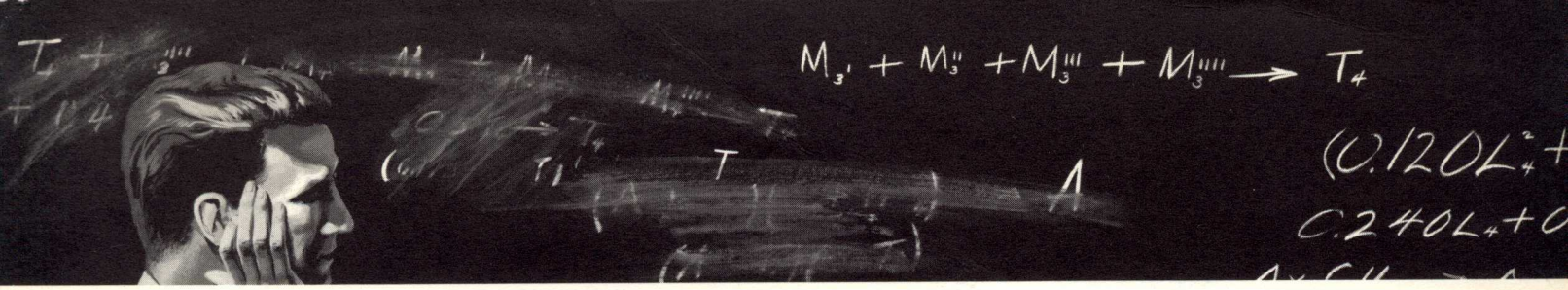
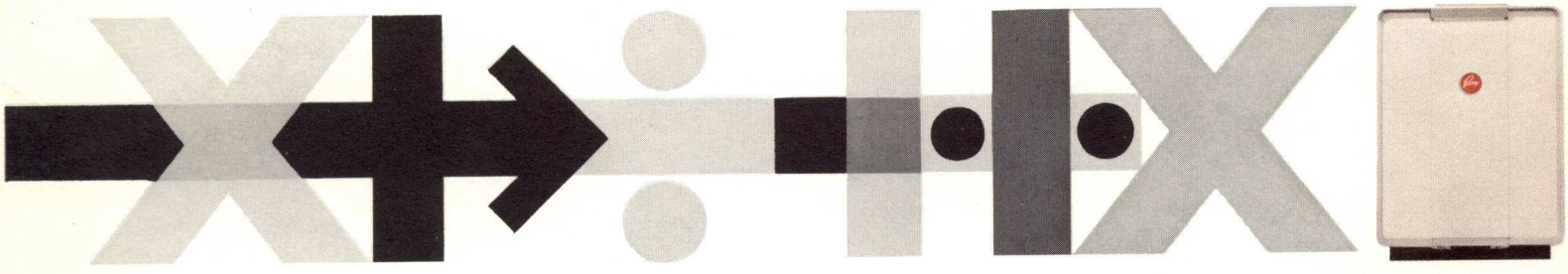


SOLVE IT WITH THE RECOMP II



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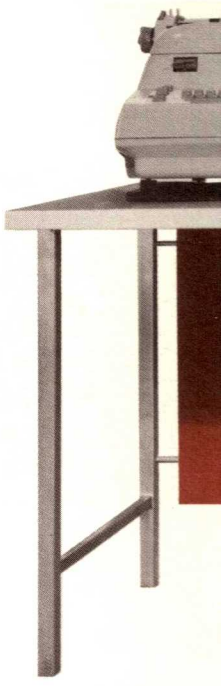
RECOMP II



RECOMP II—general purpose, all-transistor, single address, digital computer built by North American Aviation's Autonetics Division—solves problems of extreme complexity with split-second rapidity. Remarkably small in size, RECOMP II is extremely large in capacity—is virtually limitless in applications of science and industry.

OUT-PERFORMS BIG, HIGH-PRICED COMPUTERS—RECOMP II offers impressive advantages over computers much greater in both size and price. It comes equipped with built-in floating point arithmetic and automatic decimal conversion. Its transistor-compact construction provides mobility from one location to another, and guarantees sturdy reliability. Its simple command structure brings new ease to programming, and its huge storage capacity speeds operation for significant time-cost reductions in laboratory and field.

FAST AND EASY TO OPERATE—The five components of RECOMP II—computer and memory, photoelectric tape reader, typewriter, tape punch, and console—work together to produce problem solutions previously reserved for only the most expensive system.

A tape, coded with the problem solution plan (program), is put into the computer through the photoelectric reader. The applicable data are then fed into RECOMP II—either with the console keyboard or typewriter keyboard, or on punched tape. Rapidly and accurately, RECOMP II then solves the problem and delivers the answer via the typewriter or a punched tape.

Operation is fast and simple—can be learned by an inexperienced operator in a single day.

RECOMP II performs additions at the rate of 1,852 per second... fixed point multiplication in 10.8 milliseconds... and floating point multiplication in 12.4 milliseconds. Input-output flexibility is achieved by easy-to-learn devices including transfer switches, electric typewriter, punched paper tape, and a minimum of other controls. Data can be verified immediately, and discrepancies will stop the process and display error lights.

PROVEN PERFORMANCE—Extensive and rigorous testing has proven RECOMP II performance in scientific, engineering, industrial, and management sciences fields. By-products of the solutions lead to new developments, better methods, and expanded returns from invested dollars.

RECOMP II
AND RELIA

Large memory c
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or will store over

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High-speed data
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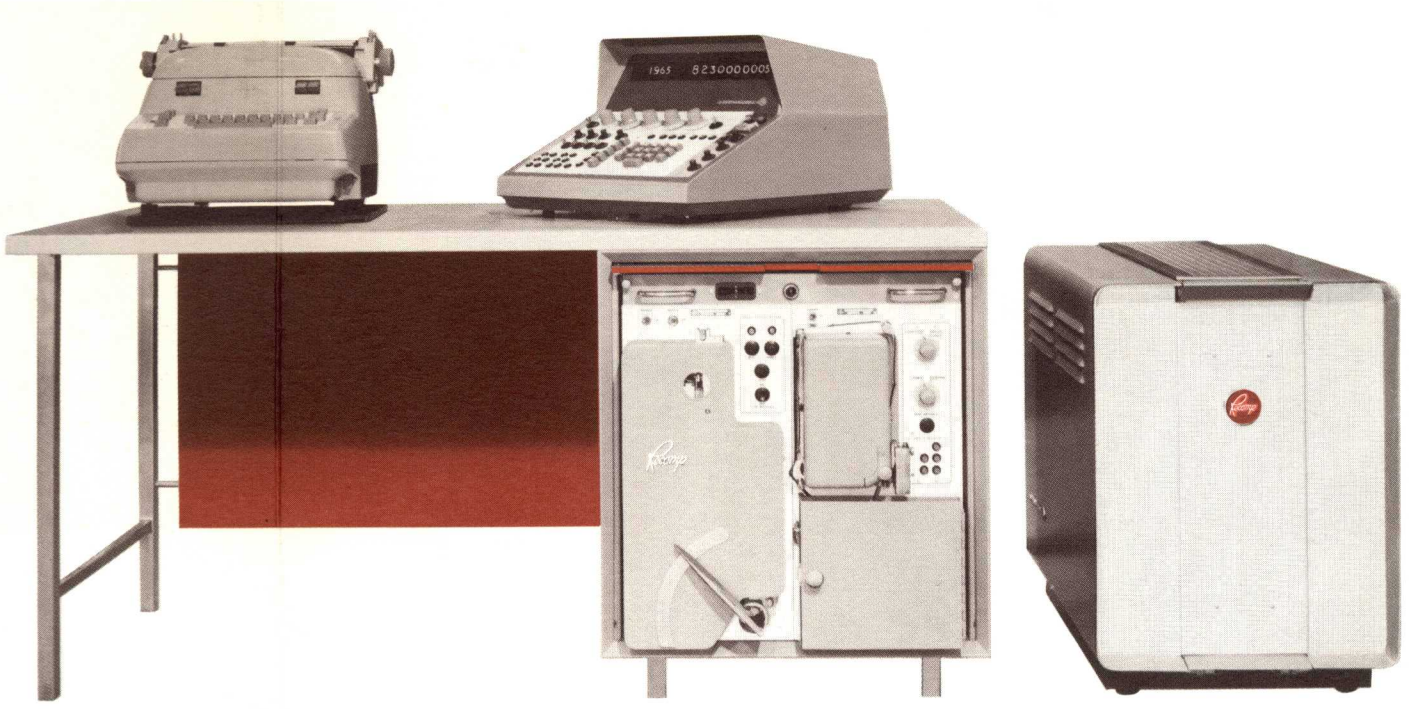


RECOMP II FEATURES FOR EASE, VERSATILITY, AND RELIABILITY OF OPERATION

Large memory capacity ... The compact, high-capacity, magnetic disk memory of RECOMP II contains 4,096 words, each of 40-bit length, including 16 words placed in high-speed loops. Five rapidly circulating 1-word registers perform arithmetic and logical operations. Each word in the memory holds up to a 12-decimal digit number, 8 alpha characters, or 2 program instructions. RECOMP II can retain over 8,000 instructions at a time, or will store over 49,000 decimal digits of data.

Standardized teletype tape configuration ... Regular time-tested teletype tape configuration is used, with built-in automatic conversion to binary form.

High-speed data input ... The high-speed photoelectric tape reader of RECOMP II reads 400 characters per second. Standard equipment, the tape reader can be used to verify all data stored. Over 48,000 characters can be transmitted to the memory in less than 2 minutes.

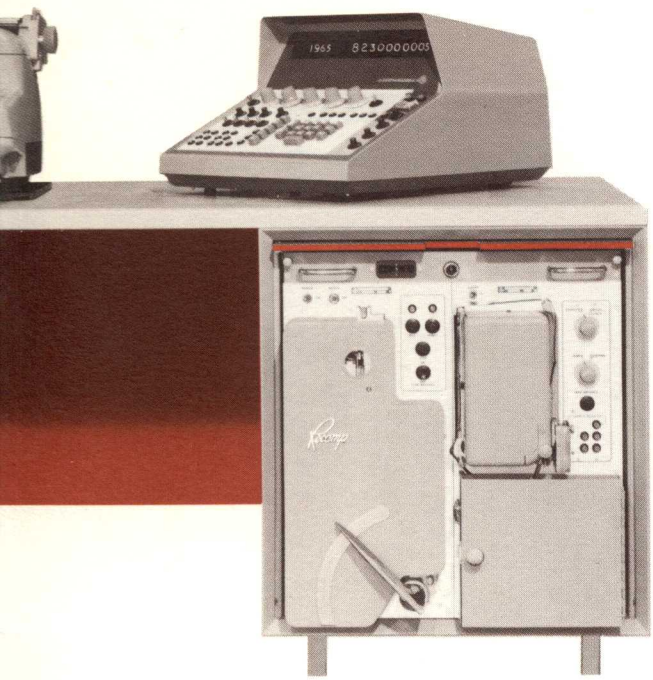
All-transistorized ... Transistorized RECOMP II contains no vacuum tubes nor fragile parts. It is sturdy and compact, uses little power (400 watts), generates practically no heat, and achieves a new level of tough, trouble-free operational dependability. Using printed circuitry on plug-in cards, RECOMP II is simple to maintain.

Control console with digital readout ... The RECOMP II electronic console puts all basic controls within fingertip reach for convenient, simple operation. The readout panel—a major RECOMP II advantage—expedites operation by flashing arabic numerals to reveal contents of any word or register. Control switches start the computer in prescribed locations, and an electric 10-key manual board simplifies input.

Built-in floating point arithmetic ... RECOMP II brings the advantage of built-in floating point arithmetic, including square root. Floating point instructions can be performed without subroutines. The expanded word size allows accuracy ranging from $2^{-(2^{37})} \leq |X| < 2^{(2^{37})}$, or decimal equivalent.

Physical advantages ... Large in capacity, RECOMP II is small in size ... for easy mobility ... and weighs only 197 pounds. RECOMP II requires no special installation, can be plugged into any standard wall outlet. No air conditioning is necessary.

Simplified programming and operating ... Programming is speeded by the RECOMP II diversified command list and sequentially controlled internal operations. Trapping-mode features and built-in floating point arithmetic increase flexibility and reduce the number of instructions needed. Operation is simplified by easily identified controls, time-saving transfer switches, and other operating aids such as display lights signalling errors or data requested. Designed with utmost simplicity, RECOMP II operation can be learned within a day.



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SOME RECOMP II APPLICATIONS ...

Aircraft and missile design
... lofting problems
... flight analyses
... stress analyses
... wind tunnel design

Civil engineering
... aerial photogrammetry
... dam site analyses
... drainage problems
... flood control, water profiles ... highway design ... optimization of irrigation networks
... structural design
... construction bids preparation

Mechanical engineering
... load and stress calculations – bearings, structural members, piping systems, etc
... heat exchanger design
... hydraulic systems
... machine tool design
... numerical control of machine tools
... process control

Electrical engineering
... correlation studies
... logical system design
... Fourier analyses
... systems characteristics determinations
... control systems studies
... transfer function calculation ... network analyses ... motor design
... power distribution analyses
... electron optics studies

Other scientific applications
... optical ray tracing
... optimization studies
... probability estimates, game theory, etc
... traffic analyses
... trajectory calculations – both ballistic and atomic

Electronic advances built into RECOMP II place it foremost as a fast, powerful, and reliable computer designed for scientific and industrial use in practical, mobile size.

Whatever or whenever the job—in the field or in the laboratory—RECOMP II solves the problem. It handles complicated scientific calculations with the same ease and speed with which it can process figures for a construction bid—proving itself to be a powerful and all-around problem solver.

SPECIFICATIONS

TYPE Transistorized, serial, single-address, internally binary stored program, general purpose computer, with 49 instructions including 15 arithmetic instructions; 25 logical and transfer instructions; 9 input/output instructions. Among these are 9 built-in floating point instructions.

PHYSICAL *Size:* 4.7 cubic feet (excludes input/output equipment), 23 inches x 21 inches x 16.5 inches

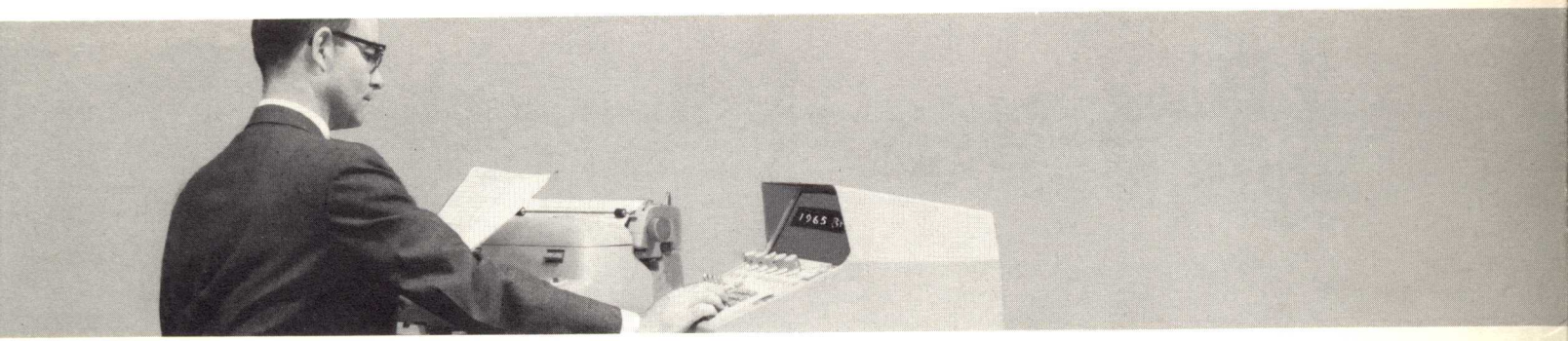
Weight: 197 pounds (excludes input/output equipment)

Power: 115 volts, 50 to 60 cycles, at 400 watts (includes control console, excludes typewriter and tape units)

MEMORY *Type:* rotary magnetic disk

Capacity: 4080 words in main memory (nonvolatile), plus 16 words in high-speed memory loops. Five 1-word arithmetic registers

Word Length: 40 bits including sign. Two instructions per word



TIMING *Access time:* main memory 9.0 millisec average, high-speed loops 0.95 millisec reading average

Operation time: fixed point – add-subtract 0.54 millisec, multiply 10.8 millisec, divide and square root 11.3 millisec; floating point – add-subtract 1.35 millisec plus normalization time, floating point multiplication 12.4 millisec, divide 12.7 millisec, square root 11.6 millisec

INPUT Photoelectric tape reader (400 characters/sec), control console decimal keyboard, and electric typewriter, standardized teletype tape configuration

OUTPUT Electric typewriter (10 characters/sec), paper tape punch (20 characters/sec) with standardized teletype configuration, and control console digital readout

NOTE: The above specifications are subject to change without notice.

Many of the fields for which RECOMP II is designed and equipped are listed in this brochure. For information on how RECOMP II can specifically save you manhours and solve your own special problems, write

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