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 biding, 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.)

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-Detroiter (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 its 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. Totaling 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 Lighhouses 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 aides**. 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 activites, 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.

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 Lockhead 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 Zepplin (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 manuevers 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 points 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 that 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.

***1935**

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 succeded 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 Gilgallen'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 of from Almeda, 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 for 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.)

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: T**he 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 Southhampton, 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 Kellet 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 Franciso, 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 priorites. 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 throught 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 Aukland, 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.)

***1941**

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.

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 (PICAO)--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 iniation 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 adminstrator 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 (PICAO)**. (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.

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 immdiately 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 (PICAO), **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 Administator Wright and CAB Chairman James M. Landis established a **CAA-CAB Committe**e, 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 minimim (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 permissable 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, PICAO (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 unpredecented 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 extraterrestial 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 Philipines 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-l 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 endosed 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 castered 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 representated 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.

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-l00, F-l0l, YF-l05A, 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 XFY-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 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 supressed 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 (l) 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 Intrument 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 Liason, 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 l , 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 l) 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 Administator 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 contributary 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 withold 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-Ol (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 Quesda, 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 navaids 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 industrys 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 make 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 strengthed 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 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 prompter 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 been 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.

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 he 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 a 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 it 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-l0** 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 alphanumerics** 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 alphanumerics)**, 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 trafic 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 corresoinding 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 PYNA 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 alchoholic 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 varyious periods for readjustment. The east-west travelers displayed a signficant 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 alphanumerics, 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. navaids 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 assetts 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 resoving 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 with 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 navaids 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.

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.

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

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 Concordes 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 formerly 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 Birminham 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 Skyservants 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 facilties 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 navaids; 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. Developement of the X-24A came as part of Martin Marietta's program to develop a manuevering 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 Flugzeubau 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 officers 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 navaids 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 inluded 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 carraige 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 nonsignatory 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 National 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 Cyprus 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 teletypwriter 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 alphanumerics 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 magnatometer. 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, WVa. 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