



Guide to the  
Amelia Reid National Advisory Committee for Aeronautics (NACA)  
Human Computer Papers, 1945-1958  
Collection Number PP09.16

NASA Ames History Office  
NASA Ames Research Center

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## **Descriptive Summary**

**Title:**

Amelia Reid National Advisory Committee for Aeronautics (NACA)  
Human Computer Papers, 1945-1958

**Collection Number:**

PP09.16

**Creator:**

Amelia Reid

**Dates:**

Inclusive: 1945-1958

Bulk: 1952-1956

**Extent:**

Volume: 1 cubic foot

**Repository:**

NASA Ames History Office  
Moffett Field, California 94035

**Abstract:**

The Amelia Reid Papers include computation charts, computing tools, convention brochures, computation manuals and notes pertaining to Reid's career as a human computer for the National Advisory Committee for Aeronautics (NACA). The papers are related to Reid's professional development and work as a human computer, and contain organizational information about the NACA.

## **Administrative Information**

**Access:**

Collection is open for research.

**Publication Rights:**

Copyright does not apply to United States government records. For non-governmental material, researcher must contact the original creator.

**Preferred Citation:**

Expanded:

NASA Ames History Office, NASA Ames Research Center. Moffett Field, California.  
PP09.16, Amelia Reid National Advisory Committee for Aeronautics Human Computer  
Papers [Container number] : [Folder number]. [Identification of item].  
[Date, if available].

Abbreviated:

NASA ARC. PP09.16, [Container number] : [Folder number]. [Identification of item].  
[Date, if available].

**Acquisition Information:**

Donated by Yvonne Russell on August 10, 2009.

**Custodial History**

This collection was accumulated by Amelia Reid and later transferred to her office at Reid Hillview Airport. After her death in 2001, her son, Robert Reid III, passed the collection into the custodianship of Yvonne Russell (a former NACA engineer who met Reid after her tenure at the NACA, during Reid's aviation days). Subsequently, Russell donated the collection to the NASA Ames History Office.

**Biographical History**

Amelia Reid, formerly Amelia Lola, was born on November 13, 1924 in Ord, Nebraska. Reid obtained her bachelor's degree in mathematics from Kearney State College in Nebraska. Reid went on her first flight in 1939 in a Taylor J-2 Cub with Evelyn Sharp, Nebraska's first female pilot, which sparked a lifelong interest in aviation. Amelia Lola took on the name Carman from her first husband.

In 1945 Reid worked for the National Bureau of Standards in Washington D.C. In the late 1940s Reid moved to California and obtained a position at the National Advisory Committee for Aeronautics (NACA) at Ames Aeronautical Laboratory. Reid worked as an Electronic Machine Computer, or human computer in the Electronic Machine Computing Branch under the Theoretical and Applied Research Division. Reid concurrently earned her master's degree in mathematics from San José State University while employed with the NACA. As a human computer, Reid applied her knowledge of mathematics to transcribe raw data. She analyzed and reduced data into standard engineering values.

During the 1950s Amelia Lola Carman met her second husband and became Amelia Reid. Her father-in-law and four other pilots, including Reid's husband, opened up Reid Hillview Airport. In 1959 her son, Robin, was born. In the same year Reid left the NACA and opened up a flight school at Reid Hillview Airport. She initially operated the flight school out of her

Ford automobile, then later out of two trailers. Eventually Reid re-mortgaged her home in order to build a hangar where she ran her flight school until the end of her life.

In Reid's lifetime she was a mathematician, pilot, flight instructor, flight advocate, and aerobatics performer. Reid was also an accomplished ballroom dancer and a concert violinist. She logged over 55,000 flight hours and instructed over 4,000 students. Amelia Reid held two FAA certificates, a Commercial Pilot Certificate and an Air Transport Pilot Certificate. She was also rated for flight and ground instructing, gliders, single and multi-engine land and sea aircraft, and on a Cessna Citation CE-500 business jet. Amelia Reid passed away on March 3, 2001.

### **Administrative History**

In 1939 the Ames Aeronautical Laboratory was established as a second laboratory for the National Advisory Committee for Aeronautics (NACA). Throughout the life of the organization, the NACA used human computers to convert its raw flight research data into analyzable forms. Proficient in mathematics, these individuals analyzed and transcribed data accumulated in research tests, and performed complex calculations in order to transform it into manageable units. For example, they might transcribe and reduce an oscillograph recording from a flight test into standard engineering values. Human computers used basic tools such as slide rulers and electronic calculators to complete these calculations.

With the onset of World War II, when men joined the armed services in droves leaving shortages in workplaces across the country, women were able to step up into these human computer positions generally occupied by men. At Ames, these women human computers were fondly and proudly called the "computer girls." In the late 1940's Amelia Reid joined the human computer team at Ames. In 1952 the Director of Ames Aeronautical Laboratory, Smith DeFrance, formed an electronic computing machine unit to be led by William Mersman. Amelia Reid worked under Mersman in the Electronic Machine Computing Branch of the Theoretical and Applied Research Division as an Electronic Machine Computer.

Sources:

Powers, Sheryll Goecke, *Women in Flight Research at NASA Dryden Flight Research Center from 1946 to 1995*, Monograph in Aerospace History, No. 6. (Washington DC: National Aeronautics and Space Administration, 1997).

Sweeney, Frank, "Top S.J. Flight Instructor, Amelia Reid, Dies." Last modified March 5, 2001. <http://archives.californiaaviation.org/ganews/msg09478.html>.

Robert Reid III, in discussion with the author, August 2010.

## **Scope and Content**

The Amelia Reid Papers document the activities of Amelia Reid during her time as a human computer and graduate mathematics student. Reid's papers are related to her professional and academic work. The collection contains tools, project materials and other resources a human computer may have used.

The bulk of Reid's papers center on two main areas: her work using the 650 calculators from the International Business Machine Corporation (IBM) and calculating mathematical equations of Nth order polynomials. There are extensive handwritten notes that describe her work on polynomials to accompany the data printouts. The papers convey the high-level mathematical comprehension human computers were required to have and the complexity of transforming data into manageable units of information.

There is also organizational information on the National Advisory Committee for Aeronautics (NACA) in 1957, information pertaining to the winter 1956 Western Joint Computer conference held in San Francisco, manuals and brochures from multiple computing vendors, and papers on mathematical theories that Reid collected for reference. The materials are textual and graphical, and include electronic data calculator graphs, data sheets, computing guidelines, technical manuals and other printed matter.

## **System of Arrangement**

The collection is arranged by function to reflect Reid's professional work, academic work, and the tools and resources she used. Within the functional arrangement, publications, brochures and manuals are arranged alphabetically by corporate name. The arrangement scheme for the collection was imposed during processing in the absence of a discernible original order.

## **Indexing Terms**

The following terms may be used to index this collection.

### Corporate Name

Ames Aeronautical Laboratory (U.S.)  
International Business Machines Corporation  
United States. National Advisory Committee for Aeronautics.

### Geographic Name

Moffett Field (Calif.)

### Personal Name

Reid, Amelia  
Lola Carman, Amelia

### Subjects

Datamation professional series  
Digital-to-analog converters  
IBM 650 (Computer)  
Magnetic Drum  
Women and computers  
Women mathematicians

## **Container List**

Box	Folder	Folder Title
1	1	Polynomials- Nth Order, Solutions, Programming and Obsolete Materials: Professional Work, n.d.
1	2	Nth Order Polynomial Set-up and Wiring Panels: Coursework and Research, 1954-1955
1	3	IBM Magnetic Drum Calculator Type 650: Coursework, n.d.
1	4	Western Joint Computer Conference, February 7-9, 1956
1	5	National Advisory Committee of Aeronautics (NACA) Organizational Tools, 1953-1957
1	6	Tools: Formulas, Equations, Charts and Graphs Used By Human Computers, (n.d.)

- 1     7     Reference Papers on Mathematical Computations, 1951-1953
- 1     8     Burroughs Brochures, n.d
- 1     9     Datamation Subscription Magazine, 1958
- 1    10     Datatron Brochures and Manuals, 1956-1958 (1 of 2)
- 1    11     Datatron Brochures and Manuals, 1956-1958 (2 of 2)
- 1    12     Friden Brochure, n.d.
- 2     1     International Business Machine Corporation (IBM) Brochures and Manuals,  
1945-1956 (1 of 4)
- 2     2     International Business Machine Corporation (IBM) Brochures and Manuals,  
1945-1956 (2 of 4)
- 2     3     International Business Machine Corporation (IBM) Brochures and Manuals,  
1945-1956 (3 of 4)
- 2     4     International Business Machine Corporation (IBM) Brochures and Manuals,  
1945-1956 (4 of 4)
- 2     5     Librascope Brochures and Manuals, 1955-1956
- 2     6     Precision Analog Communication Equipment (PACE) Brochure, n.d.
- 2     7     Remington Rand Brochures, n.d.