

United States Federal
Aviation Administration

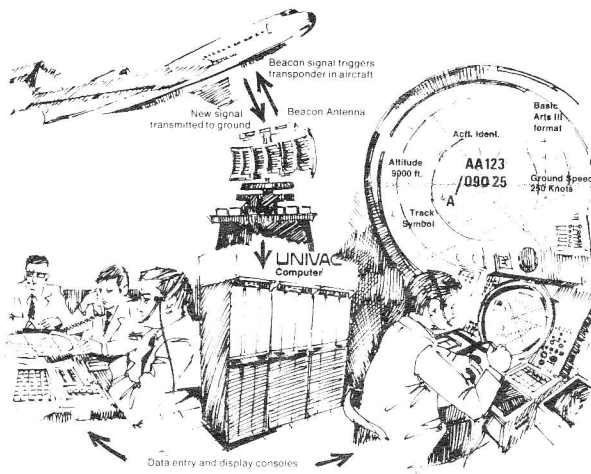
Air Traffic Control

Land-Based

Sperry Univac Special-Purpose Processor, Peripheral Equipment Software, and Systems Integration.

ARTS III

AUTOMATED RADAR TERMINAL SYSTEM



Through the use of computer-based automation, the Automated Radar Terminal System (ARTS III) assures continuous recognition of aircraft identity, altitude, and speed. The system provides this assistance to the air traffic controller, thereby providing relief from repetitive, time-consuming tasks and allowing the controller to concentrate on aircraft control and separation. ARTS III reduces air holding time during arrivals at large airports, improves airspace utilization, and safely increases the effective capacity of the terminal area.

In 1969, the United States Federal Aviation Administration awarded Sperry Univac a contract for implementation of ARTS III systems at 64 of the highest density air terminals in the United States. Sperry Univac was chosen to be the prime contractor through extensive, competitive bidding procedures. The reliability of Sperry Univac air traffic control systems at Atlanta and New York was an influencing factor. Sperry Univac had also demonstrated an ability to perform within rigid time sched-

ules. The system met essential requirements: equipment dependability, as demonstrated by many years of military operations; hardware and software modularity, enabling the system to be tailored to the individual requirements of each terminal area; and hardware and software expandability, to accommodate future growth and system enhancements.

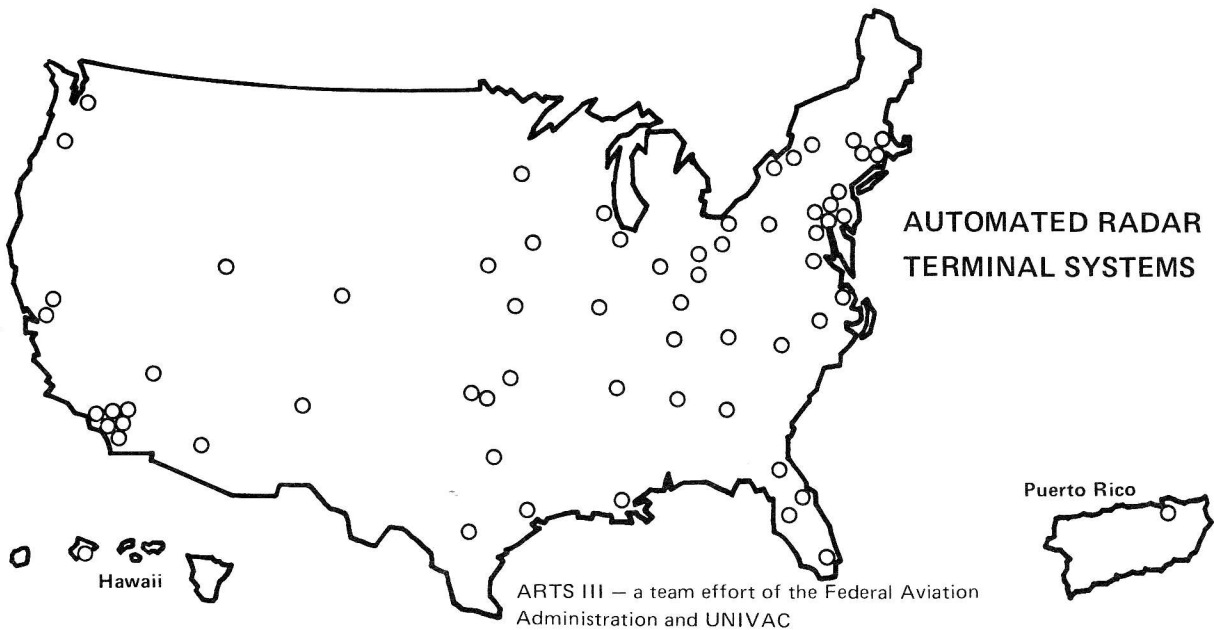
The formal beginning of plans to develop an automated system for terminal traffic control in the United States goes back to 1961, when the United States Federal Aviation Administration established a Project Beacon task force to review aviation facilities and prepare a long-range plan to ensure efficient and safe control of all air traffic within the United States. The task force returned a recommendation to plan an overall air traffic control system using a radar beacon system to acquire data for the system and general-purpose digital computers to provide controllers with processed and decoded aircraft information.

Early automated control systems were designed and implemented by Sperry Univac in Atlanta, Georgia (1965) and in New York (1968). Based on experience gained with these two systems, as well as continuing analysis of the air traffic situation, a Federal Aviation Administration design emerged for an improved air traffic control system. In February 1969, Sperry Univac was awarded a multi-year contract for the procurement and installation of hardware and software for 64 ARTS III systems in the United States.

The first ARTS system was installed at the world's busiest airport, O'Hare Field, Chicago, in May 1971. The remaining 63 systems were installed by 1973 and are currently operating at those sites.

The basic ARTS III consists of a data acquisition subsystem, a data processing subsystem, and a data entry and display subsystem.

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The data acquisition subsystem receives beacon video and control signals from which it detects beacon replies, generates range and azimuth data, and transmits reply messages to the data processor.

The data processing subsystem receives interfacility data from adjacent air route traffic control centers as well as data from the controllers via the data entry devices. The data processor performs target detection, tracking, processing of flight data, transfer of control, controller message processing, and display processing.

The data entry and display subsystem displays the representation of both radar and beacon video, displays the alphanumeric data, and transmits controller-entered keyboard data to the data processing subsystem.

ARTS III is designed for use in medium-to-high-density air terminals and can track up to 256 aircraft simultaneously.

ARTS III emphasizes the beacon level of tracking; beacon information is decoded and aircraft identity, position, and speed are automatically displayed on the video screen to the controller. Flight information and various display formats are also available to the controller.

Many add-on features are available or anticipated for the ARTS III system, including Minimum Safe Altitude Warning, Continuous Data Recording, Conflict Alert, and ARTS IIIA Enhancements.

For additional information contact Marketing Communications, Sperry Univac Defense Systems, Univac Park, St. Paul, Minnesota 55165, or contact your nearest Sperry Univac representative.