercise of its functions, powers, and duties, the Board was made independent of the Secretary and the other offices and officers of the Department.

Two important differences between President Johnson's proposal (see Mar 2, 1966) and the final DOT Act were: (1) the Maritime Administration was left out, and (2) the actions of the FAA Administrator relating to safety, and the decisions of the NTSB, were designated "administratively final" with appeals only to the courts. Three months after signing the DOT Act, Johnson appointed the first Secretary of Transportation (see Jan 16, 1967). The new Department began full operations on Apr 1, 1967. (See Mar 2, 1966, Jan 16, 1967, and Apr 1, 1967.)

Oct 17, 1966: Effective this date, FAA required pilots to have a **helicopter instrument rating** to operate a helicopter under Instrument Flight Rules conditions.

Oct 20, 1966: FAA type-certificated the **206A Bell JetRanger**, a five-place, rotary-wing, turbine-powered general-purpose helicopter. This highly successful helicopter had first flown on Jan 10, 1966.

Nov 4, 1966: The **United States and the Soviet Union signed an agreement authorizing commercial airline service between New York and Moscow**. (See Apr 1, 1960, and Jul 15, 1968.)

Nov 5, 1966: **A two-day exercise designated Metro Air Support '66 began** as a demonstration of aviation's ability to provide emergency access and logistic support to a city center. The first major operation of its kind, it involved more than 200 airplanes, helicopters, and Short Takeoff and Landing (STOL) aircraft.

FAA was a key participant in planning the exercise, and a number of airlines cooperated by flying supplies from distant points to airports in the New York City vicinity. The key operation involved airlifting supplies from the fringes of the city to its center, which was accomplished by helicopters and STOL aircraft. The exercise had its headquarters at a pier on the Hudson River, and one of its

objectives was to encourage the development of waterfront locations for STOL ground facilities. (See Apr 1966 and Jun 30, 1968.)

Nov 20-29, 1966: The Air Line Pilots Association (ALPA) board of directors adopted an article to its constitution and by-laws providing that all future turbine-powered transports (excluding 'stretch' models of the turbine-powered, twin-engine aircraft presently certificated) be manned by a **minimum crew of three pilots**. On Jun 29, 1967, ALPA formally proposed to FAA's Western Region, and to the FAA Administrator on Aug 8, 1967, that a three-man crew be incorporated in the 737 cockpit, then under development. (See Apr 21, 1965 and Jul 25, 1967.)

Dec 5, 1966: **Bureau of National Capital Airports** headquarters personnel moved from FAA headquarters in Washington, D.C., to Falls Church, Va. The move allowed the Bureau, which operated Washington National and Dulles International Airports, to be centrally located between the two airports. The Eastern Region's Washington Area Office also moved from Washington to Falls Church during December. (See Jun 14, 1959.)

Dec 6, 1966: The launching of NASA's first **applications technology satellite (ATS I)** on this date afforded FAA the first opportunity to evaluate a satellite as an air-ground-air relay for long-distance very-high-frequency radio voice communications. The 775-pound spin-stabilized satellite transmitted voice messages of excellent clarity originating either from the ground or from flying aircraft. Both FAA and air carrier aircraft took part in the testing, conducted during 1966 and 1967. (See Mar 29, 1967.)

Dec 31, 1966: FAA declared the Boeing Company and the General Electric Company **winners of the supersonic transport (SST) development program competitive design and study phase (Phase IIC)**. The agency selected Boeing's variable-sweep-wing airframe design over the Lockheed Corporation's double-delta-wing design and General Electric's after-burning turbojet engine over the Pratt & Whitney ductburning turbofan engine. The selections were based on an intensive two-month evaluation conducted by a 240-person team of aeronautical experts from the Defense Department, NASA, CAB, and FAA. In addition, 10 U.S. and foreign airlines independently evaluated the proposals and submitted individual recommendations. (See Jul 1, 1965, and Feb 6, 1967.)

Calendar year, 1966: **In crossing the North Atlantic, 89 percent of the year's travelers went by air** and 11 percent by sea. Total passengers were estimated to be 5,322,000, of which 4,720,000 flew and 602,000 sailed. (See Calendar year 1958 and May 8, 1967.)

***1967**

Jan 11, 1967: A **Scramjet** (supersonic combustion ramjet), a vehicle described by scientists as a forerunner of aircraft that would carry passengers at speeds of about 8,000 miles an hour at very high altitudes, made its first test flight when launched from an Air Force-NASA Scout rocket.

Jan 16, 1967: **Alan S. Boyd became the first Secretary of the Department of Transportation** (see Oct 15, 1966, and Apr 1, 1967). President Johnson had announced his intention to nominate Boyd on Nov 6, 1966. The new Secretary had been a member and chairman of the Civil Aeronautics Board and, at the time of his nomination, Under Secretary of Commerce. Boyd served as Secretary for the rest of the Johnson Administration, resigning effective Jan 20, 1969. (See Jan 22, 1969.)

Jan 25, 1967: A study of **aircraft noise at Washington National Airport (WNA)** released on this date revealed that four-engine piston air carrier aircraft made more noise on departure than did two- and three-engine jet air carrier aircraft. (Four-engine jet airliners were not permitted at WNA: see Apr 24, 1966.) The noise levels of executive jet aircraft were relatively high, and turboprop air carrier aircraft, as a group, were the quietest on both departure and arrival. During the first half of 1967, FAA developed and implemented a **two-segment takeoff profile for noise abatement at WNA**. The procedure called for a rapid climb to a specified altitude, and then a reduced-thrust climb until the aircraft was ten miles from the airport. AN FAA study of aircraft overflight recordings showed that the procedure was effective. (See Jul 18, 1960, and Dec 4, 1967.)

Feb 1, 1967: A Civil Aeronautics Board order effective this date permitted the **merger of Pan American-Grace Airways (Panagra) into Braniff International Airways**. President Johnson had approved the purchase of Panagra by Braniff on Oct 19, 1966. The merger reduced the number of U.S. flag carriers serving South America from three to two--Braniff and Pan American World Airways.

Feb 1, 1967: FAA awarded a contract to the Raytheon Company for the purchase of **computer display channels for NAS En Route Stage A**, the agency's automation program for its air route traffic control centers (ARTCC's). The computer display channel comprised about a third of the

equipment in an automated ARTCC and was the final link in the process of providing the air traffic controllers with three-dimensional information on their radar display. The contract was the largest awarded to that date for air traffic control equipment. (See Sep 2, 1964.)

Feb 2, 1967: FAA issued an advisory circular entitled "**Regional Air Carrier Airport Planning**" as an aid in determining when a single regional air carrier airport was preferable to two or more airports. In line with joint FAA-CAB policy (see May 2, 1961), the circular advised that a regional airport study should be made in specified circumstances involving inadequacies at existing airports located within 50 miles and one hour's driving time of another air carrier airport or another community receiving scheduled service. (The National Airport Plan for fiscal years 1968-72, issued in Apr 1967, was the first such plan to identify locations that could be developed as regional airports.)

Feb 6, 1967: **FAA asked U.S. air carriers to help finance the supersonic transport (SST) prototype program** by contributing \$1 million in risk capital for each SST delivery position held (see Nov 19, 1963). The agency took the step at the direction of President Johnson, who considered it a way in which the airlines could demonstrate to the Congress and the public their faith in the SST program. Under the proposal, contributions would in no way affect the established places of contributing and noncontributing carriers on the reservation schedule. The money would go directly to the Boeing Company to be used in the development program in lieu of Federal funds. The airlines would recover their investment--up to a maximum of \$1.5 million for each \$1 million contributed--through aircraft royalty payments. Ten U.S. air carriers holding a total of 52 delivery positions agreed to put up risk capital. Details of the participation agreement could not be worked out before April, however, and this became a factor in delaying the President's announcement of his decision to take the SST program into prototype development. (See Dec 31, 1966, and Apr 29, 1967.)

Feb 25, 1967: **A four-lane viaduct opened between Washington National Airport and U.S. Route 1**, improving the airports accessibility by automobile. The viaduct cost \$3.7 million.

Feb 28, 1967: The 40th anniversary of the **designated aviation medical examiner (AME) program** was celebrated by a special seminar jointly conducted by the FAA and the Aerospace Medical Association for designated AME's from 37 foreign countries and U.S. possessions. (At the end of fiscal 1967, there were 5,961 AME's.) (See Feb 28, 1927.)

Mar 24, 1967: **New parachute jumping rules** effective this date required pilots of aircraft used for jumps in controlled airspace: to have two-way voice radio communication equipment; to establish communications with air traffic control at least 5 minutes before jumps began; to monitor FAA radio channels during the jump; and to advise air traffic control when the jump was completed. The minimum time for notifying FAA of planned jumps in controlled airspace was reduced from six hours to one hour. (See Dec 4, 1964, and Aug 7, 1968.)

Mar 25, 1967: The management of the **XB-70 supersonic aircraft research program** was transferred from the U.S. Air Force to the National Aeronautics and Space Administration's Flight Research Center. The program, much of which was devoted to the study of supersonic flight in support of the U.S. supersonic transport development program, continued as a joint NASA-USAF effort. (See Sep 21, 1964, Jun 8, 1966, and Feb 4, 1969.)

Mar 27, 1967: FAA approved a new 2,000-candlepower **runway centerline light** to permit operations under visibility as low as 700 feet.

Mar 29, 1967: FAA participated in NASA's first public demonstration of a **new data-link system using an orbiting satellite for transmitting navigation data** from aircraft to ground stations. A Pan American World Airways cargo jet beamed the data to NASA's ATS I satellite, which relayed the signals to an antenna at the Mojave Desert Ground Station in California. The signals then went by telephone lines to Kennedy International Airport by way of the Goddard Space Flight Center in Greenbelt, Md. This was the first test of an aircraft antenna designed specially for transmitting satellite messages. (See Dec 6, 1966, and Nov 21, 1967.)

Apr 1, 1967: The **Department of Transportation (DOT) began operations**. At the same time, **FAA ceased to be the independent Federal Aviation Agency and became the Federal Aviation Administration**, a modal agency within the new Department. (See Mar 2, 1966, Oct 15, 1966, and Jan 16, 1967.)

Apr 7, 1967: FAA certificated West Germany's first civilian jet transport, the **Hamburger Flugzeugbau HFB 320 Hansa**. The nine-passenger twin-jet had received German type approval on Feb 23, 1967, and had first flown on Apr 21, 1964.

Apr 9, 1967: **The Boeing 737 made its first flight.** On Dec 15, 1967, FAA type-certificated the airliner, a short-range jet transport with swept wings, wing-mounted twin engines, and a maximum capacity of 107 passengers, for operation with a two-man cockpit crew. The plane entered scheduled airline service on Feb 10, 1968.

Apr 23, 1967: A project completed on this date made Washington National Airport's main runway the **first U.S. runway for commercial operations to be grooved.** Developed by the British, runway grooving proved highly successful in reducing the tendency of landing aircraft to aquaplane on wet surfaces. The grooves at National were 1/8 inch wide, 1/8 inch deep, and cut at angles to the runway centerline with a 1-inch spacing. They carried water away in what amounted to thousands of tiny gutters. On May 24, 1968, FAA announced that Chicago Midway Airport would receive the **first funding allocation for runway-grooving under the Federal-aid airport program.** (See Aug 4, 1965 and Jul 13, 1983.)

Apr 28, 1967: The **McDonnell Douglas Corporation** came into being, the result of a merger between the Douglas Aircraft Company and the McDonnell Company. Douglas had been founded in 1920, McDonnell in 1939.

Apr 28, 1967: FAA required operators of **unmanned free balloons** to equip their balloons with at least two separate, independently operated self-destruction mechanisms for both the balloon envelope and its instrument package. The agency further required the balloon envelope to have radar reflective equipment.

Apr 29, 1967: President Johnson announced that the U.S. **supersonic transport (SST) development program would proceed into the prototype development phase (Phase III).** Johnson based his decision on the recommendations of the President's Advisory Committee on Supersonic Transport. On May 1, 1967, the date of the President's formal approval, FAA, Boeing, and General Electric signed the Phase III contracts retroactive to Jan 1, 1967, which called for the construction of two identical variable, sweep-wing SST prototypes. (See Feb 6 and Jun 5, 1967.)

May 1, 1967: Effective this date, **FAA dropped its requirement that applicants under 21 years of age have parental or guardian consent for student pilot certificates.** The 16-year minimum age for a student pilot's license remained unchanged. (See Apr 18, 1939, and Jul 1, 1945.)

May 8, 1967: The prevailing **preference for flying rather than sailing among transoceanic travelers** was pointedly emphasized as the Cunard Steamship Company announced retirement of the world's two largest passenger liners, RMS *Queen Elizabeth* and the RMS *Queen Mary*. (The 81,237-ton *Queen Mary* completed her 1,000th and final transatlantic voyage for Cunard on Sep 27, 1967; the *Queen Elizabeth* completed her final transatlantic voyage on Nov 6, 1968.) (See Calendar year 1966.)

May 31-Jun 1, 1967: Two Sikorsky HH-3Es made the **first helicopter non-stop transatlantic crossings**, flying from New York to the Paris Air Show. Each aircraft required nine aerial refuelings during the flight. (See Jul 15-31, 1952.)

Jun 5, 1967: The **Boeing Company assumed from FAA responsibility for allocating supersonic transport (SST) delivery positions** to purchasers (see Nov 19, 1963). At the same time, FAA raised the cost of reserving future positions from \$200,000 to \$750,000. The \$750,000 deposit would be made directly to Boeing, would be in the form of risk capital, and would bear no interest. It would be used by Boeing in lieu of Federal funds to help finance the prototype program. Boeing agreed to honor the 113 delivery positions already allocated by FAA among 26 airlines. (See Apr 29, 1967, and Jan 15, 1968.)

Jun 6, 1967: The nation's First Lady, Mrs. "Lady Bird" Johnson, presented FAA's first **Airport Beautification Award** to Phoenix, Ariz., for its Sky Harbor Municipal Airport. FAA established the award to honor organizations that protect, restore, or enhance airport beauty.

Jun 6, 1967: FAA adopted a new U.S. standard for **Category II approach lights** to conform with the standard of the International Civil Aviation Organization. Red light barrettes would be added on either side of existing white centerline lights over the last 1,000 feet of the approach light system. The new standard also required a red and white crossbar 500 feet from the end of the runway, and white centerline lights at 100 and 200 feet from the runway threshold.

Spring, 1967: Scheduled air-taxi operators agreed to limit their **operations at Washington National Airport** to a maximum of eight per hour. (See Sep 1, 1966, and Jun 1, 1969.)

Jun 30, 1967: During fiscal year 1967, which ended on this date, FAA installed an **IBM 9020 simplex computer system** at the Cleveland (Ohio) ARTCC (see Feb 18, 1970).

FAA also adopted a new, **lower-cost design standard for control towers** at medium activity airports. The new design retained the appearance of the tower concept adopted by FAA in 1962, featuring a free-standing 60- to 120-foot pentagonal concrete shaft topped by a control tower cab with 300 square feet of operating space. Money was saved in construction through use of more conventional techniques and elimination of certain operational features. (See Feb 1965.)

In addition, during fiscal 1967, **FAA used thickened, or gelled, fuels for the first time** to operate a ground-based jet aircraft engine. This test, successfully concluded at FAA's National Aviation Facilities Experimental Center, was followed by the initiation of an expanded FAA sponsored program at the Naval Air Propulsion Test Center. The use of gelled fuels was one of a number of avenues being explored by FAA for reducing the fire hazard in aircraft accidents.

Jul 1, 1967: **Pacific Northern Airlines merged into Western Air Lines.**

Jul 7, 1967: A Pan American World Airways Boeing 707 made the first fully **automatic approach and landing** by a four-engine jet aircraft with passengers on board. (See Jun 10, 1965.)

Jul 13, 1967: NASA awarded the first contract in its **quiet-engine project**, part of the Government-wide noise abatement program, to the Pratt & Whitney Aircraft Division of the United Aircraft Corporation. The objective of the quiet engine project, due to run into fiscal 1972 and cost \$50 million, was to employ all known noise control techniques in a 20,000-pound-thrust demonstrator engine. When installed in a new sound absorbing nacelle, the "quiet engine" was expected to be 20 perceived noise decibels quieter than jet engines in use during the late 1960s.

Jul 19, 1967: A **midair collision near Hendersonville, N.C.**, between a Piedmont Airlines Boeing 727 and a Cessna 310 killed all 82 people aboard the two aircraft. The fatalities included Secretary-designate of the Navy John T. McNaughton. The National Transportation Safety Board listed the probable cause as the Cessna's deviation from its Instrument Flight Rules (IFR) clearance. The Board could not specifically identify the reason for the Cessna's deviation; however, it cited the "minimum control procedures" used by FAA in handling the Cessna as a contributory factor in the accident. The Board's recommendations included improvements to the air traffic control system and more stringent requirements for IFR pilots, including an annual proficiency flight check.

Jul 21, 1967: FAA established the **Office of Noise Abatement**, a measure of the importance the agency attached to the problem of aircraft-engine noise. Hitherto, the agency's noise-abatement program had been under the direction of a small noise abatement staff. (See Apr 8, 1966, and Nov 27, 1968.)

Jul 21, 1967: FAA retitled the Associate Administrator for Programs the **Associate Administrator for Operations.** (See Jun 12, 1963.)

Jul 25, 1967: United Airlines made public its order for 79 jet aircraft at a cost of \$690 million, the **largest airline equipment purchase announced at one time** to that date. The order included 13 Boeing 747s, 23 Boeing 727s, 25 Boeing 737s, and 18 McDonnell Douglas DC-8s.

Jul 25, 1967: A Federal mediation board recessed without resolving a **dispute between United Air Lines and the Air Line Pilots Association (ALPA) over the crew complement of the Boeing 737.** United insisted that the aircraft could be safely flown with two pilots, while the union argued for a three-man cockpit crew. On Mar 21, 1968, United and its pilots agreed to conduct an in-service evaluation of the 737, but they could not agree on the evaluation's results. On Feb 22, 1969, a Federal arbitration panel ruled in favor of the pilots for the life of the current United-ALPA contract, and on Mar 31, 1970, a second arbitration panel affirmed this ruling for the duration of the next contract. This decision on United Air Lines, the first airline to order the 737, influenced Western to accept a three-man cockpit on its 737s. (See Nov-20-29, 1966 and Jul 21, 1969.)

Aug 7, 1967: In a rule effective this date, FAA set **equipment and procedural standards** under which general aviation pilots operating properly equipped airplanes were authorized to land under Category II weather minimums--a 1,200-foot runway visibility range and a 100-foot decision height. (See Oct 2, 1964, and Nov 3, 1967.)

Aug 28, 1967: FAA appointed an **Associate Administrator for Plans.** This new position was responsible for developing the agency's long-range plans for meeting future demands for its services. (See Mar 16, 1962, and Nov 27, 1968.)

Aug 31, 1967: President Johnson signed the Veteran's Pension and Readjustment Act of 1967 (Public Law 90-77), which became fully effective Oct 1. The Act authorized the Veterans Administration to **reimburse eligible veterans for 90 percent of the cost of flight training** necessary for a recognized vocational objective. The legislation specified that: the eligible veteran must have a private pilot

certificate (or have completed the required flight-training hours), with at least a second class medical certificate, and the flight school courses meet FAA standards and be approved both by FAA and the appropriate State agency.

Sep 10, 1967: A rule requiring that the design of transport category airplanes include the **protection of the fuel system against lightning** became effective.

Sep 16, 1967: **Typhoon Sarah** struck Wake Island with winds exceeding 140 miles per hour, knocking out the island's electric power plant, air traffic control tower, air route traffic control center, and navigation aids. Damage to the island's housing, sanitation system, and freshwater supply necessitated the evacuation of one fourth of Wake's population.

A special FAA-Air Force task force directed the evacuation and worked round the clock to restore critical nav aids and airport capabilities. Portable equipment (including a tower, VOR, and TACAN) was air lifted to the island. Within 48 hours after the typhoon struck, the airport had resumed transpacific airlift operations on a reduced scale. By the last week in September, all essential facilities of both the airport and the center had returned to service.

Sep 20, 1967: FAA published new safety rules designed to **improve crashworthiness and passenger evacuation standards** in transport airplanes. The new rules required air carriers, other commercial operators, and aircraft manufacturers to demonstrate that airplanes with more than 44 seats were capable of permitting the evacuation of a full load of passengers through only half the aircraft's exits in 90 seconds. The previous rule, which did not require demonstration by aircraft manufacturers, had set a time limit of 120 seconds.

Nov 3, 1967: Pan American World Airways became the first airline to receive FAA approval for **full Category II operations**, permitting the airline to land in weather offering only a 100-foot decision height and a 1,200-foot runway visibility range. At this date, however, such operations could be conducted only at Dulles International Airport. In the ensuing seven months, seven additional airports qualified for Category II operations. (See Aug 7, 1967, and Jan 21, 1972.)

Nov 9, 1967: FAA lowered the floor of **area positive control** over the northeastern and northcentral United States--perhaps the most heavily traveled airspace of its size in the world--from 24,000 to 18,000 feet. The area was bounded roughly by a line running from Presque Isle, Maine, south to Danville, Va., west to Salina, Kan., north to Minneapolis, Minn., and east again to Presque Isle. This action followed FAA's determination that it could no longer assure the safe separation of aircraft in this area without extending positive control. (See Mar 4, 1965, and Oct 14, 1971.)

Nov 21, 1967: A Pan American World Airways jet flying the North Atlantic successfully used NASA's **ATS III, one of a series of application research satellites**, as an air-ground-air radio voice relay. The demonstration was part of a program by major airlines to develop a global system of long-range, static-free, very-high-frequency communications between the air and ground. (See Mar 29, 1967.)

Nov, 1967: The Council of the International Civil Aviation Organization (ICAO) revised its **definition of aircraft to exclude air cushion vehicles, or hovercraft**. ICAO had previously defined aircraft as "any machine that can derive support in the atmosphere from the reactions of the air," but amended this by

Other key provisions of the new rules related to: the distribution and type of exits, and their ratio to passengers; improved access to overwing exits; evacuation slides deployable in 10 seconds; improved interior lighting and new exterior lighting; cabin linings with self-extinguishing qualities; stowing carry-on baggage; slip-resistant and clearly marked escape routes; and better protection of fuel and electric lines. Compliance dates for the new rules ranged from Oct 24, 1967, to Oct 1, 1969. (See Jun 7, 1965, and May 1, 1972.)

Sep 20, 1967: Citing the rapid growth of commercial and private flying, President Johnson requested Transportation Secretary Alan S. Boyd to develop a long-range, comprehensive plan for the facilities, equipment, and personnel required for a substantial **expansion and improvement of the air traffic control system**. The President stated that the plan "should be accompanied by a proposal for financing the improvements through a **system of charges** by which the users of the Nation's airways bear their fair share of its costs." (See May 20, 1968.)

Sep 22, 1967: **North American Rockwell Corporation** came into being, result of a merger between North American Aviation and Rockwell-Standard Corporation.

Sep 25, 1967: AN FAA report released on this date concluded that **the economic effects of the development of general aviation airports** were beneficial for five communities studied: Hereford,

Tex.; Sumter, S.C.; Hayward, Calif.; Frederick, Md.; and Fairmount, Minn. FAA found that airports served as a catalyst for business growth, helping to provide industrial jobs for machine-displaced farm laborers, as well as providing operational bases for aerial crop seedings and crop spraying.

Oct 3, 1967: Maj. William J. Knight, USAF, piloting the X-15 rocket plane, set an unofficial **world record of 4,534 miles an hour**, almost seven times the speed of sound. (See Jul 28, 1976.)

Oct 11, 1967: A new prototype **airport traffic control tower equipped with solid-state electronic equipment** went into operation at Reid-Hillview Airport, San Jose, Calif. Designed primarily for small airports, such a tower provided the same services as towers with vacuum tube equipment, but at much less cost. The solid-state equipment was also more reliable, compact, easier to install, and required less maintenance.

Oct 19, 1967: FAA type-certificated **the Grumman Gulfstream II**, a two-engine corporate jet with a crew of two and a maximum capacity of 19 passengers in the corporate seating arrangement. Oct 19, 1967: FAA retitled the Office of Management Services the **Office of Management Systems**, to reflect a shift in the primary responsibility of the office from providing specific administrative support services to the development of agencywide systems and methods for solving management problems. adding "other than reactions of the earth's surface." This change meant that hovercraft were not subject to international standards and regulations governing aircraft. (See Oct 16, 1964.)

Dec 4, 1967: Effective this date, **FAA required pilots of small turbine-powered aircraft to follow the same noise abatement procedures mandated for pilots of large transports**. The change meant that the rules now applied uniformly to all large (over 12,500 lbs.) aircraft and to all turbine-powered aircraft, whose pilots were currently required to: (1) enter an airport traffic area at 1,500 feet above surface and maintain that altitude until further descent was necessary for safe landing; (2) climb to 1,500 feet as rapidly as practicable after takeoff; and (3) use assigned noise abatement runways at airports where FAA had established a formal runway use program. In addition, pilots of all large aircraft and all turbine-powered aircraft equipped with an Instrument Landing System (ILS) were required to remain at or above the glide slope on final approach for ILS landings. (See Apr 4, 1960, and Feb 4, 1971.)

Dec 7, 1967: FAA decommissioned the **Wake Island air traffic control center** and transferred its air traffic control functions to the Honolulu ARTCC.

Dec 11, 1967: **Sud Aviation and the British Aircraft Corporation unveiled a prototype of the British-French Concorde**, the West's first supersonic transport, in Toulouse, France. On Mar 2, 1969, the Concorde made its first flight. Almost ten years later, on Sep 21, 1979, after meeting in London, aviation officials of France and the United Kingdom agreed to **end the unprofitable Concorde production program**. Unsold Concordees were allocated to the flag carriers of the two countries--Air France and British Airways. Only sixteen of the supersonic jet transports had been built.

Dec 18, 1967: The Post Office Department imposed **requirements on air taxi operators desiring contracts for carrying U.S. mail**. To qualify, air taxi aircraft had to have at least two engines, complete deicing equipment, and Instrument Flight Rules (IFR) capability. Similarly, air-taxi pilots were required to have an IFR rating, a minimum of 500 flight hours, 50 hours of night operations, and 50 hours of IFR operations under actual IFR conditions.

Dec 22, 1967: FAA renamed its Installation and Materiel Service the **Logistics Service** to describe better the service's revised functions. (See May 16, 1962 and Jan 19, 1970.)

***1968**

Jan 1, 1968: The Federal Aviation Administration began a one-year **study of the causes of near-collisions in the air**, hoping to gather data for developing effective counteractive measures. Since the study's success depended on the full and frank cooperation of those involved, FAA granted **immunity from any enforcement** or other adverse action, remedial or disciplinary, to any person involved in a near miss that had been voluntarily reported to FAA during the course of the study. On Dec 18, FAA extended the program for an additional year. (See Jun 7, 1961, and Jul 15, 1969.)

Jan 15, 1968: AN FAA technical team began a **review of modifications made by Boeing to its supersonic transport (SST) prototype design** (variable-sweep-wing model 2707-200). The team found that these changes, by increasing the aircraft's weight, had resulted in a poor weight-payload ratio. This overweight factor limited range and payload to such an extent that the prototype's calculated performance fell well below the specifications for the Phase III contract. (With a full payload, the 2707-200 had a range of only 2,775 statute miles.) An **amendment to the Phase III**

contract, dated Mar 29, 1968, required Boeing to submit to FAA by Jan 15, 1969, a fully substantiated design capable of meeting the Phase III contract criteria for the prototype airplane. (See Jun 5, 1967, and Oct 21, 1968.)

Jan 19, 1968: FAA Administrator McKee approved the **realignment of the functions of the Associate Administrator for Personnel and Training** (see Oct 1, 1965). Under the new organizational structure, the agency established a separate Office of Personnel and a separate Office of Training, as well as a Manpower and Planning Staff and an Executive and Military Personnel Staff. This realignment provided a closer grouping among traditional personnel and training functions and permitted a quicker response to agency needs. The new office became operational on Feb 1, 1968. Jan, 1968: A group of dissatisfied air traffic controllers in the New York area formed the **Professional Air Traffic Controllers Organization (PATCO)**. By the end of Jun 1968, PATCO had a national membership of well over 5,000 FAA employees. (See Jan 17, 1962, and Jul 3, 1968.)

Feb 21, 1968: **A sustained wave of U.S. air carrier hijackings** began when a fugitive aboard a Delta Air Lines DC-8 forced the pilot to divert to Havana. By Jul 17, four more U.S. airliners had been diverted to the same destination. On Jul 19, FAA announced that specially trained FAA safety inspectors ("**sky marshals**") had begun boarding Florida-bound airline flights (see Aug 10, 1961, and Oct 28, 1970). The inspectors, sworn in as deputy U.S. marshals after being trained at the U.S. Border Patrol Academy, were generally assigned to flights on a random, unannounced basis. Hijackings continued, however, and a total of twelve airliners and six general aviation aircraft were diverted to Cuba during 1968. (See Jan 1969.)

Feb 26, 1968: FAA issued an advance notice of proposed rulemaking inviting comments on the advisability of requiring general aviation pilots to carry **crash locator beacons** when flying over large bodies of water, mountainous terrain, or remote areas. The agency cited a growing body of opinion that the device would be useful in the rapid location of crash sites and survivors. FAA had begun testing the equipment in 1963, and had subsequently encouraged its use (see Jan 9, 1964). The agency had resisted regulatory action, however, because of the equipment's high cost and the need for related airborne search units used to "home in" on the crash site. (See Mar 20, 1969.)

Feb 26, 1968: FAA's put into operation its **National Airspace Communications System (NASCOM)**, a daily nationwide telephone conference. NASCOM connected the Administrator, Deputy Administrator, the associate administrators, the heads of FAA's operating services, the regional directors, and area managers in the contiguous United States, and the directors of NAFEC and the Aeronautical Center in a telephone discussion of the status of the National Airspace System (NAS). The agency developed NASCOM because of the need to keep Washington headquarters closely and constantly in touch with activities in the NAS.

Feb, 1968: AN FAA study noted the **growing volume of mail receiving air transportation** in recent years with special emphasis on first-class mail moved on a space available basis. About 95 percent of first-class mail traveling over 200 miles currently moved by air. The study predicted that mail by air would continue to increase steadily and that the use of air taxis would be expanded to expedite overnight delivery to additional communities. (See Dec 18, 1967, and Calendar year 1968.)

Mar 1, 1968: The Point Barrow, Alaska, flight service station went into operation, becoming **FAA's northernmost facility** (71 degrees 22 minutes north latitude). FAA's southernmost facility, located at 14 degrees 16 minutes south latitude, was the Pago Pago international flight service station in American Samoa.

Mar 16, 1968: Under a rule effective this date, FAA prohibited **VFR (visual flight rules) operations** at or above 10,000 feet above mean sea level unless a pilot enjoyed a minimum visibility of five miles while remaining at least 1,000 feet vertically and one mile horizontally from cloud formations.

Apr 1, 1968: **Consolidation of several airlines in Alaska** occurred as Alaska Coastal Airlines merged into Alaska Airlines, which had absorbed Cordova Airlines on Feb 1, 1968. On the same day, a merger of Northern Consolidated Airlines and Wien Alaska Airlines created a new intrastate carrier, Wien Consolidated Airlines.

Apr 17, 1968: Bonanza Air Lines and West Coast Airlines merged with Pacific Air Lines to form **Air West**, which was renamed **Hughes Air West** in Jul 1970, following its acquisition by Howard Hughes.

Apr 30, 1968: FAA **banned Special VFR (visual flight rules) operations by fixed-wing aircraft at 33 major airports**, under a rule effective this date. Special VFR operations are visual operations conducted under less than basic VFR weather minimums. The new rule continued to permit such

operations in the control zones of other airports served by a radar-equipped control tower, though priority would be given to aircraft operating under instrument flight rules (IFR). The rule also continued to permit special VFR operations in airport control zones not served by radar, but only when IFR operations were not being conducted. The growing number of high performance aircraft, coupled with the continuing increase in air traffic, necessitated this reduction in special VFR operations. May 2, 1968: The **Beechcraft Model 99** received FAA type certification. The aircraft was a twin-engine, 17-passenger turboprop designed specifically for the scheduled air taxi market.

May 20, 1968: The Johnson Administration submitted **two legislative proposals dealing with airport and airway development** to Congress. One bill provided for Federal loans to sponsors of public airport development, and for a small Federal grant-in-aid program to certain airports. The other bill provided for expanded user taxes, with revenues generated by these taxes being used to fund airway development. Both proposals were an outgrowth of President Johnson's letter to Secretary Boyd calling for a long-range airways development plan (see Sep 20, 1967).

The Senate Commerce Committee rejected the airport loan proposal in a report issued Jul 1. Instead, the committee favored a grant-in-aid program for airports of \$150 million a year--double the amount authorized at that time by the Federal Airport Act (see Sep 20, 1961). In addition, the committee recommended the establishment of an aviation trust fund--a concept opposed by the Administration--into which would go all revenues generated by user taxes and other congressional appropriations to FAA. All FAA programs and operations would be funded through this fund.

The committee reported out a bill based on these recommendations. Although the 90th Congress failed to act on this measure, it later became the basis of the Airport and Airway Development and Revenue Acts of 1970. (See Jun 16, 1969, and May 21, 1970.)

May 27, 1968: FAA announced that Washington National was the first airport in the U.S. to have its main instrument runway equipped with **color-coded centerline lights** for greater safety in low-visibility weather. Alternate red and white lights cautioned pilot that they were entering the last 3,000 feet of runway, while all-red centerline lights marked the last 1,000 feet.

Spring, 1968: The **Stored Program AlphaNumerics (SPAN) equipment** transferred to the New York air route traffic control center in 1966, and subsequently renamed **Beacon AlphaNumerics (BAN)**, was dismantled and shipped to Atlanta, where it was to augment the ARTS I configuration at that terminal area. (ARTS and BAN hardware components were virtually identical.) While BAN had been perfectly capable of handling the en route traffic assigned to the Indianapolis ARTCC, it was incapable of meeting the considerably greater control demands imposed by the New York center, which had perhaps the most difficult radar beacon and traffic control environment in the United States. The chief difficulties with BAN in New York were those growing out of the configuration's limited capacity. BAN could cover only nine of the center's 37 sectors. Consequently, aircraft were flying out of sectors with automation into sectors without automation, and vice versa. (See Feb 1966.)

Jun 13, 1968: The Secretary of Transportation delegated responsibility for administering the **aircraft loan guarantee program** to the FAA Administrator. The Department of Transportation Act of 1966 had transferred final loan guarantee responsibility from the Secretary of Commerce to the Secretary of Transportation. Authority to guarantee loans under the act had lapsed in 1967, but was renewed in 1973 with changes that included an increase of the maximum limit per carrier to \$30 million. (See Oct 15, 1962, and Sep 7, 1977.)

Jun 20, 1968: FAA abolished the **Northway (Alaska) Area Office** and transferred its duties to the Fairbanks Area Office. (See Apr 23, 1959.)

Jun 21, 1968: The U.S. Department of Labor ruled that FAA's **age-60 rule on airline pilot retirement represented a "bona fide occupational qualification"** (BFOQ) under the provisions of the Age Discrimination in Employment Act of 1967. On Apr 20, 1977, however, a U.S. appeals court held in the case of *Houghton v. McDonnell Douglas* that age did not necessarily constitute a BFOQ for test pilots. (See Mar 15, 1960, and Jan 24, 1974.)

Jun 30, 1968: The **Lockheed C-5A Galaxy**, a long-range military heavy transport, made its first flight. On Sep 30, 1965, the Air Force had selected Lockheed to develop and produce the heavy logistics transport aircraft. The C-5A was powered by four General Electric TF39-GE-1 turbofan engines, each rated at 41,000 pounds of thrust. Intended primarily as a freighter, the aircraft's maximum takeoff weight was 728,000 pounds; its design payload, 220,000 pounds. On Dec 17, 1969, the Lockheed C-5A transport was formally turned over to the U.S. Air Force during ceremonies at Marietta, Ga., where the aircraft was manufactured.

Jun 30, 1968: During fiscal 1968, which ended on this date, the U.S. Weather Bureau transferred responsibility for the **Pilot Automatic Telephone Weather Answering Service (PATWAS)** to FAA. Also during this fiscal year, airports to accommodate STOL (short takeoff and landing) aircraft were for the first time included in the National Airport Plan, which covered the years 1967-73. **Twenty-five potential STOLports were identified** in the eastern megalopolis and along the west coast, both areas of dense traffic deemed a ready market for short-haul operations within and between cities. (See Nov 5, 1966, and Aug 5, 1968.)

Jul 1, 1968: FAA implemented **Project 85, a general aviation accident prevention program**, for a two-year trial in the Central and Southwest Regions. Under the program, an accident-prevention specialist at each general aviation district office was to stimulate and focus cooperation of the aviation public, the aviation industry, and the government agencies toward a substantial reduction in general aviation accidents. (See Nov 30, 1970.)

Jul 1, 1968: Effective this date, FAA included on its list of emergency procedures the **dropping of chaff** by pilots experiencing a communications failure or wishing for any other reason to declare an in-flight emergency. The chaff (strips of tinfoil or other radio-wave-reflecting material) would cause radar echoes to attract the attention of air traffic controllers.

Jul 1, 1968: FAA transferred the **Aeromedical Education Division** from the Office of Aviation Medicine, FAA Headquarters, Washington, D.C., to FAA's Aeronautical Center, Oklahoma City, Okla.

Jul 3, 1968: PATCO president Michael J. Rock announced "**Operation Air Safety**," which he described as a campaign among PATCO members to maintain FAA-prescribed separation standards between aircraft. Rock said that FAA supervisors were violating these standards to accommodate the high levels of traffic, but that thereafter PATCO-affiliated controllers would "go by the procedures in the manual." (See Jan, 1968, and Jul 19, 1968.)

Jul 15, 1968: By this date, FAA had commissioned the **first Bright Radar Indicator Tower Equipment (BRITE-1) systems** at the Newark, Dallas (Love), and Birmingham airport towers (see Apr 27, 1960). The system presented a televised image of a radar display, an image distinct enough to be used by tower cab controllers in daylight. FAA had used such televised displays on a limited basis since the mid-1960s, then ordered the BRITE-1 from ITT in Mar 1967. The agency subsequently procured two upgraded versions of the system, which were designated BRITE-2 and BRITE-4. By Jul 1979, there were approximately 394 BRITES in service, some of which provided a remote display of radar data at satellite airports without radar transmitters. A **Bright Alphanumeric Subsystem (BANS)** was used to convert digital data from Automated Radar Terminal Systems (ARTS) for presentation on BRITE displays. In Jul 1986, FAA ordered approximately 400 **Digital Bright Radar Indicator Tower Equipment (DBRITE)** systems from Unisys as part of a joint procurement with the Defense Department. DBRITE was expected to provide a simplified and more reliable replacement for both BRITE and BANS. By the end of fiscal year 1992, FAA had completed installation of the DBRITE systems.

Jul 15, 1968: The **New York Common Instrument Flight Rules (IFR) Room** at John F. Kennedy International Airport went into limited operation by taking over the manual IFR operations controlled by the Kennedy TRACON (terminal radar approach control facility). The Common IFR Room then took over manual IFR operations controlled by the Newark and La Guardia airports' TRACONS in August and September.

This consolidation permitted more flexible and efficient air traffic control. Under the old scheme, each of the control facilities at Kennedy, Newark, and La Guardia had been assigned airspace with more or less inviolable boundaries separated by large buffer zones. Because of the slowness of communications between the control facilities, boundaries and buffer zones could not be easily shifted to meet changes in traffic flow. In the Common IFR Room, however, controllers working different control areas were within easy reach of each other; when necessary, they were able to shift boundaries and buffers almost instantaneously. (See Jun 1, 1969.)

Jul 15, 1968: **Aeroflot Soviet Airlines and Pan American World Airways inaugurated twice-weekly scheduled passenger service between Moscow and New York** as an Aeroflot Ilyushin IL-62 departed Moscow and flew to Kennedy International Airport via Montreal. A Pan American Boeing 707 departed Kennedy that evening and, after an intermediate stop in Denmark, arrived at Moscow on Jul 16. Aeroflot

had been issued a foreign air carrier permit by the Civil Aeronautics Board on Jun 15, 1968 and the President approved the CAB permit on Jun 19, 1968. (See Nov 4, 1966, and Jun 19, 1973.)

Jul 17, 1968: The Department of Transportation formed an **Air Traffic Control Advisory Committee** for the purpose of recommending air traffic control systems and requirements for the 1980s and beyond. (See Dec 1969.)

Jul 19, 1968: Air traffic congestion reached critical proportions when a total of **1,927 aircraft in the vicinity of New York City were delayed** in taking off or landing, some for as long as three hours. The jam, which spread to other major transportation hubs, was exacerbated by PATCO's decision to conduct a slowdown. (See Jul 3, 1968, and Jan 15, 1969.) At the root of the problem, however, was the inability of an inadequate and long-neglected air traffic control and airport system to accommodate the heavy tourist-season traffic. The jam was symptomatic of conditions that forced FAA to develop schedule restrictions for certain airports. (See Jun 1, 1969.)

Jul 21, 1968: President Johnson signed **Public Law 90-411**, which amended the Federal Aviation Act of 1958 to require **aircraft noise abatement regulation**. The act vested in the FAA Administrator the power, after consultation with the Secretary of Transportation, to: prescribe and amend standards for the measurement of aircraft-engine noise and sonic boom; prescribe noise standards as criteria for aircraft certification; require the retrofit of existing aircraft with quieter engines or noise-abating devices; enforce operating procedures that reduce noise; and ban overland supersonic flights of civil aircraft. (See Dec 1, 1969, and Oct 27, 1972.)

Jul 31, 1968: **General William F. McKee resigned as FAA Administrator** effective this date (see Jul 1, 1965). On Aug 1, 1968, Secretary of Transportation Alan S. Boyd designated FAA Deputy Administrator David D. Thomas as Acting Administrator. No one was named to the FAA Administrator post during the remaining months of the Johnson Administration. (See Mar 24, 1969.)

Aug 5, 1968: The **first STOLport (short takeoff and landing facility) for commercial aircraft** in the United States opened at La Guardia Airport in New York City. The STOLport, 1,095 feet long, would be used for VFR flying only. (See Jun 30, 1968, Sep 23, 1968, and Oct 17, 1971.)

Aug 7, 1968: AN FAA rule effective this date required **deployment-assisting devices on parachutes** for static-line jumps. The rule responded to a number of static-line parachuting accidents caused by improper extensions of the pilot chute or by entanglement of parachutes with jumpers. (See Mar 24, 1967.)

Aug 8, 1968: Congress exempted FAA **air traffic control personnel** from those provisions of Public Law 90-364 limiting the number of full-time civilian employees in the executive branch to the total employed on Jun 30, 1966. Controller shortages at the large air hubs and the busier centers, coupled with a more rapid than expected increase in air traffic necessitated the need for additional controllers.

Sep 23, 1968: Washington Airlines began the nation's **first regularly scheduled short takeoff and landing (STOL) service**. The new air shuttle service, using 11-passenger, twin-engined Dornier Sky Servants linked the Washington, D.C., area's three major airports: Washington National, Dulles International, and Baltimore Friendship. (The service proved short-lived, however, since the airline ceased operations on Sep 26, 1969.)

Also on Sep 23, 1968, FAA issued **design guidance for developing STOL airport facilities**, recommending runways 1,500 feet long and 100 feet wide, taxiways 60 feet wide, and pavements strong enough to support 150,000-pound STOL transports. STOLports at close-in locations were expected to alleviate some of the air traffic congestion at large conventional airports. To further encourage their development, FAA on Nov 5, 1970, issued an advisory circular providing criteria and specific information for planning, designing, and constructing such facilities. (Aug 5, 1968, and Apr 29, 1971.)

Sep 28, 1968: Under provisions of a rule effective this date, **FAA required an approved altitude alerting system** to be installed on all U.S. civil turbojet aircraft by Feb 29, 1972. Aided by this device, a pilot climbing or descending to a preselected altitude would be alerted, by signals to both eye and ear, in sufficient time to establish level flight at the desired altitude. The device would also provide a warning if the pilot strayed from an assigned altitude. FAA considered this necessary because of the dangers posed by inadvertent aircraft deviations from assigned or predetermined flight lanes in an environment increasingly populated by turbojets possessing capability for rapid climb and descent.

Sep 29, 1968: AN FAA-sponsored report released this date outlined four optional **plans for modernizing 27-year-old Washington National Airport** through a new or enlarged terminal building, more vehicular parking, the accommodation of a rapid transit station, and such airport-related facilities as a hotel and office building. In its 1972 budget submission, FAA unsuccessfully requested \$26 million as the Federal share of a modernization program for which air carriers and concessionaires were expected to contribute \$131 million.

Oct 1, 1968: The first partial **instrument landing system (ILS) to be paid for and installed without Federal financial assistance** was commissioned at the Westmoreland-Latrobe County Airport, Latrobe, Pa. Later, on May 1, 1969, the Outagamie Airport, Appleton, Wis., installed the first full ILS to be purchased without benefit of Federal funds. A partial ILS includes outer and middle markers and a localizer, while a full ILS also includes a glide slope.

Oct 10, 1968: Enactment of Public Law 90-566 authorized **higher overtime pay for certain FAA employees**. Those nonmanagerial employees with duties critical to the daily operation of the air traffic control and navigation system became eligible for overtime pay at one and a half times their regular pay in grades up to and including GS-14. The affected employees--who worked in air traffic control, flight inspection of navigational aids, and airway facility maintenance--were thus excepted from a general ceiling that limited overtime pay to one and a half times the regular pay for the first step of pay grade GS-10.

Oct 14, 1968: A **new Part 123 of the Federal Aviation Regulations went into effect, upgrading safety requirements for air travel clubs** using large aircraft (over 12,500 pounds). This new part was intended to raise the clubs' maintenance and operating standards to the safety level of airlines and commercial operators certificated under Part 121 (see Dec 31, 1964), but without imposing onerous or inappropriate requirements. The affected clubs were required to cease operations after Dec 1 unless they applied for a certificate under the new Part 123. Those that applied were permitted to operate without such a certificate until Feb 1, 1969.

Oct 21, 1968: The **Boeing Company formally announced it had abandoned its variable-sweep-wing design for the U.S. supersonic transport (SST)** in favor of a conventional fixed-wing. The company's engineers had never been able to overcome the weight penalties imposed by the variable-sweep wing design. Boeing would submit the new design to FAA for approval in Jan 1969. (See Jan 15, 1968, and Jan 15, 1969.)

Oct 23, 1968: The National Transportation Safety Board announced that **aircraft accident investigation reports** would be available, upon request, to the public. The Board took this action to make the disclosure of aircraft accident information consistent with the Freedom of Information Act.

Oct, 1968: FAA resumed basic **air traffic control training at the FAA Academy** in Oklahoma City. Since the fall of 1962, apprentice ATC specialists had been receiving their basic training on the firing line--at towers, centers, or flight service stations, depending on their specialty. This procedure had worked satisfactorily when the ATC work force was declining (as it was between Jun 1963 and Jun 1967). By mid-1968, however, the number of ATC trainees had ballooned to 10 percent of the total ATC specialist work force. Training a contingent of this size required a faster, more efficient, and more formal training program. (See Calendar year 1968.)

Nov 13, 1968: President-elect Richard M. Nixon announced that "a first priority of my Administration will be to **strengthen our air-controller force**, improve their working conditions and provide them with new equipment they need to keep our airways safe."

Nov 21, 1968: The first U.S. **rapid transit system linking an airport to a downtown area** began operating in Cleveland between Hopkins International Airport and the city's Union Terminal. This rail service provided easy access to the airport from most sections of Cleveland.

Nov 22, 1968: In accordance with a plan approved in Feb 1968, FAA ordered a **realignment of relationships between its regional and area offices**. The aim was to give area managers more time for day-to-day operational functions by shifting many functions to the regional headquarters. In the area of facilities and equipment, the regions assumed responsibility for contracting, program control, and installation; however, the area offices continued to make site investigations, perform preliminary engineering and planning, and participate in acceptance inspections. The regions assumed final authority for air carrier enforcement actions; however, area offices, in conjunction with general aviation district offices, continued to handle all air taxi and general aviation enforcement actions. The area compliance and security branches, and the area counsels, were abolished and their functions assumed by the regions. The area budget and management branches were also abolished, and the area

offices retained only small administrative staffs. Field offices and facilities now submitted requests for budgetary resources directly to the regional offices. The regional offices assumed all formal management analysis functions. The regions also provided a full range of personnel and training services to the area offices, which retained only small personnel and training staffs.

This realignment was the first such change since the 18 area offices in the contiguous United States had been established under the agency's long-range decentralization program (see May 18, 1965, and May 22, 1969).

Nov 27, 1968: AN FAA circular outlined **modifications to airport terminal facilities to assist physically disabled persons** traveling by air. Areas requiring improvement included: vehicular loading areas, parking areas, doors, stairways, elevators, escalators, toilet facilities, drinking fountains, telephones, signs, and signals.

Nov 27, 1968: FAA formally established an **Office of Aviation Economics and an Office of Aviation Policy and Plans under the Associate Administrator for Plans**. At the same time, the **Office of Noise Abatement was transferred to the Associate Administrator for Plans** from the Associate Administrator for Operations. (See Jul 21, 1967, Aug 28, 1967, and Dec 22, 1970.)

Dec 15, 1968: **New classification and qualification standards** for air traffic control specialists became effective this date. The new standards, developed by the Civil Service Commission, simplified procedures for career development within the occupation. FAA upgraded 9,234 ATC specialist positions within six months after the new standards went into effect. (See Jun 26, 1961.)

Dec 21, 1968: The United States launched Apollo 8, the **first manned mission to orbit the moon**. (See Jul 20, 1969.)

Dec 30, 1968: The **data-processing capability** of the NAS En Route Stage A system at the Jacksonville (Fla.) ARTCC went into operation on a part-time basis. The system's new computer complex processed and automatically updated flight plans filed by pilots with the Jacksonville ARTCC area. (See May 24, 1965, and Feb 18, 1970.)

Dec 31, 1968: The Soviet Union's **Tupolev TU-144 prototype became the world's first supersonic transport to make its maiden flight**. (See entry for Dec 11, 1967.)

Calendar year, 1968: The **air taxi business** was the fastest growing component of general aviation thus far during the 1960s. As of Nov 1, 1968, scheduled air-taxi operators in the United States numbered 240, with 1,272 aircraft in use. Less than five years earlier, on Jan 1, 1964, there had been only 12 scheduled air-taxi operators, with 72 aircraft in use. The main demand for this "third level" of service had come from people desiring air transportation from outlying points not served by local-service or trunk airlines. Another important part of the growth was in air-taxi carriage of the U.S. mail. (See Sep 7, 1964, Feb 1968, and Jul 1, 1969.)

Also during this year, FAA-approved **courses in air traffic management** were offered as part of the regular 1968-69 curriculum by a number of junior colleges participating in an FAA-organized cooperative aviation education program designed to help meet the critical need for air traffic control personnel. Under the program, FAA tested applicant students for suitability for ATC work. Those enrolled served tours of duty at FAA installations while pursuing their college work. During their first semester of ATC course work, these students were employed as GS-3 flight data aids; they were to become eligible for promotion for GS-4 during their second semester. (See Jun 29, 1948, and Oct 1968.)

***1969**

Jan 7, 1969: FAA imposed **additional airworthiness standards for small airplanes used in air taxi operations** under Special Federal Aviation Regulation 23, effective this date. The standards applied to piston-powered and turboprop airplanes weighing 12,500 pounds or less and capable of carrying more than 10 occupants, including the flightcrew. (See Sep 7, 1964, and Dec 1, 1978.)

Jan 15, 1969: The **U.S. Civil Service Commission (CSC) ruled that the Professional Air Traffic Controllers Organization (PATCO) was an employee organization**, not a professional society, because it had sought and obtained a dues-withholding agreement. FAA had agreed to permit a voluntary payroll deduction plan for the payment of PATCO dues with the understanding that PATCO would remain a professional society. As a result of the CSC ruling, PATCO became subject to the Standards of Conduct and the Code of Fair Labor Practices. At the same time, however, PATCO became eligible for formal recognition as a labor bargaining organization under Executive Order 10988. (See Jul 19, 1968, and Jun 11, 1969.)

Jan 15, 1969: FAA adopted a **method of regulating the flow of traffic into the Metropolitan New York area**. The new procedures went into effect each time the delay forecast for IFR aircraft flying into New York exceeded one hour. When this happened, the flow of air traffic into New York was limited by keeping New York-bound aircraft on the ground at their points of departure. Though the new procedures did little or nothing to reduce the length of delays incurred by New York-bound aircraft, they did reduce the length of time spent in airborne holding patterns to an hour or less. This, in turn, reduced congestion on the airways leading to New York and facilitated the flow of non-New York traffic using or crossing these routes. (See Jul 19, 1968, and Jun 25, 1970.)

Jan 15, 1969: The Boeing Company submitted to FAA for evaluation a **new supersonic transport (SST) configuration, a delta-wing design with a horizontal tail**. A 100-person review team drawn from FAA, NASA, and the Defense Department found that Boeing had adequately integrated the new design.

In February, President Nixon appointed an interdepartmental committee headed by Under Secretary of Transportation James M. Beggs to review the SST program. The committee's report, submitted in early April, contained mixed views on the program's future. Secretary of Transportation Volpe, however, continued to advise in favor of the program.

On Sep 23, 1969, Nixon announced that the SST development program would be continued because the project was essential to maintaining U.S. leadership in world air transport. The President requested Congress to appropriate \$96 million during fiscal year 1970 (\$662 million over a five-year period, fiscal 1970 through fiscal 1974) to pursue the program. (See Oct 21, 1968, and Apr 6, 1970.)

Jan 20, 1969: **Richard M. Nixon became President**, succeeding Lyndon B. Johnson.

Jan 22, 1969: **John A. Volpe became Secretary of Transportation**, succeeding Alan S. Boyd (see Jan 16, 1967), who had resigned with the change in administrations. Volpe, a successful building contractor, had served as Governor of Massachusetts. (See Feb 2, 1973.)

Jan 27, 1969: Under an FAA contract, the University of Ohio initiated a five-year study seeking to improve the overall **capabilities of the existing instrument landing system**, giving particular attention to interference problems. The contractor examined existing criteria for controlling taxiing aircraft on or near ILS runways and also examined criteria for taxi-strip and warmup-area construction. This part of the study had largely been prompted by the introduction of the Boeing 747 and the Lockheed C-5A, which, because of their size, could seriously interfere with ILS signals. Another part of the study dealt with the possible effects of hangars, buildings, powerlines, and terrain on electronic signals. A computer manufacturer developed a mathematical model and a generalized computer program for predicting these effects for the study.

Jan, 1969: Eight U.S. airliners were **hijacked to Cuba** during the month (see Feb 21, 1968). In February, FAA created an eight-man **Task Force on the Deterrence of Air Piracy** that combined a broad spectrum of expertise under the leadership of the Deputy Federal Air Surgeon (see Aug 3, 1970). Systematic study by the Task Force revealed that a hijacker "profile" could be constructed from behavioral characteristics shared by past perpetrators. When used in conjunction with a magnetometer weapons-screening device developed by the agency, the **profile system** offered a promising method of preventing potential hijackers from boarding aircraft. On Oct 15, FAA announced that Eastern Air Lines was using the system at several key locations. By Jun 15, 1970, four U.S. air carriers were employing the system. (See Jul 17, 1970.)

Feb 4, 1969: The **XB-70 supersonic research aircraft** made its final flight, from Edwards AFB, Calif., to Wright-Patterson AFB, Ohio, where it was placed on exhibit in the Air Force Museum. (See Mar 25, 1967.)

Feb 9, 1969: **The Boeing 747, the first of the wide-body jetliners, made its initial flight**. On Sep 30, 1968, Boeing had unveiled the large subsonic jet, which was powered by four Pratt & Whitney JT9D-3 turbofan engines, each rated at 43,500 pounds of thrust. The plane had a maximum takeoff weight of 710,000 pounds and a maximum payload of 220,000 pounds. Its seating capacity ranged up to 490 passengers, although most airlines planned a seating configuration in the 350-365 range. FAA certificated the 747 on Dec 30, 1969. Pan American World Airways, which on Apr 13, 1966, had placed the first order for the 747s at a cost of \$525 million for 25, became the first airline to operate the new wide-body as **the 747 entered service with a takeoff from New York for London on Jan 22, 1970**. Trans World Airlines inaugurated the first transcontinental 747 service, between Los Angeles and New York, on Feb 25, 1970.

Feb 20, 1969: Theodore C. Uebel, an FAA International Liaison Officer, received the **first International Aviation Service Award**. The award, which recognized singular achievements in advancing the cause of international aviation, was financed by private donations from FAA employees.

Feb 21, 1969: To keep pace with the growth of the U.S. civil aviation fleet, FAA **expanded the number of aircraft identification numbers available**. The identification numbers continued to consist of the prefix letter "N", followed by not more than five symbols. These symbols could consist of all numerals (e.g., N10000), or of one to four numerals with a suffix letter (e.g., N1000A). In the past, FAA had sometimes also assigned identification numbers with one to three numerals and two suffix letters (e.g., N100AB), but only to fulfill certain special requests. Now, however, FAA permitted the unrestricted issuance of these identification numbers consisting of one to three numerals and two suffix letters. This change increased the number of available identification numbers from about 339,000 to about 739,000.

Feb 27, 1969: FAA launched the **Experimental Aviation Technology Education Project** in cooperation with a number of institutions of higher learning to establish college-level programs responsive to the manpower needs of the aviation community and FAA. Curriculums at the institutions combined broad liberal arts educational subjects and aviation-oriented academic study with on-the-job experience at FAA facilities. After a two-year test period at 15 schools, FAA removed this program from the experimental stage, renamed the work study program, and transferred it from the Washington Headquarters to FAA's Regional Offices.

Mar 5, 1969: A **Puerto Rico International Airlines (PRINAIR) de Havilland 114 Heron crashed near San Juan, P.R.**, killing all 19 persons aboard. The National Transportation Safety Board (NTSB) listed the probable cause as the vectoring of the aircraft into mountainous terrain by a controller performing beyond the safe limits of his performance capability and without adequate supervision. NTSB noted that a routine psychological test in 1966 had suggested that the controller suffered from high anxiety and low stress tolerance. He then received psychiatric and psychological examinations, after which the regional flight surgeon pronounced him fit for duty. NTSB concluded the controller's problems with anxiety and stress, in combination with other factors, might have caused his inadequate duty performance. NTSB therefore recommended that FAA expand the psychiatric and psychological assessment of controllers, and place such assessment under the strict supervision of qualified psychiatrists and psychologists. In reply, FAA pointed to the appointment of a panel of psychiatrists and psychologists to assist the Federal Air Surgeon.

Mar 7, 1969: A Civil Aeronautics Board rule effective this date imposed the first Federal requirement for **air taxi operators to carry liability insurance** covering passengers as well as persons and property on the ground. The minimum coverage was \$75,000 per person and \$100,000 for property damage.

Mar 20, 1969: FAA published a proposal to require air taxis and small aircraft flown by commercial operators to carry **crash locator beacons** and other survival equipment. FAA's proposal referred to public and congressional concern generated in recent years by accidents in which survivors had perished because rescuers could not locate the crash site. The agency also noted the expansion of air taxi operations to include larger aircraft over longer routes, and the disappearance in Feb 1969 of a DC-3 on an air taxi flight from Hawthorne, Nev. (See Feb 26, 1968, and Dec 29, 1970.)

Mar 24, 1969: **John H. Shaffer became the fourth FAA Administrator**, succeeding William F. McKee (see Jul 1, 1965). President Nixon had nominated Shaffer on Mar 6 and the Senate confirmed the nomination on Mar 20.

Born in Everett, Pa., in 1919, Shaffer earned his wings while still at West Point. Graduating in Jan 1943, at the height of World War II, he went on to fly 46 combat missions as a B-26 pilot with the 9th Air Forces in Europe. In 1946, while still in uniform, he earned an M.S. degree from Columbia University. This was followed by successive assignments as production project officer of the Army Air Forces B-50 program (1946-48) and weapons system program manager of the Air Force's B-47 program (1948-54). In Jan 1954, he resigned his Air Force commission with the rank of lieutenant colonel to become general production manager and assistant plant manager of the Ford Motor Company's Mercury assembly plant in Metuchen, N.J. Three years later, he joined TRW, Inc., an aerospace conglomerate. Shaffer resigned his position as corporate vice president (customer requirements) of TRW to become FAA Administrator, a post which he held for nearly four years. He

resigned, as part of a broad Nixon Administration reorganization, effective Mar 14, 1973 (see that date).

After leaving FAA, Shaffer remained active in aviation as a consultant and served as a board member of several companies. He died on Sep 14, 1997.

Mar 27, 1969: FAA created an **Equal Opportunity Staff**, headed by a Director of Equal Opportunity, and transferred the equal opportunity and civil rights functions of the Office of Compliance and Security to the new staff. On May 19, 1969, the staff became the **Office of Civil Rights**. The head of the office, who reported directly to the Administrator, was titled the Director of Civil Rights (later the Assistant Administrator for Civil Rights). The new office's responsibilities included assuring: that FAA offered equal opportunities to all employees eligible for advancement and all qualified job applicants; that employment practices of FAA contractors, subcontractors, material suppliers, and recipients of FAA grants-in-aid conformed with Federal civil rights regulations; and that FAA programs and activities affecting housing and urban development were consistent with the fair housing provisions of the Civil Rights Act of 1968. FAA's action was in response to a call by the Secretary of Transportation to "do everything the letter and the spirit of the law provide in order to make equal opportunity a reality." An Office of Civil Rights had been established in the Office of the Secretary on Dec 14, 1968.

Mar 28, 1969: The **first charter flight from the United States to the Soviet Union** departed New York via an Overseas National Airways aircraft. On Jun 6, 1970, Alaska Airlines inaugurated the first of a series of charter flights from Anchorage to Khabarovsk, U.S.S.R.

Apr 23, 1969: FAA **abolished the Kenai and Cordova (Alaska) Area Offices**. The Anchorage and Juneau Area Offices absorbed the territory formerly served by these offices. (See Jun 20, 1968 and Feb 27, 1970.)

Apr 23-25, 1969: More than 800 aviation community representatives attended the first **National Aviation System Planning Review Conference**, held in Washington, D.C. the conference featured seminars covering subjects discussed in **FAA's first 10-year National Aviation System Plan** (1970-79). In preparing the following year's version of the Plan, FAA reviewed the views expressed at the seminars, together with documented proposals submitted by the aviation community. The conference was held on an annual basis as a forum for government/industry discussion of FAA's long-range plans and policies.

Apr 27, 1969: The National Aeronautics and Space Administration announced the **retirement of the two extant X-15** rocket research aircraft. The X-15 had first flown on Jun 8, 1959; it made its final flight on Oct 24, 1968. (See Oct 3, 1967.)

Apr, 1969: FAA launched an **automated airport data system** for collecting, processing, and disseminating data on all civil and joint-use airports, heliports, Short Takeoff and Landing airports, and seaplane bases in the United States, Puerto Rico, and the Virgin Islands. The system, capable of storing up to 137 data elements for each landing facility, would provide data for use in pilot briefings, flight planning, airspace clearance, airport planning, and aeronautical chart production.

Apr, 1969: FAA issued a report recommending ways of **relieving congestion at 18 of the nation's busiest airports**. The short-range recommendations included improving traffic flow on the airfield through additional runway exits, access taxiways, holding and staging aprons, and expanded terminal aprons, and creating additional runway capacity through runway extension and grooving. Long-range recommendations included: review of noise-abatement procedures and restrictions; construction of new general aviation airports and new air carrier airports; installation of nav aids; and installation of landing aids at reliever airports to attract general aviation traffic.

May 5, 1969: FAA announced the establishment of two new **engineering and manufacturing district offices**--one in Kansas City, Mo., and one in Chicago--bringing the nationwide total of such offices to 21. From these offices, FAA's manufacturing inspectors worked with companies and individuals seeking certification or approval of airframes, aircraft engines, propellers, parts, or appliances for use in civil aviation.

May 8, 1969: The **Martin Marietta X-24A rocket-powered, manned, lifting-body research aircraft** made a successful 4-minute glider (unpowered) flight at Edwards AFB, Calif. The X-24A was released from underneath the wing of a B-52 Stratofortress at 45,000 feet. The aircraft made its first powered flight on Mar 19, 1970. Development of the X-24A came as part of Martin Marietta's program to develop a maneuvering manned re-entry vehicle able to perform as a spacecraft in orbit, fly in Earth's atmosphere like an aircraft, and land at conventional airports.

May 14, 1969: Hamburger Flugzeugbau GmbH and Messerschmitt-Bolkow GmbH merged to form **Messerschmitt-Bolkow-Blohm**, the largest aerospace concern in Germany.

May 22, 1969: Administrator Shaffer requested plans for **consolidating regional and area offices located in the same city** within the contiguous United States. The move offered operating economies and the saving of numerous positions that could be used to fill critical "firing line" position shortages. FAA implemented the consolidations during late summer 1969, and completed the transfer of functions and personnel to the appropriate regional divisions on Sep 8. The agency eliminated the area offices in Atlanta, Fort Worth, Kansas City, Los Angeles, and New York as they gave up their functions and resources to the regional headquarters located in the same city. (See Nov 22, 1968 and Apr 2, 1971.)

Jun 1, 1969: The shifting of the New York common IFR room from a manual radar system to a **computerized alphanumeric radar system** further enhanced the traffic-handling capabilities of the New York terminal area. The semiautomated system permitted an aircraft equipped with a beacon transponder to provide the terminal controller automatically with information on its identity, altitude, range, and bearing. Under the old system, the controller could obtain an aircraft's altitude and identity only through voice contact with the aircraft's pilot. (See Jul 15, 1968.)

Jun 1, 1969: In response to growing congestion, FAA implemented a rule placing **quotas on instrument flight rule (IFR) operations at five of the nation's busiest airports** between 6 a.m. and midnight. The rule assigned the following hourly quotas: Kennedy International, 80 (70 for air carriers and supplementals; 5 for scheduled air taxis; 5 for general aviation); O'Hare, 135 (115 for air carriers and supplementals; 10 for scheduled air taxis; 10 for general aviation); La Guardia, 60 (48 for air carriers and supplementals; 6 for scheduled air taxis; 6 for general aviation); Newark, 60 (40 for air carriers and supplementals; 10 for scheduled air taxis; 10 for general aviation); Washington National, 60 (40 for air carriers and supplementals; 8 for scheduled air taxis; 12 for general aviation). The rule did not charge extra sections of scheduled air carrier flights (such as hourly shuttle flights) against the established quotas, except at Kennedy; this airport, however, was permitted 10 extra air carrier operations per hour during the peak traffic period between 5 p.m. and 9 p.m.

IFR flights were required to make advanced reservations for each operation. Pilots obtained IFR reservations by contacting the Airport Reservation Office (established May 30, 1969) in Washington, D.C., or any FAA flight service station. Aircraft under visual flight rules (VFR) made arrival reservations in the air when approximately 30 miles from their intended destination. Departure reservations for such aircraft were handled by the air traffic control facilities serving these five high density airports.

Originally implemented for a six-month period, this "**High Density Rule**" was subsequently extended to Oct 25, 1970. On that date, the hourly limitations on operations were suspended at Newark, where peak operations during fiscal 1970 had averaged 18 less than the assigned quota of 60. At the same time, the quotas were extended for another year at the other four airports. In taking this action, FAA noted that the percentage of aircraft delays at the five airports had decreased substantially since the rule was put into effect.

On Aug 24, 1971, FAA published an amendment extending the High Density Rule until Oct 25, 1972. Flight limitations remained unchanged at La Guardia and Washington National, but at O'Hare and Kennedy the quotas were now in effect only between 3 p.m. and 8 p.m. The relaxation was due in part to a decline in aviation activity during a general downturn in the U.S. economy. An amendment published on Oct 25, 1972, extended the High Density Rule until the same date in 1973, when another amendment was published giving it an indefinite extension. At the same time, FAA eliminated the requirement that pilots operating under visual flight rules at all five airports file a flight plan. FAA believed this requirement was no longer necessary since these airports were now operating under the terminal control area concept, which required pilots to establish radio communications with the tower and receive permission to enter the terminal airspace. (See Mar 23, 1978, Nov 3, 1980, and Mar 6, 1984.)

Jun 4, 1969: **FAA and the Central American Corporation for Air Navigation Services (COCESNA) signed a contract under which FAA would provide technical assistance** for air navigation and traffic control services to COCESNA, a five-nation governmental group whose members were Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. FAA had traditionally provided technical assistance to Latin American countries under the sponsorship of the State

Department's Agency for International Development; however, this was the first time FAA provided such services to these countries under a direct reimbursable contract.

Jun 11, 1969: Russell J. Sommer, PATCO's Western Coordinator, notified PATCO Southwest delegates of upcoming **FAA testimony before Congress on a PATCO-supported controller career bill**. "If testimony not favorable," Sommer wrote, "D-Day June 18th!" In opposing the bill before a congressional committee on Jun 17, FAA Administrator John Shaffer characterized controllers as "well-paid" considering their educational level. That evening, PATCO counsel F. Lee Bailey appeared on the NBC "Tonight Show" and reportedly told host Johnny Carson, "I'd start walking if I were you." (See Jan 15, 1969, and Jun 18-20, 1969.)

Jun 16, 1969: FAA commissioned the **Anchorage air route traffic control center's new building**, located on Elmendorf AFB. Formal dedication ceremonies were on Aug 21, 1969.

Jun 16, 1969: The Nixon Administration submitted to Congress the Aviation Facilities Expansion Bill of 1969, **proposed legislation to expand and improve the nation's airway and airport systems and to provide revenue to support this expansion**. Similar legislation had been submitted to Congress by President Johnson (see May 20, 1968), but was not acted on. Features of the Nixon Administration's proposals included:

- * Increasing the outlay for airway facilities and equipment to \$250 million a year over the next 10 years. (During the decade of the sixties, annual appropriations for airway facilities and equipment averaged \$93 million.)

- * Increasing the average yearly Federal outlay for airport development to \$250 million over the next 10 years. (In the past, Congress had appropriated approximately \$65 million a year in FAAP funds.)

- * Imposing (1) an 8 percent tax on domestic airline passenger tickets; (2) a \$3 surcharge on passenger tickets for international flights originating in the United States; (3) a 5 percent tax on air-freight waybills; and (4) a 9-cent-a-gallon tax on gasoline and jet fuel used by general aviation aircraft.

- * Placing the revenues generated by the new taxes in a designated account in the U.S. Treasury to be used exclusively for airway and airport development. (See Sep 20, 1967, and May 21, 1970.)

Jun 18-20, 1969: Numerous FAA facilities felt the effects of a **work stoppage by PATCO-affiliated air traffic controllers**, who claimed illness and did not report for work. The "**sickout**," which resulted in widespread flight delays, coincided with congressional hearings on legislation to provide higher pay, early retirement, and other benefits for controllers. Of 477 controllers who took sick leave during the job action, FAA suspended 80 from three to fifteen days. On Jul 27, FAA terminated its dues-withholding agreement with PATCO, stating that it was not in the public interest to assist an organization taking part in an illegal job action. (See Jun 11, 1969, and Oct 27, 1969.)

Jun 19, 1969: FAA redesignated the Office of Information Services the **Office of Public Affairs**, which had been its original name when Agency Order 1 was issued in Jan 1959. The Information Services title had been adopted in the early 1960s.

Jun 27, 1969: FAA announced the commissioning of its **first Uninterruptible Power System**, designed to control power failures and fluctuations that caused errors in high speed data processing equipment and affected radar and communications. Installing this system at the Jacksonville Air Route Traffic Control Center was the initial step in an FAA-wide electric power modernization program for the en route centers. (See Nov 9-10, 1965, and Sep 19, 1974.)

Jun 30, 1969: Fiscal year 1969, which ended on this date, saw a **dramatic increase in Alaskan air activity** following the discovery of oil in the Prudhoe Bay area of the state's North Slope. The Fairbanks Flight Service Station (FSS), for example, experienced a 325 percent rise in flight services performed. On the North Slope itself, services performed by the Point Barrow FSS rose 500 percent during the period, to 17,221, while the number performed by the Bettles FSS rose 87 percent to 16,168. In order to accommodate this traffic, FAA and oil companies drilling in the area collaborated to bolster the air traffic facilities on the Slope. The oil companies built six new airfields, and both FAA and the companies furnished nav aids to serve the area. (See Mar 1, 1968.)

Jul 1, 1969: Effective this date, CAB selected "**commuter air carrier**" as its name for certain scheduled air taxi operators (see Calendar Year 1968). The new title "commuter" applied to an air taxi operator that performed at least five round trips per week between two or more points and published flight schedules giving certain specified information, or transported air mail under a current contract. There were 138 commuter operators in 1969, and an average of 180 during the 1970s. The Airline Deregulation Act of 1978 encouraged the commuter airlines, which gained opportunities as many larger operators dropped service that they had been required to supply to smaller communities. By

1981, an estimated 270 commuter airlines were operating in the contiguous United States. Like the local service airlines before them (see Jul 11, 1944), the commuters began referring to themselves as "regionals" as they grew more prominent. The term "regionals" was also part of a revenue-based classification system adopted by CAB on Oct 2, 1980 (see that date). (See Sep 17, 1972.)

Jul 6, 1969: A **Beech 99 operated by Air South crashed near Monroe, Ga.**, killing all 14 persons aboard the aircraft. In an accident report adopted on Aug 26, 1970, the National Transportation Safety Board (NTSB) cited the probable cause as "an unwanted change in longitudinal trim which resulted in a nose-down high-speed flight condition that was beyond the physical capability of the pilots to overcome." NTSB stated that the design of the aircraft flight control system was conducive to malfunctions that could lead to a loss of control.

The Beech 99 had been type-certificated under FAA's **delegated option authority program** (see Sep 29, 1950). Under this procedure, manufacturers of aircraft under 12,500 lb. were authorized to submit information that was used by FAA as a basis for certification. The NTSB report stated that FAA normally participated in flight tests only when a new regulation was applied to an aircraft, or when the manufacturer produced a new design feature that it had not previously certificated. The Beech 99's trimmable stabilizer was such a new feature, but FAA had not participated in flight testing this item. NTSB recommended that FAA participate directly in the certification of all newly designed aircraft components. FAA replied that it participated directly in delegation option authority certification when deemed necessary, but had judged the design concept in question to be of high integrity. After subsequent reevaluation, the agency required numerous improvements to the component. In response to other NTSB recommendations, FAA revised its type certification handbook to assure proper consideration of information gained from accident investigations and took other steps to improve certification procedures.

Jul 11, 1969: DOT consolidated the Washington Headquarters libraries of FAA, the Coast Guard, and the Federal Highway Administration and established the **Department of Transportation Library**. A service branch, primarily containing aviation-related materials, was located in FAA's Washington Headquarters' building.

Jul 15, 1969: FAA issued a **study of near midair collisions**. To encourage the reporting of such incidents, FAA had granted pilots and other airmen immunity from penalties under the Federal Aviation Regulations (see Jan 1, 1968). This study found that most of the reported near miss incidents of 1968 that were judged to be hazardous had occurred in congested airspace near large airports having air traffic control service, and resulted from mixing controlled traffic with traffic under visual flight rules.

On Jul 31, 1969, on the heels of FAA's report, the National Transportation Safety Board released a **study of actual midair collisions**, which was also based on incidents occurring in 1968. In contrast to FAA's findings on near misses, the Board found that the majority of the 38 real collisions had taken place in uncongested airspace at or near airports without air traffic control service. There was no evidence that adverse weather was a significant factor in any of the 38 accidents. All of the 71 persons killed in the collisions were occupants of general aviation aircraft. A general aviation aircraft was involved in each accident, with three collisions involving air carrier aircraft and one military airplane.

On Dec 4, 1969, FAA's near miss reporting program was extended for an additional two years (see Dec 31, 1971).

Jul 20, 1969: Astronauts Neil A. Armstrong and Edwin E. Aldrin, Jr., became the **first people to land on the Moon**, while Michael Collins remained in lunar orbit. Later in the day, Armstrong and then Aldrin became the first to walk on the lunar surface. The National Aeronautics and Space Administration's Project Apollo achieved five more Moon landings between this date and Dec 11, 1972.

Jul 21, 1969: The **pilots of Piedmont Airlines went on strike when the company moved to reduce its Boeing 737 cockpit crew to two men**. On Aug 14, 1969, Piedmont secured a Federal injunction ordering its pilots back to work. The dispute raged for months, but was eventually resolved when the pilots accepted a two-man crew complement in exchange for higher pay. The Air Line Pilots Association refused to sign the agreement, although it took no action against Piedmont pilots for violating its constitution (see Nov 20-29, 1966). Piedmont permanently switched to two-man crews on its 737s on Jan 9, 1973. (See Jul 25, 1967 and Nov 23, 1971.)

Aug 8, 1969: Secretary of Transportation John A. Volpe established an **Air Traffic Controller Career Committee**, a seven-member group headed by professional consultant John J. Corson. The

committee was to inquire into the controller career field and report its findings and recommendations to the Secretary. Topics to be investigated included employment practices, employee compensation, work environment, training, and employee-management relations. The committee was instructed to give special attention to the controller's occupational stresses. (See Jan 29, 1970.)

Aug 29, 1969: In the **first hijacking of a U.S. aircraft outside of the Western Hemisphere**, two Arabs seized control of a TWA 707 bound for Israel and diverted it to Syria, where they deplaned the occupants and then threw hand grenades into the cockpit area (see Calendar Year 1969).

Sep 5, 1969: AN FAA rule concerning the **flight hazards associated with flying contraband drugs** between Mexico and the United States went into effect. The rule made such illegal activity grounds for suspension or revocation of pilot certificates and of the operating certificates of aircraft owners or lessors knowingly involved. The rule also required all pilots to file flight plans and radio positions when operating civil aircraft between the two countries. Pilots without two-way radios were required to land at the nearest designated airport of entry and file an arrival notice.

In proposing the rule on Aug 1, FAA had cited President Nixon's Jul 14 announcement of a government-wide campaign against drug smuggling. The agency stated that any pilot attempting to evade this increased enforcement effort could be expected to engage in such hazardous practices as very low flight to avoid radar or use of unprepared landing sites. Effective Aug 1, 1973, FAA extended its ban on illicit carriage of drugs by air to domestic flights and to flights between the United States and Canada.

Sep 9, 1969: A **midair collision near Fairland, Ind.**, killed all 83 people aboard the aircraft involved, an Allegheny Airlines DC-9 and a Piper PA-28. The National Transportation Safety Board (NTSB) listed the probable cause as deficiencies of the air traffic control system in a terminal area with mixed instrument flight rules (IFR) and visual flight rules (VFR) traffic. The cited deficiencies included the inadequacy of the see-and-avoid concept under the circumstances, lack of regulations to provide an adequate separation system for mixed VFR/IFR traffic in terminal areas, and the technical limitations of radar in detecting all aircraft. In response to NTSB recommendations, FAA agreed to expedite research into enhancing radar detection through a passive device to be carried by smaller aircraft. Meanwhile, the agency moved toward greatly improved radar detection by requirements for radar beacons (transponders) aboard aircraft in designated terminal areas (see Jun 25, 1970).

Oct 1, 1969: **Sixteen area navigation routes opened** between 11 U.S. cities on an interim basis pending formal rulemaking. The new routes were the first in a projected nationwide area navigation route system designed to increase airway capacity. They ran between the following cities: Chicago and New York (two routes); Los Angeles and Chicago (two); Kansas City and Minneapolis (two); San Francisco and Chicago (two); Atlanta and Pinehurst, N.C. (two); Knoxville and Atlanta (two); Houston and Dallas (four). In succeeding months, additional cities were linked as more routes were developed (see Apr 29, 1971).

The primary air navigation system in use in the United States in 1969 required pilots to fly directly toward or away from the ground-based radio navigation aid (a VOR or VORTAC) transmitting a line of position, or radial. With area navigation, aircraft did not have to fly a track to or from a navaid, though they did depend on signals from VORs or VORTACs. Pilots flying appropriately equipped aircraft could, within the limitations of the system, follow any preselected arbitrary track. An airborne computer calculated the aircraft's position and displayed track and distance to a point selected by the pilot or prescribed by the controller. The system's advantages included: routes could be established along the shortest and most convenient paths; parallel and one-way routes could be established to reduce congestion; aircraft could be segregated according to speed and destination; navaids could be placed at accessible points on more favorable terrain; departure routes could be designed to lead directly from the runway to the appropriate parallel airway; and arrival routes could be designed to accept traffic directly from en route airways. (See Mar 6, 1972.)

Oct 27, 1969: **FAA denied PATCO's request for formal recognition** because of its participation in the recent "sickout" (see Jun 18-20). On Oct 29, however, President Nixon issued Executive Order 11491, replacing Executive Order 10988 as the basis for Federal employee-management relations. The order, which went into effect on Jan 1, 1970, gave the Labor Department authority to grant exclusive recognition to Federal unions. (See Feb 18, 1970.)

Oct 28, 1969: Executive Order 11490 ("Assigning **Emergency Preparedness Functions** to Federal Departments and Agencies") consolidated and superseded over 20 previous directives, including Executive Order 11003, which had dealt with FAA's preparedness functions. (See Jan 9, 1961.)

Oct 30, 1969: FAA dedicated its **new Systems Training Building** at the Aeronautical Center. In addition to classrooms for air traffic control and systems maintenance personnel training, the building contained simulators, computers, and other equipment used in training FAA personnel.

Oct 31, 1969: Rafael Minichiello, a U.S. Marine absent without leave, commandeered a TWA 707 bound for San Francisco and embarked on a 17-hour journey that ended in Rome, Italy. The **first hijacker to force a crew to land and refuel repeatedly**, Minichiello received worldwide publicity that included some sympathetic coverage (see Calendar Year 1969).

Nov 15, 1969: **Air taxi operators of large aircraft became subject to stricter operational requirements** applying to supplemental air carriers. (See Sep 7, 1964, and Dec 1, 1978.)

Nov 18, 1969: FAA changed the title of the Office of Compliance and Security to the **Office of Investigations and Security**. (See May 16, 1962 and Aug 3, 1970.)

Nov 22, 1969: Effective this date, FAA **increased minimum flight-time requirements for an airline transport pilot (ATP) certificate** from 1,200 to 1,500 hours. All flight time logged as second-in-command in airline operations would be credited toward the ATP certificate, as would a limited amount of flight engineer time.

Nov 26, 1969: The Beech Aircraft Corporation delivered its **last Model 18 aircraft**. The original Model 18 first flew on Jan 15, 1937, and was type-certificated on Mar 4, 1937. When production of the plane ceased, the Model 18 had been in continuous production longer than any other aircraft.

Dec 1, 1969: Effective this date, FAA added a new Part 36 to the Federal Aviation Regulations that established **allowable engine-noise levels as part of the criteria for transport aircraft type-certification**. The new rule had been published on Nov 18, 1969, and was the first issued under Public Law 90-411 (see Jul 21, 1968). The rule applied to two classes of aircraft for which an application for a type certificate was made after Jan 1, 1967: all subsonic aircraft in the transport category, and all subsonic turbojets regardless of category. The allowable noise levels varied with aircraft size and type, ranging from 93 to 108 effective perceived noise decibels (EPNdB). The noise limits also varied according to the type of aircraft operation: between 102 and 108 EPNdB on approach, and between 93 and 108 EPNdB during takeoff. The agency further limited sideline noise--i.e., noise along the runway or taxiway during idling or taxiing--to a range between 102 and 108 EPNdB. (See Oct 26, 1973.)

Dec 4, 1969: **Dulles International Airport banned student pilot operations** because of the rising traffic volume at the airport.

Dec 4, 1969: The Convention on Offences and Certain Other Acts Committed on Board Aircraft, popularly known as the **Tokyo Convention**, went into force among ratifying countries. The United States had ratified the agreement on Sep 5, 1969, completing the 12 ratifications required to bring it into force 90 days later. Though ineffectual against the hijacking of aircraft to nonratifying or nonratifying countries, the convention was a forward step in its clarifying of jurisdiction over crimes aboard aircraft anywhere in the world. It afforded a useful framework within which an international or diplomatic solution to aircraft piracy could be pursued.

Denmark, the Republic of China, Italy, Norway, the Philippines, Portugal, Sweden, the United Kingdom, the Republic of Upper Volta, Mexico, and Niger ratified the convention before the United States. A dozen more countries ratified the convention soon after the United States and over 130 eventually became party to it. (See Sep 14, 1963, and Oct 14, 1970.)

Dec 5, 1969: The Legal Committee of the United Nations General Assembly voted a **resolution urging governments to prosecute aircraft hijackers**, and urged member states without laws against aircraft piracy to enact such legislation.

Dec 5, 1969: FAA announced a major program to **expand and modernize the physical plants of 20 air route traffic control centers** in the contiguous United States to accommodate the personnel and equipment needed to handle the increasing volume of air traffic. The basic plan of the modernization program called for an additional three-story administrative wing at each center to provide space for training and administration. Space would also be provided for the automated air traffic control systems being delivered to the centers, for additional engine generators, and for future expansion of mechanical, electrical, and communications systems. The plant modernization program would continue through the early 1970s.

Dec 15, 1969: American Airlines began the nation's **first use of three-dimensional area navigation equipment on regularly scheduled passenger service**. In Jun 1968, American had inaugurated

scheduled passenger operations using an inertial navigation system; however, it was only a two-dimensional system, not equipped with the ascent-descent feature. (See Oct 1, 1969.)

Dec 18, 1969: FAA certificated the **first all-plastic aircraft, the Windecker AC-7**, a four-place craft made of moulded fiberglass and epoxy resins.

Dec 29, 1969: FAA **abolished the Honolulu Area Office** and transferred its functions to the regional office.

Dec, 1969: The Air Traffic Control Advisory Committee (see Jul 17, 1968) submitted its report to the Secretary of Transportation. The committee saw a **continued rise in the demand for air traffic control services** during the decades ahead, and stated that if FAA expected to accommodate the anticipated growth in aviation traffic, three critical problems required solutions: the shortage of terminal capacity; the need for new means of assuring separation; and the limited capacity and increasing cost of air traffic control. The committee believed that major improvements in airport capacity could be achieved through the use of parallel runways, high speed turnoffs, advanced terminal automation, and reduced longitudinal separation between aircraft on final approach for landing. For the safe separation of aircraft, the report recommended further efforts to upgrade radar beacon transponders for tracking aircraft on radar. The committee believed that the midair collision problem could be overcome in airspace under radar surveillance by automating and making more precise the air traffic control advisory service. The report also noted that a higher level of automation would enable the system to handle perhaps two or three times the 1969 traffic with the same controller work force. This higher automation might be achieved by expanding NAS En Route Stage A and ARTS III version of the Automated Radar Terminal System to include spacing, sequencing, and conflict prediction/resolution, and by adding data link. The committee's report, which was made public in May 1970, also recommended rapid development of the Microwave Landing System (see Jun 19, 1970).

Dec, 1969: Eastern Air Lines put into operation at its terminal at Kennedy International Airport the first **computerized system for issuing seat assignments and boarding passes** to airline passengers as they checked in at the airport.

Calendar year, 1969: **Worldwide concern focused on hijacking** as the number of aircraft involved in such incidents during the year totaled 87, as compared to 37 for 1968. The number of U.S. aircraft involved was 40, as compared to 47 foreign aircraft. (In 1968, 22 out of a total of 35 incidents involved U.S. aircraft.) Cuba remained the most popular destination for hijackers during 1969: 31 U.S. and 25 foreign air carrier aircraft, as well as one foreign general aviation aircraft, were forced to land there. But the year also saw a break in the diversion-to-Cuba pattern when 11 foreign and 2 U.S. air carrier aircraft were forced to land in other countries. (See Aug 29 and Oct 31, 1969.) For U.S. aircraft, the only previous hijacking completed to a destination other than Cuba had been an Aug 31, 1965, incident in which an airliner was forced to return to Honolulu shortly after takeoff.

1960s: The number of **U.S. civil aircraft possessing current airworthiness certificates increased 89 percent during the decade**, from 70,747 on Dec 31, 1959, to 133,814 on Dec 31, 1969. The general aviation fleet increased 90 percent (from 68,727 to 130,806), while air carrier aircraft increased 49 percent (from 2,020 to 3,008).

***1970**

Jan 1, 1970: The Department of Labor designated the Federal Aviation Administration as the agency responsible for air transportation industry compliance with the **equal employment opportunity** provision of Executive Order 11246 (issued Sep 24, 1965), which prohibited discrimination in hiring by the government and its contractors.

Jan 1, 1970: Sud Aviation, Nord Aviation, and S.E.R.E.B. merged forming the **Societe Nationale Industrielle Aerospatiale**.

Jan 13, 1970: **Blanche Stuart Scott, often considered the first American woman to pilot an airplane, died**. In Sep 1910, Scott made her first solo flight in a Curtiss Pusher at Hammondsport, N.Y. According to some accounts, however, the flight was an unintentional one caused by wind lifting her taxiing aircraft off the ground. Later that year, Bessica Faith Raiche became the first American woman to make an undisputedly intentional solo airplane flight.

Jan 15, 1970: President Nixon announced an agreement to seek a site for the **development of a Miami (Fla.) jetport outside of a proposed land area in the ecotone between Big Cypress Swamp and Everglades National Park**. The agreement was signed by the Dade County Port Authority, the State of Florida, and the Secretaries of Transportation and Interior.

Dade County had acquired 39 square miles in the area for a future jetport to relieve the anticipated saturation of Miami International. Lying 40 miles west of Miami and surrounded by natural buffer zones, the proposed new jetport would pose neither a noise nuisance nor an air pollution threat to residents. Conservationists, however, argued that a major airport on the tract would upset the delicate ecology of the Everglades. After environmental studies, Dade County officials agreed with state and Federal authorities to seek another site.

The agreement also provided that a one-runway training airport already constructed on the tract would be operated under strict environmental safeguards until a new training facility could be established at the still-to-be-determined jetport site. Construction of the training field had begun in Sep 1968. During fiscal 1969, FAA had awarded a \$500,000 grant to assist the project, which was intended to divert training flights from Miami International and provide the nucleus for an eventual air carrier facility.

In announcing the agreement, President Nixon directed the Secretary of Transportation to consider introducing legislation to ensure that the national interest would be adequately represented in regional airport development. "We have learned," the President stated, "that the development of major facilities, such as a regional airport, may have widespread environmental and social consequences that cannot wisely be left entirely to local initiative and local decision."

Jan 19, 1970: FAA established the **Facility Installation Service** under the Associate Administrator for Operations. This service assumed the management of FAA's facilities establishment program from the Logistics Service. It also assumed from the Systems Research and Development Service the responsibility for preparing procurement specifications for production equipment and for prescribing technical instructions and standards for its installation. The new service's mission included the facilities establishment programs for air navigation, air traffic control, aeronautical communications, and visual ground marking; however, it did not include facilities establishment for NAS En Route Stage A and the various terminal automation programs. (See Dec 22, 1967, and Oct 1, 1971.)

Jan 20, 1970: FAA and the Department of Health, Education, and Welfare reached an agreement with 31 scheduled and charter airlines on the **retrofit of Pratt & Whitney JT8D engines with smoke-reducing combustors**. Under the retrofit plan, the airlines voluntarily agreed to install combustors on approximately 1,000 Boeing 727s, Boeing 737s, and Douglas DC-9s by Dec 31, 1972. The combustors reduced the level of visible pollutants emitted by jet engines, but had no effect on invisible pollutants. (See Dec 31, 1970.)

Jan 29, 1970: The **Air Traffic Controller Career Committee** (popularly known as the **Corson Committee**) submitted its report to Secretary of Transportation John Volpe. The report's recommendations included:

- *Reduce the overtime work required of controllers in high-density areas.
- *Reduce the consecutive hours spent by controllers in operational positions to two, and the total hours per day on such positions to six.
- *Detail qualified journeyman controllers to high-density facilities with critical manpower shortages.
- *Develop a more mobile controller work force so that the needs of the system, rather than the preferences of controllers, determine assignments.
- *Develop incentives to attract the most talented controllers to the most difficult positions.
- *Pay special rates for employment in facilities located in high-cost-of-living areas.
- *Accelerate and improve training of developmental controllers.
- *Seek legislation providing for the early retirement of controllers who attain a certain age and cannot be retained or reassigned to less arduous duty--e.g., retirement at age 50 after 20 years of ATC service with 50 percent of high-three average salary.
- *Designate a single official immediately responsible to the FAA Administrator to handle all relationships with employee organizations at the national level.

A number of the committee's recommendations, including detailing journeyman controllers to facilities with critical manpower shortages, and providing developmental controllers with "update" training, received immediate attention. In addition, FAA appointed a **Director of Labor Relations** on Mar 23, 1970. The agency established nine groups to consider the remaining recommendations and develop programs for their implementation. (See Aug 8, 1969, Mar 25-Apr 14, 1970, Nov 6, 1970, and May 16, 1972.)

Jan 1970: The **General Aviation Manufacturers Association (GAMA)** was founded as a trade association of firms producing general aviation aircraft, engines, avionics, and components.

Feb 2, 1970: A rule effective this date permitted **expanded use of FAA-approved airplane simulators** in training airline crews. With the advances in flight simulation technology, the use of these simulators would help to ease the serious problems of congestion in the airspace by permitting more training on the ground.

Feb 5, 1970: Effective this date, **FAA required manufacturers to make a maintenance manual available** to their customers at the time of aircraft delivery. The manual was to contain information that the manufacturer deemed essential to proper maintenance.

Feb 18, 1970: FAA's **first IBM 9020 computer and its associated software program became operational** at the Los Angeles ARTCC (see Jun 30, 1967). The new computer system was at the heart of the new semiautomated airway air traffic control system--**NAS En Route Stage A**. This equipment reduced controller workload by automatically handling incoming flight information messages, performing necessary calculations, and distributing flight data strips, as needed, to controller positions. The agency planned to install similar equipment at all of the centers, and with the new automated nationwide system each center would have the capability to collect and distribute information about each aircraft's course and altitude to all the sector controllers along its flight path. The new computers also had the ability to record and distribute any changes registered in aircraft flight plans en route. (See Dec 30, 1968, and Feb 13, 1973.)

Feb 18, 1970: A **commuter airlines terminal officially opened at Washington National Airport** to facilitate the operations of the 13 commuter airlines serving the airport.

Feb 18, 1970: **PATCO filed a petition with the Federal Labor Relations Council** for certification as exclusive bargaining representative for all non-supervisory air traffic control specialists. (See Oct 27, 1969, and Mar 25-Apr 10, 1970.)

Feb 27, 1970: FAA abolished the **McGrath (Alaska) Area Office** and transferred the territory formerly served by that office to the Anchorage and King Salmon Area Offices. (See Apr 23, 1969.)

Feb 1970: FAA began a **new training program** for the air traffic and electronic technician occupations. The agency hoped that the project, termed the **150 Program** because of the number of positions initially allotted to it, would work **to broaden the recruitment base and equalize opportunities for minorities**. Candidates began at the GS-4 level and, after successfully completing a six month training program at the Aeronautical Center, became GS-5s. The 150 Program was later renamed the Pre-development Program.

Mar 1, 1970: FAA implemented a **revised separation standard to protect small aircraft from wake turbulence**, rotating air currents trailed by large aircraft. The danger from these wake vortices had grown with the introduction of "jumbo" jetliners. The new standard changed from three miles to five miles the required separation between a "heavy" aircraft (over 300,000 pounds) and an aircraft operating behind it. (See Nov 1, 1975.)

Mar 4, 1970: FAA retitled the Office of Associate Administrator for Personnel and Training as the **Office of the Associate Administrator for Manpower** to emphasize the broader functional responsibilities of this office. The agency issued a formal order reflecting this change on Jan 9, 1971. The same order officially established under the new associate administrator the Office of Labor Relations (the Director of Labor Relations had been appointed on Mar 23, 1970), an Employee Communications Staff, and an Equal Employment Opportunity Staff within the Office of Personnel, which, along with the Office of Training, rounded out the major components of the **new administrative complex**. (See Jan 19, 1968.)

Mar 7, 1970: Effective this date, FAA required every U.S. civil aircraft owner to submit an **annual report on aircraft registration, eligibility, identification, and activity** no later than Jun 30 of each year. The submission of the annual reports through 1977 permitted the updating of the aircraft register and the removal of about 32,000 obsolete records. On Jan 25, 1978, FAA revoked the annual reporting requirement because the register could now be kept largely current on the basis of sales records and other information received in the normal course of business. The agency noted, however, that it might be necessary to implement a new reporting procedure. (See Apr 30, 1980.)

Mar 17, 1970: The **first death in a domestic U.S. aircraft hijacking** incident occurred when a hijacker shot and killed the copilot on an Eastern Air Lines shuttle (Newark-Boston). Although fatally wounded, the copilot still managed to shoot and severely wound the hijacker with the latter's gun. The aircraft's captain, himself wounded in both arms, landed his DC-9 safely in Boston.

Mar 19, 1970: FAA issued an advance notice of proposed rulemaking asking public comment on **whether smoking should be allowed aboard passenger-carrying aircraft**. This action resulted

from two petitions filed with FAA in Dec 1969. One petition requested a ban on smoking on all flights, while the other requested that domestic air carriers effectively segregate smokers from other passengers. FAA believed the petitions warranted an in-depth study to determine to what extent tobacco smoke was harmful to nonsmokers. The agency's existing rules prohibited smoking only during takeoff and landing. (See May 10, 1973.)

Mar 24, 1970: FAA announced a program to improve the appearance of the nation's airports by removing **derelict aircraft**. FAA field personnel would perform periodic checks and bring such aircraft to the attention of airport management. The agency urged airport operators to include in their contracts with aircraft owners and operators of aviation activities provisions for the removal of such aircraft at owner's expense. FAA and the fixed-base operators concluded such an arrangement at Washington National and Dulles International Airports.

Mar 25-Apr 10, 1970: **Some 3,000 air traffic controllers, all members of PATCO, engaged in a "sick-out" strike**. All but a few of those involved were en route, rather than terminal, controllers. Some remained absent for a day or two, others for the entire 17-day period. The work stoppage reflected widespread discontent, but its immediate trigger was FAA's decision to ignore PATCO's protests and carry out the involuntary transfer of three controllers from the Baton Rouge combined station-tower. The absentees claimed sick leave, but the Department of Transportation viewed their action as a strike against the U.S. government and hence illegal. The government obtained temporary restraining orders against PATCO. When the union failed to comply with these orders, a show-cause order was obtained against its officers. During the hearing on the show-cause order, PATCO agreed to call off the "sickout." FAA suspended nearly 1,000 controllers and fired 52 for their role in the affair. (See Feb 18, 1970, and Apr 23, 1970.)

Apr 1, 1970: Extensive amendments establishing **additional operating requirements for air taxi and commercial operators of small aircraft** became effective. The new rules reflected many of the operating requirements of major air carriers, and were designed to fit the growing complexity of air taxi operations. (See Sep 7, 1964, and Dec 1, 1978.)

Apr 3, 1970: Under a rule effective this date, FAA would not approve **Federal-aid airport program (FAAP) projects** involving the displacement and relocation of people until adequate replacement housing was provided for (by construction, if necessary) and offered to all affected persons.

Apr 6, 1970: Management responsibility for the **supersonic transport (SST) development program was transferred from the FAA to the Office of the Secretary**, Department of Transportation. The Director of Supersonic Transport Development would henceforth take guidance and direction from the Under Secretary of Transportation, while FAA would continue to provide a variety of support functions for the program. In announcing the transfer a few days earlier, Secretary Volpe had explained that it would increase his oversight of the program. In addition, the change would ensure that FAA, the agency responsible for certificating the aircraft, would not be responsible for its development. Volpe had also announced the appointment of William M. Magruder as Director of the program, succeeding Brig. Gen. Jewell C. Maxwell, who had resigned during the previous summer. (See Jan 15, 1969, and Apr 22, 1970.)

Apr 9, 1970: **Boeing 727-200 "stretch jets" were allowed to operate at Washington National Airport**, initially on a temporary basis. These larger capacity aircraft had been banned in the past to prevent overcrowding of the airport's terminal building. (See Apr 24, 1966.)

Apr 18, 1970: Braniff International Airways put into operation its **"Jetrail," a monorail transporting passengers** from parking lot to terminal area at Dallas' Love Field. The three-quarter-mile trip took 3 minutes.

Apr 22, 1970: The **first annual Earth Day observance** throughout the United States included protests indicating **environmentalists' rising opposition to the supersonic transport (SST) program**. Concerns about the SST included such issues as sonic booms (see Jan 27, 1965) and the aircraft's effect on the ozone layer of the earth's upper atmosphere. (See Apr 6 and Dec 30, 1970.)

Apr 23, 1970: **John F. Leyden, newly elected president of PATCO**, told the union's members of his intention to introduce realism into the organization, "to eliminate a 'showboat-gunboat' approach, and to replace it with a firm and reasonable persuasion." Nevertheless, PATCO used slowdowns as a tactic during Leyden's tenure. (See Mar 25-Apr 10, 1970, and Sep 10, 1970.)

Apr 27, 1970: The **Central Flow Control Facility** was established at FAA Headquarters as a permanent part of the air traffic control (ATC) system. This facility took over from the air route traffic control centers some of the responsibility for restricting the number of aircraft moving from the

control of one center to another. Central Flow Control collected and correlated system-wide air traffic and weather data, using this information to prevent isolated clusters of congestion from disrupting the overall traffic flow. Linked by teletypewriter and telephone to all 21 centers, the facility detected potential trouble spots and suggested to the centers such solutions as flow-control restrictions or rerouting. (See Jul 29, 1970.)

The centers retained the authority to accept or reject the Central Flow facility's recommendations, but their decisions were now based on broad information about the overall condition of the ATC system. Lacking such information, the centers had previously tended to be over-defensive. For example, when a buildup of traffic forced one center to restrict the number of incoming aircraft from an adjacent center, the adjacent center might fear an impending traffic buildup in its own area and hence institute restrictions against yet another center. The spreading restrictions could eventually affect Instrument Flight Rules aircraft throughout the ATC system.

During a three-month test beginning in Jan 1970, the Central Flow facility had proved its worth in reducing delays, and had been invaluable in monitoring and rerouting traffic during the controller "sick-out" strike (see Mar 25-Apr 10, 1970).

On Jul 29, 1970, FAA established the **Air Traffic Control Systems Command Center** to integrate the functions of the Central Flow Control Facility, Airport Reservation Office, the Air Traffic Service Contingency Command Post, and Central Altitude Reservation Facility. (See Dec 31, 1983.)

Apr 30, 1970: FAA commissioned the **International Aeronautical Telecommunications Switching Center** at Kansas City. This high-speed, fully automated message switching facility was the key element in the North Atlantic and Caribbean Aeronautical Fixed Telecommunications Network (AFTN), a worldwide communications system operated by members of the International Civil Aviation Organization. Some 86 communications channels, the first commissioned on Mar 4, 1970, connected the center directly to three U.S. networks and to more than 100 locations in 17 other countries. The center speeded the flow and improved the accuracy of international aeronautical information by eliminating all other intermediate relay points.

Apr 1970: An FAA study reported that **adherence to basic preflight procedures could reduce general aviation accidents** by as much as 14 percent. The study was based on data about the 4,968 general aviation accidents in 1968 and on responses to a pilot survey. The results indicated that faulty preflight procedures could be linked to 697 accidents, of which 184 were fatal. Of these 184 fatal accidents, the largest number (81) resulted from flying under Visual Flight Rules into bad weather, and the next highest number (42) from impairment by alcohol. Of the non-fatal accidents caused by poor preflight procedures, the largest number (132) was due to fuel exhaustion. Eighty-two percent of pilots involved in accidents linked to preflight procedures had not filed a flight plan.

May 3, 1970: Upgraded certification requirements for **aviation maintenance technician schools** (formerly called "aviation mechanic schools") became effective. The changes, which included new curriculum requirements for both certification and operations, were designed to reflect recent technological advances in aviation.

May 4, 1970: FAA issued a **rule requiring that Cockpit Voice Recorders be installed in large transport category helicopters** operated in scheduled service, with compliance by Jul 8, 1971. (See Jun 26, 1964, and Mar 25, 1987.)

May 4, 1970: FAA implemented a **standard organizational structure for the larger air route traffic control centers**, including the so-called Level IB (300,000 to 1,000,000 aircraft handled per year) and Level II (over 1,000,000 aircraft handled per year) centers. The new structure strengthened administrative and technical supervision of air traffic control personnel. It was designed to increase operational efficiency through better manpower utilization, while providing a more effective basis for the development of the controller's career progression plans. As part of the new structure, the agency assigned personnel management specialists to all centers in the contiguous United States, except Great Falls, to advise managers and supervisors. These specialists also worked with organized employee groups and provided professional advice on personnel matters to individual center employees.

May 8, 1970: **Upgraded type-certification standards for new large transport aircraft** became effective. The new airworthiness standards resulted from several years of government/industry study and development. They related to four major certification areas: flight requirements; systems and equipment; airframe; and powerplant.

May 11, 1970: **Kenneth M. Smith became FAA's Deputy Administrator**, succeeding David D. Thomas (see Jul 1, 1965). He was nominated by the President on Mar 24, and confirmed by the Senate on Apr 30.

Born in Sacramento, Calif., Smith began his career in aviation in 1939 as an aircraft electrical installer with Consolidated Vultee Aircraft Corp. (later the General Dynamics Corp.) in San Diego. He was a Navy pilot during World War II, and attended St. Mary's University and California Polytechnic University in 1943 and 1944 under a Navy training program. Smith returned to Consolidated Vultee at war's end, became the firm's representative in the nation's capital in 1952, subsequently moved to other positions, and was named corporate vice president in 1960. Smith left General Dynamics in 1962 to become vice president/marketing for the Consolidated Electrodynamics Division of Bell and Howell. In 1964, he joined Rockwell Standard Corporation as vice president and assistant general manager of the Aero Commander Division, and was promoted to general manager in December. Smith became president of Management Enterprises, an aircraft industry consulting firm in Oklahoma City in 1966. In 1967, he assumed the presidency of Windecker Research in Midland, Tex., became vice chairman of the board in 1969, and held these positions when selected for FAA's top post.

Smith served as FAA Deputy Administrator until Jul 15, 1972, when he left the agency to become Executive Vice President of E-Systems, Inc., an engineering research and development firm specializing in aerospace and electronic systems. (See Aug 9, 1974.)

May 15, 1970: FAA published **new taxiway design standards** aimed at speeding ground movements of large aircraft and thus increasing an airport's capacity. These new standards were based on the size of the aircraft using an airport; previously, taxiway designs were determined by the length of the runway. The agency intended the new standards primarily for yet-to-be-built airports, though they applied to existing airports served by aircraft in the Boeing 747 category.

May 15, 1970: FAA completed the functional **realignment of the Logistics Service** on this date. This service, while relinquishing some of its responsibilities to the National Airspace System Program Office and the Facility Installation Service (see Jan 19, 1970), retained its responsibility over materiel purchasing; at the same time, it was given the responsibilities in property management previously exercised by the Office of Management Systems and moved (on Jan 19, 1970) from the jurisdiction of the Associate Administrator for Development to the jurisdiction of the Associate Administrator for Administration. (See Dec 22, 1967.)

May 18, 1970: FAA established the **Office of the Associate Administrator for Engineering and Development**, replacing the abolished Office of the Associate Administrator for Development. The new Associate Administrator had executive direction over the National Airspace System Program Office (NASPO), the Systems Research and Development Service (SRDS), and the National Aviation Facilities Experimental Center (NAFEC). Previously, NASPO and NAFEC reported directly to the FAA Administrator. Under the new organizational structure, the agency abolished the Aircraft Development Service and assigned its responsibilities to SRDS. (See Jan 13, 1961, Jul 1, 1961, Oct 22, 1965, and Apr 25, 1966.)

May 21, 1970: President Nixon signed Public Law 91-258, of which Title I was the **Airport and Airway Development Act of 1970** and Title II was the **Airport and Airway Revenue Act of 1970**. The legislation responded to problems posed by civil aviation's extraordinary growth during the 1960s. Between mid-1959 and mid-1969, the number of aircraft handled by FAA's air route traffic control centers had increased by 110.6 percent, while aircraft operations at FAA's airport towers had increased by 112 percent. Airport and airway development programs, inadequately funded, had failed to keep pace with this growth in aviation activity, resulting in a severe strain on the air traffic control system (see Jul 19, 1968).

The new legislation assured a fund of about \$11 billion over the next decade for airport and airway modernization. By establishing an **Airport and Airway Trust Fund** modeled on the Highway Trust Fund, it freed airport and airway development from having to compete for General Treasury funds. Into the trust fund would go new revenues from aviation user taxes levied by the Airport and Airway Revenue Act, and other funds that Congress might choose to appropriate to meet authorized expenditures. Revenues would be raised by the following levies on aviation users: an 8 percent tax on domestic passenger fares; a \$3 surcharge on passenger tickets for international flights originating in the United States; a tax of 7¢ a gallon on both gasoline and jet fuel used by aircraft in noncommercial aviation; a 5 percent tax on airfreight waybills; and an annual registration fee of \$25 on all civil aircraft, plus (1) in the case of piston-powered aircraft weighing more than 2,500 pounds, 2¢ a pound

for each pound of maximum certificated takeoff weight, or (2) in the case of turbine powered aircraft, 3.5¢ a pound for each pound of maximum certificated takeoff weight. The principal advantages of the user-charge/trust-fund approach to revenue raising and funding were that it provided a predictable and increasing source of income, more commensurate with need; permitted more effective and longer range planning; and assured that the tax revenues generated by aviation would not be diverted to nonaviation uses.

The major weaknesses of the Federal Airport Act (see May 13, 1946), which was repealed by the new legislation, were inadequate funding and the nature of the formula for distributing those resources. The annual authorization for airport development under the old act totaled only \$75 million. Of this total, the distribution of \$66.5 million was fixed by a formula apportioning 75 percent of it by population and area among the states--half in the ratio of each state's population to the total population of all the states, and half in the ratio of each state's area to the total area of all the states. The remaining 25 percent of the \$66.5 million, plus any state's apportionment under the population-area formula if unclaimed for two fiscal years, went into a discretionary fund with certain other funds; however, this discretionary fund was too small to make a significant impact on critical, high-priority areas.

Under the new **Airport Development Aid Program**, by contrast, airport aid received a greatly increased annual authorization of \$280 million for each of the next five fiscal years (see Aug 6, 1970). The new law also provided an improved distribution formula. Of the annual \$280 million, \$250 million in matching funds would be distributed in the following manner among airports serving air carriers certificated by CAB and airports serving general aviation primarily to relieve congestion at airports serving other segments of aviation:

* One-third as follows: (1) 97 percent of this third among the several states, one-half in the ratio of each state's population to the total U.S. population, and one-half in the ratio of each state's area to the total area of all the states; (2) 3 percent of this third among Hawaii, Puerto Rico, Guam, and the Virgin Islands, the first two places receiving 35 percent shares each, and the last two, 15 percent shares each.

* One-third among airports serving CAB-certificated air carriers in the ratio of each such airport's passenger enplanements to the total number of passengers enplaned at all such airports.

* One-third at the discretion of the Secretary of Transportation.

The remaining \$30 million of the annual \$280 million would be apportioned by the Secretary as follows for developing in the several states and in Puerto Rico, Guam, and the Virgin Islands airports serving segments of aviation other than CAB-certificated air carriers: 73.5 percent among the several states, one-half of this in the ratio of each state's population to the total population of all the States, and one-half in the ratio of each State's area to the total area of all the States; 1.5 percent for Hawaii, Puerto Rico, Guam, and the Virgin Islands in shares of 35 percent, 35 percent, 15 percent, and 15 percent, respectively; and 25 percent at the discretion of the Secretary.

In its provisions concerning planning, the new legislation reflected both lessons of experience and the emergence of certain new planning factors. Experience under the Federal Airport Act with the National Airport Plan (NAP), which covered a period of five years and was revised annually, led to the requirement in the new law for a **National Airport System Plan (NASP)** covering at least 10 years and revised only as necessary. Notable among factors explicitly mentioned for the Secretary's consideration in preparing the NASP, but not explicitly mentioned in relation to the NAP, were: the relationship of each airport to the local transportation system, to forecasted technological developments in aeronautics, and to developments forecasted in other modes of intercity transportation; and factors affecting the quality of the natural environment.

A significant feature of the new legislation was its provision for **planning grants** (see Mar 31, 1971). The law authorized a total of \$75 million for grants to planning agencies for airport system planning, and to public agencies for airport master planning; however, planning grants could not exceed \$15 million in any one fiscal year; nor could any such grant exceed two-thirds of an airport project's cost. Another important provision of the bill gave FAA the responsibility for the **safety certification of airports** served by air carriers (see May 21, 1973).

No less than airport development, airway modernization would benefit from the increased funding under the Airport and Airway Development Act. Whereas appropriations for airway facilities and equipment had averaged \$93 million a year during the 1960s, the new legislation authorized "not less than" \$250 million a year for the next five fiscal years. A principal beneficiary of this more generous

authorization would be FAA's efforts to automate the air traffic control. (See Nov 27, 1971, and Jul 1, 1972.)

May 25, 1970: FAA issued the **first supplemental type certificate for installation and operation of area navigation equipment in general aviation aircraft** to the Butler National Corporation for use of the Butler Vector Analog Computer. The certificate permitted the use of this equipment during the en route, terminal, and approach phases of operation. (See Oct 1, 1969.)

May 26, 1970: Effective this date, FAA prohibited persons from operating any **moored balloon, unmanned free balloon, kite, or unmanned rocket** in a manner interfering with aircraft operations. The rule was in response to an attempt by certain individuals to disrupt aircraft operations at two airports in California by flying kites or balloons, the sizes of which were not covered by Federal regulation.

May 27, 1970: Resumption of flight operations by National Airlines **ended the longest complete shutdown of a domestic U.S. airline by a strike** to that date. The 116-day strike had begun on Jan 31.

Jun 15, 1970: FAA, the Civil Air Patrol (CAP), and the Air Force signed a memorandum of understanding setting forth the **relationship between CAP wings and State and Regional Defense Airlift (SARDA)** organizations. According to the agreement, the CAP would function as an arm of SARDA during a national emergency.

Jun 17, 1970: Effective this date, FAA set requirements for the use of **supplemental oxygen in nonpressurized general aviation aircraft**. Flight crews were required to use supplemental oxygen: on flights remaining more than 30 minutes above 12,500 feet and up to 14,000 feet; and during the entire time a flight remained above 14,000 feet. Above 15,000 feet, supplemental oxygen was to be provided for each occupant of the aircraft. Previously, only air carrier and air taxis had been covered by requirements concerning supplemental oxygen.

Jun 19, 1970: An **Interagency Microwave Landing System Planning Group** was formed at the direction of the Secretary of Transportation. With the FAA Administrator as chairman, the group included representatives from the Office of the Secretary of Transportation, the Department of Defense, and the National Aeronautics and Space Administration. The group was charged with preparing a five-year plan for the development and implementation of a microwave landing system (MLS) for civil-military common use. The development of the new system had been a recommendation of DOT's Air Traffic Control Advisory Committee. (See Dec 1969 and Jul 1971.)

Jun 19, 1970: FAA established two-way air traffic control satellite communications between its facilities in San Francisco/Oakland and Honolulu. This service, the **first full-time point-to-point satellite communication service in air traffic control**, consisted of one voice and three teletypewriter channels leased from the International Telecommunications Satellite Consortium (Intelsat). The new system was superior to the previously used high frequency radio circuits and permitted the decommissioning of FAA's high frequency International Flight Service Transmitting and Receiving Service at Tracy, Calif.

Jun 25, 1970: The **first series of area navigation instrument approach procedures** in the United States went into effect at six terminal areas--Kirksville, Mo., Longview, Tex., and Fullerton, Lancaster, Palm Springs, and Torrance, Calif. The new procedures permitted pilots of aircraft equipped with area navigation equipment to make straight-in instrument approaches to runways without the use of runway-oriented electronic approach aids. This eliminated the need for pilots to conduct time consuming turns and circling maneuvers required by conventional IFR approaches. (See Oct 1, 1969.)

Jun 25, 1970: FAA introduced **major changes in the New York Metropolitan Area's air traffic patterns and procedures**. Known as **New York Metroplex**, the new procedures reduced traffic congestion in and around New York airports, and accelerated the movement of aircraft along major north-south routes. Under Metroplex, primary holding patterns, or arrival fixes, for area airports were moved farther out from the center of the city. This enabled FAA to add five new en route corridors, with the following results: the number of departure routes increased significantly, traffic distribution improved, bottlenecks were reduced, and crisscrossing of incoming and outgoing flight corridors was minimized. The introduction of the new procedures, first scheduled for Apr 2, 1970, but delayed by a postal employees strike and then the air traffic controllers strike, was made possible by the presence of the New York common IFR room (see Jul 15, 1968), which gave the New York area a greater and

more flexible traffic handling capability than the older, unintegrated terminal control system. (See Jan 15, 1969.)

Jun 25, 1970: In a major new safety rule effective this date, FAA established the **terminal control area (TCA) concept**. FAA designed the rule, first proposed in Sep 1969 and re-proposed in revised form in Mar 1970, to minimize the midair collision hazard around the nation's busiest airports. A TCA consisted of controlled airspace within which all aircraft would be subject to special operating rules and pilot and equipment requirements. Although the boundaries of each TCA would be determined separately, their general shape resembled an "inverted wedding cake" with its smallest layer touching the ground. TCAs were broken into two categories, with the most congested locations designated as Group I. The rules for Group I required:

- * Air traffic control clearance for all operations.
- * Large turbine-powered aircraft to stay above the TCA's floor unless otherwise authorized by air traffic control.
- * The speed limit beneath the TCA's lateral limits to be 200 knots (230 mph).
- * Takeoffs and landings by solo student pilots to be banned.
- * Aircraft to carry an operable two-way radio.
- * Fixed-wing aircraft to carry an operable receiver for VOR or TACAN (standard navigation aids), as well as a radar beacon transponder. The transponder requirement did not apply to instrument flight rules (IFR) operations to and from secondary airports within the TCA.

For Group II TCAs, the rules were the same as for Group I except that solo student operations were not banned, and that aircraft using visual flight rules (VFR) need not carry transponders (see Jun 8, 1973). Because of this less stringent transponder requirement, air traffic control would provide added separation service--separation from VFR as well as IFR traffic--only when large turbine-powered aircraft were involved. Within Group I TCAs, by contrast, air traffic control would maintain separation between all traffic.

FAA tentatively selected 10 locations as Group I TCAs and 14 as Group II. Because of varying local conditions, each was to be designated by a separate rule, beginning with those in Group I. FAA established **the first TCA at Atlanta on the same day** as the TCA concept itself. It established **the second at Chicago on Jul 23**. (See Feb 4, 1971.)

Jun 26, 1970: FAA completed the **first field evaluation of ARTS (Automated Radar Terminal System) II** at the Knoxville, Tenn., terminal area. A modular, non-tracking air traffic control system, ARTS II was designed for both low- and medium-density terminal control facilities. The evaluation, which had begun on Feb 9, encompassed three separate test phases: a numerics-only phase, an alphanumeric phase, and a two-display configuration phase. (See Oct 1, 1976.)

Jun 1970: **Forty-seven percent of the adult U.S. population had flown** on a scheduled airline, according to a poll taken this month by the Gallup Organization. (See Calendar year 1965.)

Jul 1, 1970: All **Department of Transportation internal audit functions were consolidated** in the Office of the Secretary. FAA's internal audit functions were directed to take guidance and direction from the Department's Director of Audit.

Jul 1, 1970: All **Department of Transportation public information functions were consolidated** in the Office of the Secretary. FAA's Office of Public Affairs was directed to take guidance and direction from the Department's Director of Public Affairs.

Jul 1, 1970: **FAA discontinued the Notices to Airmen (NOTAM) code** which had been in use for 31 years, substituting contracted English. This freed pilots and Flight Service Station specialists from encoding and decoding information transmitted on teletype circuits.

Jul 13, 1970: FAA announced an **expansion of the air traffic controller training facilities** at the Aeronautical Center. A new building would be constructed that would provide additional office space as well as additional classrooms for air traffic control training. (See Jun 30, 1989.)

Jul 17, 1970: New Orleans' Moisant International Airport became the **first U.S. airport to subject all passengers to the FAA-developed antihijacking screening system**. (See Jan 1969.) The system was based on a behavioral profile used in conjunction with weapons detection by magnetometer. If a person identified by the system as a possible risk did not satisfactorily resolve the question with airline personnel, he was further investigated by a U.S. marshal or deputy marshal. Previously, individual airlines had used the system only on selected flights. (See Feb 2, 1972.)

Jul 31, 1970: FAA issued to Pan American World Airways the first **aviation war risk insurance** premium policy under a new coverage plan. Previously, FAA's only war risk insurance for which a

premium was charged was a standby plan that would make coverage available in the event of war between major powers (see Jun 14, 1951). The new plan was offered in response to the entry into airline service of the Boeing 747. Because of the high cost of this aircraft (some \$24 million), commercial insurers would cover only about 60 percent of its value. FAA's new policy covered war risks for the commercially uninsurable portion of Boeing 747s flying international routes, and was later expanded to cover the aircraft's whole value.

On Feb 4, 1971, FAA transferred the responsibility for administering the aviation war risk insurance program from its General Counsel to the Assistant Administrator for International Aviation Affairs. In Nov 1977, Public Law 95-163 expanded the scope of insurable risks to allow the FAA Administrator broad discretionary authority in extraordinary circumstances to insure air services deemed in the national interest. On Feb 4, 1984, the aviation insurance program was transferred from the Office of International Aviation to the Office of Aviation Policy and Plans. In 1992, legislation further expanded the scope of the program by allowing coverage for some domestic flight segments and certain services in direct support of flight operations.

In addition to the 747 coverage mentioned above, examples of uses of the aviation insurance program have included both premium and non-premium coverage of: flights in the Vietnam area during 1967-75; Middle East flights during the 1990-91 Operation Desert Shield/Storm; and flights to Somalia in support of Operation Restore Hope in 1992-93.

Aug 2, 1970: The **first hijacking of a wide-bodied airliner** occurred as a Pan American 747 bound from New York to San Juan with 388 passengers was diverted to Havana.

Aug 3, 1970: FAA renamed its Office of Investigations and Security the **Office of Air Transportation Security**. At the same time, the agency established an Air Operations Security Division within the new office and gave it responsibility for dealing with hijacking security, bomb threats, aircraft and cargo security, and for developing and implementing deterrent systems for the prevention of criminal acts against air transportation. (See Nov 18, 1969 and Jun 11, 1974.)

On Jun 15, 1970, the Secretary of Transportation had announced that the nine-member Task Force on the Deterrence of Air Piracy would be replaced by a permanent organizational component staffed with full-time specialists to deal not only with aircraft piracy, but also with sabotage and all other air transportation security problems (see Jan 1969).

Aug 6, 1970: FAA announced its first three grants under the new **Airport Development Aid Program, or ADAP** (see May 21, 1970). The awards went to Detroit Metropolitan-Wayne County Airport (Mich.), Hector Field (Fargo, N.D.), and Minneapolis-St. Paul International Airport (Minn.). On Oct 27, 1970, the Secretary of Transportation officially delegated the authority to administer the ADAP program to the FAA Administrator.

Aug 6, 1970: FAA transferred jurisdiction over **agency hearing officers** from the Regulatory Council to the Assistant Administrator for Appraisal. (See Jan 17, 1962.)

Aug 11, 1970: FAA **withdrew a notice of proposed rulemaking requiring the use of protective smoke hoods**. The agency had proposed on Jan 6, 1969, that these hoods be carried on all large airplanes for use by occupants during evacuation when fire or smoke was present. After further study, however, FAA decided that the hoods' use might produce unacceptable delays during evacuation. Rapid evacuation after a crash landing, the agency held, was the most vital element for survival.

Aug 12, 1970: FAA established a Technical Assistance Staff headquartered in the United States in the Office of International Aviation Affairs to provide a variety of short-term **technical assistance in aviation to foreign countries** anywhere in the world. During the first year of its existence, this staff dispatched 44 technicians on short-term assignments to 13 countries. At the same time, FAA abolished the Regional Aviation Assistance Group, which had provided assistance primarily to Latin American countries.

Aug 12, 1970: In a rule issued this date, FAA required an **advanced type of Flight Data Recorder** for those large transport aircraft over 12,500 lb. certificated after Sep 30, 1969, that were turbine-powered or certificated to operate above 25,000 feet. By Mar 18, 1974, such aircraft were required to carry a type of recorder able to provide accident investigators with over three times more information on an aircraft's control settings and other circumstances. (See Aug 5, 1957, and Mar 25, 1987).

Aug 29, 1970: **The McDonnell Douglas DC-10 first flew**. On Jul 29, 1971, FAA type-certificated the aircraft, a medium-to-long-range airliner with a maximum capacity of 345 passengers. Powered by three General Electric CF6-6D turbofan engines, the DC-10 became the first transport certificated by FAA to meet the reduced engine-noise levels for takeoff, approach, and taxiing operations specified in

Part 36 of the Federal Aviation Regulations . American Airlines inaugurated scheduled DC-10 service on Aug 5, 1971, with a flight from Los Angeles to Chicago.

Sep 6-9, 1970: Members of the **Popular Front for the Liberation of Palestine hijacked four airliners** over Europe, blew them up, and held many passengers hostage. The hijackers originally planned to seize two Israeli, one Swiss, and one U.S. aircraft, and take the planes to a level stretch of Jordanian desert dubbed "Revolution Airstrip." The plan failed insofar as the Israeli aircraft were concerned. Front members were refused admittance to one of them, whereupon they hijacked a U.S. flight. When they learned that the wide-body jet was too large to land at Revolution Airstrip, they ordered it to Cairo, where they blew it up after deplaning its occupants. Front members succeeded in boarding the other Israeli airliner, but their hijacking attempt was foiled in flight. One hijacker was killed and another arrested by British authorities when the plane landed in London.

The part of the original plan involving U.S. and Swiss airliners succeeded, and on Sep 6 these aircraft landed at Revolution Airstrip with all passengers. To gain bargaining power for the release of their member arrested in London, the Front hijacked a British airliner and forced it to land at Revolution Airstrip on Sep 9. The Front blew up the three empty airliners on Sep 12. All hostages except six were freed on

Sep 27. Those six were freed two days later, in return for the release of the hijacker under arrest in London and six other Front members held by the Swiss and West Germans.

Sep 10, 1970: The Air Transport Association settled a \$50 million damage **suit against PATCO** for its role in the 1970 strike. As part of the settlement, PATCO remained under a permanent injunction against any future job action. (See Apr 23, 1970, and Jan 29, 1971.)

Sep 11, 1970: President Nixon announced a comprehensive **antihijacking program** that called for:

- * The U.S. government to place specially trained, armed guards on American commercial airline flights.

- * Extending, under DOT auspices, the use of electronic and other surveillance techniques by U.S. flag carriers to all gateway airports in the U.S., and in other countries wherever possible.

- * Accelerated efforts by Federal agencies to develop security measures, including new methods for detecting weapons and explosives devices.

- * The State Department and other appropriate agencies to consult foreign governments and foreign carriers on antihijacking techniques.

- * All countries to accept the multilateral convention (to be considered at a conference held under the auspices of the International Civil Aviation Organization) providing for extradition or punishment of hijackers.

In addition, the President called on the international community to suspend airline service to countries refusing to extradite or punish hijackers involved in international blackmail. He stated that it was U.S. policy to hold nations in which a hijacked plane landed responsible for appropriate steps to protect the lives and property of U.S. citizens. (See Sep 21, 1970, Oct 28, 1970, and Sep 23, 1971.)

Sep 21, 1970: The Department of Transportation announced the appointment of Lt. Gen. **Benjamin O. Davis, Jr.** (USAF-Ret), as **Director of Civil Aviation Security for DOT**. Davis advised the Secretary of Transportation on the Department's antihijacking program and coordinated the functions of the airport and airborne security force, composed of components from the Departments of Defense, Justice, Transportation, and Treasury, and other government agencies. (See Sep 11, 1970.)

Sep 25, 1970: The Departments of Justice and Transportation signed a **memorandum of understanding dividing responsibilities for responding to hijackings**. The FBI had jurisdiction when an aircraft was neither airborne nor moving on the runway for purposes of takeoff or landing. The pilot retained command at other times, and FAA's recommendations to him had precedence. A further agreement in Dec 1971 assigned the pilot the responsibility of signaling whether the aircraft should be disabled or stormed. On Feb 26, 1975, FAA and the FBI signed a new memorandum of understanding governing responsibilities during a hijacking. Following guidelines provided by the Anti-Hijacking Act of Aug 5, 1974 (see that date), the new agreement extended FAA jurisdiction to include the period from the closing of all external doors following embarkation until the opening of one such door for disembarkation. Both the FAA and the FBI agreed to fully consider each other's views, as well as the views of the airline and the pilot in command, before initiating law enforcement action.

Sep 30, 1970: FAA established a **Civil Rights Committee**. The 13-member committee served as a sounding-board for the discussion of equal employment opportunity problems and suggested methods

for improving the employment environment, examined employment practices and procedures, reviewed proposed employment directives, and performed other specified advisory functions.

Oct 2, 1970: A **chartered Martin 404 carrying members of the Wichita State University football team crashed near Silver Plume, Colo.**, killing 32 of the 40 persons aboard. The National Transportation Safety Board later cited the probable cause as the operation of the aircraft over a mountain valley route at an altitude from which the aircraft could not avoid obstructing terrain. Among factors listed as contributing to the accident was the charter company's poor operational management. The accident called into question the business practices of charter and leasing firms, and Secretary of Transportation John A. Volpe on Oct 9 ordered an **investigation of companies designated as commercial operators of large aircraft** (see March 5, 1971). While this investigation proceeded, FAA on Oct 27 proposed a rule redefining the term "commercial operator" and requiring educational institutions and similar groups to hold an air travel club certificate when operating large aircraft over 12,500 pounds. The proposal would also have required operators of large aircraft to obtain a commercial operator's certificate for certain operations in the furtherance of business. Industry response to the proposal proved strongly negative. Meanwhile, **another major crash of a charter flight occurred on Nov 14, 1970**, when a Southern Airways DC-9 descended too low during a nonprecision approach at Huntington, WV. The accident killed all 75 of the plane's occupants, including the Marshall University football team. (See Mar 5, 1971.)

Oct 12, 1970: FAA announced adoption of a **three-bar version of the visual approach slope indicator (VASI)** system. VASI had been adopted as the U.S. national standard in 1961 and became the international standard shortly thereafter. The bicolor (red-white) light box system was located alongside the runway at its touchdown or aiming point. When the pilot was on the proper glide slope, the far indicator was red and the closer one was white. When the pilot was above the glide slope, both indicators were white; when below the glide path, both were red. The specialized three-bar VASI was primarily for runways which were not equipped with the Instrument Landing System and which served new, large jets, such as the Boeing 747, whose pilots sat high above the landing gear. Pilots flying these jets would use the second and third bars for reference, while pilots of smaller aircraft would use the first and second bars. (See Feb 8, 1985.)

Oct 14, 1970: Congress approved legislation implementing the Convention on Offences and Certain Other Acts Committed on Board Aircraft--the so-called **Tokyo Convention**. This legislation accomplished three objectives: it closed certain minor gaps in U.S. criminal jurisdiction over acts committed on aircraft of U.S. registry; it clarified the existing "air commerce" jurisdiction, which otherwise could have created serious constitutional and international problems; and it brought U.S. military aircraft under the "special aircraft jurisdiction of the United States." (See Dec 4, 1969.)

Oct 28, 1970: The Departments of Transportation and Treasury agreed that the Bureau of Customs would recruit and train a **permanent force of customs security officers who would be assigned to FAA for service as sky marshals** aboard commercial passenger flights (see Aug 10, 1961). The first class of these officers graduated on Dec 23, 1970; by May 1971, they had completely replaced an interim force organized in accordance with the program announced by President Nixon on Sep 11, 1970 (see that date). This interim force had consisted of both military personnel and civilian agents from the Treasury Department and other agencies, including FAA.

Nov 6, 1970: FAA established a national en route air traffic **training program for beginning center controllers**. The program, an outgrowth of a **Corson Committee** recommendation (see Jan 29, 1970), used the FAA Academy for qualification training and FAA facilities for proficiency training. Its objectives included shortening the training, reducing the high attrition rate among trainees, and making more efficient use of resources. Training was conducted in three phases. The first phase, indoctrination and precontrol, took place at an en route facility and covered noncontrol duties. The second, control, was conducted at the FAA Academy and consisted of a nine-week non-radar and radar control procedures course. The final phase, sector qualification, took place at an en route facility. Previously, controller trainees had been sent directly to the FAA Academy for a nine-week indoctrination course, and then to the centers for on-the-job training running from two to three years.

Nov 12, 1970: The National Transportation Safety Board released the results of a 1969 **inquiry into the cause and prevention of midair collisions**. The Board concluded that "no one solution is available to the aviation community which will result in the elimination of all midair collisions." The collision potential, however, could be reduced by (1) pilot education and pilot scanning techniques, (2) using collision avoidance systems and pilot warning indicators, (3) establishing standard traffic

patterns for all airports, (4) separating high- and low-performance aircraft within terminal areas, (5) implementing area navigation throughout the National Airspace System, (6) increasing the conspicuity of aircraft, and (7) expanding the use of automation in air traffic control.

The Board recommended that FAA:

- * Evaluate pilot qualification criteria and minimum airborne equipment requirements for operations into high-density terminal areas.

- * Accelerate the program providing for the separation of high- and low-performance aircraft in high-density terminal areas.

- * Encourage the development of an airborne collision avoidance system for air carrier and larger general aviation aircraft.

- * Provide funds for the ground equipment necessary to support airborne collision avoidance systems.

- * Sponsor the development of pilot warning indicator systems. * Require the installation of collision avoidance and pilot warning indicator systems when they become available.

- * Add scanning techniques to the pilot training syllabus.

- * Require the installation of white anticollision lights on all aircraft.

- * Accelerate the implementation of an area navigation system throughout the National Airspace System (see Mar 6, 1972).

Nov 16, 1970: The **Lockheed TriStar L-1011** first flew. On Apr 14, 1972, FAA type-certificated the three-engine wide-body jet with a maximum capacity of 260 passengers. Eastern Air Lines inaugurated scheduled L-1011 service on Apr 26, with a flight from Miami to New York. On Dec 7, 1981, Lockheed announced a **phasing out of Tristar production**. The 250th and last L-1011 was rolled out on Aug 19, 1983. The company completed delivery during 1985, with the exception of a single L-1011 (the first one produced) retained by Lockheed until 1986. While ceasing to compete against Boeing and McDonnell Douglas in the commercial transport field, Lockheed remained a major producer of military aircraft.

Nov 30, 1970: FAA inaugurated a **general aviation accident prevention program** on a national level after its effectiveness had been demonstrated in a two-year test in FAA's Central and Southwest Regions (see Jul 1, 1968). The expansion of the program during fiscal 1971 involved placing accident prevention specialists in 83 general aviation and flight standards district offices, supplemented by one national and seven regional accident coordinators. The program's premise was that the number of general aviation accidents could be reduced by improving the attitude, behavior, proficiency, and knowledge of airmen, as well as by reducing environmental hazards.

Dec 3, 1970: The **supersonic transport (SST) program suffered a reverse in Congress** as the Senate adopted an amendment to delete from the Department of Transportation fiscal 1971 appropriations bill an administration request for \$290 million to continue SST prototype development. Subsequently, House-Senate conferees restored \$210 million of the administration's request to the bill. But the Senate balked again, and the House refused to take part in another conference. Accordingly, the two chambers passed a joint resolution continuing appropriations for the Department (including the SST project) through Mar 30, 1971, at the fiscal 1970 level; at the same time, they agreed to vote on the SST appropriation separately from the rest of the DOT appropriation early in the 92d Congress. (See Apr 22, 1970, and Mar 24, 1971.)

Dec 5, 1970: A **rule prohibiting any person from acting as a crewmember of a civil aircraft within eight hours after consuming alcohol** became effective. The previous rule had prohibited crewmembers from performing their duties while under the influence of alcohol, but specified no time period for abstinence. (See Apr 17, 1985.)

Dec 14, 1970: The Center for Development of Air Transportation, a private Italian organization founded in 1950, awarded the **Leonardo da Vinci Prize for 1970 to FAA** for contributions to worldwide knowledge and achievements in the fields of aerial navigation, airport development, and the promotion of flight safety.

Dec 16, 1970: The U.S. and 49 other nations signed the Convention for the Suppression of Unlawful Seizure of Aircraft (known as **The Hague or Hijacking Convention**) at a diplomatic conference held under the auspices of the International Civil Aviation Organization. The U.S. was an active participant in developing the convention, which declared the hijacking of civil aircraft to be an offense punishable by severe penalties. The convention obligated contracting states to extradite hijackers or to submit their cases to prosecutorial authorities. The U.S. Senate approved ratification on Sep 8, 1971, and the U.S. deposited its instruments of ratification on Sep 14. This completed the 10 ratifications

needed to bring the convention into force among ratifying states 30 days later, and it became effective on Oct 14, 1971. Signatories to the convention depositing instruments of ratification before the U.S. were Japan, Bulgaria, Sweden, Costa Rica, Gabon, Hungary, Israel, Norway, and Switzerland.

Dec 22, 1970: FAA established the **Office of Environmental Quality** and simultaneously abolished the Office of Noise Abatement, which formed the nucleus of the new office. This organizational change reflected FAA's expanding responsibilities in such areas of environmental quality as aircraft noise abatement, sonic boom, smoke emission, exhaust pollution, and aircraft waste. FAA issued an order on Feb 19, 1971, transferring the aircraft noise abatement research program to the Systems Research and Development Service. (See Jul 21, 1967 and Sep 10, 1978.)

Dec 23, 1970: FAA established the **Office of Systems Engineering Management** in the Office of the Associate Administrator for Engineering and Development. This new office replaced the abolished Systems Engineering Management Staff.

Dec 29, 1970: The Occupational Safety and Health Act of 1970, enacted this date, required that most U.S. civil aircraft carry **emergency locator transmitters (ELTs), also known as crash locator beacons**, after Dec 30, 1973. The law also required ELTs on airplanes newly manufactured or imported after Dec 30, 1971. The requirement applied to most of the general aviation fleet, including supplemental air carriers, air taxis, and commercial operators. Exemptions included scheduled air carriers, rotorcraft, turbojets, experimental aircraft, agricultural planes, and training flights within 20 miles of the home base. The legislation was a response to concern over incidents in which persons survived an accident only to die because searchers were unable to locate the crash site. FAA implemented the legislation in a rule published on Sep 21, 1971. (See Mar 20, 1969, and Jan 2, 1974.)

Dec 31, 1970: FAA established a **Defense Readiness Staff** in the Office of the Associate Administrator for Operations; at the same time, it abolished the Defense Coordination Staff. The new staff directed its efforts to maintaining FAA's defense readiness and operational contingency plans, its post-attack and follow-on readiness plans, and liaison between FAA and other civil and military agencies regarding defense readiness. With the change in the organization of FAA's emergency readiness activity, the Associate Administrator for Plans assumed responsibility for coordinating defense matters with the Department of Defense and for monitoring significant DOD-FAA programs and plans. Subsequent changes regarding these responsibilities included the assignment of the emergency operations function to the Office of the Deputy Administrator on Aug 8, 1984.

Dec 31, 1970: **Public Law 91-604, the Clean Air Amendments of 1970, gave the recently created Environmental Protection Agency (EPA) the responsibility to promulgate aircraft engine emission standards** in order to control air pollution. Under the legislation, FAA would implement and enforce the standards if it deemed them to be technologically feasible and economically practicable. (See Jan 20, 1970, and Jul 6, 1973.)

Dec 31, 1970: The end of this day marked a **calendar year in which there were no passenger or air crew fatalities in U.S. scheduled domestic airline service**, the first such Jan-Dec period in Federal records. One person, however, was killed in a propeller accident on the ground, and two passengers died in scheduled international service. Certificated route air carriers in scheduled domestic and international passenger service recorded an unprecedented passenger fatality rate per 100 million passenger-miles flown of 0.001. (See Aug 31, 1940, and Dec 31, 1980.)

***1971**

Jan 15, 1971: The Federal Aviation Administration transferred jurisdiction over its **field offices and facilities in Kentucky** from the Eastern Region Area Office at Cleveland to the Southern Region headquarters at Atlanta.

Jan 29, 1971: The Department of Labor **stripped PATCO of its status as a labor organization** because it had called a strike against the Federal government. PATCO was required to post a notice declaring that it would not engage in illegal job actions before it could be considered eligible for recognition as a labor organization. PATCO took this and other steps to comply with the Labor Department's decision. On Jun 4, the Department decided that PATCO was eligible to seek recognition as a labor organization under Executive Order 11491. Three days later, PATCO filed a new petition with Labor for exclusive recognition as the national representative for all air traffic controllers. (See Sep 10, 1970, and Feb 7, 1972.)

Jan 29, 1971: The Nixon administration **proposed the sale of Washington National and Dulles International Airports** in the Budget of the United States Government for fiscal year 1972. The

Government asked \$105 million for the two airports and made the sale subject to the approval of the Congress. (See Oct 30, 1986.)

Feb 4, 1971: FAA instituted the new **"Keep-'Em-High" program** to reduce noise in the vicinity of the nation's airports. Under the program, which had been announced in Oct 1970, the agency instructed controllers to keep flights as high as possible during landings and takeoffs, delaying turbojet aircraft in their final descent until relatively close to their destination airport and climbing them out as rapidly as possible after takeoff. Where aircraft performance capabilities and considerations of passenger safety and comfort permitted, FAA required turbojet aircraft to be kept at 10,000 feet or higher until within 30 miles of the airport.

By Jul 1, 1971, the program had been implemented at 387 airports, nearly all those airports serving scheduled air carrier and turbojet aircraft. (See Dec 4, 1967, and Aug 1, 1972.)

Feb 4, 1971: FAA permanently established a **terminal control area (TCA) for Washington, D.C.** (the Washington National/Andrews Air Force Base complex). A TCA had been established earlier for this location, on Aug 20, 1970, but rescinded the following day because of operational problems. The agency established a revised version on Oct 1, 1970, but adherence was purely voluntary until made mandatory by the Feb 4, 1971, rule. The Washington TCA was the third to be established. **Two more TCAs were established on Sep 16, 1971**, one for Los Angeles and one for the New York City airport complex. (See Jun 25, 1970 and Jan 1, 1974).

Feb 23, 1971: The Secretary of Transportation established a **Transportation Safety Institute (TSI)** at FAA's Aeronautical Center, Oklahoma City. Although initially operated by FAA, this school provided training in the investigation of accidents and incidents in all modes of transportation, and in related regulatory matters. In 1977, TSI became part of the new Research and Special Programs Administration (see Sep 23, 1977.)

The establishment of TSI followed the **dissolution of the National Aircraft Accident Investigation School (NAAIS)**, which had been originally operated as a joint venture at the FAA Academy (see Sep 30, 1963) by FAA and the Civil Aeronautics Board. The National Transportation Safety Board (NTSB) assumed CAB's share of responsibility for the school when NTSB took over CAB's aircraft accident investigation functions on Apr 1, 1967. Subsequently, however, FAA decided to include enforcement-oriented training as part of the curriculum at NAAIS. As this added training would not be consistent with NTSB's mission, FAA and NTSB agreed to dissolve NAAIS as of Jan 31, 1971. (On Mar 4, **NTSB established its own National Aircraft Accident Investigation School** at Dulles International Airport.)

Mar 2, 1971: The Civil Aeronautics Board approved the **merger of Trans Caribbean Airways into American Airlines**, effective this date. Trans Caribbean had begun as a charter carrier in Dec 1945, and had begun scheduled service between New York and Puerto Rico in Mar 1958.

Mar 5, 1971: **DOT released the report of its investigation of air charter and leasing companies** undertaken following an accident on Oct 2, 1970 (see that date). The investigating task force determined the key problem was the difficulty of enforcing the distinction in the safety regulations between large-airplane operators in private carriage for compensation or hire and other large-airplane operations in private carriage. Among the group's recommendations were: distributing to universities and other organizations flyers explaining the differences between leasing an aircraft and hiring a charter; incorporating a truth-in-leasing clause in leases; and requiring that all large and complex airplanes be operated and maintained at a safety level comparable to that of air carriers. FAA immediately carried out the recommendation on the distribution of flyers, and later took action on the truth-in-leasing issue (see Jan 3, 1973). On Oct 7, 1971, however, FAA withdrew a proposed rule that would have placed certain new certification requirements on operators of large aircraft in private carriage. FAA took this action on the ground that the proposal would impose unnecessary administrative burdens on corporate or business aircraft operators, but the agency continued to consider ways to upgrade the safety of large general aviation aircraft. (See Oct 23, 1972.)

Mar 13, 1971: AN FAA rule **upgraded airworthiness standards for small airplanes seating 10 or more passengers** (excluding crew). The new rule required all such aircraft, regardless of weight, to be certificated in the air transport category. The rule reflected a trend toward increased numbers and types of small aircraft designed with relatively large passenger capacity, and it affected segments of aviation that included the growing air taxi industry. (See Sep 7, 1964, and Dec 1, 1978.)

Mar 15, 1971: FAA adopted a **marking and lighting standard for identifying transmission lines** and their support structures that could constitute a potential hazard to air navigation. The standard

called for three sequentially flashing white lights of high intensity to be installed on transmission line support structures. Each light would flash 60 times per minute. These lights replaced unlighted spherical markers on transmission lines, which provided little or no help to pilots at night or in bad weather.

Mar 24, 1971: **The Senate in effect terminated the U.S. civil supersonic transport (SST) program** when it voted against the appropriation of \$289 million to continue SST prototype development. The House of Representatives had voted down the SST appropriation on Mar 18, 1971. Later, in May 1971, pro-SST forces in the House seeking to revive the program succeeded by a vote of 201-197 in amending a Department of Transportation supplemental appropriations bill to include \$85.3 million for SST development; however, the Senate struck out the amendment by a vote of 58-37. (See Dec 3, 1970, and Oct 12, 1971.)

Mar 25, 1971: A U.S.-Icelandic agreement provided that the United States would reimburse Iceland for **flight inspection of U.S.-owned military air navigation aids within Iceland**. The inspections had previously been performed by FAA, which since 1966 had been helping Iceland to establish a flight inspection unit.

Mar 29, 1971: The FAA Administrator delegated to the Federal Air Surgeon the **authority to grant or deny airman petitions for a medical exemption** under a rule effective this date. Previously, the Administrator granted or denied such petitions after receiving the recommendation of an advisory panel of medical specialists. Under the new rule, the services of this panel were no longer required; however, the Federal Air Surgeon consulted with medical specialists where appropriate. Petitions involving a policy determination were referred, with the Federal Air Surgeon's recommendations, to the Administrator for final action.

Mar 31, 1971: The **first grant under the Airport Planning Grant Program** went to the Massachusetts Aeronautics Commission for the development of a statewide comprehensive airport system plan. (See May 21, 1970.)

Apr 2, 1971: FAA **realigned its regional field structure** in the contiguous 48 States to conform generally with the President's plan for a common pattern of Federal regional boundaries and regional headquarters. In March 1969, the President had announced a plan calling for 10 standard Federal regions encompassing all 50 States to facilitate service to the public in matters cutting across departmental or agency lines. Conformance with this plan required FAA to establish **four new regions**--New England, Great Lakes, Rocky Mountain, and Northwest--and to realign the boundaries of four of its five preexisting regions in the contiguous 48 States. The resulting nine regions in the contiguous states, their regional headquarters, and the states each encompassed, were:

- * New England (Boston): Maine, New Hampshire, Rhode Island, Massachusetts, Connecticut, and Vermont.
- * Eastern (New York City): New York, Pennsylvania, Virginia, Maryland, West Virginia, Delaware, New Jersey, and the District of Columbia.
- * Southern (Atlanta): North Carolina, South Carolina, Georgia, Florida, Mississippi, Alabama, Tennessee, and Kentucky.
- * Great Lakes (Chicago): Illinois, Indiana, Minnesota, Michigan, Ohio, and Wisconsin.
- * Central (Kansas City): Missouri, Iowa, Kansas, and Nebraska.
- * Southwest (Fort Worth): Texas, Arkansas, Louisiana, Oklahoma, and New Mexico.
- * Rocky Mountain (Denver): Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.
- * Northwest (Seattle): Washington, Idaho, and Oregon.
- * Western (Los Angeles): California, Arizona, and Nevada.

FAA was authorized certain deviations from the President's plan: (1) the agency did not establish a region headquartered at Philadelphia, but instead combined the states that the plan allocated to that region with those allocated to New York; (2) FAA's Alaskan Region was not combined with the region headquartered at Seattle; (3) and Hawaii continued as the main part of FAA's Pacific Region, headquartered at Los Angeles, rather than becoming part of a region headquartered at San Francisco. Thus, FAA had 11 regions for the 50 States. (See Jun 12, 1981.)

At the same time that FAA's regional realignment went into force, **FAA abolished its area offices in the contiguous 48 States** (see Nov 22, 1968), and the responsibilities of the area managers were transferred to the appropriate regional directors. Area coordinators without line authority were stationed at seven locations formerly having area offices (Albuquerque, Houston, Memphis, Miami, Salt Lake City, San Francisco, and Washington, D.C.). In addition, Cleveland and Minneapolis each

had a local coordinator with responsibility limited to the city's metropolitan jurisdiction. These coordinators served as a point of contact for the public on issues involving more than one program area, represented the regional director with the community on nonprogram matters, and advised and assisted program elements of FAA on activities that crossed program lines. **In Alaska, FAA also closed the Fairbanks, Juneau, Nome, and King Salmon Area Offices** (see May 22, 1969), and area coordinators assumed services formerly performed by those offices.

Apr 2, 1971: The Administrator gave air traffic control facilities **increased flexibility in granting pilot routing and altitude requests** for all types of aircraft. Conditions permitting, controllers were empowered to: relax the requirements for preferential routings; assign the most economical altitudes; discontinue standard instrument departures; and honor requests for direct radar vectors. These relaxed procedures were made possible by a temporary **decline in air traffic during fiscal 1971** (the first such decline since fiscal 1961), which coincided with a general slowdown in the U.S. economy.

Apr 6, 1971: **FAA required pilot familiarization with all available information concerning the runway lengths** at airports of intended use, as well as with takeoff and landing distances appropriate to the aircraft being used. This mandatory preflight action replaced various general operating practices.

Apr 19, 1971: FAA issued its first type certificate for a West German helicopter, the **Messerschmitt-Bolkow-Blohm BO-105A**.

Apr 19, 1971: The Soviet Union launched **Salyut 1, the first of a series of orbiting space stations**. Soviet cosmonauts used Soyuz spacecraft to reach these stations for increasingly long missions, including a stay of over 200 days aboard Salyut 7 in 1982. (See May 14, 1973.)

Apr 26, 1971: Intercom noted that Ruth M. Dennis would become the **first woman to serve as chief of a Flight Service Station** when she reported to the San Diego FSS during the week. Dennis had joined the Civil Aeronautics Authority in 1944.

Apr 29, 1971: FAA established **four transcontinental high-altitude area navigation routes** between New York City and Los Angeles and Oakland, Calif. (See Oct 1, 1969, and Mar 6, 1972.)

Apr 29, 1971: FAA established a **V/STOL (vertical/short takeoff and landing) Special Projects Office** under the Associate Administrator for Engineering and Development to stimulate and encourage the private development of economically viable V/STOL systems and provide a focal point for all of FAA's V/STOL development activities. The new office would formulate and maintain a comprehensive agency V/STOL development plan. (See Sep 23, 1968, Sep 17, 1971, and Jul 26, 1972.)

May 3, 1971: FAA's **Management Training School at Cameron College, Lawton, Okla., admitted its first class**. The school's establishment had been recommended by the Corson Committee (see Jan 29, 1970). FAA required all supervisors and middle managers to attend an appropriate three-week course, and refresher courses were offered. Some 50,000 FAA personnel attended the school before it closed on Jul 3, 1987. (See Jul 1, 1972 and Mar 14, 1986.)

May 14, 1971: In United States v. Lopez, the United States District Court for the Eastern District of New York declared FAA's **antihijacking profile system constitutional** (see Jul 17, 1970). The court found that the system had provided the "reasonable suspicion" required to justify a personal search. On another key point, that of the characteristics contained in the profile for identifying potential hijackers, the Court said that careful adherence to the absolute objectivity and neutrality of the system as designed would avoid discrimination on the basis of religion, origin, race, or political views.

The case arose when two men preparing to board a New York-San Juan flight were arrested and charged with concealing a packet of narcotics. Charges against one of the men were dropped. The other man--the defendant in this case--was acquitted on a motion to suppress the evidence, which the court found had been gathered outside the government's system to deter and apprehend hijackers.

May 16, 1971: Gene D. Sims became the **first woman to serve as chief of an FAA airport traffic control tower**, taking over supervision of the Cuyahoga County (Ohio) Airport tower upon its commissioning. Sims, who had joined FAA in 1956, had served as a crew chief at the Akron-Canton (Ohio) Airport tower since 1962.

May 21, 1971: FAA established the **Office of General Aviation**, at the same time abolishing the Office of General Aviation Affairs, which formed the nucleus of the new office. (See Aug 31, 1962 and Sep 10, 1978.)

Jun 4, 1971: FAA issued the first supplemental type certificate approving installation of a **nitrogen fuel-tank inerting system** in a civil aircraft to protect against accidental ignition of fuel vapors. The

agency installed the inerting system, developed under an FAA contract by Parker Hannifin Corporation, in a DC-9 aircraft. The type certificate applied to this specific aircraft only.

Jun 8, 1971: FAA established a **Behavioral Sciences Division** in the Office of Aviation Medicine. The new division, to which the agency transferred the functions of the Psychology Staff and the Psychiatric Assistant, provided advice on psychiatric and psychological matters in support of employee and occupational health programs, the air traffic control specialist health program, manpower management programs, and FAA's effort to combat aircraft piracy and sabotage, including the selection and training of air marshals.

Jun 8, 1971: FAA established the **quality assurance systems analysis review (QASAR) program** to improve surveillance activities of the quality control systems used by aviation-product manufacturers and their parts suppliers. This program provided for a systems analysis evaluation of the aeronautical manufacturer's total organization through in-depth and independent evaluations of the manufacturer conducted by the Flight Standards Service's QASAR teams, and continuing evaluations by Engineering and Manufacturing District Offices as part of their day-to-day certificate management responsibilities. On Oct 15, 1971, FAA established an Aeronautical Quality Assurance Field Office in the regions to carry out the responsibilities of the QASAR program as well as the functional responsibilities of the Systemsworthiness Analysis Program. (See Jun 1966.)

Jun 12, 1971: The **first passenger death in a domestic hijacking** incident occurred on a TWA aircraft bound from Albuquerque to New York. The hijacker had forced his way aboard the Boeing 727 aircraft during a scheduled stop at Chicago's O'Hare International Airport, seized a stewardess, and demanded to be flown to Vietnam. The passenger was killed attempting to aid the stewardess. When the medium-range aircraft landed at New York's Kennedy International Airport for substitution of a long-range aircraft, the hijacker was wounded and arrested. (See Mar 17, 1970.)

Jun 15, 1971: FAA moved its **Southeast Asian International Field Office (IFO)** from Manila, Republic of the Philippines, to Agana, Territory of Guam. (The Manila office was officially closed Jun 30, 1971.) This IFO provided aviation services to Burma, Cambodia, Indonesia, Laos, Malaysia, the Philippines, Singapore, South Vietnam, Thailand, Nauru, the Trust Territory of the Pacific Islands, and Guam.

Jun 18, 1971: FAA announced a joint program with the military services designed to **minimize the number of military aircraft flying under visual flight rules (VFR)**. The purpose of the program was to enhance the efficiency of the common civil-military airspace system and reduce the midair-collision hazard by bringing military flights under the direct control of FAA's air traffic control facilities. To the maximum extent practicable, military flights in fixed-wing aircraft would be conducted in accordance under instrument flight rules (IFR). The danger of mixing of high-speed IFR and VFR traffic had been tragically illustrated by a **midair collision on June 6, 1971**, near Duarte, Calif., of a DC-9 airliner and a U.S. Marine Corps F-4B. All 49 occupants of the DC-9 and one of the two occupants of the F-4B were killed. The airliner was under IFR control; the military plane was flying VFR.

Jul 1, 1971: The production model of the **Cessna Citation first flew**. In February 1972, FAA type-certificated this 8-seat, pressurized, executive turboprop aircraft.

Jul 1, 1971: FAA's **first modular airport traffic control tower** went into operation, at the Owensboro-Davies County (Ky.) Airport. The prefabricated tower, designed primarily for low traffic activity airports, was erected at the airport in a matter of weeks. The tower was equipped with solid state communications equipment.

Jul 8, 1971: FAA put into operation a **jet-propelled boat to conduct search and rescue operations** in the event of a crash landing in the Potomac River near Washington National Airport. The 22-foot watercraft could accommodate all occupants of the largest airliner serving the airport.

Jul 27, 1971: FAA put into operation two **mobile lounges that could be raised and lowered to accommodate varying aircraft floor heights** at Dulles International Airport. The new lounges, which carried up to 150 passengers were designed to mate with the Boeing 747, Lockheed L-1011, and McDonnell Douglas DC-10, and other commercial aircraft. The older model mobile lounges had been fitted with a portable stairway to bridge the space between the lounge ramp and the newer and higher aircraft; however, this attachment did not protect passengers from adverse weather. (See Apr 2, 1959.)

Jul 1971: The Departments of Defense and Transportation and the National Aeronautics and Space Administration issued a national plan for **developing a microwave landing system (MLS)** for civil-

military common use. The plan, designed to meet all civil and military needs for instrument landing systems at domestic and foreign airports during this century, outlined two complementary development efforts: an industry program to produce prototype equipment at the earliest possible date; and a series of government programs concerned with such issues as validation, the investigation of subsystem concepts and techniques, and the application of MLS to civil-military aircraft operations.

MLS was intended to replace the instrument landing system (ILS), a unidirectional system employing VHF and UHF radio frequencies. The ILS, which had remained essentially unchanged since its introduction in the 1940s, suffered from limitations that included dependence on a fairly smooth airport surface to transmit an acceptable signal. Consequently, the system could not be installed in some areas without expensive reconfiguring of the terrain. The construction of a new hangar or even the accumulation of snow could adversely affect the system. MLS would provide precision, high-integrity guidance that would be relatively insensitive to the effects of terrain, structures, other aircraft, and weather. It could operate at airports where the conventional ILS could not operate because of terrain irregularities. Moreover, the new system would make more flight paths available because it would employ a wide-angle scanning beam, as opposed to the unidirectional beam of the old system.

On Jul 26, 1972, the responsibility for developing the new system was entrusted to a newly formed Microwave Landing System Branch within FAA's Systems Research and Development Service. (See Jun 19, 1970, and Jan 27, 1972.)

Aug 4, 1971: Recognizing that noise was a major source of environmental pollution, the Department of Housing and Urban Development (HUD) issued **guidelines for housing construction near high-noise areas**, including airports. HUD hoped to discourage the construction of new dwelling units on sites that had, or were projected to have, an unacceptable noise exposure by withholding financial assistance for their development. For existing buildings located in a noisy environment, the Department encouraged sound-proofing, provided a structure's life was not substantially increased.

Aug 10, 1971: FAA abolished the Bureau of National Capital Airports as a bureau, renamed it **National Capital Airports**, and attached it to the Airports Service, which assumed responsibility for operating Washington National and Dulles International Airports. (See Dec 5, 1966 and Jun 11, 1974.)

Aug 11, 1971: FAA expanded requirements for an **anticollision system of flashing aviation-red or aviation-white lights** for night operations. The agency mandated that the system be installed on all powered U.S. civil aircraft with a standard airworthiness certificate by Aug 12, 1972. (Aircraft with experimental, restricted, or provisional type certificates were exempted.) Previously, FAA had required the anticollision light system only on large aircraft and on certain small aircraft as specified in their airworthiness certificates. The agency required this system in addition to the position-light system carried by all aircraft on their tails and wingtips.

Aug 30, 1971: Effective this date, **FAA required the fastening of safety belts by each occupant on U.S.-registered civil aircraft during takeoff and landing**. The rule excepted occupants of airships and also children under two years if held by an adult. Previously, the only passengers that FAA had required to fasten their belts during takeoff and landing were those transported by scheduled air carriers and commercial operators of large aircraft. The new rule required the pilot in command to ensure that all persons aboard had been notified to fasten their safety belts prior to takeoff or landing.

Sep 4, 1971: An **Alaska Airlines 727 struck a mountain slope** while attempting a nonprecision instrument landing approach to Juneau airport, killing all 111 persons aboard. The National Transportation Safety Board determined the probable cause to be a display of misleading navigational information concerning the flight's progress along the localizer course, which resulted in premature descent.

Sep 14, 1971: FAA signed an agreement with NASA for joint participation in **flight simulation research and development** projects. Under the agreement, FAA provided technical personnel to coordinate the agency's R & D projects with NASA officials at the NASA Ames Research Center at Moffet Field, Calif. Included among the research projects were aircraft handling qualities and the development of certification criteria for new aircraft, such as short takeoff and landing (STOL) aircraft.

Sep 14, 1971: FAA transferred the **air marking and skyway programs** to the Office of General Aviation from the Facility Installation Service.

Sep 15, 1971: The Department of Transportation issued an in-depth **study of general aviation safety**, excluding "for hire" operations. The study was conducted by members of the staff of the Assistant Secretary of Transportation for Safety and Consumer Affairs, FAA officials, and general aviation consultants. Areas of concern identified were: inadequate pilot and flight instructor certification requirements; the lack of periodic pilot proficiency checks; the inability of flight service stations to meet the flight operation requirements of the general aviation community, especially its need for accurate and current weather data; and the lack of standard traffic patterns for uncontrolled airports.

The study's recommendations included: conducting a biennial proficiency flight review of every pilot by a certificated flight instructor; placing increased emphasis on the general aviation accident prevention program; increasing the skill, knowledge, and experience requirements of flight instructors; implementing flight service station modernization and reconfiguration; improving the reporting of weather information to the general aviation pilot; strengthening general aviation's position in FAA's headquarters; publishing the Federal Aviation Regulations in separate parts, rather than the 11-volume format used at the time; and adopting the standard traffic-pattern rule at all uncontrolled airports.

Sep 16, 1971: The National Transportation Safety Board ruled that **pilots who had suffered a stroke could not be automatically denied a first-class medical certificate**. The Board stated that each pilot's case must be treated separately rather than on the basis of general stroke statistics and predictions. The ruling reversed FAA's denial of a first-class medical certificate to a pilot who had suffered a "pure motor stroke" in 1964. The Board noted that the pilot had met the pertinent rules and standards since the stroke, and hence his general medical condition allowed him to safely exercise the privileges of the certificate.

Sep 17, 1971: The **first grant related to vertical/short takeoff and landing facilities** under the airport planning grant program went to the New Jersey Department of Transportation to study the development of a special facility to accommodate V/STOL aircraft. (See Apr 29 and Oct 17, 1971.)

Sep 23, 1971: The United States and 29 other nations signed the Convention for the Suppression of Unlawful Acts Against the Safety of Civil Aviation (known as the **Sabotage or Montreal Convention**) at a conference held under the auspices of the International Civil Aviation Organization (see Sep 11, 1970). This agreement was directed against offenders who commit acts of violence against persons aboard civil aircraft in flight, or who destroy or endanger such aircraft through means that include sabotage, interference with air navigation facilities, and communication of false information. It placed an obligation on contracting states to extradite such offenders or submit their cases to prosecutorial authorities. The convention would go into force 30 days following deposit of instruments of ratification by 10 of the original signatory states. The U.S. deposited its instruments of ratification on Nov 1, 1972, and the treaty went into force on Jan 26, 1973.

Oct 1, 1971: FAA established the **Airway Facilities Service**, combining the Systems Maintenance and Facility Installation Services. This action brought the Washington headquarters in line with the regional organization. (See May 16, 1962 and Jan 19, 1970.)

Oct 4, 1971: FAA commissioned the **first operational Automated Radar Terminal System (ARTS) III**, at Chicago's terminal radar control facility at O'Hare International Airport. The basic ARTS III, when added to existing airport surveillance radars, permitted the display of such flight information as aircraft identity and altitude directly on the radarscopes for aircraft equipped with transponders. (See Feb 13, 1973.)

Oct 12, 1971: **FAA abolished the Office of Supersonic Transport Development and established the Supersonic Transport Office** under the Associate Administrator for Engineering and Development to continue SST engineering and research activities. The agency also established a SST Contracts Branch in the Logistics Service to perform the contracting and procurement functions for the negotiation, administration, and termination of SST contracts. (See Mar 24, 1971.)

Oct 14, 1971: FAA completed **lowering the base of area positive control from 24,000 to 18,000 feet over the entire contiguous 48 States** with the lowering of the base over the southeastern United States. The base had previously been lowered over the northeastern and north central United States on Nov 9, 1967; the northwestern and northern tier states on May 27, 1971; the west central states on Jul 22, 1971; and the central and southwestern states on Aug 19, 1971.

The action meant that all aircraft flying between 18,000 and 60,000 feet over the contiguous United States would receive separation services under direct FAA air traffic control. The agency had considered the measure for a number of years, since the increasing closure speeds of aircraft reduced

the time available for pilots operating under Visual Flight Rules to detect potential collisions and take evasive action. (See Nov 9, 1967.)

Oct 17, 1971: Opening of the **first officially designated STOLport solely for short takeoff and landing aircraft** took place at Disney World, near Orlando, Fla. (The term "STOLport" had previously been applied to that portion of an airport reserved for STOL aircraft, and not to the entire facility.) The facility was the first such site in a projected intrastate STOL transportation system. (See Aug 5, 1968, and Jul 26, 1972.)

Nov 18, 1971: Public Law 92-159 **prohibited airborne hunting of birds, fish, and other animals.** The act prescribed criminal penalties for shooting, attempted shooting, or harassing of wildlife from an aircraft.

Nov 23, 1971: A Federal arbitrator approved a **two-man cockpit crew for Aloha's 737 flights**, basing his decision on the low-density, fair-weather conditions under which Aloha operated. On May 8, 1973, however, a federal arbitrator's ruling in another dispute approved a **three-man crew for the 737 flights of Wien Air Alaska.** (See Jul 21, 1969 and Nov 18-27, 1974.)

Nov 24, 1971: The **first in a series of hijackings involving extortion** occurred when a passenger on a flight from Portland to Seattle successfully demanded \$200,000 and four parachutes, then parachuted from the rear stairway of the Boeing 727. The hijacker--who used the name Dan Cooper, but became known as D.B. Cooper in the press--was never found. (In Feb 1980, however, tattered bills from his loot were discovered along the Columbia River in Washington.) Another incident involving a demand for ransom and parachutes occurred on Dec 24, 1971, and 17 more extortion attempts on U.S. air carriers were made during the next 6 months. (See Mar 7-9, 1972.)

Nov 27, 1971: An **amendment to the Airport and Airway Development Act** of 1970 (see May 21, 1970), Congress specified that:

* No trust fund money could be appropriated to carry out any program or activity under the Federal Aviation Act other than "acquiring, establishing, and improving air navigation facilities. . ."

* Any excess of trust fund receipts over airport-airway capital investments could be applied toward the cost of administering the airport and airway development programs.

* Funds equal to the minimum amounts authorized for each fiscal year for airport and airway development must remain available in the trust fund until appropriated for airport-airway development.

Congress passed this amendment when the Nixon administration submitted a budget request for fiscal year 1972 that proposed to obligate less than the minimum annual levels specified in the Airport-Airway Act for airport-airway capital investments. The Department of Transportation, in a move dictated by the newly formed Office of Management and Budget, proposed to use the difference between the revenues generated by user charges and the amounts requested for airport-airway development to help meet the operational needs of air navigation and air traffic control. This proposed use of the trust fund for noncapital expenditures was substantial. For example, the submission proposed to pay the salaries of all but 6,253 of FAA's 54,550 employees with trust fund money generated by user taxes. Such use of trust fund money would have been in line with Congress's intent only if the administration had requested funds for airport and airways development at the minimum levels authorized by the act. The administration's requesting less than the minimum was seen by Congress as an attempt to raid the trust fund for operational expenses.

In addition, the amendment **extended the deadline for submission to Congress of the report of the Aviation Advisory Commission** for one year (see Jan 3, 1973), and also **extended the deadline for certificating airports serving air carriers** for one year (to May 21, 1973: see that date). (See Jun 18, 1973.)

Dec 2, 1971: FAA established a program to expedite departures of general aviation aircraft at certain airports when local weather conditions precluded VFR operations. Known as "**card-a-clearance**," this program used preprinted cards containing three standard departure clearances. By referring to these cards, pilots avoided long and repetitious clearances on congested frequencies and also reduced the possibility of misunderstanding of air traffic control instructions. The program was of special value at airports with a heavy volume of general aviation traffic and recurrent smog or fog problems. Prior to implementation of this program, FAA conducted a successful year-long test of the procedures at three general aviation airports in the Los Angeles Basin.

Dec 31, 1971: FAA terminated its four-year-old policy of granting **immunity from enforcement action to airmen reporting near midair collisions.** FAA had adopted this policy on Jan 1, 1968, to

encourage full reporting of near midair collisions, and thus gather adequate data for developing midair collision prevention programs. In 1969, FAA published a midair collision report based on data collected during 1968; data collected in subsequent years substantiated the findings of the 1969 report. FAA saw no need, therefore, to continue its immunity policy. (See Jul 15, 1969, and Apr 8, 1975.)

***1972**

Jan 3, 1972: Under a policy change effective this date, certain **privately owned public-use airports became eligible for FAA facilities** such as control towers, airport surveillance radars, terminal navigation aids, instrument landing systems, visual approach aids, and related equipment and services. Previously, only publicly owned airports were eligible for this assistance. The agency described the new policy as a response to a shortage of facilities serving the growing civil air fleet and to mounting opposition to development of new airports.

Jan 5, 1972: Betty C. Dillon, a career civil servant, became the **first woman to be sworn in as Minister of the U.S. Government to the International Civil Aviation Organization (ICAO)**.

Jan 21, 1972: FAA commissioned the **first operational Category IIIa instrument landing system** at Dulles International Airport. The system, a British-made STAN 37/38, allowed qualified crews flying properly equipped aircraft to land with a runway visibility range (horizontal visibility) of 700 feet and a decision height (vertical visibility) of zero. Previously, the lowest landing minimums had been a 100-foot decision height and a 1,200-foot RVR, the Category II criteria (see Nov 3, 1967). FAA outlined criteria that had to be met before Category IIIa minimums could be approved--airport and ground facilities, airborne systems, pilot training and proficiency requirement, operations procedures, and maintenance standards--in an advisory circular published on Dec 14, 1971. (The Lockheed L-1011 became the first newly certificated aircraft to be equipped with flight guidance equipment that met the Category IIIa criteria.) (See Sep 1972.)

Jan 26, 1972: FAA began a series of briefings for manufacturers as part of a **new program to promote the export of U.S. aeronautical goods and services**. The action was a response to requests by aeronautical manufacturers for the government to develop mechanisms to help them deal with stiffening foreign competition in world markets. The program involved: providing information on export opportunities through reports on the implementation of regional air navigation plans of the International Civil Aviation Organization; and formulating plans for eventual revision of bilateral airworthiness agreements as a way of facilitating U.S. exports and promoting worldwide commonality in airworthiness standards. (See Calendar year 1974.)

Jan 27, 1972: The Secretary of Transportation signed an agreement transferring certain **emergency preparedness functions** from the Civil Aeronautics Board (CAB) to FAA. The agreement applied to the air transportation activities and services provided by U.S. scheduled and supplemental air carriers operating under the economic regulatory authority of CAB and assigned to the War Air Service Program. It excluded air carrier services provided to the Department of Defense under the Civil Reserve Air Fleet Program. Under the agreement, FAA had responsibility for: assessing enemy-inflicted damage relating to air carriers; assisting air carriers in submitting claims for and restoring materials and services needed to resume air service deemed essential by CAB.

Jan 27, 1972: Secretary of Transportation John Volpe announced that FAA had awarded contracts to six companies for the initial phase of a planned five-year **development program for a microwave landing system (MLS)** for use by civil and military aircraft. (See Jul 1971 and Mar 14, 1973.)

Jan 1972: FAA announced the **Executive Development Program** to identify and develop individuals in supervisory and managerial positions (GS-14 and -15) who had potential for occupying the agency's executive positions. On Sep 17, an initial group of eight candidates began their training.

Feb 2, 1972: FAA published a rule requiring scheduled air carriers and certain commercial operators of large aircraft to implement a **passenger and baggage screening** system acceptable to the Administrator before Feb 6, 1972 (see Jul 17, 1970, and Mar 7-9, 1972). The agency stated its opinion that the "simple and inexpensive" system used by some carriers would have prevented the majority of recent hijackings if used to the fullest extent possible (see Jan 1969).

On the same day, at FAA request, the Federal Communications Commission issued a notice which informed broadcasters and FCC licensees that the Communications Act of 1934 **prohibited unauthorized broadcast of FAA air-to-ground communications**. This action followed instances in which FAA's communications were monitored and rebroadcast, seriously hampering FAA's efforts to control aerial piracy.

Feb 7, 1972: FAA announced that **air traffic controllers** fired for their activist roles in the 1970 strike could apply for re-employment. Of the 52 controllers dismissed, 46 applied and were rehired. (See Jan 29, 1971, and Oct 20, 1972.)

Feb 10, 1972: FAA consolidated the **National Airspace System Program Office (NASPO)** with the Systems Research and Development Service. On Jul 26 FAA abolished NASPO, established in 1966 (see Apr 25, 1966). As the installation of **NAS En Route Stage A** at FAA's ARTCCs was proceeding satisfactorily, there was no further need for a separate office to manage this program. Also, effective Jul 26, FAA transferred NASPO's facilities systems and ARTCC building program functions to the Airway Facilities Service.

Feb 29, 1972: Following a nationwide election, the **National Association of Air Traffic Specialists (NAATS)** received Department of Labor certification as the national exclusive representative for all Flight Service Station specialists, some 3,000 employees. On Jun 1, 1972, FAA and NAATS concluded an agencywide collective bargaining agreement, the first such contract between FAA and a national labor organization and the first in a series of FAA/NAATS contracts.

Mar 6, 1972: FAA announced the establishment of an **FAA-Industry Area Navigation Task Force** to advise and assist the agency in the further application of its area navigation system. The action followed a Jan 24-25, FAA-sponsored international symposium on area navigation that pointed up a need to review FAA's program. In subsequent months the task force conducted in-depth studies and tests to assess the system's value and to determine how area navigation could most effectively be implemented. The test results generally confirmed the advantages previously supposed (see Oct 1, 1969) -- that area navigation provided cost benefits by allowing an aircraft en route to stay higher longer and thus conserve fuel, and to arrive at the descent point at precisely the correct time for a letdown without delays. In addition, by extensively analyzing terminal area operations, the tests confirmed that area navigation equipment could be used to move traffic at the same level of efficiency as radar vectors while reducing controller workload by restoring greater responsibility to the cockpit. **By the end of fiscal 1973, a nationwide system of high-altitude area navigation routes had been established** consisting of approximately 156 route segments.

Mar 7-9, 1972: Sabotage incidents prompted **new security measures**. On Mar 7, a bomb planted as part of an extortion plot against Trans World Airlines was discovered and defused aboard an airliner at New York's Kennedy Airport. On Mar 9, another bomb damaged a TWA airliner parked at Las Vegas, and a third was found aboard a United Air Lines jet at Seattle. That same day, President Nixon ordered into immediate effect an FAA rule published on Mar 7 that had required scheduled air carriers and certain commercial operators of large aircraft to submit written security programs no later than Jun 5, 1972. The President's directive required the airlines to implement their programs immediately, and to submit them for formal approval by May 8. The programs were to prevent or deter unauthorized persons, baggage, or cargo from entering the carrier's aircraft, and were to include the procedures the carrier intended to use in the mandatory passenger screening system (see Feb 2, 1972). The rule also specified certain procedures to be followed in the event of a bomb or air piracy threat.

On Mar 9, the President also ordered that new security rules for airport operators be expedited. On Mar 18, 1972, FAA published a rule applicable to operators of airports regularly served by air carriers using large aircraft. Such operators were required to take prescribed actions to prevent or deter unauthorized access to designated air operations areas, and to submit written security programs for FAA approval by Jun 16, 1972. (See Jan 3, 1989.)

On Mar 15, a cabinet-level task force formed by President Nixon and chaired by Transportation Secretary Volpe approved the following steps:

- * Increased personnel for FAA's Security Task Force.
- * Deployment of sky marshals from airborne duty to posts at major airports.
- * Increased research and development funding for weapons and explosives detection systems.
- * Use of trained dogs for detection of explosives at major airports and the training of additional dogs.
- * Expedited prosecution of extortion and hijacking suspects.

(See Dec 5, 1972.)

Apr 7, 1972: The Washington Metropolitan Transit Authority Board gave final approval to a plan for **elevated tracks and a station on the rapid rail transit line to run through Washington National Airport**. FAA had preferred an underground station feeding directly into the airport's terminal, arguing that such an arrangement would be more convenient, aesthetically preferable, and would allow greater flexibility in future development. The Board countered that an underground station

would cost \$30 million more than the elevated route and would prevent completion of the system in time for the 1976 Bicentennial celebration.

Because work could not begin without right-of-way permission from FAA, which operated the airport, the dispute threatened a costly delay in Metro's construction. The White House broke the impasse by approving the elevated plan, basing its decision on a recommendation by the Office of Management and Budget that emphasized budgetary considerations. The first stage of Washington's rapid rail system opened to the public on Jul 1, 1976, but the airport station did not open until after the close of the Bicentennial year.

Apr 11, 1972: FAA established the **General Aviation Accident Prevention Industry Advisory Committee**, implementing a recommendation of a 1971 DOT report on general aviation safety (see Sep 15, 1971) and providing an advisory body for FAA's General Aviation Accident Prevention Program (see Nov 30, 1970). The 16-member FAA-Industry panel was slated to function for two years, but was renewed for another term and was not officially terminated until Aug 30, 1976.

Apr 17, 1972: FAA placed the **Office of International Aviation Affairs** under the direction of the Associate Administrator for Plans, a change made to reduce the number of people reporting directly to the Administrator. In July 1973, however, FAA placed the office under an assistant administrator reporting directly to the Administrator, thus restoring the previous arrangement.

May 1, 1972: New **crashworthiness and passenger evacuation standards** for transport category aircraft became effective this date. The action upgraded requirements in areas that included: seats, berths, safety belts, and harnesses; stowage compartments; items in the passenger or crew compartments that might cause injury in turbulence or interfere with evacuation; cabin interior fire protection; emergency evacuation procedures; emergency exits (their arrangement, marking, lighting, and access); emergency lighting; briefing passengers before takeoff; and structural design to minimize fire hazard due to fuel spillage in the event of partial or complete failure of the landing gear. (See Sep 20, 1967, and Jun 26, 1978.)

May 16, 1972: President Nixon signed into law the **Air Traffic Controllers Career Program Act** (Public Law 92-297). The act, an outgrowth of a Corson Committee recommendation (see Jan 29, 1970), authorized controllers to retire after 25 years of active duty, or at age 50 if they had 20 years of active service. The new law also established a mandatory age for retirement at 56, with exemptions at the discretion of the Secretary of Transportation up to age 61. (Normal voluntary retirement for Federal employees came at age 55 after 30 years service, or at age 60 after 20 years; mandatory retirement came at age 70.) The act also provided for a "second career program" of up to two years of training at government expense for controllers who had to leave traffic control work because of medical or proficiency disqualification. The act became effective on Aug 14 and was implemented by FAA on Sep 8.

May 27, 1972: **Transpo 72**, a mammoth display of modern transportation technology, with more than 400 exhibits and demonstrations spread many acres, opened at Dulles International Airport. The Department of Transportation staged the public exposition to provide a marketing showcase for advanced transportation systems, equipment, and concepts, and to increase public awareness of the importance of the transportation industry. The show remained open until Jun 4.

Jun 15, 1972: Effective this date, **FAA lowered the numbers of flight attendants required on airliners** with certain seating capacities. One flight attendant was now required for planes with 10-50 passenger seats, while on larger aircraft the ratio would be one attendant for every 50 passenger seats or additional fraction of 50 seats. The previous rule had established a standard that began with one attendant for planes with 10-44 passenger seats (see Jun 7, 1965). FAA stated that the change was made possible by upgraded safety requirements for transport category aircraft adopted in recent years (see May 1, 1972).

Jun 19, 1972: A **24-hour worldwide stoppage of airline traffic** declared by the International Federation of Air Line Pilots Associations took place. This action, intended to dramatize the need for sterner measures against hijackers, brought to a standstill domestic and international airline operations in more than 30 countries. The strike officially began at 2:00 a.m. (EST) and was supported by more than 40 of the Federation's 64 units in 62 countries; in the United States, however, following a Federal restraining order on Jun 18, only 10 percent of the Air Line Pilots Association's members joined in the job action. In addition, pilots in Australia, Japan, the Philippines, and most Arab and Communist countries refused to participate in the protest.

Jun 24, 1972: Responsibility for the civil **administration of Wake Island was transferred from FAA to the Air Force** (see Sep 4, 1962). This action followed a review of FAA's role on this island, once an important fueling stop for civil and military aircraft crossing the Pacific. With the advent of long-range jet aircraft, civil use of the island's facilities decreased and the Air Force became the principal user. In addition to its civil administration responsibilities on Wake, FAA had maintained the airport, airport traffic control tower, the international flight service station, and various air navigational aids. (After the transfer FAA continued to maintain the air navigation facilities on Wake and provide air traffic control services, until Jun 30, 1973.)

Jun 1972 **Hurricane Agnes** caused river flooding and massive property damage in Virginia, Maryland, Pennsylvania, and New York. FAAers throughout the country contributed to a fund to assist their colleagues affected by the storm, and air traffic controllers and other personnel organized an air lift to provide supplies. The Civil Air Patrol, airlines, and the military contributed to the air lift, which expanded from a mission to assist FAA people to include help for thousands of others in the flooded areas.

Jul 1, 1972: FAA transferred responsibility for its **Management Training School** from the Office of Training to the Aeronautical Center. (See May 3, 1971.)

Jul 1, 1972: New Federal Aviation Regulations (Part 152) prescribing policies and procedures for **administering FAA's Airport Development Aid Program (ADAP) and Planning Grant Program (PGP)** went into effect. The new rule included provisions concerning the economic, social, and environmental effects of airport expansion or site selection, as required by the legislation that had established the two programs (see May 21, 1970). FAA required coordination with state, local, and regional agencies on proposed airport construction projects, as well as public hearings on each project.

Jul 20, 1972: FAA **redesignated the Pacific Region the Pacific-Asia Region**. At the same time, the agency transferred the responsibility for the geographic area of the People's Republic of China to this region from the Europe, Africa, and Middle East Region. (See Apr 2, 1971.)

Jul 26, 1972: FAA retitled the V/STOL (vertical/short takeoff and landing) Special Projects Office the **Quiet Short-Haul Air Transportation System Office**. The new title better described the broadened functions of the office, which was charged with fostering a short-haul air transportation system acceptable to the public. (See Apr 29, 1971, and Jun 11, 1974.)

Aug 1, 1972: FAA implemented a new standard **"Get-'Em-High Earlier"** departure procedure to reduce jet aircraft noise over airport communities nationwide. The new departure procedure, developed jointly with the Air Transport Association, was to be used by 23 U.S. airlines while operating out of most of the nation's air carrier airports. The pilots would climb at full power to 1,500 feet, instead of 1,000 feet under the old system. Noise relief due to the higher altitude would be most noticeable from three to six miles from lift-off. The new "Get-'Em-High" procedure supplemented the existing "Keep-'Em-High" program. (See Feb 4, 1971, Dec 23, 1976, and Jan 19, 1979.)

Aug 1, 1972: FAA inaugurated the **En Route Weather Advisory Service (EWAS)** program at four Flight Service Stations: Seattle, Portland, Oakland, and Los Angeles. This service, designed to reduce weather-related general aviation aircraft accidents, provided en route pilots with current weather information along their intended route. Flight Service Station specialists trained in the collection and dissemination of aviation weather data manned the EWAS units. Each unit, in addition to obtaining weather information through normal teletype and facsimile channels, was linked by direct telephone line with the nearest National Weather Service forecast office. **FAA completed the program in the summer of 1978, under the name En Route Flight Advisory Service (EFAS)**, when it commissioned the service at the last of 44 designated Flight Service Stations.

Aug 1, 1972: **Northeast Airlines merged into Delta Air Lines**. Northeast began as Boston-Maine Airways, which started operations on Aug 1, 1931, suspended flights in 1932, and resumed on Aug 11, 1933. The airline had adopted the name Northeast on Nov 19, 1940.

Aug 21, 1972: FAA placed its **Office of Appraisal** under the executive direction of the Associate Administrator for Administration. Previously, this office reported directly to the Administrator. The Administrator had announced on Jun 16 his intention to make this organizational change as part of a continuing effort to reduce the number of offices reporting directly to him. (See Apr 17, 1972, and Jun 11, 1974.)

Sep 15, 1972: A **17-nation anti-hijacking conference** sponsored by the Legal Subcommittee of the International Civil Aviation Organization was concluded. The conference, convened in response to

the persisting high incidence of aircraft hijackings during 1972, had attempted to draw up a treaty imposing economic sanctions against those nations that provided havens to aircraft hijackers and saboteurs. The failure to agree on a draft resolution cosponsored by the U.S. and Canada, however, brought the meeting to an end.

Sep 17, 1972: Effective this date, **CAB replaced the 12,500 gross weight limit for air taxi aircraft with a 30-seat, 7,500 payload limit.** This change in CAB's system of economic regulation was intended to help the development of service by those scheduled air taxis now designated commuter airlines (see Jul 1, 1969). CAB also hoped to encourage the development of a short takeoff and landing (STOL) transportation system in high density areas.

Sep 1972: Trans World Airlines received FAA's **first authorization to operate at Category IIIa weather minimums.** Under the new landing minimums, TWA could operate their Lockheed L-1011 aircraft at Dulles International Airport down to a minimum visibility of 1,000 feet runway visual range (RVR), and after gaining operational experience at this altitude, apply for minimums as low as 700 feet RVR. (See Jan 21, 1972.)

Oct 20, 1972: The **Federal Labor Relations Council certified PATCO as the sole bargaining unit for air traffic controllers.** (See Feb 7, 1972, and Mar 17, 1973.)

Oct 23, 1972: Effective this date, **FAA tightened the safety operating standards for large airplanes, and for turbine-powered airplanes with more than one engine, in private carriage.** The new requirements included: survival and radio equipment for extended overwater operations; provisions regarding minimum altitudes; passenger briefings; a fuel reserve of 30 minutes for Visual Flight Rules operations; icing equipment; a flight engineer and a second-in-command pilot on certain airplanes; a flight attendant on an airplane with over 19 passengers on board; and an aircraft inspection program. The new rule was part of a series of actions following an accident on Oct 2, 1970 (see that date and Jan 3, 1973.)

Oct 27, 1972: Enactment of Public Law 92-574, the **Noise Control Act of 1972**, defined the respective responsibilities of FAA and the Environmental Protection Agency (EPA) in the control of aircraft noise. EPA's role under the act was to recommend noise standards to FAA based on considerations of public health and welfare. FAA, in turn, considered the recommendations, and determined whether the standards proposed by EPA were consistent with safety, economically reasonable, and technologically practicable, and subsequently take appropriate action to implement and enforce them. (See Jul 21, 1968.)

Oct 29, 1972: Four fugitives killed a ticket agent and **hijacked an Eastern Air Lines Boeing 727** at Houston, Tex., and forced it to fly to Cuba. This was followed by an even more sensational incident on Nov 10-12 when three wanted criminals hijacked a Southern Airways DC-9 at Birmingham, Ala. During the following 29 hours, they flew to: Jackson, Miss.; Cleveland, Ohio; Toronto, Ont.; Lexington, Ky.; Chattanooga, Tenn.; Havana, Cuba; Key West, Fla.; and Orlando, Fla. In a desperate attempt to keep the DC-9 on the ground at Orlando, FBI agents shot out its tires. The hijackers responded by seriously wounding the copilot and ordering a takeoff. The pilot succeeded in clearing the runway and making a second and final landing in Havana. The four hijackers were initially imprisoned in Cuba, but were released. U.S. officials subsequently arrested all four, the last being sentenced in 1994. This incident contributed directly to issuance of an anti-hijacking rule (see Dec 5, 1972), and to negotiation of a hijacking agreement between the Nixon Administration and Cuba (see Feb 15, 1973).

Oct 31, 1972: FAA and the Office of Minority Business Enterprise signed an agreement to promote **greater participation by the minority business community** in the operation of concessions at the nation's public airports. Under the agreement, FAA would require airports receiving Airport Development Aid Program funds to inform OMBE of all pending contracts and potential new contracts and to cooperate with OMBE in affirmative action.

Nov 22, 1972: President Nixon lifted a 22-year-old restriction on travel of **U.S. airliners to the People's Republic of China** as part of a general rapprochement between the two countries. Such flights had been banned since 1950 by an Executive Order issued by President Truman during the Korean War.

Dec 5, 1972: A **landmark FAA antihijacking emergency rule** issued this date required U.S. air carriers, beginning on Jan 5, 1973, to inspect all carry-on baggage for weapons or other dangerous objects and scan each passenger with a metal detector (magnetometer) before boarding or, if a detector was not available, conduct a physical search, or pat down. (See Aug 5, 1974.) If a passenger

refused to consent to a search, he or she would not be permitted to board. The rule further required, beginning on Feb 5, 1973, that the nation's 531 air carrier airports have a law enforcement officer in the boarding area during the screening and boarding process. The critical difference between this rule and previous antihijacking measures was the universality of the new regulation. Previously, FAA had required air carriers to conduct a weapons scan of only those passengers who fitted a hijacker profile--about one percent of the 500,000 passengers boarding airliners daily. (See Oct 29, 1972.)

Dec 17, 1972: FAA Administrator John H. **Shaffer received the Wright Brothers Memorial Trophy**, presented by the National Aeronautic Association for outstanding contributions to aviation. Shaffer was the first FAA chief to win the prestigious award while holding office.

Dec 18, 1972: FAA commissioned the **first of 64 standardized, prefabricated airport towers**, ordered in April, at the Chino, Calif., airport. FAA planned to complete installation of all 64 towers at low and medium activity airports within 15 months.

Dec 26, 1972: A National Transportation Safety Board study group investigating the **safety of air taxi and commuter aircraft operations** released its findings and recommendations to the public. The study group was formed after a series of air taxis accidents in late Oct 1971 claimed 39 lives. The panel recommended more stringent safety requirements for the industry, including higher qualifications for air taxi and commuter pilots, more thorough training for maintenance personnel, and improved oversight by FAA. (See Dec 1, 1978.)

Dec 29, 1972: An **Eastern Air Lines Lockheed L-1011 crashed in the Everglades** northwest of Miami, killing 99 of the 176 persons aboard. Two survivors died later as a result of their injuries in this first fatal crash of a wide-body airliner. The National Transportation Safety Board cited the probable cause as the flight crew's failure to monitor flight instruments. Preoccupied with a malfunction of the landing gear position indicator, they allowed the aircraft to descend unnoticed.

Dec 31, 1972: The **crash of a DC-7 on takeoff from San Juan, Puerto Rico**, killed baseball star Roberto Clemente and four other persons on a relief mission to Nicaragua. Relatives and representatives of passengers killed sued the Federal government, alleging that FAA employees negligently failed to warn that the aircraft was overweight and lacked proper flight crew. The plaintiffs cited an order by the director of FAA's southern region concerning inspection of large turbine-powered aircraft. A U.S. district court found the government liable. On Dec 16, 1977, however, an appeals court reversed the decision, ruling that the regional director's order did not give rise to legal obligation sufficient to support the plaintiff's claim. While recognizing FAA's safety mission, the court ruled that Congress could not have intended to authorize such FAA officials to create a legal duty of care between the Federal government and a particular class of passengers. The Court drew a distinction between an aircraft inspector and an air traffic controller, who "owes a duty to those dependent on the quality of his performance."

*1973

Jan 3, 1973: FAA issued a **truth-in-leasing clause requirement** for leases and conditional sales contracts involving large civil aircraft so that all concerned parties would know who had responsibility for the operation and maintenance of the aircraft and for complying with applicable Federal Aviation Regulations. (See Oct 2, 1970.) Later, a **rule published on Nov 3, 1977, required the lessee or conditional buyer of a large civil aircraft to give notification 48 hours before its first flight** to enable FAA to conduct the necessary surveillance or inspection.

Jan 3, 1973: Chairman Crocker Snow submitted to Congress the **report of the Aviation Advisory Commission**, which had been established by the Airport and Airway Development Act of 1970. Sworn in on Dec 17, 1970, the commission members had spent two years developing their report on the long range needs of U.S. aviation. Their recommendations included establishment of an Under Secretary of Transportation for Aviation with responsibility for a National Aviation Plan.

Jan 6, 1973: The Federal Aviation Administration announced that it had awarded a **contract for an electronic voice switching (EVS) system**, which would increase communications efficiency at air route traffic control centers and would eventually replace all existing FAA radio control and signaling equipment at the center and remote sites. In Aug 1974, however, FAA Administrator Alexander Butterfield cancelled the contract because of increasing cost estimates and schedule delays.

Jan 1973: Frontier Airlines hired Emily Howell (later Emily Warner) as the **first woman member of a flight deck crew on a trunk or regional air carrier** since Helen Richey's brief career with Central Airlines in 1934-35.

Feb 2, 1973: **Claude S. Brinegar became Secretary of Transportation.** He succeeded John A. Volpe, who left the Department effective this date to become Ambassador to Italy. President Nixon had announced his intention to nominate Brinegar, an executive of a California oil company, on Dec 7, 1972. The Senate confirmed the appointment on Jan 18. (See Dec 18, 1974.)

Feb 5, 1973: FAA Administrator John H. Shaffer established the **Executive Committee (EXCOM)** to review and establish agency policies. A year later, in a move intended to increase accountability among managers, Administrator Butterfield suspended the EXCOM, as well as the **Agency Review Board and the Regulatory Council.** Citing the three committees' usefulness in promoting communication and orderly decision making, Acting Administrator James E. Dow reinstated them in April 1975. On Aug 31, 1977, however, Administrator Langhorne Bond abolished the EXCOM, and on Dec 9, 1977 abolished the Agency Review Board. Bond also discontinued the Regulatory Council. (See Jan 24, 1989.)

Feb 13, 1973: Ceremonies at the Memphis Air Traffic Control Center celebrated the center's switch over to **computer processing of flight-plan data, completing Phase One of the NAS En Route Stage A,** FAA's decade-long program to automate and computerize the nation's en route air traffic control system (see Sep 26, 1964). With the new computer installation at Memphis, all twenty ARTCCs in the contiguous 48 states gained an automatic capability to collect and distribute information about each aircraft's course and altitude to all the sector controllers along its flight path. Pilots still had to file flight plans at flight service stations and military operations offices, but now computers would handle the centers' "bookkeeping functions" of assigning and printing out controller flight strips. The new computers also had the ability to record and distribute any changes registered in aircraft flight plans en route. The system eventually tied in with the Automated Radar Terminal System (ARTS III) units then being installed at major airports (see Oct 4, 1971 and Feb 15, 1973). Phase Two of the en route automation program was still under way; it would provide controllers at the twenty centers with new radar displays that would show such vital flight information as altitude and speed directly on the screen. (See Feb 18, 1970 and Jun 14, 1973.)

Feb 15, 1973: The United States and Cuba signed an **anti-hijacking agreement** calling for the two nations to extradite or punish any person "who seizes, removes, appropriates or diverts from its normal route or activities an aircraft or vessel" of one country and takes it to the other. The pact was to run for five years, but Cuba abrogated it on Oct 15, 1976, on grounds of alleged American involvement in the explosion of a Cuban airliner. (See Oct 29, 1972.)

Feb 15, 1973: FAA announced that **production had been completed on all 64 of the new computerized automated radar terminal systems (ARTS III),** marking an important milestone in the agency's air traffic control automation program. (See Feb 13, 1973 and Aug 13, 1975.) The ARTS III system electronically tagged radar blips on the controller's scope with luminous letters and numbers called alphanumeric characters that provided the target aircraft's identity and altitude.

Mar 14, 1973: The Department of Transportation announced that four companies had been selected to continue **development of a common civil-military microwave landing systems (MLS).** Under this Phase II of the MLS developmental program, each contractor had to demonstrate the feasibility of its proposed system design to meet the full range of civil and military requirements. (See Jan 27, 1972, and Jun 7, 1973.)

Mar 14, 1973: **Alexander P. Butterfield became the fifth FAA Administrator,** succeeding John H. Shaffer (see Mar 24, 1969), whose resignation was one of many accepted by President Nixon in a reorganization of the Executive Branch. Butterfield's selection had been announced on Dec 19, 1972, and his nomination submitted to the Senate on Jan 4, 1973. Questions were raised about his eligibility, however, since he was a retired Air Force colonel and the FAA Administrator was prohibited by law from having a military affiliation. When congressional exemption from this statute appeared unlikely, Butterfield resigned his Air Force commission. His nomination was resubmitted to the Senate on Feb 26 and confirmed on Mar 12.

Born in Florida in 1926, Butterfield spent much of his youth in California and attended UCLA for two years before receiving his B.S. degree from the University of Maryland. (He later earned an M.S. degree in international affairs from George Washington University and graduated from the National War College.) During 20 years with the Air Force, Butterfield had flown as a command pilot and member of a jet aerobatic team. His decorations included the Legion of Merit and Distinguished Flying Cross. Butterfield had commanded the USAF's low and medium level air reconnaissance operations in Southeast Asia. His staff positions included duty as senior aide to the Commander in

Chief Pacific Air Forces, and Military Assistant to the Special Assistant to the Secretary of Defense. He was serving as the senior U.S. military representative to Australia when he retired from the Air Force in 1969 to become Deputy Assistant to President Nixon. Butterfield moved from this post to FAA, serving as Administrator for just over two years (see Mar 25, 1975).

Mar 17, 1973: Negotiators signed the **first labor contract** between FAA and the Professional Air Traffic Controllers Organization (PATCO). Approved and effective on Apr 4, the one-year agreement contained 56 articles that included provisions on a variety of issues including payroll deduction of union dues and "familiarization flights" by controllers in airline cockpits. (See Oct 20, 1972, and May 7, 1975.)

Apr 27, 1973: AN FAA rule imposing a virtual **ban on civilian supersonic flights** over the United States went into effect. The rule, first proposed on Apr 10, 1970, prohibited any operator of a civil aircraft from exceeding the speed of sound (Mach 1) when flying over the land mass or territorial waters of the United States, except when such operations would not cause a "measurable sonic boom overpressure to reach the surface." This wording left room for certain authorized operations at the lower end of the supersonic speed range. The rule was not seen as a bar to planned operations of the Anglo-French supersonic transport Concorde, which was expected to fly subsonic over U.S. territorial waters and mainland. (See Feb 4, 1976.)

Apr 1973: FAA World reported that the **last airway light beacon**, on Whitewater Hill near Palm Beach, Calif., had been decommissioned. This type of beacon had reached its peak in 1946, when 2,112 were in service. Their number declined during the 1950s, but a few had remained to mark obstructions or passes. (See Dec 7, 1926.)

April, 1973: **Federal Express began flight operations** from its base at Memphis, Tenn., offering door-to-door package delivery by air express, a popular service that soon inspired imitators. The company expanded rapidly as airline deregulation began in the late 1970s, and it grew even more when it **acquired the Flying Tiger Line on Jan 31, 1989**.

May 10, 1973: The Civil Aeronautics Board published the first **rule regulating smoking on aircraft** for reasons of consumer comfort and protection. The Board required airlines to provide separate sections for smokers and nonsmokers. Subsequent modifications to the rule included a 1981 requirement that airlines guarantee a seat in the nonsmoking section to every nonsmoker who met the check-in deadline. (See Mar 19, 1970, and Jun 20, 1984.)

May 14, 1973: In **Burbank v. Lockheed Air Terminal**, the **U.S. Supreme Court prohibited states and municipalities from using their police powers to impose curfews on jet aircraft operations**. The City of Burbank, Calif., had passed an ordinance banning turbojet takeoffs and landings between 11 p.m. and 7 a.m. at the Hollywood-Burbank Airport, a privately owned and operated facility. Pointing to the Noise Control Act of 1972 (see Oct 27, 1972), the Supreme Court concluded that the noise-regulatory powers granted by Congress to FAA and the Environmental Protection Agency (EPA) were so pervasive that the Federal government had preempted state and local authority. The Court also noted that upholding the ordinance could lead to "fractionalized control" of takeoffs and landings that would severely limit FAA's flexibility in controlling air traffic. Under the Federal Aviation Act, air traffic control had been preempted by FAA. Thus, the Court concluded, it was "not at liberty to diffuse the powers given by Congress to FAA and EPA If that change is to be made, Congress alone must do it." In what came to be known as the "**Burbank exception**," however, the Court stated that the Burbank decision applied to the exercise of police power, and did not pertain to "what limits, if any, apply to a municipality as a proprietor." (See Mar 5, 1962, and Oct 17, 1977.)

May 14, 1973: The National Aeronautics and Space Administration's **Project Skylab orbited the first U.S. space station**, designated the Orbital Workshop (see Apr 19, 1971). The Workshop was damaged during the launch, but astronauts were able to make repairs during the first of three flights to the station during 1973. The station later disintegrated when it entered the atmosphere on Jul 11, 1979, scattering debris along a path from the Indian Ocean to western Australia.

May 21, 1973: By this date, **U.S. airports serving scheduled air carriers that held CAB certificates of public convenience and necessity were required to have FAA operating certificates**. The regulation (which implemented provisions of the Airport and Airway Development Act of 1970, as amended Nov 27, 1971) set standards for: the marking and lighting of areas used for operations; firefighting and rescue equipment and services; the handling and storing of hazardous materials; the identification of obstructions; and safety inspection and reporting procedures. It also required airport operators to have an FAA-approved operations manual. FAA awarded the first

operating certificate to Boston Logan airport on Sep 1, 1972, and had certificated nearly 500 airports by the May 21, 1973, deadline. (See Aug 21, 1974, and Oct 18, 1977.)

Jun 3, 1973: The **crash of a Tupolev TU-144** during a demonstration flight at the Paris Air Show dealt a serious blow to the Soviet supersonic transport program. (See Dec 31, 1968, and Dec 26, 1975.)

Jun 4, 1973: FAA published a **rule requiring aircraft in designated airspace to carry an improved radar beacon transponder** with Mode C automatic altitude reporting capability, as well as the ability to transmit identity codes (see Jun 25, 1970). The implementation schedule was: in Group I terminal control areas (TCAs), Jul 1, 1974; in Group II TCAs, Jan 1, 1975 (see Apr 14, 1975); and above 12,500 ft MSL, Jul 1, 1975. (See Nov 1, 1985.) Due to equipment supply problems, FAA later granted a 6-month extension of the deadlines concerning TCAs. (See Jan 1, 1974.)

Jun 7, 1973: A rule published this date and effective July 6 required air carriers and air taxi operators to establish **training programs for personnel having responsibilities for the safe carriage and handling of hazardous cargo**. After Dec 6, only personnel who had completed this training would be allowed to perform such duties. The regulation also required that the pilot in command be notified in writing by the operator of the presence of hazardous cargo aboard an aircraft. FAA issued the rule against a background of growing public and congressional concern about transport of hazardous materials by air. The **dangerous potential of "hazmat" was confirmed when a Pan American 707 freighter crashed on Nov 3** at Boston with the loss of all three persons aboard. Smoke, probably caused by leaking acid, had almost blinded the crew and prevented them from coordinating their actions during the landing. (See Jan 3, 1975.)

Jun 7, 1973: To fulfill a near term requirement for an approach guidance system for airports, FAA announced that it had decided to proceed with the selection of an **interim standard microwave landing system (ISMLS)**, pending completion and implementation of the MLS development program. On Aug 28, 1974, FAA announced that it had selected the ISMLS designed by Tull Aviation Corp. (See Mar 14, 1973, and Feb 27, 1975.)

Jun 14, 1973: The Los Angeles ARTCC became the **first center to achieve initial operational capability with computer-driven radar displays** capable of showing identity and three-dimensional position information on aircraft targets. Radar data processing began Phase Two of the ARTCC automation program. (See Feb 13, 1973 and Aug 26, 1975.)

Jun 18, 1973: President Nixon signed into law the **Airport Development Acceleration Act of 1973** (Public Law 93-44), which further amended the basic Airport and Airway Development Act of 1970 (see May 21, 1970). It was the second time the act had been amended in its three-year existence (see Nov 27, 1971). The 1973 amendment: increased the annual funding level of the Airport Development Aid Program (ADAP) from \$280 million to \$310 million; raised the Federal share for ADAP development of general aviation airports, reliever airports, and the smaller air carrier airports (identified as those that enplaned less than 1 percent of the passengers enplaned by all the air carriers certificated by the CAB) from 50 percent to 75 percent; and obligated the Federal government to pay 82 percent of the costs of safety equipment required for airport certification, as compared to the 50 percent for which it had previously taken responsibility. The amendment also prohibited states and localities from levying a "head tax" on passengers. (See Jun 30, 1975.)

Jun 19, 1973: The **U.S. and U.S.S.R. signed an agreement on joint cooperation in the field of transportation** calling for exchanges of information in areas that included the safety and efficiency of civil aviation. As a result of the pact, FAA officials and their Soviet counterparts held meetings on a variety of technical subjects. The agreement was one of a series signed by officials during a summit meeting between President Nixon and Soviet leader Leonid Brezhnev. The last of these agreements, signed on Jun 23, provided for an **expansion of direct airline flights** between the two countries. Previously, Pan American and Aeroflot had each been allowed two round-trip flights per week between New York and Moscow. The two airlines were now permitted up to three flights per week, and Pan Am received authorization to land at Leningrad, and Aeroflot at Washington. **During 1978, however, Pan American discontinued operations in the U.S.S.R.** as part of a cutback on its European flights. **Under President Carter, Aeroflot service was reduced to two flights per week, effective Jan 13, 1980,** as part of a response to Soviet military actions in Afghanistan. (See Jun 15, 1968, and Dec 29, 1981)

Jun 29, 1973: FAA discontinued the position of **Associate Administrator for Manpower** (see Mar 4, 1970) following the retirement of the incumbent on this date; however, the agency did not officially

abolish the post until Dec 4, 1974. The Associate Administrator for Administration assumed most of the functions of the position.

Jul 6, 1973: The Environmental Protection Agency issued **air pollution standards for aircraft engines** and a timetable for their implementation. Formulated in consultation with FAA, the new standards applied to nearly all civil subsonic aircraft, and limited emission of smoke, carbon monoxide, hydrocarbons, and nitrogen oxides. EPA specified a timetable for compliance that was less stringent than that outlined in its original proposal. To begin implementation of the standards, FAA published a rule on Dec 28, 1973, with an effective date of Feb 1, 1974. The rule required improved combustors to reduce smoke from the JT8D engines used on DC-9 and Boeing 727 and 737 aircraft, and also prohibited fuel venting from turbine engines with thrust of 8,000 lb. or greater. This regulation was followed by several others implementing the EPA standards. (See Dec 31, 1970, and Jan 7, 1980.)

Jul 8, 1973: FAA commissioned the **Flight Inspection National Field Office (FINFO)** at Oklahoma City. Established to oversee the operation of the entire flight inspection program within the contiguous 48 States, as well as the Caribbean and North Atlantic areas, FINFO reported directly to the Director, Flight Standards Service. Previously, flight inspection of terminal and air route navigation facilities and communications equipment had been carried out by 17 flight inspection district offices under the jurisdiction of five FAA regions. These district offices were consolidated into a smaller number of Flight Inspection Field Offices (FIFOs) under the new arrangement, which was expected to save \$8 million annually.

(In 1975, FINFO became part of the Flight Standards National Field Office. Subsequently, the flight inspection program was placed under the Office of Flight Operations in 1979, then in 1982 transferred to the Aviation Standards National Field Office, which was renamed the Office of Aviation System Standards in 1992. The FIFOs were renamed Flight Inspection Area Offices in 1993.)

In addition to establishing FINFO, **FAA updated its flight inspection fleet** by replacing 47 DC-3s and Convair T-29s with light twin-engine jets: 5 Jet Commanders (delivery starting in Jun 1974) and 15 Sabliner 80s (delivery starting in Apr 1975). Faster and capable of flying longer distances, the new jets were expected to save many flight hours annually. Unlike a group of 5 Sabliner 40 jets that FAA had begun receiving in 1968, these new aircraft were to be equipped with the newly developed **Automated Flight Inspection System (AFIS)**. The AFIS system greatly expanded productivity when the first of the new aircraft began operations in Nov 1974. In addition to Sabliners and Jet Commanders, FAA's worldwide flight inspection fleet by the early 1980s included 3 Convairs (upgraded to the 580 configuration), one Boeing 727, one Fairchild C-123, and a single remaining DC-3 in occasional use. (See Jan 1962 and Oct 23, 1986.)

Jul 11, 1973: An **in-flight cabin fire** originating in a lavatory area killed 123 persons aboard a Boeing 707 operated by the Brazilian airline Varig as the aircraft neared Paris. In partial response to NTSB recommendations following the tragedy, FAA ordered periodic inspections of lavatory trash receptacles to ensure fire containment capability, as well as preflight briefings and other steps aimed at preventing passengers from smoking in lavatories. (See Jun 2, 1983, and Jun 19, 1984)

Jul 16, 1973: In public testimony before the Senate Select Committee on Presidential Campaign Activities, FAA Administrator Alexander P. **Butterfield disclosed the existence of a White House audio taping system**, a revelation that became instrumental in implicating President Nixon in the Watergate coverup.

Jul 23, 1973: An **Ozark Airlines Fairchild-Hiller 227B crashed** 2.3 miles from St. Louis airport, killing 38 of the 44 persons aboard. The National Transportation Safety Board cited the probable cause as **encounter with a downdraft** following the captain's decision to conduct an instrument approach during a thunderstorm. This decision was probably influenced by lack of a timely severe weather warning from the National Weather Service and the improper assessment of weather conditions by flightcrew and flight dispatcher. The Board's recommendations included a system to improve the dissemination of severe weather information. (See May 19, 1977.)

Jul 27, 1973: FAA issued a rule requiring air carriers, air travel clubs, and air taxi operators to have electronic **public address systems and interphone systems in all aircraft with more than 19 passenger seats**. The rule was intended to help keep crew and passengers informed during emergencies. The deadline for compliance was Sep 8, 1975. (See Oct 20, 1989.)

Sep 7, 1973: On this date, FAA issued the **first National Airport System Plan (NASP)**. The plan forecasted that 700 new airports would be needed in the United States over the next 10 years to keep

pace with the projected growth of air traffic. FAA estimated that the overall cost of building the new airports and upgrading existing facilities at \$6.3 billion. The Airport and Airway Development Act of 1970 required FAA to prepare the NASP as a guide for future airport development (see May 21, 1970). The NASP replaced the former National Airport Plan (NAP), last published in 1967. (See Aug 2, 1985.)

Sep 10, 1973: FAA gave its Office of Public Affairs new functions and redesignated it as the **Office of Information Services**, effective this date, as part of an effort to introduce greater economy and efficiency into the agency (see Jun 19, 1969). The new office consolidated public and employee information activities that had been dispersed over six office elements. It assumed (1) the agency's public affairs functions, (2) the employee communication functions of the Associate Administrator for Manpower, (3) the women's aviation activities of the Office of General Aviation, (4) the audiovisual and public inquiry functions of the Office of Headquarters Operations, (5) the congressional liaison functions of the Deputy Administrator, and (6) the history functions of the Office of Management Systems. (See Jul 12, 1976.)

Sep 13, 1973: FAA **abolished the Office of Headquarters Operations**, effective this date, assigning its functions and responsibilities to other offices and services: (1) accounting to a new Office of Accounting and Audit; (2) personnel to the Office of Personnel; (3) security to the Office of Air Transportation Security; (4) data processing to the Office of Management Systems; (5) property management to the Logistics Service; (6) information functions to the new Office of Information Services. (See Jul 1, 1963.)

Sep 26, 1973: As mandated by Airport and Airway Development and Revenue Acts of 1970, DOT submitted to Congress a **Cost Allocation Study** on how the Federal costs of the airport and airway system should be shared among the various users. The report concluded that proportion should be about 50 percent for air carriers, 30 percent for general aviation, and 20 percent for the public sector. It also concluded that present taxes failed to recover more than 55 percent of the total costs, with the general aviation sector accounting for the largest short-fall. The study recommended that at least a high percentage of the short-fall be recovered through user fees. A follow-up Part II report was planned but not issued.

Oct 6, 1973: War broke out between Israel and its Arab neighbors, leading to an **Arab oil embargo** against the U.S. and other nations deemed to support Israel. The embargo worsened a spreading fuel shortage. On Nov 7, President Nixon asked Congress for new conservation legislation and called for a Project Independence to give the nation the potential to be energy self-sufficient by 1980. (See Nov 20, 1973.)

Oct 26, 1973: FAA published a **rule requiring newly produced aircraft of older type designs, such as the DC-9 or Boeing 727, to meet noise standards** for turbojet and transport aircraft. The standards had previously applied only to newly type-certificated aircraft, under a rule effective Dec 1, 1969 (see that date). The new rule became effective in three phases between Dec 1, 1973, and Dec 31, 1974. (See Jan 6, 1975.)

Nov 16, 1973: Friendship International Airport was renamed **Baltimore Washington International**. The airport had originally opened on Jun 24, 1950.

Nov 20, 1973: A seven-point jet **fuel conservation plan** designed to save up to 20,000 barrels (840,000) gallons of jet fuel per day went into effect. Implemented in response to President Nixon's national campaign to conserve fuel in the aftermath of the Arab petroleum embargo (see Oct 6, 1973), the plan:

- *Revised gate holding procedures to reduce the time aircraft spent with engines running while awaiting takeoff.
- *Revised air traffic flow procedures to reduce time spent aloft in holding patterns.
- *Encouraged increased use of optimum aircraft cruising speeds.
- *Advised controllers to effect fuel savings wherever possible by holding aircraft at high altitudes, assigning optimum altitudes, and minimizing circuitous routings.
- *Encouraged taxiing aircraft to shut down one or more engines where possible.
- *Endorsed the increased use of simulators for airline training and check flights.
- *Encouraged airports to expedite certain runway and taxiway improvements.

As part of this plan, FAA also advised airport operators to coordinate all construction and maintenance activities with the agency to avoid unnecessary disruptions that might result in excess fuel consumption.

On Nov 25, the Nixon Administration released a fuel allocation plan under which air carriers would be cut 5 percent below their 1972 usage level on Dec 1, and 15 percent below this level on Jan 7, 1974. In other categories of aviation, planned cuts ranged from 20 percent for activities such as air taxi operations to 50 percent for recreational flying. The reductions met vigorous opposition from the aviation community, and were softened in the rule published on Jan 2, 1974. No restrictions were placed on regional and commuter airlines, air taxis, and certain other commercial and industrial activities. Air carriers were cut by only 5 percent, business flying by 20 percent, and pleasure and instructional flying by 30 percent. Later in Jan, the cut for business flying was changed to only 10 percent, and various types of personal flying received allocations that were no more than 15 percent below previous usage. The fuel shortage eased after the end of the Arab embargo in Mar 1974. (See Dec 26, 1973.)

Dec 17, 1973: Arab **terrorists used incendiaries to kill 30** passengers aboard a Pan American airliner at Rome's Leonardo Da Vinci Airport. They then killed a guard, hijacked a Lufthansa jet, murdered a passenger in Greece, and eventually surrendered in Kuwait.

Dec 17, 1973 An Iberia Airlines **DC-10 crashed on landing at Boston's Logan Airport**, causing injuries but no fatalities. Information from the aircraft's digital flight data recorder helped the National Transportation Safety Board establish the presence of **wind shear** (an abrupt shift in wind speed or direction). Study of the accident led to a new understanding and awareness of the wind shear hazard. (See Jun 24, 1975.)

Dec 20, 1973: **New airworthiness standards became effective for small aircraft** (12,500 lbs. or less) applying for type certification after this date. The new rules contained almost 200 changes affecting flight characteristics, structures, design and construction, powerplants, equipment, and operating limitations.

Dec 26, 1973: **President Nixon used a commercial airliner** instead of Air Force One to fly from Washington to Los Angeles for a post-Christmas holiday, a move designed to show his concern for fuel savings during the energy crisis. (See Oct 6, 1973.)

Calendar year, 1973: **Not a single airliner was hijacked in the U.S.** in 1973, a record traceable at least in part to the stringent airport security measures implemented early in the year. (See Dec 5, 1972.)

*1974

Jan 1, 1974: The Federal Aviation Administration established the **first Group II terminal control area (TCA)** at St. Louis. Group II TCAs were designed for locations with a lower level of enplaned passengers and aircraft operations than at Group I sites. **On Jan 13, the agency completed establishment of nine Group I TCAs** when the Dallas-Fort Worth TCA became operational. The other Group I TCAs were at Atlanta, Chicago, Washington, New York, Los Angeles, San Francisco, Boston, and Miami. (See Jun 4, 1973, Aug 1, 1975)

Jan 2, 1974: Public Law 93-239, enacted on this date, extended the deadline for installation of **emergency locator transmitters (ELTs)** in certain types of aircraft from Dec 30, 1973, to Jun 30, 1974. The law also added certain new categories of operation, such as flights incident to design and testing, to the list of exceptions to the ELT requirement. (See Dec 29, 1970, and Mar 16, 1978.)

Jan 13, 1974: Scheduled airline service began at the **new Dallas-Fort Worth Regional Airport**, which had been dedicated on Sep 22, 1973. Decentralized in design, the \$700 million complex was the world's largest airport. (See Sep 1965.)

Jan 24, 1974: A U.S. appeals court issued a **decision upholding the Age-60 rule** (see Mar 15, 1960). The court held that FAA rules that apply generally, even though they affect individuals, do not require an adjudicatory proceeding before being adopted. The case grew out of a petition filed with FAA on Jun 5, 1970, by the Air Line Pilots Association. The petition charged that the rule was invalid and requested that it be revoked and that FAA hold "public evidentiary proceedings for the development of a record" that could be used to decide the rule's legality.

Subsequent years saw **further legal challenges to the Age-60 rule**, but courts continued to uphold it. On Dec 19, 1978, for example, a U.S. appeals court affirmed FAA's decision to deny the petition of an airline pilot for exemption from the rule. The pilot had argued that his physical condition met medical standards, but the court found that FAA's application of the age-60 criterion was reasonable. (See Aug 4, 1977.)

Jan 30, 1974: A **Pan American Boeing 707 crashed** short of the runway during a rain storm at Pago Pago, American Samoa. The impact force only slightly exceeded that of a normal landing, and only

the copilot received traumatic injuries. Yet only 10 of the 101 persons aboard escaped the **post-crash fire**. Six of these survivors died within nine days. Like two accidents in Chicago in late 1972, the crash helped to renew interest in controlling toxic fumes and other fire hazards. FAA issued four rulemaking proposals on these issues during 1974 and 1975 (see Jun 26, 1978).

In its initial finding on the probable cause of the accident, the National Transportation Safety Board concluded that the crew had failed to adequately monitor their instruments during the approach (see Apr 26, 1974). Following complaints by the Air Line Pilots Association, the Board issued a revised report in 1977. The new report gave somewhat more emphasis to the presence of **visual illusion and wind shear**.

Feb 12, 1974: FAA inaugurated a new **program aimed at providing a general review of airworthiness regulations every two years** to see that such rules were promulgated or amended in a more timely and systematic manner. The process was to be carried out with the full participation of other Federal agencies, the U.S. aviation industry, and foreign governments, which were invited to submit rulemaking proposals. The suggestions were processed and considered at a Biennial Airworthiness Review Conference, held in Washington on Dec 2-11, 1974. The success of this event lead to the establishment, on Feb 26, 1975, of a **similar program for operational rules**, and to a Biennial Operations Review Conference in Dec 1975.

The two review programs eventually resulted in hundreds of rule changes. It proved impossible to complete the process within a two-year period, however, and a biennial cycle was not established.

Feb 17, 1974: **A soldier flew a stolen Army helicopter to the White House**, where guards open fire with shotguns. Wounded in the legs, the soldier landed on the lawn and was taken into custody.

Feb 22, 1974: At Baltimore-Washington International Airport, a former mental patient killed two persons and seriously wounded another in an **attempt to hijack a DC-9 and crash it into the White House**. The gunman committed suicide when wounded by a policeman.

Mar 3, 1974: A **McDonnell Douglas DC-10 wide-body airliner crashed shortly after takeoff from Paris, France**, killing all 346 people on board in the worst air disaster up to that time. The Turkish Airlines jet had reached an altitude of about 12,000 feet when its **rear bulk-cargo door opened, producing explosive decompression**. The resulting collapse of the floor over the cargo compartment disabled vital flight-control cables.

McDonnell-Douglas had known of difficulties with the latching mechanism of the DC-10 cargo doors, and had introduced modifications. On Jun 12, 1972, however, an improperly secured cargo door opened on an American Airlines DC-10 flying over Windsor, Ontario. The resulting decompression disrupted some control cables running through the floor beams, but the aircraft landed safely at Detroit. Following this event, McDonnell Douglas issued a series of FAA-approved service bulletins aimed at controlling the problem. On Oct 25, 1973, the manufacturer issued a final service bulletin that introduced a “closed-loop” system as a definitive solution.

The “closed-loop” modification had not yet been applied to the Turkish DC-10 that crashed near Paris. The French accident report also indicated that the manufacturer had failed to complete one of the earlier improvements contained in a service bulletin issued before it delivered the aircraft in Dec 1972. The report further concluded that improper in-service modifications and adjustments were among the factors that permitted the ground crew’s defective closing of the door before the ill-fated flight.

Following the Paris crash, FAA issued two airworthiness directives dated Mar 6 and Mar 22, 1974. These directives required implementation of the various modifications contained in the manufacturer’s service bulletins, which did not carry the force of law. Shortly thereafter, FAA Administrator Alexander P. Butterfield announced that **the agency would henceforth employ airworthiness directives in all situations involving a design change to correct unsafe conditions**. (See Dec 27, 1974.)

On Jul 7, 1975, FAA issued an airworthiness directive **requiring the manufacturers to ensure that the floors of all wide-body jets could withstand the effects of rapid in-flight decompression** caused by sudden appearance of an opening of up to 20 square feet in the lower deck cargo compartment. This could be achieved by **strengthening the floors and/or installing relief vents** between the passenger cabin and aft cargo compartment.

Apr 26, 1974: FAA began an in-depth **inspection of the worldwide flight operations of Pan American World Airways following the Apr 22 crash of a Pan Am Boeing 707** into a mountain in Bali, Indonesia. The Bali accident, in which all 107 persons aboard died, followed **three other Pan Am 707 crashes**: Tahiti, Jul 23, 1973; Boston, Nov 3, 1973 (see entry for Jun 7, 1973); and Pago Pago, Jan 31, 1974 (see that date).

May 9, 1974: FAA signed the Memorandum of Understanding for a joint international program to test, evaluate, and demonstrate the use of aeronautical satellites to provide improved communications and air traffic services over the North Atlantic. The **aeronautical satellite program, known as AEROSAT** and jointly operated by the 10 countries of the European Space Research Organization (ESRO), Canada, and the United States, was intended to furnish the information upon which to base a follow-on operational system expected to be required in the mid-1980s. On Aug 2, representatives from Canada and ESRO signed the Memorandum. (See Nov 12, 1974.)

May 29, 1974: FAA announced a new advisory circular on **safety parameters for hang gliding**, which included recommendations not to fly: over 500 feet above general terrain; in clouds; in controlled airspace, or within five miles of an uncontrolled airport without proper notification; in restricted or controlled areas without prior permission; over or within 100 feet horizontally of buildings, populated areas, or crowds. Hang gliding, a sport involving unpowered, kite-like craft, had grown rapidly in recent years. In announcing the circular, Administrator Butterfield stated his hope that observance of the guidelines would make it unnecessary to regulate the sport. FAA also advised

hang gliding clubs to establish training and safety programs, and urged manufacturers to ensure quality control. (See Sep 2, 1982.)

May 30, 1974: FAA certificated the **Airbus A-300**, the first of a series of wide-body transport aircraft produced by Airbus Industrie, an international consortium established in Dec 1970 with French, West German, British, Spanish, Dutch, and Belgian partner companies. The emergence of Airbus Industrie signaled greater competition for U.S. aircraft manufacturers. (See Apr 6, 1978.)

Jun 11, 1974: A **headquarters reorganization** established the positions of: Associate Administrator for Aviation Safety, with control of the Flight Standards Service and the Civil Aviation Security Service; Associate Administrator for Airports, with control of the Airports Service and of the new Metropolitan Washington Airport Service, which operated Washington National and Dulles International Airports; and the Associate Administrator for Air Traffic and Airway Facilities, with control of the Air Traffic Service and Airway Facilities Service. The Associate Administrator for Plans was redesignated the Associate Administrator for Policy Development and Review. The post of Associate Administrator for Operations, which had controlled the Flight Standards, Air Traffic, and Airports Services, was abolished. The Office of Appraisal and the Quiet Short-Haul Air Transportation System Office were also eliminated. An Office of Investigations and Security was established under the Associate Administrator for Administration (See Aug 3, 1970), and the Office of Personnel and Training was created from two formerly separate offices. The reorganization achieved Administrator Butterfield's aim of placing the flight standards and air traffic functions under separate Associate Administrators, but only partially fulfilled his goal of grouping safety-related functions under the Associate Administrator for Aviation Safety. On Jun 12, the press reported the retirement of Oscar Bakke, the experienced official designated for the Aviation Safety post, who was disappointed by the scope of the new position.

Jun 15, 1974: FAA launched **Operation Ground Assist**, a 30-day general aviation safety program, to raise the level of safety consciousness among general aviation pilots and ground personnel with safety responsibilities. The program was designed to help reverse a continued rise in the number of accidents in personal flying. It entailed visits to selected general aviation airports by FAA field personnel, who looked for unsafe practices, made suggestions, and encouraged a candid exchange of ideas between airmen and the aviation agency.

Jul 12, 1974: FAA announced a contract with Honeywell for 10 **Central Control and Monitoring Systems** for use at air route traffic control centers and the Aeronautical Center. The computerized devices were designed to keep watch on electrical, mechanical, and fire alarm systems. They would alert technicians in case of trouble, and also effect savings by reducing or turning off power to certain equipment at off-peak periods. FAA announced a contract for an additional 11 systems on Jan 30, 1976, and a total of 9 were installed by the end of that year.

Jul 31, 1974: A Delta Air Lines **DC-9 crashed against a sea wall** while making an instrument approach to Logan International Airport in Boston, Mass., with the loss of 89 lives. The National Transportation Safety Board attributed the accident to flight crew error. Although the Board also named "nonstandard" air traffic control service as a contributory factor, a U.S. district court cleared FAA of liability.

Aug 5, 1974: President Nixon signed the **Anti-Hijacking Act of 1974** into law. Under its provisions, the act:

- * authorized the President to suspend air transportation between the United States and nations that aided terrorist groups who used the illegal seizure of aircraft as an instrument of policy.

- * empowered the Secretary of Transportation, with the approval of the Secretary of State, to impose sanctions against the carriers of nations that failed to maintain minimum security standards in the transportation of persons, property, and mail, as required by the Convention on International Civil Aviation.

- * required air carriers to refuse to carry persons unwilling to submit to personal search, and any article that a passenger did not allow to be inspected.

- * required FAA to continue in effect passenger and baggage screening procedures (see Dec 5, 1972).

- * allowed FAA to use, for as long as needed, Federal personnel, including FAA personnel, to supplement state, local, and private law enforcement officers in airport security programs. (In anticipation of this responsibility, FAA had established a new unit, the Civil Aviation Security Service, out of what had been the anti-hijacking and cargo security section of the Office of Air Transportation Security: see Jun 11, 1974.)

The passenger screening program and other precautionary measures continued to be effective in combating the hijacking menace. For the second consecutive year (see Calendar year 1973) not one successful hijacking occurred on a scheduled U.S. air carrier aircraft.

Aug 9, 1974: **Richard M. Nixon resigned the Presidency and was succeeded by Vice President Gerald R. Ford.**

Aug 9, 1974: **James E. Dow became FAA's Deputy Administrator.** The appointment was among the last official acts of President Nixon, who had nominated Dow on Jul 24.

A native of East Machias, Maine, Dow was a graduate of the University of Maine. He entered the Federal service in 1943 as an air traffic controller in CAA's Central Region. After several promotions in the field, Dow transferred to CAA's Washington headquarters in 1956, where he served successively as Assistant Chief of both the Systems Engineering and Systems Management Divisions, Chief of the Plans Division, and Director of the NAS Special Projects Office. Following a year at Princeton University on a fellowship in the Woodrow Wilson School for Public and International Affairs, he became Director of the Office of Budget in July 1967. In August 1972, Dow became Associate Administrator for Administration. He became Acting Deputy Administrator in July 1973, assuming on a collateral basis the responsibilities of an post that had been vacant since the departure of Kenneth M. Smith on Jul 15, 1972. (See May 11, 1970, and Mar 31, 1976).

Aug 14, 1974: The Operations Committee of the Air Transport Association (ATA) decided that, effective Sep 1, its member airlines would withdraw from the **familiarization flight (SF 160) program** under which an air traffic controller could make up to eight free flights per year as a cockpit observer. Members of the Professional Air Traffic Controllers Organization reacted by conducting **work slowdowns that continued until ATA reversed its decision on Oct 16.** (See May 7, 1975.)

Aug 21, 1974: FAA announced a rule providing for issuance of **"limited" airport operating certificates** to airports serving CAB-certificated air carriers conducting only unscheduled operations or operations with small aircraft. FAA allowed airports in this category to operate under previously-issued provisional certificates until Dec 15. (See May 21, 1973)

Aug 26, 1974: **Charles A. Lindbergh died** in Maui, Hawaii, at the age of 72. (See May 20-21, 1927)

Sep 4, 1974: **The U.S. and Mexico announced an agreement on air traffic services** adjacent to their common border. The culmination of over 15 years of negotiation, the pact authorized air traffic facilities in 6 pairs of cities to enter into agreements on coordinating air traffic control.

Sep 5, 1974: FAA shut down the **last four-course radio range** still in operation, at Northway, Alaska, after more than 40 years of service. The four-course range was the first navigation system that enabled pilots to fly "blind"--that is, fly a direct line between airports when visibility was poor or nonexistent (see Jun 30, 1928). Beginning in the late forties, FAA replaced the system with the more efficient very-high-frequency omnidirectional range (VOR). The VOR's higher frequency reduced static and its omnidirectional signal afforded guidance to pilots on any bearing from the transmitter. (See Mar 17, 1982.) The center antenna of the Northway range, now designated for use with a nondirectional beacon, remained in operation.

Sep 8, 1974: A **bomb exploded in the aft cargo compartment of a Trans World Airlines Boeing 707.** The flight had originated in Tel Aviv, stopped over at Athens, and was bound for Rome and then New York. The explosion disabled the aircraft's control system, and the 707 crashed into the Ionian Sea with the loss of all 88 persons aboard. Floating debris and 24 bodies were recovered, but the wreckage was not raised from the sea bottom.

Sep 11, 1974: An Eastern Air Lines **DC-9 crashed 3.3 miles short of a runway at Charlotte, N.C.,** while approaching through patchy fog. All but 10 of the 82 persons aboard lost their lives. The National Transportation Safety Board attributed the accident to "lack of altitude awareness" due to "poor cockpit discipline." Eastern Air Lines and 19 insurance companies sued four FAA air traffic controllers for \$35 million each in connection with the accident. In Dec 1979, a jury in Charlotte found in favor of the controllers, who were defended by the Federal government.

Sep 18, 1974: Transportation Secretary Claude S. Brinegar announced the Ford Administration's **decision not to ask Congress to subsidize the nation's financially troubled flag carriers,** Pan American and Trans World Airlines. Instead, the Administration continued to pursue an "action plan" to assist the two airlines through a variety of means that did not involve subsidy or new legislation. Congress, however, passed the **International Air Transportation Fair Competitive Practices Act** of 1974. As signed on Jan 3, 1975, this law included provisions designed to raise overseas mail rates, require Federal agencies to use U.S. flag carriers whenever possible, and control rebates by shippers

and ticket agents. The law mandated negotiations aimed at protecting U.S. flag carriers from discriminatory landing fees and airport charges, and directed the Secretary of Transportation to impose retaliatory fees against the airlines of nations that failed to respond. (See Feb 15, 1980)

Sep 19, 1974: FAA commissioned the first of a new-generation **Power Conditioning System** for the 20 Air Route Traffic Control Centers in the contiguous U.S. at the Los Angeles ARTCC. The system processed all incoming power, ensuring that it remained at the proper voltage level and frequency. In the event of commercial power failure, it also provided battery power until emergency generators could take over. The system was designed to replace less sophisticated versions in use at some ARTCCs. (See Jun 27, 1969 and Jul 13, 1977.)

Oct 1, 1974: Effective this date, FAA **reduced the minimum separation distance for simultaneous Instrument Landing System (ILS) approaches to parallel runways**. The change from 5,000 feet to 4,300 feet allowed certain airports to add parallel runways when needed to handle increasing traffic.

Nov 1, 1974: Tougher **new rules covering the training, testing, and certification of pilots** in nearly all categories except airline transport pilot went into effect. For the first time, FAA required a **biennial flight review** for all pilots not engaged in airline or other commercial operations for which FAA already required periodic flight checks. Other new provisions included:

- * Student pilots were required to show overall piloting proficiency in all flight operational areas before their instructors could find them eligible for the prescribed check flight.

- * Flight instructor certificate requirements were upgraded to include a commercial pilot certificate, an instrument rating, ground instruction as well as flight instruction capability, and a class rating for instruction given in multi-engine airplanes and helicopters.

- * Private pilot certificate requirements included increased emphasis on flight instruction in night and operational problem areas. The required flight time remained at 40 hours, but the mandatory hours of flight instruction from a certified flight instructor were raised from 3 to 20.

- * Commercial pilot certificate applicants were required to have an instrument rating to qualify for unrestricted privileges. Flight time for a commercial license was raised from 200 to 250 hours, although 50 of these hours could be logged in a ground trainer.

Other new requirements included: more skills to be demonstrated for an Instrument Flight Rules (IFR) rating; IFR checks for instrument-rated pilots with recent IFR experience lapses; and annual proficiency checks for pilots-in-command of aircraft certificated for more than one pilot.

Nov 1, 1974: New certification and operating **standards for FAA-approved pilot schools** went into effect. In an amendment to FAR Part 141, FAA upgraded standards while giving these schools increased responsibilities in pilot training and testing. Schools granted examining authority by FAA could recommend graduates for pilot certificates and ratings without those graduates having to pass FAA-administered flight or written tests. The new rules also set forth standardized curriculums for each course of approved training, thus assuring that graduates trained at different locales received the same quality of instruction.

Nov 12, 1974: For the first time in history an aircraft was given routine **air traffic control instructions via aeronautical satellite relay**. The milestone occurred when an ATC demonstration project controller at the National Aviation Facilities Experimental Center (NAFEC) issued a route change to an FAA KC-135 aircraft during a test using the ATS-6 satellite. NAFEC's Experimental Oceanic Air Traffic Control Laboratory was the ground test facility for the ATS-6 ATC communications demonstrations, part of the **joint Aerosat project** involving the United States, Canada, and the European Space Research Organization (ESRO). (See May 9, 1974, and Sep 15, 1977.)

Nov 13, 1974: In an action **to reduce the bird hazard to aviation, FAA announced guidelines aimed at banning garbage dumps or sanitary landfills** within 10,000 ft. of runways used by turbojets and 5,000 ft. of those used by piston-engine aircraft. FAA personnel were instructed to inform airport operators that dumps or landfills closer than these limits should be closed. Those that could not be closed within a reasonable period of time should be operated under guidelines prescribed by the Environmental Protection Agency and Department of Health, Education and Welfare, to minimize their attractiveness to birds.

Nov 18-27, 1974: The Air Line Pilots Association (**ALPA**) **board of directors determined that the DC-9-50 was a "stretched" aircraft** within the meaning of ALPA's by-laws (see Nov 20-29, 1966). This decision, which reversed a previous finding by ALPA's executive board, meant that the union would not necessarily oppose operation of the DC-9-50 by a two-pilot crew. At the same time,

however, the board amended its by-laws to provide for **three pilots on all turbine-powered transports, including stretched versions, certificated after Jan 1, 1975**. (See Nov 23, 1971 and Feb 21, 1976.)

Dec 1, 1974: A Northwest Airlines **Boeing 727 crashed near Thiells, N.Y.**, killing all three persons aboard. Icing had blocked the aircraft's pitot heads, causing erroneous air speed and Mach readings that contributed to a low-speed stall. On Mar 13, 1978, FAA published a rule requiring the installation within three years of a **pitot heat indication system** in all transport category aircraft having flight instrument pitot heating systems, and making such an indication system a type certification requirement for such aircraft.

Dec 1, 1974: Approaching Dulles International Airport under conditions of poor visibility, a **Trans World Airlines Boeing 727 descended too soon and crashed into a mountain** near Berryville, Va., killing all 92 persons aboard.

Unfamiliar with terrain to the immediate west of Dulles, the TWA captain interpreted a controller's "cleared for approach" instruction to mean that he could descend to the final approach altitude of 1,800 feet immediately, although his chart indicated mountain peaks and a prescribed minimum altitude of 3,400 feet. The controller had assumed the pilot knew he was not to descend to 1,800 feet until he had cleared the mountains. Soon after the accident, FAA took **steps to clarify pilot responsibilities for maintaining safe altitude** by issuing a notice, followed by a regulatory amendment. This new rule explicitly required that in-bound pilots maintain their assigned altitude until they were given a new one or became established on a published route. FAA also issued additional guidance intended to ensure that controllers informed radar arrivals of any applicable altitude restrictions at the time that they issued an approach clearance. (See Jan 1, 1976.)

With FAA still under scrutiny for its handling of the DC-10 cargo door problem (see Mar 3, 1974), the **TWA crash added to intense criticism of the agency** (see Dec 27, 1974). The accident underscored the need for a cockpit device to alert pilots if they strayed too close to terrain, and FAA speeded **work on a proposed rule to make a terrain warning system mandatory** (see Dec 24, 1974). Other FAA actions in the wake of the TWA crash included the appointment of a **Special Air Safety Advisory Group**, composed of six retired airline captains, which submitted a variety of safety recommendations on Jul 30, 1975. Meanwhile, DOT established a task force on FAA's safety mission (see Jan 28, 1975).

Dec 18, 1974: Secretary of Transportation **Claude S. Brinegar announced his resignation, effective Feb 1, 1975**. (See Feb 2, 1973.)

Dec 24, 1974: FAA published a **rule requiring installation of the Ground Proximity Warning System (GPWS)** on large turbojet and turboprop airliners. The equipment was to provide both visual and aural signals when the aircraft was less than 2,500 feet above the ground. The rule's implementation deadline of Dec 1, 1975, was subsequently extended due to persisting technical difficulties, but all major airlines were in compliance by the end of 1976. A rule published on Oct 10, 1978, extended the GPWS requirement to smaller commuter airline turbojets if able to seat as many as ten passengers. (See Dec 1, 1974, and Mar 17, 1992.)

Dec 27, 1974: A House subcommittee chaired by Rep. Harley O. Staggers (D-W.Va.) issued a **report criticizing FAA** as sluggish, insufficiently strict in its aircraft certification procedures, and too solicitous of the interests of the aviation industry. Cases cited by the committee included the agency's handling of the DC-10 cargo door problem (see Mar 3, 1974). The committee also faulted FAA for slowness in requiring the Ground Proximity Warning System on airliners, a criticism underlined by the recent crash of a TWA jet (see Dec 1, 1974). On Dec 28, public confidence in FAA was further weakened by an ABC television broadcast, prepared by science editor Jules Bergman, that portrayed the agency as lax on postcrash survival and other safety issues.

Calendar year, 1974: FAA launched a **program aimed at the renegotiation of bilateral airworthiness agreements** with major aeronautical manufacturing countries. Previous U.S. bilateral agreements did not cover the export or import of all aviation products--engines, appliances, propellers, and other components. Since export sales frequently depended on foreign countries producing selected aircraft components, the lack of such agreements tended to inhibit the sale of U.S. aircraft abroad. (See Jan 26, 1972.)

***1975**

Jan 3, 1975: President Ford signed the **Transportation Safety Act of 1974**. Title I of this law, the **Hazardous Materials Transportation Act**, gave the Secretary of Transportation new regulatory and

enforcement authority to combat the risks of transporting hazardous materials in commerce (see Jul 1, 1976). (Title II pertained to railroad safety, and Title III concerned the status of the National Transportation Safety Board: see April 1, 1975). Title I specifically **limited radioactive materials that could be shipped on commercial passenger aircraft** to those intended for research or medical use. AN FAA rule implemented this provision, effective May 3, 1975.

Effective Mar 7, meanwhile, **FAA prohibited air carriage of hazardous material unless its container had been inspected** to determine that, in all outward respects, it complied with packaging and marking requirements. In the case of radioactive materials, FAA also required scanning with a radiation monitoring instrument, after Jun 30, 1975 (a deadline later extended to Jan 1, 1976). The rule was based on a proposal published shortly after an incident on Apr 5-6, 1974, in which improperly shielded radioactive material had exposed airline passengers to unnecessary radiation.

Jan 6, 1975: FAA published a new regulation setting **maximum noise levels for small propeller-driven aircraft** that were newly produced or newly type-certificated. The rule was effective Feb 7, 1975, and applied to all propeller-driven airplanes under 12,500 pounds, with the exception of those used in agricultural and firefighting operations (which frequently required all available engine power to carry large loads). (See Oct 26, 1973, and Dec 23, 1976.)

Jan 21, 1975: FAA announced that it would study the effects of high-altitude flight on the earth's atmosphere, building upon DOT's recently-ended Climatic Impact Assessment Program, which had begun in 1971 in response to concern about environmental consequences of the fleets of supersonic transports then anticipated. FAA's study, the **High Altitude Pollution Program (HAPP)**, ended in 1982. Its final report, published in Jan 1984, concluded that the effects of civilian aircraft on ozone depletion and climatic change were not a cause of immediate concern at that time.

Jan 25, 1975: Approaching Washington National Airport, a **Beech King Air executive turboprop came in too low and crashed into a broadcasting tower at American University**, killing all five aboard. The accident occurred in the wake of the crash of a TWA jetliner on approach to Washington Dulles airport, and it added to mounting criticism of FAA. (See Dec 1 and 27, 1974.)

Jan 28, 1975: The **Secretary's Task Force on the FAA Safety Mission** convened to examine FAA's organizational structure, management, and performance on safety issues. Secretary Claude S. Brinegar had appointed this special ten-person panel in response to criticism of FAA on such matters as the crash of TWA Flight 514 and the DC-10 cargo door problem (see Dec 1 and Dec 27, 1974). The task force was headed by Lt. Gen. Benjamin O. Davis, Jr., Assistant Secretary of Transportation for Environment, Safety, and Consumer Affairs. (See Apr 8 and Apr 30, 1975.)

Jan 1975: FAA **shut down the Fairbanks ARTCC**, after 31 years of operation and transferred its functions to the Anchorage ARTCC.

Feb 19, 1975: FAA announced that it had ordered **air taxi operators using business-type jets to equip these aircraft with Cockpit Voice Recorders and Flight Data Recorders** by May 15, 1975. (See Aug 5, 1957, Jun 26, 1964, and Mar 25, 1987.)

Feb 27, 1975: The **Microwave Landing System (MLS) Executive Committee**, a group of experts representing various Federal agencies, chose the **time reference scanning beam (TRSB) technique** over the Doppler scanning technique as the U.S. candidate for the international standard microwave landing system. The action by the committee ratified a recommendation made in late 1974 by the MLS Central Assessment Group (a recommendation participated in 140 experts assembled by FAA from around the world) and cleared the way for submission of the time reference scanning beam technique to the International Civil Aviation Organization (ICAO) as the U.S. candidate for adoption as the international precision landing system of the future. (See Jun 7, 1973, and Jul 22 1975.)

Mar 7, 1975: **William T. Coleman, Jr., became Secretary of Transportation**. An attorney from Philadelphia, Coleman was the second black Cabinet member in American history. On Jan 14, President Ford had declared his intention to nominate Coleman to replace Claude S. Brinegar, who had announced his resignation on Dec 18, 1974. Coleman served the remainder of the Ford Administration, resigning effective Jan 20, 1977.

Mar 25, 1975: **Alexander P. Butterfield announced his resignation** as FAA Administrator, effective Mar 31, after publicized differences with recently departed Secretary of Transportation Claude S. Brinegar and amid sharp criticism of FAA's recent safety record. President Ford had asked for his resignation in a move some interpreted as retribution for Butterfield's role in helping uncover the Watergate scandal (see Jul 16, 1973). Deputy Administrator James E. Dow (see Aug 9, 1974) became Acting Administrator. (See Nov 24, 1975.)

Mar 27, 1975: AN FAA **DC-3 crashed** on takeoff from Boise, Pa., injuring all 11 persons aboard. In determining the probable cause, the National Transportation Safety Board cited the inexperience of the pilot, who was not qualified for that type of aircraft. The pilot, a Regional Director, received a reprimand and 30-day suspension, and was later transferred to another position.

Apr 1, 1975: Effective this date, the **National Transportation Safety Board (NTSB) was separated entirely from the Department of Transportation**, in accordance with Title III of the Transportation Safety Act of 1974. Previously, NTSB had been an independent agency lodged within the Department for administrative purposes. In enacting Title III, Congress declared that the NTSB could not properly conduct its responsibility of determining the probable cause of transportation accidents without total separation and independence. (See Oct 15, 1966.)

Apr 4, 1975: **A regulation governing the installation and safe operation of X-ray devices** for screening carry-on luggage at airports became effective this date. The rule had been proposed on Jun 21, 1974, after a U.S. District Court judge declared that FAA acted illegally by allowing the X-ray machines to be installed without certifying as to their safety. The new regulation required testing to ensure that the devices complied fully with radiation level standards set by the Food and Drug Administration, and also provided for the training and protection of operators of this equipment.

Apr 8, 1975: Acting Administrator James E. Dow announced the establishment of the **Aviation Safety Reporting Program (ASRP)**, designed to provide the agency with information on potentially unsafe conditions in the National Airspace System, effective May 1, 1975. To encourage the reporting of violations, the program granted immunity from disciplinary action to pilots or controllers who filed a timely report. No immunity was granted, however, in the case of "reckless operations, criminal offenses, gross negligence, willful misconduct, and accidents." FAA remained free to take corrective or remedial action necessary for air safety.

Although such immunity programs had been instituted before (see Jan 1, 1968), the ASRP was the first not limited to reports of near midair collisions. The program's establishment anticipated one of the recommendations being prepared by the Secretary's Task Force on the FAA Safety Mission (see Jan 28, 1975), of which Dow served as Executive Secretary. The Air Line Pilots Association, skeptical of the ASRP, preferred a system in which a third party would process reports and protect their confidentiality. (See Aug 15, 1975.)

Apr 14, 1975: FAA **eliminated the proposed requirement for altitude reporting transponders (Mode C)** on all aircraft operating in Group II Terminal Control Areas (TCAs) 45 days before it was to go into effect (see Jun 8, 1973 and Jan 29, 1987). However, FAA still required aircraft operating to and from primary and secondary airports within the twelve Group II TCAs to carry a transponder capable of providing discrete identity information to air traffic controllers. In addition, the agency required aircraft to obtain authorization prior to entering the Group II TCAs, and to maintain two-way radio communications with controllers. The requirement for altitude reporting equipment had been strongly opposed by general aviation operators and by such general aviation organizations as the Aircraft Owners and Pilots Association. (See Jan 1, 1974, and Aug 1, 1975.)

Apr 30, 1975: The **Secretary's Task Force on the FAA Safety Mission** (see Jan 28, 1975) submitted its report. The Task Force commended FAA for having reestablished a no-fault aviation safety reporting program (see Apr 8, 1975), and made recommendations including:

- * That FAA should continue to rely on industry for safety compliance inspections required in the certification process, but should strengthen its technical staff and improve its ability to monitor the performance of those delegated safety responsibilities. In addition, FAA should insist on more comprehensive design reviews in major aircraft and engine certification.

- * That FAA should conduct audits in cooperation with the National Transportation Safety Board to ensure that problems cited by NTSB were worked out satisfactorily.

- * That FAA's rulemaking process, judged too slow, should be expedited by means of a priority system; the agency should also improve the clarity of the rules themselves and speed up their legal review.

- * That FAA should take steps, including use of flight data monitoring systems, to improve aircrew performance.

- * That air traffic controllers should give more attention to preventing collision with the ground, and that a standing group of FAA and aviation community representatives should review air traffic control procedures with the aim of increasing clarity and standardization.

* That FAA should continue as part of the Department of Transportation, but should not be subject to undue supervision by the Office of the Secretary.

* That an intensive review should be made of the FAA headquarters organization with the object of reducing the number of elements reporting to the Administrator. The task force recommended also that (1) a similar study be made of the FAA regional organization, with a view to consolidating regional functions and reducing the regions in number, and (2) that regional Engineering and Manufacturing (E & M) personnel engaged in aircraft certification be transferred from the regions to one or more E & M technical field centers that would report to FAA Headquarters at a level just below the Administrator.

* That FAA should strengthen its long-range research and development activity and establish one or more technical advisory committees.

May 7, 1975: **FAA and PATCO reached agreement on a two-year contract** (signed and effective Jul 8). The contract's 74 articles included a guarantee of controller inclusion in the Aviation Safety Reporting Program (see Apr 8, 1975) and affected such matters as an expansion of familiarization flight privileges (see Aug 14, 1974), working conditions, and career enhancement. (See Mar 17, 1973, and Jul 28-31, 1976.)

May 9, 1975 FAA announced the beginning of a new airspace program to better delineate areas of military training activities. As of Jul 1, when requested by the military, the FAA began establishing **Military Operations Areas (MOAs)** for conducting such military flight activities such as familiarization training, intercept practice, and air combat maneuvers. FAA Flight Service Stations in the vicinity would inform visual flight rules (VFR) pilots when a given MOA was to be used for military purposes and how to traverse or circumnavigate it safely. Properly instructed VFR aircraft operated within an active MOA without special restrictions, while instrument flight rules (IFR) aircraft were afforded appropriate separation service. By the end of fiscal 1987, 354 MOAs were in existence.

May 29, 1975: Secretary of Transportation William T. Coleman, Jr., announced that FAA's **National Aeronautical Facilities Experimental Center (NAFEC) would remain at Atlantic City, N.J.** On Jan 15, 1974, a study team had recommended that NAFEC be combined with the Aeronautical Center at Oklahoma City. (See May 29, 1980.)

Spring 1975: U.S. air carriers conducted extensive **civil aviation operations in Southeast Asia** as the United States wound down its Indochinese commitment with a final spurt of activity. Requiring close cooperation between FAA, the State Department, and the Department of Defense, the operations ranged from airlifting rice and munitions into Pnom Penh, Cambodia, to the climactic evacuation of U.S. civilians from Saigon, Vietnam, in late April.

Jun 1975: FAA received the first of the new **ASR-8 airport surveillance radars**. Features of the ASR-8 included a dual beam for expanded low-level coverage and a klystron transmitter tube that increased power output. (See Aug 25, 1960 and Sep 30, 1983.)

Jun 24, 1975: An **Eastern Air Lines 727 crashed** into approach lights while attempting to land during a thunderstorm at New York's Kennedy airport, causing fatal injuries to 113 of the 124 persons aboard. The National Transportation Safety Board's report stated that the crew probably relied too much on visual clues rather than instruments in assessing their altitude, but adverse winds may have been too strong for a successful approach even if they had avoided this error. The Board criticized air traffic control personnel for continued use of the runway after reports of **wind shear** from several incoming pilots.

Wind shear, a sudden change in wind speed and/or direction, may be produced by thunderstorms or even cloud formations that appear harmless. Large gust fronts can last for more than an hour and extend for several miles. In studying the Kennedy crash, however, the University of Chicago's Dr. Theodore Fujita concluded that several separate cells of intense downdrafts had occurred in the vicinity of the 727's approach path. He termed such phenomena "downbursts," and later coined the term "microburst" to describe a small downburst (see May 15-Aug 13, 1982).

The Kennedy accident spurred FAA's efforts to develop wind shear detection equipment for use both in the cockpit and on the ground, as well as improved methods for pilots to cope with the hazard. The agency tested measuring devices, and in Nov 1976 began a six-month test of forecasting techniques in cooperation with the National Weather Service. In 1977, FAA began operational testing of a **ground-based wind shear detection system** called the Surface Wind Monitoring System (SWIMS), later renamed the **Low Level Wind Shear Alert System** (see Sep 1978).

Jun 30, 1975: The original five-year **funding authority of the Airport and Airway Development Act of 1970 lapsed** (see May 21, 1970). The Subcommittee on Aviation of the House Committee on Public Works and Transportation had opened hearings in Mar 1975 on extending the act's funding authority, but did not report out a bill before the funding cutoff. A proposal by the Senate seeking a 90-day delay of the cutoff failed. (See Jul 12, 1976)

Jul 22, 1975: FAA announced that it had awarded contracts to the Bendix Corp. and Texas Instruments **to build, test, and evaluate prototypes of the new microwave landing system (MLS) under Phase III of the MLS development program**. Each contractor was to build two models of the system--the small community airport configuration and the basic configuration---using a time reference scanning beam signal format. (See Feb 27, 1975, and Jun 1976.)

Aug 1, 1975: The establishment of a **Group II Terminal Control Area (TCA) at the new Kansas City International Airport completed the creation of 12 airport areas in this category**. FAA defined each TCA after consultation with airport users. General aviation operators, in particular, registered many objections to proposed TCA rules and limits. Since the original concept in 1970, FAA reduced the number of Group II TCAs from 14 to 12. The locations were: St. Louis, Seattle, Minneapolis, Houston, Denver, Cleveland, Detroit, Pittsburgh, and Las Vegas; and Philadelphia, New Orleans, and Kansas City. (See Apr 14, 1975, and May 15, 1980.)

Aug 13, 1975: FAA completed its longstanding program to implement the **ARTS III automated radar terminal system** at the nation's busiest terminals on this date with the commissioning at the Dallas-Fort Worth Regional Airport. All 61 ARTS III systems were now operational in the contiguous states, as well as one in Hawaii and one in Puerto Rico. The basic ARTS III contract had been signed in Feb 1969, and the first ARTS III procured under it became operational at Chicago O'Hare airport (see Feb 15, 1973). The sixty-second ARTS III, which went into operation in Jul 1975 at Atlanta Hartsfield airport, replaced an ARTS I--the prototype ARTS--which had been in operation there since 1965. (See Aug 10, 1976.)

Aug 15, 1975: FAA and the National Aeronautics and Space Administration (NASA) signed an agreement under which **NASA would operate a third-party reporting system guaranteeing anonymity to persons providing information about safety hazards and incidents** (see Apr 8, 1975). This system was designed to overcome fears that FAA's Aviation Safety Reporting Program would not provide genuine immunity. NASA agreed to: receive and process reports; delete information that would reveal the identity of the informants; analyze and interpret the data; and provide the results to FAA and the aviation community. Information concerning criminal offenses, however, would be referred directly to FAA and the Justice Department. The system was to become operational by Apr 15, 1976 (see that date.)

Aug 25, 1975: In Senate testimony, Lockheed's chairman stated that his company paid "**kickbacks**" **to officials of foreign governments** to encourage purchase of L-1011 aircraft, an admission that was followed by a series of revelations about the questionable overseas sales practices of Lockheed, Boeing, and McDonnell Douglas.

Aug 26, 1975: The commissioning of the computerized **radar data processing system (RDP)** at the Miami Air Route Traffic Control Center marked the **end of the final phase of the completion of NAS En Route Stage A**, FAA's program of automating and computerizing the nation's en route air traffic control system, an effort covering more than a decade (see Feb 13, 1973). Miami was the last of the 20 ARTCCs to receive RDP capability.

The RDP system consisted of three key elements: radar digitizers located at long-range radar sites that converted raw radar data and aircraft transponder beacon signals into computer-readable signals transmitted to the centers' computers; computer complexes in each center able to relay this information to the controllers' screens; and new screens that displayed the information to the controllers in alphanumeric characters.

Sep 2, 1975: FAA released an **analysis of Federal grants** issued in the first five years of the Airport and Airway Development Act of 1970 (see May 21, 1970). For the period, \$37.5 million had been obligated under the Planning Grant Program (PGP) and \$1.3 billion under the Airport Development Aid Program (ADAP). (This was a vast increase compared to the \$1.2 billion disbursed during the entire 24-year history of the earlier Federal-aid airport program: see May 13, 1946). A total of 1,059 planning grants had been approved during the five-year period. Authorized funding for ADAP--initially \$280 million annually and increased to \$310 million in 1973 (see Jun 18, 1973)--had made it possible for FAA to approve aid for 2,434 development projects. With the help of these funds, 85 new

airports were built and more than 1,000 received improvements that included: 178 new runways; 520 new taxiways; 201 runway extensions; 28 instrument landing systems, 141 runway end identifying lighting systems (REILS), 471 visual approach slope indicators (VASIs); security fencing; and equipment for crash, firefighting, and rescue.

Nov 1, 1975: New procedures went into effect requiring air traffic controllers to provide an **extra mile of separation** between small aircraft landing behind large and heavy aircraft capable of generating hazardous **wake turbulence** (see Mar 1, 1970). Reflecting the findings of two special studies, the new procedures required that small aircraft be separated by 4 miles when landing behind large aircraft and by 6 miles when landing behind heavy aircraft. The "small" aircraft category (12,500 lbs. or less) included most of the country's air taxis and general aviation aircraft. The "large" category (12,500-300,000 lbs.) included certain business aircraft such as the Sabreliner and Jetstar, the smaller DC-8s and Boeing 707s, and the Boeing 727 and 737. (The Boeing 757 also joined the "large" category after its certification in 1982.) The "heavy" category (300,000 lbs. or more) included the C-5A, DC-10, L-1011, Boeing 747, and the larger versions of the DC-8 and 707. (See Spring 1976 and Dec 19, 1992.)

Nov 24, 1975: **Dr. John L. McLucas became the sixth FAA Administrator**, succeeding Alexander P. Butterfield (see Mar 14, 1973). The President had persuaded McLucas to give up his portfolio as Secretary of the Air Force in favor of the FAA post. McLucas had been nominated by Ford on Oct 20 and confirmed by the Senate on Nov 13.

Born in Fayetteville, N.C., in 1920, McLucas held degrees from Davidson College and Tulane University. After serving as a Navy radar officer during World War II, he earned a doctorate in physics with a minor in electrical engineering at Pennsylvania State University in 1950. McLucas authored numerous scientific articles and held ten patents. He became vice president and later president of a private electronics firm, then joined the Defense Department in 1962 as Deputy Director of Defense Research and Engineering. Two years later, he became Assistant Secretary General for Scientific Affairs at NATO headquarters. In 1966, McLucas became president and chief executive officer of the MITRE Corporation, a nonprofit research organization established at the Massachusetts Institute of Technology to work on technical problems for the government. He became Under Secretary of the Air Force in 1969, and was promoted to Secretary in 1973. McLucas served as FAA Administrator for 16 months, including the remainder of the Ford Administration and two months under President Jimmy Carter. (See Apr 1, 1977.)

Dec 26, 1975: The Soviet Union inaugurated the world's **first regular supersonic airline service**, with the departure of a Tupolev-144 from Moscow for Alma-Ata in the Kazakh Republic. The **plane carried only mail and cargo** over the 2,500-mile route. (See Jan 21, 1976).

Dec 29, 1975: A high-intensity **bomb exploded in a coin-operated locker at New York's La Guardia Airport**, killing 11, injuring 54, and doing extensive damage to the main terminal building. The incident, provoking national concern and leading to the creation of a special government-industry task force, caused FAA to issue a rule (effective Apr 15, 1976) requiring that checked baggage be screened for inspection under a "profile" system. FAA also accelerated efforts to develop automatic equipment capable of detecting explosives in lockers and cargo holds (see Sep 1985). In the meantime, the agency stepped up its Explosive Detection K-9 Dog Handler Team program begun in 1972 (see Nov 29, 1977). Following the La Guardia bombing, lockers at nearly all U.S. airports were placed in areas where they could be under surveillance.

***1976**

Jan 1, 1976: The Federal Aviation Administration issued a **new air traffic control handbook**, representing a consolidation of two formerly separate manuals--one on terminal and the other on en route air traffic control. To improve controller-pilot communications, FAA on Apr 26 announced publication of a **new air traffic control glossary** four times the length of that previously included in the Airmans Information Manual. The National Transportation Safety Board had recommended issuance of such a glossary after a crash at Berryville, Va. (see Dec 1, 1974).

Jan 9, 1976: As of this date, FAA implemented a **conflict alert system**, capable of warning air traffic controllers of less-than-standard separation between aircraft under their control, at all 20 air route traffic control centers in the contiguous U.S. FAA added the new conflict alert capability to the radar data processing system of the NAS En Route Stage A center computers (see Aug 26, 1975). The new system projected the flight paths of all aircraft on the controllers' radar sector for two minutes ahead, and flashed the relevant aircraft data tags if the projection showed the paths approaching closer than

the required horizontal and vertical minimums. The controller could then radio appropriate orders to the aircraft to avoid a collision. The conflict alert system initially operated only above 18,000 feet, but by Dec 1978 all 20 centers had implemented it from the ground up. FAA later installed a similar capability in the Automated Radar Terminal System (ARTS) computers (see Jan 10, 1978).

Jan 21, 1976: British Airways and Air France began the world's **first scheduled supersonic passenger service** (see Dec 26, 1975) with simultaneous takeoffs of Anglo-French Concorde SST aircraft from London and Paris for flights to Bahrain and Rio de Janeiro. The London-Bahrain flight, normally 6 hours 30 minutes by subsonic jet, took 4 hours 10 minutes. The Paris-Rio flight, scheduled to take 7 hours 5 minutes (compared with a subsonic time of 11 hours 10 minutes), arrived 40 minutes late. (See Feb 4, 1976.)

Feb 4, 1976: Secretary of Transportation William T. Coleman, Jr., announced his **decision to permit the Anglo-French supersonic transport Concorde to land in the U.S. on a temporary, restricted basis**. Air France and British Airways had made application in Jan 1975 to conduct limited commercial operations with the SST into New York Kennedy and Washington Dulles airports, proposing a maximum of four flights daily into Kennedy and two daily into Dulles. In an environmental impact statement issued in draft in Mar 1975 and in final on this date, FAA recommended granting the application on the grounds that the limited operations could not significantly harm the environment. Secretary Coleman authorized the proposed service for a trial period not to exceed 16 months.

Working with the National Aeronautics and Space Administration, the Environmental Protection Agency, and the Office of the Secretary, FAA developed plans for noise, sonic boom, and low altitude pollution monitoring of the Concorde to determine its environmental impact during the trial period. Devices to monitor noise and emissions were installed at Washington Dulles and surrounding communities, and most were in operation when **Concorde service to Dulles began on May 24, 1976**. Intense opposition from environmental and citizen groups in the New York area and a ban by the Port Authority of New York and New Jersey delayed Concorde service at Kennedy. (See Apr 27, 1973, Sep 23, 1977, and Oct 17, 1977)

Feb 15, 1976: FAA transferred the personnel and functions of its **office at Beirut, Lebanon**, to the office at Frankfurt, Germany, because of the continuation of the civil war that began in late 1975. The Beirut office had consisted basically of three inspectors who made sure that U.S.-registered aircraft operating in the Mediterranean and Middle East were airworthy and complied with Federal regulations (see Jun 30, 1965). An office later established at Rome, Italy, took over these functions.

Feb 21, 1976: In exchange for higher salaries and shorter work hours, the **pilots of Frontier Airlines accepted a contract calling for the elimination of the flight engineer from the crew of the Boeing 737**. The Air Line Pilots Association executive board tried, but failed, to expel Frontier pilots from the union for violating the union's by-laws. (See Nov 18-27, 1974, and May 7, 1977.)

Feb 1976: The **Washington, D.C., Flight Service Station moved to the Air Route Traffic Control Center (ARTCC) at Leesburg, Va.**, and FAA announced that it had ordered an **AWANS (aviation weather and notice to airmen system)** for installation at Leesburg. AWANS was computer-aided system to assist flight service specialists by displaying weather and aeronautical information on viewing screens. It had been under test at the flight service station (FSS) in Atlanta, Ga., since July 1975. Once operational, FAA expected the Leesburg AWANS to take over the functions of the FSSs at Richmond and Charlottesville. This prototype would then be used to demonstrate the feasibility of consolidating several manual FSSs into a single automated station, and of collocating FSS and ARTCC facilities. The long-range **plan was to establish AWANS-equipped FSS hubs at all 20 ARTCCs** in the contiguous United States. (See Feb 4, 1964, and Sep 1977.)

Mar 1, 1976: A rule published on this date required **removal of side-facing flight attendant seats** from all airliners by May 1. In issuing the rule, FAA noted that flight attendants occupying side-facing seats were likely to receive more serious injuries during survivable accidents than passengers in forward-facing seats, and hence might be incapacitated at a time when their performance of emergency duties was most needed. (See Feb 15, 1980.)

Mar 4, 1976: FAA announced a contract for the development of three engineering model **Discrete Address Beacon System (DABS)** ground sensors and 30 compatible transponders. This new advanced radar beacon system was designed to eventually replace ATCRBS, the existing air traffic control radar beacon system (see Dec 27, 1963). The chief advantage of DABS was its ability to interrogate and receive a transponder reply from a specific aircraft rather than from all aircraft in the

zone of coverage. This would help eliminate the problem of overlapping and garbling of transponder replies from aircraft flying in close proximity to one another. Since DABS would address aircraft on an individual basis, it would also provide a vehicle for automatic communications between aircraft and the ground. This data link capability was seen as the basis for future implementation of a ground-based collision avoidance system called **Intermittent Positive Control (IPC)**, later designated the Automatic Traffic Advisory and Resolution System (ATARS). (See Mar 1976.)

Mar 21, 1976: Effective this date, FAA required **foreign air carriers** operating large aircraft to and from the United States in scheduled passenger operations **to maintain security programs** which would insure: that all passengers and property carried aboard their aircraft were subject to effective weapons screening procedures prior to boarding; that there was no unauthorized access to their aircraft; that no unauthorized weapons, bombs, or incendiary devices were carried aboard; that appropriate baggage security measures were in place; and that they were in compliance with the FARs in dealing with bomb threats and threats of hijacking. In addition, each foreign carrier was to provide the FAA Administrator upon his request information on the status of its screening program.

In addition, as of Aug 23, 1976, the FAA also required foreign carriers: to deny boarding to passengers refusing to permit their persons or property to be screened for weapons; ensure that their x-ray equipment in use at U.S. airports met minimum U.S. safety and effectiveness standards; and provided that the prohibition against carrying weapons aboard a foreign aircraft would not apply if the weapons, after inspection by the carrier, were in checked baggage and inaccessible to the passenger.

Mar 31, 1976: Several **organizational changes** became official this date at the FAA Headquarters. The Office of the Associate Administrator for Airports and the Airports Service were abolished and replaced by the Office of Airport Programs, headed by an assistant administrator who reported directly to the Administrator. The Metropolitan Washington Airports Service was converted to a field element headed by a director who also reported to the Administrator. Finally, the Office of the Associate Administrator for Aviation Safety lost its two largest components--the Flight Standards Service and the Civil Aviation Security Service, which now reported directly to the Administrator--and was renamed the Office of Aviation Safety, a small staff unit headed by an assistant administrator who reported to the Administrator. (See Nov 2, 1978 and Jun 13, 1979.)

Mar 31, 1976: **FAA Deputy Administrator James E. Dow retired** after 32 years of Federal service, all with CAA and FAA (see Aug 9, 1974). Dow had been Deputy or Acting Deputy since Jul 1973, and had served as Acting Administrator between the tenures of Administrators Butterfield and McLucas. (See Mar 25, 1975, Nov 24, 1975, and May 4, 1977.)

Mar 1976: Responding to public and congressional concern about near collisions in the air, Administrator John L. McLucas announced a five-point **separation assurance program**: continued enhancement of ground-based air traffic control; consideration of increased use of Instrument Flight Rules and radar beacon surveillance; possible additional requirements for carriage of radar beacons (transponders) with altitude reporting capability; development of the **Beacon Collision Avoidance System (BCAS)**; and development of Intermittent Positive Control (IPC), which would allow automatic transmission of collision warnings from ground facilities (see Mar 4, 1976).

The inclusion of BCAS represented a milestone in the long search for an airborne collision warning device that had been begun by the Air Transport Association in 1955. FAA began participating in 1959 by sponsoring a government-industry advisory group, but by the early 1970s was under fire for failure to achieve prompt deployment of such a system. At congressional request, the agency in 1972 undertook an evaluation of three forms of Airborne Collision Avoidance System (ACAS) developed by Honeywell, McDonnell-Douglas, and RCA. Within FAA, however, opinion tended to favor the BCAS system, which made use of radar transponders and was more compatible with the ground-based air traffic control system. On Feb 9, 1976, McLucas reported to Senator Howard Cannon that, although Honeywell's system was the best of the three ACAS versions, increased separation assurance could best be achieved by other means, including development of BCAS. (See Dec 27, 1978.)

Apr 15, 1976: The National Aeronautics and Space Administration (NASA) implemented a **system for processing reports of aviation hazards and safety-related incidents while preserving the reporters' anonymity** (see Aug 15, 1975). FAA made certain modifications to its Aviation Safety Reporting Program (ASRP) that took effect on the same date that NASA's participation began. Under the new policy, FAA would waive disciplinary action against all those involved in an incident provided a timely report was filed with NASA and certain other stipulations were fulfilled. FAA would not use reports for disciplinary purposes even if they involved reckless operation, gross

negligence, or willful misconduct (although disciplinary action might be taken in such cases on the basis of information obtained independently). As before, no form of immunity was provided in cases involving accidents or criminal offenses, and FAA remained free to take remedial action to ensure safety. (See Mar 16, 1979.)

Apr 27, 1976: An American Airlines **Boeing 727 crashed on landing at Charlotte Amalie** on St. Thomas in the Virgin Islands, killing 37 of 88 persons aboard. The accident, the third crash of a jetliner at St. Thomas's Truman Airport in less than 8 years, revived criticism of the airport as unsafe because of a short runway (4,650 feet), mountainous surroundings, and tricky winds. Later in the year, Transportation Secretary William T. Coleman announced that grants would be provided to assist in **building a longer runway**.

May 5, 1976: The United States, France, and the United Kingdom concluded an **agreement providing for the monitoring of ozone levels** in the stratosphere and cooperation to ensure that the ozone layer was not degraded by emissions from supersonic transports. (See Feb 4, 1976, and Sep 23, 1977.)

May 24, 1976: The FAA Depot at Oklahoma City completed a highly successful **emergency resupply of the FAA Center/Approach Control (CERAP) facility on Guam** following the destruction wrought three days earlier by Typhoon Pamela. The depot primarily resupplied air traffic control equipment lost when winds of up to 170 miles per hour swept the island.

Jun 1976: FAA received delivery of the **first prototype microwave landing system (MLS)**. The program--a high-priority undertaking begun in 1971 and participated in by FAA, DOD, and NASA--was considered a key element of the upgraded third generation air traffic control system (see Jul 1971). FAA planned to test the prototypes at the National Aviation Facilities Experimental Center, in Atlantic City, and at a NASA base in California. (See Jul 22, 1975, and Mar 16, 1977.)

Jun 2, 1976: In a suit brought by a citizens group known as Virginians for Dulles, the U.S. Court of Appeals for the Fourth Circuit held that the **"vastly expanded use" of Washington National and Dulles International Airports over recent years required FAA to file Environmental Impact Statements** concerning the operations of these airports. (See Mar 23, 1978.)

Jun 6, 1976: The **air route traffic control center at Great Falls, Mont., closed** after 34 years of service. Great Falls was the last of 10 centers phased out in a program begun in the early 1960s to consolidate en route air traffic control. Its closing left only 20 modernized ARTCCs within the contiguous U.S. FAA had been reducing the airspace controlled by Great Falls since 1970. (See Appendix V.)

Spring, 1976: FAA installed a **prototype wake vortex advisory system (VAS)** at Chicago O'Hare airport (see Nov 1, 1975). The prototype's computer was designed to analyze wind measurements collected in the runway area in order to predict aircraft wake turbulence, or give assurance of its absence. This would make it possible for controllers to safely reduce the separation distances between landing aircraft and thereby expand airport capacity. FAA subsequently removed the VAS, however, concluding that it did not provide sufficient data for the purpose. (See Dec 18, 1992.)

Jul 1, 1976: The principal provisions of **FAA's hazardous materials rules became incorporated into the regulations of DOT's Materials Transportation Bureau**. The change resulted from legislation that gave the Secretary of Transportation increased regulatory and enforcement authority over the movement of hazardous materials in all the transportation modes (see Jan 3, 1975). DOT had accordingly established the Materials Transportation Bureau, and transferred the authority for regulation of hazardous materials from the various administrations, including FAA, to the new Bureau (see Sep 23, 1977).

Jul 12, 1976: FAA put into effect a national **beacon code allocation plan** under which pilots flying in the contiguous U.S. would be able to keep the same radar beacon identification code from takeoff to landing, without having to change codes as had previously been required when they flew from one area or altitude to another.

Jul 12, 1976: President Ford signed Public Law 94-353, the **Airport and Airway Development Act Amendments of 1976**, ending a one-year lapse in authorization for Federal airport aid (see Jun 30, 1975). The legislation marked the third time that the Airport and Airway Development and Revenue Acts of 1970 were amended (see May 21, 1970, Nov 27, 1971, and Jun 18, 1973). The new law sharply **raised the Airport Development Aid Program (ADAP) funding levels** to a total of \$2.73 billion for the five-year period 1976-1980. It also increased the Federal share for ADAP grants from 50 percent to 75 percent for the nation's 67 largest airports. For smaller airports, the Federal share rose

from 75 percent to 90 percent for fiscal 1976-78 and 80 percent for fiscal 1979-80. The Federal share for planning grants rose from 66 2/3 percent to 75 percent, with some exceptions. The new law simplified funding procedures and **expanded the types of projects eligible for ADAP assistance** to include snow removal equipment as well as equipment, barriers, landscaping, and land acquisition for the purpose of airport noise abatement.

In addition, the legislation **authorized appropriations from the Airport and Airway Trust Fund** during fiscal 1976-80 of : \$1.3 billion for establishing and improving Federal air navigation facilities; \$1.5 billion for maintaining such facilities; and \$1.275 million to assist the states in developing their own general aviation airport standards. Other provisions of the law included authorizing the Secretary of Transportation to select **four states to receive demonstration grants for administering the general aviation portion of the ADAP program** (see Nov 24, 1976). The law also established **commuter service airports**, a new class of air carrier airport not served by carriers holding CAB certificates of public convenience and necessity. (See Sep 30, 1980.)

Jul 12, 1976: FAA redesignated its Office of Information Services the **Office of Public Affairs**, its name prior to a 1973 reorganization (see Sep 10, 1973). This change also transferred from Public Affairs the congressional correspondence function to the Executive Secretariat and the congressional liaison function to the Special Assistant for Legislative Affairs.

Jul 28, 1976: Capt. Eldon W. Joersz, USAF, piloted a Lockheed SR-71A "Blackbird" at 2,193.16 mph near Beale Air Force Base, Calif., setting a Federation Aeronautique Internationale absolute **world record for speed** over a straight course. (See Oct 3, 1967.)

Jul 28-31, 1976: A **slowdown by PATCO-affiliated air traffic controllers** disrupted traffic around the country. PATCO president John F. Leyden had ordered the slowdown to protest the U.S. Civil Service Commission's delay in completing a pay reclassification study for controllers. Leyden had also protested a Civil Service proposal to downgrade controllers at certain low-activity facilities. The slowdown ended when the Civil Service Commission agreed to reconsider its position and expedite the review, while FAA Administrator John L. McLucas publicly confirmed his support of upgradings at certain facilities. FAA took no disciplinary action against PATCO. (See May 7, 1975, and Nov 12, 1976.)

Aug 10, 1976: FAA announced a contract for **enhancement of its ARTS III automated terminal radar systems** (see Aug 13, 1975). Of the 65 existing ARTS III systems, 29 would be **upgraded to ARTS IIIA** installations by the addition of certain capabilities. The ARTS IIIA would provide radar tracking of aircraft not equipped with transponders, and enable controllers to place alphanumeric data tags on the scope to allow automatic reporting of identity and altitude for these targets (whereas the basic ARTS III displayed data tags only for transponder-equipped aircraft). The ARTS IIIA would also possess improved computer efficiency, as well as capacity for additional radar displays and for continued operations with reduced capabilities in the event of component failure (see Mar 1978). In addition, the contractor agreed to upgrade all 65 existing ARTS installations to permit air traffic control operations to be continuously recorded on magnetic disks.

The contract also called for the installation of a **special ARTS IIIA system at the new New York terminal radar control room (TRACON)**. Ground-breaking for the building to house the TRACON had taken place during July at Long Island's Mitchel Field. The new facility would replace the Common Radar Room at Kennedy International, which controlled traffic approaching and departing New York's three major airports and several smaller airports. (See Jan 10, 1981.)

Finally, the contract provided for installation of four **en route automated radar tracking systems (EARTS)** at air route traffic control centers in Alaska, Hawaii, and Puerto Rico, as well as at Nellis Air Force Base (see Aug 4, 1980).

Sep 2, 1976: CAB approved **Advance Booking Charter fares**, available to anyone who paid 30 days in advance (or 45 days in advance for certain destinations) and not restricted to members of pre-existing "affinity groups." Like the approval of One Stop Inclusive Tour Charters during the previous year, this move was part of a trend to liberalize charter regulations. The new competition from charter operators helped stimulate scheduled carriers to begin offering deeply discounted prepaid fares during 1977. (See Jun 10, 1977).

Sep 10, 1976: A **British Airways Trident and a Yugoslav DC-9 collided** over Zagreb, Yugoslavia, killing all 176 occupants of the two airplanes, a higher toll than in any previous civil midair collision. In May 1977, a Yugoslav court sentenced an air traffic controller to 7 years in prison for negligence in

handling the two aircraft, the first known criminal prosecution of a civilian controller for negligent performance of duties.

Sep 10, 1976: The first **successful hijacking** of a scheduled American air carrier aircraft since comprehensive security measures were instituted on Dec 5, 1972, occurred when five Croatian nationalists commandeered a TWA jetliner en route from New York's La Guardia Airport to Chicago. The hijackers seized the plane by threatening to blow it up with realistic-looking "bombs" they had assembled in a lavatory from an assortment of innocuous objects brought aboard on their persons and in their carry-on luggage. To bolster their deception, they revealed the location of a real bomb in a New York subway locker. That device exploded after removal to a disposal area, killing one policeman. The hijackers demanded that newspapers publish a pro-Croatian manifesto and that aircraft drop leaflets over cities in the U.S., Canada, England, and France. This was complied with, and the hijackers eventually surrendered in France.

Oct 1, 1976: Fiscal year 1977 began for the Federal government. This was the **first Federal fiscal year to begin on Oct 1** instead of Jul 1. Fiscal 1976 had ended on Jun 30, 1976, and the following three months had been designated a transition quarter.

Oct 1, 1976: FAA began to receive the **first prototypes of the ARTS II automated radar terminal system** for testing and evaluation. Developed under contracts concluded in Aug and Dec 1974, FAA programmed the system for installation at 71 terminals whose traffic volume did not warrant the more highly automated and much more costly ARTS IIIs in use at the major hubs. Designed around a relatively low-cost minicomputer, the ARTS II lacked certain capabilities of the ARTS III but could provide controllers using it at airports with direct alphanumeric readouts of the identity, heading, and altitude of the transponder-equipped aircraft they were tracking. (See Dec 12, 1978)

Oct 5, 1976: The Labor Department certified the **Federal Aviation Science and Technological Association (FASTA)**, a National Association of Government Employees union, as the exclusive bargaining representative of some 7,700 airway facilities employees. The employees had selected FASTA as their representative in an April 1976 election, but certification had been delayed by an objection by the American Federation of Government Employees. FAA and FASTA signed a national labor agreement in September 1977. (See Dec 31, 1981.)

Oct 15, 1976: A new nationwide standardized format went into effect for **Pilot Reports (PIREPS)**, reports by en route pilots describing in-flight weather conditions as they encountered them. FAA, the National Weather Service, and Department of Defense personnel received and encoded PIREPS into the new format and fed them into a teletypewriter network for distribution to civil and military aviation facilities around the country. Replacing earlier informal reports given by the pilots in no particular order, the new format facilitated the reading and relay of PIREPS, and made them more adaptable for use with several automated weather communication systems FAA had under development.

Nov 5, 1976: FAA commissioned the first **Minimum Safe Altitude Warning (MSAW)** system, an add-on computer software feature specially devised for use with the ARTS III radar terminal system, at Los Angeles International Airport. MSAW had the capacity to spot unsafe conditions by automatically monitoring aircraft altitudes and comparing them to terrain maps stored in the computer's memory. If aircraft descended dangerously close to the ground, aural and visual alarms on their consoles alerted controllers who could then radio warnings to pilots (see Oct 28, 1977). Sperry Rand's UNIVAC division developed MSAW under a contract announced by FAA on Jul 17, 1974. The need for such a system had been highlighted by the crash of an L-1011 near Miami (see Dec 29, 1972).

Nov 12, 1976: The U.S. Civil Service Commission, in a reversal of a position taken earlier, announced its support for **upgrading air traffic controllers** at 8 of the nation's busiest air traffic control facilities from GS-13 to GS-14. The Commission also approved the upgrading of controllers of lower grades at approximately 23 other installations, but insisted on downgradings at a few facilities. PATCO continued to demand better terms, backing its position with the threat of renewed slowdowns. On Jan 13, 1977, the Commission dropped its insistence on downgradings and approved promotions at some 45 facilities, including the GS-14 level at 8 locations. (See Mar 15, 1978.)

Nov 24, 1976: The Secretary of Transportation chose Arizona, Pennsylvania, South Dakota, and Michigan to participate in a **four-state demonstration program** mandated by Congress (see Jul 12, 1976). The chosen **states administered Federal grants for the development of general aviation airports** within their borders for fiscal 1977-78 to determine whether state agencies could manage

these funds more effectively than FAA. Although FAA recommended that the demonstration be extended beyond fiscal 1978, Congress allowed the program to expire. (See Oct 1, 1989.)

Dec 10, 1976: FAA announced completion of the **conversion of the airway intersection and waypoint identifiers** on en route aeronautical charts to five-letter code names specifically designed for use in the filing of computerized flight plans. Under the old system, pilots had listed the identifier using a geographic name based on a nearby terrain feature or town, making it necessary for persons receiving the flight plan to change the name to a computer code--a task that took time and greatly increased the chance for coding error. On the same date, FAA also announced a similar program to convert the fix names on approach and departure charts within 2 to 3 years.

Dec 21, 1976: FAA deemed **contact lenses permissible** to meet the distance visual acuity requirements for all classes of airman medical certificates, by a rule effective this date. Previous FAA regulations governing medical certification had allowed for visual correction by eye glasses only, with exceptions being made under a time-consuming waiver process. The new rule eliminated the waiver procedure. It did not affect the eye glass requirement for correcting near visual acuity.

Dec 23, 1976: FAA published a rule establishing **deadlines for phased compliance of all jet transport aircraft with the noise standards already established for new aircraft types** (see Oct 26, 1973). The agency gave operators whose fleets included aircraft that did not meet the standards the option of modifying or replacing them. FAA also required all two- and three-engine jets exceeding 75,000 lb. to comply within six years (by Jan 1, 1983), with half the total in each airline fleet to be in compliance at the end of four years. Aircraft in this category included the BAC-111, DC-9, Boeing models 727, 737, and 747-100. Non-complying four-engine jets were to meet the standards within eight years, with one-fourth of them complying within four years and one-half within six years. This category included the Convair 990, DC-8, and Boeing 707. The rule did not immediately apply to foreign-flag aircraft or U.S. aircraft on international routes, since FAA was working with the International Civil Aviation Organization to establish world-wide noise standards. If no agreement was reached by Jan 1, 1980, however, the agency would take regulatory action to ensure compliance by at least Jan 1, 1985 (see Nov 28, 1980).

The rule followed President Ford's Oct 21, 1976, announcement that noise standard compliance must be achieved within eight years. It also implemented a major provision of an **FAA-DOT noise policy dated Nov 18, 1976**. Other elements of the policy included: a **new rule, published Nov 29, requiring the use of noise abatement flap settings; a decision not to prescribe the two-segment approach procedure**, which was considered to involve unacceptable risks; and implementation of a **Local Flow Traffic Management system** aimed at reducing low-altitude jet flying time, rather than the minimum altitude regulations proposed by the Environmental Protection Agency. In accordance with another element of the policy, FAA during fiscal 1977 issued grants to four airports to participate in a **noise control and land use planning demonstration program**. (See Mar 3, 1977, Jan 19, 1979, and Feb 18, 1980.)

*1977

Jan 10, 1977: FAA published a rule **raising the maximum number of transport aircraft passenger seats per main (Type A) emergency exit** from 100 to 110, effective Feb 10, 1977. The change cleared the way for certification of Boeing 747s seating over 500.

Jan 20, 1977: **Jimmy (James E.) Carter became President**, succeeding Gerald R. Ford.

Feb 1, 1977: **Brock Adams became Secretary of Transportation**, succeeding William T. Coleman, Jr., with the change in administrations. Adams had been a Democratic congressman from the State of Washington since 1964 and a leading transportation authority in the House of Representatives. (See Jul 20, 1979.)

Mar 3, 1977: FAA published a rule establishing **three "stages" of aircraft noise levels** for subsonic large transport aircraft and subsonic turbojets. Stage 1 aircraft were those that did not meet current noise standards and hence must be modified or replaced according to a previously established schedule (see Dec 23, 1976). Stage 2 aircraft met the current standards, while Stage 3 aircraft were able to meet the **more rigorous noise standards for the next generation of jet transports** prescribed by the rule.

The agency judged that improved noise-reduction technologies made it economically reasonable to apply the new standards, which were effective on Oct 1, 1977 and covered all large (over 75,000 pounds) aircraft for which application for new type certificates had been made after May 5, 1975. Noise limits on landing approaches were reduced from the old standard of 102-108 effective

perceived noise decibels (EPNdB) to 98-105 EPNdB, depending on aircraft weight. For the first time, the standards for takeoff and sideline noise levels were based on number of engines as well as weight. Takeoff limits were reduced from the old standard of 93-108 EPNdB to 90-106 for four-engine jets, 90-104 for three engines, and 89-101 for one and two engines. Sideline noise limits were reduced from 102-108 EPNdB to 96-103 for three and four engines and 94-103 for one and two engines. In addition, the measuring points for sideline noise were altered. The new noise limits were not retroactive to aircraft types already certificated. (See Feb 18, 1980.)

Mar 16, 1977: The All-Weather Operations Panel of the International Civil Aviation Organization (ICAO) recommended to ICAO's Air Navigation Commission the adoption of the U.S.-Australian **Time Reference Scanning Beam (TRSB) technique as the world standard for a microwave landing system (MLS)**. The vote was six for the U.S.-sponsored system and one for the British Doppler system, with three abstentions (Britain, France, and West Germany). Britain protested the decision as biased and technically flawed, and hence the debate about MLS continued pending a final decision in 1978 by the full All-Weather Operations Division of ICAO. (See Jun 1976, and Apr 19, 1978.)

Mar 27, 1977: **Two Boeing 747s collided on a runway at Tenerife**, Canary Islands, under conditions of limited visibility. One of the aircraft, a Pan American jet, was moving down the runway toward an assigned taxiway. The other, belonging to Royal Dutch Airlines (KLM), had been assigned to wait at the end of the same runway. The Dutch crew was approaching the legal flight duty time limit. Their captain apparently misinterpreted a message from the tower as clearance to take off. Disregarding the doubts of a crew member, he began the takeoff roll. The resulting collision killed all 248 persons aboard the KLM jet and 335 of the 396 persons aboard the Pan American. The fatality total of 583 was the worst that had occurred in any aviation accident. Most of the casualties were caused by the intense fires that engulfed both aircraft. The accident stimulated interest in fire safety (see Jun 26, 1978) and in airport surface detection equipment (see Jul 5, 1977).

Mar 30, 1977: Secretary of Transportation Brock Adams announced the withdrawal of Federal support for a **proposed new St. Louis airport** near Waterloo, Ill. His predecessor, William T. Coleman, Jr., had given conditional approval to the Waterloo site in Sep 1976, but Adams, in reversing this decision, said that pressing ahead on a new airport there was "premature." He acknowledged that his choice had been influenced by strong political opposition in Missouri to the project, as well as by the recent signing of long-term leases by major airlines at the existing Lambert-St. Louis Municipal Airport. (Langhorne M. Bond, who became FAA Administrator on May 4, 1977, had been a leading advocate of the Illinois site while he was Illinois Secretary of Transportation. Bond agreed during his confirmation hearings not to take part in a decision on the issue.)

Apr 1, 1977: **John L. McLucas' resignation as Federal Aviation Administrator became effective**. The post of Acting Administrator was assumed by Quentin S. Taylor, an FAA executive who was President Carter's nominee for Deputy Administrator. (See entries for May 4, 1977.)

Apr 4, 1977: A Southern Airways **DC-9 crashed near New Hope, Ga**. The pilot attempted an emergency landing on a highway, but the aircraft broke apart and caught fire. The accident killed 62 of the 85 persons aboard, as well as 8 persons on the ground. In addition, one passenger and one person injured on the ground died about a month later. The National Transportation Safety Board cited the probable cause of the crash as the **total and unique loss of thrust after the engines ingested massive amounts of water and hail** as the aircraft penetrated an area of severe thunderstorms. As contributory causes, the NTSB listed: failure of the airline's dispatch system to provide up-to-date severe weather data; the captain's reliance on airborne weather radar to enter a thunderstorm area; and FAA's lack of a system for disseminating real-time hazardous weather warnings. (See May 19, 1977.)

Apr 1977: FAA set up a unique transport unit of the Miami General Aviation District Office to provide **greater oversight of non-certificated air cargo operations concentrated in the northwest corner of Miami airport**. Recent accidents had given rise to FAA concerns about the safety of these operators of private-carriage cargo aircraft for lease.

May 4, 1977: **Langhorne M. Bond became the seventh Administrator of the Federal Aviation Administration**, succeeding John L. McLucas (see Mar 31, 1977). Bond had been nominated by President Carter on Mar 30 and confirmed by the Senate on Apr 27.

Born in Shanghai, China, in 1937, Bond was the son of a vice president of Pan American Airways. After earning an A.B. (1959) and law degree (1963) at the University of Virginia, he went on to study

at the Institute of Air and Space Law at McGill University, the London School of Economics, and Oxford University. Bond was a member of the task force that developed the legislation establishing the U.S. Department of Transportation, and then served one-year stints as special assistant to the first DOT Secretary, Alan S. Boyd, and as Assistant Administrator for Public Affairs in DOT's Urban Mass Transportation Administration. He left Federal service in 1969 to become Executive Director of the National Transportation Center, a nonprofit research organization in Pittsburgh that managed bus technology projects for transit authorities. In Mar 1973, Bond was named Secretary of Transportation for the State of Illinois, the position he held when tapped for the FAA job. He served as FAA Administrator for the remaining three years and eight months of the Carter Administration. (See Jan 20, 1981.)

May 4, 1977: **Quentin S. Taylor became FAA's Deputy Administrator**, succeeding James E. Dow (see Mar 31, 1976). A career civil servant, the 41-year-old Taylor was Director of FAA's New England Region when President Carter nominated him for the Deputy post on Mar 30, 1977.

Born in Front Royal, Va., he held degrees from Howard University in electronic engineering and Syracuse University in political science. Taylor joined FAA in 1959 as an electronics engineer assigned to the Airway Facilities Service and served successively as a staff specialist in the Office of Appraisal, Special Assistant to the Associate Administrator for Administration, FAA's first Director of Civil Rights, and Deputy Director of the Alaskan Region. His appointment to the New England Region's top post in Feb 1975 made him the first African American to head an FAA region.

Taylor served as Deputy Administrator for the remainder of the Carter Administration, resigning on Jan 20, 1981. He continued his FAA career, serving as Consultant to the Office of the Administrator, then Director of the Office of International Aviation, and later Deputy Assistant Administrator for Airports. (See Aug 1, 1981.)

May 7, 1977: The **pilots of Wien Air Alaska went on strike** when the company determined to reduce its Boeing 737 cockpit crew to two pilots (see Nov 23, 1971). The strike lasted 21 months, but Wien maintained partial operations by hiring nonunion pilots. On Nov 2, 1978, President Carter created a Presidential Emergency Board to help settle the dispute. Three months later, on Feb 9, 1979, the board reported that both parties had agreed to accept a two-man crew for 737 operations. This settlement left only United and Western among U.S. airlines with a three-man crew for the 737. (See Feb 21, 1976 and Mar 27, 1980.)

May 12, 1977 Administrator Bond imposed an agency-wide **hiring and promotion freeze**. At FAA's national Headquarters and its Metropolitan Washington Airports office, the freeze affected both external and internal hiring. Field offices, however, could fill positions from within FAA, as long as promotions were not involved. The few exceptions to these rules included hiring required to meet air traffic training schedules. To further trim back Washington Headquarters personnel, Bond later instituted a **field placement program between Mar 27 and Oct 24, 1978**. Under the program, field offices could not fill vacancies until it was determined that qualified candidates were available at the Washington Headquarters. During his tenure, Bond succeeded in reducing overall FAA employment from 58,081 at the end of fiscal year 1977 to 55,340 on Dec 30, 1981. During the same period, Washington Headquarters personnel fell from 2,683 to 2,069.

May 16, 1977: A Sikorsky S-61L **helicopter parked atop New York's Pan Am Building rolled on its side** due to collapse of a landing gear. Rotating blades killed four boarding passengers, and one pedestrian on a street below died when struck by a separated blade portion. Originally opened in 1965, the controversial heliport had closed in Feb 1968 because of a contract dispute, then reopened on Feb 1, 1977. The facility closed permanently after the accident.

May 16, 1977: **Regulations regarding airline transportation of disabled passengers** went into effect after several years of discussion and debate. Noting increasing complaints on the subject, CAB had in 1971 referred the issue to FAA for determination of relevant safety parameters. After a series of hearings, FAA had in Jul 1974 proposed a comprehensive, detailed set of safety regulations. Public reaction was strongly negative, largely because many believed that the proposed rules placed unfair restrictions on disabled travelers.

Guided by research and tests by the Civil Aeromedical Institute (CAMI), FAA adopted a more flexible approach in its Mar 1977 rule. The agency ordered each air carrier to develop its own set of procedures, appropriate to its particular aircraft and operations. FAA would then review these procedures and direct any changes needed for safety or the public interest. Airlines were prohibited from denying passage to anyone who met the criteria in its FAA-approved plan. In addition, the new

rule specifically prohibited airlines from barring a passenger because of his or her inability to sit up in an airline seat, and required individual briefings on evacuation procedures for all disabled persons before takeoff. (See Mar 2, 1990.)

FAA had originally proposed to require that canes and crutches be readily available for use during evacuation. The agency decided against this, however, citing CAMI research indicating that canes and crutches might actually hamper evacuation and might puncture inflatable evacuation slides. (See Nov 20, 1981.)

May 19, 1977: FAA issued a **rule requiring each air carrier to obtain approval by year's end for its system of gathering and disseminating information on adverse weather** that might affect safety. Current rules already required airlines to supply flight crews with pertinent weather data, but contained no provision for FAA approval of these weather information systems. In proposing this rule in a notice published on Nov 15, 1976, FAA cited factors that included an accident at St. Louis (see Jul 23, 1973). Following this proposal, the need for such a rule was highlighted by an accident in Georgia (see Apr 4, 1977).

Jun 10, 1977: The Senate confirmed **Alfred E. Kahn as Chairman of the Civil Aeronautics Board (CAB)**. A former economics professor at Cornell, Kahn was a long-time champion of free market competition. Although the effort to increase competition in air transportation had begun before President Carter appointed him (see Sep 2, 1976), Kahn carried it much further. During his 15 months at CAB, the Board approved major fare reductions and awarded many new routes and services, such as the transatlantic Skytrain (see Sep 16, 1977). Kahn's policies at CAB helped pave the way for legislation that virtually ended the economic regulation of airlines. (See Nov 9, 1977.)

Jun 16, 1977: FAA published a **rule requiring the installation of shoulder harnesses on the front seats of new small airplanes** weighing 12,500 pounds or less that were manufactured after Jul 18, 1978. This rule upgraded safety standards included in an Aug 1, 1969, rule that required manufacturers of small aircraft to provide protection against head injuries for all occupants. This protection was to be achieved through seat belts in combination with either harnesses, energy-absorbing rests, or the elimination of injurious objects within striking radius of the head. The added requirement concerning harnesses for front seats stemmed from a Jan 1973 rulemaking proposal that followed recommendations by the National Transportation Safety Board and a petition from consumer advocate Ralph Nader. (See Nov 13, 1985.)

Jul 5, 1977: FAA announced award of a contract for an engineering model of a new generation of **Airport Surface Detection Equipment, designated ASDE-3**. ASDE surface radar had been in service at U.S. airports since Sep 1960 (see that date). FAA planned to use ASDE-3 as a replacement for the ASDE-2 systems in use at 13 airports, as well as to install ASDE-3 at additional locations. The new equipment would provide clearer outlines of runways and taxiways while at the same time suppressing radar returns from buildings and rainfall. In Apr 1977, FAA had ordered display enhancement units for the ASDE-2 as an interim measure.

FAA ordered the ASDE-3 engineering model a few months after a ground collision in the Canary Islands caused 583 deaths (see Mar 27, 1977). Deficiencies in surface radar had earlier been cited by the National Transportation Safety Board as a factor in a crash in fog involving a North Central Airlines DC-9 and a Delta Airlines Convair 880 that killed 10 passengers on the night of Dec 20, 1972, at Chicago's O'Hare International Airport. (See Aug 1979.)

Jul 13, 1977: FAA gave uninterrupted air traffic control service during a **massive electric power failure** that left approximately 9 million people in the New York City area without electricity for periods ranging from 5 to 25 hours. The uninterrupted service was possible because of the **continuous power airport program** that FAA had begun after an earlier massive blackout, in 1965, initially selecting 50 key airports to be equipped with standby engine generators. (See Sep 19, 1974.)

Jul 21, 1977: FAA issued an advisory circular on **ozone irritation in aircraft cabins**. Beginning in the winter of 1976, persons on high-altitude flights had reported such symptoms as shortness of breath, coughing, and eye irritation. By Mar 1977, FAA had concluded that ozone was the probable cause. Although the main atmospheric ozone layer lies above altitudes normally used by airliners, concentrations of the gas occasionally descend lower, particularly at high latitudes and during certain seasons of the year. FAA recommended that pilots descend to lower altitudes if effects of ozone contamination were noted. If pilots experienced significant exposure to the gas, they were advised to breathe pure oxygen before landing to counteract ozone's known effect on night vision. FAA also undertook research on more permanent ways of dealing with the problem. (See Feb 20, 1980.)

Jul 23, 1977: The **United States and the United Kingdom signed the "Bermuda II" agreement** governing civil air services between the two countries. Negotiations had been completed a month earlier, only shortly before an impending cessation of U.S.-U.K. air travel. On Jun 22, 1976, the British had given a year's notice of the termination of the original, landmark Bermuda pact (see Feb 11, 1946). Among their objectives were to increase their share of transatlantic passenger revenue by instituting capacity restrictions and to curtail American air carriers' "fifth freedom" rights to fly passengers east from London and west from Hong Kong. The U.S. negotiating team, led by former Secretary of Transportation Alan S. Boyd, argued for open competition. The resulting compromise: placed limits on American fifth-freedom rights; restricted situations in which more than one U.S. carrier served the same U.S.-U.K. route; and established a procedure that governments might use to control capacity. On the other hand, the treaty opened new routes for airlines of both countries, allowed the entrance of new carriers into the U.S.-U.K. market, and resulted in lower fares. (See Sep 26, 1977 and Mar 10, 1978.)

Aug 4, 1977: FAA Administrator Bond signed a **policy paper reaffirming the age-60 rule** on mandatory retirement of airline pilots (see Mar 15, 1960). Bond had promised to review the rule during his confirmation hearings. Citing a new study by FAA's Office of Aviation Medicine, the policy paper concluded that medical examination could not sufficiently predict the future health and functional capacity of a pilot who reached age 60. (See Dec 29, 1979.)

Aug 23, 1977: In the desert at Shafter, Calif., Bryan Allen made the **first flight propelled by human muscle through a one-mile, figure-eight course**. Allen pedaled the course in the Gossamer Condor, a heavier-than-air craft weighing less than 70 pounds that had been designed by Paul MacCready. Nearly two years later, on Jun 12, 1979, Allen made the **first human-powered flight across the English Channel**, pedaling the MacCready-designed Gossamer Albatross.

Aug 29, 1977: FAA published a notice in the Federal Register announcing the **elimination of seven of eleven FAA advisory committees** as the result of a review conducted under President's Carter's order for a strict evaluation of such committees. The eliminated committees were: the Citizens Advisory Committee on Aviation; the Microwave Landing System Advisory Committee; the U.S. Advisory Committee on Obstacle Clearance Requirements; the U.S. Advisory Committee on Visual Aids to Approach and Landings; the U.S. Advisory Committee on Terminal Instrument Procedures; the Flight Information Advisory Committee; and the Southern Region Air Traffic Control Committee. The remaining committees were: the Air Traffic Procedures Advisory Committee; the Radio Technical Commission for Aeronautics (RTCA); the Technical Advisory Committee, later terminated on Mar 1, 1978; and the High Altitude Pollution Program Technical Advisory Committee, later terminated on Jul 1, 1982.

Sep 7, 1977: The **Aircraft Loan Guaranty Program** lapsed on this date as Congress had failed to provide funds for program, which had guaranteed loans of \$307 million during its 20-year existence. (See Jun 13, 1968, and Oct 24, 1978.)

Sep 9, 1977: **FAA abolished the Executive Secretariat** in the Office of the Administrator and transferred all of its functions, except administrative support and correspondence control and review, to other national headquarters elements.

Sep 15, 1977: The **dynamic simulation radar controller training laboratory (DYSIM)** became operational at the Denver Air Route Traffic Control Center, the last of the 20 centers to be so equipped. FAA had determined that it was better to train new center controllers on a simulator than on an operational ATC sector, and began a program in 1975 to provide the centers with training equipment that duplicated all the conditions experienced on operational NAS En Route Stage A display equipment.

Sep 15, 1977: **FAA formally notified the U.S.-European Aerosat council that the United States was withdrawing from the satellite project**, following a congressional cut-off of funds for the program. Aerosat's objective was to increase the communications capacity over the North Atlantic. Originally a European idea, the project had long been marked by controversy over shared ownership, radio bands, and costs. (See Nov 12, 1974.)

Sep 16, 1977: FAA closed the **Airport District Offices** at Denver, Salt Lake City, and Pierre, South Dakota, and transferred their services to Colorado, Wyoming, Utah, and South Dakota to the Rocky Mountain Regional Office at Aurora, Colorado.

Sep 23, 1977: At the end of the 16-month trial of the Anglo-French Concorde supersonic transport at Dulles International Airport (see Feb 4, 1976), Secretary of Transportation Brock Adams announced

proposed permanent rules for civil supersonic transport (SST) operations in the United States. Most of these related to the new noise restrictions adopted in 1977. Secretary Adams proposed to exempt the 16 Concorde manufactured before Jan 1, 1980, from retrofit requirements for older jet transports (see Dec 23, 1976), while requiring future SST's to meet all noise standards for newer subsonic aircraft (see Mar 3, 1977). In view of the exceptional loudness of the Concorde, however, the ban on Concorde operations between 10 p.m. and 7 a.m. was retained, as was the absolute prohibition on supersonic flight over land. In addition, **the Concorde was granted permission to land** at Washington, New York, and 11 other American cities.

These proposed regulations became final on Jul 31, 1978, after several more public hearings on the subject. At that time, FAA justified its "grandfather clause" for the first 16 Concorde by noting that they constituted the entire production run of the aircraft. (Because of its high fuel costs and limited payload, the Concorde had been purchased only by the state airlines of France and Britain.) FAA felt that modifications that would bring these aircraft into compliance with subsonic noise standards were neither technologically practicable nor economically reasonable. On the other hand, some restrictions on the Concorde were justified by thorough analysis of FAA test results on the plane's loudness, which showed that the perceived noise generated by a Concorde on its takeoff path was double that of a Boeing 707, four times that of a Boeing 747, and eight times that of a DC-10. FAA also reviewed a number of environmental concerns that had been expressed about SSTs, the most important of which was the fear that emission from SST engines might damage the ozone layer of the earth's atmosphere (see May 5, 1976). Citing a number of recent research studies, including one submitted by the National Academy of Sciences, FAA concluded that the possibility of such damage from the Concorde was too small to be an immediate concern.

Sep 23, 1977: The **Research and Special Programs Administration (RSPA) came into being** as a new element of the Department of Transportation. RSPA received responsibility for many issues common to all transportation modes, and for a variety of special programs. Its responsibilities included: ensuring the safe movement of hazardous materials and the safe operation of pipelines; improving cargo security; facilitating cargo movement; and conducting research in support of a range of Departmental programs. Organizations placed under RSPA included: the Materials Transportation Bureau (see Jul 1, 1976); the Transportation Safety Institute (see Feb 23, 1971); and the Transportation Systems Center, which had conducted much of DOT's multimodal research since its creation in 1970. (On Sep 18, 1990, the Transportation Systems Center was renamed the Volpe National Transportation Systems Center.) After 1984, RSPA assumed responsibility for collecting air carrier economic data (see Dec 31, 1984).

Sep 1977: The new **consolidated Washington Flight Service Station** (co-located with the Air Route Traffic Control Center at Leesburg, Va.) became operational after the installation of a computerized data-retrieval system. The new station handled all the flight services previously provided by the stations at Washington, Richmond, and Charlottesville. Instead of the experimental AWANS computer system (see Feb 1976), the new Leesburg station used another system, called **Meteorological and Aeronautical Presentation System (MAPS)**, which was more compatible with the ARTCC's computers. The AWANS originally ordered for Leesburg was installed at another co-located FSS at the Indianapolis ARTCC. After testing both modernized stations, the FAA concluded that FSS consolidation offered the prospect of significant improvements in cost and service. (See Jan 1978.)

Sep 26, 1977: Laker Airlines' **low-cost "Skytrain" transatlantic service** made its first flight from New York to London, signalling the start of a revolution in international air fares. The new standby fare for the British airline had been a part of the new Bermuda II treaty (see Jul 23, 1977). On the same day, President Carter moved to regain the initiative for the United States by approving a package of new low-cost standby and reserved fares for U.S. scheduled transatlantic flag carriers. On Dec 21, he also moved to increase the extent of transatlantic service, approving new routes for 11 American cities. (See Mar 10, 1978.)

Oct 17, 1977: **A U.S. Supreme Court decision ended the long dispute over landing rights for the Anglo-French Concorde supersonic transport at New York Kennedy airport.** In 1976, Secretary of Transportation William T. Coleman had allowed a 16-month trial of the Concorde at Washington and New York (see Feb 4, 1976); however, the Port Authority of New York and New Jersey, operator of Kennedy airport, had banned the Concorde pending further study of its environmental impact. During the spring of 1977, citizens concerned about the Concorde's potential noise conducted

demonstrations that included the deliberate snarling of automobile traffic by driving cars very slowly down Kennedy's access roads.

Meanwhile, on May 11, 1977, a Federal District Court ruled that the Port Authority's landing ban was illegal because it was in "irreconcilable conflict" with Federal prerogatives. A month later, on Jun 14, the U.S. Court of Appeals for the Second Circuit modified this ruling, holding that the Port Authority had the right to establish "fair, reasonable, and nondiscriminatory" noise standards. The Court of appeals sent the case back to the District Court to determine whether the Port Authority's actions met the "fair, reasonable, and nondiscriminatory" test. On Aug 17, the District Court ruled that the Port Authority's long delay in formulating noise standards constituted unreasonable and discriminatory treatment of the Concorde. It was this decision that the Supreme Court upheld. **Concorde passenger service from New York to London and Paris began on Nov 22, 1977.**

Oct 18, 1977: **FAA required operators of certificated airports to provide emergency medical plans** for medical assistance, transportation, and crowd control for an emergency involving the largest aircraft that might reasonably be expected to serve their airports. FAA based the action on deficiencies discovered in a random review of airport emergency plans. (See May 21, 1973, and Nov 9, 1987.)

Oct 28, 1977: FAA announced that **Minimum Safe Altitude Warning (MSAW)** was operational at all 63 major U.S. airports equipped with ARTS III automated terminal radar systems. (See Nov 5, 1976 and Sep 30, 1981.)

Nov 9, 1977: President Carter signed **legislation virtually ending economic regulation of air cargo operations**. The President stated his hope that this was the first of many such steps to reduce regulation. (See Jun 10, 1977, and Oct 24, 1978.)

Nov 20, 1977: Teams of **dogs specially trained to detect explosives** were in place at a network of 29 U.S. airports chosen so that no airliner flying over the United States would be more than 30 minutes away from one of the designated facilities. The placement of dog teams at San Juan airport marked the complete implementation of a joint FAA-Law Enforcement Assistance Administration (LEAA) program begun in 1972 (see Dec 29, 1975). Between 1972 and 1977, dogs had detected the presence of explosives in aircraft cargo on 21 occasions. FAA assumed full financial support for the program after Jul 1, 1981, when LEAA terminated its participation.

Dec 1, 1977: **A new air route system between Hawaii and the U.S. mainland** permitting more direct flight paths and greater fuel economy on the 2,500-mile trip became permanent, following a successful six-month test that began in May 1976. The new system provided six great circle routes between Hawaii and the U.S. west coast in place of the previous four essentially parallel routes. The increase in routes was made possible by the use of composite separation criteria that permitted lateral separation of as little as 50 miles instead of the previous 100, so long as the aircraft had at least 1,000 feet vertical separation. The procedure had been used successfully on North Atlantic routes for some time.

*1978

Jan 10, 1978: **A conflict alert system designed to warn air traffic controllers of potential midair collisions in busy terminal areas** became operational at Houston International Airport, the first Automated Terminal Radar System (ARTS III) to be so equipped. The terminal conflict alert system was similar to the one installed in the 20 Air Route Traffic Control Centers (see Jan 9, 1976). In Apr 1980, FAA completed the commissioning of conflict alert at 62 designated terminals.

Jan 20, 1978: Fulfilling one of President Carter's campaign promises, the Federal Aviation Administration and other executive agencies used the **Zero Based Budget (ZBB)** process in submitting its fiscal year 1979 budget proposal. In applying ZBB principles, the Office of the Secretary of Transportation divided FAA's budget into 16 "decision units" which were expected to facilitate budget choices. For each unit, FAA developed four "decision packages," reflecting four different funding levels, and then ranked the packages in priority order. ZBB continued during the Carter years but was discontinued under the Reagan Administration.

Jan 1978: FAA and the Office of the Secretary of Transportation submitted to Congress a **new master plan for the long-delayed modernization of FAA's 292 flight service stations (FSSs)**. The plan involved a three-stage process to complete system automation. The first stage involved the installation of semi-automated computer equipment at the 43 busiest stations. The second involved a choice between: the eventual consolidation of all 292 stations into 20 large ones, co-located at the 20 Air Route Traffic Control Centers (ARTCCs), and modernization of up to 150 of the existing stations at

their present sites. The decision on this stage could be postponed until 1982. The third stage would add the capacity for pilot self-briefings, thus completely automating the most important FSS function. FAA estimated that if the FSS system was left unchanged, up to 11,500 specialists would be needed to operate it by 1995, as opposed to only 4,500 in 1978. (See Sep 1977 and Jun 1979.)

Feb 22, 1978: Secretary of Transportation Brock Adams **nominated the terminal building at Dulles International Airport for the National Register of Historic Places**. Long recognized for the excellence of its design (see Jun 28, 1966), the terminal was ranked third on a list of important structures of the nation's first 200 years in a 1976 poll sponsored by the American Institute of Architects. Concerns about FAA's aesthetic stewardship of the terminal increased in 1977, when the agency announced plans for a large addition and stated its unwillingness to nominate the building to the National Register. After considerable public discussion, the proposed addition (for waiting rooms on the side of the terminal facing the airfield) was generally approved by critics. Inclusion on the National Register guaranteed that any future modifications would be submitted for review by the President's Advisory Council on Historic Preservation. Before actually placing the Dulles terminal on the National Register in May 1978, the Secretary of the Interior granted it a special exception from the Register's rule excluding buildings less than 50 years old.

Mar 10, 1978: The **United States and the Netherlands signed a new international aviation agreement, based on the principle of free competition** and regarded as a model for similar understandings that the United States hoped to negotiate. On Mar 17, the United States also announced a new agreement with the United Kingdom, within the context of the Bermuda II treaty (see Jul 23, 1977), making possible a range of lower fares between the two nations. During 1978, the United States concluded liberal new aviation agreements with Israel and several other nations. In an Aug 21 statement explaining its negotiating stance, the Carter Administration declared that "maximum consumer benefits can be best achieved through the preservation and extension of competition between airlines in a fair market place."

Mar 15, 1978: A three-year **labor-management agreement between PATCO and FAA** went into effect. Since the controllers' pay had recently been adjusted in their favor by the Civil Service Commission (see Nov 12, 1976), the agreement dealt primarily with working conditions. The contract contained 75 articles, including provisions for overtime pay. In addition, FAA agreed to pay controllers' salaries while on foreign as well as domestic familiarization flights. Previously, only controllers who handled international flights were eligible for overseas familiarization trips. In the past airlines had always provided free familiarization flights for eligible controllers, but now the principal overseas air carriers balked at the prospect of providing cockpit space on international flights for all air traffic controllers at the GS-10 or higher level. Even domestic familiarization flights were difficult to arrange in 1978 because of the airlines' own active training programs. (See May 25, 1978.)

Mar 16, 1978: In a regulation effective on this date, FAA permitted temporary operation of an aircraft without the required **emergency locator transmitter (ELT)**. The rule responded to an amendment to the legislation that had mandated ELT use on most civil aircraft (see Dec 29, 1970). Because the equipment frequently malfunctioned, emitting false signals and causing other problems, Congress changed the law to permit operation of an aircraft for up to 90 days while its ELT was being inspected, modified, repaired, or replaced. (See Mar 28, 1979.)

Mar 23, 1978: In response to a Federal court order (see Jun 2, 1976), FAA issued draft **Environmental Impact Statements concerning the operation of Washington National and Dulles International Airports** and published a notice of proposed policy for these airports. After comments on this proposal had been considered, **Secretary of Transportation Neil Goldschmidt announced a new policy for National Airport on Aug 15, 1980**. The new policy included: a 17 million cap on the number of passengers permitted at National per year; retaining the 60 slots per hour provided by the High Density Rule (see Jun 1, 1969), while reducing the share of slots for Part 121 air carriers from 40 to 36; prohibiting all departures between 10:30 pm and 7:00 am, and all arrivals between 11:00 pm and 7:00 am; lifting the ban on 2- and 3-engine widebody jets; and extending the nonstop service perimeter rule from a radius of 650 to 1,000 miles, with no exceptions (see Apr 24, 1966).

The new policy was scheduled to take effect on Jan 5, 1981, but its **implementation was delayed**. Because Congress attached a rider to DOT's fiscal 1981 appropriations act that prohibited FAA from reducing the number of Part 121 airline slots until Apr 26, 1981, FAA decided to postpone the entire policy until after that date. Shortly after his inauguration, President Ronald Reagan pushed the

effective date back again by his Feb 17, 1981, executive order that postponed final approval of pending regulations until the issuing agencies had reconsidered their actions. Because of this order, the new Secretary of Transportation, Drew Lewis, on Mar 25 ordered a review of the Goldschmidt policy and postponed its effective date until Oct 25, 1981. (See Nov 3, 1980, and Dec 6, 1981.)

Mar 27-28, 1978: In an extreme example of opposition to new airports, about **6,000 demonstrators rioted at the new Tokyo Airport** near Narita, Japan, on the eve of its scheduled opening, some smashing equipment inside the control tower. Protesting farmers and students had already delayed the airport opening for five years, largely by erecting tall towers along the flight paths. The airport eventually opened on May 20.

Mar 1978: The **first ARTS-III, an improved model of the Automated Radar Terminal System III, became operational** at the FAA Academy in Oklahoma City (see Aug 10, 1976). Features of the new model included the capacity to track and identify planes not equipped with transponder beacons, and a backup system to maintain alphanumeric tags on controllers' screens in case of a computer failure in the primary circuits. (See Dec 1979.)

Apr 6, 1978: Eastern Air Lines signed a \$778 million contract to add 23 **Airbus Industrie A-300** aircraft to its fleet. FAA Administrator Langhorne Bond called the airplane "the strongest challenge to the U.S. aircraft industry in years," reflecting widespread concern about the absence of an American entry in the market for smaller wide-body jets to replace the aging first generation of jet transports. Airbus Industrie had mounted an aggressive campaign to secure the Eastern order, allowing the airline to operate four A-300s on a six-month cost-free lease, with the manufacturer paying for all legal fees, tariffs, certification charges, maintenance, and repairs. Airbus Industrie provided \$96 million in financing and promised to compensate Eastern for certain operating costs.

Apr 17, 1978: **National Weather Service meteorologists began working at 13 of FAA's Air Route Traffic Control Centers** under a recently signed agreement between the two agencies. At each of those centers, a team of three NWS meteorologists provided information on hazardous weather throughout the day to center controllers, as well as to FAA towers and flight service stations. FAA provided each center with new equipment for receiving data from NWS weather radar and satellites. This new program was part of a general effort to provide pilots with more en route weather information, since the lack of accurate knowledge of hazardous weather, particularly thunderstorms, had been found responsible for several air crashes (see May 19, 1977). NWS meteorologists were already on duty at FAA's national flow control center in Washington, and by Nov 1980 they were stationed at all U.S. mainland en route centers.

Apr 19, 1978: The All-Weather Operations Division of the International Civil Aviation Organization (ICAO) voted to adopt the FAA-sponsored **time reference scanning beam (TRSB) microwave landing system** for future use at the world's airports. A special technical panel had earlier recommended the U.S.-sponsored system (see Mar 16, 1977), but the small size of the panel and the heated nature of its deliberations had partially discredited its conclusion. As a result, backers of the competing British and U.S.-Australian systems staged worldwide lobbying campaigns to support the adoption of their system. When the ICAO body began its meeting in early April, the decision appeared to be further complicated by the late entry of a West German MLS based on distance-measuring equipment (DME). The FAA delegation, however, agreed to begin research on how to incorporate the 360-degree azimuth coverage of the DME system into the TRSB. This helped to clear the way for the selection of TRSB by a vote of 39 to 24, with 8 abstentions. Although the TRSB was now referred to the Air Navigation Council of ICAO for the definition of standards, Third World nations at the conference succeeded in gaining agreement to a ten-year extension (from 1985 to 1995) of the period during which existing instrument landing systems would be protected. (See Jan 28, 1982.)

Apr 20, 1978: **FAA proposed a new and much higher schedule of user fees** for certificating airmen and for aircraft registrations. The agency based the proposal on an existing government policy, contained in a statute of 1952, that individuals or groups receiving special services from Federal agencies should pay their cost. In 1967, FAA had proposed a new fee schedule, but withdrew the proposal after the General Accounting Office pointed out that it did not entirely meet the costs of the services supplied. The April 1978 proposal encountered considerable opposition from within the aviation community, and Congress adopted legislation prohibiting FAA from implementing the proposed fees without prior congressional approval. **FAA withdrew the proposal on May 8, 1981**, stating that the data on which it was based were no longer valid.

May 25, 1978: **PATCO began intermittent slowdowns** to protest the refusal of some U.S. flag carriers to provide controllers with overseas familiarization flights. The slowdowns lasted until May 26 and were renewed on Jun 6-7. Delays were especially severe because of the increased air travel resulting from new low transatlantic and domestic fares (see Mar 15, 1978, and Jun 21, 1978).

Jun 19, 1978: President Jimmy Carter signed a law renaming the FAA Aeronautical Center at Oklahoma City the **Mike Monroney Aeronautical Center**. A. S. ("Mike") Monroney represented Oklahoma in both houses of Congress for 30 years, and served as chairman of the Senate Aviation Subcommittee from 1955 until his retirement in 1969. He was a principal sponsor of the Federal Aviation Act (see May 21, 1958), the Airport and Airways Development Act (see May 21, 1970), and many other pieces of aviation legislation. The Aeronautical Center, located in Oklahoma City through Monroney's efforts, was then the largest FAA facility, incorporating the FAA Academy, the central records center for aircraft and airmen's certificates, a major FAA supply depot, and the Civil Aeromedical Institute (see Dec 13, 1959). On Oct 13, 1978, Administrator Bond presided over ceremonies rededicating the facility.

Jun 21, 1978: The Professional Air Traffic Controllers Organization (PATCO) agreed to obey a Federal-court injunction and end a "**work to rule**" **slowdown** by its members that had intermittently snarled air traffic during the spring, particularly during the period May 25-26 and Jun 6-7 (see May 25, 1978). PATCO also agreed to pay a fine of \$100,000 to the Air Transport Association for violating the permanent injunction won by the ATA in 1970 against air traffic slowdowns (see May 4, 1979).

Jun 26, 1978: FAA established the **Special Aviation Fire and Explosion Reduction (SAFER) Advisory Committee** to examine the topic of post-crash survival of aircraft cabin occupants. The committee's 24 members were drawn from airlines, aircraft manufacturers, universities, research organizations, as well as flight and cabin crews. Formation of the committee resulted from two hearings held by FAA during 1977 regarding four rulemaking proposals concerning fire hazards in transport aircraft. The hearings reflected a consensus that the issues addressed in the four rules were interrelated and should be addressed systematically as one problem.

In view of the SAFER committee's establishment, FAA on Aug 24 published a notice withdrawing the four rulemaking proposals. One of these, published on Apr 4, 1974, would have required fuel tank explosion prevention systems. The other three concerned the effects of fire on compartment interior materials: toxic gas emission standards (published Dec 30, 1974); smoke emission standards (Feb 12, 1975); and replacement of existing materials that did not meet flammability standards (Jul 11, 1975). FAA expressed confidence that it would be able to develop comprehensive standards in the near future due to ongoing research and the SAFER committee's work.

Issuance of the four proposed rules during 1974 and 1975 had followed a fiery crash at Pago Pago (see Jan 30, 1974). The collision at Tenerife further demonstrated the destructive potential of fire (see Mar 27, 1977). During 1977, FAA intensified its research on post-crash fire, and signed an agreement with the United Kingdom on cooperation in developing **anti-misting kerosene fuel, known as AMK**. In Nov 1978, FAA also announced that a **new test laboratory for fire research** would be built at its National Aviation Facilities Experimental Center. (See Sep 10, 1980)

Jul 17, 1978: At an economic summit conference in Bonn, the leaders of United States, West Germany, France, Great Britain, Japan, Canada, and Italy announced a joint resolution to isolate from international air traffic all countries harboring air hijackers. In the resolution, they stated their intent to stop all flights to any country that refused to extradite or prosecute those who have hijacked an aircraft and/or failed to return such an aircraft. The resolution also called for a ban on incoming flights from an offending nation, as well as a ban on any traffic to it by airlines of participating countries. The conferees informally agreed to make no exceptions, not even for persons escaping from totalitarian governments. Diplomatic efforts were begun to gain the agreement of as many other countries as possible.

The **Bonn Resolution** followed the doubling of hijacking attempts throughout the world in 1977 -- the death toll in hijackings for that year was 129 persons. In Dec, a Malaysian Airlines Boeing 737 crashed after being hijacked, killing all 100 persons aboard. The most spectacular incident of 1977, however, was the five-day odyssey of a Lufthansa B-737 hijacked in Oct over the Mediterranean and flown to various places in the Near East. The hijackers murdered the pilot, and later, in Somalia, threatened to massacre the other 86 people on board. Just 90 minutes before their deadline, West German commandos stormed the aircraft and rescued all the hostages. After this episode, the

International Federation of Air Line Pilots threatened a two-day international pilots' strike unless the United Nations took immediate action on air piracy. In Dec, the Flight Engineers International Association urged extradition or prosecution of hijackers held in four countries.

Jul 25, 1978: A new FAA regulation extended to both domestic and international charter operations **security screening procedures** long in effect for scheduled airlines. Although no charter aircraft operating from American airports had ever been hijacked, FAA took this action in response to two recent developments: the worldwide increase in hijacking attempts (see Jul 17, 1978), and rulings of CAB that relaxed many of the regulations that governed charter operations. The old requirement that only "affinity" groups could qualify for reduced charter fares had heretofore been regarded as a protection against hijackers, but that was among the rules no longer applied by CAB.

Aug 4, 1978: The Department of Transportation Appropriation Act signed by President Carter on this date discontinued funding for the **Air Traffic Controllers Second Career Program** (see May 16, 1972). FAA Administrator Bond said later that congressional anger over recent controller slowdowns (see Jun 21, 1978) may have cost them their special rehabilitation program, but it had in fact been under attack for some time. Two studies--by the House Appropriations Committee staff and by the General Accounting Office--were begun in 1977 and issued to Congress in 1978. The GAO report revealed that about 50 percent of the 2,580 controllers eligible to participate in the program since 1972 either declined or withdrew from training, and only 7 percent of those who had completed training actually entered the new careers they had prepared for. The cost for each successful participant had averaged \$370,000. About 1,900 former controllers had enrolled in the program, and its total cost since fiscal year 1973 had been \$104 million. The House Appropriations Committee report suggested that controllers who had been incapacitated on the job should seek rehabilitation services under the auspices of the Office of Worker's Compensation. FAA agreed that the program had not been a success and did not contest the conclusions of either report. An attempt to restore the program failed in the House of Representatives in December 1979.

Aug 10, 1978: A five-year, **FAA-funded study of the health problems of air traffic controllers** challenged the generally held view that unusually high incidences of ulcers, psychiatric problems, and other serious stress-related diseases were to be found among controllers. A team of researchers, led by Robert Rose from the University of Texas, did find higher-than-normal rates of hypertension, social drinking, and minor psychological problems among controllers. They concluded, however, that these did not lead to incapacitating conditions. The most common psychological problem they discovered was "impulse control difficulties"-- i.e., dealing with sudden emotions like anger. The researchers found that a more serious mental problem, controller burnout, was mostly limited to those controllers who expected it to occur. Despite the abnormal rates of social drinking, controllers had lower rates of alcoholism than the national average. As for hypertension, researchers cautioned against the conclusion that it was directly related to the work of controlling air traffic, since other "risk factors" were also important. The findings of the **Rose Report**, or officially the **Air Traffic Controller Health Change Study**, confirmed similar ones in studies by the FAA's Civil Aeromedical Institute. (See Mar 5, 1969.)

Aug 11-17, 1978: Ben L. Abruzzo, Maxie L. Anderson, and Larry M. Newman made history's **first balloon crossing of the Atlantic**. Flying in a helium-filled balloon dubbed the *Double Eagle II*, they lifted off from Presque Isle, Maine, and landed near the village of Miserey, France, 50 miles west of Paris.

Aug 27, 1978: FAA issued a type certificate under FAR Part 23 for the twin-turboprop **Bandeirante** aircraft manufactured by Embraer of Brazil, thus clearing the way for export to the United States. The Bandeirante was one of several foreign airplane types expected to see service on expanding U.S. commuter airline routes. The airplane could carry up to 19 passengers, and was the only non-pressurized, non-STOL airliner of its size still in production.

Sep 10, 1978: The following **changes in the Washington Headquarters organization** became effective on this date:

* The Office of General Aviation was abolished. The aviation education program was transferred to the Office of Aviation Policy.

* The Associate Administrator for Policy Development and Review was redesignated as the Associate Administrator for Policy and International Aviation Affairs.

* The Office of International Aviation Affairs was placed under the executive direction of the Associate Administrator for Policy and International Aviation Affairs. The position of Assistant

Administrator for International Aviation Affairs was retitled Director of International Aviation Affairs.

* The Office of Environmental Quality was renamed the Office of Environment and Energy to reflect the newly assigned responsibility for national aviation policy concerning energy matters (see Dec 22, 1979).

Sep 25, 1978: A **midair collision over San Diego** between a Pacific Southwest Airlines Boeing 727 and a Cessna 172 caused more fatalities than any previous civil aviation accident within U.S. airspace. All 137 persons aboard the two aircraft and seven on the ground were killed. Both aircraft were transponder-equipped and were operating in clear weather under local air traffic control when they collided at 2,600 feet. Both pilots had been warned of the presence of the other aircraft. The PSA pilot, which was overtaking the smaller plane, had received clearance for visual, "see-and-avoid" separation procedures after reporting to controllers that he had the Cessna in sight.

The National Transportation Safety Board (NTSB) concluded that the accident's probable cause was the PSA crew's failure to comply with the provisions of a maintain-visual-separation clearance, including the requirement to inform the controller if they no longer had the other aircraft in sight. The Board cited as a contributing factor the procedures that allowed controllers to authorize visual separation procedures when the capability to provide radar separation was available. NTSB member Francis H. McAdams dissented, citing the use of visual air traffic control (ATC) procedures as part of the probable cause rather than merely contributory. He also listed a number of contributing factors, mostly inadequacies of the ATC system. Among these were failure to resolve an automated conflict-alert alarm that the approach controller had disregarded on the assumption that the pilots were maintaining visual separation. (NTSB later adopted McAdams' viewpoint in an Aug 1982 amendment that included both ATC and pilot failings in the probable cause finding.)

The San Diego accident followed **another midair collision that had occurred on May 10, 1978**, between a Falcon Jet and a Cessna 150 over Memphis, Tenn., with the loss of six lives. The NTSB's finding of probable cause in that case cited the failure of controllers to maintain proper separation as well as the pilots' failure to see and avoid each other. The two accidents set off intense criticism of FAA's ATC program and the pace of its plans to develop an airborne collision-avoidance system. (See Dec 27, 1978.)

Sep 26, 1978: A Special Federal Aviation Regulation (SFAR 37) permitted persons who were not in the air transportation business to receive payment for the **carriage of candidates in Federal elections**. The SFAR responded to a Federal Elections Commission requirement that candidates pay for air transportation. As a result of the election rule, owners of private and business aircraft who offered transportation to candidates were required to comply with the rules for commercial operations (i.e., Federal Aviation Regulations Part 135 instead of the less demanding Part 91). Air taxi and charter operators strongly criticized the SFAR, which lapsed in June 1980.

Sep 1978: FAA's **Low Level Wind Shear Alert System** (LLWAS) became operational on a full-time basis at seven major airports. The agency announced that 17 other airports would be similarly equipped during 1979. The new system detected the severe downdrafts and wind changes associated with the phenomenon of wind shear (see Jun 24, 1975) by means of sensors around the airport periphery that measured wind speed and direction. A mini-computer compared the readings from these detectors with readings at the center of the airport and, when significant differences were found, sounded an alarm in the tower. Controllers could then warn pilots of the problem. In Oct 1979, FAA announced a contract for 34 more units, which would bring the number of LLWAS-equipped airports to 58. (See Jul 9, 1982.)

Oct 12, 1978: President Carter signed Public Law 95-452, establishing Offices of **Inspector General** in the Department of Transportation and several other departments and agencies. The independent offices were to conduct objective audits and investigations of programs and operations.

Oct 24, 1978: President Carter signed the **Airline Deregulation Act** of 1978 allowing immediate fare reductions of up to 70 percent without CAB approval, and the automatic entry of new airlines into routes not protected by other air carriers. CAB's authority over fares, routes, and mergers was to be phased out entirely before 1983, and, unless Congress acted, CAB itself would shut down by Jan 1, 1985. The prospective abolition of CAB brought to a culmination the work of Chairman Alfred E. Kahn at that agency (see Jun 10, 1977). Moreover, by Oct 1978, the major emphasis of deregulation had changed from an ideological campaign against government regulation to a key element in the

President's effort to curb inflation. This was highlighted by the President's appointment of Kahn as head of his anti-inflation program, which was announced on this date.

This day also ended the week-long vigil of twenty-two airline representatives who had lined up outside CAB headquarters to submit first-come-first-serve applications for dormant airline routes under the terms of the new act. By the end of the year, CAB had awarded 248 new airline routes to these applicants. Smaller communities, from which the airlines might wish to shift their operations, were guaranteed essential air services for 10 years under the act, with a government subsidy if necessary. Along with the subsidies for smaller-city service, the act provided for the inclusion of commuter airlines in the FAA equipment loan guarantee program and in uniform methods for establishing joint fares between air carriers. It also authorized the use of larger aircraft by commuter airlines. These special provisions for commuter airlines boosted their already-booming growth rates, and led to important new FAA regulations later in 1978 (see Dec 1, 1978).

The Airline Deregulation Act also **revived the aircraft loan guaranty program** (see Sep 7, 1977), raising the total amount that could be guaranteed for any eligible participant from \$30 million to \$100 million, expanding the eligible participants to include charter air carriers, commuter air carriers, and intrastate air carriers, and extending the term of eligible loans to 15 years. Congress withdrew authority for the program in 1983, however, and FAA ceased issuing new loan guarantees after Jun 30 of that year. Over its life, the program had guaranteed 106 loans totaling \$900 million. Twelve airlines had defaulted on 23 of the loans for a loss of \$182 million, but FAA had been able to recover \$132 million.

Oct 29, 1978: **Pan American World Airways discontinued most of its European services**, withdrawing from Amsterdam, Ankara, Lisbon, Paris, Moscow, Vienna, and all of Eastern Europe except Warsaw. Denouncing the new "open skies" policy (see Mar 10, 1978) as a "giveaway," the airline shifted its attention to finding a domestic merger partner.

Nov 2, 1978: FAA officially established the **Office of the Associate Administrator for Aviation Standards**, with the Office of Aviation Safety, the Civil Aviation Security Service, and the Flight Standards Service placed under its executive direction (see Jul 10, 1979). The agency retitled the position of Assistant Administrator for Aviation Safety the Director of Aviation Safety.

Nov 20, 1978: In a **joint program to deal with the hazards posed by birds** and other animals to aircraft, FAA and the Fish and Wildlife Service of the Department of Interior agreed to improve training programs for airport personnel and conduct more sophisticated research on the problem. FAA estimated that, since 1940, bird collisions had led to 140 aviation deaths, and that 1,200 bird strikes in an average year caused approximately \$20 million in damage to military and civilian aircraft.

Dec 1, 1978: Effective this date, FAA promulgated a **comprehensive revision of Federal Aviation Regulations Part 135, governing air taxi and commuter airline operations**, the fastest growing segment of the air transportation business. Since the Civil Aeronautics Board had created the designation "commuter airlines" (see Jul 1, 1969), the number of passengers on these lines had increased at an average annual rate of over 10 percent; the growth rate in 1977 was 16.5 percent. The new competitive environment created by airline deregulation (see Oct 24, 1978) was expected to bring ever greater increases.

As the commuter airline and air taxi business had grown in the 1960s and 1970s, FAA had tried to tailor new regulations for it; however, serious doubts remained about the safety of the industry (see Dec 26, 1972). An important aim of the revised Part 135 was to bring the safety level of the commuter airlines more closely in line with that of the major airlines operating under Part 121. The new rules required pilots of virtually all multi-engine commuter airliners to hold an airline transport pilot's rating. Depending on the size of their operations and aircraft, commuter airlines were required to have a director of operations, a chief pilot, and a director of maintenance, as well as more stringent programs of maintenance and pilot training and testing. Again depending on size, FAA also required commuter airliners to have such equipment as a ground proximity warning indicator, a third attitude gyro, and thunderstorm detection equipment. The safety upgrade, and the fact that requirements were tied to the size and complexity of operations, permitted FAA to raise the maximum size of aircraft included under Part 135. Commuter airlines and commercial operators could now use aircraft with a seating capacity of up to 30 passengers or a payload of up to 7500 lb.

Dec 12, 1978: The first production model of the **Automated Radar Terminal System (ARTS) II** began service at Toledo, Ohio (see Oct 1, 1976). The device was developed for airports whose traffic volume did not warrant the much more costly ARTS III in use at major hubs. Designed around a

minicomputer, the ARTS II lacked the full-scale system's ability to predict where a target would be on the next radar scan, and to calculate its ground speed. Like the ARTS III, however, it provided controllers with alphanumeric tags that indicated the identity, heading, and altitude of transponder-equipped aircraft. In addition, the ARTS II allowed controllers to record and receive flight data from adjacent air route traffic control centers. Developed by the Burroughs Corp. under contracts concluded in 1974, ARTS II was eventually installed at over 80 airports. It replaced engineering models developed by other manufacturers that had been in service at Wilkes-Barre, Pa., and Knoxville, Tenn. (See Jul 24, 1985.)

Dec 27, 1978: FAA Administrator Bond and Secretary of Transportation Brock Adams announced a **regulatory program to reduce the risk of midair collisions by 80 percent**. Formulated in response to criticism of FAA after the San Diego midair collision (see Sep 25, 1978), and submitted as a notice of proposed rulemaking, the program included:

- * Establishing new voluntary Terminal Radar Service Areas (TRSAs) at 80 air carrier airports (see Dec 22, 1983), and establishing new Terminal Control Areas (TCAs) at 44 additional airports.

- * Lowering the floor of positive area control from 18,000 feet to 10,000 feet over the States east of the Mississippi and much of California, and to 12,000 feet over the rest of the contiguous 48 States.

- * Establishing a new flight category, controlled visual flight rules, for positive airspace below 18,000 feet, which would allow non-instrument rated pilots to use the airspace above 10,000 feet with radar separation provided by air traffic controllers.

- * Requiring all aircraft operating in TRSAs and TCAs to have altitude-reporting transponders installed by Jul 1981. All transponders installed after Jul 1982 would have to incorporate the new Discrete Area Beacon Systems (DABS), which would provide an automatic data link with a ground-based collision avoidance system (see Mar 4, 1976 and Jun 23, 1981).

- * Requiring all airliners and air taxi aircraft to carry an airborne "active" Beacon Collision Avoidance System (BCAS) by Jan 1985. A proposed national standard for such systems had been issued earlier in December. (See Jun 23, 1981.)

These proposals elicited a massive negative public response, much of it orchestrated by the Aircraft Owners and Pilots Association (AOPA). On Sep 7, 1979, Administrator Bond announced he had withdrawn all the en route proposals. Although the general plan to increase the number of TCAs temporarily remained in effect, FAA gradually withdrew most of the proposed new TCAs. (See May 15, 1980.)

Dec 28, 1978: Administrator Bond established a **Light Transport Airplane Airworthiness Review** looking to the adoption, in December 1980, of a new FAR Part 24 that would establish separate airworthiness standards for airplanes intended for commuter operations. FAA had airworthiness standards for two basic designations of airplanes: Part 23 for airplanes 12,500 pounds or under that seated up to nine passengers, and Part 25 for transport category airplanes. FAA proposed to apply the new certification category to airplanes that carried up to 60 passengers and had a maximum takeoff weight of 50,000 pounds. In Dec 1980, however, FAA withdrew the proposal. Foreign manufacturers, already manufacturing commuter aircraft under the more stringent Part 25 standards, opposed the new rule. FAA also determined that the savings in costs between manufacturing airplanes under the proposed standards and the existing Part 25 standards would be minimal.

Calendar year, 1978: Aircraft of U.S. registry experienced eight **hijacking attempts** during 1978--the highest level since the screening of passengers and carry-on luggage was instituted in early 1973. None of the hijackers, however, had been able to slip firearms or explosives through airport screening points. Their claims to have a gun or bomb in their possession proved to be false in every case. The eight hijacking attempts were the most since 1972, when 27 attempts were made, eight of them successful. In the six years since beginning mandatory screening, hijackers had attempted to commandeer U.S. airlines on 25 separate occasions. None involved the smuggling of weapons through a screening point, and only one was successful.

***1979**

Jan 8, 1979: The Federal Aviation Administration and Panama's Department of Civil Aviation signed an **agreement under which FAA's air traffic facilities would be gradually turned over to the Republic of Panama** over a five-year period. The transfer process began on Oct 1, when the Panama Canal Treaty went into effect. The agreement affected over 125 FAA personnel employed at the International Flight Service Station (IFSS), the Center and Terminal Radar Approach Control

(CERAP), and in related operational and maintenance responsibilities. As part of the agreement, FAA helped to train Panamanian personnel for their new air traffic responsibilities.

The presence of FAA and its predecessor agency in Panama dated back to 1942, when the Civil Aeronautics Administration established a communications station there at the request of the Navy. A 1949 agreement called for the U.S. to provide air traffic control services for Panama, a function initially performed by the Air Force but transferred to FAA after its creation in 1958.

In a ceremony **on Apr 22, 1983, FAA turned over the CERAP, its last facility in Panama** to the government of that country. Only four FAA technicians then remained to perform maintenance and training for another year.

Jan 14, 1979: **Braniff Airlines began flying leased Concorde supersonic airliners** between Washington Dulles and Dallas-Fort Worth airports, under the terms of a unique interchange agreement with British Airways and Air France. Since the Concorde carried passengers between two American cities, they had to be registered in the United States. This involved FAA certification of the Concorde and a special FAA rule allowing the speedy re-registration of the planes between the two European carriers and Braniff. The Braniff flights were over land and therefore had to be flown at subsonic speeds under U.S. environmental rules, but nevertheless cut the flight time between Dallas-Fort Worth and Europe. The service did not prove to be profitable, however, and Braniff terminated it on Jun 1, 1980.

Jan 19, 1979: To reduce airport noise levels nationwide, FAA recommended a **two-segment departure profile** for jet aircraft of 75,000 pounds or more. Aircraft using the new procedure would climb under full power to 1,000 feet to get up quickly over airport communities, thus minimizing the noise reaching the ground. At that altitude, they reduced their climb angle to pick up speed and permit retraction of flaps and other high-lift devices before continuing to climb to 3,000 feet under reduced power. The new procedure was intended to replace a variety of practices at many airports, under which the power cutback points varied from 450 to 1,500 feet. FAA did not make the procedure mandatory because safety considerations sometimes dictate that pilots employ other departure procedures. (See Aug 1, 1972.)

Mar 16, 1979: FAA Administrator Bond announced his **plan to eliminate the "blanket immunity" provisions of the Aviation Safety Reporting Program (ASRP)** while continuing to provide anonymity to those using the program to report hazards and safety-related incidents (see Apr 15, 1976). The Administrator said he wished to close "the loophole that makes it possible for a violator to escape punishment even if the offense is committed in full public view." On Mar 21, Bond issued a notice that the change would take effect on Apr 30. Before the effective date, however, a sharp reaction in the aviation community produced a **compromise under which modified immunity provisions became effective Jul 1**. Reports of hazards or incidents submitted under the ASRP could not be used in any disciplinary action except in cases of accidents or criminal offenses. When FAA learned of a violation of safety regulations from another source, it would take appropriate enforcement action. If the violator had filed a prompt report with NASA, however, FAA would impose no penalty provided the violation was inadvertent and not deliberate, did not involve an accident or criminal offense, or disclose a lack of competency, and the person had committed no prior violation since the initiation of the ASRP. A later modification, effective Mar 1, 1985, applied the no-prior-violation requirement to only the five years before a reported incident. These provisions did not apply to air traffic controllers involved in incidents reported to NASA, whose cases were governed by internal FAA regulations. An important difference between the new system and the old was that immunity now applied only to the reporter rather than to all those involved in an incident.

Mar 28, 1979: Effective this date, FAA required the **removal of lithium sulfur dioxide batteries** from U.S. civil aircraft. The batteries were **used primarily to power emergency locator transmitters, known as ELTs** (see Dec 29, 1970). The agency acted because of incidents in which the batteries exploded, burned, or leaked gas that formed corrosive acid. The order affected approximately 60,000 aircraft, most of them privately owned. In September, FAA issued new standards for the batteries, including requirements that they be hermetically sealed and be replaced every two years. The agency ordered users of lithium batteries to reinstall their ELTs by Mar 28, 1980, but later extended the deadline to Oct 15, 1980, because of a shortage of the improved batteries.

Mar 29, 1979: Effective this date, FAA revised its rules for **airport security**. In a departure from previous rules (see Dec 5, 1972), the agency permitted police officers assigned to security checkpoints in some airports to patrol other areas of the terminal, as long as they could respond quickly to trouble

at their checkpoints (see Sep 11, 1981). In another major change, FAA made it a Federal offense for anyone, passenger or not, to carry guns or explosives into the "sterile" areas beyond the checkpoints. Before, regulations only prohibited carrying weapons on board air aircraft. FAA had originally proposed banning unauthorized guns and explosives from all areas of airport terminals, but relaxed the provision after a negative response from various sporting groups. The revised airport-security regulations represented increased concern, since the bomb explosion at La Guardia Airport (see Dec 29, 1975), for the safety of people in airport terminals as well as aboard airliners.

Apr 4, 1979: A Trans World Airlines 727 flying at 39,000 feet over Michigan entered an **uncontrolled spiral dive** and descended to about 5,000 feet in about 63 seconds before the flight crew regained control. Eight passengers received minor injuries. The crew denied that they had caused the dive or erased the Cockpit Voice Recorder tape, most of which was found to be blank. In a June 1981 report, however, the National Transportation Safety Board described the probable cause of the mishap as the crew's manipulation of the flap/slat controls.

Apr 6, 1979: FAA announced award of a contract for acquisition of **second generation common radar digitizers**, equipment that converts radar returns into computer-readable digital messages that are then transmitted to the appropriate air traffic control facility. The major advantage of the new common digitizers, known as **CD-2s**, was the addition of a second channel to permit the equipment to keep working if one channel failed or was shut down for maintenance. The contract provided for 106 of the CD-2s to be installed at long range radar sites, while three would be used in conjunction with airport radars, and seven would be used for training and support services. (See Mar 1986.)

May 1979: A Fokker Company workman discovered a **soft spot in aluminum plate** manufactured by Reynolds Metals, leading FAA in August to issue a general notice establishing an inspection program to be conducted by FAA-approved production holders and their suppliers. FAA discontinued the program after Reynolds discovered the cause of the problem in early fiscal 1981.

May 4, 1979: The regional director of the Washington Office of the Federal Labor Relations Authority ruled that a **strike fund established by PATCO was legal**. His ruling held that while strikes or other overt job actions by Federal employees were prohibited by statute, strike funds were not. PATCO had established a National Controller Subsistence Fund in May 1978, "to provide for the financial support of members whose participation in a nationally sanctioned job action has resulted in suspension and/or dismissal." FAA, believing the fund was a war chest for financing illegal job actions, filed an unfair labor practice complaint against PATCO. The three-member FLRA panel upheld the regional director's ruling in Dec 1980. (See Jun 21, 1978, and Jan 7, 1980.)

May 25, 1979: An **American Airlines DC-10 crashed into an open field near Chicago's O'Hare airport** after its left engine and pylon assembly separated from the aircraft on takeoff. The engine and pylon rotated up and over the left wing, taking part of the wing's leading edge with them and damaging the control system. The ensuing crash and fire killed all 272 persons aboard the flight and two people on the ground, an unprecedented toll for an airline accident within U.S. airspace.

Early in its investigation, the National Transportation Safety Board discovered the presence of a fatigue fracture of a pylon forward thrust link attach bolt. On May 28, FAA Administrator Langhorne Bond ordered all airlines to keep their DC-10s on the ground until they had completed certain visual inspections. The next day, after learning that these checks were turning up potentially dangerous deficiencies in the pylon mountings, Bond grounded the entire U.S. DC-10 fleet pending a more comprehensive inspection. His order included U.S.-certificated Airbus A-300s because of the similarity of their pylon to the DC-10's.

As these inspections progressed, evidence mounted that the problem might lie in American Airline's non-standard use of a forklift to dismount and remount engine and pylon as a single unit during maintenance. Similar cracks had been found on DC-10s operated by Continental Airlines, the only other carrier using the forklift method. On Jun 5, however, the discovery of cracks that appeared unrelated to the forklift procedure strengthened evidence that seemed to suggest the existence of some more fundamental problem. On Jun 6, Bond suspended the DC-10's type certificate indefinitely. He then ordered three parallel investigations into the DC-10 issue.

Thirty-seven days later, FAA's investigative teams concluded that the aircraft destroyed in Chicago had indeed been damaged by the forklift procedure. This was also the cause of the other cracks found in the pylons of DC-10s operated by American and Continental. (The two airlines later received civil penalties of \$500,000 and \$100,000 respectively for using the procedure.) Other findings of the teams supported the conclusion that the DC-10 should be returned to service, and FAA therefore lifted the

grounding order. The agency required a stringent program of inspections, however, and directed the manufacturer to redesign certain engine mount components.

Jun 1979: FAA signed a contract with Western Union Telegraph Company to lease a **new telecommunications system** for 150 of the busiest flight service stations. The new computer-based equipment featured cathode-ray-tube displays and high-speed printers. It would replace teletypewriters used for Service A transmission of weather and aeronautical information (see Jan 16, 1961). The lease was to be an interim step, pending implementation of full flight service modernization. (See Jan 1978 and Jan 25, 1980.)

Jun 13, 1979: The following **changes in the FAA Washington Headquarters organization** became effective on this date:

*A new Office of Associate Administrator for Airports was established.

*The Office of Airport Programs and the position of Assistant Administrator for Airports Programs were abolished.

*The Office of Airport Standards and the Office of Airport Planning and Programming were established and placed under the executive direction of the Associate Administrator for Airports.

*Metropolitan Washington Airports were placed under the executive direction of the Associate Administrator for Airports.

Jun 25, 1979: The first of a **new generation of air route surveillance radars (ARSR-3s)** went into operation. The solid-state ARSR-3 was the first new en route radar system acquired in 20 years (see Nov 20, 1956). It improved radar tracking range by 25 percent, to 200 nautical miles, and could track aircraft flying as high as 61,000 feet. The new radar could also display weather formations without interference with aircraft targets, providing a much clearer picture for controllers. FAA eventually deployed twenty-two ARSR-3s along high density segments of the en route system, commissioning the last in Jan 1983. An additional unit, delivered in Feb 1978, was installed at the Aeronautical Center for training purposes. FAA also purchased four mobile units. With their antenna capable of operating from a flat-bed truck, they could be rushed to any location where the existing radar had failed. (See Sep 1986.)

Jul 1, 1979: **Southern Airways and North Central Airlines merged to form Republic Airlines, which in turn acquired Hughes Air West on Oct 1, 1980.** (See Jan 23, 1986.)

Jul 10, 1979: FAA **reorganized the offices and services under the Associate Administrator for Aviation Standards** (see Nov 2, 1978):

*The Flight Standards Service was abolished.

*A new Office of Flight Operations was established and all functions affecting flight operations were lodged under it.

*A new Office of Airworthiness was established and all functions affecting airworthiness were lodged under it.

*The Civil Aviation Security Service was renamed the Office of Civil Aviation Security.

*A Safety Regulations Staff was established in the Office of the Associate Administrator and given all flight standards safety regulation functions.

Jul 20, 1979: **Brock Adams resigned as Secretary of Transportation.** Adams had voiced concerns about the Carter Administration's transportation policies and his own need for access to the President. After resigning, he stated to the press that he took the action rather than comply with White House demands that included dismissal of one of his aides. Adams' resignation was part of a Cabinet shakeup that involved the departure of four other secretaries.

Jul 25, 1979: **FAA abolished the Europe, Africa, and Middle East Region.** The agency assigned the executive direction of the Europe, Africa and Middle East Office to the Associate Administrator for Policy and International Affairs. On the same day, FAA transferred the responsibility for the **flight inspection program** in the North Atlantic, European, African and Middle Eastern areas from the Europe, Africa and Middle East Region to the Flight Standards National Field Office.

Aug 1979: An engineering model of a new generation of **Airport Surface Detection Equipment (ASDE-3)** was delivered to FAA for testing and concept evaluation. (See Jul 5, 1977, and Dec 23, 1983.)

Aug 15, 1979: **Neil E. Goldschmidt became Secretary of Transportation,** succeeding Brock Adams, who had resigned on Jul 20. Goldschmidt, who had been the mayor of Portland, Ore., at the time of his selection by President Carter, received a recess appointment. The Senate eventually

confirmed him on Sep 21, and he took the oath a second time on Sep 24. Goldschmidt served the remainder of the Carter Administration and resigned effective Jan 20, 1981.

Oct 18, 1979: The first prototype of the **McDonnell Douglas MD-80 series** made its initial flight. Originally designated the DC-9 Super 80, the aircraft was a "stretched" derivative of the DC-9. The MD-80 received FAA type certification on Aug 26, 1980, and the first production aircraft was delivered to Swissair on Sep 12, 1980.

Oct 28, 1979: **Allegheny Airlines changed its name to USAir**, reflecting the growing route system of this former local-service carrier. (See Jan 11, 1949.)

Nov 1, 1979: **Midway Airlines began service** from Chicago's Midway Airport. The new airline was the first all-jet air carrier created to take advantage of the new era inaugurated by the Airline Deregulation Act (see Oct 24, 1978). Midway began with DC-9 flights to Cleveland, Kansas City, and Detroit, with more routes to be added later. (See Nov 13, 1991.)

Nov 2, 1979: FAA redesignated the Office of Accounting and Audit the **Office of Accounting**. FAA's audit functions had earlier been transferred to the newly created Office of Inspector General in the Office of the Secretary of Transportation.

Nov 6, 1979: FAA proposed a **civil penalty of \$1.5 million against Braniff Airways** for numerous maintenance violations. The fine was the largest that the agency had proposed to that date. In Jan 1981, however, FAA accepted a settlement of \$400,000, stating that its decision was influenced by Braniff's safety improvements.

Dec 29, 1979: Enacted on this date, **Public Law 96-171 required the National Institutes of Health to produce a study of FAA's Age-60 rule** (see Mar 15, 1960) in consultation with DOT. Within one year, NIH was to submit to Congress a study examining questions that included "whether an age limitation which prohibits all individuals who are sixty years of age or older from serving as pilots is medically warranted."

The issue had come to a head because more airline pilots were reaching 60 than ever before, a trend that was expected to increase. The Pilots Rights Association, a group of some 300 older airline pilots, had waged a strong campaign against the rule. The Air Line Pilots Association (ALPA) was divided on the question, with many members (especially younger ones) favoring the rule. (Later, ALPA's board endorsed the Age-60 rule in a Nov 1980 vote that reversed the union's longstanding position on the issue.) Another factor that may have influenced the congressional debate was a fatal in-flight heart attack suffered by a 59-year-old Braniff captain on Mar 13, 1979. The outcome was a legislative mandate for a study rather than a change in the rule.

In response to P.L. 96-171, NIH requested the Institute of Medicine, National Academy of Sciences, to prepare a study. Released to the public on Apr 2, 1981, this report did not recommend either retaining or abandoning the Age-60 rule. It did recommend, however, that FAA institute "a more rigorous and comprehensive medical examination" if it discontinued the rule. **In August 1981, the National Institute on Aging also submitted a report to Congress** with three basic recommendations: that the age-60 rule be retained for major airline pilots; that FAA extend the rule to all other pilots engaged in carrying passengers for hire; and that FAA conduct a systematic program to collect the medical and performance data necessary to consider relaxing the rule. (See Mar 30, 1984.)

Dec 1979: At Minneapolis-St. Paul International Airport, FAA installed the **first operational ARTS IIIA** automated radar terminal system, one of 29 produced under a contract announced on Aug 10, 1976 (see that date and Mar 1978). This initial group of ARTS IIIA systems at first used the same A1.01 software package employed at ARTS III facilities, pending completion of computer programs able to realize the full potential of the new equipment. While this software development continued, FAA in Nov 1980 awarded a contract to upgrade the other 34 operational ARTS III units to the IIIA hardware level. In Oct 1982, Seattle-Tacoma International Airport became the site of the **first ARTS IIIA able to track aircraft not equipped with transponders**, a capability made possible by the new A3.01 software (see Oct 1985). Since Dec 1978, meanwhile, Tampa International Airport had been the site of operational testing of an ARTS IIIA that used all-digital processing. FAA commissioned this unique system on Sep 7, 1982, but it did not become a model for use at other locations.

***1980**

Jan 1, 1980: Effective this date, Administrator Langhorne Bond established the **lead region concept** under which designated Federal Aviation Administration regions assumed certain responsibilities on a nationwide basis. FAA assigned "lead regions" to perform national headquarters staff functions relative to various aspects of aircraft certification, while "certificating regions" held final certification

authority for certain categories of aircraft, parts, or materials. The lead regions were: Central (for aircraft under 12,500 lbs.); Southwest (for rotorcraft); Great Lakes (for propellers); and New England (for engines). In addition, the agency designated New England as the first certifying region, with certification authority for all foreign engines as well as all domestically-manufactured turbojet engines of 15,000 lbs. thrust or greater. Later in 1980, two more of the original lead regions were designated certifying regions for their categories of special responsibility: Great Lakes, effective Jul 1, 1980; and Central, effective Jan 15, 1981. In addition, Northwest became the lead region for transport aircraft with gross takeoff weights of 12,500 pounds or more, as well as the certifying region for foreign transport aircraft and domestically-manufactured transports of 75,000 lb. or greater, effective Nov 1, 1980. (See Nov 1, 1981.)

Jan 7, 1980: **John F. Leyden resigned as president of the Professional Air Traffic Controllers Association (PATCO)** after a bitter struggle for control of the organization with Robert E. Poli, a regional vice president. Both Poli and Leyden had submitted their resignations to the PATCO board, but the board accepted only Leyden's resignation. Leyden resigned effective Feb 1, and Poli became interim president on that day. Poli subsequently was elected to a three-year term on Apr 24. (See May 4, 1979, and Apr 15, 1980.)

Jan 7, 1980: Effective this date, the Environmental Protection Agency (EPA) established a **new schedule for reducing air pollution from older transport aircraft using the JT3D jet engine** (mostly DC-8s and Boeing 707s). The standards were to be applied according to a timetable that would involve the replacement of one-fourth of these engines by Jan 1, 1981; one-half by Jan 1, 1983; and all by Jan 1, 1985. This postponed earlier requirements (see Jul 6, 1973), but was designed to be more compatible with a similar timetable for noise standards (see Dec 23, 1976), thereby saving airlines the cost of two successive engine retrofittings on the same aircraft. Unlike the noise rule, the emissions standards applied to foreign-owned aircraft serving U.S. airports. On Jan 20, 1983, however, EPA published a rule eliminating the requirement that the remaining in-use JT3D engines be retrofitted to meet the standards. (See Dec 23, 1983.)

Jan 7, 1980: **Pan American World Airways signed a merger agreement with National Airlines, which formally ceased to exist on Oct 26.** (The defunct carrier's name was revived on May 15, 1994, when Private Jet Expeditions began using the designation National Airlines.) The merger with National gave Pan American a long-sought domestic system to feed its international routes.

Jan 18, 1980: **Two air traffic controllers allegedly erased flight data information on a Soviet Aeroflot jet** making its final approach to New York Kennedy airport with Soviet Ambassador Dobrynin aboard. Unaware of the erasure, the controller who was handling the flight misidentified the Soviet aircraft and ordered it to make an early descent through unprotected airspace. The plane nevertheless landed safely. The incident reportedly stemmed from a local PATCO protest over the Soviet invasion of Afghanistan. After reviewing the case, FAA decided on Jan 16, 1981, to reprimand one of the controllers implicated in the data erasure and to suspend the other for 60 days.

Jan 21, 1980: FAA published a **rule limiting the amount of ozone gas that might be present in airliners** flying above 18,000 feet (see Jul 21, 1977). The agency restricted ozone concentration in the cabin to a maximum of 0.25 parts per million at any point in time. In addition, the average exposure on flights of more than four hours was to be no more than 0.1 parts per million. FAA left the airlines the choice of achieving these standards through air filters, use of engine heat to break down ozone, or selection of routes that avoided ozone concentrations. The agency expected, however, that about 500 large transport aircraft used at high altitudes in northern latitudes would require modification. The deadline for compliance was Feb 20, 1981. The same rule amended airworthiness standards for new transport aircraft to provide protection against ozone irritation.

Jan 25, 1980: Armed with a pistol and pretending to have a bomb, a hijacker who identified himself as a Black Muslim diverted a Delta Airlines L-1011 to Cuba. He demanded to be flown to Iran, but eventually surrendered to Cuban authorities. This was the **first U.S. air carrier hijacking in which real weapons or high explosives passed through the passenger screening system since the implementation of strict new airport security measures on Dec 5, 1972** (see that date and Jul 22, 1980).

Jan 25, 1980: DOT announced the award of competitive contracts to three companies to design computer systems for **automating FAA's network of flight service stations (FSS)**. The winning design was expected to improve upon AWANS and MAPS, two systems already tested in use at

certain FAA facilities (see Sep 1977). Computers were to be located at air route traffic control centers and linked by telephone lines to the FSS sites. (See Jun 1979 and Apr 2, 1980.)

Feb 15, 1980: FAA announced **improved standards for the seats of airline crew members**. The new rule required the flight attendant seats to be equipped with combination seat belts and safety harnesses, and that the seats themselves have energy-absorbing backs. The rule also required the seats of the cockpit crew to be equipped with a combination seat belt and shoulder harness so designed that the harness need not be unbuckled during takeoff or landing. The standards for flight attendant seats were effective on Mar 6, 1980, and those for the cockpit crew, a year later. The **rule also upgraded certain other safety standards for large passenger aircraft** concerning storage and service compartments, waste containers, and non-slip floors. (See Sep 10, 1980.)

Feb 15, 1980: Signed into law on this date, the **International Air Transportation Competition Act** of 1979 reduced the Civil Aeronautics Board's power to regulate U.S. international airlines, while authorizing the Board to retaliate against the airlines of nations that discriminated against U.S. carriers. Other provisions: revised the rules governing Federal use of foreign air carriers; and defined circumstances under which foreign-registered aircraft might operate on U.S. domestic routes. As a result of the law, an FAA rule effective Oct 16 permitted U.S. airlines to fly passengers and mail in foreign-registered aircraft. The airlines were allowed to use such leased or chartered aircraft on both foreign and domestic flights.

Section 29 of the law **limited scheduled airline operations at Love Field**, Dallas, Tex., to aircraft seating 56 passengers or less, except for service within Texas and states bordering on Texas. This provision was known as the "Wright Amendment" after Rep. James C. Wright, Jr. (D-Tex.) of Fort Worth.

Feb 18, 1980: President Carter signed the **Aviation Safety and Noise Abatement Act** of 1979. The law gave airlines **more time to comply with Stage 2 aircraft noise standards** insofar as they applied to two-engine jets over 75,000 lb (see Dec 23, 1976, and Mar 3, 1977). These two-engine aircraft had been required to comply by Jan 1, 1983, but that deadline was extended, with exceptions: until Jan 1, 1985, for those with over 100 seats; and until Jan 1, 1988, for those with 100 seats or fewer (see Dec 31, 1987). In other matters, the new legislation authorized funds for noise planning and land use compatibility projects (see Feb 28, 1981) and, in certain circumstances, barred suits for damages due to airport noise.

The act also authorized the FAA to **regulate the access to public areas at Washington National and Dulles International by individuals or groups soliciting funds or distributing materials**. The law prohibited solicitors, including those representing religious groups, from interfering with airport users or using threatening or abusive language. FAA adopted rules, effective Jul 28, requiring solicitors at the two airports to have permits and placing certain limits on their number and the areas in which they could operate (see Jun 26, 1992).

Mar 1, 1980: AN FAA **emergency rule on experience requirements for commuter airline pilots** became effective. The pilot-in-command of a two-pilot crew was required to have logged between 10 and 25 hours of flight time in the particular aircraft make and model under the supervision of a qualified check pilot. The agency keyed the number of hours required to the complexity of the aircraft in question. Pilots of commuter aircraft approved for single-pilot operations with the aid of an autopilot were required to have 100 flight hours in the particular make and model of aircraft. FAA based its action on an analysis of 13 fatal commuter airline accidents that occurred during 1979.

Mar 5, 1980: FAA abolished the Office of Investigations and Security and transferred its internal security functions to the **Office of Civil Aviation Security**. Earlier, the fraud and abuse investigative functions of the Office of Investigations and Security had been transferred to the new Office of Inspector General, in the Office of the Secretary of Transportation.

Mar 27, 1980: The Boeing Company revealed plans for flight decks accommodating **two-member crews** for the fuel-efficient new generation **757 and 767** twin-engine jets. The new decks would include an engine indicating and crew alerting system (EICAS) to centralize all engine displays and provide automatic monitoring of engine operation. (See May 7, 1977 and Aug 26, 1980.)

Apr 2, 1980: Administrator Bond announced a proposed **revision to the master plan for automating the flight service stations** (see Jan 1978). A feature of that plan had been the ultimate consolidation of the entire network of FSS sites into 20 automated stations co-located with air route traffic control centers (ARTCCs). Instead, Bond called for eventual consolidation into 61 automated stations. Although linked by telephone lines to computers at the air route traffic control centers, these sites

would be housed in new buildings at airports that were centers of general aviation activity. Bond rejected the co-location of FSSs and ARTCCs (see Sep 1977), stating that this experiment had isolated flight service stations from general aviation pilots while showing no cost or operational advantages. (See Jan 25, 1980, and May 28, 1981.)

Apr 15, 1980: PATCO distributed to its members an "educational package" that many in FAA considered a "**strike plan**." The materials provided: information on how to establish communications networks and committees on security, welfare, and picketing; recommendations for a variety of financial preparations in case of the loss of wages during a job action; and advice to local PATCO organizations to make arrangements for bail bondsman and for other legal services. (See Jan 7, 1980, and Aug 15, 1980.)

Apr 30, 1980: Effective this date, FAA required a **triennial aircraft registration report**. Aircraft certificate holders were to submit the report whenever three years elapsed since the Registry received information indicating continued registration eligibility. The procedure was less burdensome to the public than an earlier annual report requirement (see Mar 7, 1970).

May 12, 1980: Maxie and Kris Anderson, father and son, completed what is considered the **first nonstop balloon crossing of the North American continent**, after a four-day flight from Fort Baker, Calif. They landed at Matane, on Quebec's Gaspé Peninsula, about 160 miles from the Gulf of St. Lawrence.

May 15, 1980: FAA established a **terminal control area (TCA) at San Diego** as part of the agency's response to a midair collision that killed 144 persons (see Mar 1976). FAA established another TCA at **Honolulu** on Nov 27. These new Group II TCAs brought the total in this category to 14, in addition to 9 Group I TCAs at the nation's busiest locations. (See Aug 1, 1975 and Aug 31, 1986.)

May 16, 1980: A U.S. district **court decision put FAA's medical exemption system on temporary hold** by enjoining the agency from issuing medical certificates to airmen with a history of any of nine "absolutely disqualifying conditions," including myocardial infarction, angina pectoris, or alcoholism. Henceforth, FAA could issue medical exemptions to airmen with a history of these disqualifying conditions only after "a proper finding that such an exemption was in the public interest." In addition, the court enjoined the Federal Air Surgeon from placing any functional limitation on any medical certificate on the grounds that the authority to do this had not been properly delegated to this official from the FAA Administrator.

The decision arose from a suit by Delta Airlines, which opposed FAA's policy of issuing certificates with functional limitations to pilots who had suffered heart attacks. This practice often enabled such pilots to serve as flight engineers, and thus ran counter to Delta's policy that flight engineers must possess a first class medical certificate. By mid-1982, FAA had adopted regulatory language for medical exemptions that satisfied the public-interest criteria of the court and allowed the process of granting pilot medical exemptions to continue.

May 18, 1980: Washington state's **Mt. St. Helens erupted**, destroying over 100 square miles of timber and leaving at least 61 persons dead or missing. Ash from the volcano caused widespread disruption, but did not close FAA facilities in the area. The agency informed airmen of the location of the volcanic cloud, which damaged several aircraft, and issued a maintenance checklist for planes that had entered suspected areas. FAA also set up a mobile air traffic control tower to assist military missions of reconnaissance, search, and rescue. **Interest in the threat of volcanoes to aircraft increased in 1982**, when two Boeing 747s lost all engine thrust temporarily as they encountered ash from an Indonesian volcano. (See Dec 14, 1989.)

May 29, 1980: **FAA changed the name of its National Aviation Facilities Experimental Center (NAFEC) to the FAA Technical Center**, and at the same time dedicated a **new complex of buildings** at the New Jersey facility (see May 29, 1975). Under an agreement signed in 1976, the Atlantic City Improvement Authority had constructed the new complex for lease to FAA. On May 28, the agency had also dedicated a **new heliport** at the facility, and on Jun 20 dedicated the Center's large new **fire research building**.

Jun 26, 1980: The Committee on FAA Airworthiness Certification Procedures, popularly known as the **Blue Ribbon Panel on Aircraft Certification**, issued its report. The panel had been formed at the request of Secretary of Transportation Neil Goldschmidt in response to congressional concerns after the Chicago DC-10 accident (see May 25, 1979). The National Research Council selected a 13-person committee of experts, headed by George M. Low, president of Rensselaer Polytechnic Institute, and including among its members former FAA Administrator John L. McLucas. While concluding that the

agency's system of assuring the airworthiness of U.S.-built aircraft had worked satisfactorily in the past, the committee believed that FAA must upgrade its certification staff's technical proficiency and familiarity with current developments. The panel's recommendations included that FAA: establish a central engineering group responsible for type certification and participation in rulemaking; improve the type certification process through a series of milestone reviews; develop a rule requiring that aircraft be designed to continue to fly despite structural failure; increase surveillance of airline maintenance operations; and accelerate development of a system for gathering safety-related data.

Jul 22, 1980: Holding what was reported to be a small handgun to the back of a flight attendant, a man diverted a Delta Air Lines L-1011 to Cuba, beginning a **series of hijackings by Cuban refugees** who had arrived in the U.S. during the boat lift from the port of Mariel that began in Apr 1980 (see Jan 25, 1980). Mariel refugees returned to their homeland in 10 hijackings between Aug 10 and Sep 17. During the last quarter of 1980, however, no successful "Marielista" hijackings occurred. Factors in this improvement were special FAA security measures, coupled with the immediate return of two hijackers by the Cuban government. The phenomenon continued, however, and one successful Marielista hijacking took place in 1981. During 1982, three airliners were diverted to Cuba by Spanish-speaking men (at least one of whom was a Marielista) using flammable liquid as their weapon. The threat to ignite real or alleged flammable liquid had been used in every successful hijacking to Cuba since Aug 13, 1980. (See May 1, 1983.)

Aug 4, 1980: FAA commissioned the first **En Route Automated Radar Tracking System (EARTS)** at the air route traffic control center at Anchorage, Alaska. The system was the product of contracts with Sperry Rand's Univac Division announced by FAA in Jul 1974 and Aug 1976 (See Aug 10, 1976). Developed for the special needs of the widely dispersed centers at Anchorage, Honolulu, and San Juan, EARTS was simpler and less costly than the automated systems used to track en route traffic at centers within the contiguous U.S. It was essentially an expanded Automated Radar Terminal System (ARTS III) modified for en route operations by adding a plan view display component. FAA commissioned Hawaii's EARTS in Jul 1982 and Puerto Rico's in Dec 1982. (See Mar 1984.)

Aug 15, 1980: **PATCO-affiliated controllers** at O'Hare International Airport **conducted a one-day traffic slowdown** that caused 616 delays of 30 minutes or more and cost air carriers more than \$1 million in wasted fuel. The slowdown followed FAA's turning down a demand by O'Hare controllers for an annual tax-free bonus of \$7,500. (See Apr 15, 1980, and Oct 20, 1980.)

Aug 19, 1980: An **in-flight fire on a Saudi Arabian Airlines L-1011** killed all 301 persons aboard. Smoke inside the aircraft prompted a return to Riyadh shortly after takeoff. The aircraft landed normally, but was destroyed by fire on the taxiway. Saudi investigators concluded that the fire probably began in the aft pressurized cargo compartment, but were unable to determine its cause. The accident was followed by development of improved liner material for L-1011 cargo compartments, and by FAA action to upgrade cargo compartment safety standards (see May 16, 1986).

Aug 26, 1980: FAA type-certificated the **McDonnell Douglas DC-9-80** for operation with a two-pilot crew. The Air Line Pilots Association challenged the certification in a law suit, ultimately without success, and picketed the White House in October to protest FAA's position. (See Mar 27, 1980, and Dec 29, 1980.)

Sep 10, 1980: The **Special Aviation Fire and Explosion Reduction (SAFER) Advisory Committee** (see Jun 26, 1978) released its final report. The committee reported that, over the past 15 years, fatalities due to post-crash fire or its effects in U.S. scheduled air carrier operations had averaged about 32 per year. It concluded that, with the exception of toxic hazards assessment, aircraft fire research had been reasonably well funded since the early- to mid-1970s. The SAFER group's most urgent recommendation was to expedite the investigation and validation of **anti-misting kerosene**, known as AMK (see Dec 1, 1984). Among the numerous additional recommendations were: mandatory fuel tank vent protection; maximizing the probability of engine fuel shut-off in potential fire situations; research on lowering the flashpoint of kerosene fuels; improved accident investigation and reporting; research to establish the contribution of cabin interior materials to the post-crash fire hazard; development of fire-blocking layers for seats; accelerated toxicity research; radiant heat resistance standards for evacuation slides; and development of improved fire-resistant cabin windows. In conclusion, the committee's report urged FAA to create a standing advisory committee to provide regular expert advice in the field of fire and explosion research. FAA set up working groups to examine the SAFER recommendations and take rulemaking action when feasible. (See Oct 26, 1984.)

Sep 30, 1980: The **Airport Development Aid Program lapsed** as of midnight on this date due to Congress' failure to extend or replace legislative authorization (see Jul 12, 1976). Congress also failed to authorize the collection of user taxes paid into the Airport and Airway Trust Fund. As a result, some of these taxes expired, while others were reduced to the levels collected before Jul 1, 1970. Taxes eliminated completely included the 5 percent air cargo tax, the \$3 international departure fee, the aircraft use tax, and the jet fuel tax. The 8 percent passenger ticket tax was reduced to 5 percent, and was now paid into the Treasury's general fund. The general aviation gasoline tax was reduced from seven to four cents per gallon, and was paid into the Highway Trust Fund, which also received revenues from continuing taxes on aircraft tires and tubes. Although it no longer received any tax revenues, the Airport and Airway Trust Fund continued to exist and to receive interest payments on the Treasury bills in which its liquid assets were invested. While FAA ceased to award grants from the Fund, the agency continued to liquidate obligations previously made under the grant program. The Trust Fund also continued to provide support for FAA facilities and equipment, as well as for the agency's research, development, and engineering. (See Aug 13, 1981.)

Oct 2, 1980: Recognizing the changing nature of airline operations under deregulation, the Civil Aeronautics Board adopted a report that led to **new system of classifying air carriers** for statistical and financial analysis. The carriers were described as either Majors, Nationals, Large Regionals, or Medium Regionals, depending on the amount of their annual operating revenue. After CAB became defunct at the end of 1984, the Research and Special Projects Administration continued this general system, although the amounts of revenue required for the various categories were periodically adjusted.

Oct 9, 1980: FAA published a new Federal Aviation Regulations Part 125, representing a **substantial upgrade of safety standards for certain large airplanes**. The new Part 125 established a uniform set of certification and operating rules for large airplanes capable of carrying 20 passengers or more, or a payload of 6,000 lbs. or more, and used for any purpose other than common carriage.

Oct 20, 1980: Republican presidential candidate **Ronald Reagan wrote to PATCO president Robert E. Poli**, saying: "You can rest assured that if I am elected President, I will take whatever steps are necessary to provide our air traffic controllers with the most modern equipment available and to adjust staff levels and work days so that they are commensurate with achieving a maximum degree of public safety." On Oct 23, the PATCO executive board endorsed Reagan for President. At the same time, the union charged President Carter with ignoring serious safety problems that jeopardized the nation's air traffic control system. (See Aug 15, 1980, and Dec 15, 1980.)

Nov 3, 1980: FAA published a **special rule allocating reservations, or "slots," for takeoffs and landings under instrument flight rules at Washington National Airport**. The rule applied to air carriers, except air taxis, and was effective Dec 1, 1980, to Apr 26, 1981. The slots had previously been assigned by an air carrier scheduling committee, the system used at the other high density airports subject to flight restrictions in force since Jun 1, 1969 (see that date). Since the Airline Deregulation Act of 1978, however, the number of carriers seeking slots at National had increased and the committee found it more difficult to reach agreement. On Oct 14, 1980, the body advised FAA it was deadlocked, necessitating government intervention. (See Mar 23, 1978, and Dec 6, 1981.)

Nov 28, 1980: FAA published a rule requiring foreign operators of aircraft over 75,000 lb. serving the U.S. to comply with the same **noise standards** as U.S. operators (see Dec 23, 1976). The rule generally required final compliance by 1985.

Dec 15, 1980: A U.S. District Court judge in Illinois, **dismissed a court action brought by FAA against PATCO** and its Chicago O'Hare Local No. 316 for a slowdown which had begun on Aug 15, 1980 (see that date). On Aug 17, FAA had brought suit for a preliminary and permanent injunction against the controllers. The following day, a U.S. District Court judge had issued a temporary restraining order prohibiting PATCO and its O'Hare affiliate from taking part "in any work stoppage or slowdown." Subsequently, FAA pressed its plea for permanent injunctive relief. In ruling that the case was not properly before his court, the judge held that a slowdown was an unfair labor practice and that Title VII of the Civil Service Reform Act of 1978 gave original jurisdiction in such controversies to the Federal Labor Relations Authority, not to U.S. district courts. (See Mar 15, 1981.)

Dec 19, 1980: **New York Air began operations**, competing against Eastern Air Lines' Washington-New York shuttle. The new, non-union regional carrier was a **creation of Texas Air**, a holding company created by Frank Lorenzo in 1980. Texas Air also owned Texas International Airlines, which Lorenzo had headed since 1972. (See Aug 6, 1981, and Feb 1, 1987.)

Dec 22, 1980: FAA placed the **Office of Aviation Medicine** under the executive direction of the Associate Administrator for Aviation Standards. Although no longer reporting directly to the Administrator, the Federal Air Surgeon retained delegated responsibilities for medical determinations.

Dec 29, 1980: The Air Line Pilots Association (ALPA) organized a "**public awareness**" **campaign called Operation USA** (Unity for Safe Airtravel). Shortly thereafter, the union threatened a general one-day work stoppage in March unless the President appointed a **panel of independent experts to examine the question of crew complement**. On Mar 5, 1981, President Reagan appointed a three-man task force headed by former FAA Administrator John L. McLucas to review FAA's certification of the DC-9-80 for operation with a minimum cockpit crew of two pilots (see Aug 26, 1980). On Jul 2, the task force reported that the certification was proper and that a third crew member was not be justified in the interest of safety. The board also noted that safe operation by a two-pilot crew would be permitted by the designs of Boeing's new 757 and 767 aircraft, and of the A-310 aircraft being developed by the European consortium, Airbus Industrie. On Jul 14, ALPA's executive board voted unanimously to accept the findings of the task force.

Dec 31, 1980: The end of this day marked the completion of the **first calendar year without a fatal accident for major U.S. airlines (Part 121) in scheduled service**, including the flag, trunk, and local service categories. The only fatal accident involving Part 121 operators engaged in any type of service was an incident in which a parachutist was struck by a military contract cargo flight. (See Dec 31, 1970, and Dec 31, 1981.)

***1981**

Jan 10, 1981: The **New York terminal radar control room (TRACON)** became operational at Hempstead, Long Island. The building had been completed in Jan 1978, after which the Federal Aviation Administration had begun installing electronic equipment. Commissioning of the facility had been delayed, however, until the closing of a nearby resource recovery plant ended FAA's concern about unhealthful emissions. The TRACON replaced the Common Radar Room (also called the "Common IFR" or "Common I") at Kennedy International. Initially, the new facility handled approaches and departures at New York's three major airports, but was scheduled to later take over responsibility for numerous smaller airports in area. The TRACON's special ARTS IIIA system had 44 displays, 91 keyboard stations, and a track capacity of 1,200 aircraft (see Aug 10, 1976, and Mar 26, 1986). In contrast, the Common Radar Room's ARTS IA had only 12 displays.

Jan 19, 1981: FAA announced that it had begun a **program to improve navigational charts** used by pilots flying under visual flight rules. The improvements were based on recommendations of an agency working group established in Sep 1980, and were to be implemented in cooperation with the Inter-Agency Cartographic Committee.

Jan 20, 1981: **Ronald Reagan became President**, succeeding Jimmy Carter. **The resignations of Langhorne M. Bond as FAA Administrator and Quentin S. Taylor as Deputy Administrator became effective**, although Taylor accepted another post with FAA (see May 4, 1977). Charles E. Weithoner, Associate Administrator for Administration, became Acting Administrator. (See Apr 22, 1981.)

Jan 23, 1981: **Drew Lewis became Secretary of Transportation**, succeeding Neil E. Goldschmidt with the change of administrations. President Reagan had nominated Lewis on Dec 11, 1980, and the Senate had confirmed the nomination on Jan 22, 1981. A business management specialist from Philadelphia, Lewis first came to national attention in 1974, when he made an unsuccessful run for governor of Pennsylvania. He had served as Deputy Chairman of the Republican National Committee prior to accepting the Transportation cabinet post. (See Dec 28, 1982.)

Jan 30, 1981: FAA announced the adoption of **new security rules** making commuter aircraft with a seating capacity of 60 or more passengers subject to the same anti-hijacking programs as the aircraft of larger airlines.

Feb 2, 1981: FAA commissioned the first **Direct Access Radar Channel (DARC)** at the Salt Lake City air route traffic control center. By Jun 28, when FAA commissioned DARC at the Minneapolis ARTCC, all 20 en route centers within the contiguous 48 states had been equipped with the system (see Apr 5, 1988) As a result of development begun in the late 1970s, the Raytheon Company produced DARC as a backup system to be switched on when the primary radar processing system failed or was turned off for maintenance. DARC provided a sharper display than the noncomputerized broadband backup system that it replaced. Whereas the broadband system had presented only an unmarked "blip" for each radar target, DARC provided a limited data bloc that gave a discrete code

for each aircraft equipped with a discrete beacon code transponder, as well as the altitude of those equipped with an altitude-encoding transponder. The discrete code helped controllers to identify quickly the targets when changeover from the primary system occurred. Initially, however, controllers using DARC were still obliged to keep track of targets by moving plastic markers across the radar display, and hence were required to shift their scopes to a horizontal position. In Feb 1984, therefore, FAA began installing RAH01 software that made it possible for DARC to provide full data blocs that remained on the display between radar scans even if the radar missed the target. Meanwhile, the agency awaited delivery of a 1982 order for a more advanced hardware and software **enhancement designated E-DARC**. As compared to RAH01, E-DARC's advantages included predicted position tracking and the capability to present composite displays using returns from several radar sites. E-DARC also allowed an individual controller to switch back and forth between primary and backup systems at the touch of a button, and permitted non-verbal handoffs of aircraft between sectors within a center. FAA commissioned the first E-DARC system at the Seattle center on Nov 26, 1986.

Feb 28, 1981: Effective this date, a new Part 150 of the Federal Aviation Regulations established requirements and procedures for airport operators participating in a **voluntary noise compatibility planning program** as authorized by the Aviation Safety and Noise Abatement Act (see Feb 18, 1980). The new regulations provided standardized methods for measuring noise, identified land uses compatible with various noise levels, and set forth criteria for FAA approval of the plans.

Mar 15, 1981: The labor **contract between FAA and PATCO expired**. In accordance with Article 75 of the agreement, however, all its provisions but one (immunity under the aviation safety reporting program) remained in force until a new agreement was reached. (See Dec 15, 1980, and Apr 28, 1981.)

Apr 12, 1981: The United States launched space shuttle *Columbia* on the **first shuttle orbital flight**.

Apr 22, 1981: **J. Lynn Helms became the eighth FAA Administrator**, succeeding Langhorne M. Bond (see May 4, 1977). President Reagan had made the nomination on Mar 3, and the Senate confirmed it on Apr 8.

Born in 1925 in DeQueen, Ark., Helms attended the University of Oklahoma. He received his flight training as part of the U.S. Navy's V-5 program during World War II, then entered the Marine Corps to serve as both a test pilot and instructor pilot. After leaving the Marine Corps with the rank of Lt. Colonel in 1956, he went to work as a design engineer for North American Aviation. In 1963, he joined the Bendix Corp., eventually becoming vice president, then accepted the presidency of the Norden Division of United Aircraft in 1970. He joined Piper Aircraft Corp. in 1974, serving as president, chairman, and chief executive officer before retiring from the company in 1980. Helms was an active pilot holding a commercial pilot's certificate. His honors included selection as General Aviation Man of the Year for 1978, and he had been chairman of the General Aviation Manufacturers Association in 1979. Helms served as FAA Administrator for two years and nine months. (See Dec 23, 1983.)

Apr 28, 1981: After 37 negotiating sessions with FAA, **PATCO representatives walked out of the contract talks**, claiming that the agency was not responsive to their proposals. PATCO had submitted its bargaining proposals to FAA in early January 1981, and negotiations had begun the following month. PATCO's proposals for a 32-hour work week and separate pay scale for controllers, embodied in legislation before Congress, were opposed by the Office of Management and Budget. (See Mar 15, 1981, and May 23, 1981.)

May 6, 1981: FAA issued an Advisory Circular concerning the new **Supplemental Structural Inspection Program (SSIP)** under which manufacturers developed special programs to ensure the continued airworthiness of their older types of large transport aircraft. The background of the SSIP included the 1977 loss of a British 707 in Zambia due to structural failure. Continued **concern about the airworthiness of aging aircraft** reflected a tendency for operators to retain older planes for longer periods. This trend was due to such factors as a slackened demand for the fuel-efficiency offered by new aircraft and the competitive pressures of airline deregulation. Effective Jul 5, 1985, FAA made the inspections developed under SSIP mandatory for certain Boeing 707s with high in-service time. Similar directives for other aircraft types soon followed. (See Apr 28, 1988.)

May 23, 1981: At its annual convention, in New Orleans, **PATCO set a Jun 21 deadline for reaching agreement on a new contract** with FAA. PATCO President Robert Poli said if agreement was not reached by that date the union would poll its members for a strike vote. Newspapers quoted

Poli as vowing that the "the skies will be silent" if FAA's negotiators did not "come to their senses." (See Apr 28, 1981, and Jun 18, 1981.)

May 26, 1981: **FAA banned any new long-haul airline flights to or from Washington National Airport** pending issuance by the Department of Transportation of a new Metropolitan Washington Airports Policy. The ban preserved a policy, begun in 1966 and continued voluntarily, under which nonstop flights to and from National were limited to a perimeter with a 650-mile radius, with certain exceptions. FAA acted to preserve National's traditional role as a short-haul airport in the face of a decision by three carriers--American, Pan Am, and Braniff--to inaugurate nonstop flights into National from Houston and Dallas, each of which would have exceeded 1,000 miles. (See Sep 1, 1966, and Dec 6, 1981.)

May 28, 1981: At a meeting on this date, Administrator Helms directed a **change in policy on acquisition of space for the planned Automated Flight Service Stations, known as AFSSs** (see Apr 2, 1980). In addition to building and owning the facilities, FAA would also lease space at airports from municipalities, airport operators, private parties, or government agencies at the state or Federal level. FAA would seek competitive bids to obtain the most favorable rates. (See Oct 2, 1981, and Nov 1982.)

Jun 12, 1981: FAA announced a **planned regional consolidation**, to be effective Jul 1, that would reduce the number of regional headquarters from eleven to six (see Apr 2, 1971). The headquarters at New York, Chicago, Denver, Los Angeles, and Honolulu would be phased out, and their functions merged with the remaining sites. Boston would take over the functions of New York, and Kansas City would assume those of Chicago. Seattle would take over the functions of Denver, Los Angeles, and Honolulu. The regional offices at Anchorage, Atlanta, and Fort Worth would remain essentially unchanged. The plan aroused political opposition, and FAA agreed to review the decision. (See Sep 4, 1981.)

Jun 17, 1981: **PATCO rejected a Reagan Administration contract proposal** as inadequate and broke off informal talks with representatives of FAA. The informal talks, conducted irregularly since the break in formal talks on Apr 28, were held under the aegis of the Federal Mediation and Conciliation Service. (See Jun 18, 1981, and Jun 22, 1981.)

Jun 18, 1981: The **U.S. District Court rejected a PATCO motion to vacate the injunction** restraining the union from engaging in illegal job actions or strikes (see Jun 21, 1978). PATCO moved to have the injunction lifted on the grounds that it had been superceded by the Civil Service Reform Act of 1978, which gave the Federal Labor Relations Authority original jurisdiction in Federal labor-management disputes. (See May 23, 1981, and Jun 17, 1981.)

Jun 22, 1981: **Department of Transportation and PATCO representatives reached agreement on a tentative new contract** after a marathon bargaining session, thus averting a threatened nationwide strike by PATCO-affiliated controllers that had been scheduled to begin at 7 a.m., Monday, Jun 22.

Secretary of Transportation Drew Lewis and PATCO President Robert Poli had gone back to the bargaining table Friday evening, Jun 19, at the behest of Representative James J. Howard (D-N.J.), chairman of the House Public Works Committee. The resumption of talks may also have been prompted by a letter to Poli from 36 U.S. Senators, stating that a strike by PATCO "will do nothing to further your goals of increased pay and changes in working conditions." The bargaining sessions, which took place at the offices of the Federal Mediation and Conciliation Service and were joined in by Federal mediator Kenneth Moffett, lasted more than 25 hours, with the last session running past 3 a.m., Monday.

The agreement contained four key provisions, which the Reagan Administration agreed to recommend to Congress:

- * A "responsibility" differential that would give controllers 42 hours pay for each normal 40-hour week worked.

- * An increase in the night differential from 10 to 15 percent of base pay.

- * The exclusion of overtime, night differential, and Sunday and holiday pay from the limitations of the Federal pay cap.

- * A retraining allowance equivalent to 14 weeks of base pay for controllers who became medically disqualified after five consecutive years of service at the journeyman level or above and who were ineligible for retirement or disability compensation.

The first-year cost of the total package, which included a cost-of-living raise of 4.8 percent due Federal civil service employees in October, came to approximately \$40 million or, on the average, \$4,000 per controller per year. PATCO had been seeking a package that would have cost the government, initially, in excess of \$700 million per year. (See Jun 17, 1981, and Jul 2, 1981.)

Jun 23, 1981: Administrator Helms announced FAA's decision to adopt the Threat Alert and Collision Avoidance System, soon renamed the **Traffic Alert and Collision Avoidance System (TCAS)**. The TCAS system was an evolutionary improvement of the Beacon Collision Avoidance System (BCAS) that the agency had been developing (see Mar 1976). Like BCAS, TCAS would work in conjunction with the Air Traffic Control Radar Beacon System (ATCRBS) transponder already in wide use. It would also be **compatible with the next-generation transponder, originally designated the Discrete Address Beacon System (DABS) and later known as Mode S** (see Dec 27, 1978, and Oct 5, 1984).

Two types of the new collision avoidance system were planned. TCAS I, intended for general aviation use, would in its basic form simply alert the pilot to the proximity of another aircraft carrying TCAS I or a conventional ATCRBS transponder. More expensive TCAS I versions would have some ability to provide certain data on the altitude and/or "o'clock" position of threat aircraft. TCAS II would provide more sophisticated advisories, including data on range and bearing of transponder-equipped aircraft. When the transponder aboard the threat aircraft had altitude-reporting capability, TCAS II's advisories would also include altitude data. In the case of two aircraft equipped with TCAS II, coordinated advisories would be provided. TCAS II would suggest vertical escape maneuvers. If feasible, the system might be enhanced to include both vertical and horizontal escape maneuvers, a version later designated TCAS III. TCAS was expected to overcome a fundamental limitation of BCAS by its ability to operate effectively even in the highest air traffic densities. This modified the need for a new ground-based collision avoidance system, and led to **discontinuance of the Automatic Traffic Advisory and Resolution System (ATARS) project, originally known as Intermittent Positive Control** (see Mar 4, 1976).

On Nov 13, 1981, FAA announced a contract with Bendix Corporation to provide two TCAS II engineering models to be tested and then enhanced to advise pilots of horizontal escape maneuvers. (See Mar 18, 1987.)

Jul 2, 1981: **PATCO's nine-member executive board recommended unanimously that the union's members reject the tentative contract** agreed to on Jun 22 by PATCO President Robert Poli and Secretary of Transportation Drew Lewis. Poli also voted to reject the contract, although he had stated that he was pleased with the settlement at the time of its negotiation. On Jul 29, PATCO announced that its **members rejected the tentative contract** by a vote of 13,495 to 616. Two days later, on Jul 31, PATCO President Robert Poli announced at a press conference in Washington that his **union would go on a nationwide strike** beginning on Monday, Aug 3, unless the government met PATCO's demands. (See Jun 22, 1981, and Aug 3, 1981.)

Jul 30, 1981: In **San Diego Unified Port District v. Gianturco**, the U.S. Court of Appeals for the Ninth Circuit struck down an attempt by the State of California to impose more stringent noise rules at Lindbergh Field than those imposed by Lindbergh's proprietor. The court's decision included a rationale for the **"Burbank exception"** (see May 14, 1973). Noting that the U.S. Supreme Court had held in **Griggs v. Allegheny** that airport proprietors can be held liable for the noise produced by aircraft using their facilities (see Mar 5, 1962), the Court observed that "fairness dictates that they must also have power to insulate themselves from that liability." At the same time, the Court set forth criteria that determine airport proprietorship, including "ownership, operation, promotion, and the ability to acquire necessary approach easements." If a local or state entity possessed these characteristics, then it also possessed power to regulate noise. In the case of Lindbergh Field, however, the State of California did not possess these characteristics, having entrusted them to the San Diego Unified Port District.

On Sep 23, 1981, in **Santa Monica Airport Association v. City of Santa Monica**, the same Court reaffirmed the "Burbank exception" by upholding aircraft-noise abatement ordinances and a night curfew on takeoffs and landings imposed by the City of Santa Monica, which owned and operated the local airport. In reaching this decision, the Court again emphasized that "municipal airport owners needed some means of limiting their liability under Griggs." The Court did strike down, however, a categorical ban on all jet aircraft as violating the Commerce and Equal Protection clauses of the Constitution. (See Aug 24, 1983.)

Aug 1, 1981: **Michael J. Fenello became FAA's Deputy Administrator**, succeeding Quentin S. Taylor (see May 4, 1977). A native of Rochester, N.Y., Fenello was a graduate of Buffalo State Teachers College and held a Master's degree in Administration and Supervision from New York University. He was a junior high school teacher before starting a 38-year career with Eastern Air Lines in Jan 1943. Fenello began as a copilot, rose to captain, and later served as a flight instructor and supervisor of flying before being promoted in 1963 to Assistant Operations Manager in New York. The following year, he was named Director of Administration for Flight Operations, with headquarters in Miami. In 1968, Fenello became Assistant to the Vice President, Operations Group, and in 1972 was promoted to Vice President, Operations Control. From 1976 until his retirement from Eastern in Feb 1981, he served as Vice President for System Operations and Safety. Fenello was FAA's Deputy Administrator for two years and 9 months, resigning effective May 1, 1984. (See Dec 23, 1983, and Dec 13, 1984.)

Aug 3, 1981: Nearly 12,300 members of the 15,000-member **Professional Air Traffic Controllers Organization (PATCO) went on strike**, beginning at 7 a.m., EST, grounding approximately 35 percent of the nation's 14,200 daily commercial flights. The controllers struck after the failure of eleventh hour negotiations, which began 2 p.m. Sunday, Aug 2, and continued, with one break, past 2 a.m. Monday, Aug 3. Shortly before 11 a.m. on Aug 3, at an impromptu news conference, **President Reagan issued the strikers a firm ultimatum**: return to work within 48 hours or face permanent dismissal. The government moved swiftly on three fronts -- civil, criminal, and administrative -- to bring the full force of the law to bear on the strikers. In a series of legal steps, Federal officials:

- * Asked the Federal Labor Relations Authority (FLRA) to decertify PATCO as the bargaining agent for the 17,200 controllers and controller staff members.

- * Moved to impound the union's \$3.5 million strike fund.

- * Filed criminal complaints in Federal courts in eleven cities against twenty-two PATCO officials.

- * Sought restraining orders against the strikers in thirty-three courts.

Even before the 7 a.m. walkout, a U.S. District Court for the District of Columbia signed an order directing the controllers to return to work. Late in the evening on Aug 3, another judge of the same court found the union in contempt for failing to obey the first order and imposed an accelerating schedule of fines totaling \$4.7 million if the controllers failed to report to work (\$250,000 for Tuesday, August 4; \$500,000 for Wednesday; \$1 million a day for the next four days). That judge also fined PATCO President Robert Poli \$1,000 a day for each day the strike continued, through Sunday, Aug 9. Approximately 875 controllers returned to work during the 48 hour grace period granted. After expiration of the grace period, about 11,400 controllers were dismissed. Most of those fired appealed the action, and 440 were eventually reinstated as a result of their appeals.

The strike and dismissals drastically curtailed FAA's controller workforce. According to DOT's FY1982 annual report, the firings reduced the number of controllers at the full performance or developmental level from about 16,375 to about 4,200. To keep the airways open, approximately 3,000 ATC supervisory personnel worked at controlling traffic. FAA assigned assistants to support the controllers, and accelerated the hiring and training of new air traffic personnel. Military controllers arrived at FAA facilities soon after the strike began, and about 800 were ultimately assigned to the agency. The combined force was sufficiently large to handle traffic without activating the National Air Traffic Control Contingency Plan, which called for FAA itself to establish rigid, severely curtailed airline schedules and to prescribe routes and altitudes.

The day the strike began, FAA adopted Special Federal Aviation Regulation (SFAR) 44, establishing provisions for implementing an **interim air traffic control operations plan** (see Feb 18, 1982). That plan allowed FAA, among others things, to limit the number of aircraft in the national airspace system. Hence, on Aug 5, the agency implemented a plan dubbed "Flow Control 50," whereby air carriers were required to cancel approximately 50 percent of their scheduled peak-hour flights at 22 major airports. FAA maintained an en route horizontal spacing between aircraft under instrument flight rules of up to 30 miles. Aircraft were kept on the ground, as necessary, to maintain this spacing. FAA gave priority to medical emergency flights, Presidential flights, flights transporting critical FAA employees, and flights dictated by military necessity. General aviation flights operated under the severest restrictions. Aircraft with a gross takeoff weight of 12,500 pounds or less were prohibited from flying under instrument flight rules; moreover, aircraft flying under visual flight rules were prohibited from entering terminal control areas. Other general aviation aircraft were served, as conditions permitted, on a first-come-first-served basis. (See Jul 2, 1981, and Sep 4, 1981.)

Aug 6, 1981: The Civil Aeronautics Board approved **acquisition of Continental Airlines by Texas International**, a subsidiary of Frank Lorenzo's holding company, Texas Air. The transaction was consummated in Oct 1981. **A year later, Lorenzo merged Texas International's operations into those of the much larger Continental.** (See Sep 24, 1983)

Aug 13, 1981: President Reagan signed the Fiscal Year 1981 Airport Development Authorization Act (Title XI of P.L. 97-35) which **briefly renewed the Airport Development Aid Program.** The law authorized \$450 million in grants from the Airport and Airway Trust Fund for airport development, planning, and noise compatibility projects during fiscal 1981. It also specified that at least \$25 million be used for noise compatibility grants, and forbade future authorization in excess of \$600 million for fiscal 1982.

FAA had only until the end of Sep 30, 1981, to allocate the \$450 million, plus another \$9 million resulting from adjustments to prior year's grants. The agency approved 622 new grants and 181 amendments to previous grants, for a total of \$450.4 million. FAA was unable to allocate the whole amount because one airport sponsor did not use all the money specifically set aside for it in the legislation. (See Sep 3, 1982).

Sep 4, 1981: FAA announced a **revised regional consolidation plan** under which the number of regions would be reduced from eleven to nine. The original plan would have resulted in only six regions (see Jun 12, 1981), but FAA stated that this had been modified due to the more pressing need to rebuild the air traffic control system in the wake of the PATCO controllers strike (see Aug 3, 1981). The consolidation was detailed in a notice issued on Sep 29. Under the new plan, FAA combined the existing Pacific-Asia and Western Regions into a new Western-Pacific Region with headquarters in Los Angeles, and closed the Honolulu regional office. The agency also combined the existing Rocky Mountain and Northwest Regions into a new Northwest Mountain Region with headquarters in Seattle, and closed the Denver regional office. It also reassigned the states of North and South Dakota from the Rocky Mountain to the Great Lakes Region. Operations under the new concept began on Oct 1, and all physical relocation was scheduled for completion by the end of Aug 1982.

Sep 4, 1981: FAA announced it would hire approximately **1,500 temporary employees, including furloughed airline pilots, to assist in replacing air traffic controllers** fired for striking. The temporary employees would not control traffic, but would perform duties related to flight strip distribution and other controller support functions. (See Aug 3, 1981, and Oct 2, 1981.)

Sep 11, 1981: Federal Aviation Regulation Part 108, a **new rule on airline security**, went into effect. The regulation levied airline security requirements according to the perceived threat facing different types of operations and sizes of aircraft, and established security safeguards appropriate to the various types of commercial passenger operations. Also on this date, FAA approved a new concept allowing airport operators to position law enforcement officers farther from passenger screening checkpoints provided certain conditions were fulfilled (see Mar 29, 1979).

Sep 26, 1981: The twin-engine **Boeing 767 made its first flight.** On Jul 30, 1982, FAA certificated the aircraft, the first entirely new U.S. commercial transport design in more than a decade. The 767 began its first revenue service on Sep 8 of that year with United Air Lines. On Jul 14, 1978, United Airlines had placed the largest order to date for a single commercial airplane, when it made a \$1.2 billion order for the airliner.

Sep 30, 1981: During fiscal year 1981, which ended on this date, FAA added two major **new capabilities to the en route air traffic control system: minimum safe altitude warning (MSAW)**, already a feature of the ARTS III terminal system (see Oct 28, 1977); **and arrival metering**, a function that provided the controller with computer advisories to help in managing the flow of traffic into congested terminal areas.

Oct 2, 1981: FAA announced the award of two contracts to E-Systems for **computer systems for 61 automated flight service stations (AFSS).** The agency planned that the existing network of over 300 stations would eventually be consolidated into the 61 automated facilities. The equipment to be produced by E-Systems would provide flight service specialists with rapid retrieval of data needed to brief pilots, presenting the information on television-like displays. Production was to be in two stages. Model 1, with capability of displaying weather and aeronautical alphanumeric data, would be implemented at 41 sites. Later, all 61 sites would get Model 2, which would add a second display for weather radar, charts, and other graphics. Model 2 would also include the capability for demonstrating direct access by pilots to the computer data base from remote computer terminals. The computers for

both models were to be installed at air route traffic control centers and connected by leased telephone lines to the flight service stations. (See May 28, 1981, and Nov 1982.)

Oct 2, 1981: FAA announced a \$10 million contract with the University of Oklahoma to help **train new air traffic controllers** to replace those fired for participating in the illegal strike. The University would provide FAA-certificated instructors as supplemental staffing for the FAA Academy. The agreement proved to be the first in a series of controller training contracts with the University. (See Sep 4, 1981, and Oct 22, 1981.)

Oct 6, 1981: **Blanche W. Noyes died**. One of the nation's early female pilots, she was probably the **first woman pilot to have a career in the U.S. government**. Noyes was known for her work in the air marking program during 35 years with FAA and its predecessors. She participated in many aviation events and races, winning the 1936 Bendix Air Race, was a founder of the Ninety-Nines, Inc., an organization established to encourage women in aviation. Her many awards included the Department of Commerce's gold medal for exceptional service in 1956, and induction into the Aviation Hall of Fame in 1970.

Oct 19, 1981: FAA placed a **General Aviation Reservation (GAR) plan** in effect, because the number of private aircraft flying in the system increased substantially after the controllers' strike. General aviation pilots who wished to fly under air traffic control were required to make reservations under a quota based on the percentage of flights that aircraft in their category had flown prior to the PATCO strike of Aug 3, 1981 (see that date). The restriction became necessary as non-airline pilots, some of whom had refrained from using the air traffic control system at the strike's beginning, began to increase operations. After two weeks under the GAR plan, FAA announced that the number of private aircraft flying in the system had been reduced to approximately the pre-strike level, and that the plan had helped to cut delays for both airline and private flights. (See Dec 31, 1983.)

Oct 22, 1981: The Federal Labor Relations Authority **decertified the Professional Air Traffic Controllers Association**, depriving the union of the right to represent its members. Following a temporary stay by a Federal Appeals Court, the decertification became effective on Oct 27. (See Oct 2, 1981, and Dec 31, 1981.)

Nov 1, 1981: Effective this date, Administrator Helms designated **four aircraft certification directorates**. The directorates assumed the certification responsibilities previously assigned to the lead and certificating regions under the lead region concept (see Jan 1, 1980). They also received additional responsibilities to strengthen and streamline the certification process. The directorates were managed by the directors of the following regions: Central (for aircraft under 12,500 lbs.); Northwest Mountain (for transport aircraft); Southwest (for rotorcraft); and New England (for engines and propellers). The authority of the directorates extended beyond regional boundaries. For example, aircraft certification offices in the Central, Southern, and Great Lakes regions reported directly to the Small Airplane Certification Directorate at the Central Region headquarters. FAA formally established the directorates by an order dated Feb 1, 1982, and on Mar 9 issued a news release stating that the directorate system had become operational.

Nov 2, 1981: Effective this date, **FAA reestablished 12 inches as the required height for registration marks** (N-numbers) on fixed-wing aircraft. This size requirement had originally been established by a rule published on Jan 6, 1961. In 1977, however, the size of the N-numbers was reduced to 3 inches for small airplanes with speeds not greater than 180 knots. The agency permitted this reduction in response to the Experimental Aircraft Association's concern to improve the aesthetic appearance of small aircraft. FAA reestablished the 12 inch height after complaints from citizens, law enforcement agencies, and the Defense Department demonstrated that timely and positive visual identification was compromised by the smaller markings. To avoid undue cost, however, FAA allowed owners of existing and certain newly-manufactured aircraft to display the smaller N-numbers until the aircraft was repainted or its marks were restored, repainted, or changed. The new requirement for 12 inch numbers did not affect existing rules on special marking procedures for certain aircraft that were amateur-built, unusually configured, over 30 years old, or operated for exhibition.

Nov 9-12, 1981: Ben L. Abruzzo, Larry Newman, Ron Clark, and Rocky Aoki made the **first balloon crossing of the Pacific**, a trip from Nagashima, Japan, to near Covelo, Calif., in Double Eagle V.

Nov 20, 1981: Effective this date, FAA **permitted blind airline passengers to use certain approved methods of storing their canes at their seats**. The agency had declined to permit this in an earlier rule (see May 16, 1977), deciding instead that the long utility canes should be handed over to flight attendants to be secured during takeoff and landing. This policy aroused considerable opposition,

particularly from the National Federation of the Blind (NFB). The NFB petitioned FAA on the issue, and filed suit when the petition was denied. Meanwhile, more than 100 blind persons and their supporters picketed FAA's national headquarters on Jul 5, 1978, to protest the cane policy. In Jan 1979, a U.S. court granted FAA's request for time to reconsider the issue. After testing by the agency's Civil Aeromedical Institute (CAMI), FAA in Nov 1980 proposed a rule permitting accessible storage of the canes. The agency announced the final rule on Jul 24, 1981.

Nov 30, 1981: FAA "decombined" the **last domestic combined station/tower (CS/T)**. Located at Valdez, Alaska, the CS/T had been the final survivor of a program begun by the Civil Aeronautics Administration under which air traffic control towers were consolidated with airway communication stations, the forerunners of flight service stations (see Aug 8, 1950). The number of CS/T's had been declining since 1958.

Dec 6, 1981: A new **Metropolitan Washington Airports Policy** became effective. In the making since 1978 (see Mar 23, 1978), the new policy differed only in a few respects with the policy proposed by the Carter Administration in 1980. The overall objectives of both the Carter and Reagan policies were to reduce the noise impact of operations at Washington National, maintain National's longstanding status as a short-haul airport, and promote better utilization of Dulles. The policy placed no restrictions on Dulles, while putting the following limitations on National:

* A 16 million cap on the number of passengers enplaning and deplaning per year (compared to 17 million under the Carter plan).

* A maximum of 60 landing slots per hour distributed as follows: Part 121 air carriers, 37; Part 135 commuter air carriers and air taxis, 11; general aviation, 12. (Compared to the Carter plan, this gave Part 121 operators one more slot and Part 135 operators one less.)

* Extension of the nonstop service perimeter rule from a radius of 650 to 1,000 miles (see Oct 30, 1986).

Whereas the Carter plan would have lifted the ban on 2- and 3-engine widebody jets at National, the Reagan plan retained the ban. Moreover, the new administration eliminated the Carter plan's restrictions on night-time arrivals and departures; instead, it limited operations at National between 10:00 p.m. and 7:00 a.m. to aircraft that generated no more noise than 73 dBA on takeoff and 85 dBA on approach. The noise limitations, which become effective on Mar 1, 1982, initially had the effect of excluding jet operations at the airport during the specified hours. (See Aug 31, 1983.)

Dec 9, 1981: President Reagan **rescinded a three-year prohibition of any Federal employment of controllers dismissed for participation in the PATCO strike** (see Aug 3, 1981); however, the fired controllers were still barred from employment with FAA.

Dec 29, 1981: **President Reagan suspended the U.S. landing rights of the Soviet airline Aeroflot** as part of sanctions enacted in response to repression in Poland. The action came soon after a temporary one-week suspension of Aeroflot's U.S. operations imposed during November because of violations of the prescribed routes. (See Jun 19, 1973, and Apr 29, 1986)

Dec 31, 1981: The Federal Labor Relations Authority certified the **Professional Airway Systems Specialists (PASS)** as the exclusive representative of FAA's electronics technicians. In a July election, PASS had defeated the Federal Aviation Science and Technological Association, known as FASTA (see Oct 5, 1976); however, PASS's certification was delayed by objections filed by FASTA. FAA and PASS concluded a national labor agreement during fiscal 1984. (See May 1, 1991.)

Dec 31, 1981: Robert E. **Poli resigned as president of PATCO**. (See Oct 22, 1981, and Jul 2, 1982.)

Dec 31, 1981: The end of this day marked the completion of the **second consecutive calendar year with no fatal airplane crashes by scheduled air carriers operating under Federal Aviation Regulations Part 121**--an unprecedented two-year record. Despite the absence of fatal crashes, however, Part 121 operations involved four varied mishaps in and around aircraft that each claimed one life in 1981. (See Dec 31, 1980, and Dec 31, 1993.)

***1982**

Jan 13, 1982: **A Boeing 737 operated by Air Florida crashed near Washington National Airport** shortly after taking off during snowfall. The aircraft hit a bridge, killing 4 persons in vehicles, and plunged into the icy Potomac River. Of the 79 persons aboard the jet, only four passengers and one flight attendant survived. The National Transportation Safety Board determined that the probable cause of the crash was the crew's failure to use the engine anti-icing system during ground operation and takeoff, their decision to take off with snow/ice on the airfoil surfaces, and the captain's failure to abort takeoff when his attention was called to anomalous engine instrument readings. Contributing to

the accident were: prolonged delay between deicing by ground crew and takeoff, during which the aircraft was exposed to continual snowfall; the known pitchup characteristics of the 737 when the leading edge was contaminated by even small amounts of snow or ice; and the crew's limited experience in jet transport winter operations. As a result of the accident, FAA and the aviation industry took a number of actions to increase awareness of cold weather hazards and the proper response to them. (See Dec 12, 1985.)

Jan 23, 1982: In a night landing too far down an icy runway at Boston's Logan airport, a **World Airways DC-10 slid over the edge of a seawall and into shallow harbor water**. The nose section separated from the fuselage, and two passengers seated at the separation point were later found to be missing and presumed drowned. In its original report on the accident, the National Transportation Safety Board listed pilot error as a contributory factor, but found the probable cause to be the pilot's lack of information on the slippery runway conditions. The Board blamed this lack on the airport management and on FAA, citing inadequate regulation and air traffic controllers' failure to relay runway condition reports. After protests from FAA and the airport authority, the Board issued a revised finding that placed somewhat more emphasis on pilot error.

Jan 28, 1982: FAA released a **National Airspace System Plan** (NAS Plan or NASP), a comprehensive 20-year blueprint for modernizing the nation's air traffic control and air navigation system. The 450-page document had been printed the previous month and bore the date Dec 1981. It spelled out specific improvements to be made to facilities and equipment to meet the projected demands of air transportation. Key elements of the plan included:

- * **Computers:** FAA would first replace the IBM 9020 computers at the air route traffic control centers with more powerful computers that could use the existing programs or "software packages." The agency would then proceed with development of new software as well as new consoles and displays known as "sector suites." (See Aug 30, 1982.)

- * **Facility consolidation:** air route traffic control centers and terminal radar control rooms would be consolidated from approximately 200 into about 60 by the year 2,000 (see Mar 22, 1983). Flight service stations would be consolidated from about 300 into 61 automated facilities. (See Oct 2, 1981.)

- * **Radars:** a new secondary radar system would interrogate aircraft transponders on an individual basis, paving the way for automatic "data link" air-ground communications. This **Mode S equipment** ("S" for "selective address"), in combination with a new generation of Doppler weather radar, would also permit the replacement of the existing primary en route radar system. Primary radar would be retained in terminal areas, however, and be improved with the addition of a separate weather channel. (See Oct 5, 1984.)

- * **Weather services:** were to be upgraded by such means as direct pilot access to computer weather data via remote terminals or touchtone telephones (see Mar 14, 1984). Automated sensors at airports would generate radio broadcasts on surface conditions, improving safety and allowing lower weather minimums for landing (see Jan 26, 1983).

- * The **Microwave Landing System (MLS):** full production procurement was to be initiated in fiscal 1983, with over 1,250 to be in place before century's end (see Apr 19, 1978 and Jan 12, 1984). FAA expected the new equipment to provide precision guidance over a much broader area than the existing Instrument Landing Systems, thus allowing greater operational flexibility.

Following the publication of this initial NAS Plan, FAA issued updated editions annually (see Feb 8, 1991).

Feb 18, 1982: A special rule issued this date amended the **Interim Operations Plan for air traffic control** (see Aug 3, 1981). The new rule provided procedures to be used Apr 25-Oct 30 in scheduling and in allocating airport landing reservations ("slots") at the 22 airports at which operations were limited due to the PATCO strike. New entrants were more clearly defined, and a system initiated that accorded such carriers high priority in awarding such additional capacity as became available. A random draw was implemented for determining the order in which carriers' requests for more slots were processed. (See Mar 6, 1984.)

Feb 19, 1982: The **Boeing 757 first flew**. On Dec 21, 1982, FAA certificated the first version of the Boeing 757, a narrow-body jet capable of carrying up to 219 passengers in short/medium range flights and designed to replace the Boeing 727, the single most popular jetliner model produced to date, but obsolescent in terms of noise, fuel efficiency, and flight crew productivity. Powered by two Rolls-Royce 535C engines, the 757 was the first Boeing airliner launched with foreign-made engines.

Eastern Air Lines and British Airways had placed orders for the medium-range airliner on Aug 31, 1978.

Mar 15, 1982: The Safety Regulations Staff in FAA's Office of the Associate Administrator for Aviation Standards was abolished and its functions were transferred to a **new Safety Regulations Division** established in the Office of Aviation Safety.

Mar 17, 1982: FAA announced that it had received the first of 950 **new radio navigation aids (VORs and VORTACs) with solid state construction** and other advanced features for installation during the next three years. The National Airspace System Plan called for replacement of all vacuum tube radio navigation aids with the reliable solid state equipment over the next 20 years. (See Sep 5, 1974 and Aug 3, 1982.)

Apr 22, 1982: **Tighter rules for aircraft entering the south Florida area through off-shore Air Defense Identification Zones (ADIZs)** became effective. Previously, aircraft flying at less than 180 knots had not been required to file flight plans and make regular position reports in any ADIZ off the coast of the continental U.S. Now all aircraft entering an ADIZ south of the 30th parallel and east of the 86th meridian had to comply with these requirements, regardless of their airspeed. In addition, FAA now required pilots flying into any ADIZ to report if their aircraft carried a transponder--and if so, what kind. The agency mandated changes in response to increased flights by drug smugglers. (See Sep 1, 1987.)

May 10, 1982: FAA began an **experimental program of allowing airlines to buy, sell, and transfer airport landing "slots"** among themselves. The program included a "use or lose" provision and restrictions on transfer by carriers allotted slots on the basis of essential air service. On Jul 6, FAA announced that it was suspending the buy-sell policy, but would continue to allow the exchange or trade of slots. On Aug 5, the agency announced that it was easing certain restrictions on this slot trading. (See Mar 6, 1984, and Dec 20, 1985.)

May 12, 1982: **Braniff International Airways suspended operations**, quickly filing for protection under Chapter 11 of the bankruptcy code. (See Mar 1, 1984.)

May 15-Aug 13, 1982: The National Center for Atmospheric Research and the University of Chicago conducted a field experiment in the vicinity of Denver as part of the **Joint Airport Weather Studies (JAWS)** Project. FAA and many other agencies and research groups participated in JAWS, which employed Doppler radars and a variety of other data sources. The project resulted in new understanding of **wind shear microbursts**, yielding information on their formation, duration, decay, severity, and movement. (See Jun 24, 1975, and Jul 9, 1982.)

Jun 7, 1982: The **National Airspace Review (NAR)** program convened the first two of 16 task groups organized to study various aspects of the airspace system. FAA had introduced the NAR concept in Apr 1981 with the announcement of a meeting to allow airspace users to participate in formulating the program, and had published a proposed plan for the review on Aug 10, 1981. Composed of representatives of FAA, the military, and the civil aviation community, the task groups submitted a host of recommended improvements, such as the Airport Radar Service Area (ARSA) concept (see Dec 22, 1983), for the FAA Administrator's consideration. By the Dec 4, 1984, final meeting of the Executive Committee that had guided the NAR during its initial stage, the NAR had generated 850 recommendations, over 500 of which had already been implemented or approved for implementation. During its next phase, the NAR focused on the future rather than the present system, and the Office of Management Systems assumed responsibility for guiding the program.

Jul 2, 1982: The **Professional Air Traffic Controllers Organization filed a request for liquidation under Chapter 7 of the Federal Bankruptcy Act**. According to Gary Eads, who had become PATCO's president on Jan 1, 1982, the union had about \$5 million in assets but owed \$40 million, including \$33.4 million to the airlines for violating a 1970 Federal court anti-strike injunction. Last Nov 25, PATCO had filed a motion in Federal court seeking to freeze its assets while it reorganized under Chapter 13 of the Bankruptcy Act. After filing to liquidate under Chapter 7, Eads declared, "It is over for PATCO. The union is gone." (See Dec 31, 1981, and Jun 19, 1987.)

Jul 2, 1982: Truck driver Larry Walters reached a reported 16,000 ft. over Long Beach, Calif., during a 45-minute **flight in a lawn chair tied to balloons**, crashing into a power line on descent but alighting unharmed. FAA fined Walters \$1,500 for the escapade.

Jul 4, 1982: Following a ten-month interagency review, President Reagan issued a **decision directive stating that expansion of U.S. private sector involvement in civil space activities** was a national goal. As the government phased out certain expendable launch vehicles (ELVs), private interest in

commercial operation of these systems was rising. On Nov 16, 1983, the President chose DOT as the lead organization for ELV commercialization. **On Feb 24, 1984, Executive Order 12465 formally designated DOT as the lead agency** for encouraging, facilitating, and licensing commercial ELV activities. DOT entrusted these duties to a new **Office of Commercial Space Transportation** that it had begun to organize during 1983 (see Aug 7, 1995). Congress affirmed and expanded these actions through the Commercial Space Launch Act, enacted on Oct 30, 1984. This legislation made DOT responsible for enumerated activities to encourage and regulate U.S. commercial space launches.

Jul 9, 1982: A **Pan American 727 crashed** shortly after takeoff from New Orleans International Airport, killing all 145 aboard and 8 persons on the ground. The National Transportation Safety Board listed the accident's probable cause as the airplane's encounter with **microburst-induced wind shear**, which imposed a downdraft and a decreasing headwind. As a contributory factor, the Board listed the limited ability of the current Low Level Wind Shear Alert System (LLWAS) to provide definitive guidance for controllers and pilots in avoiding the hazard (see Sep 1978). Although the pilot was aware that LLWAS alerts were occurring periodically around the airport, the system did not detect the wind shear that affected the Pan Am flight until after takeoff began.

Concerned over the accident, Congress in Dec 1982 passed legislation requiring FAA to contract with the National Academy of Sciences for a study of the wind shear hazard. The resulting report, completed by the Academy's National Research Council in Sep 1983, urged that FAA establish an integrated wind shear program to address all aspects of the problem. The report's recommendations included the improvement and wider use of LLWAS, which it considered the only detection system available in the near term for operational use. In Oct 1983, FAA announced that it had ordered another 51 of the systems. (See Aug 2, 1985.)

Jul 9, 1982: In City of Houston v. Federal Aviation Administration, the United States Court of Appeals for the Fifth Circuit held that the **perimeter rule prohibiting air carriers from operating nonstop flights to and from Washington National** beyond a 1,000-mile radius was neither arbitrary nor capricious and, therefore, a valid exercise of power. (See Apr 24, 1966, Dec 6, 1981, and Oct 30, 1986).

Jul 29, 1982: FAA certificated the **Bell 222B**, the first transport category helicopter certificated for single-pilot instrument flight rules (IFR) operation without stabilization equipment.

Aug 3, 1982: FAA commissioned the first of a **new generation of very high frequency omnidirectional radio range (VOR) navigational aids** at the North Philadelphia, Pa., Airport. The new installation was the first in FAA's program to replace VORs using vacuum tubes with more reliable solid-state equipment. (See Mar 17, 1982.)

Aug 23, 1982: **United Parcel Service began "Next Day Air" package delivery** between Los Angeles and San Francisco. The service was extended to 24 metropolitan areas during the following month, and by Jun 1985 it covered all the states except Alaska. UPS air freight had traveled primarily in the cargo holds of passenger aircraft through 1980, but thereafter the company relied increasingly on its growing fleet of cargo aircraft.

Aug 30, 1982: FAA established an **Advanced Automation Program Office**, which reported directly to the Administrator. The office had responsibility for the Advanced Automation Program, that element of National Airspace System modernization concerned with developing a replacement for NAS En Route Stage A and ARTS air traffic control systems. (See Jan 28, 1982 and Jul 25, 1983.)

Sep 2, 1982: FAA published a **rule covering two types of recreational equipment** that had emerged during the 1970s: unpowered hang gliders (see May 29, 1974), and powered airplanes of extremely light weight. For regulatory purposes, FAA defined machines of both these types as "**ultralight vehicles**" rather than aircraft; therefore, they were not subject to the agency's requirements on registration, airworthiness certification, and pilot licensing. To qualify for the new category, a hang glider must weigh less than 155 lbs., and a powered vehicle less than 254 lbs. In addition, a powered ultralight must not exceed: a fuel capacity of 5 gal.; a top speed of 55 knots; and a power-off stall speed of 24 knots. The agency limited both powered and unpowered ultralights to a single occupant.

The new regulation subjected ultralights to certain operating restrictions, including right-of-way and minimum visibility requirements. Ultralight operators were responsible for maintaining separation from other aircraft on a "see and avoid" basis. FAA banned flights over congested areas, and permitted operations in certain controlled airspace only with the prior approval of the appropriate air traffic control facility. The new rule also authorized on-the-spot safety inspections by FAA personnel.

The question of whether ultralights required further regulation remained controversial. During 1984, Congress heard testimony on the subject, and FAA held a series of meetings to obtain public comment. On Feb 5, 1985, the National Transportation Safety Board urged stronger safety regulation, citing its investigation of 88 fatal ultralight accidents that occurred between Mar 1983 and Sep 1984. FAA subsequently drafted a rulemaking proposal on the registration and marking of powered ultralights, as well as the licensing of their pilots. The proposal was not published, however, because of objections by the Office of Management and Budget.

Sep 3, 1982: President Reagan signed the Tax Equity and Fiscal Responsibility Act (P.L. 97-248), general tax legislation that **increased aviation user taxes**. The act: raised the airline passenger ticket tax from 5 to 8 percent; increased the general aviation gasoline tax from 4 to 12 cents per gallon; levied a jet fuel tax of 14 cents per gallon; and reimposed the 5 percent air cargo tax and the \$3 international departure fee. These taxes were earmarked as **renewed funding for the Airport and Airway Trust Fund**, which had received no tax revenues since Sep 30, 1980 (see that date).

Title V of the tax bill, designated the **Airport and Airway Improvement Act of 1982, reestablished FAA's airport grants program** for development and noise compatibility projects. Formerly known as the Airport Development Aid Program (ADAP), this function had been inactive since the end of fiscal 1981 (see entry for Aug 13, 1981). It was now renamed the **Airport Improvement Program (AIP)**, and authorized to draw on the Trust Fund in the following amounts: \$450 million for fiscal 1982; \$600 million, 1983; \$793.5 million, 1984; \$912 million, 1985; \$1.017 billion, 1986; and \$1.017 billion, 1987. Unused authorizations could be carried over to succeeding years. (An additional \$475 million was authorized for airport projects in 1983-85 as part of P.L. 97-429, the Surface Transportation Assistance Act of 1982.)

The Airport and Airway Improvement Act stipulated formulas for apportioning airport development funds between primary, commuter, reliever, and general aviation airports, including a guarantee that reliever airports receive at least 10 percent of available funds. For the first time, privately owned airports in the reliever and commercial categories became eligible to receive grants. Other provisions of the law specified that not less than 1 percent of available funds be set aside for airports system planning grants, and directed FAA to publish a national plan of integrated airport systems (see Aug 2, 1985).

The Airport and Airway Improvement Act also authorized FAA to use a total of 6.327 billion from the Trust Fund for airway facilities and equipment over the six years beginning with fiscal 1982. This funding helped to finance the planned modernization of the National Airspace System (see Jan 28, 1982). In addition, \$1.169 billion from the Trust Fund was authorized for the agency's research, engineering, and development activities during the same six years. The law also significantly increased the amount that FAA could draw from the Trust Fund for operations and maintenance. It authorized \$800 million in 1982, and established formulas for the succeeding five years based on the level of funds made available for airport development. (See Dec 30, 1987.)

Sep 8, 1982: FAA retitled the Associate Administrator for Policy and International Aviation Affairs the **Associate Administrator for Policy and International Aviation**. The agency also retitled the Office of International Aviation Affairs as the **Office of International Aviation**.

Sep 20, 1982: FAA published a proposal to implement "**Regulation by Objective**" (RBO) in regulating airlines. Under this concept, "how to do it" regulations would be replaced by broadly stated objectives, and the airlines would be allowed the flexibility to meet these objectives in the most efficient and cost-effective manner possible. FAA would pass judgement on new methods of compliance, however, and the agency would use a computer system to track the requirements that applied to each airline. A single Federal Aviation Regulation Part 120 would replace two existing operating regulations, Part 121 for operators of large aircraft and Part 135 for commuter and air taxi operators. Response to the proposal included many negative comments on RBO's practicality, cost, and consistency with FAA's mandate. The agency withdrew the proposal on Jun 16, 1983, stating that to pursue the concept would be less productive than to proceed with a review of Parts 121 and 135.

Sep 15, 1982: **Glen A. Gilbert died** at age 69. An important pioneer in the conceptual development of air traffic control, Gilbert was manager of the airlines' Chicago air traffic control center at the time that it came under the control of the Commerce Department (see Jul 6, 1936). He subsequently became Chief of the Airway Traffic Control Section and later held other Federal aviation positions before joining the staff of the International Civil Aviation Organization in 1951. Gilbert worked as an aviation consultant from 1957 until his death. He also authored several books on air traffic control.

Sep 30, 1982: H. Ross Perot, Jr., and Jay Coburn landed their Bell 206L-1 LongRanger II in Dallas, Tex., after completing the **first helicopter flight around the world** in 29 days, 3 hours, 8 minutes. On Aug 5, 1982, meanwhile, Dick Smith had departed from Fort Worth, Tex. in a Bell 206B JetRanger III on the **first solo helicopter flight around the world**. Smith, an Australian businessman, completed his unhurried trip on Jul 22, 1983.

Oct 26, 1982: FAA announced a contract with Burroughs Corp. to equip the agency's district safety offices with a computerized information processing system that would allow safety inspectors to spend more of their time on field work rather than on preparing and analyzing reports. This **Work Program Management Subsystem (WPMS)** was implemented during 1983. WPMS was part of an **Aviation Safety Analysis System (ASAS)** being developed to apply computer technology to the support of a variety of FAA tasks and decisions. ASAS continued to grow in scope and complexity during succeeding years.

Oct 29, 1982: **Changes in the FAA headquarters organization** became officially effective. The position of Associate Administrator for Air Traffic and Airway Facilities was abolished, and the Air Traffic Service now reported directly to the FAA Administrator. (The title of this service's Director was later changed to Associate Administrator for Air Traffic, effective Dec 25, 1983.) The Airway Facilities Service was abolished, as were the Associate Administrator for Engineering and Development position and its subordinate services, the Systems Research and Development Service and Office of Systems Engineering Management. The abolished elements were replaced by an organization under a new Associate Administrator for Development and Logistics. Reporting to this Associate Administrator were a new Systems Engineering Service, headed by the former director of the abolished Airway Facilities Service, and a new Program Engineering and Maintenance Service. The Logistics Service was retitled the Acquisition and Materiel Service and remained under the Associate Administrator for Administration.

Nov 5, 1982: FAA announced that it would accept **applications for air traffic controller positions** from certain categories of specially qualified persons from 31 to 35 years old. Previously, all controller applicants had to be less than 31 years old at the time of appointment. The change would apply during the Nov 8-30 application period, and any future application periods before the end of 1984.

Nov 1982: FAA commissioned its **first Automated Flight Service Station (AFSS) building** at Denver. Although the agency planned to link groups of AFSS sites into "family" units linked by an automated central data processing system, the Denver facility and other early AFSS buildings were commissioned individually without the new equipment. The Denver site was FAA-owned and not part of the lease program begun on May 28, 1981 (see that date). The **first AFSS building commissioned under the lease program took place at Bridgeport, Conn., on Mar 3, 1984**. (See Oct 2, 1981, and Feb 12, 1986.)

Dec 7, 1982: FAA announced the creation of a **Rotorcraft Program Office** to oversee the agency's activities affecting helicopters. The agency formally established the new office, which reported directly to the Associate Administrator for Aviation Standards, on Apr 28, 1983. (See Oct 31, 1986.)

Dec 28, 1982: Secretary of Transportation **Drew Lewis announced his resignation**, effective Feb 1, 1983. Lewis, who stated that he had originally planned to remain as Secretary only two years before returning to private life, became chief executive of a cable television company.

Dec 28, 1982: Witnesses reported that a **737 flew dangerously close to a tall building in Rosslyn, Va.**, as it approached Washington National Airport. On Mar 24, 1983, the National Transportation Safety Board (NTSB) reported that the aircraft had flown nearer the building than normally should occur, and that low-flying aircraft were not unusual in the locality. NTSB recommended that FAA change the approach path and take certain other actions. FAA rejected these recommendations, but on Nov 21, 1983, NTSB asked the agency to reconsider. On Dec 21, FAA responded that it would institute a **new instrument approach course farther from Rosslyn**, upgrade electronic equipment on the approach already in use, and place an additional limit on how low pilots using a third approach course could descend before sighting the airport. FAA also tested new lead-in lights and later installed them on Potomac River bridges. (See Mar 8, 1984.)

***1983**

Jan 4, 1983: Effective this date, FAA **increased the minimum qualifications for air traffic controllers who provide on-the-job training (OJT)**. As before, FAA required such controllers to be certificated on the position for which they served as an OJT instructor. In addition, they were now

required to have operated in the position for a minimum of 30 solo hours after certification, and to have received certification as an OJT instructor based on a supervisor's observation of actual performance at the position.

Jan 26, 1983: FAA announced that a year-long demonstration of the **Automated Weather Observing System (AWOS)** would begin at selected airports later in the year. The demonstration was a step toward FAA's goal of developing an unmanned weather station that would employ standard weather sensors working in tandem with data processing equipment to produce weather observations for dissemination to pilots, controllers, and other users. The agency had begun testing a prototype in 1978, and awarded contracts for demonstration systems in 1982. The airport demonstration program was completed in 1984. On Apr 11, 1986, FAA issued an advisory circular containing standards for AWOS systems for non-Federal acquisition. The agency also planned to acquire AWOS systems for Federal use. (See Feb 28, 1989.)

Jan 31, 1983: FAA published **new airworthiness standards for the certification of newly designed helicopters**, effective Mar 2. One important provision required helicopters carrying ten or more passengers to be multi-engine aircraft capable of continued safe flight if one engine failed during climb, cruise, or descent. For helicopters carrying less than ten passengers, the new standards permitted greater flexibility of use. This was achieved by relaxing "height velocity" provisions that had required, in effect, that these aircraft maintain enough altitude and airspeed to allow them to land safely by auto-rotating (the helicopter equivalent of gliding). Other changes dealt with certification for instrument flight rule operations and for flight in icing conditions. The new standards resulted from FAA's continuing **Rotorcraft Regulatory Review Program**, begun with a Jan 5, 1979, invitation for proposals which were subsequently considered at a series of public conferences.

Feb 7, 1983: **Elizabeth Hanford Dole became Secretary of Transportation**. Dole had directed the President's Committee for Consumer Interests under the Johnson Administration. She remained at that post after Nixon succeeded Johnson in 1969, then moved to other posts, including a seat on the Federal Trade Commission. Originally a Democrat, she registered as an independent on taking the FTC post in 1973, and became a Republican about the time of her marriage to Senator Robert Dole (R-Kan.) in Dec 1975. She resigned from the FTC in Mar 1979 to campaign for her husband in his unsuccessful bid for the Republican presidential nomination, then participated in the Reagan campaign. In 1981, she became Assistant to the President for Public Liaison, and remained in that position until accepting the cabinet post. (See Oct 1, 1987.)

Mar 22, 1983: In congressional testimony, Administrator Helms outlined a **new approach to facility consolidation** which was to be reflected in a revised National Airspace System (NAS) Plan published the following month. The original plan had called for a reduction in the number of Air Route Traffic Control Centers (ARTCCs) in the continental U.S. from 20 to 16. It had also envisioned the consolidation of the 188 existing TRACON (terminal radar approach control) and TRACAB (terminal radar approach control in the tower cab) facilities. These 188 facilities were to have been consolidated into about 30 regional or hub TRACONs. In the revised plan, all 20 ARTCCs would be retained, redesignated **Area Control Facilities (ACFs)**, and given the added responsibility of providing terminal radar services for virtually the entire nation (see Apr 19, 1993). Individual airport towers would continue to direct takeoffs and landings, but TRACONs and TRACABs would be consolidated into the ACFs. The existing ARTCC sites would be augmented as necessary to perform their new responsibilities as ACFs. Three additional ACFs (one in Alaska, one in Hawaii, and one in the continental U.S.) would bring the total number of these sites to 23. Evolution of the ACF concept was dependent upon the development and acquisition of such air traffic control technology as the advanced automation system (see Jul 26, 1985) and the voice switching and control system (Oct 21, 1986).

Mar 28, 1983: The U.S. launched a weather satellite carrying **Search and Rescue Satellite-Aided Tracking (SARSAT)** as part of its equipment, making it the **first American satellite capable of receiving Emergency Locator Transmitter (ELT) signals**. SARSAT was developed as a joint project of the U.S., Canada, and France. In parallel with this effort, the U.S.S.R. developed a compatible capability, called COSPAS, incorporated in satellites that they launched in June 1982 and the spring of 1983. The U.S. placed a second satellite with SARSAT capability in orbit in Dec 1984, providing an optimum system to minimize alerting time from the occurrence of an accident. The ELT signals relayed via satellite to the ground allowed the approximate position of the ELT to be determined. Additional satellites with COSPAS/SARSAT were periodically launched to ensure

adequate system capability. In 1984, the sponsors of COSPAS and SARSAT signed the first agreement on maintaining the system beyond the 1980s.

May 1, 1983: A hijacker succeeded in reaching Havana by locking himself in a lavatory during an airline flight and issuing notes threatening to blow up the aircraft. The incident began a **renewed upsurge of hijackings to Cuba**, many perpetuated by Mariel boat lift refugees (see Jul 22, 1980). By Sep 22, hijackers had diverted 10 additional airliners to Cuba, prompting FAA to increase security measures at airports in selected areas. Hijackings to Cuba began to decline in the last quarter of 1983, although three such diversions took place in 1984. No hijackers succeeded in reaching Cuba from the U.S. during 1985 or 1986.

May 23, 1983: The first aircraft to navigate across the Atlantic entirely by use of the **Global Positioning System (GPS)** landed at Paris. The Rockwell International Saberliner had made en route stopovers due to the lack of continuous satellite coverage by the experimental system, which the Defense Department had been developing since the 1970s. In the Apr 1984 edition of the National Airspace System (NAS) Plan, FAA noted that GPS would serve as a future supplemental navigation system for civil aviation, in addition to its primary military role. The Plan therefore included FAA deployment of GPS signal monitors. (See Apr 1, 1991.)

May 5, 1983: **All three engines of an Eastern Air Lines L-1011 failed over the Atlantic**, but the pilot restarted one engine and landed safely at Miami. The cause of the incident was oil loss due to mechanics' failure to install O-ring seals.

Jun 1983: The **first Integrated Communications Switching System (ICSS) became operational** at Houma, La. ICSS, a flexible voice communications control and switching system, included three versions: Type I (like the Houma system), for small air traffic control towers and terminal radar approach control facilities (TRACONs); Type II, for larger towers and TRACONs; and Type III, for Automated Flight Service Stations. By the end of fiscal 1986, FAA had installed 86 Type I, 15 Type II, and 30 Type III systems.

Jun 2, 1983: An **in-flight fire aboard an Air Canada DC-9** filled the cabin with smoke and prompted an emergency landing at Greater Cincinnati airport in Covington, Ky. A flash fire enveloped the aircraft interior about 60 to 90 seconds after the exits were opened, killing 23 of the 46 persons aboard. The National Transportation Safety Board was unable to determine the cause of the fire, which originated in the aft lavatory. The Board concluded that an underestimate of the seriousness of the fire and misleading reports of its progress delayed the captain's decision to land and contributed to the accident's severity. (See Mar 29, 1985.)

Jun 8-14, 1983: A Joint System Program Office (JSPO) representing the National Weather Service, FAA, and the Air Force awarded two competitive contracts to develop pre-production models of the **Next Generation Weather Radar (NEXRAD)**. The contracts would remain in effect until July 1986, after which one of the firms would be selected for production. NEXRAD would have the ability to "see" inside storms and measure the velocity and direction of wind-driven precipitation and other particles suspended in the air. The system was based on the Doppler effect, which permits an object's speed and direction to be determined by the lengths or frequency of the light, sound, or radio waves it emits.

The U.S. government had been investigating the potential of Doppler radar since the 1950s. In Apr 1977, joint NEXRAD testing was begun by the Air Force and the Commerce Department's National Weather Service. FAA formally joined the program in Dec 1977, due to the tests' success and perhaps also the crash of a DC-9 in a thunderstorm (see Apr 4, 1977). In Aug 1979, the Departments of Commerce, Transportation, and Defense formed a Joint System Program Office with the goal of developing a national network of NEXRAD radars and processing equipment. The Commerce Department, which planned to buy and operate most of the radars, was given the lead role (see Feb 28, 1994).

Initially, NEXRAD had been intended to cover both en route and airport needs, but Project JAWS (see May 15-Aug 13, 1982) produced data on wind shear microbursts that prompted FAA to conclude that separate airport systems would be needed. To learn more about how Doppler radar could be applied to the low-level wind shear hazard, FAA conducted **Project CLAWS** (for classify, locate, and avoid wind shear) in the Denver area from Jul 7 to Aug 13, 1984. FAA contracted with the National Center for Atmospheric Research to provide daily microburst forecasts, Doppler radar surveillance, and real-time advisories of microburst activities. During CLAWS, pilots gave detailed feedback on the effectiveness of the system. On Sep 16, 1985, FAA signed an agreement with the Commerce

Department under which FAA would contract with the Sperry and Raytheon corporations to identify how NEXRAD systems would need to be modified to develop terminal Doppler radar. (See Aug 2, 1985.)

Jul 7, 1983: The Office of Personnel Management gave FAA final approval to proceed with its **Airway Science Curriculum program** on a five-year demonstration basis, effective after a 90-day congressional review period ending on Oct 10, 1983. FAA had first submitted a proposal for such a project in 1978. In early 1981, Administrator Helms began discussions with selected colleges to explore the possibility of their offering courses to help provide the agency with better-trained candidates for certain occupations. In 1982, he wrote to a list of colleges and universities asking them to consider such courses, and many of the schools expressed interest. The program established a curriculum, leading to a bachelor's degree, that provided a broad foundation in mathematics, science, and management topics, as well as in aviation. Major areas of specialization included aviation management, computer science, aircraft operations and flight technology, and the installation and operation of aviation facilities. Institutions recognized as offering such a curriculum became eligible to apply for airway science grants.

Jul 13, 1983: FAA announced that its program to improve aircraft braking and direction control on wet runways through grooving the runway surface and other techniques had resulted in the **upgrading of nearly 500 runways at 360 airports** in the last six years. (See Apr 23, 1967.)

Jul 25, 1983: FAA placed the **Advanced Automation Program Office** under the executive direction of the Associate Administrator for Development and Logistics. (See Aug 30, 1982.)

Jul 1983: After testing in the areas of the Jacksonville and Miami Air Route Traffic Control Centers, FAA adopted the **Hazardous Inflight Weather Advisory Service (HIWAS)** for national implementation. HIWAS was designed to provide continuous broadcast of information on dangerous weather. FAA first implemented the system in the area where it had been tested, and in Sep 1985 expanded it to the Houston center's airspace. By Sep 1989, the agency had completed nationwide delivery of sufficient HIWAS equipment to provide coverage at or above 4,000 feet.

Aug 24, 1983: In **United States v. The County of Westchester**, the U.S. District Court for the Southern District of New York struck down an all-night curfew instituted by Westchester County at its airport. Citing the Concorde case (see Oct 17, 1977), the court said that local airport proprietors were "vested only with the power to promulgate reasonable, nonarbitrary and non-discriminatory regulations that establish acceptable noise levels." In instituting its curfew, however, Westchester County had failed to conduct any study to determine the location of noise-impacted areas or to quantify the level of noise from any source. Moreover, the curfew banned all flights at the Westchester County Airport between the hours of midnight and 7 a.m.--regardless of the degree of noise produced by individual aircraft. As a result, in the opinion of the Court, the curfew did not pass the test of reasonableness and was an "over-broad exercise of power." (See Nov 5, 1990.)

Aug 31, 1983: An American Airlines DC-9 Super 80 became the **first scheduled jet airliner to arrive after 10:00 p.m. at Washington National Airport since the imposition of nighttime noise limits** (see Dec 6, 1981). The Super 80 landed without violating the limit of 85 decibels.

Sep 1, 1983: **A Soviet interceptor shot down Korean Air Lines flight 007**, a 747 that penetrated the Soviet Union's airspace during a flight bound for Japan from Alaska. All 269 persons aboard, including Rep. Larry P. McDonald (D-Ga.) and 60 other Americans, were killed. An International Civil Aviation Organization (ICAO) report issued in June 1993 concluded: that the Korean crew unknowingly flew into Soviet airspace because they improperly operated their navigation equipment; and that the Soviets assumed that the 747 was an intelligence aircraft and did not make exhaustive efforts to identify it. On Mar 6, 1984, the governing council of ICAO condemned the destruction of KAL 007, and on May 10 the ICAO assembly amended the Convention on International Civil Aviation to ban the use of weapons against civil aircraft. The KAL tragedy also led to negotiations between the U.S., U.S.S.R., and Japan aimed at enhancing the safety of civil aircraft on Northern Pacific routes. The three nations signed a Memorandum of Understanding on Jul 29, 1985, followed by an implementing agreement on Nov 19 of that year. In addition to procedures for correcting the course of straying aircraft and for emergency landings in Soviet territory, the agreement included improved communications between air traffic controllers. The **new communications link** became operational on Aug 15, 1986, providing a dedicated voice circuit between air traffic control centers in Tokyo and Khabarovsk, U.S.S.R. American controllers at Anchorage could also communicate with Khabarovsk by patching through the Tokyo center.

Sep 22, 1983: FAA announced the award of two competitive contracts for design of a **new mainframe computers** to replace the IBM 9020 computers at Air Route Traffic Control Towers as part of the agency's Advanced Automation Program. (See Jan 28, 1982 and Jul 26, 1985.)

Sep 24, 1983: **Continental Airlines filed for bankruptcy protection under Chapter 11 and suspended flights.** Frank Lorenzo (chairman of the airline and its parent company, Texas Air) announced on Sep 26 that a "new Continental" was resuming operations, on a discount-fare basis, to about a third of the cities formerly served. He offered to rehire 4,200 of the firm's 12,000 employees at salaries below those paid under their union contracts. **Continental's pilots and flight attendants began a strike** on Oct 1, but failed to shut down the airline. By the end of 1983, the company employed approximately 700 pilots and 800 flight attendants. (See Feb 6, 1984.)

Sep 30, 1983: FAA awarded a contract for a **new generation of solid-state Airport Surveillance Radars, designated ASR-9**, to replace vacuum-tube radars in use at U.S. airports. (See Jun 1975 and May 2, 1989.)

Sep 30, 1983: During the fiscal year that ended on this date, key equipment was installed for the **National Airspace Data Exchange Network (NADIN)**, a new interfacility communication system being established under a contract awarded in 1980. Under the NADIN system, messages originating at an air traffic control facility would go to the nearest of some 20 regional concentrators (computerized communication equipment sites). The message would then go to one of two major switching centers, located at Atlanta and Salt Lake City. These switches would disseminate the data, bypassing failed or saturated areas when required. Each switch would handle messages for half the country, but would possess the ability to manage the entire system if necessary. During FY 1982, the first of the switches was installed at Salt Lake City, and the first of the concentrators was installed at the FAA Technical Center. The Atlanta switch and the remaining 20 concentrators were installed in FY 1983, moving NADIN closer to commissioning. (See May 5, 1989.)

Oct 7, 1983: A Wall Street Journal article accused FAA Administrator Helms and his associate, Vincent Roggio, of questionable practices in their private business dealings during the past 8 years. The article proved the beginning of highly publicized **difficulties for Helms**, who in Mar 1984 filed a damage suit against Roggio and other business associates, then petitioned for bankruptcy. In 1987, Roggio received a prison sentence for fraud. (See Dec 23, 1983.)

Oct 11, 1983: **An Air Illinois commuter flight crashed** near Pinckneyville, Ill., killing all ten persons aboard. The National Transportation Safety Board later reported that the accident was caused by the pilot's decision to continue the flight after loss of electrical power from both generators of his Hawker-Siddeley 748. As contributory factors, the Safety Board cited inadequate aircrew training and FAA failure to prevent this inadequacy. Following the crash, FAA made changes designed to improve in its inspection procedures and inspector training.

On Dec 2, 1983, FAA announced a special surveillance of Air Illinois, and grounded the airline's two largest aircraft on Dec 14. The next day, Air Illinois voluntarily ceased operations. FAA enforcement activity subsequently resulted in a series of other groundings of commuter and charter air carriers, some as a result of the National Air Transportation Inspection (see Mar 4, 1984).

Oct 24, 1983: FAA began testing a "**scatter plan**" aimed at **more equitable distribution of noise** from operations at Washington National Airport. Implemented at the request of the Metropolitan Council of Governments, the plan resulted in a high level of complaints from areas that had previously experienced little noise. Even after the test's end on Jan 7, 1984, some citizens claimed that the flights had not returned to their normal routes along the Potomac River.

Dec 22, 1983: FAA established the **first Airport Radar Service Area (ARSA)** at Austin, Tex., followed on Jan 19, 1984, by the second at Columbus, Ohio. A recommendation of the National Airspace Review (see Jun 7, 1982), the ARSA concept was developed for airports with insufficient traffic to warrant a Terminal Control Area (TCA). Within ARSAs, air traffic control provided: separation between IFR aircraft; traffic advisories and conflict resolution for IFR and VFR traffic so that targets do not merge at the same altitude; and traffic advisory service to all participating aircraft as well as arrival sequencing at the primary airport. ARSAs were intended to replace Terminal Radar Service Areas (TRSAs) nationwide, and differed from TRSAs in that their shape was standardized to the maximum extent possible. Radio contact with air traffic control was mandatory for all aircraft in an ARSA, whereas participation was voluntary in a TRSA. Controllers were required to provide traffic advisories to all pilots in an ARSA. In a TRSA, by contrast, controllers provided traffic advisories concerning non-participating VFR aircraft on a workload-permitting basis. After validating

the ARSA concept at Austin and Columbus, FAA began establishing additional ARSAs in 1985. There were 121 ARSAs in operation in Sep 1993, when FAA began using its new airspace classifications (see Dec 17, 1991), at which point TRSAs and ARSAs were no longer separate airspace classifications.

Dec 23, 1983: In response to clean air standards adopted by the Environmental Protection Agency, FAA published **revised rules on aircraft engine exhaust emissions**. Beginning Jan 1, 1984, FAA extended smoke limitations already in effect for some classes of engines to cover all civil aircraft jet engines. As of the same date, the agency also required all commercial aircraft jet engines manufactured for use in the United States and rated at 6,000 lb. of thrust or more to meet new regulations on unburned carbons, a contributor to regional air pollution problems. (See Jul 6, 1973.)

Dec 23, 1983: Attempting to takeoff at Anchorage, a Korean Airlines cargo **DC-10 collided on the ground with a Piper Navajo** operated as a commuter by SouthCentral Air. Disoriented in heavy fog, the DC-10 captain had selected the wrong runway. The accident caused no fatalities, but seriously injured three persons and destroyed both aircraft. To Donald D. Engen, who headed the National Transportation Safety Board's investigation team, the collision illustrated the need for better surface control. Soon after becoming FAA Administrator (see Apr 10, 1984), Engen ordered that **Airport Surface Detection Equipment (ASDE)** being used for research at FAA's Technical Center be transferred to Anchorage (see Aug 1979). In addition, he directed the agency to speed its procurement of the more advanced ASDE-3 system. On Oct 10, 1985, FAA announced a contract for 17 ASDE-3 units, with an option for 13 more. (See Dec 3, 1993.)

Dec 23, 1983: **J. Lynn Helms resigned as FAA Administrator**, effective Jan 31, 1984. Helms stated that his objectives as Administrator were largely accomplished and he wished to return to the private sector. Deputy Administrator Michael J. Fenello became Acting Administrator. (See Apr 10, 1984.)

Dec 31, 1983: The **General Aviation Reservation (GAR) system came to an end**. FAA had imposed the GAR as part of the air traffic restrictions resulting from the air traffic controllers' strike (see Oct 19, 1981). Initially, all general aviation pilots who wished to fly under Instrument Flight Rules had to obtain reservations. In June and July of 1982, FAA had lifted this requirement between airports within airspace controlled by the Seattle, Salt Lake City, and Albuquerque air route traffic control centers. Later, FAA grouped the centers into four geographic areas and allowed pilots to fly without reservation between airports in the same group. On Oct 1, 1983, the agency permitted unrestricted flights between the two western groups, and on Oct 31 the southeastern group was included with the western groups. During the final two months of 1983, the reservation system remained in effect only for pilots who wished to enter the northeastern group, which included the New York, Boston, Minneapolis, Chicago, Indianapolis, and Cleveland centers.

Dec 31, 1983: **Operational use of an IBM 4341 computer began at the Central Flow Control facility** at FAA's Washington headquarters. Physically located at the agency's Technical Center in Atlantic City, N.J., the new computer was connected by landline to terminals used by Central Flow personnel at headquarters. The IBM 4341 had 14 times more memory and was 70 percent faster than the IBM 9020A that it replaced. In addition, it allowed two-way data communication between the Flow Control facility and en route control centers (previously, this type of communication had been one-way from the en route centers). The computer was used to monitor the number of aircraft in flight, as well as their destinations and times of arrival, as part of Central Flow's mission of keeping air traffic running smoothly. (See Apr 27, 1970, and May 17, 1987.)

***1984**

Jan 12, 1984: The Federal Aviation Administration awarded a contract to Hazeltine Corporation for 178 **Microwave Landing Systems (MLSs)**. (See Jan 28, 1982, and May 20, 1987.)

Feb 4, 1984: FAA transferred the **aviation education program** from the Office of Aviation Policy and Plans to the Office of Public Affairs. Later, the program was reassigned to the Office of Training and Higher Education, which was under the Assistant Administrator for Human Resource Management, effective Oct 4, 1992.

Feb 6, 1984: FAA conducted an intensive **inspection of Continental Airlines**, lasting through Mar 9. The Air Line Pilots Association (ALPA) was on strike against Continental (see Sep 24, 1983), and accused it of unsafe practices. The FAA report cited discrepancies but concluded that overall safety was adequate. (Two members of the inspection team later charged that higher officials had altered their report to make it more favorable to the airline; however, an FBI investigation found no basis to prosecute for impropriety.) In Jun 1984 congressional hearings, ALPA charged that FAA was

covering up safety violations by Continental, while FAA testified that the airline was safe. (See Mar 18, 1985.)

Feb 13, 1984: In a speech to the National Press Club, **Secretary of Transportation Elizabeth Dole outlined an agenda for aviation** that included a safety review such as she had ordered for the other transportation modes. Dole announced that FAA would step up surveillance of airlines and other elements of aviation (see Mar 4, 1984), and that the agency's inspector workforce would be increased by 25 percent. She also stated that she had recommended Donald D. Engen as FAA's next Administrator (see Apr 10, 1984).

Mar 1, 1984: **Braniff resumed commercial flights**. Now known as **Braniff, Inc.**, the company operated on a smaller scale than before its suspension of flights (see May 12, 1982). To assist the airline's recovery, FAA allocated it landing reservations at five airports where operations were limited by the high density rule and/or restrictions imposed due to the air traffic controllers' strike. (See Sep 28, 1989.)

Mar 4, 1984: FAA began a 90-day **National Air Transportation Inspection (NATI)** of 237 major and commuter airlines and 25 air transportation support organizations (see Feb 13, 1984). NATI began with "white glove" examinations to identify deficiencies that became the focus of in-depth inspections during the second phase of the program, which ran April 7-Jun 5. On Dec 12, 1984, the Department of Transportation announced that NATI had shown 95 percent of the airlines to be in compliance with safety rules. Sixteen airlines had deficiencies sufficient to warrant revocation or voluntary surrender of their certificates, suspension or curtailment of their operations, aircraft groundings, or withdrawal of pilots from service for a period of time.

In addition to NATI, FAA undertook a **Safety Activity Functional Evaluation (Project SAFE)**, a review of the agency's safety inspection program. During the course of SAFE, the project's scope broadened from an initial focus on inspectors to a comprehensive review of the Flight Standards function. The findings of the review, announced on Nov 6, 1985, included a plan for revamping the safety inspection program. The plan, portions of which had already been implemented, included: increased standardization of inspection practices and interpretation of rules; a high-priority effort to update safety regulations; increased use of the automated Aviation Safety Analysis System (see Oct 26, 1982); and strong management oversight. (See Jun 19, 1984, and Aug 16, 1985.)

Mar 1984: Sperry Corporation received a contract to **upgrade the En Route Automated Radar Tracking System (EARTS)** at the Anchorage, Honolulu, and San Juan Centers, as well as at Nellis Air Force Base (see Aug 4, 1980). The contractor would provide radar mosaic to allow EARTS controllers to view the best data from multiple radars on a single screen, a capability similar to that available at Centers with NAS En Route Stage A systems. In Apr 1985, Sperry received another contract to enhance the EARTS facilities by providing conflict alert (see Jan 9, 1976) and minimum safe altitude warning (MSAW) capabilities (see Nov 5, 1976). FAA accepted delivery of the combined conflict alert/MSAW software package in Aug 1987. By fiscal year 1991, all the upgraded operational EARTS had been commissioned.

Mar 6, 1984: FAA published an **amendment to the High Density Rule** under which four of the nation's busiest airports had long been subject to flight quotas during certain hours (see Jun 1, 1969). Effective Apr 1, the new rule increased the hours that limitations at Chicago's O'Hare were applicable, yet increased the number of operations permitted at the airport. It also slightly increased the operations allowed at New York's La Guardia and Kennedy, while restrictions at Washington National remained unchanged. Hourly quotas on IFR operations were: O'Hare, 155; La Guardia, 68; and Washington National, 60. At Kennedy, hourly quotas varied between 77 and 93. (See Dec 20, 1985.)

As of this date, only four of the nation's airports remained subject to strike-related restrictions imposed under the Interim Operations Plan: O'Hare, La Guardia, Denver's Stapleton, and Los Angeles International. On Apr 1, 1984, these limitations ended at Stapleton, La Guardia, and O'Hare, although the latter two remained subject to the High Density Rule. The nation's **last strike-related landing restrictions** ended on Aug 26, 1984, at Los Angeles, where runway repairs and Olympic Games traffic had delayed return to normal operations.

Mar 8, 1984: Several **aircraft descended too low while approaching Washington National airport** in snowy conditions, according to the National Transportation Safety Board. Seven days later, Transportation Secretary Dole announced an acceleration of planned steps to improve the safety of the approach. Later, on Apr 17, Dole stated further that a new electronic landing aid would be installed in

Anacostia to permit pilots to follow a bad-weather approach path that was less difficult and further from tall buildings in Rosslyn, Va. (See Dec 28, 1982.)

Mar 14, 1984: FAA announced the award of a contract for the **Interim Voice Response System (IVRS)**. The system provided a computerized voice message giving weather information to pilots who called their local IVRS number on a touch-tone telephone. This was expected to reduce the time required for flight service stations to provide complete preflight weather briefings. In October 1985, FAA announced that IVRS was available to pilots in 24 cities. Meanwhile, FAA was also developing the **Direct User Access Terminal Service (DUATS)**. This system allowed pilots to obtain weather information and file a domestic flight plan using computers equipped with a modem for communication via telephone lines. The agency's Technical Center began developing DUATS in 1983, and a test of the system began at ten sites during the following year. (See Feb 13, 1990.)

Mar 30, 1984: **FAA withdrew an advance notice of proposed rulemaking relating to the Age-60 rule** (see Mar 15, 1960). The agency had issued the notice on Jun 23, 1982, partly in response to a recommendation made to Congress by the National Institute on Aging (see Dec 29, 1979). The notice solicited information on whether to establish a program to determine if persons age 60 or older could safely serve as pilots of major airplanes. It also asked for views on whether the age-60 rule should be extended to apply to flight engineers, an action advocated by United Air Lines. In withdrawing the notice, FAA noted that it agreed with experts who contended that "there are currently no methods to obtain medical and performance data on older pilots that would provide significantly meaningful data to consider relaxing the age-60 rule." The agency also stated that there was insufficient data available to support the extension of the rule to flight engineers. (See Apr 8, 1993.)

Apr 10, 1984: **Vice Admiral Donald D. Engen (USN, Ret.) became the ninth FAA Administrator**, succeeding J. Lynn Helms (see Apr 22, 1981). The Senate had received the nomination on Mar 12 and confirmed it on Apr 5. Congress enacted Public Law 98-256 to exempt Engen from the statute prohibiting military officers from serving as FAA Administrator.

Engen was born in 1924 in Pomona, Calif. He held a B.A. from George Washington University, and had graduated with distinction from the Naval War College. Engen began flying with the Navy during World War II and participated in the air and sea battles that accompanied the recapture of the Philippines and attacks on Iwo Jima, Okinawa, and other Pacific Islands. Among his 29 wartime decorations was the Navy Cross, the Navy's highest award for valor. After a brief return to civilian status following the war, Engen rejoined the Navy in 1946. He flew combat missions in the Korean War, became an engineering test pilot, and served in positions that included command of an aircraft carrier. He was Deputy Commander-in-Chief of the U.S. Atlantic Command and U.S. Atlantic Fleet at the time of his retirement from the Navy in 1978. Engen was General Manager of the Piper Aircraft Corporation plant in Lakeland, Fla., 1978-80, and then became a Senior Associate with Kentron, a consulting firm in Alexandria, Va. He was appointed a member of the National Transportation Safety Board in June 1982, and remained in that position until joining FAA. During his military and civilian career, Engen had flown more than 220 different aircraft, including the Navy's first jets. He served as FAA Administrator for three years and two months. (See Mar 18, 1987.)

May 20, 1984: Former Federal aviation official **Oscar Bakke died** at age 64. Bakke joined the Civil Aeronautics Board in 1946, became Director of its Bureau of Safety in 1956, and was influential in establishing area positive control (see May 28, 1958). He transferred to FAA in 1960 as Director of the Flight Standards Service, and became Eastern Region Director the following year. Appointed Associate Administrator for Plans in 1967, he led a task force that produced recommendations that influenced subsequent legislation on airport and airway development. In 1971, Bakke went to Brussels as Assistant Administrator for the Europe, Africa, and Middle East Region. After returning to Washington, he headed an FAA panel to investigate the DC-10 crash of Mar 14, 1974 (see that date). Bakke retired from the agency during that same year, following the failure of plans to place him in charge of all safety programs (see Jun 11, 1974). He became executive director of the Newark Transportation Council and later of a charitable foundation.

May 24, 1984: In a move intended to sharpen FAA's focus on safety, **Administrator Engen announced that the Office of Aviation Safety would now report directly to him** instead of to the Associate Administrator for Aviation Standards. A directive dated Aug 6, 1984, formally implemented the change. (See Nov 26, 1991.)

Jun 8, 1984: Transportation Secretary **Dole proposed that Washington National and Dulles International airports be transferred from the Federal government**. She announced the

appointment of an advisory commission to make recommendations on the establishment of a state, local, or interstate body to assume operation of the airports. On Dec 18, 1984, the commission recommended leasing the airports to a regional authority. On Apr 22, 1985, Dole submitted a bill reflecting these recommendations to Congress. (See Oct 30, 1986.)

Jun 19, 1984: The **Supreme Court reversed an appeals court decision holding FAA liable for negligence** in its certification and inspection program. The case grew out of the Varig Airlines in-flight fire (see Jul 11, 1973), and a 1968 fire aboard a DeHaviland Dove. The respondents charged that FAA had negligently determined that the aircraft met fire-protection standards. In deciding against the respondents, the Court ruled that "the duty to ensure that an aircraft conforms to FAA safety regulations lies with the manufacturer and operator, while FAA retains the responsibility for policing compliance." The Court noted that the law allowing suits against the government makes an exception for such regulatory policing and other activities that involve broad exercise of administrative discretion. (See Dec 31, 1972.)

Jun 19, 1984: Transportation Secretary Dole announced that FAA would conduct a **General Aviation Safety Audit**. The inspections, which began on Jul 22, focused on: pilot schools, instructors, and examiners; repair stations; non-airline operators of large aircraft; older large jet aircraft scheduled to be phased out because of failure to meet the new noise standards (see Dec 23, 1976); and on-demand air taxis. During the program, a number of operators voluntarily surrendered their certificates. FAA submitted the results of the audit to DOT between Aug 1985 and Feb 1986. Four percent of the detailed findings prepared reported significant unsatisfactory conditions, many of which involved air taxis. As a result of the safety audit, FAA revised its guidelines to include stepped-up inspections of air taxis, repair stations, and such operators of large aircraft as travel clubs, contract cargo carriers, and corporations with executive fleets.

Jun 20, 1984: The Civil Aeronautics Board published **additional rules regulating smoking on aircraft** (see May 10, 1973). The provisions included a ban on smoking in air carrier aircraft with fewer than 30 passenger seats, except for on-demand air taxis, and a total ban on smoking in airliners while on the ground. After the Board ceased to exist at the end of 1984, the Office of the Secretary of Transportation administered these rules. (See Aug 13, 1986.)

Jul 1984: FAA conducted an agency-wide **Employee Attitude Survey as part of a drive for improvements in employee/management relations**. Some 26,000 persons responded to the questionnaire, which a Civil Aeromedical Institute research team prepared and analyzed. Preliminary results announced on Nov 27 showed most employees to be generally challenged by their work, satisfied by their pay and job security, but less than positive about FAA's human relations skills and certain related issues. Four questions addressed to air traffic control personnel helped to identify groups more prone to "burnout."

The survey became a tool to evaluate **Human Resources Program steps** that included: on-site reviews by Secretarial panels of management experts; Employee Involvement Groups intended to give employees a greater voice in developing policy and procedures; a new Office of Human Resource Management, headed by an Associate Administrator reporting directly to the Administrator (see Mar 19, 1985); and a "hotline" linking employees with the Administrator's staff, beginning on Aug 6, 1984. Measures to combat burnout included stress management counseling and a June 1984 policy to allow more air traffic controllers to achieve full performance level, thus sharing difficult work more widely among the workforce.

In a continuing effort to evaluate improvement actions, FAA conducted a follow-up survey of all employees in 1986, and followed this with Job Satisfaction Surveys administered to a randomly selected 15 percent of the workforce. The survey series revealed the following overall job satisfaction percentages: 53 (1984); 56 (1986); 67 (1988); 65 (1990); 72 (1993); and 69 (1995).

Aug 23, 1984: FAA issued an advisory circular establishing an acceptable means of obtaining airworthiness approval of airborne **LORAN-C** equipment for use as an area navigation system under instrument flight rules (IFR) as well as visual flight rules (VFR). Derived from the LORAN (Long Range Navigation) system developed during World War II, LORAN-C used radio signals from ground transmitting stations spaced several hundred miles apart. It had been developed primarily for marine users, but in the early 1980s many general aviation pilots had begun to adopt the system for VFR navigation. (See Jun 2, 1986.)

Sep 12, 1984: Airline representatives reached **agreement on rescheduling flights to avoid congestion during peak hours** at six major airports: New York's La Guardia and Kennedy; Newark

International; Chicago O'Hare; Atlanta Hartsfield; and Denver Stapleton. The representatives forged the agreement in eight days of intense negotiations with FAA participation and with the understanding that FAA might impose new regulations if no voluntary solution was found. The Civil Aeronautics Board granted immunity from anti-trust laws to those engaged in the talks, and later approved the agreement. Writing to the Air Transport Association on Mar 12, 1985, FAA Administrator Engen cited steps taken to reduce delays and indications that the airlines would not return to excess peak-time operations. Engen therefore stated that the scheduling agreement need not continue beyond Apr 1.

Sep 15, 1984: **FAA centralized responsibility for the operational control and technical direction of the air traffic control system** under the Associate Administrator for Air Traffic. (On an organizational level, however, the regional air traffic division managers continued to report to the Regional Directors: see Jun 16, 1988.) A directive issued on Feb 8, 1985, reorganized the Associate Administrator's office to include an **Air Traffic Operations Service** and an **Air Traffic Plans and Requirements Service**. On Oct 31, 1986, another directive also established an **Air Traffic Evaluations and Analysis Office** under the Associate Administrator. (See Oct 2, 1989.)

Sep 26, 1984: FAA announced the award of a construction contract to expand the Seattle Air Route Traffic Control Center, the first in a **program to expand all 20 en route centers** in the contiguous states. The construction would allow the facilities to accommodate more sophisticated computers and radar displays being developed under the Advanced Automation Program (see Jul 26, 1985). The Seattle groundbreaking ceremony took place on Nov 5, 1984. (See Apr 1987.)

Sep 28, 1984: A DOT Inspector General **report on drug and alcohol abuse among FAA employees** concluded that the problem was more widespread than management realized and recommended stronger action on the issue. In a memorandum to FAA managers at year's end, Administrator Engen stated that he had established a policy under which employees who abused drugs or alcohol must enter a treatment program or face penalties that might include dismissal. Employees with safety-related duties would be assigned other tasks while receiving treatment. The Administrator also stated that he had taken steps to establish a substance abuse screening procedure for employees in safety-related positions. In a general notice on Feb 16, 1985, Engen stated that occasional incidents suggested that FAA was not totally immune to drug/alcohol abuse, and informed employees that a new policy was under development. (See Aug 16, 1985.)

Oct 1984: FAA awarded a contract for design of the **Oceanic Display and Planning System (ODAPS)** with features that would include visual displays of oceanic air traffic. ODAPS would automatically provide controllers with flight data for aircraft flying in oceanic sectors, thus eliminating time-consuming procedures involving use of flight strips and repeated voice communications. A planned second phase of the contract would include delivery of ODAPS equipment to FAA's Technical Center and two air route traffic control centers. (See Dec 14, 1989.)

Oct 5, 1984: FAA announced a contract for ground stations for the new **Mode S radar beacon system**, a secondary radar system employing advanced ground sensors and radar beacon transponders aboard aircraft. Two corporations participated in the joint contract to produce 78 of the stations, with an option for another 59 units. The Mode S system was designed to replace the existing air traffic control radar beacon system, known as ATCRBS (see Jun 23, 1981). The discrete address capability of the new system would enable controllers to interrogate aircraft individually and selectively to determine their position, identity, and altitude, without having to use voice communications. This would eliminate the overlapping and garbled signals that were sometimes a problem in busy terminal areas. Mode S would also make possible the development of a capability for controllers to transmit data to properly equipped aircraft directly without using voice communications. (See Jan 29, 1987, and May 9, 1993.)

Oct 18, 1984: **Vice President George Bush was involved in a near midair collision (NMAC)** near Seattle when the crew of Air Force Two was forced to take evasive action due to their failure to sight an aircraft flying under visual flight rules. On Sep 30, 1984, Air Force Two had been involved in a less serious incident when a controller in Ohio allowed it to come too close to another aircraft. (See Jan 11, 1985.)

Oct 26, 1984: FAA published **two rules to increase the survival chances of airline passengers encountering fire and smoke**. Both were based on findings of the Special Aviation Fire and Explosion Reduction (SAFER) Advisory Committee (see Sep 10, 1980) as well as on subsequent research. One rule called for the installation, within three years, of **seat cushions possessing an outer**

layer of highly fire-resistant material. Research showed that the cushions would provide as much as 40 additional seconds before "flashover," the deadly ignition of accumulated vapors. The requirement applied to operators of aircraft weighing 12,500 pounds or more and having over 29 seats. The second rule required **emergency escape path marking at or near floor level** that would provide evacuation guidance even when all sources of illumination more than four feet above the cabin aisle floor were totally obscured by smoke. With the exception of aircraft type-certificated before 1958, all airliners operated by major lines were required to have such marking within two years. (See Jul 21, 1986.)

Nov 10, 1984: **FAA revoked the operating certificate of Provincetown-Boston Airlines (PBA)**, a large commuter carrier. The revocation was probably the most publicized of numerous operational curtailments enforced by FAA during the year, many as a result of the NATI program (see Mar 4, 1984). Critics charged that FAA inspections had failed to uncover PBA's violations before information from a former pilot of the airline triggered the investigation that led to the grounding. After assisting PBA to correct deficiencies, FAA on Nov 24, 1984, recertificated the airline for that part of its operations involving smaller aircraft.

On Dec 6, 1984, the **crash of a PBA Embraer Bandeirante (EMB-110)** shortly after takeoff from Jacksonville killed all 13 persons aboard. On Dec 9, FAA issued an emergency Airworthiness Directive requiring owners to inspect key parts of certain Bandeirante models. The agency also dispatched a team to Brazil to work with authorities and the manufacturer to insure the safety of the aircraft type. On Jan 8, 1985, the National Transportation Safety Board (NTSB) recommended that FAA ground many of the approximately 90 Bandeirantes in the U.S. pending further inspection and/or modification. FAA ordered the inspections, but allowed 18 hours of flying time prior to compliance. In its final report on the accident, NTSB listed the probable cause as a control system malfunction. The crew's reaction to the problem resulted in overstress that caused failure of the horizontal stabilizer attachment structure.

New incidents and allegations in late 1984 and early 1985 resulted in further FAA surveillance of PBA. By May 1985, however, the agency was ready to recertificate the carrier for operation of its largest aircraft.

Nov 14, 1984: Effective this date, the Civil Aeronautics Board (CAB) adopted a **rule regulating air carrier-owned computer reservations systems (CRSs)**, which set forth requirements designed to prevent unfair, deceptive, and anticompetitive practices among the airlines who controlled those systems. CAB mandated a future review of this regulation, and on Sep 16, 1992, DOT announced a final rule on CRS, which strengthened and extended the existing regulations through 1997. Among other things, the revised rule prohibited a vendor from requiring its subscribers to make a specified minimum number of bookings; reduced the maximum subscriber contract term from five to three years; and readopted the existing requirements that information be organized in an objective and unbiased manner, and that participation in a CRS be open to all carriers on a nondiscriminatory basis.

Dec 1, 1984: FAA and the National Aeronautics and Space Administration conducted a **Controlled Impact Demonstration (CID)** in which a Boeing 720 was remotely piloted to a prepared crash site at Edwards Air Force Base, Calif. The aircraft carried instrumented test dummies, high-speed cameras, and more than 350 sensors to transmit data to ground recorders. The project involved numerous experiments on the crash behavior of the aircraft's structure and of internal features such as seats, seat belts and harnesses, storage compartments, and galleys. Among the other items tested were fire-blocking seat cushion layers, fire-resistant windows, cockpit voice recorders, and flight data recorders. Most importantly, the aircraft's tanks carried **anti-misting kerosene (AMK)**, an experimental fuel designed to prevent or minimize the fireball that may result when spillage from a ruptured tank forms a volatile mist and ignites. Devices known as degraders converted the AMK back to normal kerosene before it entered the engines.

Preparations at the impact site included eight steel wing cutters installed to ensure that fuel would spill from the tanks. Touching down 300 feet short of the cutters with its left wing low, the aircraft slid forward at an angle so that the first cutter slashed into the right inboard engine before ripping open the wing tank. In consequence, the spill began with non-AMK fuel from the engine, which ignited instantly and touched off the AMK fuel gushing from the tank. A spectacular fireball resulted. The use of AMK reduced the heat of the fire, and an estimated 20 percent of the passengers would probably have escaped had the aircraft contained real occupants. The AMK test was disappointing, however, and in Sept 1985 the FAA announced that it had dropped plans to require airline use of the

special fuel. Despite this, other experiments conducted as part of the CID produced a wealth of useful information.

Dec 4, 1984: Four Arab **hijackers diverted a Kuwait Air A-310 to Iran, where they murdered two American passengers** and committed other brutalities while demanding the release of prisoners held in Kuwait. The hijackers released 153 of their hostages in several groups, and Iranian forces freed the remainder when they stormed the aircraft on Dec 9. The hijacking was part of an increase in terrorist seizures of foreign airliners that began in Jun 1984.

Dec 11, 1984: **FAA grounded about 180 Sikorsky S-76A helicopters** pending installation of a replacement part being developed by the engine builder, a division of General Motors. The action followed an Oct 31 accident in the South China Sea.

Dec 13, 1984: **Richard H. Jones became Deputy Administrator** of FAA, succeeding Michael J. Fenello (see Aug 1, 1981). A native of Portsmouth, Va., Jones served as a Marine Corps pilot during 1953-57, received his B.S. from Virginia Polytechnic Institute in 1958, and began flying for Eastern Air Lines in 1959. He served a second tour with the Marines, 1960-1966, leaving active duty as a reserve Lieutenant Colonel. Jones then returned to Eastern, becoming a captain in 1967 and continuing in this capacity until joining FAA. He also practiced law with the firm of Lewis, Wilson, Lewis & Jones, having received an L.L.B. from American University in 1964. Jones was Secretary and Treasurer of the Airline Pilots Association, International, 1969-70, and ran unsuccessfully for president of the union in 1970. He was Chairman of the Washington-based Eastern Air Lines Pilots Association, 1970-72, and served on numerous other groups and committees devoted to legal and aviation issues.

On Jun 4, 1986, Jones announced his resignation from FAA, effective Jul 15, 1986, to return to the private sector. (See Apr 1, 1988.)

Dec 31, 1984: In accordance with the Airline Deregulation Act (see Oct 24, 1978), **the Civil Aeronautics Board (CAB) ceased to exist** at the end of this day, having operated for 44 years and 7 months. Originally entrusted with airline economic regulation, accident investigation, and safety rulemaking, CAB lost the latter responsibility with the Federal Aviation Act of 1958. The Department of Transportation Act of 1966 later deprived the Board of its accident investigation role, leaving economic regulation as its principal mission. After 1984, the Department of Transportation (DOT) assumed those CAB duties that had not been abolished by deregulation. Functions assigned to elements of the Office of the Secretary of Transportation included: international aviation responsibilities such as bilateral treaty negotiation, carrier selection, and tariff filing and review; the Essential Air Service Program, which protected service to small communities; consumer protection for airline passengers; antitrust review and immunity authority; and certification of the economic fitness of carriers. DOT's Research and Special Projects Administration assumed responsibility for collection and dissemination of air carrier economic data.

***1985**

Jan 11, 1985: Ralph Nader's Aviation Consumer Action Project made public a study claiming that FAA had underreported **near midair collisions** (NMACs) for 1983 and 1984 (see Oct 18, 1984). FAA acknowledged that discrepancies existed and stated that procedural changes would ensure more accurate NMAC statistics in the future. On Apr 19, 1985, FAA released data showing a rise in NMACs for the first quarter of 1985. The agency stated that the increase reflected improved statistical procedures and renewed emphasis on pilot reporting of the incidents. In June, Georgetown University Dean Ronald L. Smith began an audit of the new NMAC reporting system. In findings announced by FAA on Dec 3, Dean Smith judged the system to be working well and found no evidence of earlier deliberate suppression of NMAC reports.

Meanwhile, media attention to the NMAC issue heightened due to two such incidents in the national capital area on Jun 9 and Sep 24, 1985. In Oct 1985, NTSB Chairman James Burnett told Congress that the Board was very concerned about a trend toward increased NMACs. On Apr 14, 1986, FAA stated that reported NMACs for 1985 had totaled 777 (a figure later revised to 758), as compared to 589 for 1984. Commenting that the 1985 statistics were based on improved methods, FAA Administrator Engen pointed to the agency's efforts to reduce NMACs, including the establishment of Airport Radar Service Areas (see Dec 22, 1983) and the "Back to Basics" program (see Oct 10, 1985). Engen also stated that special working groups were studying the problem of potential collisions on the ground, termed "runway incursions." FAA later issued the following statistics: 840 NMAC reports in

1986; 1058 in 1987; 710 in 1988; 550 in 1989; 454 in 1990; 348 in 1991; 311 in 1992; and 293 in 1993.

Feb 8, 1985: FAA established a policy that the **Precision Approach Path Indicator (PAPI)** would be the standard visual glideslope indicator for new, Federally-funded installations at fixed-wing airports. PAPI was an improved version of VASI, the Visual Approach Slope Indicator (see Oct 12, 1970). The PAPI system featured four bars of light and was able to give pilots an indication of the extent of their deviation from the desired glide path, rather than merely warning that they were too high or too low. In 1982, the International Civil Aviation Organization had adopted PAPI to replace VASI, which would cease to be the international standard on Jan 1, 1995. In May 1983, FAA had changed its longstanding policy of funding only VASI to one permitting funding of various different systems, with the exception that only PAPI was funded for international airports. The agency's Feb 1985 shift to exclusive funding of PAPI reflected a desire to promote safety through standardization. In response to congressional action, however, FAA modified this policy to permit funding of systems other than PAPI at general aviation airports not certificated for air carrier use.

Feb 26, 1985: FAA published Advisory Circular 91-62 stating a **new policy on child restraint systems (CRSs)**. The background of this issue included the formation of an FAA Task force to evaluate the use on aircraft of CRSs, also known as child safety seats. On Jun 1, 1979, the task force had recommended that the agency adopt the Federal Motor Vehicle Safety Standard for CRSs, with additional provisions for aircraft use. FAA developed performance standards which it published as a Technical Standard Order on May 28, 1982. Subsequently, the National Highway Traffic Safety Administration (NHTSA) and FAA had worked toward a common standard.

Advisory Circular 91-62 declared that a CRS manufactured after Feb 25, 1985, was suitable for aviation if it bore a NHTSA label certifying it for use in both motor vehicles and aircraft. In addition, a CRS made between Jan 1, 1981, and Feb 25, 1985, was suitable for use in aircraft provided it bore a NHTSA label indicating that it met Federal motor vehicle standards. The new FAA policy made an additional 6 million child seats acceptable for use aloft. FAA encouraged but did not require use of the devices, and airlines could decide whether to permit them (see Sep 15, 1992). Children under the age of two might still be held in an adult's lap during takeoff and landing.

Mar 18, 1985: FAA began an in-depth **inspection of Continental Airlines** that lasted through Apr 26. This was the second special inspection of Continental (see Feb 6, 1984) since the Air Line Pilots Association began a strike against it. On Jun 11, 1985, FAA announced that the airline continued to operate in basic accordance with safety regulations. In Mar 1986, however, Continental paid a \$402,000 penalty for violations uncovered by FAA during its 1984 and 1985 inspections.

Meanwhile, the flight attendants and mechanics **ended their strike** against Continental in Apr 1985, and a bankruptcy court resolved the pilots strike during that October by ordering a back-to-work plan. On Jun 30, 1986, the court approved a **plan allowing Continental to end its bankruptcy** within sixty days. (See Sep 24, 1983 and Dec 3, 1990.)

Mar 19, 1985: The appointment of Charles E. Weithoner as the first **Associate Administrator for Human Resource Management** became effective. Weithoner had served in the post on an acting basis since the previous October. On Sep 4, 1985, an FAA directive formally created the position and placed four offices under its control: Human Resource Planning and Evaluation; Labor and Employee Relations; Organizational Effectiveness; and Personnel and Technical Training. At the same time, FAA abolished the former Office of Labor Relations and Office of Personnel and Training, and assigned their functions to offices under the new Associate Administrator. This structural change was part of a program of increased emphasis upon human relations (see Jul 1984.)

Mar 26, 1985: A directive issued on this date established a new **Office of Program and Regulations Management** under the Associate Administrator for Aviation Standards. The office was **later retitled the Office of Program and Resource Management**, and subsequently abolished by a directive issued on Apr 24, 1992.

Mar 29, 1985: FAA published a **rule to improve cabin fire protection** for passengers aboard aircraft operated by major airlines under Federal Aviation Regulations Part 121. The rule required that each lavatory be equipped with a smoke detector, or equivalent, and that each lavatory trash receptacle be equipped with an automatic fire extinguisher. It also increased the number of hand fire extinguishers required in the cabins of aircraft with more than 60 seats, and specified that at least two of these use Halon 1211 or an equivalent extinguishing agent. The new rule resulted from investigation of two aircraft cabin fires and an inspection survey conducted in their wake. One of these fires involved an

Air Canada flight (see Jun 2, 1983) and the other was a non-fatal blaze at Tampa on Jun 25, 1983. (See May 26, 1987, and Apr 4, 1991.)

Apr 17, 1985: FAA published a rule establishing a **blood alcohol standard** (.04 percent by weight) for determining when drinking had impaired the ability of aircrew members to perform their duties. The new regulation strengthened the existing rule prohibiting anyone from acting as an aircrew member within eight hours of alcohol consumption or while under the influence of alcohol or any drug adversely affecting performance (see Dec 5, 1970). **A related rule published on Jan 9, 1986, made airmen subject to possible loss or suspension of their licenses if they refused to submit to tests for alcohol** given by law enforcement officers under certain conditions. (See Feb 17, 1987, and Mar 8, 1990.)

Apr 29, 1985: Astronauts aboard the space shuttle *Challenger* placed the **Northern Utah Satellite (NUSAT)** in orbit. The 105 lb. aluminum polyhedron satellite was an experiment aimed at developing a new means of calibrating the vertical tilt of FAA beacon radar antennas. Before reentering the atmosphere on Dec 15, 1986, NUSAT transmitted important information on the radar signal environment as perceived from low earth orbit. The project was accomplished by a volunteer coalition of FAA, NASA, Utah's Weber State College, and numerous aerospace companies.

May 5, 1985: Administrator Engen and other FAA officials arrived in Beijing on a mission to foster closer **cooperation between the U.S. and China** in aviation matters. On Aug 28, 1985, Transportation Secretary Dole announced that the two countries were working together for a mutual exchange of information, research, and experts for further development of their transportation systems. The Secretary made the announcement in Beijing during a trip to China with her husband, Senator Robert Dole (R-Kan.). (See Mar 15, 1986)

May 17, 1985: **United Airlines pilots went on strike** over the company's plan for a two-tiered pay structure with lower pay for new pilots. The union and management soon reached an economic agreement that permitted such a two-tier system, but back-to-work issues delayed settlement until Jun 14. During the strike, FAA increased safety surveillance of United operations, and used electronic equipment to help identify those harassing non-striking pilots with illegal radio transmissions on air traffic control frequencies.

May 9, 1985: The first of four heliports selected in 1983 for development under FAA's **National Prototype Demonstration Instrument Flight Rules Heliport Program** was dedicated in Indianapolis. A \$2.5 million Airport Improvement Program grant had assisted the establishment of the facility.

May 31, 1985: FAA announced **new criteria on extended range (ER) flights**. Previously, FAA had generally prohibited a two-engine aircraft from flying a route that at any point was more than one hour flying time (in still air at normal cruising speed with one engine inoperative) from a usable airport. Under the new criteria, the diversion time was increased to two hours, provided that at least half of each extended-range route segment was less than 90 minutes of one-engine flying time from an airport. The change meant that some two-engine aircraft would be able to fly North Atlantic routes without veering far to the north. As experience with extended two-engine operations increased, FAA further increased permitted diversion times. In 1989, the agency approved a three-hour diversion time, long enough to permit two-engine operations between Hawaii and the U.S. mainland.

Jun 3, 1985: A directive issued on this date established the **Airport Capacity Program Office** under the Associate Administrator for Airports. (See Feb 21, 1990.)

Jun 6, 1985: The Professional Airway Systems Specialists (PASS), the bargaining agent for Airway Facilities technicians, agreed with FAA on a **joint labor-management employee involvement (E-I) pilot program**. A steering committee composed of five FAA and five union representatives agreed upon an eighteen-month test of E-I, a concept involving cooperative efforts to solve operational problems affecting employees. The program was first implemented at facilities in Baltimore and New York, and subsequently expanded to all FAA regions. (See Aug 31, 1991.)

Jun 7, 1985: Effective this date, **FAA reduced the total flight hours required for a pilot to be eligible to obtain an instrument rating** from 200 to 125. A contract study had indicated that the change would have no effect on pilots' ability to learn instrument flying skills, but would encourage them to acquire the rating earlier.

Jun 14, 1985: **Two Lebanese Shiite Moslems hijacked a TWA 727** departing Athens and diverted it to Beirut, where additional hijackers joined them. During a **two-week confrontation**, they demanded the release of Shiite prisoners held by Israel. The hijackers murdered one passenger, a U.S. Navy

diver. They released the other 155 hostages (including 39 Americans) in stages, the last being freed on Jun 30. Lebanese authorities held the aircraft in Beirut until Aug 16.

The TWA hijacking and an upsurge in Middle East terrorism prompted a series of U.S. actions.

Events included:

* On Jun 18, President Reagan warned travelers of inadequate security measures at Athens airport. This advisory was lifted on Jul 22, after an FAA inspection found improvements.

* On Jun 23, an Air India jet crashed under mysterious circumstances (see entry for this date below).

* On Jun 27, Transportation Secretary Dole urged the International Civil Aviation Organization (ICAO) to act immediately to enhance airport security. The ICAO Council met on an accelerated schedule, and on Dec 19 adopted amendments strengthening international security standards and recommended practices.

* On Jul 1, the President suspended airline travel between U.S. and Lebanon.

* During July, FAA issued an emergency regulatory amendment requiring airlines to carry Federal Air Marshals on certain flights. Eight days later, the agency issued another emergency rule that required airlines to expand security training for crew members and to provide a ground security coordinator and an in-flight security coordinator for every flight.

* Between mid-Aug and early Nov, FAA personnel assisted by law enforcement officers from other agencies inspected U.S. air carrier security procedures at 79 foreign airports.

* FAA also issued a number of emergency amendments to the agency-approved security programs of both airlines and airport operators.

On Aug 8, the President signed the **International Security and Development Cooperation Act of 1985**. The Act authorized the use of \$5 million from the Airport and Airway Trust Fund for research on and development of airport security devices and explosives detection techniques. It also mandated a system for conducting security assessments at foreign airports, and authorized Federal Air Marshals as a permanent FAA workforce. The agency began hiring additional security inspectors and training them to serve as Air Marshals. FAA also reorganized its Office of Civil Aviation Security to reflect its expanded responsibilities under the Act, creating an International Civil Aviation Security Division and an Intelligence Division. (See Aug 5, 1986.)

Jun 23, 1985: **An Air India 747 crashed** into the North Atlantic during a flight from Montreal to London, killing all 329 persons aboard (see Jun 14, 1985). Circumstances made it appear that Sikh separatists might have been responsible for the tragedy and for a near-simultaneous bombing that killed two airport baggage handlers in Tokyo. Indian and Canadian government reports released the following year concluded that the 747 was destroyed by a bomb in luggage in the forward cargo hold. In Jul 1992, Indian authorities arrested a Sikh extremist who was allegedly involved in the bombing.

Jul 1, 1985: A toll-free **FAA Aviation Safety Hotline** began operations. Coordinated by the Office of Aviation Safety, the hotline was intended primarily for those in the aviation industry with specific knowledge of Federal Aviation Regulations violations. Callers' identities would be held in confidence and protected from disclosure under the Freedom of Information Act. During the following month, an FAA **Consumer Hotline** also opened, initially in one region only but expanding to nationwide operations on Sep 2, 1986. The Consumer Hotline was for use by the public to inquire or lodge complaints about aviation safety issues or FAA user services. The hotline did not handle airline service issues, such as lost luggage or flight cancellations. When such problems were not resolved by the airlines themselves, consumers were referred to DOT's Office of Community and Consumer Affairs.

Jul 18, 1985: FAA published a rule setting forth **simplified flight and rest time requirements for domestic airline pilots**, effective Oct 1, 1986. The new rule was intended to allow greater flexibility in scheduling while ensuring that pilots had adequate rest. For major airlines, the rule replaced a complex flight duty time regulation that had remained virtually unchanged for over 30 years. The new rule also covered air taxi and commuter air carrier pilots, who previously had only minimal restrictions on the number of hours they could fly. FAA drafted the rule with the aid of an advisory committee composed of representatives of the various groups interested in the outcome. The agency adopted this "Regulatory Negotiation" approach after several years of unsuccessful attempts to update and simplify flight duty time regulations.

Jul 24, 1985: FAA announced the award of a contract to **upgrade the Automated Radar Terminal System (ARTS II)**, giving it certain additional safety features of the more sophisticated ARTS III.

Based on development work begun in Mar 1982, this ARTS IIA enhanced system would include conflict alert and Minimum Safe Altitude Warning capabilities. In addition to upgrading the ARTS II systems in service at 87 locations, the contractor would install ARTS IIA's at 33 airports where the outmoded TPX-42 system was in use. (See Dec 12, 1978.)

Jul 26, 1985: FAA announced the award of a contract for replacement of the IBM 9020 computers at the nation's 20 air route traffic control centers (ARTCCs) as part of the agency's **Advanced Automation Program**. IBM won the replacement contract in a competition with Sperry Corp. under a pair of contracts that had been announced on Sept 22, 1983. The new installations were designated the "**Host**" **Computer Systems (HCSs)** because of their ability to run the existing 9020 software package with minimum modifications. Using the IBM 3083-BX1 computer as its key element, the Host system would provide greater speed, reliability, and storage capacity. Each installation would consist of two units, one serving as the primary processor and the other providing support and backup. (See Mar 22, 1983, and May 29, 1987.)

In addition to installing the Host systems at the ARTCCs, IBM agreed to supply the systems to teams working on the other major element of the Advanced Automation Program, the **Advanced Automation System (AAS)**. Under a pair of contracts announced on Aug 16, 1984, IBM and Hughes Aircraft Co. were engaged in a competition to produce the best AAS design (see Jul 26, 1988). Among the key elements of AAS were controller work stations, called "sector suites," that would incorporate new display, communications and processing capabilities. AAS would also include new computer hardware and software to bring the air traffic control system to higher levels of automation. Once the full AAS system was operational, FAA planned to begin the integration of en route and terminal radar control services at the ARTCCs, which would be renamed **Area Control Facilities (ACFs)** and expanded to handle the new functions (see Apr 19, 1993). Among the planned future enhancements to AAS was Automated En Route Air Traffic Control (AERA), which would automatically examine aircraft flight plans to detect and resolve potential conflicts.

Aug 2, 1985: A **Delta Air Lines L-1011 crashed when it encountered wind shear** during a landing approach to Dallas-Fort Worth International Airport. The accident killed 134 of the 163 persons aboard and one person on the ground. The wind shear did not reach the sensors of the Low Level Wind Shear Alert System (LLWAS) until after the crash, a fact that demonstrated the system's limitations. The National Transportation Safety Board listed the accident's probable cause as: the flightcrew's decision to approach through a cumulonimbus cloud which they observed to contain lightning; lack of specific guidelines, procedures, and training for avoiding and escaping wind shear; and lack of real-time, definitive wind shear information. The report noted that low-altitude wind shear had been a cause or contributory factor in seven fatal air transport crashes since 1970.

On Nov 27, 1985, FAA announced the award of a contract for development of a comprehensive **wind shear training program for pilots**. The agency received the completed program in February 1987 and distributed it to the industry. On Apr 14, 1986, FAA circulated a draft **Integrated Wind Shear Program plan**. In addition to better pilot training, the plan featured development of: improved ground-based detectors, including: enhanced LLWAS (see Jan 1988); Next-Generation Weather Radar, known as NEXRAD (see Feb 28, 1994); Terminal Doppler Weather Radar, known as TDWR (see Nov 2, 1988); and sensors for airborne detection systems using microwave Doppler, laser, or infrared radiometer technology (see Oct 9, 1986).

Aug 2, 1985: FAA submitted the first **National Plan of Integrated Airport Systems (NPIAS)** to Congress. A successor to the National Airport System Plan (see Sep 7, 1973), the NPIAS was to be published in an updated form every two years as mandated by the Airport and Airway Improvement Act (see Sep 3, 1982). The first NPIAS estimated that Federal, state, and local agencies needed to invest \$18.3 billion in airport development over the next decade in order to keep pace with the projected growth of air traffic.

Aug 12, 1985: A **Japan Air Lines 747 crashed** into a mountain about 70 miles northwest of Tokyo after wandering out of control for more than 30 minutes. All but 4 of the 524 persons aboard were killed, a **fatality toll higher than in any previous single-plane accident**. Japanese authorities listed the probable cause as rupture of the aft pressure bulkhead, and the subsequent ruptures of part of the fuselage tail, vertical fin, and hydraulic control system. They attributed the bulkhead rupture to fatigue cracks caused by improper repairs. To avert such accidents in the future, FAA ordered that a cover plate be placed over an access door in the tail section of 747s to control damage in the event of an aft pressure bulkhead failure.

Aug 16, 1985: Transportation Secretary Dole released a **report on FAA's Flight Standards programs by the Safety Review Task Force** that she had created in Dec 1983 to examine the safety programs of all the Department's modal administrations. The report identified four problem areas: difficulty in carrying out timely actions; lack of uniformity in interpreting rules and policies; sometimes ineffective communications within FAA and with the aviation community and general public; and expanded autonomy at FAA regional offices and some headquarters offices that had inhibited the accomplishment of program objectives. (See Feb 20, 1986.)

Aug 16, 1985: FAA announced that it would implement a **new policy on drug and alcohol abuse involving agency employees in safety-related positions**. The agency's pilots, safety inspectors, air traffic controllers, police officers, and firefighters would be given urinalysis tests upon hiring and thereafter during their annual physical examinations. Penalties for using illicit drugs or alcohol abuse either on or off duty ranged from dismissal to reassignment. Employees who completed a treatment program might return to their original positions, but would be subject to random screening. A second offense would result in firing. The testing procedures became effective in February 1987. (See Sep 22, 1984, and Sep 9, 1987.)

Aug 20, 1985: Trans World Airlines' board of directors accepted a stock purchase offer from "corporate raider" Carl C. Icahn, leading to **Icahn's takeover of TWA** before the end of 1985.

Aug 22, 1985: **One engine of a British Airtours charter 737 exploded on takeoff** at Manchester, U.K., engulfing the aircraft in flame and killing 54 of the 137 persons aboard. Both British authorities and FAA ordered inspections of certain **Pratt & Whitney JT8D engines** used on some 727s, 737s, and DC-9s. On **Sep 6, a Midwest Express DC-9 rolled out of control and crashed after one engine failed on takeoff** from Milwaukee. All 31 persons aboard died. The accident's probable cause, according to the National Transportation Safety Board, was the flight crew's improper response to the loss of the engine, an older version of the JT8D than that involved at Manchester. Following the accident, FAA broadened its order on engine inspections to include more models of the JT8D, and in Dec began a special inspection of engine repair facilities (see Dec 12, 1985). Subsequently, FAA issued further directives on JT8D inspections and parts replacement.

Sep 16, 1985: FAA dedicated the last of 800 contractor-installed solid-state **VORTAC air navigation aids**. VORTAC had long been an important element of the airspace system (see Aug 30, 1956). The new solid-state VORTACs were more reliable and energy-efficient than the tube-type equipment they replaced. In addition to installing the 800 units, the contractors delivered 150 VORTACs for FAA to install as sites were readied. The agency's technicians had installed more than 60 of these systems by Sep 1985. The new VORTACs were the first FAA systems to have **Remote Maintenance Monitoring (RMM)**, a feature that greatly reduced the need for site visits.

Sep 18, 1985: DOT issued a **rule prohibiting deceptive airline code-sharing**. The rule required airlines sharing the same two-letter designator code to notify passengers of the arrangement and identify the airline actually providing the transportation.

Sep 25, 1985: **American Airlines agreed to pay a \$1.5 million civil penalty**, the largest levied by FAA to that date. Most of the safety violations cited against American had been uncovered in a special inspection that summer.

Oct 1985: As part of its **continued upgrading of automated radar terminal systems**, FAA commissioned the first ARTS IIIA installation to use a new software package designated A3.02 at Ontario International Airport, Calif. An enhanced version of the A3.01 software (see Dec 1979, and Mar 26, 1986), the A3.02 package could be used at facilities employing data from more than one radar sensor. In Nov 1986, the first ARTS IIIA to use the still more advanced A3.03 software was commissioned at Burbank, Calif. This new package included an enhanced conflict alert capability that was less prone to false alarms. Meanwhile, FAA continued to install ARTS IIIA hardware, and had replaced most of the basic ARTS III systems by the end of 1986.

Oct 9, 1985: FAA announced that the agency had signed an agreement with the National Aeronautics and Space Administration and the Department of Defense (DOD) to conduct a **joint study of the benefits of continued development of tiltrotor aircraft**. This type of aircraft is equipped with rotors that tilt to act like a helicopter rotor during takeoff and landing, yet perform like a conventional propeller for cruise flight. The XV-15, a small proof-of-concept aircraft, had been flying successfully since 1977, and the larger V-22 Osprey was under development for DOD. The joint study (published in two phases, in 1987 and 1991) concluded that civil tiltrotors could be both technically and commercially feasible. (See Jun 16, 1988.)

Oct 10, 1985: FAA and general aviation manufacturers gave a preview of a "**Back to Basics**" **safety program** to a group of pilots at the National Air and Space Museum. Beginning on Jan 1, 1986, the program used presentations and clinics to increase pilot awareness of a different safety topic each quarter for three years. The first year's topics included: takeoff and landing; collision avoidance; weather; and fueling and fuel planning. The program proved successful, and on Jan 1, 1990, FAA began a Back to Basic II program scheduled to run through 1994.

Nov 1, 1985: FAA published a **rule requiring any person flying an aircraft equipped with a radar beacon transponder to operate the transponder (including altitude reporting equipment if installed) while in controlled airspace**. This requirement had previously applied to pilots in Terminal Control Areas (TCAs) and flying en route above 12,500 ft. (see Jun 4, 1973). FAA now extended it to those operating in airport control zones, designated Federal airways, and transition zones. The new rule involved no requirements for installation of additional equipment (see Jan 29, 1987).

Nov 7, 1985: DOT announced final approval for **United Airlines acquisition of Pan American's Pacific Division**. The transaction meant the end of Pan Am's far-flung Pacific operations, except for service between Hawaii and the U.S. mainland. (See Nov 14, 1990.)

Nov 13, 1985: FAA published a **rule requiring shoulder harnesses for all seats in new airplanes with less than ten passenger seats** manufactured after Dec 12, 1986. The rule extended an earlier requirement that had applied only to the front seats of small aircraft (see Jun 16, 1977).

Nov 23, 1985: **An unusually bloody hijacking began when three men seized control of an Egyptair 737** with 98 persons aboard shortly after takeoff from Athens. In a midair gunfight, one hijacker was killed and an Egyptian security guard and two flight attendants were wounded. The hijackers demanded to fly to Libya or Tunisia, but agreed to refuel at Malta. In an attempt to force Maltese authorities to supply the fuel, the hijackers shot five hostages, killing two of them, including an American woman. After 22 hours of negotiation, an Egyptian military force stormed the plane. During the rescue action, 57 persons were killed and about 30 others injured.

Dec 4, 1985: **AN FAA DC-3 (registration number N-34) arrived at Washington National Airport to begin a new career as a flying exhibit**. Manufactured in 1945, N-34 had belonged to the Navy before its transfer to FAA in 1963. With many other DC-3s, it performed quality assurance and facility certification checks on the nation's airways before its retirement from this role on Sep 9, 1982. N-34 was exhibited at air shows until retired from active service as a cost saving measure in early 1994.

Dec 12, 1985: **A chartered DC-8 operated by the U.S. carrier Arrow Air crashed on takeoff from Gander, Newfoundland**. All 256 persons aboard died, including 248 U.S. soldiers returning from the Mideast. Early theories on the tragedy's cause included the possibility that it was part of a series of crashes involving engine failure (see Aug 22, 1985), and FAA conducted a special inspection of jet engine repair facilities following the accident. On Dec 8, 1988, the Canadian Aviation Safety Board released a divided verdict on the crash's probable cause. The majority of five members cited icing on the wings, perhaps combined with the loss of thrust from one engine (see Jan 13, 1982, and Nov 15, 1987). A minority of four concluded that an in-flight explosion was most likely.

FAA increased surveillance of Arrow Air following the Gander crash, and an in-depth inspection of airlines operating under military charter was announced in January 1986. Subsequent actions included the Feb 8 temporary grounding all 10 of Arrow's DC-8s pending replacement of unapproved spare parts. Nine years later, in March 1995, Arrow voluntarily ceased operations for nearly three months following an FAA inspection that revealed safety violations.

Dec 20, 1985: DOT published a new rule on allocation of takeoff and landing reservations ("slots") at the four airports subject to flight quotas under the **High Density Rule** (see Mar 6, 1984). Beginning on April 1, 1986, any person might buy, sell, trade, or lease air carrier or commuter slots (with the exception of international and essential air service slots, which were subject to certain transfer restrictions). A lottery procedure was provided for allocation of new slots, or slots returned under the rule's use-or-lose provision. On Mar 12, 1986, DOT issued a special rule aimed at increasing competition: 5 percent of slots at high density airports would be assigned by lottery to new entrants and incumbent air carriers with fewer than 8 slots. Although the High Density Rule was subsequently amended in certain other respects, its main provisions remained essentially unchanged despite opposition from some parts of the aviation community. On Jun 16, 1995, DOT released a report on the issue and announced its conclusion that, on balance, the rule was currently beneficial.

Dec 27, 1985: Near-simultaneous Arab **terrorist attacks on airports in Rome and Vienna** caused the death of 20 persons, including four of the terrorists, and injured approximately 120. Five of the victims killed were U.S. citizens. The attacks centered on the check-in counters of the Israeli airline El Al. Libyan leader Muammar Qaddafi praised the terrorists, thus contributing to tensions between his nation and the United States. (See Feb 11, 1986.)

***1986**

Jan 7, 1986: The **first helicopter flight simulator certificated by the Federal Aviation Administration was commissioned** at the Bell Helicopter plant in Hurst, Texas, for use in Bell 222 helicopter training and proficiency checks.

Jan 9, 1986: FAA published a **rule requiring passenger-carrying airliners to carry a medical kit** in addition to the basic first aid kits already mandated. The agency estimated that roughly 21 in-flight deaths occurred annually, most involving persons already suffering from terminal illnesses. FAA expected that about 10 percent of the in-flight deaths would be prevented by the new rule, which became effective Aug 1, 1986.

Jan 23, 1986: **Northwest Airlines announced that it would buy Republic Airlines.** DOT approved the merger on Jul 31, 1986.

Jan 28, 1986: The **space shuttle Challenger exploded** shortly after liftoff from Cape Canaveral. The accident killed all seven persons aboard and dealt a severe blow to the U.S. space program. No further shuttle flights took place until Sep 29, 1988.

Feb 10, 1986: FAA formally established the **National Aviation Safety Inspection Program (NASIP)**, a plan to continue on a more systematic basis the kind of in-depth inspections begun under the National Air Transportation Inspection, or NATI (see Mar 4, 1984). An inspection of Eastern Air Lines already begun in Dec 1985 became part of NASIP (see Mar 7, 1986). The program also included inspections targeting airlines operating under military charter, an emphasis that fulfilled a directive issued by the Secretary of Transportation in the wake of a crash in Newfoundland (see Dec 12, 1985). NASIP inspections during fiscal 1986 included 18 carriers providing military charter flights, as well as 20 turbine engine repair stations. The program was then redefined annually, as were the certificate holders targeted for inspections, and special emphasis inspections were conducted as circumstances warranted.

Feb 11, 1986: The Department of Transportation released an order **suspending commercial aviation relations with Libya.** The action made final a tentative order issued in response to a Jan 7 Presidential directive which declared Libya a threat to U.S. security. Tensions between the two nations continued to grow, fed by events that included naval clashes and a bombing in Germany in which a U.S. soldier was one of the two fatalities. On **Apr 15, the confrontation culminated in a U.S. air raid against Libya.** (See Dec 27, 1985, and Apr 15, 1992.)

Feb 12, 1986: FAA commissioned the **first "family" group of automated flight service stations (AFSSs)**, at airports in Cleveland, Ohio, Dayton, Ohio, and Bridgeport, Conn. The group of stations used the Model 1 Flight Service Automation System (see Oct 2, 1981). They were linked by dedicated communications lines with a Central Flight Service Data Processing System (FSDPS) at the Cleveland Air Route Traffic Control Center. Computer terminals at the three automated stations gave flight service specialists quick access to weather information, flight plans, and other data continually fed into the FSDPS. The commissioning was part of FAA's long-range plan to consolidate all its flight service stations into 61 automated facilities. **On Sep 28, 1987, FAA completed the first phase of the AFSS program** as it commissioned the 37th and final AFSS planned to receive the initial version of the Model 1 system. In Feb 1987, meanwhile, Congress had approved development of the Model 1 Full Capacity system in place of the Model 2 system that FAA had originally planned. (See Nov 1982, and Nov 8, 1991)

Feb 20, 1986: Transportation Secretary Dole announced a comprehensive **review of domestic airport security** to be coordinated by her Safety Review Task Force (see Aug 16, 1985). The Task Force submitted its initial recommendations in August 1986, and FAA responded with a range of actions to improve security training and planning, and to tighten access to secure areas.

Feb 24, 1986: Financially troubled **Eastern Air Lines tentatively accepted a buy-out offer by Texas Air.** The board's decision followed labor negotiations in which Eastern's pilots agreed to make concessions but the union representing machinists and mechanics demanded replacement of chairman Frank Borman. Following the purchase agreement, Borman remained as Eastern's head until his resignation in June. (See Oct 1, 1986.)

Feb 1986: FAA completed acceptance testing for new **Flight Data Input/Output (FDIO) equipment**. FDIO, which provided a modernized method of transmitting and updating flight plan information, was delivered to 11 air route traffic control centers and their associated terminals during fiscal 1986. By the end of FY 1987, FAA had accepted delivery of FDIO equipment to all enroute and terminal control facilities; the first system became operational in Dec 1989.

Mar 1, 1986: **Trans World Airlines acquired Ozark Airlines** under an agreement that received Department of Transportation approval in September. Ozark had begun flying in 1950 and expanded within the Midwest, then grew beyond that region with the introduction of airline deregulation in the late 1970s. The airline had encountered economic difficulties, beginning in 1984. Ozark's operations merged into those of TWA on Oct 26, 1986.

Mar 7, 1986: **FAA proposed a \$9.5 million civil penalty against Eastern Air Lines**, by far the largest penalty the agency had proposed to that date, for safety violations revealed during an inspection from Dec 3, 1985, through Feb 20, 1986. Eastern objected to the fine, but in Feb 1987 agreed to pay. Meanwhile, **on Aug 22, 1986, FAA announced that Pan American would pay \$1.95 million for safety violations** revealed by an inspection that began in March. This was the largest penalty actually levied by FAA to that date, but smaller than the \$3.9 million originally proposed to Pan Am for these violations.

Mar 13, 1986: FAA activated the domestic message portion of a computerized system to collect, process, and distribute notices to airmen (NOTAMs) throughout the U.S. airspace system and abroad. This completed the commissioning of the **Consolidated NOTAM System (CNS)**, culminating a two-year implementation effort that began in Feb 1984 when the international messages subsystem of CNS came on line.

Mar 15, 1986: FAA Administrator Engen and the Chinese Civil Aviation Administration Director signed a **U.S.-Chinese agreement on cooperation in civil aviation**. The agreement covered a wide range of activities including the exchange of scientific and technical information and personnel, cooperation in research and development, and the provision of training and other technical assistance. (See May 5, 1985, and Mar 31, 1995.)

Mar 14, 1986: FAA announced the choice of Embry Riddle Aeronautical University to provide a **new management training facility** to replace the existing school at Lawton, Okla. (see May 3, 1971). After building the new school at Palm Coast, Fla., Embry Riddle operated the facility for FAA under a 20 year contract, while FAA awarded separate contracts for instructional services. FAA dedicated the new school, named the **Center for Management Development (CMD)**, on Oct 15, 1987, and the first class began four days later.

Mar 26, 1986: FAA announced a contract to **upgrade the New York Radar Approach Control (TRACON) Facility**, which provided radar service to aircraft approaching and departing the major hubs and designated satellite airports in the New York area. The existing facility used a special ARTS IIIA Automated Radar Terminal System capable of tracking 1,200 radar targets at one time. This would be upgraded to a unique ARTS IIIE able to simultaneously track 1,700 targets. The second stage of the enhancement would allow tracking of 2,800 targets, with a capability of expanding to 3,400 targets if needed. (See Jan 10, 1981, and Sep 20, 1991.)

Mar 1986: FAA commissioned the first **second-generation common radar digitizer, known as CD-2**, for operational use (see Apr 6, 1979). The first two CD-2s had been delivered to the FAA Academy on Feb 11, 1983, and the first field delivery took place in May 1984.

Apr 2, 1986: **A bomb hidden under a seat cushion exploded aboard a TWA 727** on approach to Athens, Greece, creating a hole in the fuselage four feet in diameter. The blast killed four passengers and injured nine others, but the aircraft landed safely. The bomb was **similar to one that exploded on Aug 11, 1982**, aboard a Pan American 747 flying from Japan to Hawaii, killing 1 person and injuring 15.

Apr 15, 1986: In a move to consolidate aviation medicine expertise and responsibilities, **FAA transferred direction of the Civil Aeromedical Institute (CAMI)** from the Director of the Aeronautical Center to the Federal Air Surgeon. (See Sep 30, 1966.)

Apr 29, 1986: **Direct airline service between the United States and the Soviet Union resumed** after an interruption of over four years (see Dec 29, 1981). The flights resulted from an agreement announced soon after the Nov 1985 summit meeting of President Reagan and Soviet leader Mikail Gorbachev. (See Feb 16, 1990.)

May 16, 1986: FAA published a rule **upgrading fire safety standards for cargo or baggage compartments** in future transport category aircraft by establishing new fire test requirements. The regulation also limited the volume of Class D compartments (those not readily accessible to crewmembers or equipped with built-in fire extinguishers, but instead designed to control fire by restricting oxygen). The rule stemmed from a testing project undertaken at the FAA Technical Center in the wake of a Saudi Arabian in-flight fire (see Aug 19, 1980) and from a rulemaking proposal published in Aug 1984. (See Feb 10, 1989.)

Jun 2, 1986: FAA and the Coast Guard concluded a Memorandum of Agreement outlining the roles of each agency in developing the **LORAN-C navigation system** for use by civil aviators (see Aug 23, 1984). In an updated edition of the National Airspace System (NAS) Plan issued that same month, FAA included a new project for LORAN-C, an interim, supplemental radio navigation system providing at least single-level coverage for instrument flight rules (IFR) navigation for the contiguous U.S., eventually including the "midcontinent gap" not covered by existing transmitters. FAA would provide procurement funds, while the Coast Guard would operate and maintain the transmitters. Nonprecision LORAN-C approaches would also be supported where signal requirements were met, and FAA therefore planned to acquire and operate equipment to check the quality of LORAN-C signals. In Oct 1986, the agency awarded a contract for the first 112 of these signal monitors. (See May 14, 1991.)

Jun 18, 1986: A Bell 206B helicopter and a DHC-6 Twin Otter airplane **collided while conducting air tours over the Grand Canyon National Park**, killing all 25 persons aboard the two aircraft. The National Transportation Safety Board listed the probable cause as the failure of both flightcrews to see and avoid each other for undetermined reasons. As contributory factors, the Board listed: failure of FAA oversight regarding Grand Canyon flights; National Park Service influence over route selection by air tour operators; and modification of helicopter routes to intersect those used by fixed-wing aircraft. On Dec 9, 1986, FAA published a proposal to establish special temporary flight restrictions above the Canyon, to be followed by a permanent rule addressing the safety and noise issues associated with operations over the park. (See Mar 26, 1987.)

Jun 20, 1986: A directive issued this date established a new **Office of Science and Advanced Technology** reporting directly to the Administrator. The office was later abolished by a directive issued on Aug 29, 1988.

Jul 6, 1986: President Reagan proclaimed this to be National Air Traffic Control Day in honor of the **50th anniversary of Federal involvement in controlling air traffic** (see Jul 6, 1936). FAA personnel throughout the nation observed the occasion with ceremonies and celebrations.

Jul 21, 1986: FAA published a rule setting **stricter flammability standards for materials used in cabins** of existing and future airliners with 20 or more passenger seats. The new standards required use of fire resistant and slower-burning materials for cabin sidewalls, ceilings, partitions, storage bins, galleys, and other interior structures. Establishment of such standards had been one of the recommendations of the Special Aviation Fire and Explosion Reduction (SAFER) Advisory Committee (see Sep 10, 1980). The necessary research had been conducted primarily at the FAA Technical Center, and further toxicity studies had been carried out at the agency's Civil Aeromedical Institute (CAMI). The new rule was effective on Aug 20, 1986, but prescribed a phased compliance schedule stretching over four years.

Aug 5, 1986: In an example of action under the International Security Development and Cooperation Act (see entry for Jun 14, 1985), **the Department of Transportation announced that Manila airport in the Philippines did not maintain effective security standards**. Airlines were required to inform passengers buying tickets for Manila of this determination. Following an FAA team's inspection, the Department on Sep 2 announced that the airport now met international security standards.

Aug 13, 1986: The National Academy of Sciences issued a **report on airliner cabin air quality and related safety issues**. The report had been mandated by Congress in 1984. Its most controversial recommendation was a ban on smoking on all domestic commercial flights (see Apr 23, 1988). The authors cited four major reasons: to lessen discomfort to passengers and crew; to reduce potential health hazards to cabin crewmembers from environmental tobacco smoke; to eliminate possible fires; and to align cabin air quality with standards for other closed environments. Further recommendations included an FAA review of carbon dioxide standards, which eventually resulted in a 1996 rule lowering the allowable concentration of this gas for occupied areas of transport aircraft from 3.0 to

0.5 percent. The report's other suggestions included FAA consideration of requiring additional protective breathing equipment for use during in-flight fires aboard airliners (see May 26, 1987).

Aug 21, 1986: FAA's Air Route Traffic Control Centers handled 112,467 en route operations, the **highest single-day traffic** to that date. Record operations levels at many facilities in fiscal 1986 helped to create a 19.85 percent **increase in delays** as compared to the previous year. During the fiscal year, FAA proceeded with implementation of a **Traffic Management System** integrating certain air traffic control functions to create a more orderly traffic flow. Work also continued on the **Expanded East Coast Plan**, the first phase of which was scheduled for implementation in 1987 (see Feb 12, 1987). Under development since 1982, the plan was designed to alleviate congestion in the New York area and associated airspace through the use of additional departure routes and other techniques. During fiscal 1986, FAA also deployed mobile "tiger teams" of personnel with expertise in a variety of air traffic control disciplines to improve traffic management in areas experiencing delays.

Aug 31, 1986: **A Mexican DC-9 and a Piper PA-28 collided in clear sky over Cerritos, Calif.** The Piper had inadvertently made an unauthorized entry into the Los Angeles Terminal Control Area (TCA), and its radar return was not observed by the controller providing service to the Mexican flight. The accident killed 82 persons--all 64 aboard the DC-9, all 3 aboard the Piper, and 15 on the ground. The National Transportation Safety Board later listed the probable cause as the limitations of the air traffic control system to provide collision protection, through both air traffic control procedures and automated redundancy.

The Cerritos accident was the first midair collision to occur within a TCA. On Sep 15, FAA Administrator Engen appointed a special task force to study **actions to improve the TCAs**. On Oct 27, the agency announced plans to implement the group's 40 recommendations, including: a minimum 60-day license suspension for pilots violating TCA boundaries (see Oct 10, 1986); expanded requirements for altitude encoding transponders (see Jan 29, 1987); and action to simplify and standardize the design of TCAs (see Jan 12, 1989).

Sep 5, 1986: **At Karachi, Pakistan, four men dressed as security guards stormed a Pan American 747.** The flight crew escaped, but the four terrorists demanded a crew to fly them to Cyprus. They killed an American passenger during the ensuing 17 hour negotiations. When the lights aboard the aircraft failed, the terrorists began a massacre, killing 22 persons and injuring 125 before being arrested.

Sep 1986: AN FAA/Air Force review board endorsed specifications for a **new long-range Air Route Surveillance Radar, designated ARSR-4**, for use at joint surveillance sites. On Jul 25, 1988, FAA announced that it had awarded Westinghouse a \$271.6 million contract for 34 ARSR-4s. The new three-dimensional, solid state equipment would replace the 25- to 30-year-old Joint Surveillance radars, improving detection and reducing the clutter from terrain, weather, and other sources. The Air Force and FAA shared the cost of all but one of the ARSR-4s, which the Navy purchased. FAA began initial testing of the new radar during fiscal 1992. (See Jun 25, 1979, and Apr 12, 1996.)

Oct 1, 1986: **DOT gave final approval for Frank Lorenzo's Texas Air holding company to acquire Eastern Air Lines** (see Feb 24, 1986), with Lorenzo becoming Eastern's chairman on Oct 15. The Department had earlier rejected the merger on Aug 26, but reversed itself following an agreement safeguarding Pan American's role as a competitor on the Boston/New York/Washington shuttle routes. **On Oct 24, DOT gave final sanction to Texas Air's acquisition of People Express** and most of the assets of People's bankrupt subsidiary, Frontier Airlines. A no-frills airline, People Express had grown rapidly after starting operations on Apr 30, 1981, but had begun to experience heavy losses in 1985. (See Feb 1, 1987.)

Oct 9, 1986: FAA announced an agreement with the National Aeronautics and Space Administration for a joint program to develop basic requirements for an **airborne wind shear detection and avoidance system**. The program's goal was a predictive alert system that could "look ahead" of the aircraft, as distinguished from already-available systems that reacted when wind shear was encountered. (See Aug 2, 1985, and Sep 22, 1988.)

Oct 10, 1986: FAA issued an enforcement bulletin implementing a **60-day suspension of the certificate of any unauthorized pilot who entered a Terminal Control Area (TCA)**. The agency could seek harsher actions, including a \$1,000 civil penalty, if there were aggravating circumstances, such as causing a near midair collision while illegally within a TCA. (See Aug 31, 1986, and Mar 5, 1990.)

Oct 21, 1986: FAA announced the award of two contracts to develop competing prototypes of the **Voice Switching and Control System (VSCS)**. The system would provide controllers at air route traffic control centers with computer-controlled voice switching for air-ground communications and well as intercom and interphone communications within and between FAA facilities. Compared to the existing electromechanical system, the new electronic VSCS would be faster, more reliable, and cheaper to maintain. Harris Corporation received the production contract on Dec 31, 1991. (See Jun 30, 1995.)

Oct 23, 1986: FAA announced the purchase of 19 turboprop Beech Super King Air Model 300 aircraft for its **flight inspection fleet** used to check the accuracy of air navigation and landing aids. Expected to be more fuel efficient and easier to maintain, the new aircraft were to replace a number of Sabreliner Model 80s and all five of the agency's Jet Commander Model 1121 aircraft. Delivery began in Apr 1988. The purchase was part of a modernization process that was reducing the number and types of aircraft that FAA used for flight inspection and for other purposes. At its peak in FY 1964, the agency's total fleet had consisted of 116 aircraft of 24 different types. In FY 1987, the fleet would be reduced to 50 aircraft of 16 types. (See Jul 8, 1973 and Oct 1, 1991.)

Oct 30, 1986: President Reagan signed the Public Law 99-591, including Title VI, the **Metropolitan Washington Airports Act of 1986** authorizing the transfer of control of Washington National and Dulles International Airports to an independent regional authority under a 50-year lease (see Jun 8, 1984, and Jun 7, 1987). The authority was to be created by agreement between Virginia and the District of Columbia. It would be governed by a board of 11 members appointed by the Governor of Virginia (5), the Mayor of the District of Columbia (3), the Governor of Maryland (2), and the President (1). The law also prohibited airlines from operating non-stop flights between Washington National and any airport more than 1,250 miles distant, a wider non-stop service perimeter than previously set by policy (see Dec 6, 1981).

Title V of P.L. 99-591, the **Aviation Safety Commission Act of 1986**, established for 18 months a commission of seven Presidentially appointed members to study how FAA might most effectively fulfill its functions. In April 1988, the commission released its final report, concluding that overall the nation's air transportation system was safe, but that the regulatory structure was inadequate to deal with future growth and technological change. The commission's recommendations included: the creation of an independent federal aviation authority with a separate safety director; increased safety inspections; tighter regulation of commuter aircraft operations; mandatory use of Mode C transponders for general aviation aircraft flying near hub airports; and a set term for the FAA administrator.

Oct 31, 1986: In a restructuring of the organizational complex under the Associate Administrator for Aviation Standards, the **Office of Flight Operations was retitled the Office of Flight Standards**. The **Rotorcraft Program Office, which had been disbanded on Mar 7, was formally abolished** and its functions divided between the Office of Flight Standards and the Office of Airworthiness. Certain other adjustments in the responsibilities of these two offices also took effect.

Nov 16, 1986: Effective this date, a **Department of Transportation order ended air service between the U.S. and South Africa**, as required by the Comprehensive Anti-Apartheid Act of 1986. (See Aug 8, 1991.)

Dec 23, 1986: Dick Rutan and Jeana Yeager became the **first aircraft pilots to circle the globe without landing or refueling** when their experimental airplane Voyager touched down at Edwards Air Force Base, Calif., after covering 25,000 miles in nine days. The aircraft had a propeller at each end of its fuselage, and was equipped with a main wing nearly 111 feet long as well as a smaller forward wing. Voyager took off on Dec 14 with 1,200 gallons of fuel and landed with only eight gallons of usable fuel remaining.

***1987**

Jan 28, 1987: Secretary of Transportation Elizabeth Hanford Dole announced a three-part **effort to help reduce airline delays**. The initiative included: a proposal to grant immunity to the airlines to permit them to conduct joint discussion aimed at adjusting schedules; an investigation to determine if and how airline scheduling processes contributed to delays; and a series of FAA actions to increase system capacity and efficiency. Those FAA steps included the use of computer traffic models to help airlines adjust schedules, a realignment of the air traffic control sectors in the New York/Boston corridor, a review of air traffic procedures on a facility-by-facility basis, and the transfer of additional controllers to the busiest facilities.

Jan 29, 1987: FAA issued a **rule establishing requirements pertaining to the use, installation, inspection, and testing of transponders** in U.S.-registered civil aircraft. The rule continued the requirement that aircraft be equipped with a transponder for operation in Terminal Control Areas (TCAs) and in the airspace of the 48 contiguous states above 12,500 feet above ground level (see Nov 1, 1985). The requirement for automatic pressure altitude reporting (Mode C) equipment, currently mandatory in all of the above airspace except Group II TCAs, was extended to include Group II TCAs, effective Dec 1, 1987 (see Jun 21, 1988). The rule also contained provisions intended to provide for **transition from Air Traffic Control Radar Beacon System (ATCRBS) transponders to Mode S transponders** (see Oct 5, 1984). All transponders newly installed in U.S.-registered aircraft were required to be Mode S transponders after Jan 1, 1992, a deadline that was subsequently extended to Jul 1, 1992. (See Jul 30, 1992.)

Feb 1, 1987: **The Texas Air holding corporation merged New York Air and People Express into Continental Airlines.**

Feb 2, 1987: FAA's Federal Air Surgeon resigned and was reassigned at his own request to help end a **controversy over airmen certification**. Critics had charged that the Federal Air Surgeon had granted waivers to commercial pilots whom they considered medically unfit to fly.

Feb 12, 1987: FAA initiated Phase I of the **Expanded East Coast Plan (EECP)** to help increase the capacity of the National Airspace System (see Aug 21, 1986). The plan had been originally intended to relieve traffic congestion in the New York and Washington, D.C., areas through the more effective use of airspace, but was expanded to cover the airspace from Maine to Florida and west to Chicago. The EECP: created new departure and arrival routes; established separate paths and altitudes for jets and slower propeller aircraft; set up new city-pair routes; and used new traffic management techniques to increase airport departure flows and reduce holding procedures. The agency initiated Phase II of plan on Nov 19. That phase involved a realignment of the northwest departure quadrant from the New York Metropolitan area. The agency also increased the number of westbound high-altitude routes from one to four to expedite traffic flows to Chicago, Detroit, and the west coast. The final phase of the EECP, implemented on Mar 10, 1988, was designed to improve traffic flow from the New York area to the northeast, and involved changes affecting the airspace in New England, New York, Philadelphia, Baltimore, and Washington, D.C. (See Aug 25, 1988.)

Feb 17, 1987: FAA added a **new commuter category of aircraft** and set forth the airworthiness and operating rules, certification procedures, and noise rules for that additional category of propeller-driven, multi-engine airplane, with a seating capacity of no more than 19, and a takeoff weight of no more than 19,000 pounds.

Feb 17, 1987: DOT announced a **program designed to identify and prosecute pilots who failed to declare drug or alcohol-related convictions** on medical certificate applications. (See Apr 17, 1985, and Jul 26, 1990.)

Feb 23, 1987: In the wake of a series of fatal accidents, FAA began a 60-day **surveillance of civilian air ambulance programs**. Agency inspectors investigated equipment, maintenance, training, and pilots' hours. The program was followed by publication of new safety guidelines for emergency medical service helicopters.

Feb 28, 1987: **General William F. McKee died** in San Antonio, Tex. After serving as FAA's third Administrator (see Jul 1, 1965), McKee had been a partner in a consulting firm before retiring.

Mar 18, 1987: **Donald D. Engen announced his resignation as FAA Administrator**, effective in July (the exact date became July 2). On Engen's departure, the position of Acting Administrator was filled by Robert Whittington, Director of the New England Region. (See Jul 22, 1987.)

Mar 18, 1987: The first revenue flight of an airplane equipped with an operational **TCAS II version of the Traffic Alert and Collision Avoidance System** occurred (see Jun 23, 1981). Two airliners began an in-service evaluation of the system on **Jan 31, 1988, marking the start of FAA's TCAS II Limited Installation Program**. Three airlines participated in the program, which was designed to resolve any outstanding technical and operational questions about the system's use in regularly scheduled service. (See Jan 10, 1989.)

Mar 25, 1987: FAA published a **rule requiring Cockpit Voice Recorders on new jet and turboprop commuter aircraft** manufactured after May 26, 1989 (see Jun 26, 1984). The rule also mandated the installation of **more sophisticated digital Flight Data Recorders on about 2,000 older large commercial jets**, with compliance also by May 26, 1989. (See Aug 12, 1970, and Jun 30, 1988.)

Mar 26, 1987: FAA published a special rule addressing **aviation safety and noise concerns at the Grand Canyon** (see Jun 18, 1986). Provisions included: a temporary Special Flight Rule Area limiting operations below 9,000 feet mean sea level above the Canyon; prohibition of flights below the Canyon rim, with some exceptions; and requirements aimed at reducing the risk of midair collisions and terrain impact. Another rule, published on Jun 15, 1987, modified and extended these temporary provisions. **On Aug 18, 1987, enactment of Public Law 100-91 mandated a study of aircraft noise impacts at a number of national parks and required flight restrictions at three parks:** Grand Canyon, Yosemite, and Haleakala. The law specified that FAA would prepare and issue a final plan for air traffic management above the Grand Canyon, based on recommendations from the Interior Department. On Jun 2, 1988, FAA published a rule implementing Interior's preliminary recommendations, with some modifications. Among other provisions, this rule: raised the ceiling of the Special Flight Rule Area to 14,500 feet mean sea level; established flight-free zones from the surface to 14,500 feet above large areas of the park; and provided routes for commercial tour operators and transient operators through the canyon area. The rule was to expire after Jun 15, 1992, but was given two extensions totaling five years to allow for completion and review of National Park Service studies of the Canyon noise issue. On Jun 19, 1992, meanwhile, a crash claiming 10 lives continued a series of fatal accidents in the Canyon vicinity. The accidents prompted FAA to establish a new geographical unit to help oversee the area's air tourism. (See Mar 17, 1994.)

Apr 1, 1987: **Western Airlines merged into Delta Air Lines.**

Apr 1987: Completion of a construction project at the Miami Air Route Traffic Control Center early this month marked the **conclusion of a nationwide ARTCC expansion program.** (See Sep 26, 1984).

May 14, 1987: President Reagan announced his **nomination of Lawrence M. Hecker as FAA's Deputy Administrator.** The nominee was a former pilot and vice president of flight operations for Western Airlines. **Hecker withdrew his candidacy in September** because the Senate failed to act on the nomination.

May 17, 1987: FAA began using the **Aircraft Situation Display (ASD)** at its Central Flow Control Facility at Washington Headquarters. ASD provided traffic managers with a near real-time visual display of en route aircraft operating under instrument flight rules nationally, regionally, or to a specific airport terminal area. The information was provided by more than 100 long-range radars across the country. On July 25, 1988, FAA announced the addition of **Monitor Alert** to ASD. Monitor Alert was a computer system designed to analyze flight plans and project when and where airspace congestion was likely. By May 1994, FAA had installed ASD at 41 en route and terminal facilities. (See Dec 31, 1983, and Nov 15, 1990.)

May 19, 1987: **USAir absorbed Pacific Southwest Airlines. On Oct 30, DOT announced its approval for USAir's proposed acquisition of Piedmont Airlines.** Formal merger of the two airlines' parent companies occurred on Aug 5, 1989, and full integration of Piedmont Airlines into USAir was not completed until Feb 1, 1990.

May 20, 1987: FAA Administrator Donald Engen announced that the agency had formally adopted a new policy that permitted **instrument landing systems (ILS)** to be installed at some hub and reliever airports. FAA had earlier imposed a freeze on installation of ILS in favor of **microwave landing systems (MLS)**, but Engen said that more ILSs would help address the problem of limited airport capacity in the short run. (See Jan 12, 1984, and Apr 6, 1989.)

May 26, 1987: A new FAA regulation required airline operators to equip all large passenger aircraft with **protective breathing equipment (PBE) for flight attendants** to use in fighting in-flight fires, and to provide training in PBE use. The rule applied the same performance standards to this equipment as to the PBEs already required for cockpit crew members. FAA had proposed the rule in Oct 1985 in response to National Transportation Safety Board recommendations and to several in-flight fires. FAA originally gave airlines two years to comply with the regulation, but subsequently granted extensions to Jan 31, 1991, for PBE installation and to Jul 31, 1992 for training. (See Mar 29, 1985.)

May 29, 1987: **FAA commissioned the first of its Host Computer Systems** at the Seattle air route traffic control center (ARTCC). **On Jun 23, 1988, the agency commissioned the last of the systems** at the Salt Lake City ARTCC, completing the Host implementation program at all 20 continental ARTCCs. (See Jul 26, 1985.)

Jun 5, 1987: FAA published a rule requiring airlines to develop and use approved **programs to control the amount and size of carry-on baggage**, with compliance by Jan 1, 1988. The agency specified that airlines must ensure that passengers did not bring excessive luggage aboard, and that all luggage was safely stowed prior to closing the last cabin door when preparing for takeoff. FAA's regulation of carry-on bags had begun with a Sep 1967 requirement that passengers could take to their seats only items that could be securely stowed under a seat. The rules had subsequently evolved as cabin interiors changed.

Jun 7, 1987: The **Metropolitan Washington Airport Authority (MWAA) took over management of National and Dulles airports from FAA**. The MWAA had been created by the Metropolitan Washington Airports Act (see Oct 30, 1986). Under the terms of a lease agreement with the Federal government, the new authority would operate the two airports for 50 years and would pay the government a total of \$150 million for the lease period. Almost 700 FAA employees left the agency to join the MWAA, and a directive issued on Oct 26, 1987, abolished FAA's Metropolitan Washington Airports organization.

Jun 12, 1987: FAA commissioned its new **National Concepts Development and Demonstration Heliport** at the Technical Center. The research heliport was fully equipped with such items as a microwave landing system, an automated weather observing system, precision approach path indication lights, and reconfigurable landing lights.

Jun 19, 1987: The Federal Labor Relations Authority **certified the National Air Traffic Controllers Association (NATCA)** as the exclusive representative of all GS-2152 series terminal and center controllers whose primary duty was separation of aircraft. The controllers had voted for representation by a margin of 7,494 to 3,275, using mail ballots sent to them on May 6. The Authority had announced the outcome on Jun 11. (See Jul 2, 1982, and May 1, 1989.)

Jul 1, 1987 **AirCal merged into American Airlines**. AirCal had begun flying in Jan 1967 as an intrastate carrier called Air California, then expanded to destinations outside the state in 1978. The airline had adopted the name AirCal in 1981.

Jul 22, 1987: **T. Allan McArtor became the tenth FAA Administrator**, succeeding Donald D. Engen (see Apr 10, 1984). McArtor took the oath a second time in a public ceremony on Jul 27. President Reagan had announced the new Administrator's appointment on Jun 5, and the Senate had confirmed it on Jul 17.

Born in 1942 in St. Louis, Mo., McArtor received a B.S.E. from the U.S. Air Force Academy in 1964 and a M.S.E. in engineering mechanics from Arizona State University in 1971. He served as a fighter pilot in Vietnam, logging 200 combat missions and winning the Silver Star and Distinguished Flying Cross. McArtor flew with the Air Force Thunderbirds precision flying team from 1972 to 1974. He joined the Federal Express Corporation in 1979, and was senior vice president for telecommunications at the time of his selection to head FAA. He had also chaired the Department of Transportation Commercial Space Transportation Advisory Committee from June 1986 to June 1987. McArtor served as FAA Administrator for over 18 months, resigning during the first month of the Bush Administration. (See Feb 17, 1989.)

Jul 27, 1987: During a public ceremony in which he took the oath as FAA Administrator a second time, Allan McArtor described his **plan to restore public confidence in the aviation system through a set of initiatives later dubbed Impact 88**. In a speech on Sep 15, McArtor outlined these eight initiatives, which were to be revealed in more detail during the succeeding weeks. Focusing on fiscal 1988, the program was to enhance aviation safety in the areas of airline accountability, aircrew performance, airspace capacity, advanced technology, aviation awareness, air transportation security, airport development, and agency effectiveness. Among the elements of Impact 88 were reviews of training for pilots and air traffic controllers, and an inspection of the aircraft manufacturing industry (see Sep 21, 1987).

Aug 16, 1987: **A Northwest Airlines MD-80 crashed on takeoff at Detroit**, killing all but one of the 157 persons aboard as well as two persons on the ground. The National Transportation Safety Board (NTSB) cited the probable cause as the crew's failure to use the taxi checklist to ensure that the flaps and slats were extended for takeoff. A contributory factor was an unexplained absence of power to the airplane takeoff warning system. FAA actions in response to the accident and to NTSB recommendations included required changes to MD-80 warning systems and steps aimed at improving flightcrew performance.

Aug 19, 1987: Effective this date, a **Special Federal Aviation Administration Rule (SFAR) altered the Los Angeles, Calif., terminal control area (TCA)**. The rule raised the upper limits of the TCA from 7,000 to 12,500 feet above mean sea level to enable air traffic control to provide terminal air traffic control service to arriving and departing aircraft in the TCA. The action also eliminated the visual flight rule (VFR) corridor in one area of the TCA to minimize the mix of controlled and uncontrolled operations in the vicinity of Los Angeles (see Aug 31, 1986, and Mar 10, 1988).

Sep 1, 1987: AN FAA rule issued this date required: that 12-inch high nationality and registration marks be displayed on all aircraft that penetrate and Air Defense Identification Zone (ADIZ) or Defense Early Warning Identification Zone (DEWIZ); that an identification data plate be displayed on the exterior of each U.S.-registered civil aircraft; and that operators of aircraft modified to carry fuel tanks within the passenger or baggage compartment keep a copy of the form authorizing that modification on board. A related rule, issued Oct 5, 1988, required transponder-equipped aircraft to have their transponders turned on during flights into or out of the United States penetrating an ADIZ. The rule also established flight plan and position report requirements for operations penetrating the ADIZ around the contiguous 48 states. Both rules were a response to concerns raised by the U.S. Customs Service in 1985, and FAA stated that they were **actions to combat hazards resulting from airborne drug smuggling**. (See Apr 22, 1982, and Mar 6, 1990.)

Sep 2, 1987: DOT announced a rule directing all **major air carriers to file regular monthly reports on their delay and baggage-handling records**.

Sep 9, 1987: DOT announced that within the current week it would begin **random urinalysis testing to detect drug abuse among departmental employees** in jobs directly affecting safety and security. (FAA already had a drug testing program for such employees, but it did not involve random tests: see Aug 16, 1985.) DOT's initiative was the first such program to be implemented department-wide under President Reagan's Executive Order of Sep 15, 1986, calling for a drug-free Federal workplace. (See Nov 21, 1988.)

Sep 21, 1987: Administrator McArtor announced that FAA would begin a **special inspection of the U.S. aircraft manufacturing industry** to ensure that the companies were following proper procedures and had updated their techniques to keep up with technology (see Jul 27, 1987). On Jan 13, 1989, the agency completed these **Operation Snapshot** inspections of 88 manufacturers.

Sep 27, 1987: **California became the first state to ban smoking on all intrastate trips by airline, bus, or train**. In addition, the bill required that at least 75 percent of the space in airports and public transit centers be set aside for nonsmokers. The bill became effective Jan 1, 1988. (See Apr 23, 1988.)

Oct 1, 1987: **Elizabeth Hanford Dole resigned as Secretary of Transportation** and Deputy Secretary James H. Burnley became Acting Secretary. Before becoming Deputy Secretary, Burnley had been the Department's General Counsel and had previously been an Associate Deputy Attorney General at the Justice Department. President Reagan nominated him for the top post at Transportation shortly after Dole's resignation. **On December 3, Burnley became Secretary of Transportation**. He served the remainder of the Reagan Administration, resigning effective Jan 20, 1989.

Oct 20, 1987: Intercom announced that New England Region Director **Robert Whittington had been designated Executive Director, a new position at FAA's national headquarters**. The departure of Deputy Administrator-designate Lawrence M. Hecker (see May 14, 1987) had created a void that the new position was intended to help fill. The new Executive Director, who reported to the Administrator, provided direction and guidance to the operating elements and to the regions and centers. The position was formally established by a directive issued on Feb 29, 1988. (See Jun 16, 1988.)

Oct 28-30, 1987: Administrator McArtor met a group of air traffic controllers in Atlanta in the **first of a series of Employee Focus Group meetings**, an approach to problem solving in which personnel in various specialties met directly with top managers.

Nov 9, 1987: FAA issued a major **revision of its airport certification regulations** for airports served by air carriers with aircraft having a seating capacity of more than 30 passengers. The new regulations, designed to improve safety standards, included: strengthening fuel handling and storage requirements; making airport tenants responsible for quality control of aircraft fueling operations; requiring that firefighting and rescue vehicles be equipped with two-way radios; mandating that at least one firefighting employee trained in emergency medical care be on duty during air carrier operations; and increasing restrictions on access of ground vehicle traffic to operational areas.

Nov 15, 1987: **A Continental Airlines DC-9 crashed on takeoff at Denver Stapleton airport**, killing 28 of the 82 persons on board. The National Transportation Safety Board cited the probable cause of the crash as the captain's failure to have the airplane deiced a second time after a delay before takeoff. Contributing factors listed by the Board included the absence of regulatory or management controls governing operations by newly qualified flightcrew members and the confusion that existed between the flightcrew and air traffic controllers that led to the delay in departure. (See Dec 12, 1985 and Mar 22, 1992.)

Dec 7, 1987: **A Pacific Southwest BAe 146 jet crashed near Paso Robles, Calif.**, killing all 43 on board. Gunfire was heard on the cockpit recorder, and the authorities later determined that a vengeful former employee caused the crash. **On Dec 21, FAA ordered all airlines operating at U.S. airports to screen all their employees entering secure areas** with the same metal detectors and baggage x-ray equipment used for passengers.

Dec 19, 1987: Effective this date, **FAA required a positive baggage/passenger match on all international flights by U.S. airlines.** FAA had placed the same requirement on selected international flights since the summer of 1985.

Dec 30, 1987: President Ronald **Reagan signed the Airport and Airway Safety and Capacity Expansion Act, extending the authority for the Airport Improvement Program (AIP)** for an additional five years. The legislation authorized \$1.7 billion each fiscal year through 1990 and \$1.8 billion each year for fiscal years 1991 and 1992 (see Nov 5, 1990, and Oct 31, 1992). Other provisions of the act included: authorization for a **State Block Grant Pilot Program** (see Nov 24, 1976, and Oct 1, 1989); a requirement that ten percent of the funds available under AIP be expended with the Disadvantaged Business Enterprise Program; a redefinition of primary airports to include all airports emplaning more than 10,000 passengers annually; expenditures for soundproofing public schools and hospitals without a noise compatibility study; and establishment of a discretionary fund set-aside for projects to enhance systemwide capacity, safety, security, and noise compatibility.

The act **increased the maximum civil penalty** for each safety violation by an airline or other commercial operator from \$1,000 to \$10,000. The legislation also authorized a **two-year civil penalty demonstration program**, which began on this day, permitting FAA to adjudicate civil penalty cases not to exceed \$50,000. Subsequent legislation granted the program two extensions, ending on Jul 31, 1990 (see Apr 13, 1990).

Dec 31, 1987: At the end of this day, **FAA completed its phased ban on all large transport and turbojet aircraft at the Phase I noise level**, with the exception of non-revenue flights permitted under certain circumstances through the end of 1989. (See Feb 18, 1980, and Nov 5, 1990.)

***1988**

Jan 1988: FAA commissioned its **first expanded network version of the Low Level Wind Shear Alert System (LLWAS)** at Denver Stapleton airport (see Aug 2, 1985). A second of the expanded-network systems was commissioned at New Orleans in Nov 1988. **In addition, the agency continued upgrading the standard six-sensor LLWAS units** to a version with full microburst detection capability and other improved features. **On Oct 11, 1991, a ceremony at Lexington, Ky., marked the completion of this upgraded LLWAS** at all 110 airports designated to receive it.

Feb 5, 1988: Effective this date, FAA issued the **first noise certification standards for new helicopter types** and banned modifications to current helicopter types that would increase noise levels.

Feb 8, 1988: FAA announced that it had **retired airplane registration number N16020, used by Amelia Earhart** when she disappeared on a flight over the Pacific Ocean (see Jul 2, 1937). The number had been recently held by Continental Air Lines, which had agreed to its retirement.

Mar 9, 1988 Secretary of Transportation James H. Burnley announced the creation of a **Secretary's Task Force on Internal Reforms of the FAA**, co-chaired by FAA Administrator McArtor and DOT's Assistant Secretary for Administration. The task force was charged with examining ways to eliminate marginal, non-safety expenditures and to improve the procurement process. It was instructed to place a high priority on reviewing FAA's regional structure, which Burnley described as outdated and a cause of inconsistency in interpreting national standards. On Apr 28, DOT and FAA announced that the task force's recommendations would include a variety of improvements in practices and procedures, including **"straightlining" of reporting relationships**. Under this arrangement, regional division managers in key programs would report to to Associate Administrators at national headquarters rather than to the Regional Directors. (See Sep 15, 1984, and Jun 16, 1988.)

Mar 10, 1988: Effective this date, FAA established a **special flight route through the Los Angeles terminal control area** (TCA) to accommodate general aviation aircraft wishing to transit the area. The action allowed small aircraft operating under visual flight rules (VFR) and carrying a Mode C transponder to follow the designated route through the TCA without the prior approval of Los Angeles approach control. The corridor was similar to one that had been closed effective Aug 19, 1987 (see that date).

Mar 16, 1988: Effective this date, FAA **included free-standing heliports in regulations on airport noise compatibility planning** that had previously applied only to heliports on public airports used by fixed-wing aircraft. When their plans were approved, the free-standing heliports would be eligible to apply for benefits under the Airport Improvement Program.

Apr 1, 1988: **Barbara McConnell Barrett became FAA's Deputy Administrator**, succeeding Richard H. Jones (see Dec 13, 1984). A previous nominee, Lawrence M. Hecker, had withdrawn in September (see May 14, 1987).

Born in Indiana County, Pa., Barrett earned three degrees from Arizona State University (B.S., 1972; M.B.A, 1975; J.D., 1978). She held positions with Greyhound Corp. and Southwest Forest Industries, Inc., and in 1982 became Executive Assistant to the Chairman of the Civil Aeronautics Board. Barrett served as the Board's Vice Chairman, 1983-84. She then practiced law as a partner at the firm of Evans, Kitchel, and Jenckes in Phoenix, Ariz., until becoming the first woman to occupy the FAA's Deputy position. Barrett served the remainder of the Reagan Administration, and resigned effective Jan 20, 1989. (See Mar 12, 1990.)

Apr 5, 1988: FAA **decommissioned the last radar bright display equipment** being used at a domestic air route traffic control center when it shut down the unit at the Los Angeles Center. (See Apr 27, 1960.) On the same day, FAA **terminated the last broadband radar service**, when it stopped that service at the Paso Robles, Calif., long-range radar facility. FAA had gradually replaced the broadband with the Direct Access Radar Channel (see Feb 2, 1981).

Apr 15, 1988: Effective this date, FAA required **large air carriers to report each failure, malfunction, or defect of their emergency evacuation systems and components**.

Apr 23, 1988: Effective this date, FAA placed a **two-year ban on smoking on all domestic scheduled airline flights of two hours or less**. The rule, published ten days previously, responded to legislation that had been enacted in Dec 1987. The same legislation also imposed a \$2,000 fine for tampering with smoke detectors in airliner lavatories, and FAA's rule required the posting of signs warning passengers of this penalty. (See Aug 13, 1986, and Feb 25, 1990.)

Apr 28, 1988: An 18-foot **gap opened in flight in the fuselage of a Boeing 737** operated by Aloha Airlines. Decompression swept a flight attendant through the opening, and 8 other persons were seriously injured. The plane made an emergency landing on the Hawaiian island of Maui. In the immediate aftermath of the accident, FAA ordered inspections of 737-100 and 737-200 jets logging more than 55,000 landings and restricted those planes to 23,000-foot altitude until inspected. On May 23, 1989, the National Transportation Safety Board cited the probable cause of the accident as the Aloha maintenance program's failure to detect disbonding and fatigue damage. Contributory factors listed included Aloha management failings, FAA regulatory deficiencies, and Boeing's failure to ensure correction of certain 737 construction problems. The near disaster aboard the high-service, 19-year-old Aloha plane focused attention on the **issue of the airworthiness of aging airliners**. (See May 6, 1981, and Jun 1, 1988.)

May 8, 1988: A fire at an Illinois Bell Telephone Co. switching center drastically limited communications between the towers at Chicago's Midway and O'Hare airports, the Aurora air route traffic control center, and aircraft. The 56 hour **outage resulted in major air traffic delays** throughout the country (see Jan 4, 1991.)

May 17, 1988: Voters in Colorado approved a **measure that allowed the city of Denver to annex land for a new airport**, which would occupy 45 square miles. One year later, on May 16, 1989, the voters approved a referendum authorizing construction of the facility, which would be the country's first new major airport since Dallas-Fort Worth opened in 1974. FAA approved a \$60 million grant for construction on Sep 27, 1989, and site preparation began the following day. Construction officially started on Nov 22, 1989. FAA announced it had approved an additional grant of \$90 million on Mar 27, 1990, and on Apr 29, 1992, approved the collection of passenger facility charges at Stapleton International Airport to help finance construction of the new facility. The airport was originally

scheduled to open in Oct 1993, but encountered a series of delays due to difficulties that included problems with the baggage handling system. (See Feb 28, 1995.)

Jun 1, 1988 FAA opened a three-day **international conference on the problems of aging airliners** attended by more than 400 participants. Concerns about the continued airworthiness of the many high-service aircraft in the air carrier fleet had been heightened by a recent accident (see Apr 28, 1988). The gathering led to the establishment of a government-industry task force on the issue, and to FAA actions that included: increased research and development in the aging aircraft field; acquisition of expertise in non-destructive inspection techniques; consideration of new structural inspection programs for older commuter aircraft; the use of FAA teams to monitor maintenance checks on older aircraft; and rulemaking projects aimed at improving the safety of high-service airliners (see Mar 7, 1990). The conference became the first in a series of such meetings.

Jun 2, 1988: After a six week **review of Texas Air Corp. and its subsidiaries, Eastern and Continental Airlines**, Secretary of Transportation James Burnley announced that the airlines were currently operating safely. He noted however, that **labor-management hostility at Eastern** was at an unprecedented level. To prevent this tension from threatening Eastern's future safety, Burnley had asked former Secretary of Labor William E. Brock to mediate the situation. (See Mar 4, 1989.)

Jun 14, 1988: FAA issued its **first certificate to a major all-composite aircraft, the Beech Starship**, a business-class turboprop seating between seven and ten.

Jun 16, 1988: Administrator McArtor announced a **reorganization of FAA's senior management structure**, building upon recommendations by the Secretary's Task Force on Internal FAA Reform (see Mar 9, 1988). The reorganization's aims were to: improve communications, coordination, and management oversight of FAA's technical modernization and other activities; reduce unnecessary reporting relationships; and allow Washington headquarters to handle increased authority over field operations. Effective Jul 1, 1988, **FAA increased the number of Executive Director positions from one to four** (see Oct 20, 1987, and Feb 21, 1990). The Executive Directors reported directly to the Administrator, and most of the agency's functions were consolidated under them. As described in a new directive issued on Feb 6, 1989, the four Executive Directors were responsible for the following organizational elements:

(1) **Executive Director for Policy, Plans, and Resource Management** (the new title of the former single Executive Director position). Reporting to this position were the:

(a) Associate Administrator for Policy, Planning, and International Aviation (responsible for the Europe, Africa, and Middle East Office and three other Offices: International Aviation; Aviation Policy and Plans; and Environment, later redesignated Environment and Energy);

(b) Associate Administrator for Human Resource Management (responsible for four Offices: Human Resource Development; Labor and Employee Relations; Personnel; and Training and Higher Education);

(c) Associate Administrator for Administration (responsible for the Acquisition and Materiel Service and three Offices: Accounting; Budget; and Management Systems);

(d) **Regional Directors, now retitled Regional Administrators** to reflect their role as representatives of the Administrator; and the

(e) Director, Aeronautical Center.

(2) **Executive Director for Systems Operations**, to whom reported the:

(a) Associate Administrator for Air Traffic (responsible for the Office of Air Traffic Evaluations and Analysis and two Services: Air Traffic Plans and Requirements; and Air Traffic Operations);

(b) Associate Administrator for Airway Facilities (responsible for two Services: Program Engineering and Systems Maintenance);

(c) Director of Operations Planning and Policy; and the

(d) Director of Operations Resource Management.

(3) **Executive Director for Regulatory Standards and Compliance**, to whom reported the:

(a) Associate Administrator for Regulation and Certification (responsible for the Office of Rulemaking and two Services: Aircraft Certification and Flight Standards);

(b) Associate Administrator for Aviation Standards (responsible for the Aviation Standards National Field Office and three other Offices: Aviation Medicine; Civil Aviation Security; and Accident Investigation); and the

(c) Director of Program and Resource Management.

(4) **Executive Director for System Development**, to whom reported the:

- (a) Associate Administrator for Advanced Design and Management Control (responsible for the Operations Research Office and two Services: Advanced System Design; and Management Control)
- (b) Associate Administrator for NAS (National Airspace System) Development (responsible for the System Engineering and Program Management Office and three Services: Automation; Advanced System Acquisition; and NAS Transition);
- (c) Associate Administrator for Airports (responsible for the Airport Capacity Program Office and two other Offices: Airport Planning and Programming; and Airport Standards); and the (d) Director, FAA Technical Center.

In addition to the Executive Directors, the positions reporting to the Administrator were: the former Director, Aviation Safety, now retitled an Associate Administrator (responsible for two Offices: Aviation Safety Analysis and Aviation Safety Oversight); the Chief Counsel; and three Assistant Administrators for: Public Affairs, Civil Rights; and Government and Industry Affairs.

Also effective on Jul 1, 1988, **FAA implemented a straightline reporting system** under which regional division program managers in the following functions reported to Associate Administrators at national headquarters instead of to the former Regional Directors: air traffic, airway facilities, aircraft certification, flight standards, civil aviation security, medical, and airports. Under the new arrangement, the Regional and Center Counsels also reported to the Chief Counsel.

Jun 16, 1988: Administrator McArator announced a five point **program to assist development of tiltrotor aviation**, including: (1) negotiations with the Defense Department for FAA access to engineering and test data; (2) accelerated efforts in such areas as tiltrotor airspace review, criteria for flight tests and pilot training, and final aircraft certification standards; (3) establishment of a tiltrotor program organization that reported to the Administrator during McArator's tenure; (4) expanded research and development; and (5) stepped-up planning and development of vertiports.

Jun 21, 1988: FAA published a rule setting **new requirements for aircraft to carry the Mode C transponder**, an altitude-reporting radar beacon (see Jan 29, 1987). Effective Jul 1, 1989, the rule mandated Mode C carriage en route above 10,000 feet, instead of the 12,500 feet previously specified. With certain exclusions, the rule also required aircraft to carry and operate Mode C transponders within 30 miles of a primary airport in terminal control areas (TCAs). (On Dec 5, 1990, however, FAA suspended certain aspects of this provision, thus allowing aircraft without Mode C to have access to about 300 specified outlying airports within 30 miles of a TCA primary airport.) In addition, the rule required Mode C in Airport Radar Service Areas (ARSAs), effective Dec 30, 1990.

Jun 30, 1988: In response to legislation, FAA issued a **rule expanding requirements for Flight Data Recorders (FDRs) and Cockpit Voice Recorders (CVRs)**, with compliance by Oct 11, 1991. The rule required CVRs on all multi-engine, turbine-powered commuter and air taxi aircraft that were able to seat six or more persons and were required to have a two-pilot crew. It mandated FDRs on certain existing and newly manufactured large commuter aircraft. The rule also required large air carriers to upgrade FDRs in certain aircraft possessing the digital capability to accommodate more advanced devices. In addition, the rule contained CVR/FDR requirements for certain general aviation aircraft with multiple turbine engines. (See Jul 16, 1996.)

Jul 3, 1988: U.S.S. Vincennes **mistakenly shot down an Iran Air A-300 Airbus** over the Persian Gulf, killing all 290 persons aboard. The Navy ship fired two missiles, seven minutes after the flight took off from Bandar Abbas. Before firing, Vincennes had sent electronic identification requests and voice warnings to the plane over civilian and military radio channels.

Jul 26, 1988: FAA announced it had awarded IBM a \$3.55 billion **contract to develop, deploy, and service the Advanced Automation System (AAS)**. The announcement ended almost four years of competition between IBM and Hughes Aircraft Corp. (See Jul 26, 1985, and Oct 1, 1991.)

Aug 5, 1988: FAA created a **new general aviation staff** to improve liaison between the agency and private and business flyers. The new staff, which operated within the Office of Flight Standards, was later abolished on Oct 13, 1992, and its functions assigned to the General Aviation and Commercial Division.

Aug 8, 1988: FAA began **System Safety and Efficiency Reviews (SSERs)**, programs in which interdisciplinary teams from the agency, other public officials, and industry conducted thorough evaluations of all activities that affected aviation safety in and near a facility. The investigations included air traffic control towers and centers, flight service stations, airway facilities, aviation security, and inspector functions. The first SSER began at Chicago O'Hare airport.

Aug 23, 1988: United Airlines became the first major U.S. carrier to get **Operations Specifications produced by a new automated FAA system** designed to increase standardization. With the new system, FAA assumed responsibility for initial preparation of the "Ops Specs," which spelled out in detail the rules that an airline must follow to comply with safety requirements. Previously, the carriers had prepared the document and submitted it to FAA for approval.

Aug 25, 1988: FAA published a **rule further upgrading fire safety standards for cabin interiors** in transport aircraft by establishing refined fire test procedures and apparatus as well as a new requirement for smoke emission testing. The agency expected that the new flammability standards would also lessen the problem of toxic gas release during fire. FAA prescribed a phased compliance schedule for new and existing aircraft. The rule was based on a continuing research program recommended by the SAFER committee. (See Jul 21, 1986.)

Aug 25, 1988: FAA announced **changes to the Expanded East Coast Plan** because of numerous complaints of increased noise by New Jersey residents. Changes to the EECF included rerouting Newark westbound departures from 11 p.m. to 7 a.m. (See Feb 12, 1987, and Mar 11, 1991.)

Aug 31, 1988: **A Delta Airlines Boeing 727 crashed** on takeoff at Dallas-Fort Worth International Airport, killing 13 of the 108 on board. The National Transportation Safety Board listed the probable cause of the accident as inadequate cockpit discipline resulting in an attempt to takeoff without the wing flaps and slats properly configured, and a failure in the warning takeoff system. As a contributory factors, the Board cited: Delta's slow implementation of safety steps necessitated by the airline's rapid growth; a lack of accountability in FAA's inspection process; and insufficiently aggressive action by the agency to correct known deficiencies at Delta, which had been the subject of a special inspection in 1987 following a series of incidents. FAA's response to the Board's recommendations included certain actions concerning inspections, required modifications to the 727 takeoff warning system, and a variety of other measures.

Aug 1988: FAA began a **test and demonstration of the Precision Runway Monitor (PRM)** at the Memphis airport, followed in May 1989 by a year-long test at the Raleigh-Durham airport. The radar greatly reduced the update rate of aircraft movements as depicted on an air traffic control screen. The demonstration proved successful, determining that the new radar, in conjunction with automated alarms and high-resolution color displays, helped controllers prevent or resolve aircraft conflicts in the airspace between closely spaced parallel and converging runways. On Apr 15, 1992, FAA announced award of a contract to the Bendix Division of Allied-Signal Aerospace Co. for five Precision Runway Monitoring radars. The following year, **on Jul 20, 1993, FAA commissioned the first PRM** in the United States at Raleigh/Durham.

Sep 22, 1988: FAA issued a rule requiring that all turbine-powered airliners seating 30 passengers or more carry **equipment to warn pilots when they encounter low-altitude wind shear** and provide them with information needed to escape safely (see Oct 9, 1986). The rule also mandated wind shear training for flight crewmembers. FAA allowed until Jan 2, 1991, to complete the training requirements and permitted the airlines to phase in the equipment in accordance with an approved schedule by Jan 4, 1993. On Apr 9, 1990, the agency published rule extending this deadline to Dec 30, 1993, making certain exemptions for older aircraft, and allowing the substitution of more advanced "predictive" warning systems when available.

Oct 3, 1988: Citing increasing congestion and a rash of air traffic control operation errors, FAA indefinitely **reduced the maximum number of arrivals permitted at Chicago O'Hare** from 96 an hour to 80.

Nov 2, 1988: FAA announced it had awarded a contract to Raytheon for 47 **Terminal Doppler Weather Radar (TDWR) systems** which would be able to warn of hazardous wind shear conditions and microbursts. The contract followed operational evaluation of a TDWR at Denver Stapleton airport, and further operational evaluations of test units continued. (See Aug 2, 1985, and Jul 2, 1994.)

Nov 2, 1988: **AN FAA Jet Commander 21 crashed** near Latrobe, Pa., after both engines lost power. The accident claimed the lives of all three personnel aboard.

Nov 3, 1988: The **Aviation Safety Research Act** broadened FAA's role in aircraft-related research, which had previously focused on testing and developing existing devices and materials. The act authorized the agency to develop new technologies and conduct data analyses in such fields as the effects of wear and fatigue on aircraft structures, aircraft maintenance, materials resistant to smoke and fire, low flammability fuels, and methods of containing in-flight and post-crash fires. (See Nov 5, 1990 and May 6, 1996.)

Nov 7, 1988: FAA announced award of a contract for five operational models of a new **Thermal Neutron Activation (TNA) explosives detection system**. The TNA device measured the gamma rays produced by energy neutrons passed through luggage and cargo and triggered an alarm when components of explosives were detected. FAA had first become involved in TNA research in 1976 in the wake of the La Guardia bombing (see Dec 29, 1975). After testing a "breadboard" TNA device at several airports, the agency awarded competitive design contracts in Sep 1985 and began testing a prototype system at San Francisco airport in Jun 1987. (See Dec 29, 1988.)

Nov 21, 1988: DOT published an interim rule on testing procedures for a series of new **rules requiring employers in the transportation sector to have an anti-drug program for personnel with responsibilities affecting safety or security**. The programs generally included five kinds of drug-abuse testing: pre-employment, random, periodic, post-accident, and for reasonable cause. (DOT had already established a similar program for its own employees: see Sep 9, 1987.) Also on Nov 21, FAA published a rule applying the DOT testing guidelines to the aviation industry by requiring an anti-drug program for domestic and supplemental air carriers, air taxi and commuter operators, certain commercial operators, certain contractors, and air traffic control facilities not operated by FAA or the U.S. military. (Subsequent amendments to this rule included an exemption for some types of operations, such as student instruction.) DOT published a final rule on testing procedures on Dec 1, 1989. **The program began within the aviation industry on Dec 18, 1989**, when large airlines and regionals with 51 or more employees began testing. (See Jul 10, 1990.)

Nov 18, 1988: After receiving information eight days earlier from West German authorities, FAA issued an **aviation security bulletin**, describing a cassette recorder containing a barometric detonating device that could be set to explode when an airliner reached a certain altitude. Such a device had been discovered by German authorities in an Oct 26 anti-terrorist sweep. On Dec 7, FAA issued another bulletin to airlines advising them of a telephone warning that had been received Dec 5 by the U.S. Embassy in Helsinki. The anonymous caller claimed that a bomb was to be placed aboard a Pan Am plane in Frankfurt. (See Dec 21, 1988.)

Dec 15, 1988: FAA issued a **type certificate for the Airbus A-320**. The aircraft had received its certification in Europe in February 1988. The A-320 was a short-to-medium range, twin turbo-fan transport with a seating capacity of 120-179 passengers. It was the first civilian transport to incorporate "fly-by-wire" controls for elevators, ailerons, spoilers, tailplane trim, slats, flaps, and speed brakes.

Dec 21, 1988: **An explosion destroyed Pan American World Airways Flight 103** near Lockerbie, Scotland, killing all 259 persons aboard and 11 on the ground (see Nov 18, 1988). The Boeing 747 had been bound for New York Kennedy from London Heathrow. Investigators later discovered that the tragedy was the result of a bomb concealed inside a radio-cassette player that had been loaded into a forward luggage compartment in Frankfurt (see Nov 14, 1991). FAA quickly began an inspection of Pan American's security procedures at Heathrow and Frankfurt airports, and later proposed \$630,000 in civil penalties against the airline for alleged violations of security regulations.

On Dec 29, FAA revealed **new security measures** to go into effect within 48 hours for U.S. carriers at all airports in Europe and the Middle East. These included requirements that the airlines x-ray or physically search all checked baggage, conduct additional random checks of passengers and baggage, and achieve a positive match of passengers and their baggage to keep unaccompanied bags off airplanes. FAA also ordered a sixth thermal neutron analysis (TNA) device (see Nov 7, 1988) and accelerated the TNA delivery schedule. (See Jan 3, 1989.)

Dec 27, 1988: A presidential **proclamation extended U.S. territorial jurisdiction** from three to twelve nautical miles from the nation's coasts, and FAA at the same time extended certain controlled airspace and air traffic rules to coincide with the new limits.

***1989**

Jan 3, 1989: As part of a **series of security measures** following the Lockerbie bombing (see Dec 21, 1988), the Federal Aviation Administration issued a rule requiring airport operators to supplement their procedures for limiting entry into secure areas by installing a computer-controlled access system, or a similar approved system. On Mar 13, FAA issued a rule requiring foreign air carriers that land or takeoff in the U.S. to submit a written security program to the agency. Two days later, the agency adopted a mandatory minimum fine of \$1,000 for passengers trying to take guns through airport screening positions. On Jul 6, FAA issued a rule strengthening its system for providing security

information to airlines by requiring compliance with prescribed countermeasures and making disclosure of information in security alerts a violation subject to penalty.

On Sep 5, FAA published a rule giving the agency authority to require airlines to install **explosives detection systems (EDS)** to screen passengers' checked baggage for international flights, with about 40 U.S. and foreign airports targeted for initial implementation. Also on Sep 5, operational testing of the first of six FAA-funded **Thermal Neutron Activation (TNA) explosive detection systems** began at New York Kennedy airport (see Nov 7, 1988). Subsequently, operational demonstrations of TNA units were conducted at several other airports, but the devices were not adopted for permanent use.

Other security-related events during 1989 included the establishment on Aug 4 of the **President's Commission on Aviation Security and Terrorism** to review security policy (see May 15, 1990). Effective on Oct 10, FAA established an **Aviation Security Advisory Committee** including representatives of 16 Federal agencies and aviation organizations. (See Mar 3, 1990.)

Jan 10, 1989: FAA published a **rule requiring the Traffic Alert and Collision Avoidance System (TCAS II) on all airliners with more than 30 passenger seats** operating in U.S. airspace (see Mar 18, 1987). The airlines were to phase in TCAS II by Dec 30, 1991. On Apr 9, 1990, however, FAA extended the TCAS II compliance schedule completion date to Dec 30, 1993 (an extension that also applied to wind shear warning equipment: see Sep 22, 1988). The Jan 10, 1989, rule also required turbine-powered **commuter aircraft with 10 to 30 passenger seats to install the simpler TCAS I** by Feb 9, 1995, a deadline later extended to Dec 31, 1995.

Jan 12, 1989: FAA **revised the pilot and equipment requirements for conducting operations in terminal control areas and established a single class of terminal control area (TCA)** instead of the two classes which previously existed. (See Aug 31, 1986.) In addition, pilots needed at least a private certificate to fly in a TCA. Student pilots were permitted to conduct certain operations with specified training and logbook endorsements from a certified flight instructor except at 12 TCA primary airports, where student pilot operations were prohibited. In addition, helicopters operating within a TCA had to install a VOR or TACAN receiver by Jul 1, 1989.

Jan 15, 1989: The Surface Movement Guidance and Control System (SMGCS), a **red-and-green traffic light system for runways and taxiways**, began a one-year test at New York Kennedy airport. The red lights, called "**stop bars**," warned pilots not to enter runways until controllers issued clearance and switched on green lights leading to the runway center line. An improved version received further testing at Kennedy during 1991, and on Dec 10, 1992, Seattle-Tacoma International Airport became a demonstration airport for the first FAA-approved stop bar system. Seattle's system, developed by the Port of Seattle's airport management team, FAA, and airport users, served as the prototype for development of national standards for low visibility operations under FAA's Runway Incursion Plan. (See Feb 7, 1991.) On Jun 1, 1993, Hartsfield-Atlanta International Airport became the second airport in the United States to begin using the SMGCS plan.

Jan 20, 1989: **George Bush became President**, succeeding Ronald Reagan.

Jan 24, 1989: FAA Administrator T. Allan McArtor **reestablished the Administrator's Executive Committee, or EXCOM** (see Feb 5, 1973). The four executive directors and the general counsel made up the membership of the reconstituted committee, with the Executive Director for Policy, Plans, and Resource Management serving as permanent chair. The committee's primary function was to review and evaluate the recommendations of the Administrator's Review Committee on the budget, policy, and other critical issues. The **EXCOM was replaced on Nov 24, 1989, by the Executive Board**. The Deputy Administrator served as the permanent chair of the board, with the Executive Director for Policy, Plans, and Resource Management serving as alternate chair. (See Mar 10, 1994.)

Jan 30, 1989: Effective this date, FAA established a **Research, Engineering, and Development Advisory Committee**.

Feb 6, 1989: **Samuel K. Skinner became Secretary of Transportation**, succeeding James H. Burnley with the change of administrations. A lawyer from Illinois, Skinner had been chairman of a regional transportation authority and had managed the Bush Presidential campaign in the state. He served as Secretary until becoming President Bush's chief of staff on Dec 16, 1991.

Feb 8, 1989 A **Boeing 707 crashed** into a fog-shrouded mountain on the Azores island of Santa Maria with the loss of all 144 persons aboard. The small U.S. charter company Independent Air had operated the aircraft.

Feb 10, 1989: FAA issued a **new rule upgrading the fire safety standards for baggage and cargo compartments** in existing airline aircraft. The new standards required that all cargo compartments

larger than 200 cubic feet that were inaccessible to crewmembers in flight be lined with rigid fiberglass or comparable materials on their sidewalls and ceilings to more effectively resist the spread of fire. The airlines had two years from the effective date of the new regulation to comply. (See May 16, 1986, and Nov 14, 1996.)

Feb 17, 1989: Effective this date, **T. Allan McArtor resigned as FAA Administrator**. The post of Acting Administrator was filled by Robert Whittington, whose regular position was now Executive Director for Policy, Plans, and Resource Management. (See Jun 30, 1989.)

Feb 28, 1989: **FAA's first operational Automated Weather Observing System (AWOS)** began service, and the agency had installed 50 more the end of Sep 1990. AWOS equipment automatically gathered weather data from various locations around an airport and transmitted that information directly to pilots by means of computer-generated voice message (see Jan 26, 1983). In cooperation with the National Weather Service, FAA also pursued a program to acquire **Automated Surface Observing System (ASOS)** equipment, which offered additional precipitation sensing capabilities. The agency began ASOS installation in Aug 1991, and had commissioned over 60 by April 1996.

Mar 4, 1989: Upon the expiration of a Federally imposed cooling-off period, the union representing **Eastern's machinists went on strike**, supported by large numbers of the airline's pilots and flight attendants. Approximately ninety percent of Eastern's planes were grounded. The airline's attempt legally to force pilots back to work failed on Mar 7, when a Federal judge ruled that the pilots could continue their sympathy strike. **On Mar 9, Eastern filed for protection under Chapter 11** of the Federal Bankruptcy Code. On Nov 21, President Bush vetoed legislation which would have set up a commission to investigate the dispute between Eastern's unions and its management. The next day, leaders of the pilot union voted to end their strike, and on Nov 23 the flight attendant union also told its members to return to work. The machinists' strike continued. (See Jun 2, 1988, and Apr 18, 1990.)

Mar 22, 1989: **Fire consumed one of the mobile lounges used at Dulles International Airport** to transport passengers from the terminal to aircraft, injuring two passengers. The day before the fire, a ramp worker at Dulles had been crushed to death under the wheels of a lounge. As a result of the accidents, airport officials on Mar 23 ordered maintenance inspections on all mobile lounges and retraining courses for all lounge drivers.

Mar 31, 1989: The **Acquisition and Materiel Service was retitled the Logistics Service**, its name prior to Oct 29, 1982. (See Sep 30, 1991.)

Mar 1989: The **U.S. licensed commercial space industry made its first launch** when Space Service, Inc., sent a scientific payload on a suborbital trip aboard a Starfire rocket. Later in 1989, **the first U.S. licensed commercial orbital launch was successfully carried out on Aug 27** by the McDonnell Douglas corporation, using a Delta I launch vehicle.

Apr 6, 1989: In Lebanon, NH, FAA commissioned the **first permanent, Federally funded Microwave Landing System (MLS) at a commercial airport**. The Hazeltine Corporation had delivered the system to the agency under a contract for 178 MLS units. **On Aug 7, 1989, however, FAA notified Hazeltine that it was terminating the contract** because of the company's failure to meet the specified delivery schedule. (See May 20, 1987, and Dec 6, 1989.)

May 1, 1989: **FAA and the National Air Traffic Controllers Association (NATCA) concluded their first labor agreement**. (Signing on behalf of the union was R. Steve Bell, who had been elected president in 1988.) Negotiators had reached a tentative agreement in January, and union members ratified the contract on Apr 18. (See Jun 19, 1987, and Aug 1, 1993.)

May 2, 1989: FAA commissioned the **first operational ASR-9 airport surveillance radar** (see Sep 30, 1983). The new radar employed advanced Doppler technology to filter out radar reflection, and was capable of detecting a one square meter target at a distance of 60 nautical miles. FAA planned to equip every major airport with an ASR-9, and 121 of them had been commissioned by the end of FY 1996. With the introduction of the ASR-9 radars, the older ASR-7 and -8 units would be used to replace aged ASR-4 and -5 radars.

May 5, 1989: FAA's **National Data Interchange Network 1A (NADIN 1A) became fully operational**, supplanting several independent communications networks with a single, efficient means of transmitting weather and flight plan data. The agency had originally contracted for the system in Nov 1980. On Mar 31, 1995, FAA commissioned an upgraded version designated **NADIN II**.

Jun 7, 1989 New York real estate developer Donald Trump acquired Eastern Air Lines' shuttle operation between Washington, New York, and Boston, and began service under the name **Trump**

Shuttle the next day. The venture proved unprofitable, however, and on Apr 12, 1992, USAir began operating the renamed **USAir Shuttle** under a management contract with a group of banks.

Jun 16, 1989: FAA issued a **rule limiting the distance between emergency exits on transport category planes to no more than 60 feet**. The rule applied to all new transport planes certificated after Jul 23 and to all newly manufactured airplanes of older type designs produced after Oct 16, 1987. It also prevented modifications, such as deactivation of exits, to increase the distance between exits to more than the 60 foot standard.

Jun 18, 1989: FAA implemented a **five-year Pay Demonstration Project** to provide a quarterly retention/recruitment allowance of up to 20 percent of base pay. The project covered approximately 2,100 air traffic, flight standards, and airway facilities personnel working at 11 hard-to-staff facilities in the New York, Chicago, Los Angeles, and Oakland areas. (See May 26, 1994.)

Jun 30, 1989: **FAA broke ground for its new high technology training complex** in Oklahoma City, named for General Thomas P. Stafford, an astronaut. The agency dedicated the building's tower cab simulation laboratory on Jan 25, 1991, then marked the full opening of the Stafford Building with a ceremony on Mar 11, 1992.

Jun 30, 1989: **Admiral James B. Busey (USN, Ret.) became FAA's eleventh Administrator**, succeeding T. Allan McArtor (see Jul 22, 1987). Busey took the oath a second time in a public ceremony on Jul 11. The new Administrator had been on active duty with the Navy when President Bush announced his selection on Mar 17. He retired from the Navy in May, and the Senate confirmed his nomination on Jun 23. Enactment of Public Law 101-47 exempted him from the legal provision barring active or retired military officers from becoming FAA Administrator.

Born in 1932 in Peoria, Ill., Busey attended the University of Illinois in Urbana, and received a B.S. and master's in management from the Navy Postgraduate School. During a 37-year career with the Navy, Busey rose from enlisted ranks to become a full admiral. An experienced pilot and a winner of the Navy Cross for combat action in Vietnam, he served as commander of the Naval Aviation System Command while a vice admiral. Busey's other positions included Vice Chief of Naval Operations, Auditor General of the Navy, and Deputy Chief of Naval Materiel, Resource Management. Prior to becoming FAA Administrator, Busey served for two years as Commander-in-Chief of U.S. Naval Forces in Europe and Commander-in-Chief of Allied Forces in Southern Europe, a NATO command. He held the post of FAA Administrator for one year and five months. (See Nov 20, 1991.)

Jul 19, 1989: A **United Airlines DC-10 crashed while attempting an emergency landing in Sioux City, Iowa**, after debris from a failed engine damaged the aircraft's control system. The accident killed 110 of the 296 people on board. On Aug 3, FAA announced the formation of an agency/industry task force on improving aircraft survivability following major in-flight structural damage (see, Jun 5, 1990). Preliminary investigation of the accident indicated that **one of the two titanium disks holding the engine's fan blades separated**, either intact or in fragments, from the rest of the engine. On Sep 15, FAA issued the first of several directives requiring fan disk inspections. In its final report on the crash, the National Transportation Safety Board listed the probable cause as the failure of the airline's engine overhaul facility to detect a fatigue crack in the fan disk, a failure the Board attributed to inadequate consideration of human factors limitations.

Aug 24, 1989: FAA established the Charlotte, N.C. terminal control area (TCA), the **first new TCA since 1980** (see May 15, 1980). Additional TCAs were established at: Memphis, Oct 19, 1989; Salt Lake City, Nov 16, 1989; Phoenix, Jan 11, 1990; Orlando and Tampa, Sep 20, 1990; and the Washington Tri-Area (which superceded the Washington TCA and encompassed Andrews AFB, and the Washington National, Dulles International, and Baltimore-Washington airports), Mar 7, 1991. This brought the total of TCAs to 29. (See Dec 17, 1991.)

Aug 31, 1989: FAA established the **new pilot category of recreational pilot**, requiring less training than a private pilot certificate. The agency intended the new category for pilots interested in flying basic, experimental, or homebuilt aircraft in close proximity to a home airport in which communication with air traffic control facilities was not required. At the same time, FAA established a required **annual flight review** for non-instrument-rated private pilots with less than 400 flight hours.

Sep 17, 1989: **Hurricane Hugo** slammed into the U.S. Virgin Islands before moving on to Puerto Rico and then South Carolina. Numerous FAA facilities in the storm's path suffered damage and service interruption. Destruction was especially heavy in the Virgin Islands, where two airport towers were badly damaged and a radar destroyed. Southern Region Headquarters took charge of the

recovery effort, which included establishment of temporary mobile towers on the islands. The agency's DC-9 carried relief supplies to the Virgin Islands and evacuated four FAA employees and 35 dependents, as well as other Federal personnel and their families. Damage to FAA facilities on the mainland was less severe than in the Caribbean, although many employees suffered personal losses. Agency personnel established a relief fund to assist their coworkers affected by the storm. By the end of September most airports in the devastated areas had resumed operation.

Sep 28, 1989: **Braniff again filed for protection under Chapter 11 of the U.S. Bankruptcy Code, and ceased all passenger operations on Nov 6.** The company had previously suspended operations during 1982, but later resumed flights. (See Mar 1, 1984 and Jul 1, 1991).

Oct 1, 1989: A **State Block Grant Pilot Program** began on this date, as legislated by Congress (see Dec 30, 1987). Under the program, scheduled to run through Sep 30, 1991, FAA selected Illinois, Missouri, and North Carolina to administer Federal grants for the development of nonprimary airports within their borders. Congress subsequently extended the program for one additional year under the Aviation Safety and Capacity Expansion Act of 1990. (See Jun 29, 1992.)

Oct 2, 1989: A directive issued on this date **restructured the organization of the Associate Administrator for Air Traffic** (see Sep 15, 1984) by abolishing the Office of Air Traffic Evaluations and Analysis and establishing a new Office of Air Traffic System Effectiveness. On Feb 22, 1990, another directive added an Office of Air Traffic Program Management. A further change came on Jul 3, 1990, with the abolition of the Air Traffic Operations Service and establishment of the Air Traffic Rules and Procedures Service and the Office of Air Traffic System Management. (See Nov 30, 1994.)

Oct 17, 1989: **An earthquake, registering 7.1 on the Richter scale, shook northern California,** damaging runways, disrupting airline service, and causing approximately \$50 million damage to FAA facilities and equipment. Among the affected facilities were the San Francisco tower cab, which lost windows and its ceiling, and the San Jose tower, which lost a window and air conditioning unit; controllers nevertheless remained on duty to ensure the safety of flights aloft. FAA subsequently allocated \$8 million in discretionary airport improvement funds for partial reconstruction of a runway at Oakland.

Oct 20, 1989: FAA issued a rule requiring **newly built air transport aircraft to have public address systems with an independent power source** to increase safety during emergency evacuation. (See Jul 27, 1973.)

Oct 27, 1989: FAA published a **rule improving type certification standards for transport category rotorcraft** by adding requirements for "flaw tolerance," a design concept aimed at ensuring that failure of a part does not cause an accident, and by extending requirements for structural fatigue evaluations.

Dec 6, 1989: FAA issued a **precision approach landing systems policy, outlining how it planned to transition from the Instrument Landing System (ILS) to the Microwave Landing system (MLS).** An international agreement obligated the agency to provide MLS service at all U.S. international runways by Jan 1, 1998. Until that date, FAA determined to install new ILS's only at those locations that had an immediate and critical requirement for precision approach service that could not be delayed until MLS deployment. (See Apr 6, 1989, and Jun 21, 1991.)

Dec 14, 1989: **Alaska's Redoubt Volcano began a series of eruptions,** emitting ash that hampered aviation. FAA used a satellite-based system, recently developed with the National Oceanic and Atmospheric Administration, to track the ash and warn aviators. On Dec 15, however, a Boeing 747 lost all engine thrust temporarily after encountering an ash cloud, and ash from Redoubt damaged four other airliners during the following three months. (See May 18, 1980, and Jun 15, 1991.)

Dec 14, 1989: FAA authorized use of the **Oceanic Display and Planning System (ODAPS)** at the Oakland Air Route Traffic Control Center (see Oct 1984). ODAPS achieved initial operational capability at the New York center during FY92. (See Oct 1984 and Jun 21, 1995.)

Dec 14, 1989: **Alliance Airport, the nation's first industrial airport, officially opened.** Located fifteen miles northwest of Dallas-Fort Worth airport, the new facility incorporated air, rail, and highway connections. FAA grants provided major funding for construction of the airport, which stood on land donated by industrialist Ross Perot, Jr.

Dec 21, 1989: DOT awarded AT&T a contract under the **Office Automation Technology and Services (OATS)** program to replace many computer brands and software packages throughout the Department with a standardized system for desktop automation. FAA, the lead agency for OATS, observed the coming of the new system with a ceremony at headquarters on Feb 20, 1990.

Dec 26, 1989: DOT announced the creation of the **Airport Capacity Funding Advisory Committee**, formed at the behest of Congress to recommend new approaches to funding airport capacity projects. The Secretary of Transportation selected representatives from the airlines and airports to serve on the board, which reported to the Secretary through FAA. On Apr 19, 1990, the committee's report made recommendations concerning the design of **possible Passenger Facility Charges**, should these be authorized by legislation (see Nov 5, 1990).

*1990

Jan 8, 1990: The **Department of Transportation officially opened TransExpo** at the Sheraton Washington Hotel. The three-day exhibition, which attracted between 8,000 and 10,000 people, was the biggest U.S. transportation trade show since Transpo 72 (see May 27, 1972).

Jan 10, 1990: The **McDonnell Douglas MD-11 first flew**. A medium/long-range transport designed as a successor to the DC-10, the aircraft could seat up to 323 passengers in its standard passenger version. The MD-11 received Federal Aviation Administration certification on Nov 8 and first entered commercial service on Dec 20, 1990, with Finnair.

Jan 18, 1990: On its landing roll at Atlanta Hartsfield airport, **an Eastern Air Lines Boeing 727 collided with a Beechcraft King Air 100** that had landed just before it. The accident killed the pilot of the King Air, which was operated as a charter by Epps Air Service. FAA decertified the controller who cleared the Eastern flight to land. On Apr 2, 1991, the majority of the National Transportation Safety Board (NTSB) cited the controller's error as the accident's probable cause, while dissenting member Jim Burnett blamed inadequate separation standards. On May 29, 1991, NTSB announced a revised finding expanding the probable cause to include the failure of air traffic control procedures to take into consideration occasional lapses in human performance. Chairman James Kolstad dissented, saying that use of existing procedures could have prevented the accident.

Jan 25, 1990: Attempting to land at New York Kennedy airport, a **Boeing 707 operated by the Colombian airline Avianca ran out of fuel and crashed** on Long Island, fatally injuring 73 of the 158 people on board. On Feb 25, demonstrators drove a procession of automobiles through Kennedy as a protest against air traffic controllers' alleged mishandling of the flight. The National Transportation Safety Board cited the probable cause of the accident as the crew's failure to manage their fuel load or alert controllers to their fuel emergency. Among the contributing factors, however, the Board pointed to a lack of clear, standardized terminology on fuel emergencies, as well as inadequate traffic flow management. FAA's actions in response to the accident included steps to address these concerns and to stress the need for clear pilot/controller communication and for air carriers to be thoroughly familiar with rules and procedures.

Jan 30, 1990: The Department of Transportation (DOT) issued an **order inviting applications from eligible foreign airlines wishing to serve U.S. cities** having no single-plane service to the applicant's home countries. On Mar 27, KLM Royal Dutch Airlines became the first of several carriers that received route awards under this program. During 1990, DOT announced agreements with a number of countries making possible **expanded air service**.

Feb 13, 1990: The **Direct User Access Terminal Service (DUATS) began operating**, allowing private pilots to receive weather briefings and file flight plans from home computers. An FAA contractor provided the service free to civilian pilots and students. DUATS took over most of the functions of the **Interim Voice Response System (IVRS)**, which FAA discontinued on Sep 30, 1990. (See Mar 14, 1984.)

Feb 16, 1990: Representatives of FAA and the Soviet aviation ministry signed a **memorandum promoting cooperation on air navigation between Alaska and the Soviet Far East**.

Feb 21, 1990: Administrator Busey announced **organizational changes** that included establishment of an **Executive Director for Acquisition**, a move designed to streamline the agency's procurement process. The action brought the number of Executive Directors to five (see Jun 16, 1988, and Sep 30, 1991). As documented in a directive issued on Jul 6, 1990, the newly created Executive Director controlled two new Offices: Acquisition Policy and Oversight; and Independent Operational Test and Evaluation Oversight. Other changes implemented by this directive included: conversion of two Associate Administrators (for Airports and for Policy, Planning, and International Aviation) to Assistant Administrators reporting directly to the Administrator; retitling of the Executive Director for Policy, Plans, and Resource Management as the Executive Director for Administration and Resource Management; establishment under the Executive Director for System Operations of an Office of System Capacity and Requirements with functions including those of the former Airport Capacity

Program Office; abolition of two Offices: Operations Resource Management and Operations Planning and Policy; establishment of a new Associate Administrator for System Engineering and Development to replace the Associate Administrator for Advanced Design and Management Control; and retitling the Associate Administrator for Aviation Safety as an Assistant Administrator.

Feb 25, 1990: In response to a congressional mandate, **prohibition of smoking went into effect on virtually all scheduled U.S. domestic airline flights**. Flights to or from Alaska or Hawaii scheduled to last six hours or more were excepted. The prohibition included foreign carriers operating between two points within U.S. territory. The ban did not apply to the flight deck. (See Apr 23, 1988, and May 7, 1996.)

Mar 2, 1990: FAA issued a final rule requiring **air carriers to restrict seats in exit rows to persons capable of activating emergency exits** and performing other emergency functions during evacuation. Carriers were given until Oct 5, 1990, to comply (see Oct 27, 1992). Also on Mar 2, the Department of Transportation issued **a revised regulation prohibiting airline discrimination against disabled passengers**. The rule required accomodation for wheelchairs and limited an airline's ability to restrict the number of disabled persons on a flight or to require passengers to travel with an attendant. It also including a ban on seating restrictions for the disabled, except to comply with FAA's safety rule.

Mar 3, 1990: FAA assigned the **first permanent Civil Aviation Security Liaison Officer (CASLO)** oversees, marking the beginning of a program established as a result of the Pan American Flight 103 bombing. The first CASLO was stationed at the American Embassy in London. (See Jan 3, 1989, and May 15, 1990.)

Mar 5, 1990: FAA's Administrator Busey announced a **new policy on fostering compliance with FAA regulations by private pilots**. He described a series of changes emphasizing communication and education rather than sanctions. Also in March, and as part of that program, Busey **revoked the enforcement bulletin implementing a 60-day suspension of the certificate of any pilot who violated a Terminal Control Area** (see Oct 10, 1986). Instead, inspectors were allowed to recommend lesser penalties and remedial training for the infraction.

Mar 6, 1990: FAA issued a **rule requiring private aircraft flying into or out of the country through an Air Defense Identification Zone (ADIZ) to be equipped with altitude-reporting (Mode C) transponders** by Dec 30. (See Sep 1, 1987.)

Mar 6, 1990: An **SR-71 Blackbird reconnaissance aircraft** landed at Dulles International after a **record-breaking 68 minute flight from the Pacific coast**, and was then retired to the National Air and Space Museum collection.

Mar 7, 1990: FAA published three airworthiness directives requiring extensive structural modifications to older Boeing 727s, 737s, and 747s. The first in a **series of directives dealing with older airliners**, the rules reflected a new FAA approach adopted in 1988 (see Jun 1 of that year). To combat the hazard of structural deterioration, the agency had historically relied upon mandatory inspections that became more frequent as aircraft aged. Now, however, it required preventive modifications for high-service airliners and the replacement of certain parts after a specified number of flight hours or takeoff-and-landing cycles. FAA also asked for comments on a proposal to require **corrosion control programs** for certain aging Boeing aircraft. This requirement, which became effective on Dec 31, 1991, was also extended to other aircraft types.

Mar 8, 1990: A three-man Northwest Airlines flight crew took off from Fargo, N.D., despite an FAA inspector's warning that they might be in **violation of a rule against flying an aircraft within eight hours of consuming alcohol**. After their landing in Minneapolis, the three crewmembers were given tests that showed their blood alcohol exceeded the permissible level. FAA revoked the trio's airman certificates the next day. As a result of this incident, **FAA announced on Mar 14 a six-point action plan designed to tighten drug and alcohol enforcement investigation procedures**. On Aug 20, a Federal jury in Minneapolis convicted the three men of a felony for operating a common carrier while under the influence of alcohol, and they received jail sentences in October. (See Apr 17, 1985.)

Mar 12, 1990: **Barry L. Harris became FAA's Deputy Administrator**, succeeding Barbara McConnell Barrett (see Apr 1, 1988). President Bush had announced the nomination on Nov 6, 1989. A native of Cincinnati, Ohio, Harris attended Harvard and Denison Universities and served as an officer in the U.S. Army. His career included positions as assistant city manager for Gloucester, Mass., director of community programs for the Boston Metropolitan Area Planning Council, and work as a writer and producer for the news media. Prior to joining FAA, he was president and chief executive of Alliance Corp., in Portland, Maine, and Community Services, Inc., in Gloucester. Harris

had been cochairman of the Bush campaign's state finance committee in Maine, and had served on the campaign's national finance committee. He was an experienced pilot, qualified to fly helicopters as well as piston- and jet-powered fixed wing aircraft.

Harris served as Acting Administrator during the period between the tenures of Administrators Busey and Richards (see Dec 4, 1991, and Jun 27, 1992). He remained as Deputy for the rest of the Bush Administration, resigning effective Jan 20, 1993.

Mar 27, 1990: In a speech to the Aero Club of Washington, Administrator **Busey urged all airlines to establish a safety self-audit program**. FAA would not penalize airlines for inadvertent violations uncovered by the audits, provided the problem were promptly corrected and reported to the agency. (See Apr 8, 1992.)

Apr 2, 1990: A **National Transportation Safety Board reorganization** effective this date included establishment of a new Office of Aviation Safety.

Apr 13, 1990: A Federal court declared **FAA's rules of practice in assessing civil penalties not exceeding \$50,000** to be invalid because the agency had failed to give public notice of the proposed rules or to allow a period of public comment (see Dec 30, 1987). FAA accordingly suspended the program, issued a rulemaking proposal, and followed this with a final rule effective Aug 2, 1990. A law enacted Aug 15, 1990, provided new legislative authority for the program, extending it until Aug 1, 1992. **The program became permanent with the Civil Penalty Assessment Act enacted on Aug 26, 1992.**

Apr 18, 1990: A Federal bankruptcy **judge removed Eastern Air Lines from the control of Texas Air Chairman Frank Lorenzo** and placed it in the hands of special trustee, Martin Shugrue. Eastern had lost more than \$1 billion since it filed for Chapter 11 protection on Mar 9, 1989. **On Aug 9, 1990, Scandinavian Airline System bought Lorenzo's interests in Continental Airline Holdings** (formerly known as Texas Air Corporation), which owned Eastern and Continental airlines. Besides stepping down as chairman of Continental Airlines Holdings, Lorenzo agreed not to work for a Continental competitor for seven years, although this stipulation was later dropped as part of a legal settlement. (See Mar 4, 1989, and Jan 18, 1991.)

May 10, 1990: FAA announced that a contract for development of a prototype program for air traffic control training had been awarded to Hampton University, a designated Historically Black College or University (HBCU). Hampton thus joined the Air Traffic Control Training Center at Eden Prairie, Minn., as one of two institutions to receive Federal funds as part of the **Collegiate Training Initiative (CTI)** begun by FAA earlier in the year. Three other educational institutions subsequently joined the CTI, but without receiving Federal funds. Graduates of CTI programs became eligible to apply to FAA for employment as developmental controllers without having to attend the FAA Academy.

May 13, 1990: The FAA Depot at the Aeronautical Center was renamed the **FAA Logistics Center**.

May 15, 1990: The President's **Commission on Aviation Security and Terrorism released its report**, which focused on the bombing of Pan American Flight 103 (see Dec 21, 1988). The report included criticism of FAA and recommendations for improving security and combating terrorism. Among its recommendations, the report suggested that FAA: elevate its security division to a position reporting directly to the Administrator (see Jun 14, 1990); appoint federal security managers to manage security at domestic airports (see Oct 1, 1991); launch a research and development program to produce techniques and equipment to detect small amounts of plastic explosives (see Nov 16, 1990); and make public notification of threats to civil aviation under certain circumstances.

Jun 1, 1990: **The U.S. Secretary of State and Soviet Foreign Minister signed an agreement providing for expanded air service** between their two countries. The accord was one of several pacts concluded in the context of a Washington summit meeting between Presidents Bush and Gorbachev. DOT subsequently authorized several airlines to provide new service to Soviet airports. On Jun 17, 1991, Alaska Airlines became the first U.S. carrier to offer scheduled service from the West Coast to the Soviet Far East. (See Apr 29, 1986, and May 25, 1993.)

Jun 5, 1990: FAA issued an Airworthiness Directive requiring **modifications to the hydraulic system of certain DC-10 aircraft** to guard against possible loss of the flight control system. (See Jul 19, 1989.)

Jun 13, 1990: FAA dedicated its first **child care center** to be built "from the ground up" in a ceremony at the Aeronautical Center.

Jun 14, 1990: Secretary Skinner announced that he intended to create an **Office of Intelligence and Security within OST**, and that its Director would be Coast Guard Vice Admiral Clyde E. Robbins. At

the same time, Administrator Busey announced the new FAA position of Assistant Administrator for Civil Aviation Security (see Jul 20, 1990). The actions were in part a response to recommendations of the President's Commission on Aviation Security and Terrorism (see May 15, 1990).

Jul 10, 1990: The U.S. **Court of Appeals for the 9th Circuit upheld FAA's random drug testing program for the aviation industry.** (See Nov 21, 1988, and Jul 25, 1991).

Jul 20, 1990: AN FAA directive issued this date established the **new position of Assistant Administrator for Civil Aviation Security** in response to a recommendation by the President's Commission on Aviation Security and Terrorism (see May 15, 1990). Orlo K. Steele, a retired Marine Major General, was appointed to fill that position on Nov 1. On Nov 23, FAA announced a new structure for the security organization. A Scientific Staff was created to advise Steele, and four new offices were established to handle: Policy and Planning; Program and Resource Management; Operations; and Intelligence.

Jul 26, 1990: FAA adopted a new rule, effective Nov 29, 1990, **requiring pilots to consent to the release of information from the National Driver Register when applying for an FAA-required medical certificate.** Pilots were also required to provide FAA with written notification of each driving conviction related to alcohol or drugs. The rule authorized FAA to deny, suspend, or revoke a pilot certificate if the individual concerned received two or more alcohol or drug-related convictions within a three-year period. (See Feb 17, 1987, and Feb 3, 1994.)

Aug 2, 1990: **Iraq invaded and seized control of Kuwait.** President Bush's response included immediate restrictions on air transportation between the U.S. and Iraq, and these prohibitions were extended to include occupied Kuwait on Aug 9. The United States also sent thousands of troops to Saudi Arabia in **Operation Desert Shield.** Among the other effects of the crisis during the rest of 1990 was a dramatic escalation of the rise in jet fuel prices. (See Aug 17, 1990.)

Aug 15, 1990: FAA and the Community College of Beaver County, Pa., signed an agreement under which the college would conduct a **five-year prototype training program for air traffic controllers.** Qualified graduates would be eligible to become controllers without attending the FAA Academy.

Aug 17, 1990: A portion of the **Civil Reserve Air Fleet (CRAF) was called up for the first time** in history as the Defense Department activated CRAF Level 1. Participating airlines provided aircraft and crews to expand U.S. airlift capability for the Operation Desert Shield deployment in the Middle East. (See Aug 2, 1990, and Sep 25, 1990.)

Sep 1, 1990: In accordance with DOT policy, **smoking was prohibited in FAA facilities,** although designated smoking areas were permitted where a complete ban was not feasible. The actual implementation date of the ban at specific locations was allowed to vary to allow for negotiation with unions.

Sep 6, 1990: A **new Air Force One made its maiden voyage.** The specially designed Boeing 747, and its identical backup plane, replaced two twenty-year-old Boeing 707s.

Sep 25, 1990: **FAA released its first strategic plan,** addressing six issue areas as well as aviation in the 21st Century. The plan, dated August 1990, was presented in the framework of the Secretary's **National Transportation Policy (NTP),** which Secretary Skinner had presented to President Bush on Mar 8, 1990. The NTP presented 169 guidelines and 65 legislative, regulatory, budget, and program initiatives to improve the nation's transportation network.

Sep 25, 1990: The **United Nations voted to ban virtually all air traffic with Iraq,** with the exception of certain humanitarian flights. (See Aug 2, 1990, and Jan 16, 1991.)

Sep 26, 1990: FAA issued a rule permitting airlines to develop alternative training for flight crews under the **Advanced Qualification Programs (AQP).** Developed by a government/industry task force, AQP was intended to promote flexibility and innovation in crew training techniques. A required element of the AQP option was Cockpit Resource Management (CRM) training, which focused on communications skills, coordination, and decision-making. By Aug 1996, 15 air carriers were participating in the AQP program. During that month, FAA announced that it had developed a new training tool to assist regional airlines in adopting the AQP approach.

Sep 28, 1990: FAA and the MITRE Corporation signed a five-year agreement under which **MITRE would operate a new Center for Advanced Aviation System Development** at the firm's facility in McLean, Va. The arrangement was subsequently renewed.

Sep 30, 1990: During fiscal 1990, which ended on this date, FAA began a **Direct Route Program** that allowed controllers greater flexibility in honoring pilots' requests to use more direct, fuel-saving

routes. Renamed the **National Route Program** during the following fiscal year, the enhanced program permitted more cost-effective operations between 16 city pairs. By Sep 1994, the expanding program included 104 city pairs. (See Oct 1994.)

Oct 1, 1990: FAA began a "**Manage to Budget**" **pilot project**, to last at least one year, under which the managers of about 2,000 employees received new types of authority in an effort to speed personnel actions and achieve a requirements-driven budget process. The project was subsequently extended for a second year.

Oct 16, 1990: The Department of State announced that it had **raised to \$4 million the maximum reward for information helping to catch terrorists**, due to \$1 million donations from both the Air Transport Association and the Air Line Pilots Association. The rewards program had begun in 1984 with a maximum payment of \$500,000, but Congress increased that limit to \$2 million after the bombing of Pan American Flight 103 (see Dec 21, 1988).

Jan 4, 1991: In the first of a series of **telecommunications failures which created air traffic control problems** during this year, the AT&T company's maintenance workers accidentally cut a fiber-optic telephone cable in New Jersey, disrupting communications between air traffic control sites and delaying air travel for several hours in the New York area. Other significant delays occurred: on May 4, when a farmer cut a fiber cable, limiting operations at four air route traffic control centers; on Sep 17, when an AT&T equipment failure in New York City cut controller communications and disrupted airline travel in the Northeast; and on Nov 5, when AT&T maintenance errors disrupted New England long distance telephone service, delaying flight operations at Boston Logan airport. (See May 8, 1988.)

Jan 8, 1991: **Pan American World Airways filed for protection under Chapter 11 of the bankruptcy laws. On Aug 12, 1991, a Federal bankruptcy judge approved a deal under which Delta Air Lines would acquire major Pan American assets** and also own 45 percent of a downsized PAA. On Sep 1, Delta began operating Pan Am's shuttle serving Washington, New York, and Boston. On Oct 18, DOT gave final approval to the sale of most of Pan Am's remaining transatlantic routes to Delta. (See Dec 4, 1991.)

Jan 13, 1991: An "**interim geographic adjustment**" **gave an eight percent pay raise** to 5,933 FAA employees at facilities in the New York, Los Angeles, and San Francisco areas. The adjustment did not

Nov 5, 1990: The Omnibus Budget Reconciliation Act of 1990 authorized funding for FAA and other Federal entities for FY91-92. Title IX of that legislation included as subparts three acts pertaining to aviation:

The **Aviation Safety and Capacity Expansion Act** included permission for FAA to draw on the Trust Fund for up to 75 percent of its operations and maintenance costs and authorized \$5.5 billion for modernization of air traffic Facilities & Equipment over the two years. It also empowered the Department of Transportation to authorize airports to levy **Passenger Facility Charges** of up to \$3. per enplaning passenger (see May 22, 1991). Other features of the law provided: encouragement of **capacity development at former and current military airports** (see May 30, 1991); continuation of the **Essential Air Service** program; development of a system of **Auxiliary Flight Service Stations** (see Nov 8, 1991); and more **flexibility for FAA in procurement contracts**.

The **Federal Aviation Administration Research, Engineering and Development Authorization Act** further defined FAA's research functions (see Nov 3, 1988). It included a mandate for the establishment of a **Catastrophic Failure Prevention Program** to develop technologies to combat the failure of parts and equipment that could result in aircraft accidents.

The **Airport Noise and Capacity Act** required airlines by mid-1999 to **phase out Stage 2 noise-level jets** (see Feb 18, 1980), although those carriers that met this deadline for 85 percent of their fleet might apply to operate their remaining Stage 2 aircraft until the end of 2003. The law also directed the Secretary of Transportation to prepare a national noise policy by mid-1991, and placed **limitations were upon airports' authority to impose noise restrictions** (see Sep 19, 1991).

Nov 14, 1990: Pan American and United Airlines signed an agreement under which **United would pay \$400 million for Pan Am's routes to London Heathrow** and certain other assets. (See Nov 7, 1985, and Jan 8, 1991.)

Nov 15, 1990: FAA announced that it had completed installation of the **Enhanced Traffic Management System (ETMS)**, which would become operational nationwide on Dec 3. ETMS was a

computer system able to predict nationwide air traffic demands, permitting traffic managers to take corrective action. (See May 17, 1987, and Apr 15, 1994.)

Nov 16, 1990: President **Bush signed the Aviation Security Improvement Act of 1990**, which: required certain regulatory actions affecting several agencies; mandated new reports, organizational arrangements, and staffing requirements; and empowered FAA to conduct an accelerated research and development program in support of aviation security. (See May 15, 1990, Aug 15, 1991, and Oct 1, 1991.)

Dec 3, 1990: For the second time within eight years (see Sep 24, 1983), **Continental Airlines filed for protection under Chapter 11 of the Federal bankruptcy code**. (See Jan 7, 1993.)

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result in raises for those already receiving local special pay rates of more than eight percent, or for those already receiving a 20 percent retention allowance under the Pay Demonstration Project (see Jun 18, 1989).

Jan 16, 1991: One day after the expiration of a United Nations deadline for Iraqi withdrawal from Kuwait, **military aircraft of the U.S.-led coalition began Operation Desert Storm, striking targets in Iraq and occupied Kuwait**. At 7:00 pm EST, shortly after the attacks began, **FAA declared Level 4 airport/airline security**, the highest domestic level ever imposed. **On Jan 17, the Department of Defense activated Level 2 of the Civil Reserve Air Fleet (CRAF) program**, calling upon U.S. airlines to provide additional transport aircraft. American and allied troops routed Iraqi forces in a ground assault that began on Feb 24, and a U.S.-proclaimed **ceasefire took effect at midnight EST on Feb 27**. (See Aug 17, 1990, and May 14, 1991.)

Jan 18, 1991: **Eastern Air Lines ceased flight operations** as of midnight on this date, after nine months under the control of a trustee appointed by a bankruptcy judge (see Apr 18, 1990). **On Jan 24, the International Association of Machinists and Aerospace Workers ended their strike** of over 22 months against the airline. **On Feb 27, Eastern agreed to plead guilty to Federal charges involving falsification of aircraft maintenance records**, and was fined \$3.5 million, while prosecutors dropped other related charges. The case stemmed from a grand jury indictment on Jul 25, 1990.

Jan 23, 1991: The **Department of Transportation announced that it would relax restrictions on foreign investment in U.S. airlines**. Under the new policy, investment of up to 49 percent of total equity obtained from foreign sources would not generally, by itself, be considered an indicator of foreign control.

Feb 1, 1991: In a night approach to Los Angeles International Airport, a **USAir 737 landed atop a Sky West commuter Fairchild Metroliner III**. Both planes then slid into a building as fire began. Fatalities included all 12 persons aboard the commuter flight and 22 of the 89 aboard the USAir flight. On Oct 22, the National Transportation Safety Board listed the accident's probable cause as air traffic control management deficiencies that lead to a controller's issuing inappropriate clearances. FAA actions after the accident included assigning additional controllers to the tower and adjusting runway lights to prevent glare from obstructing the view from the tower. (See Feb 7, 1991.)

Feb 7, 1991: FAA announced a **Runway Incursion Plan** to cut incursions through actions that included tests of advances in runway marking, lighting, and signs at four airports: Boston, Seattle-Tacoma, Pittsburgh, and the new Denver airport under construction (see Jan 15, 1989). On Feb 15, the agency also **amended its ATC Handbook** to prohibit controllers from authorizing aircraft to hold at a taxiway/runway intersection at night or when the intersection was not visible from the tower. The change was among several that FAA had been considering as the result of a ground procedures review, begun in early 1990, that also resulted in the Runway Incursion Plan. (See Feb 1, 1991.)

Feb 8, 1991: FAA's **first annual Capital Investment Plan (CIP)** became effective, superseding the National Airspace System Plan, or NASP (see Jan 28, 1982). The new plan incorporated the NASP projects, over 86 percent of which were completed or in field implementation. The CIP was issued to the public on Apr 23.

Feb 14, 1991: First Lady **Barbara Bush took a commercial flight** from Washington, D.C., to Indianapolis to reassure the public about the terrorist threat to airline security stemming from the conflict with Iraq. (See Jan 16 and May 14, 1991.)

Feb 18, 1991: FAA announced **plans to build a new terminal radar control (TRACON) facility at Elgin, Ill.**, to handle air traffic in the Chicago metropolitan area. Construction began during fiscal year 1993, and the facility was dedicated on Nov 10, 1996.

Feb 26, 1991: The Metropolitan Washington Airport Authority **dedicated a new terminal for international arrivals at Dulles International Airport.**

Mar 1, 1991: The United States and 39 other nations signed a **pact requiring the addition of a chemical marking agent to plastic explosives during manufacture** to assist their identification by use of vapor detectors.

Mar 3, 1991: All 25 persons aboard a United Airlines flight died when their **Boeing 737 crashed on approach to Colorado Springs** airport. Reported theories as to the cause included a "rotor" mountain wind pattern or a mechanical flaw. The National Transportation Safety Board conducted an exhaustive investigation, but reported on Dec 8, 1992, that it could not explain the crash. (See Sep 8, 1994.)

Mar 11, 1991: FAA began a series of **hearings in New Jersey to obtain public comment on the noise effects of air traffic changes under the Expanded East Coast Plan (EECP)**, which had been implemented in phases between Feb 1987 and Mar 1988 (see Aug 25, 1988). The meetings reflected strong citizen discontent with the EECP. On Jun 28, FAA announced a contract with PRC, Inc., to assist in developing an Environmental Impact Statement (EIS) on the effects of New Jersey flight patterns revised under the EECP. In Oct 1992, Congress acted to freeze the pay levels of certain FAA employees involved with the project until the final impact statement was completed. In a response to another congressional action, FAA on Oct 28 announced a series of public meetings in New York and Connecticut as part of an Aircraft Noise Mitigation Review for the New York metropolitan area (see Nov 20, 1992). **On Nov 12, 1992, FAA released a Draft Environmental Impact Statment (DEIS)** on the EECP's effects on New Jersey. The agency scheduled public hearings and gathered public views on the DEIS during a comment period that was subsequently extended until Nov 23, 1993. (See Oct 31, 1995.)

Mar 31, 1991: Construction of the **Development Demonstration Facility** to assess segments of the Advanced Automation System was completed in Gaithersburg, Md. FAA accepted the facility on May 31, and the first operational suitability demonstration began on Aug 13.

Apr 1, 1991: A **Northwest Airlines 747 began a series of test flights in Soviet airspace** as part of a cooperative program to develop a satellite navigation system in which aircraft would receive signals from both the **U.S. Global Positioning System (GPS) and the Soviet Global Orbiting Navigation Satellite System (GLONASS)**. A US/USSR exchange of receivers took place in Montreal on Apr 27. GPS was a satellite-based radio-navigation system controlled by the U.S. Department of Defense. When completed, it would include 24 satellites orbiting 11,000 miles above the earth. At an International Civil Aviation Organization meeting on Sep 5, 1991, FAA Administrator Busey announced that **the United States was offering world civil aviation the use of its GPS** for at least 10 years, starting in 1993 when the system was to be fully operational. (See May 23, 1983, and Oct 14, 1992.)

Apr 4, 1991: FAA completed **transfer of more than 600,000 square miles of oceanic airspace from the Miami and Boston en route centers to the New York center**. The action completed the last phase of a larger restructuring begun in Sep 1989, with transfer of airspace from the San Juan center to the New York center.

Apr 4, 1991: FAA issued a **rule increasing protection against cabin fires** by upgrading requirements for lavatory fire detectors, lavatory trash receptacles, and hand fire extinguishers. (See Mar 29, 1985.)

Apr 5, 1991: An **Embraer 120 commuter plane crashed** on approach to Brunswick/Glynco Jetport, Ga. All 23 persons aboard the Atlantic Southeast Airlines flight died in the accident, including former Sen. John G. Tower (R-Tex.). Citing several incidents, FAA during May required inspections of certain Hamilton Standard propellers used on the Embraer 120 and other aircraft. In Apr 1992, the National Transportation Safety Board cited the probable cause of the crash as malfunction of the left propeller control unit. As contributory factors, the Board listed deficiencies in the design of the control unit and FAA's approval of that design.

Apr 16, 1991: FAA announced that educators could now obtain information on the agency's aviation education programs by using any modem-equipped personal computer to access the **Federal Education Information Exchange System (FEDIX)**.

Apr 17, 1991: The Supreme Court ruled that **passengers on international flights can not recover damages for purely emotional or mental injuries**. Mar 11, 1991: **The United States and the United Kingdom reached an agreement on airline service** which included permission for United

and American Airlines to succeed Pan American and Trans World Airways in serving London Heathrow. In return, British airlines received supplementary rights involving increased access to U.S. airports.

May 1, 1991: **A majority of those aviation safety inspectors casting ballots voted for representation by the Professional Airways Systems Specialists, known as PASS** (see Dec 31, 1981). On May 10, PASS was certified as the bargaining agent for this previously non-union group of 1,913 FAA employees.

May 2, 1991: FAA ordered the **Collins version of the Traffic Alert and Collision Avoidance System** used on some airliners taken out of service temporarily for correction of a computer problem that led to false traffic warnings.

May 14, 1991: DOT **completed the LORAN-C long range navigation system** by closing the mid-continent coverage gap. (See Jun 2, 1986.)

May 14, 1991: As the Gulf crisis waned, DOT announced that **airport security measures would soon be adjusted to a modified Level 2**, a transition that was completed by May 27. The Defense Department **deactivated the Civil Reserve Air Fleet (CRAF) Level 2 on May 17**, then deactivated Level 1 on May 24. During Operation Desert Shield/Storm, 27 U.S. carriers had flown 5,441 CRAF missions, carrying 709,000 people and 126,000 tons of equipment and supplies. (See Jan 16, 1991.)

May 20, 1991: In an **effort to reduce the bird hazard to aircraft**, U.S. Department of Agriculture biologists shot sea gulls at New York Kennedy airport between this date and Aug 8. More than 14,000 gulls were killed during the program, which was funded by the airport authority and lasted until Aug 8. Similar programs took place at the airport during the next three years, but the practice was suspended in 1995 due to litigation.

May 22, 1991: FAA issued a rule under which the agency could authorize airports to impose **Passenger Facility Charges (PFCs)** to finance airport-related projects, in accordance with the Aviation Safety and Capacity Expansion Act (see Nov 5, 1990). Airlines would be compensated for the service of collecting the fees from passengers departing and making connections. **On Jan 31, 1992, FAA announced its first PFC program approval**, which authorized Savannah (Ga.) International Airport to begin collecting a \$3 fee on Jul 1.

May 23, 1991: The FAA's **Aviation Rulemaking Advisory Committee**, which had been established on Feb 5, 1991, held its first meeting.

May 26, 1991: All 223 persons aboard an Austrian Lauda Air flight died when their **Boeing 767 crashed after takeoff from Bangkok**, Thailand. On Jun 6, FAA confirmed that the thrust reverser on one engine was found fully deployed among the wreckage (and a Thai government report later stated that **uncommanded deployment of a thrust reverser** was the accident's probable cause). Beginning on Jul 3, 1991, FAA issued a series of directives requiring deactivation of the thrust reversers on 767s powered by Pratt & Whitney PW4000 series engines, as well as inspections and adjustments for these and certain other Boeing aircraft. In October, Boeing announced that it had received FAA approval for design changes to the aircraft affected by the reverser deactivation order. Subsequent actions stemming from the crash included a Boeing program, undertaken in 1992, to install an additional locking device to keep reversers properly stowed on nearly 2,000 of its aircraft.

May 30, 1991: DOT announced a \$5 million grant to Stewart International Airport, Newburgh, N.Y., the **first award under the Military Airports Program** mandated by the Aviation Safety and Capacity Expansion Act of 1990 (see Nov 5, 1990). The new program used Airport Improvement Program funds to assist former military airports and joint civil/military airports.

Jun 2, 1991: As of this date, **Pre-Departure Clearance (PDC) was operational at all 29 continental U.S. airports designated to receive the system**, which used data link to speed departures and reduce voice radio frequency congestion. (An additional PDC system was planned for Honolulu.) Operational evaluation of the first PDC workstation had begun at Dallas/Fort Worth in Jul 1989.

Jun 11, 1991: FAA issued a **rule requiring air carriers to notify aircrew members when there is a specific and credible security threat to their flight**.

Jun 15, 1991: The Philippines' **Mt. Pinatuba erupted**, damaging airports within that country and emitting a huge ash cloud that disrupted aircraft operations over a wide area. Ash damaged at least 17 airliners in flight, most at distances over 600 miles from the volcano. The eruption lent urgency to the **First International Symposium on Volcanic Ash and Aviation Safety, held on Jul 8-12** in Seattle. FAA, one of the symposium's sponsors, reported on its work to improve volcanic hazard notification procedures. The problem was illustrated again when Alaska's **Mt. Spurr erupted on Aug 18, 1992**,

depositing almost a quarter inch of ash on Anchorage airport. One of the airport's runways reopened the following afternoon, and the other reopened on Aug 20. Later FAA actions to combat this hazard included a December 1996 warning to airliners to avoid the **Pavlov Volcano** in the Aleutian Islands. (See Dec 14, 1989.)

Jun 17, 1991: The **Supreme Court ruled that the law establishing the Metropolitan Washington Airports Authority was unconstitutional** (see Oct 30, 1986). The Court held that the legislation violated the separation of powers by giving a congressional review board veto rights over WMAA's decisions. **New legislation enacted on Dec 18, 1991**, removed the veto rights.

Jun 21, 1991: FAA issued a **security regulation on foreign air carriers** operating into or out of the United States, requiring such carriers to provide a level of protection similar to that of U.S. carriers serving the same airports.

Jun 21, 1991: FAA awarded a **contract to Bendix for two Microwave Landing Systems**. The contract included an option for 26 additional units, which the agency subsequently ordered. (See Dec 6, 1989, and Jun 15, 1992.)

Jun 27, 1991: **America West Airlines filed for protection under Chapter 11 of the bankruptcy code**. The Phoenix-based carrier had begun operations in Aug 1983, and was listed as a major airline by 1990. **The airline emerged from bankruptcy on Aug 25, 1994**.

Jul 1, 1991: **Piper Aircraft Corporation filed for protection under Chapter 11 of the bankruptcy code**.

Jul 1991: The **first of two Mode S production systems was delivered to the Technical Center** in preparation for formal acceptance of this new radar beacon ground interrogator system, 137 of which were to be implemented in the airspace system. (See Oct 5, 1984, and Jul 30, 1992.)

Jul 1, 1991: A new **Braniff International Airlines began scheduled service**. Legally a different entity from the earlier Braniff (see Sep 28, 1989), the small new airline flew for only a few weeks before filing for Chapter 11 bankruptcy protection on Aug 7, 1991. **It ceased operations on Jul 2, 1992**.

Jul 25, 1991: FAA announced the **results of the first full year of drug testing (CY90)** of employees in and applicants for safety/security positions in the aviation industry: of 230,621 tests, 966 (or 0.4 percent) were positive for drug use. The rate of positive findings in subsequent years remained below one percent. (See Dec 1, 1989, and Feb 3, 1994.)

Aug 6, 1991: The FAA Technical Center, in conjunction with Sandia National Laboratories, opened an **aging aircraft nondestructive inspection validation center** at Albuquerque International Airport, N.M.. The center, which studied improvements in nondestructive inspection systems, was dedicated on Feb 10, 1993.

Aug 8, 1991: **DOT ended all aviation sanctions against South Africa** and said that it would consider applications for air carrier routes between the two countries. The action followed a DOT show cause order issued on Jul 11, the day after President Bush declared South Africa had met conditions set by the anti-apartheid law under which the sanctions were imposed (see Nov 16, 1986).

Aug 13, 1991: FAA held ground-breaking ceremonies for its Technical Center's new **Advanced Automation System Laboratory and its Aviation Security Laboratory**. Construction was completed on both facilities during FY 1993.

Aug 15, 1991: FAA issued a rule prescribing **more stringent standards for hiring, training, and performance of airline and airport security personnel** as mandated by the Aviation Security Improvement Act. (See Nov 16, 1990, and Sep 28, 1995).

Sep 1, 1991: **Barry Krasner became president of the National Air Traffic Controllers Association**, having defeated Steve Bell in an election during the previous month. In Aug 1994, Krasner won a second three-year term.

Sep 19, 1991: FAA adopted two rules that had been mandated by the Airport Noise and Capacity Act of 1990 (see Nov 5, 1990). One **rule required airlines, by the end of 1999, to eliminate Stage 2 noise-level aircraft** (see Feb 18, 1980), and provided interim deadlines and options for transitioning to Stage 3. The **companion rule set procedures for any new local restrictions on Stage 2 operations**, and required that local restrictions on Stage 3 be achieved by voluntary agreements with the airlines or receive FAA approval. Secretary Skinner announced the new rules on Sep 24, saying that DOT had fulfilled its "promise to Congress and the American people to formulate a balanced **national noise policy**." The Port Authority of New York and New Jersey and local governments in Los Angeles and Minneapolis-St. Paul considered plans for certain restrictions on Stage 2 aircraft in

advance of the national phase-out; however, FAA successfully opposed the adoption of local rules that it deemed incompatible with national policy and legislation. Meanwhile, progress on eliminating noisier aircraft brought the percentage of Stage 3 planes in the U.S. airline fleet to 59.3 by the end of 1992 and 70.7 at the end of 1995.

Sep 20, 1991: A **dedication ceremony for the New York Terminal Radar Approach Control Facility's ARTS III** marked completion of Stage II of the upgrade of the TRACON's Automated Radar Terminal System. (See Mar 26, 1986.)

Sep 30, 1991: **Joseph Del Balzo became Executive Director for System Operations, and the position's responsibilities were expanded.** As documented in a directive issued on Jan 31, 1992, the reorganization gave Del Balzo's new position responsibility for four Associate Administrators directing major agency functions (Air Traffic; Airway Facilities; Regulation and Certification; and Aviation Standards). Other elements reporting to Del Balzo were the: Office of System Capacity and Requirements; Aeronautical Center; and Regional Administrators. The reorganization also **abolished the Executive Directors for Administration and Resource Management and for Regulatory Standards and Compliance**, reducing the number of FAA's Executive Directors from five to three (see Feb 21, 1990, and Nov 26, 1991). The Associate Administrators for Administration and for Human Resource Management were redesignated Assistant Administrators reporting directly to the Administrator. The Logistics Service was abolished and its functions divided between the Associate Administrator for Airway Facilities and a new Office of Acquisition Support under the Executive Director for System Development.

Sep 30, 1991: During fiscal 1991, which ended on this date, FAA and the National Air Traffic Controllers Association began a **Quality Through Partnership program** aimed at improving operations and productivity.

Oct 1, 1991: The first **Peripheral Adapter Module Replacement Item (PAMRI)** became operational at the Seattle ARTCC. PAMRI was the initial element of the Advanced Automation System. (See Jul 26, 1988, and Nov 30, 1992.)

Oct 1, 1991: FAA **inaugurated the Federal Security Manager (FSM) Program** as mandated by the Aviation Security Improvement Act (see May 15, 1990, and Nov 16, 1990). The Federal Security Managers had responsibility for approving airport security programs, acting as focal points for FAA security operations at airports, coordinating government and law enforcement activities in domestic security areas, and providing security information to the aviation community at each of the 18 airports where FSMs were stationed.

Oct 1, 1991: FAA received 6 British Aerospace BAe-800 aircraft from the Air Force. The transfer was part of an **agreement under which FAA would take over the last of the Air Force's capability to conduct flight inspection of air navigation aids** (see Jan 1962).

FAA's **flight inspection fleet continued to evolve** under a multi-year modernization plan. As of Nov 1, 1995, the flight inspection inventory included the 6 Bae-800s, 19 BE-300 Beechcraft, 1 BE-F90 Beechcraft, 3 NA 265-80 Sabreliners, as well as 5 other aircraft with disposal action pending. (Planning called for further disposals and for acquisition of Learjet 60 and Canadair 601 aircraft.) In addition, FAA's inventory included 15 aircraft for training, research and development, and support functions. The total fleet consisted of 47 owned and two leased aircraft.

Oct 23, 1991: A ceremony in San Diego marked the start of construction of a new **Southern California Terminal Radar Approach Control (TRACON)** facility. Five existing TRACONs in the area were to be consolidated into the new facility, a process completed in Sep 1995. Meanwhile, FAA planned several similar TRACON consolidations. (See Apr 19, 1993.)

Oct 28, 1991: The **Aging Aircraft Safety Act**, enacted on this date, required FAA to undertake rulemaking requiring certain airworthiness reviews and inspections for airliners in service more than 15 years. The agency accordingly published such a proposal on Oct 5, 1993. The act also directed FAA to establish programs to insure that U.S. air carriers properly maintained their older aircraft and to encourage foreign airlines to do the same. Although the legislation did not specifically address commuter aircraft, FAA extended its aging aircraft program to that sector.

Nov 8, 1991: FAA notified Congress of an **Auxiliary Flight Service Station Plan** adding 26 permanent and five seasonal auxiliary stations to supplement the 61 automated flight service stations already planned (see Oct 2, 1981). The Aviation Safety and Capacity Expansion Act (see Nov 5, 1990) had mandated the project. (See Feb 12, 1986, and Feb 15, 1995.)

Nov 13, 1991: **Midway Airlines ceased operations** at midnight. (See Nov 1, 1979.) Earlier that day, Northwest Airlines had dropped plans to acquire Midway, which had filed for Chapter 11 bankruptcy protection on Mar 26, 1991. **On Nov 15, 1993, a smaller new carrier named Midway Airlines began service** from Chicago Midway airport.

Nov 14, 1991: The U.S. **Justice Department indicted two Libyans for the bombing of Pan American Flight 103** (see Dec 21, 1988). Libya reportedly detained the suspects but refused to extract them. (See Apr 15, 1992.)

Nov 20, 1991: The White House announced the selection of **FAA Administrator James Busey to become DOT Deputy Secretary**, succeeding Elaine Chao, who left DOT on Oct 22 to become Peace Corps Director. **On Nov 22, the White House announced the choice of Jerry R. Curry to succeed Busey** as FAA Administrator. A retired Army major general, Curry was serving as Administrator of the National Highway Traffic Safety Administration. Subsequently, **Curry withdrew as nominee for the FAA post on Mar 20, 1992.** (See Dec 4, 1991.)

Nov 21, 1991: **Secretary of Transportation Skinner and his Mexican counterpart signed an agreement expanding aviation opportunities.** The accord permitted each country to designate a carrier to fly between any U.S. city and any Mexican city, a level of flexibility unique in U.S. international aviation relations.

Nov 26, 1991: Administrator Busey announced a **reorganization at FAA headquarters**, including:

- * A new **Assistant Administrator for Information Technology** position with responsibility for administrative and operational information resources. The Office of Management Systems at headquarters was abolished and its former director became Acting Deputy for the new Assistant Administrator.

- * A new **Assistant Administrator for Budget and Accounting** position with responsibility for the Office of Budget and the Office of Accounting. These two offices had previously reported to the Associate Administrator for Administration, a position which was abolished.

- * **Retitling the Executive Director for Acquisition as the Executive Director for Acquisition and Safety Oversight and expanding this position's responsibilities** by the addition of: the Office of Aviation Safety, whose head was retitled an Associate Administrator rather than an Assistant Administrator; and the appraisal functions of the former Deputy Associate Administrator for Appraisal. (See Sep 30, 1991, and Nov 30, 1993.)

Dec 4, 1991: **Pan American World Airways ceased flying** after 64 years of operations. On the previous day, Delta Air Lines had told a bankruptcy court that it would not supply further financing for Pan Am (see Jan 8, 1991). At an auction of Pan Am assets on Dec 9, United emerged as the largest purchaser, bidding successfully on most of the defunct airline's Latin American routes. Such remaining Pan Am property as industrial and office equipment was auctioned at Miami airport on Aug 4-7, 1992. (See Sep 26, 1996.)

Dec 4, 1991: **James B. Busey left the post of FAA Administrator and became Deputy Secretary of Transportation** (a position which he held until resigning effective Jun 19, 1992). On Busey's departure from FAA, Deputy Administrator Barry L. Harris became Acting Administrator, and Executive Director for System Operations Joseph M. Del Balzo became Acting Deputy Administrator (see Jun 27, 1992). **On Dec 6, 1991, President Bush announced the choice of DOT Secretary Samuel L. Skinner to become his chief of staff** on Dec 16, replacing John H. Sununu (see Feb 24, 1992). Busey became Acting Secretary upon Skinner's departure from DOT.

Dec 17, 1991: FAA published a **rule to establish six classes of airspace** designated by a single letter, in conformance with the recommendations of the International Civil Aviation Organization. The new designations and their equivalents under the existing system were: Class A (Positive Control Area); Class B (Terminal Control Area); Class C (Airport Radar Service Area); Class D (Airport Traffic Area, and Control Zone); Class E (General Controlled Airspace); and Class G (Uncontrolled Airspace). **The new system became effective on Sep 16, 1993.**

Dec 18, 1991: President Bush signed the **Intermodal Surface Transportation Efficiency Act**, designed to help develop intermodal travel through a range of actions, one of which was improving access to the country's airports. On May 11, 1992, DOT invited the 50 states to submit proposals for development of intermodal transportation plans, including aviation as well as surface modes. On Jul 2, 1992, DOT established a new Office of Intermodalism.

Dec 26, 1991: On the day following President Mikhail S. Gorbachev's resignation, **the Soviet legislature voted the Soviet Union out of existence.**

***1992**

Jan 31, 1992: **Trans World Airlines filed for protection under Chapter 11 of the bankruptcy laws**, announcing a plan under which chairman Carl Icahn would lose his controlling interest but continue to head the airline for at least one year. Subsequent events included acquisition of substantial interests in TWA by its employees, and the departure of Icahn in early 1993. **TWA became solvent on Nov 3, 1993, filed again for protection on Jun 30, 1995, and emerged from its second Chapter 11 reorganization on Aug 23, 1995.**

Feb 3, 1992: FAA announced a **computerized testing system, expected to speed selection of air traffic controller trainees** and improve their success rate, as well as a strengthened training program. Previously, candidates spent their first 9 weeks of employment training and testing and were terminated if they were not successful. The new program took 4 1/2 days, demonstrated an equivalent ability to predict success, and was conducted before an individual was hired.

Feb 4, 1992: FAA awarded a 10-year, \$508 million contract to Electronic Data Systems (EDS) to provide automated data processing services to support such functions as safety analysis and payroll. On Aug 14-15, the company successfully transferred computer applications and data from FAA's Aeronautical Center in Oklahoma City to an EDS data center in Plano, Texas. The EDS contract was part of the **Computer Resources Nucleus (CORN) project**, a program to "outsource" computer services begun in the fall of 1986. CORN had received criticism during June 1990 when General Accounting Office faulted FAA's planning and justification of the project. The General Services Administration suspended procurement authority for CORN in September, but reinstated the program in Dec 1990 after FAA made revisions.

Feb 7, 1992: The Department of Transportation published a request for public comments on rules that may be outdated, too costly, or impede economic growth. The action was a response to President Bush's Jan 28 State of the Union speech declaring a **90-day rulemaking moratorium and a review of regulations**. On May 1, Secretary Card announced that a regulatory review had identified over 300 administrative or legislative changes in DOT regulations that would help the nation's economy.

Feb 24, 1992: **Andrew H. Card, Jr., took the oath as Secretary of Transportation** (a public swearing-in ceremony was held on Mar 11). A former member of the Massachusetts legislature, the new Secretary had been deputy Chief of Staff under Bush and served the Reagan White House as deputy assistant to the President and director of the Intergovernmental Affairs Office. Card had been nominated on Jan 22 and confirmed by the Senate on Feb 21. He served for the remainder of the Bush Administration, resigning effective Jan 20, 1993.

Mar 5, 1992: Effective this date, FAA chartered the **Pilot and Aviation Maintenance Technician Shortage Blue Ribbon Panel**. On Sep 27, 1993, FAA announced the results of the panel's study, which foresaw a possible shortage of experienced personnel within three to five years. The panel considered the fundamental solution was to focus education and training programs on industry needs, and made 13 recommendations to that address the problem.

Mar 17, 1992: A ceremony at the Salt Lake City Air Route Traffic Control Center commemorated the completed installation of **Meteorologist Weather Processors (MWPs)** at 21 en route centers and the central flow control facility in Washington. The system assisted air traffic controllers by combining data from the National Weather Service, FAA radars, and a satellite operated by Harris Corporation, the contractor that provided MWP on a lease basis. On Jul 8, 1996, FAA announced a contract with Harris to develop, install, and support the **Weather and Radar Processor (WARP)**, a more advanced system that would integrate information including data from Next Generation Weather Radar (NEXRAD). The first phase of this project would replace MWP with upgraded leased equipment.

Mar 17, 1992: FAA issued a **rule extending the requirement for the Ground Proximity Warning System** to all turbine powered (rather than just turbojet) aircraft with 10 or more passenger seats flown by air taxi and commercial operators, effective Apr 24, 1994. The new rule affected primarily commuter airlines. On May 27, the National Transportation Safety Board announced that it had removed a recommendation for such a rule from its "Most Wanted" list of safety actions. (See Dec 24, 1974.)

Mar 22, 1992: A **USAir Fokker F-28 4000 jet crashed at New York's La Guardia Airport** while taking off during a snowstorm, killing 27 of the 51 persons aboard. In a 1993 report, the National Transportation Safety Board cited the probable cause as: failure of the airline industry and FAA to

provide flight crews with procedures and requirements compatible with departure delays in conditions conducive to icing; and the flight crew's decision to take off without positive assurance that the airplane's wings were ice-free after 35 minutes exposure to precipitation following deicing. (See Nov 15, 1987, and May 28, 1992.)

Mar 31, 1992: DOT announced that **the United States would explore "open skies" aviation agreements with all European countries** willing to allow free access to their markets. In the past, the nation had offered such agreements to only a few of its largest aviation partners. On Aug 5, DOT established a **definition of "open skies"** including such points as: (1) open entry on all routes; (2) unrestricted capacity and frequency on all routes; (3) flexibility in setting fares; (4) liberal charter arrangements; (5) liberal cargo arrangements; (6) open code-sharing opportunities; (7) nondiscriminatory operation of and access to computer reservations systems; (8) the ability of carriers to freely enter into commercial transactions related to their flight operations; (9) the right of a carrier to perform its own ground handling in the other country; (10) no restrictions on converting earnings into hard currency or returning earnings to homelands; and (11) the right to operate between any U.S. airport and any point in the European country without restriction. (See Sep 4, 1992.)

Apr 8, 1992: FAA announced a **new self-audit program for aviation manufacturers**. The firms were encouraged to identify their own violations of safety regulations, and the agency would not take enforcement action for infringements voluntarily reported and corrected. FAA had previously unveiled a similar program for airlines (see Mar 27, 1990).

Apr 15, 1992: **United Nations sanctions, including a cut-off of air transportation links, went into effect against Libya** due to its failure to surrender two suspects in the Dec 1988 bombing of a Pan American flight (see Nov 14, 1991). On Apr 16, FAA issued a special regulation implementing a Presidential order prohibiting any aircraft on a flight to or from Libya from taking off from, landing in, or overflying the United States.. Since commercial air links with Libya had already been prohibited for several years (see Feb 11, 1986), the action expanded the ban to business and private aircraft and to overflights of U.S. territory.

Apr 16, 1992: At Manassas, Va., FAA **dedicated its first "recycled" tower**. The 60-foot structure had been moved from Englewood, Colo., where it was no longer being used.

Apr 22, 1992: FAA announced **expansion of the Terminal Area VFR Routes program** which charted special routes to help pilots using Visual Flight Rules in avoiding controlled airspace. The concept, which had been evaluated in the Los Angeles area in 1988-89, would be applied at eight other locations.

Apr 27, 1992: FAA announced that its Flight Standards Service was **opening a direct computer line to answer questions** from the aviation community about regulations and procedures. The action reflected a growing global trend toward use of computer networks for communications. On Aug 15, 1995, FAA opened a "Headquarters News and Public Affairs Home Page" on the World Wide Web to provide news releases and other information to the media and public, and the Northwest Mountain Region opened a home page on the same day.

Apr 30, 1992: President Bush signed an order directing Federal agencies to modify their procedures in order to facilitate the **privatization of airports** and other public assets built with Federal assistance.

Apr 30, 1992: **Rioting in the Los Angeles area** forced FAA to temporarily close its towers at Santa Monica, Torrance, and Hawthorne, as well as the flight service station at Hawthorne. The disorders also hampered operations at Los Angeles International, where smoke from burning buildings created Instrument Flight Rules conditions.

May 4, 1992: To facilitate emergency evacuations, FAA published a **rule specifying required distances between rows of seats near over-wing exits on airliners**: a 20 inch clear path for three-seat exit rows, and a 10 inch clear path for two-seat exit rows. As an alternative, airlines could remove the seat nearest to each overwing exit and provide two paths six inches wide in front of and behind the seats adjacent to the exit.

May 20, 1992: At the request of the State Department, **DOT halted the U.S. landing rights of Yugoslav Airlines**. The sanction was a response to Yugoslavia's failure to guarantee that Sarajevo Airport would be reopened for humanitarian relief flights or that Serbian troops would withdraw from the airport and its vicinity. In accordance with a Presidential order issued on June 5, DOT and FAA implemented sanctions that included a ban on flights between the United States and the Federal Republic of Yugoslavia (Serbia and Montenegro). The sanctions were suspended indefinitely

following a Jan 2, 1996, determination by the President that such a suspension was needed to achieve a settlement of the conflict in Bosnia-Herzegovina.

May 28, 1992: FAA opened a two-day **International Conference on Airplane Ground Deicing**. The conference reflected global concern about icing and produced a series of recommendations for combating the hazard. On Sep 25, FAA announced a requirement for **airlines using large aircraft (Part 121) to have an approved ground de-icing/anti-icing program in place by Nov 1, 1992**. On Dec 29, 1993, FAA announced **strengthened deicing requirements for commuter and air taxi pilots** to check aircraft surfaces before taking off in adverse weather. The agency also mandated certain new training requirements for commuter pilots as well as certain training and checking requirements for pilots of larger private planes. (See Mar 22, 1992, and Oct 31, 1994.)

Jun 15, 1992: FAA awarded contracts to the Wilcox and Raytheon corporations to design and develop **advanced versions of the Microwave Landing System**. Each vendor was to produce six to twelve first article test systems. Following successful completion of this phase, full scale production was planned with the same contractors in 1996. (See Jun 21, 1991, and Jun 2, 1994.)

Jun 17, 1992: **DOT Secretary Card and Russia's Foreign Minister signed a memorandum of understanding on airspace use, air navigation, and air traffic control**. Features included joint cooperation in opening shorter Far Eastern routes and FAA assistance in establishing a joint civil-military air traffic system for Russia. (See Feb 16, 1990, and May 25, 1993).

Jun 26, 1992: The **Supreme Court ruled that airports are not a public forum and hence airport authorities may place reasonable restrictions on speech**. Such regulation might include a ban on soliciting donations, and limits on the time, place, and manner of distributing literature. (See Feb 18, 1980.)

Jun 27, 1992: **General Thomas C. Richards (USAF, Ret.) became FAA's twelfth Administrator**, succeeding James B. Busey (see Jun 30, 1989), in a private ceremony. On Jul 17, Richards took the oath a second time in a public ceremony. President Bush had announced Richards' nomination on Mar 31, following the withdrawal of a previous nominee (see entry for Nov 20, 1991), and formally nominated him on May 1. The Senate confirmed the nomination in June, and Congress passed legislation exempting Richards from the statute barring military officers from serving as FAA Administrator.

Born on Feb 13, 1930, in San Diego, Calif., Richards received a B.S. from Virginia Polytechnic Institute in 1956, an M.A. from Shippensburg State College in 1973, and was also a graduate of the U.S. Army War College. Richards' military career began with the Army infantry in 1948 and included combat service in the Korean War. He received a commission as a distinguished graduate of the Air Force Reserve Officer Training Corps program at Virginia Polytechnic Institute in 1956. He earned his pilot's wings in 1957. During his Air Force career, he flew over 600 combat missions as a forward air controller in the Vietnam war. His assignments included: commandant of cadets at the Air Force Academy; vice commander, 8th Air Force, Strategic Air Command; commander of the Air University; and deputy commander in chief, U.S. European Command. Upon retiring from the military in 1989, he became a corporate consultant and served on the President's Commission on Aviation Security and Terrorism (see May 15, 1990). Richards was FAA Administrator for less than seven months, resigning when William J. Clinton succeeded George H. Bush as President on Jan 20, 1993.

Jul 17, 1992: The United States and the European Economic Community signed an **agreement placing certain limitations on government subsidies for the development and production of large civil aircraft**.

Jul 20, 1992: One of the Navy Department's five prototypes of the **V-22 Osprey tiltrotor crashed** in the Potomac River, killing all seven people aboard. (Another of the prototypes had crashed, causing no injuries, during the previous summer.) The Navy Department suspended V-22 flight testing until after an accident report, dated May 18, 1993, identified a fluid leak and fire as the cause of the Potomac River crash. On Aug 20, a XV-15 tiltrotor crashed during a Bell Helicopter demonstration flight at Arlington (Texas) Municipal Airport. The XV-15, a smaller, two-seat version of the V-22, was a forerunner of the Osprey.

Jun 29, 1992: In a report released to Congress on this date, **FAA recommended that all states be allowed to administer block grants** for nonprimary airports on the basis of a successful pilot project under which three states had administered such grants. (See Oct 1, 1989, and Oct 31, 1992.)

Jul 30, 1992: **FAA excluded general aviation aircraft from the rule that all transponders installed after Jul 1, 1992, be Mode S transponders** (see Jan 29, 1987).

Aug 24:, 1992 **Hurricane Andrew** swept through south Florida, causing devastation that included damage to airports and resulting flight cancellations. Among the worst hit FAA facilities were the Richmond Long Range Radar site and the tower and International Automated Flight Service Station at Tamiami airport, all of which were severely damaged. Facilities at Key West lost communication lines, and other agency installations experienced significant damage, power loss, and outages. By the following day, however, Miami, Key West, West Palm Beach, and Fort Lauderdale Executive airports reopened. The hurricane moved into Louisiana on August 26. During the height of the storm, most FAA facilities in the affected part of that state shut down or were placed on standby status, and several airports were temporarily closed.

The hurricane destroyed or badly harmed the homes of about 144 FAA employees in the Miami area, and the agency organized an airlift to provide emergency relief. A committee representing local agency organizations coordinated the distribution of supplies and of funds donated by FAAers throughout the country, while the agency provided such benefits as administrative leave, counseling, and emergency loans. At the same time, FAA rushed the restoration of airspace system facilities and supported the overall Federal relief program.

Aug 28, 1992: **Typhoon Omar struck Guam** with winds of up to 150 miles an hour, causing major damage to an estimated 75 to 90 percent of all buildings. The island lost all power. By Aug 30 the airport had reopened, but only for VFR/daylight operations. No FAA families were injured, although the housing area was severely damaged.

Sep 4, 1992: DOT announced that the **U.S. and the Netherlands had agreed to open their international aviation markets to each other's airlines**, the first such agreement under the Department's open skies initiative (see Mar 31, 1992). Taking advantage of the pact, **Northwest Airlines and KLM Royal Dutch Airlines agreed on Sep 9 to create what they called "a unified global airlines system."** Although KLM already had a 20 percent stake in Northwest, the new agreement enabled the two carriers to integrate their operations worldwide. On Jan 11, 1993, DOT gave Northwest and KLM immunity from antitrust laws so they could operate as one airline. The **trend toward greater collaboration with foreign carriers** was further illustrated by cooperative plans announced in 1993 by the following U.S. airlines: Delta (with Swissair); Continental (with Air France); United (with Lufthansa); and USAir (which announced a scaled-back version of a plan for partnership with British Airways first proposed in July 1992).

Sep 9, 1992: FAA published a rule establishing a "**primary aircraft**" category for aircraft of simple design intended for pleasure and personal use. Primary aircraft must: be unpowered or powered by a single engine meeting certain specifications; have an unpressurized cabin; carry no more than four persons; and weigh no more than 2,700 pounds. (Ultralight vehicles were not included, however.) The new classification was intended to simplify certification procedures and provide owners with aircraft less costly to buy and maintain. The addition of this category raised the number of such of type certificates to 8: normal, utility, acrobatic, transport, special class, commuter, restricted, and primary.

Sep 11, 1992: **Hurricane Iniki hit parts of the state of Hawaii**, killing one person on the island of Oahu and three on Kauai, which suffered most of the damage. The storm severely damaged the control tower cab at Kauai's Lihue airport.

Sep 15, 1992: FAA published a **final rule requiring airlines to allow the use of approved child restraint systems (CRSs) on their aircraft**. At the same time, FAA amended its Advisory Circular describing approved CRSs to exclude any that positioned the child on the lap or chest of a seated adult. (See Feb 26, 1985, and Sep 21, 1994.)

Sep 16, 1992: FAA published a rule allowing manufacturers to use a much less costly **alternative method of determining whether light helicopters met noise certification standards**. The new procedure employed fewer tests and microphones, but required helicopters to meet a standard that was two decibels more stringent than under the normal procedure.

Sep 30, 1992 During the fiscal year ending on this date, air fares in markets served by Southwest Airlines were dramatically lower than in other short haul markets, according to a DOT study announced on May 11, 1993. The study found that Southwest (which had begun operations as a Texas intrastate carrier on Jun 18, 1971) now ranked fifth among U.S. airlines in terms of passengers carried. **The success of Southwest illustrated the demand for low-cost service in short haul**

markets. The DOT study also noted an **increase in new carriers** over the past year, including five jet airlines providing scheduled passenger service.

Sep 1992: FAA inspectors completed the first evaluations under the **Aircraft Certification Systems Evaluation Program (ACSEP)**. The program used standardized evaluation techniques to ensure the continued integrity of manufacturers' design data and production activities subsequent to their initial approval.

Oct 8, 1992: **FAA ordered inspection of fuse pins securing the engines of most Boeing 747s** following the crash of an Israeli 747 in Holland on Oct 4. On Nov 13, the agency ordered all U.S. 747 operators to replace old-style fuse pins after the inspections showed instances of corrosion and cracking.

Oct 14, 1992: An FAA-chartered task force released its **report on a Global Navigation Satellite System using the Global Positioning System (GPS)**. The report concluded that the system offered the greatest opportunity to enhance aviation efficiency and safety since the introduction of radio communications and navigation. To help begin the implementation process, FAA on Dec 10 released a **technical standard order prescribing standards for airborne supplemental navigation equipment using GPS**. (See Apr 1, 1991, and Dec 17, 1993.)

Oct 27, 1992: Effective this date, **FAA amended its regulation on exit row seats**, now redefined as "exit seats" to clarify that the rule affected only seats providing direct access to an exit or seats in rows through which passengers must pass to use an exit. The changes included: prohibiting taxi or pushback until a crewmember has verified that no exit seat is occupied by a person unable to perform required emergency functions; and prohibiting a passenger from sitting in an exit seat if that passenger cannot read, speak, or understand the primary language of the crew. (See Mar 2, 1990.)

Oct 31, 1992: President Bush signed the **Airport and Airway Safety, Capacity, Noise Improvement and Intermodal Transportation Act of 1992**. Among other provisions, the act contained amendments reauthorizing the **Airport Improvement Program** through Sep 30, 1993 (see May 26, 1994). It also reauthorized the **State Block Grant Pilot Program** through fiscal 1996 for the current participants (Illinois, North Carolina, and Missouri) and provided funds to add four additional states to the program. On Jan 15, 1993, FAA selected the states of Michigan, New Jersey, Texas, and Wisconsin to participate in the pilot project. (See Oct 1, 1989.)

Oct 1992: In response to safety issues relating to aging aircraft, FAA established the Center of Excellence in Computational Modeling of Aircraft Structures as a joint effort with Rutgers University and Georgia Institute of Technology. This was the **first Air Transportation Center of Excellence** created by the agency through a program in which selected institutions received long-term matching grants to conduct research under cooperative agreements. FAA subsequently established a Center of Excellence for airport pavement research in 1995 and another for operations research in 1996. In Dec 1996, FAA announced that it was soliciting proposals to establish a Center of Excellence for airworthiness assurance.

Nov 20, 1992: FAA outlined the **results of a congressionally mandated Aircraft Noise Mitigation Review for the New York metropolitan area** within a 55 nautical mile radius of La Guardia airport. The review complemented FAA's work on the environmental impact of the Expanded East Coast plan on New Jersey (see Mar 11, 1991). In conducting the review, FAA held 18 listening sessions in New York and Connecticut. The review team's recommendations, which represented a comprehensive **action plan**, included: raising certain helicopter flight altitudes; amending flight patterns to allow more flights bound for La Guardia to remain longer over Long Island sound; establishing a second instrument landing system at Stewart Airport, and increasing noise reduction awareness training programs.

Nov 27, 1992 A directive issued on this date **retitled the Aviation Standards National Field Office as the Office of Aviation System Standards**, a designation that better reflected its identity as an FAA Washington headquarters organizational element.

Nov 30, 1992: **FAA gave a "cure notice" to IBM concerning its development of the Initial Sector Suite System (ISSS)**, a part of the Advanced Automation System (AAS). The agency stated that unless the company provided a plan to remedy deficiencies within 10 calendar days, the government would withhold progress payments under the contract. Earlier in November, IBM had stated that, because of software difficulties and other problems, the ISSS would not be ready for FAA acceptance until Sep 1994, thus adding another 14 months to an already delayed timetable. Following the cure

notice, IBM submitted to FAA an initial and later a final cure plan. FAA's own steps to remedy the situation included changes in the project's management structure and an Apr 1 ban on further changes in user requirements for the ISSS. (See Oct 1, 1991, and Dec 13, 1993.)

Dec 10, 1992: Northwest Airlines began the first commercial flight to transport U.S. troops to Somalia in support of **Operation Restore Hope**, an international effort to counter famine and disorder in that nation. U.S. forces remained in Somalia until Mar 1994, and returned briefly during Feb-Mar 1995 to aid the evacuation of United Nations peacekeepers.

Dec 17, 1992: The United States, Canada, and Mexico concluded the **North American Free Trade Agreement (NAFTA)**. The U.S. Congress approved implementation of NAFTA by passing P.L. 103-182, signed into law on Dec 8, 1993. On May 20, 1994, FAA Administrator Hinson and his counterparts from Mexico and Canada held a trilateral meeting as a first step in a continuing process aimed at increasing cooperation on a variety of aviation issues.

Dec 18, 1992: Eight fatalities occurred when a **Cessna 550 crashed after encountering wake turbulence behind a Boeing 757** during descent into Billings, Mont. The National Transportation Safety Board subsequently cited the probable cause as the pilot's failure to follow established wake turbulence procedures. Nevertheless, the accident increased concerns that 757 wake turbulence might represent a special problem, an issue raised within FAA by Chief Scientist Robert Machol. (See Nov 1, 1975, and Dec 15, 1993.)

Dec 21, 1992: **The Justice Department filed a civil antitrust suit against eight airlines, charging them with fixing prices through their computerized fare system.** The suit resulted from a three year probe into ticket pricing between 1988 and 1990. All eight carriers eventually signed consent decrees, denying wrongdoing but agreeing to avoid the fare practices.

***1993**

Jan 7, 1993: DOT announced its approval of a \$450 million **investment in Continental Airlines** by Air Canada and Air Partners of Dallas, Tex. **On Apr 28, Continental emerged from Chapter 11 bankruptcy** (see Dec 3, 1990).

Jan 20, 1993: **William J. Clinton became President**, succeeding George Bush. FAA's Administrator Thomas C. Richards left office with the Bush Administration, and **Joseph M. Del Balzo became Acting Administrator** (see Aug 10, 1993).

Jan 21, 1993: **Federico F. Peña became Secretary of Transportation**, succeeding Andrew H. Card with the change of Administrations. A former member of the Colorado legislature and two-term mayor of Denver, Peña had been a strong advocate of the new airport under construction for his city (see May 17, 1988). He served as Secretary until Feb 14, 1997 (see entry for Dec 20, 1996).

Feb 9, 1993: **Lt. Gen. Elwood R. Quesada died** at the age of 88. Quesada had been FAA's first Administrator (see Nov 1, 1958).

Feb 22, 1993: The first prototype of the **McDonnell Douglas MD-90 series**, a follow-on to the MD-80 series, made its initial flight. FAA type-certificated the MD-90 on Nov 16, 1994, and it entered commercial service on April 1, 1995, with Delta.

Mar 13, 1993: A **blizzard swept over the East Coast**, halting or delaying almost all airline travel from Georgia to Maine. At one point during the two-day storm, which claimed over 100 lives, all major airports were closed north of Charlotte, N.C. The airspace system took several days to recover.

Mar 25, 1993: Secretary of Transportation Federico Peña confirmed that he planned a **reorganization separating aviation policy issues from the policy issues of other transportation modes**. As documented in a directive issued on Feb 15, 1994, the change abolished the Office of the Assistant Secretary for Policy and International Affairs and established a new Assistant Secretary for Transportation Policy and a new Assistant Secretary for Aviation and International Affairs.

Apr 7, 1993: President Clinton signed legislation creating a **National Commission to Ensure a Strong, Competitive Airline Industry** to study the problems facing the aviation industry. Former Virginia governor Gerald L. Baliles chaired the commission, which had 11 non-voting and 15 voting members. The commission met for the first time on May 24, and delivered its final report to the President on Aug 19. Among its recommendations was the **creation of an independent federal corporate entity within DOT to manage and fund air traffic control** and related functions (see Sep 7, 1993). Other recommendations included: establishment of an advisory committee to further the airlines' financial health; bankruptcy code reforms; tax breaks for airlines; possible use of oil reserves when needed to control sharp increases in fuel prices; efforts to create a multi-national operating environment for airlines free of discrimination and restrictions; allowing foreign ownership of up to

49 percent of voting equity in U.S. airlines, providing this was part of a liberal and fair bilateral agreement; limiting the liability of general aviation aircraft manufacturers to 15 years from the date of manufacture (see Aug 17, 1994); and maintaining the Essential Air Service program.

Apr 8, 1993: **FAA released a study it had sponsored on the Age-60 rule** on mandatory airline pilot retirement (see Mar 15, 1960). On the basis of accident data, the study's authors concluded that there was "no support for the hypothesis that the pilots of scheduled air carriers have increased accidents as they near the age of 60." The study did not deal with medical problems. FAA stated that any change to the Age-60 rule would have to be based on evidence that passenger safety would not be compromised. (See Dec 14, 1995.)

Apr 19, 1993: In testimony on Capitol Hill, Acting Administrator Del Balzo announced that **FAA had modified its plan to consolidate its en route centers and Terminal Approach Control facilities** (TRACONs) into 23 large facilities (see Mar 22, 1983). Instead, the agency planned to operate the 22 existing centers, 170-175 stand-alone TRACONs, and 5 consolidated TRACONs (see Oct 23, 1991).

May 9, 1993: At the airport in Orlando, Fl., FAA commissioned the first of 133 **ground interrogator systems for the Mode S radar beacon transponder** (see Oct 5, 1984). On Mar 8, 1994, the agency commissioned its **first monopulse beacon radar** by upgrading the Mode S sensor at the same airport. While the older radar beacon system used a barrage of interrogation and required 16-20 replies to determine accurate position information, the monopulse technique obtained position information from a single transponder reply.

May 25, 1993: DOT announced a **new U.S.-Russian aviation agreement**, updating and expanding an accord signed in June 1990 (see entry for Feb 16, 1990). Under the pact, the U.S. obtained new rights to fly over parts of Russia to points in Asia, and Russia received rights to serve 11 new U.S. cities. (See Jun 17, 1992, and Oct 14, 1994.)

Jun 14, 1993: As mandated by legislation, FAA established the **Civil Tiltrotor Development Advisory Committee** to study the feasibility of civil tiltrotor transportation. Delivered to Congress on Dec 29, 1995, the Committee's final report recommended an expansion of civil tiltrotor research and the establishment of a public/private partnership to address issues associated with the concept.

Jul 2, 1993: **Mississippi River flooding** that began to disrupt air traffic control operations on this date closed 36 general aviation airports and two FAA towers. One heavily damaged Automated Flight Service Station remained closed for several months after the flood. FAA response to the disaster included activation of a temporary tower in the St. Louis area.

Aug 1, 1993: A **new collective bargaining agreement between FAA and the National Air Traffic Controllers Association (NATCA)** went into effect. The four-year agreement covered all operational air traffic control specialists in terminals and centers. (See May 1, 1989.)

Aug 10, 1993: **David R. Hinson became FAA's thirteenth Administrator**, succeeding Thomas C. Richards (see Jun 27, 1992). Hinson took the oath a second time in a public ceremony on Aug 24. The new Administrator's nomination had been announced on May 13, made formal on Jun 30, and confirmed by the Senate on Aug 6.

A native of Oklahoma, Hinson held a bachelor's degree from the University of Washington. He served as a naval aviator and as a pilot for Northwest Airlines. In 1961, he became a flight instructor for United Airlines. Hinson later became a captain and director of flight training for West Coast Airlines, eventually becoming director of flight standards and engineering for West Coast's successor, Air West. In 1973, he founded Hinson-Mennella, Inc., a partnership whose acquisitions included Flightcraft, Inc., the Beech aircraft distributor in the Pacific Northwest. He was one of four founders of Midway Airlines in 1978, and served as chairman and chief executive officer from 1985 until the airline ceased operations in 1991. When selected to head FAA, Hinson was executive vice president for marketing and business development with Douglas Aircraft, a subsidiary of McDonnell Douglas. (See Nov 9, 1996.)

Aug 12, 1993: The Clinton Administration announced that **air traffic controllers fired for participation in the Professional Air Traffic Controllers Organization strike (see Aug 3, 1981) could apply for reemployment**. (Since Dec 1981, the fired controllers could apply for any federal position except for jobs in the FAA and certain related positions in the Defense and Treasury Departments.) At the time of the announcement, FAA had already imposed a hiring freeze because of budget restrictions. The agency estimated that once the freeze ended it would hire fewer than 200 new controllers per year over the next few years. In Jan 1995, a rehired group of 26 former strikers began training, and about 14 others were rehired during that year. (See Feb 22, 1996.)

Sep 2, 1993: FAA announced that it planned to **require air carriers to have proof that freight forwarders followed FAA-approved security programs** or else to inspect all cargo sent to them by the freight forwarders. The compliance date of Jan 31, 1974, was subsequently extended to Apr 1, 1974.

Sep 7, 1993: Vice President Albert Gore released the report of the **National Performance Review**, a study of the operations of the Federal government that Gore had led during the past six months. The report made recommendations intended to streamline government and make it more cost beneficial. Proposals concerning aviation included: terminating Federal grant funding for FAA higher education programs; cutting Essential Air Service subsidies; increasing FAA fees for inspection of foreign repair facilities; and contracting for the operation of low activity (Level 1) air traffic control facilities. The report's most far reaching recommendation concerning FAA was its **proposal for creating a government-owned corporation to provide air traffic control services** (see Jan 6 and May 3, 1994).

Sep 8, 1993: An administrative law judge recommended that DOT deny the **application of Friendship Airlines, later renamed ATX, to operate as an air carrier**. The company had been founded by former Texas Air chairman Frank Lorenzo. Although DOT ordered the judge to reopen hearings, he reconfirmed his recommendation on Dec 22. **On Apr 5, 1994, DOT rejected the application**, citing past safety and regulatory compliance problems experienced by airlines run by Lorenzo.

Oct 6, 1993: The Metropolitan Washington Airports Authority (MWAA) held a ground breaking ceremony for the **expansion of Dulles airport's main terminal**, a project completed on Sep 5, 1996. On Nov 17, 1993, meanwhile, MWAA officially broke ground for a **new terminal for Washington National** as part of a major improvement of the airport.

Oct 26, 1993: An **FAA Beech Super King Air crashed** into mountainous terrain near Front Royal, Va., killing all three persons aboard. The National Transportation Safety Board cited the probable cause as pilot error and deficiencies in the agency's management of its flying program. In response to the accident, FAA made extensive changes in training, procedures, and oversight relating to its flight operations.

Nov 2, 1993: FAA dedicated the new **Leased Interfacility National Airspace Communications (LINCS)** telecommunications system following an initial installation that took about nine months. LINCS connected 20 air route traffic control centers, replacing a network of more than 10,000 individual circuits. Expansion to other facilities was planned.

Nov 18, 1993: **American Airlines' flight attendants went on strike**, forcing the airline to cancel or delay flights. The disputed issues centered on scheduling, pay, and health benefits. **On Nov 22, President Clinton interceded** in the five-day old strike, persuading the union and the airline to agree to binding arbitration.

Nov 23, 1993: **Linda H. Daschle became the Deputy Administrator of FAA**. President Clinton had announced his intention to nominate Daschle on Oct 25, and the Senate had confirmed her appointment on Nov 20.

Born in Oklahoma, Daschle began her career as a weather observer for FAA while attending Kansas State University. During the early 1980's, she became the first woman to direct the Civil Aeronautics Board's Office of Congressional, Community, and Consumer Affairs. Daschle later served as director of Federal affairs at the Air Transport Association of America. She was also active in civic affairs and in the campaigns of her husband, Sen. Tom Daschle (D.-S.D.). When chosen for the FAA post, she was senior vice president in charge of Federal and environmental affairs for the American Association of Airport Executives. (See Nov 9, 1996.)

Nov 24, 1993: A group of airlines and their trade associations formally asked DOT or FAA to prohibit Los Angeles officials from implementing a **plan to deny airlines access to Los Angeles International Airport because of their refusal to pay higher landing fees**. On Nov 30 and Dec 1, FAA Administrator David Hinson and DOT Secretary Federico Peña met with airline representatives and Los Angeles city officials to mediate the dispute. As a result, the airlines agreed to pay the higher fees, retroactive to July 1, while planning to pursue the issue through litigation. The airlines subsequently asked DOT to review the increases in accordance with legislation (see Aug 23, 1994) that provided a means of timely resolution of such disputes. On June 30, 1995, DOT ruled that the increases were largely valid but that the airlines were due a partial refund, a decision that remained under appeal at the end of 1996.

Nov 30, 1993: FAA Administrator Hinson announced that Joseph Del Balzo had been named **Executive Director for Strategic Initiatives**, bringing to four the number of Executive Directors (see Nov 26, 1991, and Nov 30, 1994). **The position was discontinued after Feb 28, 1994**, the date of Del Balzo's retirement.

Dec 1, 1993: A Jetstream BA-3100 operating as a **Northwest Airlink commuter flight crashed** while approaching Hibbing, Mont., in instrument weather conditions. The National Transportation Safety Board cited crew errors and loss of altitude awareness as the probable cause of the accident, which killed all 18 persons aboard. The crash increased public and congressional awareness of the issue of commuter airline safety. (See Dec 13, 1994.)

Dec 3, 1993: FAA's first commissioning of an **Airport Surface Detection Equipment model 3 (ASDE-3)** took place at the Seattle-Tacoma airport. An improved ground surveillance radar system, ASDE-3 had been installed for testing at Pittsburgh in Feb 1990, and FAA had formally accepted the system for operational use in Dec 1991. (See Dec 23, 1983, and Jun 27, 1996.)

Dec 13, 1993: FAA Administrator David Hinson ordered an extensive **review of the Advanced Automation System (AAS)**, a multi-billion dollar program designed to help modernize the nation's air traffic control system. The contractor, IBM, was far behind schedule and had major cost overruns (see Nov 30, 1992). Hinson's recommended review included conferring with IBM to determine the impact the company's plan to sell its unit in charge of the AAS contract to Loral Corp., a sale subsequently concluded. On Mar 3, 1994, FAA announced initial actions as a result of the review that included a new AAS management team and suspension of the portion of the program designated the Area Control Computer Complex (ACCC). Subsequently, **on Jun 3, 1994, FAA announced a major overhaul of the AAS program**. The agency terminated ACCC. FAA also cancelled another AAS element, the Terminal Advanced Automation System (TAAS), stating that it would substitute a new procurement for modernization of terminal radar approach control facilities (see Sep 16, 1996). The agency reduced the number of towers planned to receive the Tower Control Computer Complex (TCCC). In addition, the agency planned to review the software for the Initial Sector Suite System (ISSS), a program to provide new workstations for en route controllers. On Sep 30, 1994, FAA announced that it would seek a proposal from Loral that would permit the company to move forward with this work under a new program, the Display System Replacement (DSR), which would replace ISSS. (See Apr 27, 1995.)

Dec 15, 1993: Five persons died when an **Israel Westwind aircraft following a Boeing 757 encountered wake turbulence and crashed** at Santa Ana, Calif. The National Transportation Safety Board later found the probable cause to have been the Westwind pilot's failure to maintain adequate separation behind the 757 and/or to remain above its flight path during approach. The Board considered a related factor to be inadequacy of air traffic control procedures regarding visual approaches and visual flight rules operations behind heavier airplanes. On Dec 21, meanwhile, FAA required air traffic controllers to issue wake turbulence advisories to aircraft following 757s in all cases for which such advisories would be issued for jets heavier than the 757. On Dec 22, FAA sent a letter to licensed pilots alerting them to accidents and incidents involving 757 wake turbulence and urging attention to existing guidance on avoiding wake hazards. (See Dec 18, 1992, and May 20, 1994.)

Dec 17, 1993: Continental Express began the **first FAA-approved use of the Global Positioning System (GPS) for non-precision airport approaches** in operations at Aspen and Steamboat Springs, Colo. Four days later, DOT announced the report of a **joint DOT/DOD task force on the GPS**. The task force recommended that DOT should take a stronger role in managing the DOD-controlled system, and that technical steps be taken to improve the integrity and availability of GPS for all transportation modes. (See Oct 14, 1992, and Feb 17, 1994.)

Dec 31, 1993: The end of this day completed a **calendar year in which major (Part 121) scheduled airlines experienced no passenger or air crew fatalities**. The only fatal accident in Part 121 scheduled operations involved a ground crewmember struck by a propeller. The fatal accident rate for this segment of aviation was 0.013 per 100,000 departures, the lowest since 1980 (see Dec 31, 1980).

***1994**

Jan 3, 1994: As documented by a directive issued this date, the **organization of the Associate Administrator for Airway Facilities** included three Services: System Management (formerly System Maintenance), Operational Support, and NAS Transition and Implementation.

Jan 6, 1994: DOT, FAA, and the Council of Economic Advisors held a press conference to unveil the Clinton Administration's **plan to revitalize the aviation industry**. The plan entailed action on most recommendations of the National Commission to Ensure a Strong Competitive Airline Industry (see Apr 7, 1993). Included were efforts to move ahead with conversion of FAA's air traffic control function to a government corporation (see Sep 7, 1993, and May 3, 1994). Other elements of the plan aimed at: bankruptcy reform; increased foreign investment in U.S. carriers, contingent on reciprocal opportunities; encouragement of new entrant carriers; heightened scrutiny of airline financial fitness; and promotion of employee ownership of airlines.

Jan 17, 1994: An **earthquake measuring 6.6 on the Richter scale hit the Los Angeles area**, briefly closing Los Angeles airport. The Van Nuys airport tower lost its window glass but continued to operate until a temporary tower was activated.

Jan 1994: **Locality pay** became effective for Federal workers, who received raises ranging from 6.52 to 3.09 percent. The percentage was determined by location in 27 metropolitan areas, plus a catchall "rest of the U.S." locality. Certain employees who were already paid at special rates did not receive a raise unless the amount of the locality increase exceeded their pay differential.

Feb 2, 1994: FAA announced that **25 low activity towers** (Level 1) would be converted to contract towers, beginning in September 1994. The agency had been contracting the operation of such towers since 1982, and 30 were run on this basis as of the end of 1993. On Nov 28, 1995, FAA announced that it would discontinue funding for 7 low-activity towers, including three contract towers and four FAA-operated facilities.

Feb 3, 1994: DOT announced a group of new transportation-industry regulations on drugs and alcohol that had been developed in response to the Omnibus Transportation Employee Testing Act of Oct 28, 1991. Among these was an FAA rule, published on Feb 15, 1994, that established an **aviation industry alcohol misuse prevention program**. The program included pre-employment and random alcohol testing of safety-sensitive employees of airlines and certain other FAA-certificated operations (see May 10, 1995). In announcing the new rules, DOT also stated that its operating agencies would implement similar alcohol misuse prevention programs for their own safety-sensitive employees. At the same time, DOT unveiled a proposal to lower the minimum random drug testing rate for industries that record a positive rate of less than one percent for two calendar years and maintain that record during subsequent years. On Nov 22, DOT issued a final rule allowing such industries to test only 25 percent of safety-sensitive employees rather than 50 percent. Accordingly, **FAA reduced the random drug testing rate for the aviation industry, effective on Jan 1, 1995**.

Feb 17, 1994: FAA announced that it was implementing **civil use of the Initial Operational Capability (IOC) of the Global Positioning System (GPS)**. IOC signified that the system's 24 satellites were operating in their assigned orbit and providing signals. FAA also stated that it had granted approval for certification of two types of GPS signal receivers. (See Dec 17, 1993, and Jun 2, 1994.)

Feb 28, 1994: The National Weather Service commissioned the first **Next Generation Weather Radar (NEXRAD)** as part of a joint development program in which FAA was a participant (see Jun 8-14, 1983).

Mar 10, 1994: FAA Administrator Hinson issued a memorandum announcing **establishment of a Management Board** with broader membership than that of the Executive Board (see Jan 28, 1989), which was disestablished. The new Board's responsibilities included implementation of performance measures for FAA as well as oversight of tactical issues and of the agency's strategic plan.

Mar 17, 1994: DOT and the Department of the Interior published a joint advanced notice of proposed rulemaking on **measures to reduce the impact of aircraft noise over the Grand Canyon and other national parks**. In an Earth Day memorandum issued on Apr 22, 1996, President Clinton directed DOT to take both short- and long-term actions to restore natural quiet to national parks. In response, FAA on May 15 published a notice proposing several alternative methods of controlling aircraft noise in Rocky Mountain National Park. On Jul 31, the agency published a rulemaking proposal to modify the flight regime at the Grand Canyon (see Mar 26, 1987), followed by a final rule on Dec 31, 1996. Among other provisions, this final rule: modified the "flight-free" zones over the Canyon and established new ones; set curfews for commercial sightseeing operations; and established a cap on the number of commercial tour aircraft allowed to fly over the park. Also on Dec 31, FAA published a rulemaking proposal for a phased ban on noisier aircraft over the Canyon.

Mar 17, 1994: FAA announced a multi-year **strategy to help the general aviation industry**, which was facing adverse economic conditions. The plan included a range of initiatives to lower the cost of flying, boost safety and technology, and guarantee fair and equal access to airways and airports. (See Aug 17, 1994.)

Mar 30, 1994: President Clinton signed the **Federal Workforce Restructuring Act of 1994, legislation offering buyouts** of up to \$25,000 to personnel willing to leave Federal service. The act also targeted a reduction of 272,900 Federal employees between 1993 and 1999. The buyout was offered in conjunction with an early retirement option, authority for which had become available on Mar 14. FAA initially offered the buyout to its personnel between Mar 31 and May 3, 1994. Certain categories of employees received subsequent buyout offers, some with a deferred retirement option, during 1994 and 1995. More than 3,000 FAA employees eventually received buyouts. The buyouts were a major factor in the **reduction of FAA's full-time equivalent workforce**, which fell from 52,352 in fiscal 1992 to 47,738 at the end of fiscal 1996.

Apr 15, 1994: FAA's **Air Traffic Control System Command Center (ATCSCC)** officially began operations in its new facility at Herndon, Va. The ATCSCC had moved from FAA Headquarters because of size and technological constraints (see Apr 27, 1970).

Apr 18, 1994: DOT stated that it had urged nations that mandate routine **spraying of pesticides on board aircraft while passengers are present** to reconsider the requirement. The practice had been discontinued in the United States 15 years earlier due to health concerns. In May 1995, DOT hailed a recommendation against such spraying by the Facilitation Division of the International Civil Aviation Organization.

May 3, 1994: Vice President Albert Gore and Transportation Secretary Federico Peña announced the Clinton Administration's **proposal to create a new Air Traffic Services Corporation** to operate, maintain, and modernize the air traffic system. (See Sep 7, 1993, and Jan 6, 1994.)

Under the proposal, 38,000 FAA employees involved in providing air traffic services would become part of a new not-for-profit government corporation. Support for the corporation would be derived from fees levied upon commercial aviation, subject to approval by the Department of Transportation. The Department would maintain additional oversight through membership on the corporation's board of directors, on which airspace users would also be represented. FAA would continue to exercise safety oversight over civil aviation, including the new corporation.

On the same day that Gore and Peña unveiled the plan, President Clinton wrote letters urging Congress to make the new corporation a reality. During the following months, however, Congress considered a variety of plans for restructuring FAA. These proposals included calls to make the agency independent of the Department of Transportation. (See Sep 12, 1995.)

May 4, 1994: In a joint memorandum, the Associate Administrator for Airway Facilities and the President of the Professional Airways Systems Specialists (PASS) advised employees of a proposed **realignment of the Airway Facilities organization**. The proposal envisioned a leaner organization with consolidation to be achieved gradually over a four-year period. Implementation of the plan involved steps to reduce five organizational levels to three: Regional Office, System Management Office, and System Support Center. In May 1995, the Southern Region was the first to declare that its headquarters realignment had been accomplished in accordance with the plan. During the following month, Central Region stated that both its System Management Offices were in place.

May 20, 1994: In letter responding to a series of National Transportation Safety Board recommendations, FAA outlined an **interim policy on Boeing 757 wake turbulence separations**. Beginning Jul 1, controllers would maintain a four-mile separation for both large and small aircraft following 757s. The letter indicated that the agency would revise guidance to pilots concerning wake turbulence and would study further changes in air traffic rules relating to this hazard. On Jun 10, Secretary of Transportation Federico Peña and FAA Administrator Hinson ordered a **review of the timeliness of FAA's response to the 757 wake turbulence issue**. FAA Deputy Administrator Linda Hall Daschle and DOT General Counsel Stephen Kaplan submitted the resulting report on Jul 26. Although supporting some aspects of FAA's actions, the report stated that the 757 wake turbulence issue should serve as a "wake-up call" to the agency regarding its processes for addressing emerging safety issues. Recommendations included improved integration between FAA's research and operations functions. (See Dec 15, 1993, and Aug 17, 1996)

May 23, 1994: FAA began operational testing of the **Integrated Terminal Weather System (ITWS)** at Memphis airport. ITWS was designed to combine data from FAA and National Weather Service

sensors and radars. The system would present predictions on potentially hazardous weather to air traffic control personnel via easily-understood graphics and text. On Jan 29, 1997, FAA selected Raytheon to build ITWS and to install and maintain the system at 34 sites covering 45 airports.

May 26, 1994: Enactment of the **Airport Improvement Program Temporary Extension Act of 1994** (P.L. 103-260) renewed FAA's authority to award Airport Improvement Program grants, the legislative mandate for which had lapsed on Sep 30, 1993. The new act authorized FAA to make grants through Jun 30, 1994 (see Aug 23, 1994). The law provided for the gradual **phasing out of compensation that certain FAA employees had received under the Pay Demonstration Project** after that project's termination on Jun 17, 1994 (see Jun 18, 1989, and Apr 1, 1996). It also placed a temporary freeze on increases to certain airport fees charged to airlines and required DOT to study reforming the air traffic control system.

Jun 2, 1994: Administrator Hinson announced that **FAA would halt further development of the Microwave Landing System (MLS)** for use under the more difficult visibility conditions rated Category 2 and 3 (see Jun 15, 1992). He stated that the agency instead would concentrate on the **development of the Global Positioning System**, known as GPS (see Feb 17, 1994). On Jun 8, FAA issued a request for proposals for an initial **Wide Area Augmentation System (WAAS) for GPS**. The initial WAAS would be a network of 24 ground stations and related communications systems that would enhance the integrity and availability of GPS signals (see entry for Aug 1, 1995). On Jul 16, Administrator Hinson and President Phil Boyer of the Aircraft Owners and Pilots Association landed at the Frederick, Md., airport using the **first FAA-approved public "stand alone" GPS instrument approach**. On Oct 17, the Administrator formally offered free use of GPS for 10 years to International Civil Aviation Organization member states, reconfirming a previous verbal offer (see entry for Apr 1, 1991). Other related events during 1994 included FAA's Dec 8 announcement of approval of GPS as a primary means of navigation for oceanic/remote operations, subject to certain conditions.

Jun 12, 1994 The **Boeing 777, the first U.S. jetliner to use a "fly-by-wire" control system**, made its first flight. The long-range, twin-engine transport was designed for a basic seating capacity of 375 passengers. On April 19, 1995, the aircraft received joint certification by FAA and Europe's Joint Aviation Authorities. After an unprecedented testing program, FAA on May 30, 1995, approved the 777 to fly on long, over-water flights as far as three hours from a landing site. This was the first time that the agency had granted this **Extended Twin-Engine Operations (ETOPS)** authority without an extensive period of in-service operation. The 777 entered commercial service, with United Airlines, on Jun 7, 1995.

Jul 2, 1994: A **USAir DC-9 crashed** while attempting to land at Charlotte-Douglas International Airport, killing 37 of the 57 persons aboard. The accident illustrated the continuing problem of **wind shear**. As part of its ongoing efforts to combat this hazard, **FAA on Jul 20 commissioned the first Terminal Doppler Weather Radar (TDWR)**. The agency had commissioned a total of 22 TDWRs by the end of CY1996. (See Nov 2, 1988.)

July 5, 1994: Public Law 103-272 recodified certain laws pertaining to transportation, including the Federal Aviation Act of 1958, as amended, which was FAA's basic enabling legislation. As a result of the recodification, the **Federal Aviation Act was superseded** by provisions of Subtitle VII of Title 49, United States Code.

Jul 12, 1994: United Air Lines' parent corporation announced that its shareholders had voted to transfer 55 percent majority ownership of United to the airline's employees. The deal made **United the largest employee-owned U.S. company**.

Jul 12, 1994: FAA dedicated its **National Aviation Safety Data Analysis Center (NASDAC)**. Located at national headquarters, NASDAC provided access to safety-related computer data bases and relevant reference material in printed form. A new and improved NASDAC formally opened on Mar 14, 1996.

Jul 29, 1994: Citing the rapid development of satellite technology (see Jun 2, 1994), FAA announced **cancellation of plans to purchase up to 235 next generation Instrument Landing Systems (ILS)** designed for specifically for Category 1 precision approaches. (Category 1 conditions are the least difficult of three categories defining visibility conditions for landing.)

Aug 15, 1994: FAA issued a regulation which, for the first time, set **length of duty and rest requirements for airline flight attendants**. Under the rule, attendants could remain on duty for as many as 14 hours within a 24-hour period, but would get a rest period of at least 9 hours after that

duty period. Longer duty periods would be permitted, but in such cases FAA required that rest periods and the size of the flight attendant crew would increase. Due to litigation, FAA did not begin enforcing the rule until Feb 1, 1996.

Aug 17, 1994: President Clinton signed the **General Aviation Revitalization Act of 1994**. Under the new law, manufacturers could not be held liable for accidents happening more than 18 years after the production of general aviation aircraft, engines, or parts. The legislation was followed by an upturn for this sector of industry.

Aug 23, 1994: Enactment of the **Federal Aviation Administration Authorization Act of 1994** provided fiscal year 1994-96 funding and authorization for FAA's programs. This included the awarding of **Airport Improvement Program grants**, which had lapsed at the end of June 1994 (see entries for May 26, 1994, and Sep 30, 1996). The act also required that **airport fees** be reasonable, and directed DOT to issue rules on resolving disputes between airlines and airports over such fees, and to establish policies to prevent diversion of airport revenues to activities unrelated to airports. In addition, the act **established a five-year term of office for the FAA Administrator**, and directed FAA to institute a **joint aviation research and development program** with other agencies.

Aug 30, 1994: **Lockheed and Martin Marietta announced plans for a merger** that was accomplished during 1995, creating Lockheed Martin. Lockheed had been formed in 1926, while Martin Marietta had been created in 1961 by a merger of the American-Marietta Company with the aircraft manufacturing firm founded by Glenn Martin in 1917.

Sep 2, 1994: FAA issued the first release of results of its **International Aviation Safety Assessment (IASA) program**, under which the agency evaluated the capability of nations to provide safety oversight for their air carriers. In rating 30 countries, FAA concluded that 17 were acceptable in their ability to ensure adherence to international safety standards, four were conditionally acceptable, and nine did not meet the standards. The agency continued to issue and to revise such ratings, with the goal of evaluating all nations with airlines serving U.S. airports. By the end of 1996, a total 64 countries had been assessed.

Sep 8, 1994: A USAir **Boeing 737 crashed in Aliquippa, Pa.**, as it approached Pittsburgh airport. All 132 persons aboard died in the accident, the cause of which proved difficult to determine. Prompted by this crash and an earlier one at Colorado Springs (see Mar 3, 1991), FAA conducted a **critical design review of the 737 flight control system**. On May 3, 1995, the review team reported that it had found no critical flaws but made a number of recommendations for improving the aircraft's safety margin (see Aug 22, 1996). Following the accident, NTSB urged that upgraded Flight Data Recorders (FDRs) be required on 737s by the end of 1995 and on other large airliners by Jan 1, 1998. FAA, however, called for voluntary upgrading of FDRs on 737s while the agency developed comprehensive rulemaking on the FDR issue (see Jul 16, 1996).

Sep 12, 1994: A pilot flying a stolen **Cessna 150 crashed a few yards from the White House**, dying on impact.

Sep 21, 1994: FAA issued a **warning concerning certain types of child restraint systems (CRSs)** that were adequate for use in motor vehicles but not in aircraft. The statement was based on a research report by the agency's Civil Aeromedical Institute. FAA announced that it would consider banning these CRS types, and would also: conduct further research; cooperate with the National Highway Traffic Safety Administration to revise CRS standards and labeling; and urge airlines to adopt cost-saving policies that would encourage parents to use CRSs. (See Sep 15, 1992, and Jun 8, 1995.)

Sep 22, 1994: In response to a series of accidents, FAA issued a special **rule tightening safety requirements for air tour operators in the state of Hawaii**.

Oct 14, 1994 Following a **joint evaluation of the Russian air transportation system**, a U.S.-Russian team recommended immediate steps to shore up safety oversight. FAA worked with Russian authorities to assist implementation of these recommendations, and continued to participate in efforts to improve communications and routes for international flights in the area of Russia. On Jun 30, 1995, Vice President Gore and Russian Prime Minister Chernomyrdin signed a **memorandum of understanding on strengthening technical cooperation** toward a bilateral airworthiness agreement.

Oct 31, 1994: **An American Eagle commuter flight crashed near Roselawn, Ind.**, with the loss of all 68 persons aboard. The aircraft, an Avions de Transport Regional ATR-72, had been in a holding pattern due to weather delays at Chicago. In a report issued on Jul 9, 1996, the National Transportation Safety Board cited the probable cause as a loss of control due to icing, the manufacturer's failure to provide information on the icing hazard to the aircraft, and French aviation

authorities' failure to ensure its airworthiness under icing conditions. Deficiencies in FAA oversight were listed as contributory causes.

Following the accident, meanwhile, FAA took a variety of steps to reduce hazards to ATR aircraft and, on Dec 9, 1994, prohibited flight by models 72 or 42 into known or forecast icing conditions. On Jan 11, 1995, FAA eased this ban, subject to certain requirements, to apply only to freezing rain and freezing drizzle. The agency also required the installation of improved deicing boots on the aircraft by June 1995. Subsequent FAA **actions on the broader issue of combating icing** included the issuance on May 2, 1996, of 18 new airworthiness directives affecting pilots of 29 different aircraft types. (See May 28, 1992, and Dec 13, 1994.)

Oct 1994: At FAA's request, RTCA, Inc., convened a government/industry committee to study the **Free Flight concept**. (RTCA, Inc., was the official name of the former Radio Technical Commission for Aeronautics: see Jun 19, 1935.) The Free Flight concept sought to employ new procedures and technology to provide much greater flexibility for Instrument Flight Rules operations at high altitudes. Currently, the pilots of such flights were obliged to follow specified routes, unless deviations were approved by air traffic controllers. Under Free Flight, in contrast, these pilots (or their airline managers) would be able to choose the routes that they considered most efficient. Controllers would intervene only to ensure safety or prevent congestion.

In Jan 1995, a report by the RTCA committee defined Free Flight and the first steps for its implementation. This was followed in Oct 1995 by the more detailed report of an RTCA task force that had been formed at FAA request. On Mar 15 1996, FAA announced progress on Free Flight, stating that the agency and the aviation community would work together to phase in the concept over the next ten years. On Jan 15, 1997, the agency issued a fact sheet on a plan for a two-year evaluation of Free Flight in the airspace of Alaska and Hawaii, beginning in 1999. (See Sep 30, 1990.)

Nov 30, 1994: Administrator Hinson announced a **reorganization aimed at structuring FAA along its key lines of business**, making better use of resources, consolidating functions, and increasing management accountability. As documented in a directive issued on May 15, 1995, the reorganization eliminated a layer of management by **abolishing the three remaining Executive Director positions** (see Nov 30, 1993). The positions reporting to the Administrator and Deputy Administrator were now the following:

Chief Counsel.

Assistant Administrator for Civil Rights.

Assistant Administrator for Government and Industry Affairs.

Assistant Administrator for Public Affairs, to which the public affairs functions in regions and centers now reported directly.

Assistant Administrator for System Safety, a new position charged with analyzing safety data and making recommendations for improvement. The position of Associate Administrator for Aviation Safety, which had reported to an Executive Director, was abolished.

Assistant Administrator for Policy, Planning, and International Aviation, which was modified to include six Offices: Aviation Policy and Plans; Environment and Energy; International Aviation; Asia-Pacific; Europe, Africa, and Middle East; and Latin America-Caribbean.

Associate Administrator for Administration, a new position assuming the responsibilities of the abolished Assistant Administrators for Budget and Accounting and for Human Resource Management. Elements reporting to the new Associate Administrator included the Regional Administrators, the Director of the Aeronautical Center, and three Offices: Business Information and Consultation; Human Resource Management; and Financial Services, a new office established to consolidate the budget and accounting functions.

Associate Administrator for Airports, formerly an Assistant Administrator, responsible for two Offices: Airport Planning and Programming; and Airport Safety and Standards.

Associate Administrator for Civil Aviation Security, formerly an Assistant Administrator, responsible for three Offices: Civil Aviation Security Intelligence; Civil Aviation Security Operations; Civil Aviation Security Policy and Planning.

Associate Administrator for Regulation and Certification, which continued to control the Office of Rulemaking, Aircraft Certification Service, and Flight Standards Service, with the added responsibility for the Offices of Accident Investigation and Aviation Medicine. The Associate Administrator for Aviation Standards was abolished. **Associate Administrator for Air Traffic Services**, a new position responsible for the Air Traffic Service, the Airway Facilities Service, the

Office of Independent Operational Test and Evaluation, and the Office of System Capacity and Requirements.

Associate Administrator for Research and Acquisitions, a new position responsible for the FAA Technical Center and six Offices: Acquisitions; Air Traffic Systems Development; Aviation Research; Communications, Navigation, and Surveillance Systems; Information Technology; and System Architecture and Program Evaluation. The Associate Administrators for NAS Development and for System Engineering and Development were abolished.

Dec 9, 1994: For the first time, **FAA certified an explosives detection system, the Invision CTX-5000**. The system used computed tomography and high-quality x-ray technology to automatically locate suspicious objects in baggage. (See Dec 23, 1996)

Dec 13, 1994: An **American Eagle commuter flight crashed on approach to Raleigh-Durham, N.C.**, killing 15 of the 20 persons aboard the BAe Jetstream 3201 aircraft. Capping a series of fatal airline accidents during 1994, the tragedy heightened public concern about the safety of both commuter and major air carriers. The next day, DOT Secretary Peña announced a **three-point safety initiative**, including: acceleration of FAA efforts to **increase commuter safety standards** to the level for large airlines (see Dec 14, 1995); a **government/industry meeting on airline safety** (see Jan 9, 1995); and a **national airline safety audit**, subsequently completed in Dec 1995.

In October 1995, the National Transportation Safety Board cited the probable cause of the accident as errors by the captain, who had resigned from another airline following adverse performance evaluation. The Board's recommendations stemming from the crash included establishment of a system for airlines to share information on pilot qualifications.

***1995**

Jan 9, 1995: DOT and FAA opened a two-day **"summit" Aviation Safety Conference** on ways to improve safety measures and increase public confidence in airline transportation. More than 950 government and industry representatives attended the event, at which Transportation Secretary Federico Peña and FAA Administrator David Hinson urged cooperation to achieve a goal of zero accidents. Participants formed workshops and produced recommendations on six key areas: crew training; air traffic control and weather issues; safety data collection and use; applications of emerging technologies; aircraft maintenance procedures and inspections; and flight operating procedures. In response, **FAA on Feb 9 published an Aviation Safety Action Plan** that identified 173 safety initiatives. In publishing the plan, the agency noted that many airlines were voluntarily establishing safety offices reporting to their chief executives. The agency stated its intention to require airlines with aircraft seating more than nine passengers have independent safety offices. Among the action plan's many features were emphasis on Advanced Qualification Program (AQP) training (see Sep 26, 1990) and on increased sharing of safety data. At the same time that it released the plan, FAA announced that it had reached agreement with the Air Line Pilots Association and Air Transport Association on a **Flight Operations Quality Assurance (FOQA) program**. The FOQA would permit the use of information from Flight Data Recorders to analyze safety trends rather than merely to investigate accidents and incidents. FAA would have access to the data, with pilot identities deleted. (See Dec 6, 1995.)

Feb 15, 1995: **Commissioning of the final Automated Flight Service Station (AFSS)** capped FAA's flight service modernization plan. On this date, all AFSSs also had the Model 1 Full Capacity system. By fiscal 1995's end, 286 flight service stations had been consolidated into 61 AFSSs, 31 auxiliary stations, and one remaining conventional station. (See Nov 8, 1991.)

Feb 24, 1995: FAA announced a strengthened **campaign against the use of suspected unapproved parts (SUPs)** in aviation. The agency had expanded its SUP program in recent years, but its efforts had been criticized by Department of Transportation Inspector General A. Mary Schiavo. On Feb 27, FAA published a notice warning of its policy to enforce full compliance with relevant regulations and giving non-complaint firms until May 30 to apply for approval to manufacture aviation parts. On May 24, the agency announced a plan for an industry-operated accreditation program for aircraft parts brokers and distributors. On Oct 12, FAA issued a task force report that proposed a SUP program plan and the establishment of a national Suspected Unapproved Parts Program Office. This office was established on Nov 13, and its creation was formally documented in a directive issued on Jan 2, 1996.

Feb 28, 1995: At **Denver International Airport's opening day**, air traffic controllers at the state-of-the-art facility cleared three aircraft to make the world's first triple simultaneous landing. By this date, FAA had provided Airport Improvement Program grants totaling \$267.6 million for the project, and

had committed over \$200 million more in Letters of Intent. In a February 1996 report on the airport's first 11 months in operation, FAA stated that the facility had achieved a flight delay rate five times less than the airport it replaced, Stapleton International. (See May 17, 1988.)

Mar 31, 1995: FAA announced its **first certification of an aircraft type designed and manufactured in the People's Republic of China**, the Model Y-12 Harbin. During the 1980s, FAA had provided certification expertise to Chinese authorities in connection with McDonnell Douglas' manufacture of aircraft in China. The United States and China had concluded a bilateral airworthiness agreement on Oct 14, 1991, and a later expansion of this agreement permitted U.S. acceptance of small aircraft, such as the Y-12 Harbin, and certain aircraft components. (See Mar 15, 1986.)

Apr 14, 1995: Four FAA officials signed an agreement on the **Integrated Product Development System (IPDS)**, greatly broadening the application of a new management approach. (The signers were the Associate Administrators for: Research and Acquisition; Regulation and Certification; Air Traffic Services; and Airports.) The IPDS called for the use of **Integrated Product Teams (IPTs)** as part of a tiered system of teams in research, acquisition, and the management of equipment life-cycles. The IPTs were multidisciplinary and cut across organizational lines to bring together customers and suppliers with the goal of improving products and services and expediting their delivery. The IPDS became a prominent feature of FAA's new acquisition system (see Apr 1, 1996).

Apr 19, 1995: A **bomb blast at the Alfred P. Murrah federal office building in Oklahoma City** killed more than 160 persons and injured hundreds of others. FAA personnel participated in relief efforts.

Apr 21, 1995: FAA issued a rule establishing **minimum combined experience levels for two airline pilots flying together** and also upgrading operational experience requirements. The agency had proposed the rule in Mar 1993 in response to accidents and incidents in which a contributing factor was the pairing of inexperienced pilots.

Apr 23, 1995: Effective this date, **many government-owned aircraft became subject to FAA safety standards and procedures** for the first time. The change resulted from legislation, enacted on Oct 25, 1994, that established a more restricted definition of "public aircraft." It affected more than 5,000 planes and helicopters owned by Federal, state, and local governments and used for transporting officials or other passengers. The new statute also continued to require that FAA regulate air operations for which governments received compensation from other governmental entities. Aircraft remaining in the public-use category, and hence exempt from FAA oversight, included those used in fire fighting, search and rescue, aeronautical research, and law enforcement, as well as those operated by the armed forces or intelligence agencies.

Apr 27, 1995: FAA announced an agreement with Loral Corp. on contract modifications regarding air traffic control modernization under the former Advanced Automation System program (see Dec 13, 1993). Loral would develop and implement the **Display System Replacement (DSR)**, new automated workstations for controllers at en route centers and other key sites. On Dec 5, 1996, FAA announced that Loral had delivered the first DSR to the Seattle Air Route Traffic Control Center, ten months ahead of schedule. The Apr 1995 agreement with Loral also included delivery of the first **Tower Control Computer Complex (TCCC)**, with a future agreement for additional TCCC systems to be negotiated. The TCCC program was subsequently restructured, however, to provide modular upgrades to towers on an "as needed" basis.

May 10, 1995: Effective this date, **DOT suspended rules requiring transportation companies to conduct preemployment alcohol testing** for safety-sensitive workers (see Feb 3, 1994). A Supreme Court decision of Apr 5, 1995, had vacated the Federal Highway Administration's rule on this subject and raised questions about the validity of similar rules issued by FAA and the Federal Railroad Administration. At DOT's request, Congress amended the relevant legislation to permit such tests rather than to require them. On May 9, 1996, DOT accordingly published a rulemaking proposal to harmonize the regulations with the legislation by making pre-employment testing voluntary for employers.

May 28, 1995: Effective this date, DOT gave the Office of Airline Statistics the new name **Office of Airline Information** and transferred it from the Research and Special Projects Administration to the Bureau of Transportation Statistics, a multi-modal agency which had been established in Dec 1992.

Jun 8, 1995: FAA issued a number of safety tips on traveling with children by air and announced a coming campaign to promote use of **child restraint systems, known as CRSs** (see Dec 17, 1996). At the same time, FAA reconfirmed its decision not to require CRS use for children under 2 years of age.

Such children were still allowed to fly on parent's laps, customarily without tickets. The agency based its position on new research, released on the same day as part of a report to Congress. This research supported FAA's view that a rule requiring CRS use would kill more children than it saved because the resulting increase in air travel costs would force many parents to choose modes of travel less safe than aviation. The agency also announced a proposal to **ban certain inadequate CRS types** (see Sep 21, 1994), an action accomplished in a final rule published on Jun 4, 1996.

Jun 13, 1995: FAA unveiled the **National Plan for Civil Aviation Human Factors**, a joint FAA-DOD-NASA initiative. The Plan outlined a national agenda to eliminate aviation accidents caused by human error. Its elements included: identifying needs and problems involving human performance; guiding research programs to address the human element; involving the nation's top scientists and aviation professionals; and sharing the resulting information with the aviation community.

Jun 20, 1995: A series of **encounters with turbulence** on this date and Jun 25 and Jun 26 injured a total of over 40 airline passengers and crew members. On Jun 27, Secretary of Transportation Peña directed FAA to review recent turbulence incidents and determine whether new seat belt rules are needed. The next day, FAA issued a public advisory instructing airline passengers to use seat belts whenever seated. (See Dec 17, 1996.)

Jun 21, 1995: FAA and Australia's Qantas Airlines completed the first in a series of operational trials of a satellite-based communication, navigation, and surveillance system. Known as the **Future Air Navigation System (FANS)**, the system was designed to improve communication between controllers and pilots on oceanic and remote flights. Other events related to oceanic aviation in 1995 included FAA's Jul 26 announcement that the first component of the prototype **Oceanic Data Link (ODL) system** was operational at the Oakland Air Route Traffic Control Center. Single sector air-to-ground communications using ODL became operational at Oakland in October. On Sep 22, meanwhile, FAA announced the award of a contract to Hughes Aircraft Company to develop the **Advanced Oceanic Automation System (AOAS)** to upgrade and automate the agency's oceanic air traffic control systems. (See Dec 14, 1989.)

Jun 28, 1995: FAA directed airlines and airports in California to increase security measures and warned passengers to be alert for suspicious baggage and parcels. The precautions responded to a **threat from the so-called "Unabomber"** received by the San Francisco Chronicle on Jun 27. Postal authorities also implemented certain temporary restrictions on mailing packages from California. The Unabomber's alleged crimes included several related to aviation, among them responsibility for an explosion in an American Airlines cargo hold on Nov 15, 1979, that caused 12 persons to suffer smoke inhalation. On Apr 3, 1996, Federal agents detained Theodore Kaczynski as a suspect in the Unabomber case.

Jun 30, 1995: At the Seattle Air Route Traffic Control Center, **FAA commissioned the first Voice Switching and Control System, known as VSCS** (see Oct 21, 1986). The project was completed for all 21 en route centers on Feb 18, 1997, when VSCS became operational at the Jacksonville ARTCC. Meanwhile, on Aug 8, 1995, FAA had announced a contract with Denro, Inc, to build and install the **Enhanced Terminal Voice Switch (ETVS)**. This system would provide to towers and approach control facilities the same benefits that VSCS gave to en route centers. On Nov 1, 1995, FAA commissioned its 100th **Small Tower Voice Switch (STVS)**, a system also produced by Denro.

Jul 13, 1995: FAA announced that it and 11 airlines would establish a consortium to develop the framework for a worldwide **Aeronautical Telecommunication Network (ATN)**.

Aug 1, 1995: FAA announced a decision to go forward as quickly as possible with the **Display Channel Complex Rehost (DCCR)** project to replace aging IBM 9020E computers at five Air Route Traffic Control Centers: Chicago, Dallas/Fort Worth, Washington, Cleveland, and New York. The centers had experienced 20 display channel complex failures in the past four months. On Aug 9, loss of electrical power at the Oakland center highlighted another type of outage problem. On Aug 11, a DOT/FAA announcement described **steps to combat equipment service interruptions**, including reviews of the problem by both FAA and outside experts, additional training, and hiring of 116 more maintenance technicians. On Aug 30, FAA announced award of a contract to Loral Corp. for DCCR production and installation. Highly-publicized outages at the Chicago center and other facilities prompted DOT and FAA statements during the next two months describing remedial actions and assuring the public that the air traffic control system was safe. On Oct 25, FAA awarded a five-year **contract for new emergency electrical systems** to provide backup power to air traffic facilities nationwide. (See Apr 1, 1996.)

Aug 1, 1995: DOT announced the availability of a **Global Positioning System (GPS) signal specification** defining performance standards for civil aviation use. On Aug 3, a consortium led by Wilcox Electric received an FAA contract to develop and field the **Wide Area Augmentation System (WAAS) to enhance GPS signals**. (See Jun 2, 1994 and Mar 29, 1996.)

Aug 2, 1995: DOT and the Department of Agriculture (USDA) released to Congress a **joint study on aviation inspection programs**. The study concluded that USDA actions during 1994 had reduced to a minimal level duplication between FAA inspections and USDA's inspections of its aviation activities.

Aug 7, 1995: **DOT announced that the Office of Commercial Space Transportation would move from the Office of the Secretary to FAA**, effective Oct 1, 1995. The change was part of a larger DOT reorganization aimed at streamlining the Department in accordance with the National Performance Review (see Sep 7, 1993). The transfer of the office was delayed, however, until sanctioned by legislation (see Nov 15, 1995).

Aug 9, 1995: DOT stated that the Clinton Administration had directed Cabinet agencies to review their security practices. As a result, FAA had determined a need for, and was requiring, **increased security by all airports and air carriers in the United States**. The action was based on information from intelligence and law enforcement agencies but did not reflect a specific threat. On October 1, DOT announced a further heightening of aviation security. The Department again stated that the measure was not based on a specific threat, but press reports linked it such factors as the conviction on the same day of Islamic militants accused of a conspiracy to bomb locations in New York. (See Jul 17, 1996.)

Sep 7, 1995: FAA announced that it was putting into operation a new **Safety Performance Analysis System (SPAS)**, an automated decision support system designed to aid in targeting inspection and certification resources. By the end of fiscal 1996, the SPAS operational test system was in use by selected inspectors at 58 FAA offices.

Sep 12, 1995: Sen. John McCain (R-Ariz) introduced a **bill to reform FAA** while keeping it within DOT. The bill gave the agency more flexibility in personnel and acquisition matters (an approach that was also part of a bill to provide DOT's fiscal 1996 appropriation: see Nov 15, 1995). The McCain bill also provided for a system of financing FAA that emphasized fees for services. The Secretary of Transportation and FAA Administrator immediately endorsed the bill, a position that marked the Clinton Administration's shift away from its drive to create a government corporation for air traffic control (see May 3, 1994).

Sep 13, 1995: The United States and the Netherlands signed the **world's first bilateral aviation safety agreement (BASA)**, a new type of agreement aimed at promoting safety by creating a regulatory partnership. The BASA included provisions on increased cooperation in such areas as aircraft certification and the approval and/or monitoring of airmen, training, flight operations, and maintenance facilities. By the end of 1996, the United States had concluded five more BASAs with Britain, Germany, France, Malaysia, and Switzerland.

Sep 16, 1995: Pres. Clinton declared Puerto Rico and the U.S. Virgin Islands disaster areas due to **Hurricane Marilyn**. Aviation-related effects of the storm included severe damage to the tower at Cyril E. King Airport on St. Thomas. FAA worked with the Air Force to transport a mobile tower to the island, and took other actions to restore air service.

Sep 26, 1995: FAA issued **rule on investigations of persons seeking unescorted access to secure areas of airports**, requiring disqualification of applicants who had been convicted of certain crimes in the past 10 years. The new rule, which replaced a less stringent November 1985 regulation, fulfilled a provision of the Aviation Security Improvement Act (see Nov 16, 1990).

Oct 6, 1995: FAA issued a **rule requiring manufacturers of new design transport category rotorcraft to minimize the adverse effects of turbine engine rotor failure**.

Oct 27, 1995: The first **Alaskan "Alliance for Safety"** meeting took place in Anchorage, with participants from FAA, the National Transportation Safety Board (NTSB), the military, the aviation community, and related industries. A committee formed at this meeting developed a sample safety program for use by the state's numerous and diverse air taxi and commuter operators. In Mar 1996, the program was presented at a convention of the Alaskan air carriers. Meanwhile, on Nov 28, 1995, NTSB issued a report on Alaskan aviation safety that contained a variety of recommendations for FAA, the National Weather Service, and state authorities. In comparing the state's fatal accident rates in recent years with that of the rest of the nation, the report concluded that in Alaska: commuter

airline fatal accident rates remained greater despite improvement; air taxi fatal accident rates had fluctuated but were generally greater; and general aviation fatal accident rates were comparable.

Oct 31, 1995: FAA announced its **final decision on the New Jersey Environmental Impact Statement** (see Mar 11, 1991). The agency rejected a plan to reroute many flights over the ocean, but accepted a measure known as the Solberg Mitigation Proposal for implementation in early 1996. This measure involved routing changes to reduce noise in the Scotch Plains and Fanwood areas.

Nov 13, 1995: At midnight on this date, **funding for much of the Federal government lapsed** with the expiration of a continuing resolution that had been approved by the Congress and President in October. As instructed by the Office of Management and Budget, Federal agencies implemented shutdown plans by 12:30 pm on Nov 14. Employees were placed on furlough, with the exception of those exempted because their positions: directly affected safety or the protection of property; were necessary for the orderly shutdown of operations; or did not require further congressional action for their funding. **About 7,800 FAA employees were furloughed**, but most of the agency's personnel were exempted. (See Nov 15, 1995.)

Nov 15, 1995: President Clinton received from Congress and signed the **fiscal 1996 DOT appropriations bill**, allowing all **furloughed DOT employees to return to work on the morning of Nov 16**. (The furlough ended government-wide on Nov 20.) The DOT appropriations legislation provided \$8.216 billion for FAA, and included important **provisions for FAA personnel and procurement reform** (see Apr 1, 1996). It also cleared the way for the **transfer of the Office of Commercial Space Transportation** from the Office of the Secretary of Transportation to FAA (see Aug 7, 1995). The transfer became effective on Nov 16, and the director of this new FAA line-of-business organization became an Associate Administrator reporting to the Administrator.

Nov 17, 1995: DOT announced a plan to implement congressionally-mandated **reductions in Essential Air Service subsidies** in a manner designed to maintain the highest possible level of service to communities eligible under the program, which had been established by the Airline Deregulation Act (see Oct 24, 1978).

Dec 6, 1995: DOT and FAA opened a two-day **Aviation Safety Initiative Review meeting** to evaluate safety actions since the earlier "summit" conference (see Jan 9, 1995) and set the safety agenda for 1996. Some 300 aviation safety experts attended the event. On the second day of the meeting, airline representatives announced a Jan 22 launch date for the new **Flight Operations Quality Assurance (FOQA) program** to share data from flight recorders (see Sep 18, 1996). Following the meeting, FAA published an updated Aviation Safety Action Plan in Feb 1996. Another meeting in Dec 1996 was followed by a revised plan issued in 1997.

Dec 14, 1995: FAA announced the **Commuter Safety Initiative, a group of new rules aimed at providing a single level of safety for travelers on airliners** ranging from "ten-seaters" to jumbo jets. The Commuter Safety Initiative represented one part of a three-point program unveiled a year earlier (see Dec 13, 1994), and was based on a proposal issued on March 16 in an accelerated rulemaking effort. The new rules required many commuter airlines formerly operating under Federal Aviation Regulations Part 135 to operate under the stricter Part 121 governing major airlines. This change applied to scheduled passenger operations using airliners with 10 to 30 passenger seats or using turbojets. The rules also contained provisions on standards for airplane performance and for flightcrew training and qualifications. In addition, the regulations **extended to commuter airline pilots the age-60 rule on mandatory retirement**, which had formerly applied only to airline pilots flying larger aircraft (see Mar 15, 1960). Finally, the Commuter Safety Initiative included a notice of proposed rulemaking on new common standards regarding rest requirements and limitations on duty and flight time for airline flightcrew members.

Dec 20, 1995: An **American Airlines 757 crashed into a mountain while attempting an approach to Cali, Colombia**, killing 159 of the 163 persons aboard. The Colombian accident report cited the probable cause as errors by the flightcrew, who had entered incorrect data into their Flight Management System (FMS). Alerted by the Ground Proximity Warning System (GPWS), the crew tried to pull up but failed to retract the speedbrakes. In response to the crash and to National Transportation Safety Board recommendations, FAA undertook efforts aimed at improvements in FMSs and their use as well as in charting and pilot training. The agency began evaluations of possible regulatory requirements for: automatic speedbrake retraction for situations requiring maximum thrust and climb; visual "angle-of-attack" indicators to aid pilots in safely obtaining maximum climb; and Enhanced GPWS (see Nov 6, 1996).

Dec 31, 1995: **Authority to collect aviation user taxes expired** at midnight. By this date, the tax levels had risen to: domestic airline passenger ticket tax; 10 percent; international departure tax, \$6 per passenger; domestic air cargo tax, 6.25 percent of the freight waybill; non-commercial jet fuel, 17.5 cents per gallon; and non-commercial aviation gasoline tax, 15 cents per gallon (14 cents of which continued to be collected and deposited in the Highway Trust Fund). Loss of this revenue quickly reduced the amount of money in the Airport and Airway Trust Fund. Legislation enacted on Aug 20, 1996, **temporarily reinstated** these taxes, effective Aug 27, but they expired again at the end of CY 1996.

***1996**

Feb 13, 1996: FAA announced that it and Europe's Joint Aviation Authorities (JAA) had developed a common set of certification standards for newly designed small airplanes. The achievement was part of an ongoing effort to reduce or eliminate burdensome duplicative requirements through **harmonization of international standards**.

Feb 20, 1996: FAA began a 120-day **special emphasis safety review of ValuJet Airlines**, an innovative low-cost carrier that had grown rapidly since its certification on Oct 21, 1993. Factors prompting the review included a series of incidents and nonfatal accidents. (See May 11, 1996.)

Feb 22, 1996: Confirming its intent to address staffing needs at key facilities, FAA announced that it planned to hire 100 **more air traffic controllers** during 1996, and that the Clinton Administration would request funding for hundreds more during 1997 (see Sep 30, 1996). The agency pledged to give fair consideration to former strikers (see Aug 12, 1993).

Feb 24, 1996: **Cuban fighters shot down two U.S. civil aircraft off the coast of Cuba**, killing all four persons aboard the two Cessna 337s, which were operated by a Cuban exile group. A third exile plane returned to the United States. On Feb 26, President Clinton took retaliatory measures that included the indefinite suspension of all charter flights between Cuba and the United States. FAA actions included a letter warning south Florida airmen of the dangers and penalties associated with violating Cuban airspace. In May, the agency also revoked the license of the pilot of the third exile plane, based on evidence that he had entered Cuban airspace on Feb 24 and on a previous occasion.

Feb 29, 1996: As part of a **continuing "open skies" initiative** (see Sep 4, 1992), DOT announced a U.S.-German agreement relaxing limitations on air travel between the two countries. By this date, the United States had concluded 10 other open skies agreements with European nations: the Netherlands, Austria, Denmark, Finland, Iceland, Luxembourg, Norway, Sweden, Switzerland, and Belgium. In addition, the United States and Canada had signed a liberal agreement on transborder air travel on Feb 24, 1995. Other international accords increasing opportunities for airline service included a Jun 5, 1995, agreement with Britain that included some expansion of airport access and other privileges for U.S. and U.K. carriers.

Mar 12, 1996: FAA issued a comprehensive **revision of pilot medical standards and medical certification procedures**. Among the many changes was a modification of the previous two-year validity period for the third-class airman medical certificates required for student, recreational, and private pilots. The validity period would still be two years for pilots of age 40 and older, but would now be three years for younger pilots.

Mar 29, 1996: The Clinton Administration announced a Presidential directive assuring the **availability of Global Positioning System (GPS) signals to civilian users**. The new policy included a planned end to the practice of degrading civil GPS signals, within a decade, in a manner that would allow the U.S. military to prepare for this eventuality.

On Apr 26, FAA cancelled its contract with Wilcox Electric for the **Wide Area Augmentation System (WAAS) to enhance GPS signals** (see Aug 1, 1995). The agency cited project management problems and projected cost overruns. On May 1, FAA entered into a letter contract with Hughes Information Technology Systems regarding WAAS. This was followed by the Oct 29 announcement of a comprehensive contract with Hughes for WAAS development and implementation.

Other related milestones during 1996 included a Jul 26 FAA **plan for transition to GPS-based navigation and landing guidance** during a period of about 10 years that would start when augmented GPS service became available.

Mar 31, 1996: Effective this date, the following **functions were transferred from the Office of Public Affairs** to the organization of the Associate Administrator for Administration: the Freedom of Information Act program; the audiovisual function; and the agency history program.

Apr 1, 1996: Effective this date, **reforms gave FAA new flexibility on personnel and procurement policies**, a change made possible by legislative relief from various statutory requirements (see Nov 15, 1995). Teams of FAA personnel had helped to establish procedures for implementing the reforms. The new acquisition management system aimed at reducing the time and cost of acquiring systems and services while making the acquisition workforce more accountable. The new personnel system was intended to speed recruitment and to reward outstanding employees while dealing effectively with substandard performance.

In accordance with reform legislation, all **FAA employees became part of a new Federal Aviation Service (FAS)** on this date. The FAS was designated an “excepted service” in contrast to the “competitive service” to which most Federal personnel belonged. FAA was no longer subject to certain Office of Personnel Management rules on filling positions and related actions, but its employees continued to enjoy a range of legal protections that applied to other Federal workers. Unionized FAA employees retained their representational status, as provided for by legislation that had been enacted on Mar 29.

Later in the year, FAA reauthorization legislation enacted further reform measures (see entry for Sep 30, 1996).

Apr 1, 1996: DOT and FAA announced a program of special **pay incentives for seven hard-to-staff air traffic control facilities** in or near Oakland, Chicago, and New York City. The program affected about 2,200 employees, including controllers, flight service data processing specialists, technicians, and certain technical staff and managers. They received a 10 percent raise, with 7 percent effective Apr 14 and the remainder effective by mid-Oct 1996. At the same time, DOT Secretary Peña announced that delivery of new computers to five en route control centers under the **Display Channel Complex Rehost (DCCR) project would be speeded by 10 months** (see Aug 1, 1995). The first of these DCCR systems became operational at the Chicago center in Jan 1997.

Apr 12, 1996: FAA commissioned the nation's **first ARSR-4 air route surveillance radar** (see Sep 1986), and had commissioned a total of 12 by the end of calendar 1996.

May 6, 1996: FAA renamed its Technical Center the **William J. Hughes Technical Center**. The new name honored Ambassador Hughes, a former member of Congress (D.-N.J.) and a long-time supporter of the facility.

May 6, 1996: In a full-scale fire test at FAA's Technical Center, one of the new materials tested demonstrated its ability to double the time that it takes for fire to burn through an aircraft's fuselage. The test was part of joint work with British aviation authorities to increase fuselages' resistance to external conflagrations, and was an example of FAA's **continuing research in aircraft fire safety**. (See Nov 3, 1988.)

May 7, 1996: DOT announced that about 80 percent of non-stop scheduled U.S. airline flights between the United States and foreign countries would be free of smoking as of Jun 1, when certain air carriers would implement smoking curbs. During the previous year, DOT had granted anti-trust immunity permitting airlines to discuss smoking bans. Other **U.S. steps against smoking on international flights** had included a 1994 agreement with Canada and Australia to ban the practice on flights between the three nations. (See Feb 25, 1990.)

May 9, 1996: FAA announced its **Global Analysis and Information Network (GAIN)** concept, a proposed system to collect and analyze aviation safety data. The agency asked for comments from the aviation community on the development of GAIN prototypes, including the proposal that GAIN be privately owned and operated by an international consortium. In Sep 1996, FAA announced that Britain's Royal Aeronautical Society had agreed to host a conference on GAIN during the following spring. On Oct 22-24, meanwhile, the first international GAIN workshop took place at Cambridge, Mass.

May 11, 1996: A **ValuJet DC-9 crashed into the Everglades** shortly after takeoff from Miami, killing all 110 persons aboard. The crew's loss of control was due to an intense fire caused by activation of one or more oxygen generators carried in the forward cargo compartment. In a report released in Aug 1997, the National Transportation Safety Board found the accident's probable cause to be: the failure of SabreTech, a Valujet contractor, to properly handle and identify the chemical oxygen generators before presenting them to the airline for carriage; Valujet's failure to properly oversee its contract maintenance program; and FAA's failure to require smoke detection and fire suppression systems in cargo compartments of the type (Class D) in which the fire had started.

On the day after the crash, FAA announced an expansion of its ongoing review of ValuJet (see Feb 20, 1996). On May 23, DOT's Research and Special Projects Administration issued an immediate temporary **ban on the transportation of chemical oxygen generators as cargo on passenger airlines**. (See Jun 17 and Dec 30, 1996.)

May 16, 1996: FAA unveiled the **findings of the Challenge 2000 project**, a review of the agency's regulation and certification capabilities in light of the rapid changes taking place in aviation. The agency had announced the project on Jul 13, 1995, and during the following month had selected Booz-Allen & Hamilton, Inc. to conduct the review. The project report included recommendations that FAA's Regulation and Certification organization: shift its resources to focus more on industry groups most in need of oversight; revise its organizational structure; redesign and expedite the rulemaking process; and create new Centers of Excellence as sources of expertise (see Oct 1992).

May 20, 1996: FAA announced that the agency and Boeing had formed a partnership to build the world's first **full-scale airport pavement test facility** at the William J. Hughes Technical Center.

Jun 17, 1996: **FAA announced that ValuJet Airlines would cease operations**, as of midnight on the same day, pending safety improvements required under a consent decree (see Aug 29, 1996). The agency based its action on an intensified inspection of the carrier undertaken since the recent crash (see May 11, 1996). FAA stated that this heightened scrutiny had revealed serious safety deficiencies in the areas of airworthiness, maintenance, quality assurance of contractors, and engineering capability. The announcement sparked renewed criticism of DOT and FAA because it appeared to contrast with statements, made following the accident, assuring the public that the airline was safe.

The next day, Secretary of Transportation Peña and Administrator Hinson described steps to improve safety oversight and address public concerns. Peña stated that he would urge Congress to make safety FAA's single primary mission (see Sep 30, 1996). Hinson outlined improvements to FAA's examination of airlines, such as ValuJet, that relied heavily on contractors for maintenance and training. He stated that Deputy Administrator Daschle would lead a review of pertinent regulatory issues (see Sep 16, 1996). Hinson also announced the retirement of Anthony J. Broderick, Associate Administrator for Regulation and Certification. (See Jul 15 and Nov 14, 1996.)

Jun 27, 1996: FAA signed a contract with Northrup Grumman Systems for three full-scale development versions of the **Airport Movement Area Safety System (AMASS)**. The system was designed to provide a visual and aural alert for the display of the Airport Surface Detection Equipment model 3. (See Dec 3, 1993.)

July 1, 1996: The United States adopted, with some modifications, an **international system for reporting surface weather observations and terminal forecasts** for aviation use.

Jul 2, 1996: Vice President Gore announced NASA's selection of **Lockheed Martin to build the X-33**, an unmanned, reusable spacecraft intended as step toward replacing the space shuttle. The experimental craft would be capable of suborbital flight 50 miles high. NASA stated that the project should lead to a fleet of privately owned and operated vehicles to carry both government and industry payloads.

Jul 16, 1996: FAA published a rulemaking **proposal to increase the amount of data collected by Flight Data Recorders** installed in airliners. The agency specified the data parameters to be required for various new and existing aircraft, with retrofit to be accomplished within four years of the final rule. The largest increase in parameters -- from 29 to 88 -- would apply to aircraft manufactured five years after the proposed rule's effective date. The proposal addressed concerns raised in several National Transportation Safety Board recommendations following unexplained crashes (see Sep 8, 1994).

Jul 15, 1996: FAA Administrator Hinson announced **initiatives to address the dangers of transporting hazardous materials** by air. The initiatives called for a seven-fold increase in resources devoted to the issue, funding to upgrade the "hazmat" program, and the hiring of 130 additional inspectors and legal personnel. He also stated that FAA had asked the Research and Special Projects Administration to ban the transport of oxidizing materials in specific compartments on passenger and cargo aircraft (see Dec 30, 1996).

Jul 17, 1996: **Trans World Airlines Flight 800 exploded in midair** and crashed into the Atlantic off Long Island after taking off from New York Kennedy airport for Paris. All 230 persons aboard the Boeing 747 died. Initial speculation as to the cause focused on terrorism. On the day after the tragedy, FAA confirmed that the security measures announced during the previous summer (see Aug 9, 1995) remained in effect, with some adjustments. On Jul 25, President Clinton announced **increased**

security for air travel. FAA stated that steps would include more intensive screening of passengers on international flights, increased screening of carry-on bags for both international and domestic flights, as well as other actions not disclosed to the public. Clinton also announced that Vice President Gore would head a commission to review aviation security. This **White House Commission on Aviation Safety and Security** was formally established Aug 21, 1996. (See Sep 9, 1996.)

Despite painstaking recovery of the wreckage, the TWA disaster proved difficult to explain. Throughout 1996, the National Transportation Safety Board refused to rule out any of three possible causes: a bomb, a missile, or mechanical failure. As the investigation progressed, however, the **possibility of an accidental fuel tank explosion** received increased media attention. On Dec 13, 1996, the Board announced a group of recommendations for improving the safety of the 747 fuel system. FAA, which had been conducting a review of 747 safety issues in the wake of the crash, issued on Dec 23 an airworthiness directive requiring inspection of certain wiring in the fuel systems of older 747s.

Aug 17, 1996: **To combat the hazard of wake turbulence, FAA implemented new separation standards** for aircraft. The agency increased the required separation for small aircraft traveling behind a Boeing 757 from four to five nautical miles. At the same time, FAA revised the definition of the three aircraft weight categories used in setting separations to avoid wake turbulence: small (formerly 12,500 lb. or less, changed to 41,000 lb. or less; large (formerly 12,500-300,000 lb, changed to 41,000-255,000 lb.); and heavy (formerly 300,00 lb. or more, changed to 255,00 lb. or more). As a result, some 57 aircraft types moved from the large to small category. (See Nov 1, 1975, and May 20, 1994.)

Aug 22, 1996: FAA announced nine proposed Airworthiness Directives on **changes to the design of Boeing 737 flight control systems.** The proposals stemmed from recommendations of a Critical Design Review prompted by two 737 accidents (see Sep 8, 1994). Following new information from Boeing that a valve in the 737 rudder power control unit could jam under extreme conditions, FAA on Nov 11 issued an airworthiness directive requiring repetitive inspections. **Continuing attention to the 737 control system issue** led in Jan 1997 to an airworthiness directive on precautionary flight procedures. During the same month, Vice President Gore announced that FAA intended to require retrofit of 737 rudder components.

Aug 29, 1996 **FAA returned ValuJet's operating certificate to the airline,** stating that the carrier had completed the safety improvements outlined in the consent order that grounded it (see Jun 17, 1996). The action cleared ValuJet to renew operations, subject to a DOT fitness ruling subsequently granted on Sep 26. **The airline resumed flying on Sep 30.** FAA imposed a limit of 15 aircraft, subject to review, in contrast to the 51 aircraft that the carrier had operated before its grounding.

Sep 9, 1996: President Clinton called on Congress to appropriate more than \$1 billion for a variety of **anti-terrorism measures.** Proposed programs related to aviation included: improved airport bomb-detection equipment, more FAA research; more FAA security personnel; expanded Customs Service air security resources; a computerized passenger "profile" screening system; immediate criminal background checks for airport workers with access to secure areas; deployment of explosive-detection dog teams at airports; and a test of a system for matching luggage and passengers on all domestic flights. These measures were based on **recommendations of the White House Commission on Aviation Safety and Security** (see Jul 17, 1996), whose initial report was also dated Sep 9, 1996. Many of these initiatives were funded by legislation enacted on Sep 30, 1996 (see that date).

Sep 16, 1996: FAA announced the award of a contract to build the **Standard Terminal Automation Replacement System (STARS)** to a team led by Raytheon (see Dec 13, 1993). Under the contract, the team would develop and install new computers, displays and software for terminal radar approach control facilities (TRACONs). This joint procurement involved new equipment for up to 172 FAA and 199 DOD facilities. On Sep 17, FAA announced that the Dallas-Fort Worth TRACON was now operating an **updated Automated Radar Terminal System III (ARTS III)**, the first of several new ARTS IIIs that would provide improvements pending STARS implementation.

Sep 16, 1996: A team headed by Deputy Administrator Daschle submitted a **report on a 90-day review of FAA safety regulation and certification** (see Jun 17, 1996). Recommendations included: creation of a national team to assist local certification offices regarding new entrants into the airline industry; increased safety surveillance and growth management for new carriers; actions to ensure that carriers have the resources to operate a varied fleet and to support "outsourcing" of functions to

contractors; additional support for inspectors through upgraded training, guidance material, and information technology; and increased inspector staffing. (See Sep 30, 1996.)

Sep 18, 1996: FAA announced that it and NASA were testing a new **Automated Performance Measuring System (APMS)** to convert digital data from Flight Data Recorders directly into easily understood safety information. FAA/industry joint work on **Flight Operations Quality Assurance (FOQA)** programs had demonstrated the need for such a system to assist FAA, airlines, and flight crews in improving safety and efficiency. (See Dec 6, 1996.)

Sep 19, 1996: FAA issued a license to Spaceport Systems International, allowing it to open the world's **first privately-operated space launch facility**, California Spaceport. The facility was located on Vandenberg AFB, Calif.

Sep 26, 1996: A **new Pan American World Airways began service**. The operators of the small new carrier had purchased the name and trademark of the original airline. (See Dec 4, 1991.)

Sep 30, 1996: **Chicago's Meigs Field ceased operations** as part of a plan by the city's mayor to convert the lakefront facility into a park, a concept opposed by Illinois' governor. On Jan 6, 1997, the two officials announced a **compromise under which the city would reopen and operate the airport for five years** but then be free to close it.

Sep 30, 1996: Pres. Clinton signed the **DOT appropriations bill for fiscal 1997** (P.L. 104-205), providing \$8.3 billion for FAA programs. The legislation gave funds for hiring hundreds of new controllers, maintenance technicians, inspectors, and security personnel. On the same day, the President also signed a **continuing appropriations bill** (P.L. 104-208) that funded programs to increase safety and combat terrorism through a range of means such as deployment of new security equipment at airports (see Sep 9 and Dec 23, 1996). The continuing resolution also gave funds to step up surveillance of newly certificated airlines and to increase the number of safety inspectors, as recommended by Deputy Administrator Daschle's 90-day review team (see Sep 16, 1996).

On Oct 9, the President signed the Federal Aviation Reauthorization Act of 1996 (P.L. 104-264), which contained further appropriations, increased the agency's share of Trust Fund monies from 70 to 72.5 percent, and provided two-year funding for the Airport Improvement Program. The legislation established a **National Civil Aviation Review Commission** to report to Congress on the state of aviation safety and on providing long-term funding for the agency. The law contained provisions aimed at expanding FAA's financial accountability and increasing its autonomy within DOT. It directed the establishment of a **Federal Aviation Management Advisory Council** composed of 15 members serving 3-year terms, with one member designated by DOT, one by the Defense Department, and 13 by the President with Senatorial approval. The Council was to advise the FAA Administrator and function as an oversight resource for management policy, spending, and regulatory matters. To address public perceptions about FAA's "dual mission," **the law specified safety as the agency's highest priority**. FAA remained responsible for encouraging and developing civil aeronautics, but references to a promotional role were eliminated from its mandate.

The law provided for a variety of **enhancements to aviation safety**, emphasizing anti-terrorism through such means as new requirements for background checks of certain airport personnel with security functions associated with cargo or baggage. The legislation **banned children from controlling aircraft for the purpose of setting records**. (This stipulation stemmed from a crash on Apr 11, 1996, that claimed the life of a 7-year-old girl, her flight instructor, and her father.) Another provision directed FAA to hire an ombudsman for noise issues.

The law's Title VII was designated the **Aviation Disaster Family Assistance Act of 1996**. It gave the National Transportation Safety Board new responsibilities for aiding the families of the victims of air accidents.

Sep 1996: The **Driver's Enhanced Vision System (DEVS)** became operational at Boston Logan airport, the pilot installation site for this FAA-developed equipment. DEVS was designed to assist emergency crews when visibility was limited by such factors as smoke, flames, fog, or precipitation. The system combined satellite, digital, and infrared technologies.

Oct 1, 1996: FAA established a **new Air Traffic Systems Requirements Service** within the organization of the Associate Administrator for Air Traffic Services. The move combined requirements organizations from Air Traffic and Airway Facilities into a single unit, bringing together controllers and engineers to conceptualize new technology.

Oct 10, 1996: FAA implemented the **Metroplex Plan at Dallas/Fort Worth airport**, making the airport capable of handling simultaneous triple landings and greatly increasing air traffic capacity.

The plan entailed 68 construction projects, including two high-frequency radio towers, and an additional runway, and a new terminal radar approach control facility (TRACON), which was the latest element to be commissioned. New twin air traffic control towers had been commissioned at Dallas/Fort Worth on Jun 15, 1994, giving the airport a total of three working towers.

Nov 6, 1996: FAA announced its approval of operational use of the **Enhanced Ground Proximity Warning System (EGPWS)** on all Boeing 757 aircraft operated by American Airlines, the first carrier to receive such permission. (See Dec 20, 1995.)

Nov 9, 1996: David R. **Hinson resigned as FAA Administrator**, effective this date. With Hinson's departure, **Deputy Administrator Daschle became Acting Administrator**, a post that she held until resigning from the agency, effective Jan 31, 1997.

Nov 12, 1996: A **midair collision near New Delhi, India**, claimed the lives of all 349 persons aboard two airliners, a Saudi Arabia Airlines 747 and a Kazak Airlines Ilyushin Il-76. The accident was history's deadliest collision between two aircraft in flight, and ranked **third among the world's worst civil aviation disasters, summarized as follows**: (1) Mar 27, 1977, Pan American and KLM, runway collision, 583 fatalities; (2) Aug 12, 1985, Japan Air Lines, control system failure, 520 fatalities; (3) Nov 12, 1996, Saudi and Kazak airlines, midair collision, 349 fatalities; (4) Mar 3, 1974: Turkish Airlines, in-flight decompression, 346 fatalities; (5) Jun 23, 1985, Air India, believed sabotage, 329 fatalities; (6) Aug 19, 1980, Saudi Arabian Airlines, in-flight fire, 301 fatalities; (7) Jul 3, 1988, Iran Air, military shoot-down, 290 fatalities; (8) May 25, 1979, American Airlines, engine separation, 272 fatalities; (9) Dec 21, 1988, Pan American, sabotage, 270 fatalities; (10) Sep 1, 1983, Korean Air Lines, military shoot-down, 269 fatalities. (See dates indicated.)

Nov 14, 1996: FAA announced its **decision to issue a rulemaking proposal to require retrofit of fire detection and suppression equipment** on some 2,800 older commercial aircraft that did not currently carry this equipment in inaccessible cargo compartments. This proposal, which grew out of concerns following a ValuJet crash (see May 11, 1996), was subsequently issued on Jun 10, 1997. On Dec 12, 1996, meanwhile, a group of the nation's largest airlines announced that they would voluntarily install fire detection systems in cargo holds that lacked the equipment.

Nov 18, 1996: FAA announced a **policy change concerning pilot certification of individuals with insulin-treated diabetes**. The new policy permitted the consideration of waivers to allow such persons to receive limited third-class medical certificates, making it possible for them to qualify for student, recreational, and private pilot certificates.

Nov 25, 1996: Officials at John F. Kennedy airport unveiled a **new aircraft arresting system**, made of foam blocks, to bring aircraft to a safe stop if they overrun a runway. The airport was the first to install the system, jointly developed by FAA and the Port Authority of New York and New Jersey.

Dec 15, 1996: An agreement under which **Boeing would acquire McDonnell Douglas** was announced by the two companies. On Aug 4, 1997, Boeing announced that the merger was complete and that it was now the world's largest aerospace company. Boeing had been formed as the Pacific Aero Products Company in 1916 and adopted the Boeing name the following year. McDonnell Douglas had been created by a merger of two firms (see Apr 28, 1967).

Dec 17, 1996: FAA unveiled a \$500,000. **public education campaign using the slogan "Turbulence Happens."** The campaign promoted seatbelt use by airline passengers (see Jun 20, 1995). It also reinforced FAA's recommendation that children weighing under 40 lb. were safest in a certified child restraint system when flying (see Jun 8, 1995).

Dec 20, 1996: President Clinton announced the **selection of Rodney E. Slater to be Secretary of Transportation** during the President's second term. A former chairman of the Arkansas State Highway Commission, Slater had been Administrator of the Federal Highway Administration since 1993. Clinton also revealed the nomination of the current Secretary of Transportation, Federico Peña, to be Secretary of Energy. Peña's resignation from the DOT post became effective on Feb 14, 1997, the same day that Slater became Secretary.

Dec 23, 1996: FAA announced the award of contracts to Raytheon and to Lockheed Martin to provide planning, design, and services required to integrate and install **advanced security equipment** at up to 77 U.S. airports. On Dec 26, the agency revealed that it had ordered **54 CTX-5000 SP explosives detection systems** (see Dec 9, 1994) for use at the nation's busiest airports. The action responded to a recommendation of the White House Commission on Aviation Safety and Security (see Sep 30, 1996).

Dec 30, 1996: The Research and Special Projects Administration (RSPA) published a **rule permanently banning oxygen generators as cargo on passenger aircraft** (see May 11, 1996). On the same day, RSPA published a **rulemaking proposal to prohibit carriage of oxidizing materials and compressed oxygen on passenger aircraft**, as well as on cargo aircraft if stored in inaccessible cargo compartments lacking fire detection and suppression equipment.