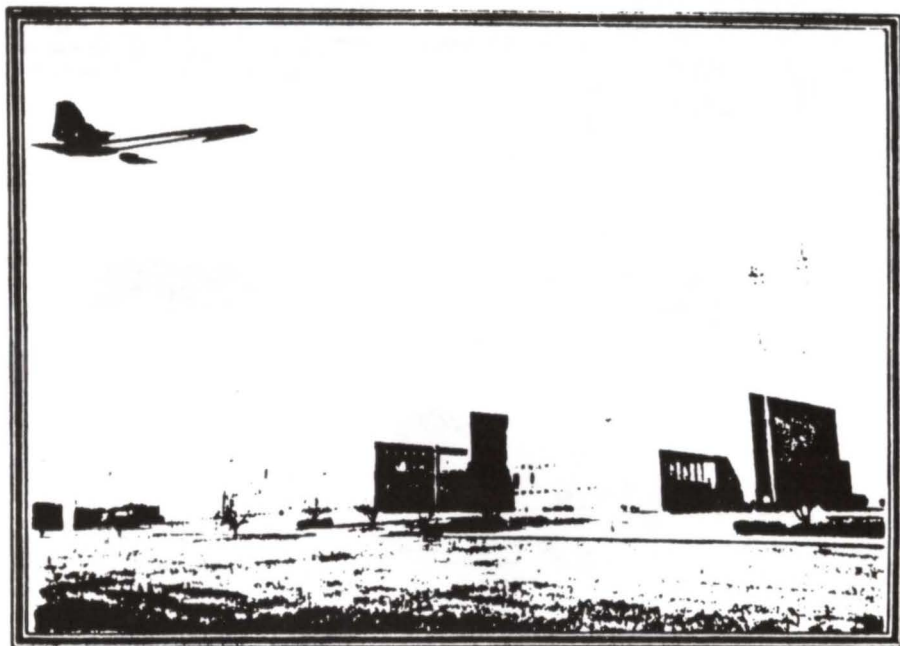
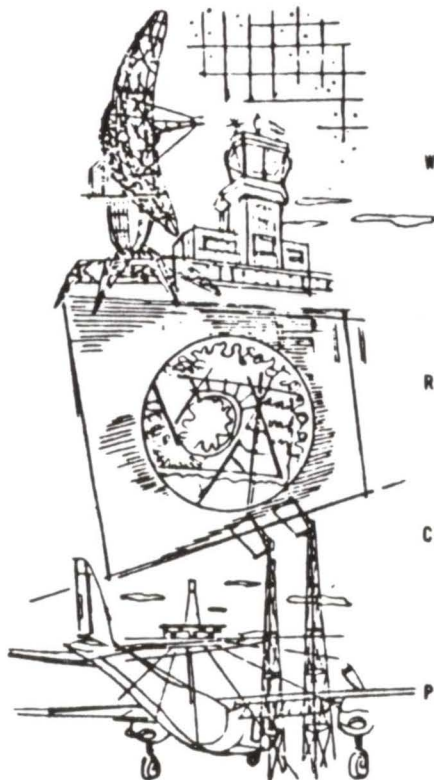


DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION



**The Washington Air Route
Traffic Control Center
Leesburg, Virginia**





HISTORY OF WASHINGTON CENTER

The Washington Air Route Traffic Control Center was originally established April 1, 1937 at quarters located on the Washington Hoover Airport (site of the Pentagon). The operating complement was initially composed of five people. As air traffic increased and more personnel and equipment were added, the Center moved to a building on Hoover Airport, then to the Administration Building at Washington National Airport, and later to Hanger 6, its location prior to moving to its present site at Leesburg, Virginia on April 28, 1963.

RADAR

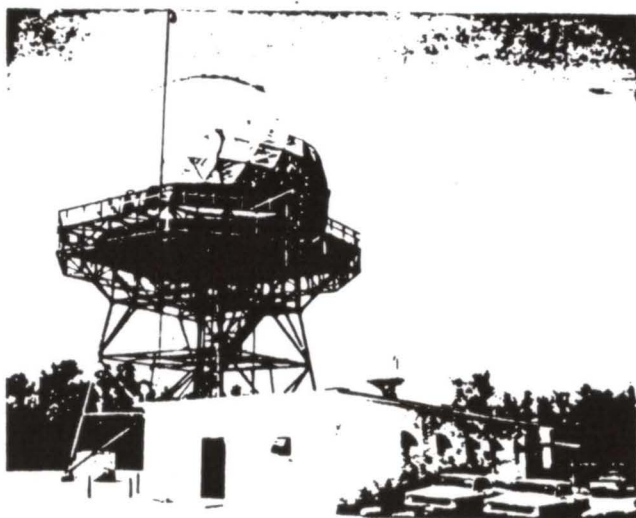
A system called RDP (Radar Data Processing) provides controllers with targets and data information associated with the target, and contains aircraft identification, altitude, and other vital information.

COMPUTER

The Computer provides automatic target tracking and flight data information for air traffic controllers. This information is forwarded from Center to Center and to destination airports as flights progress along their route.

PERSONNEL

Air Traffic Control Specialists are responsible for aircraft separation, while Airway Facilities Technicians are responsible for the maintenance of the equipment used in air traffic control operations.



AIR ROUTE SURVEILLANCE RADAR (ARSR) FACILITY

Welcome to the Federal Aviation Administration's Air Route Traffic Control Center located at Leesburg, Virginia. The building and its equipment are the most modern available. They represent a long-term investment in flying safety by the citizens of the United States. Air Route Traffic Control Centers symbolize a vital link in the Nation's airway system. The Center's placement is unique and has been designed to accommodate the present and future needs in the most complex system of air traffic in the world.

Washington Center is part of the FAA's Eastern Region, and covers part or all of Delaware, Maryland, Pennsylvania, South Carolina, North Carolina, Virginia, West Virginia, New Jersey, and the District of Columbia. The Center provides air traffic control service in an area consisting of approximately 158,001 square miles.

Air Route Traffic Control Centers, also called ARTCC's, provide separation service for all aircraft (air carrier, military and civil) operating under Instrument Flight Rules (IFR),--aircraft varying in speeds from helicopters to jumbo jet transports, to supersonic military flights and bombers. We also provide, in the form of additional service, Visual Flight Rules (VFR) advisory services to more than 80,000 pilots a year.

Washington Center has always been among the top four centers in the number of aircraft movements requiring Instrument Flight Rule handling. In the period prior to 1981 we handled 1.5 million operations per year. In 1987 we handled 2.3 million operations.

The Centers' personnel complement is divided into two parts. These are Air Traffic and Airway Facilities. The Air Traffic Division does the actual control of aircraft while the Airway Facilities sector maintains the equipment, building, and grounds. In order to provide this service we employ approximately 600 controllers, supervisors, engineers, technicians, and staff personnel with a payroll of approximately 29.4 million dollars annually.

To assure safe and orderly flight of both civil and military aircraft along the 416,000 miles of Federal airways, the FAA has divided the 50 states, plus Puerto Rico, the Canal Zone, Guam and Wake Island, into 24 geographic areas and established an Air Traffic Control Center in each area. These Centers controlled 24 million operations last year. Thus, Washington Center operates to help achieve the FAA's major objective .

The Washington ARTC Center's area of responsibility is divided into 6 areas of specialization and each area of specialization is subdivided into either 6 or 8 sectors. Each sector has, as a minimum, one radar scope, two communications frequencies, (one VHF and one UHF) and telephone lines for inter/intra center communications.

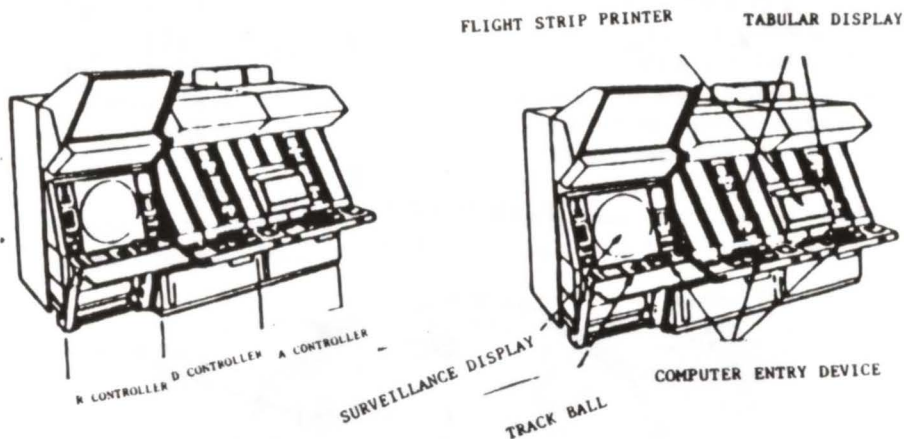
There are 59 VHF omnidirectional ranges (VOR's) and VORTACS which comprise the navigational aids needed to define airways and jet route structures. Augmenting the VOR and VORTAC aids are more than 70 nondirectional radio beacons which pilots use to find their destination airports.

We have 8 long-range Air Route Surveillance Radar Sites (ARSR) and 24 Remote Control Air-to-Ground (RCAG) radio sites to assist the pilot in point-to-point navigation. There are over 20 Approach Controls and more than 30 airports with instrument approaches out of the 402 airports within Washington Centers' airspace.

At the present time, we have 41 fully active sectors and three additional sectors that are activated when needed. A sector is a geographical area determined by air traffic volume and is both vertical and horizontal. The increase in controller productivity was fostered by increased efficiency in the total system through the development of new and more effective operational procedures, and far-reaching training techniques. The training effort provides for finely

tuned procedures and enhancing proficiency with automated equipment, thus giving the controller the best tools possible to perform the task at hand. Combined efforts of each individual on the sector team are needed for the accomplishment of safe and expeditious air traffic control.

The specialist assigned to the radar position (R side) is the controller in charge of the sector team. The radar controller assures that no conflict exists with actual or anticipated traffic. This is accomplished by utilizing the radar presentation to define aircraft positions and radio/interphone communications to issue clearances and instructions to pilots.



The Radar-Associate/Manual Controller (D side) performs, under general supervision, those tasks that aid the Radar Controller. This is accomplished by planning control actions to permit aircraft to transit the sector's airspace safely. Using flight progress strips, this controller will alert the Radar Controller to any potential future conflict between aircraft. He/She will also use non-radar separation procedures to issue arrival and departure clearances below radar coverage.

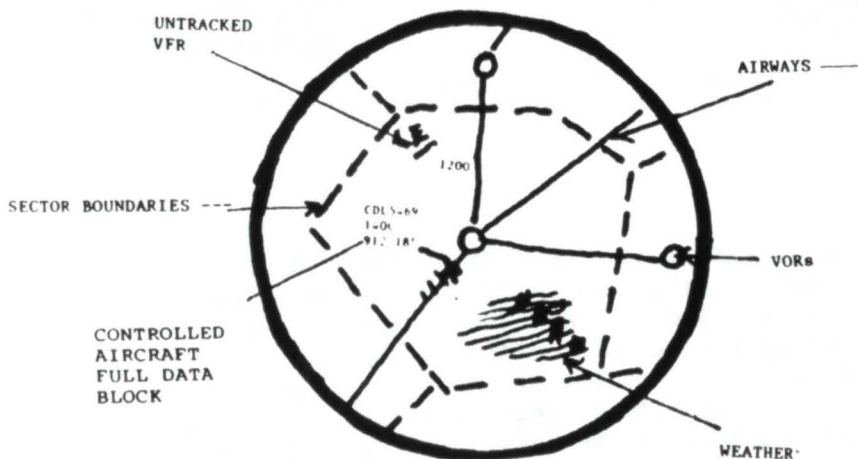
The Interphone Developmental Controller (A side) assists the Radar Associate/Manual Controller and Radar Controller by insuring that the sector receives Flight Progress Strips in a timely manner. This controller also enters flight plan information into the computer so that aircraft may receive control service in the safest manner and in the shortest possible time.

Flight Progress Strips

Flight Progress Strips are used by controllers to maintain written data necessary to plan for and ensure separation. It is the primary tool in Air Traffic Control. Radar reinforces the information on the "strips", and together with radio communications the three are used in the separation of Air Traffic.

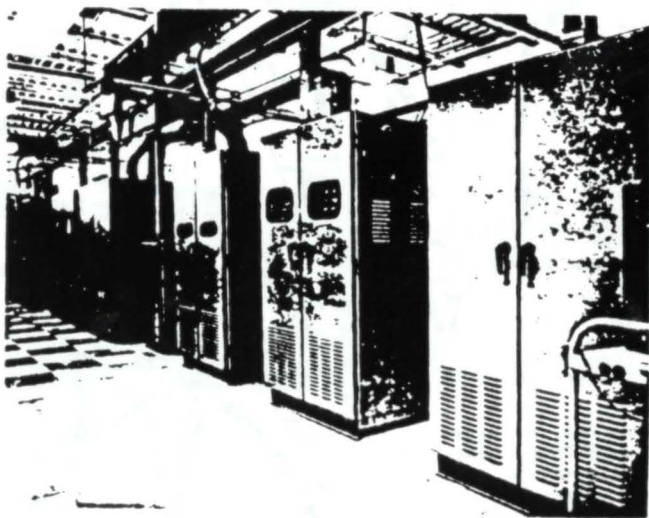
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CONTROLLERS PLAN VIEW DISPLAY PVD



The Airway Facilities Sector consists of 95 electronic technicians, engineering technicians, utility systems repairmen, computer operators and administrative staff. Airway Facilities is responsible for the maintenance and repair of radar, communications, computer, electrical power distribution and generation systems to provide safe and efficient operating equipment on which the air traffic controllers are to provide a

safe and efficient air traffic control environment. The electronic technicians provide the electrical expertise required to maintain and repair the vast amount of electrical equipment used in the systems mentioned above. To attain the expertise, each technician attends specialized training administered by FAA in Oklahoma City. The engineering technicians and utility systems repairmen maintain the power and lighting systems and general building maintenance. They also maintain the power conditioning system which provides the ARTCC with emergency power in case of commercial power failures. The computer operators operate the Center's real-time computer which is designed to provide the air traffic controllers with up-to-date radar and flight data information. The computer is linked with five adjacent centers with similar equipment and with different computer systems located at Dulles, Baltimore, Washington National, and Norfolk towers.



ARSR RADAR SYSTEM

WASHINGTON CENTER Flight Advisory Area



Washington as the hub, the area extends northward beyond Philadelphia, PA; west as far as Elkins, W. Va.; south as far as Wilmington, N.C.; and eastward to the coastline and 100 miles.

The advisory area covers more than 20,000 square miles and contains 158,000 airways.