The History of Air Traffic Control

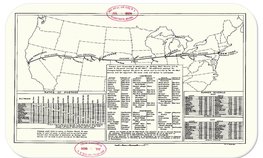
World War I was the first time that aircraft were used on a large scale. Aircraft were primarily used for spotting enemy positions and movement.

1914-1918

Charles Lindbergh completed his solo flight across the Atlantic. The feat riveted public attention on aviation and attracted much needed investment.

1927

Supporting the airmail service, a new cross-country route built in 1933 helped aviators make the trip from one coast to the other, using rotating beacons atop towers spaced 15 miles apart for navigation aids. Named the Transcontinental Airway, the system included 1,500 beacons and stretched 18,000 miles.



1933

A new technology, known as Radio Detection and Ranging (RADAR) systems, was a key component of World War II. One such use of radar came during the Battle of Britain in mid-1940's, when the Royal Air Force (RAF) had incorporated multiple radar stations as vital elements in Britain's air defense capabilities.

1940

Leveraging the radar systems used during World War II, flight transponders helped identify "friend or foe' aircraft. During the 1950s that the Civil Aviation Authority (CAA), who was busy installing new radar systems, also adopted the use of transponders for civil air traffic control. Direct radiotelephone communications between aircraft and controllers also became available.

1950

President Dwight D. Eisenhower signed the Federal Aviation Act into law, thereby creating the Federal Aviation Administration (FAA) and abolishing the Civil Aviation Authority. The act empowered the FAA to oversee and regulate safety in the airline industry and the use of airspace for both civil and military aircraft.

1958

President Jimmy Carter signed the Airline Deregulation Act into law, removing government control over fares, routes, and market entry of new airlines in commercial aviation. The result was direct competition between airlines, lower fares, and record numbers of flights and passengers.

1978

On August 5, citing poor working conditions, the Professional Air Traffic Controllers Union (PATCO) refused to return to work. President Reagan fired the 11,345 striking air traffic controllers, and banned them from federal service for life.

1981

The terrorist attacks on 9/11 severely impacted the country's air traffic system. The FAA ordered a system-wide "ground stop": a complete shut down of US airspace. Over 4,500 aircraft were redirected to the nearest airport. The skies were cleared in 2.5 hours without any loss of separation between aircraft.

2001

A fire at the Chicago ARTCC caused the cancellation of more than 1,600 Chicago-bound flights. The incident, which triggered a chain-reaction of delays in the global air traffic system, accounted for more than half of all flights cancelled worldwide that day.

2014

1921

1921

James Herbert Knight (1892–1945), aka Jack Knight, was an American pilot who made the first overnight transcontinental air mail delivery. Jack Knight was part of a relay team that flew 2,629 miles across the country in February 1921.

1927

1926

President Calvin Coolidge signed the Air Commerce Act into law, placing the Secretary of Commerce in charge of rules certifying pilots, aircraft, and route and navigation aids.

1929

Archie League was the first person on the ground to direct planes so they would not collide. The country's first air traffic controller, he was hired by the city of St. Louis in 1929 to work at Lambert Field.

1937

1937

Working under the Bureau of Air Commerce, early en route controllers used maps, black boards and mental calculations to ensure the safe operation of aircraft. To represent planes they moved boat-shaped weights called "Shrimp Boats" across maps. These controllers had no direct radio links with aircraft; instead they used telephones and radios to speak with airline dispatchers and controllers at the airport towers. Only five such facilities existed at the time: Newark, Cleveland, Chicago, Pittsburgh, and Oakland.

1946

1939-1945

World War II. Wartime needs for freight and passenger transport brought the airlines more business than they could handle. They pioneered new routes, and new technology allowed aircraft to go faster, higher and farther.

1946

In 1946, the Civil Aviation Authority (CAA) experimented with a radar-equipped tower for civil flights. By 1952 approach and departure control routinely employed radar. However, federal budget cuts prohibited installation of systems that extended beyond airports.

1958

1956

A mid-air collision occurred over the Grand Canyon between United Airlines Flight 718 and Trans World Airlines Flight 2, killing all 128 aboard. Congress quickly appropriated the $250 million Airways Modernization Act for a major upgrade of the nation's airway system, including advancements in radar surveillance.

1965

In response to a 1960 mid-air disaster in New York, the FAA upgraded the radar equipment to a computerized system. Known as Radar Data Processing (RDP) and Automated Radar Terminal System (ARTS), these systems could display alphanumeric readouts of an aircraft's call sign, location, altitude, and speed.

1981

1970

The FAA established the Central Flow Control Facility, charged with monitoring system-wide air traffic and weather data, as well as detecting potential trouble spots and suggesting solutions. Shortly thereafter, it became the Air Traffic Control System Command Center (ATCSCC).

1981

The FAA adopted the Traffic Collision Avoidance System (TCAS), an improvement over the original Beacon-Based Collision Avoidance System (BCAS). TCAS became an airliner requirement in the late 1980s.

2001

1995-1996

The FAA introduced the Display System Replacement (DSR) and Standard Terminal Automation Replacement System (STARS), a major equipment upgrade over RDP and ARTS. DSR and STARS brought new computers, displays and software for en route and terminal radar approach control facilities (TRACONs).

2007

The FAA introduced the En Route Automation Modernization (ERAM), replacing not only DSR, but also the en route's primary and backup systems.

Today

2014

The U.S. air traffic controller workforce today consists of more than 15,000 well trained and dedicated men and women. Their skills and judgment ensure that more than 700 million passengers aboard 60 million aircraft a year travel safely to their destinations.