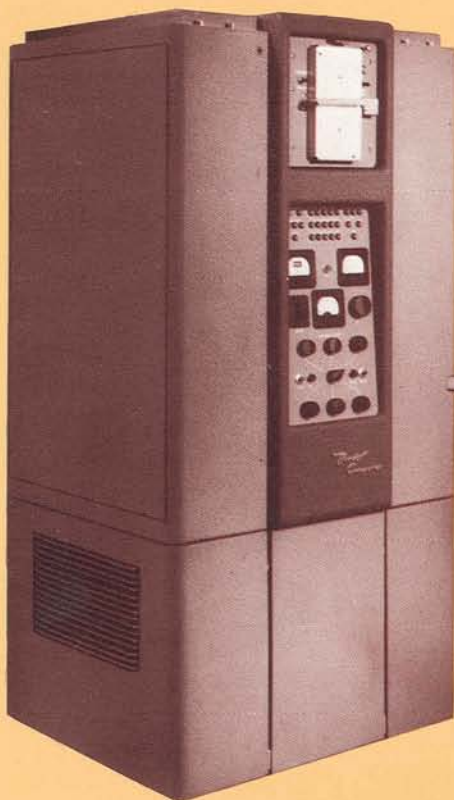


the easy to use

Bendix G • 15

GENERAL PURPOSE DIGITAL COMPUTER



division of BENDIX AVIATION CORPORATION

THE G-15 COMPUTER

The basic installation shown below is a complete operating computer system. It includes an electric typewriter for input, output and control, as well as a paper tape punch and photo-electric reader, furnished at no added cost.



- Easy to understand and use
- Fast and versatile
- Low in cost
- Expandable
- Varied input-output
- Established users organization
- Nationwide sales and service
- Lease or purchase

new simplified programming techniques

With just four hours of instruction, personnel who have had no computer experience can now solve their own problems with the Bendix G-15. Since the G-15 is so low in cost, many companies are finding it profitable to put their computers right in the office or laboratory. There they can be used directly by the personnel who know the problems best. The inefficiency of waiting for "computer center" solutions is eliminated.

The Bendix INTERCOM programming system makes this ease-of-use possible. In this system, a single command results in a number of internal operations. Much programming time is saved, and the operator need know only the simple operating commands. Since INTERCOM is floating point, the user does not need to consider scaling problems.

Without changing commands, INTERCOM will operate with either a five or a twelve decimal digit word, plus two digit decimal exponent. Positive or negative numbers may be used.

INTERCOM commands are single address. Memory addresses may be modified automatically by index registers. The command list contains all arithmetic operations, transfers of control based on various conditions, input-output operations, and special commands for facilitating the use of subroutines. Output may be in either fixed or floating decimal point form.

The portion of a typical Intercom program shown below illustrates the simplicity of problem preparation for the G-15. This program is for the calculation of $(a^2 - bc)/d$ where a, b, c and d are stored in memory positions 1100, 1101, 1102 and 1103 respectively. Each operation is performed on the contents of an arithmetic register called the accumulator, and the answer appears in the accumulator.

NOTES	Command Location	Operation Code	Address
Clear accumulator and add b	0	42	1101
Multiply b, in accumulator, by c	1	44	1102
Store bc	2	49	1104
Clear accumulator and add a	3	42	1100
Multiply a, in accumulator by a	4	44	1100
Subtract bc from a ²	5	41	1104
Divide a ² -bc, in accumulator by d	6	48	1103

A basic programming system is also available for users who want to exercise control over every internal operation performed by the machine. The Bendix G-15 offers this control to a degree unequalled by other computers of its size. Thus it offers versatility in unusual situations that other computers can not match.

specifications using basic programming system

BASIC COMPUTATION TIMES

Addition:

Single precision—0.54 msec.
Double precision—0.81 msec.

Multiplication:

Single precision—16.7 msec.
Double precision—33.1 msec.

Multiplication of arbitrary precision is possible. The factors may be up to 57 binary digits plus sign with the operation time equal to 0.27 msec. for command access plus 0.54 msec. per digit of the multiplier. These times include minimum access to the command with consideration that operands have been programmed to minimum access position.

MEMORY

2176 words of magnetic drum memory
16 words are fast access—0.54 msec. average access

AUXILIARY MEMORY—Magnetic Tape Units

Capacity: 300,000 words per reel
Block length: arbitrary to 108 words
File length: arbitrary number of blocks
Search Speed: 2580 characters/second
Read-Write Speed: 430 characters/second

NUMBER SYSTEM

Decimal, input/output
Serial binary, internally

WORD SIZE

Single Precision:

7 decimal digits, input/output
29 binary digits, internally

Double Precision:

14 decimal digits, input/output
58 binary digits, internally








Note:

Any command may be specified to be single or double precision

RELIABILITY

Maximum error-free operating time has been assured the G-15 user, through conservative design and careful selection of components. Reliability checks may be included in G-15 programs, as a further safeguard.

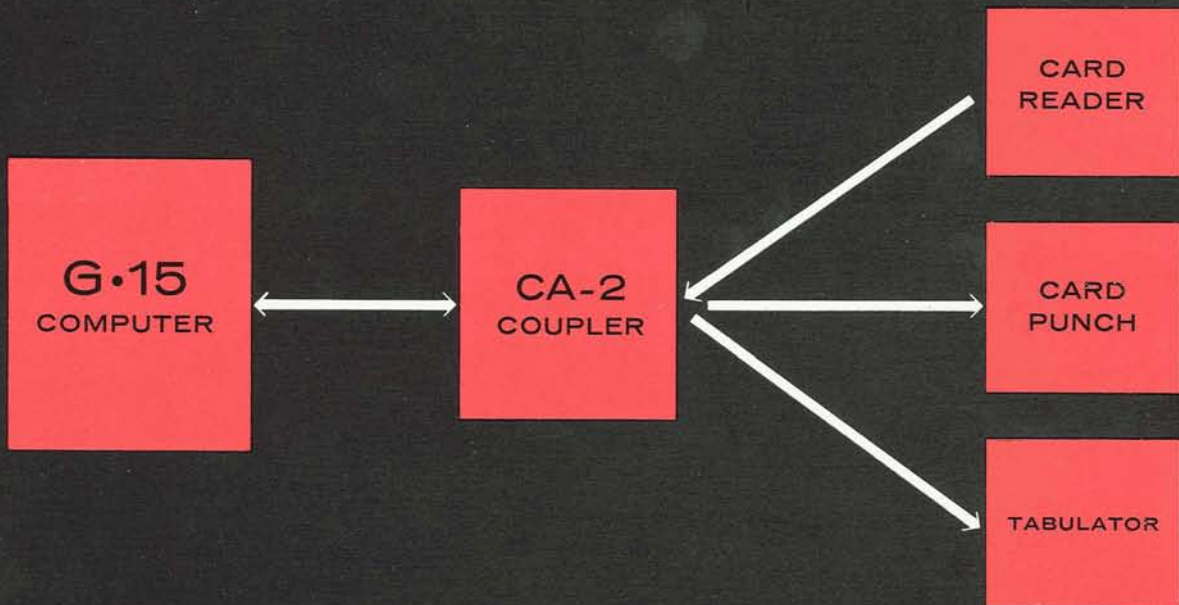
accessories

UNIT	DESCRIPTION	SPEED
 <p data-bbox="370 464 571 541">MODEL MTA-2 MAGNETIC TAPE UNIT</p>	<p data-bbox="695 457 1107 541">For auxiliary storage, up to four of these units may be connected to one G-15. Each stores up to 300,000 words, and can be searched for blocks of up to 108 words or for file sections of any number of blocks.</p>	<p data-bbox="1252 491 1539 508">Input and Output: 430 char./sec.</p>
 <p data-bbox="370 636 581 751">MODEL CA-2 PUNCHED CARD AND TABULATOR COUPLER</p>	<p data-bbox="695 630 1107 745">Allows use of standard IBM punches, readers and tabulators with G-15, for high-speed punched card input and output and printed output. Lowest cost complete system on the market. Handles full 80 columns of alphanumeric or special character data. See text.</p>	<p data-bbox="1252 657 1481 674">Input: 100 cards/minute</p> <p data-bbox="1252 693 1481 730">Output: 100 cards/minute 100 lines/minute</p>
 <p data-bbox="370 842 571 919">MODEL CA-1 PUNCHED CARD COUPLER</p>	<p data-bbox="695 842 1101 919">An inexpensive unit for small scale, low-cost punched card operations. One or two IBM 026 reader-punches may be used with one coupler.</p>	<p data-bbox="1252 856 1474 873">Input: 17 columns/sec.</p> <p data-bbox="1252 888 1474 909">Output: 11 columns/sec.</p>
 <p data-bbox="370 1020 592 1136">MODEL PR-2 UNIVERSAL CODE PAPER TAPE READER</p>	<p data-bbox="695 1052 1101 1104">Reads 5, 6, or 7 level paper tapes with any numeric code into the computer. Stops on one character.</p>	<p data-bbox="1252 1066 1442 1083">Input: 400 char./sec.</p>
 <p data-bbox="370 1220 565 1297">MODEL AN-1 ALPHANUMERIC ACCESSORY</p>	<p data-bbox="695 1192 1107 1346">The AN-1 provides compatibility between the G-15 and other computing, data handling and communication systems. Any alphanumeric code consisting of 8 channels or less can be read into the computer, operated on, and punched out in the same or another alphanumeric code. The AN-1 can also be connected directly to your own input-output equipment.</p>	<p data-bbox="1252 1234 1546 1304">Input and Output: Up to 225 characters/sec., depending upon type of input and output equipment used.</p>
 <p data-bbox="370 1398 548 1514">MODEL DA-1 DIGITAL DIFFERENTIAL ANALYZER</p>	<p data-bbox="695 1413 1107 1486">Enables the G-15 to operate as a DDA, for the simplified solution of linear and non-linear differential equations. Uses all G-15 input-output devices.</p>	<p data-bbox="1252 1434 1481 1472">See G-15 input and output accessories.</p>
 <p data-bbox="370 1623 581 1675">MODEL PA-2 GRAPH-PLOTTER</p>	<p data-bbox="695 1629 1107 1665">Will plot output of the G-15 or the DDA accessory in .01 inch increments.</p>	<p data-bbox="1252 1633 1497 1650">Output: 20 increments/sec.</p>

INTRODUCING

an important new G-15 accessory

THE CA-2 PUNCHED CARD & TABULATOR COUPLER



Now, at a cost significantly below that of any similar equipment, Bendix provides a complete computing system with high-speed punched card input and output.

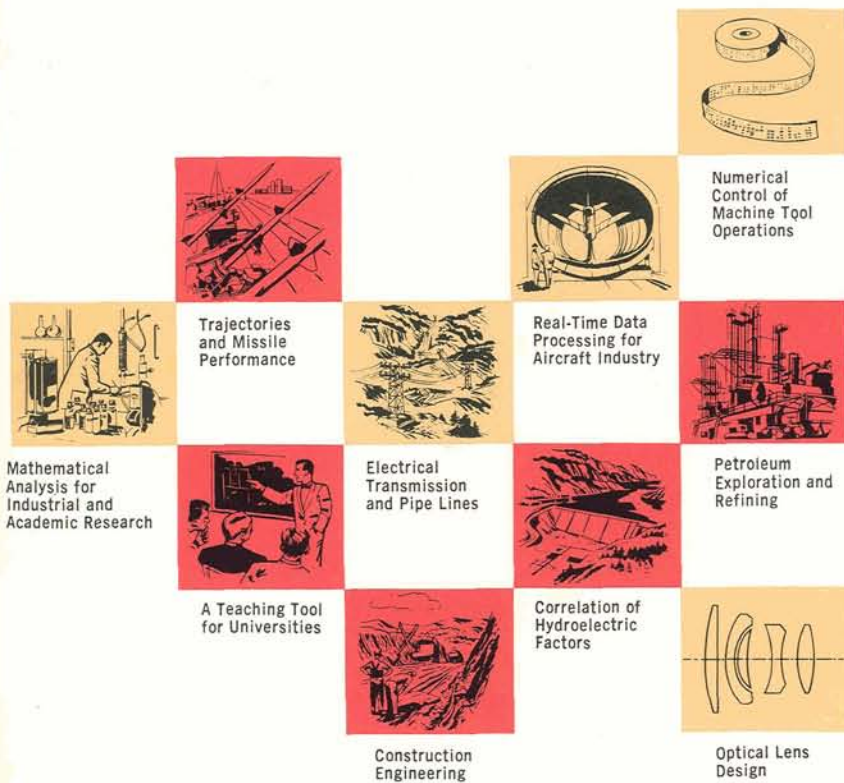
The new CA-2 Coupler provides for connection to the G-15 of standard IBM readers, punches and tabulators. Operating speeds of 100 cards per minute are provided on card input and output and 100 lines per minute on tabulated output.

A full 80 columns of alphanumeric or special character data can be accommodated, using only the low-cost CA-2 coupler. All input and output is under complete control of the computer. Computation can proceed during the input or output cycle, and thus no computer time is lost in waiting for data.

Magnetic tape storage units, paper tape readers and punches, the typewriter, and other input-output devices may all be connected to the G-15 simultaneously with the CA-2, to further extend the system's versatility. Both power and space requirements of the complete punched card computer system are approximately half that of other systems of this type.

If you are now using punched card or computing equipment, or if you are delaying such plans due to high costs, then you will want to learn more about this equipment.

G-15 applications



Many industrial and scientific organizations are finding imaginative solutions to a wide range of problems through new mathematical and data processing methods. Bendix G-15 computers are playing an important role in many of these firms.

With its unusually flexible programming schemes, the G-15 is ideally suited to *both repetitive and non-repetitive problems*, regardless of complexity. Examples of the hundreds of possible applications are illustrated here.

You are invited to discuss the application of the G-15 to your own specific requirements. Contact your nearest Bendix Computer Regional Office, staffed by experienced personnel who will be happy to advise you. Detailed literature is available.



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