

Introduction to "Living With ECHO-IV"

While searching for a title, Jim remembered the radio phrase, "Return with us now to those thrilling days of yesteryear..." and thought "The Lone Computer Ranger and Pocahontas" might work. Then, he remembered the 2004 movie "Flight of the Phoenix" in which a group of passengers stranded in the desert after their plane went down, put together a small plane from pieces of the damaged plane and fly to safety. "Flight of the ECHO-IV" didn't sound very catchy, so he settled on simply, "Living With ECHO-IV".

In 1955, Jim and Ruth came to Pittsburgh after they graduated from the University of MO. Jim with BS in Electrical Engineering, and Ruth with BS in Home Economics Education. Jim had been hired by Westinghouse in spite of an ROTC obligation to serve four years of active duty and eight years in the reserves.

After only six months on the Graduate Student Course, Jim received orders to report for active duty in the USAF. He and Ruth returned to the Westinghouse GSC in 1959, and after receiving his Westinghouse five-year pen in 1960 (probably a record), Jim began work at the Westinghouse New Products Laboratories at Cheswick, PA.

Jim was assigned to work in the logic group, building the prototype of the Westinghouse PRODAC-IV (Programmed Digital Automatic Controller) computer. Jim was responsible for design of the Control Unit and Indexing Unit.

The computer used transistorized NOR (Not-OR) logic elements made by Westinghouse in Buffalo. Unfortunately, some of the elements failed randomly after the system warmed up. After two frustrating years, it was decided to ship the prototype to a power plant in New Jersey that urgently needed it to run their new turbine generator.

Two years later, cabinets filled with faulty PRODAC circuit boards were returned to the laboratory at Westinghouse Research, where Jim was working. Management wanted to forget about the whole project and dispose of them as quickly as possible.

Jim asked for a loan of the core memory system, power supplies, mounting frames, and 120 of the circuit boards, so he could build a home computer. Jim's boss thought that was great idea, and quickly signed a property pass.

Jim spent six months drawing schematics for the home computer that he called ECHO-IV (Electronic Home Computing Operator). The "IV" in the name came from the parts which were from the PRODAC-IV. Wiring the back frames and installing the magnetic core memory system required six more months, and by 1966, the computer was finished, and running programs.