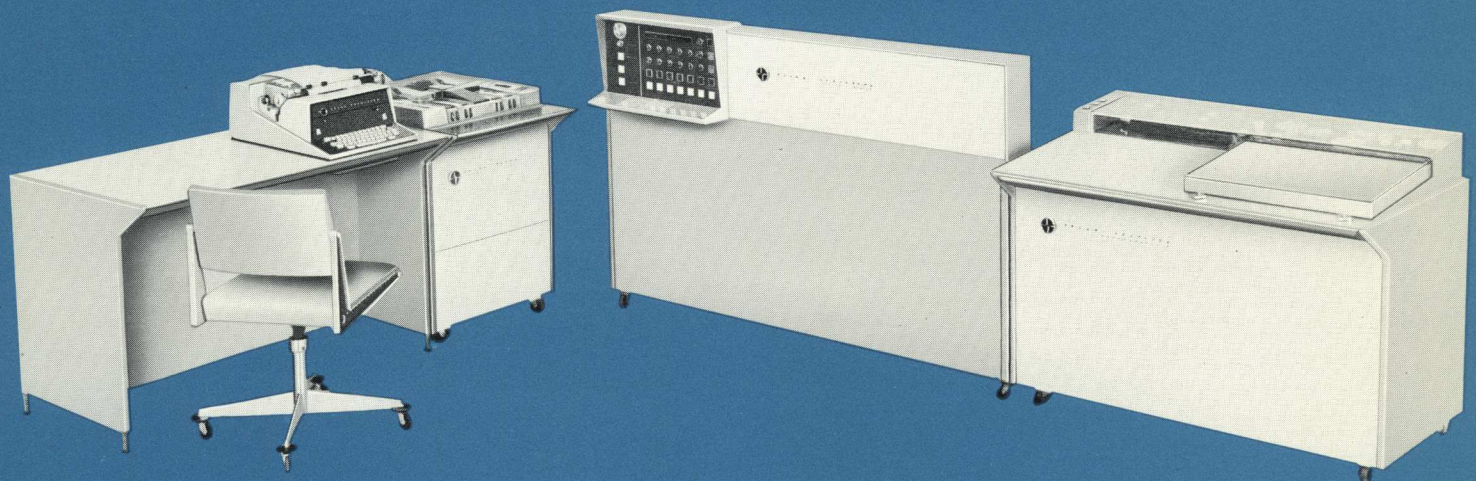

RPC-9000

ELECTRONIC DATA PROCESSING SYSTEM

A fully transistorized, medium scale, automatic data processing system. Basic system includes a high-speed, internally stored program computer (center), a punched paper tape and typewriter input-output system (left) and a magnetic tape storage unit (right). Additional peripheral equipment include high-speed paper tape readers and punches, punched card readers and line printers.

RPC-9000 is a product of the Royal Precision Corporation, owned jointly by the Royal McBee and General Precision Equipment Corporations.

ROYAL McBEE · *data processing division*

PORT CHESTER, NEW YORK • OFFICES COAST-TO-COAST, IN CANADA AND ABROAD

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PREFACE

The Royal McBee Corporation presents this introduction to the RPC-9000 Electronic Data Processing System to acquaint you with the most modern commercially - available data processing system on the market today.

This publication presents only the highlights of the RPC-9000. Our Sales Engineers will be happy to answer in more detail any questions you may have. Specific details regarding the application of this equipment to your problem specifications will be contained in our technical proposal to you, if solicited.

GENERAL

The RPC-9000 Electronic Data Processing System is a fully transistorized automatic data processing system. It is a medium scale, serial, high speed, internally programmed, general purpose, digital computer.

The system utilizes punched paper tape, 80 to 90 column punched cards, magnetic tape and an electric typewriter as input and output media. In addition, a high speed on-line printer (667 or 1000 LPM) or a slower speed on-line printer (120 LPM) are available as output devices. Any combination of these types of peripheral equipment up to 32 in number may be used on-line. All input and output in the system are buffered and can, therefore, time-share the Central Computer, i.e., the RPC-9000 can be inputing, outputing and computing simultaneously.

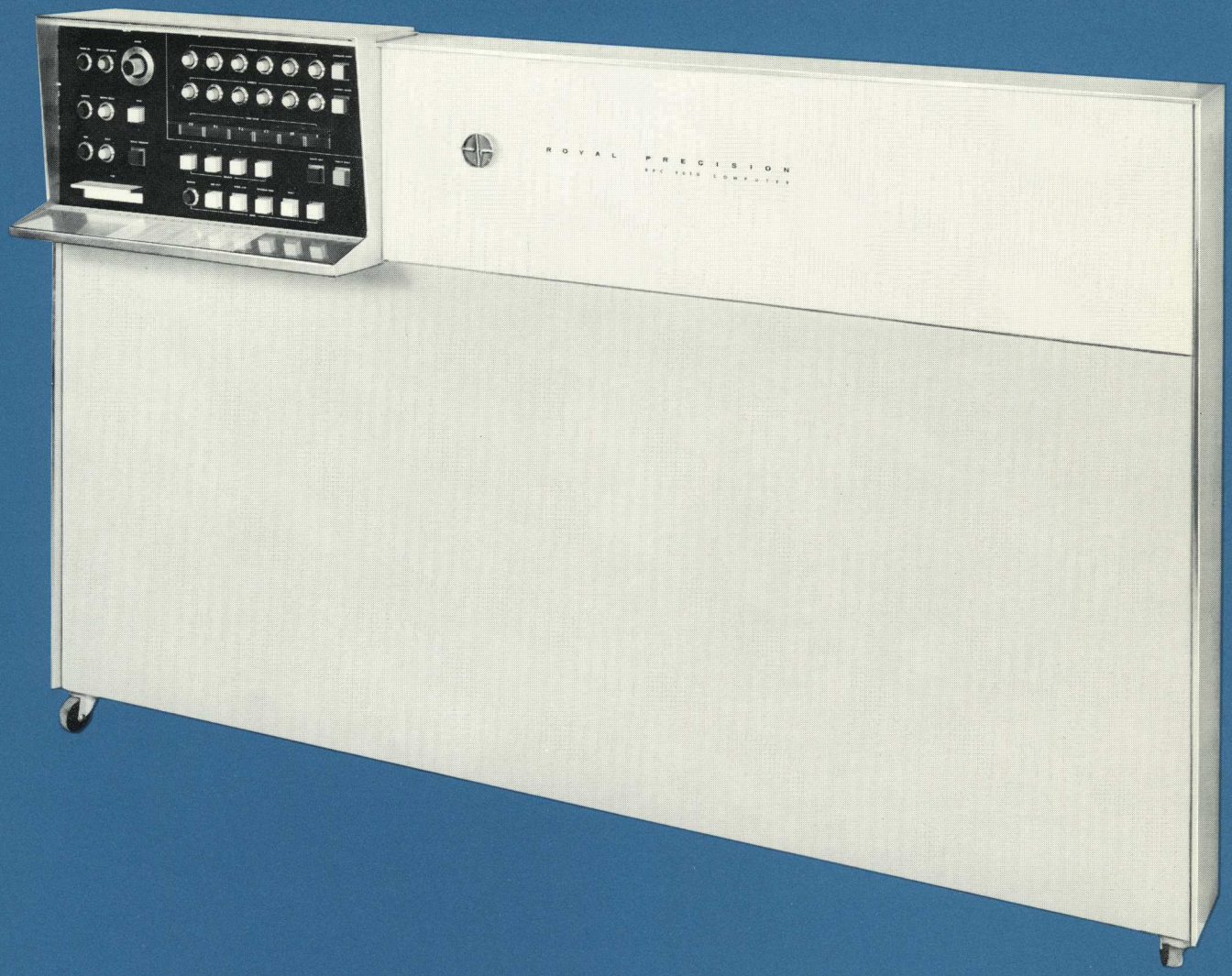
The RPC-9000 Electronic Data Processing System requires no special site preparation. The equipment will operate off normal power supply and neither air conditioning nor humidity control is necessary.

BUILDING BLOCK VERSATILITY

The RPC-9000 is a building block or modular system that consists of varying combinations, dependent on the job to be performed, of the following:

Model 9010	Central Computer
Model 9500	Tape Typewriter System
Model 9430	Paper Tape Punch and Reader
Model 9410	High Speed Paper Tape Reader
Model 9460	80 Column Punched Card Reader
Model 9440	High Speed Paper Tape Punch
Model 9470	Line Printer (120 LPM)
Model 9450	High Speed Line Printer (667 or 1000 LPM)
Model 9100	Magnetic Tape Drum Unit
Model 9101	Magnetic Tape Transport (Auxiliary Tape Drum)

Building upon the foundation of the Central Computer, any combination of the above input/output devices may be added to the system. The problems of each user are solved by a data processing system tailored to his own specific requirements. Up to 32 of these input/output devices may be tied into one Central Computer (Model 9010) and operate on a time-shared basis because each is completely buffered.



RPC-9010

RPC-9010 COMPUTER

The fully transistorized central processing and control unit of the RPC-9000 Electronic Data Processing System. Contains the calculating functions, internal operating memory, program control, buffers, and tape search section of the system.

RPC-9010 is a product of the Royal Precision Corporation, owned jointly by the Royal McBee and General Precision Equipment Corporations.

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THE CENTRAL COMPUTER (Model 9010)

Under the guidance of an internally stored program, the Central Computer controls the many interdependent activities of this RPC-9000 Electronic Data Processing System. Adhering to the instructions in the control unit of the Central Computer, logical circuitry accepts the data from input units, transfers it between the arithmetic and memory components, obtains corresponding items from the large random access memory and transmits processed data to the output units. Similarly, the control unit governs the arithmetic elements in the performance of such operations as addition, subtraction, multiplication, division, and logical comparisons.

Related directly to the control unit is the operator's control panel which is located on the Central Computer. By means of the control panel, the system's operations can be interrupted for the insertion of data or the display of the contents of addressable registers or of any memory location. The design of the control panel reduces to a few simple steps the formerly complex procedures of starting, intervention, error detection and corrective action.

Along with this thorough control, the Central Computer provides for data and instruction storage in its Basic Memory and in its Expandable Memory. Expandable Memory also supplies buffer storage which compensates for the disparity between the Central Computer's electronic speed and the speed of the input-output units. There may be as many as 60 buffers in expandable memory. All input and output information and information flowing to or from the large random access storage units must pass through these buffers. In this way, with the buffers acting as an intermediary, the internal memory of the computer never becomes involved with the external units.

Instead the internal memory communicates only with the buffers which transmit or receive information at electronic speeds. A major advantage of the buffer component springs from the fact that it can send data to or receive data from the external units automatically, thus leaving the computer control unit free to direct the processing of data.

WORD

The computer word is the arithmetic unit of data. All arithmetic and logical operations are performed thereon. A computer word consists of 12 7-bit RPC-9000 characters.

Two kinds of computer words are utilized by the RPC-9000: the stored data word and the instruction word.

Data Word - A stored-data word is composed of any combination of 12 alphabetic or numeric characters. It may be a numeric value (signed quantity) or a word of information such as a name, stock number, etc.

Instruction Word - A word used to hold, in effect, 6 instructions to be executed by the computer.

BLOCK

The unit of transfer used to transfer information between the Central Computer and the input-output and random access units is called a block. A block consists of 96 7-bit RPC-9000 characters. The RPC-9000 is a block mode system, i. e., all transfers into and out of the Central Computer are in block format.

Characeteristics of the Central Computer

The Central Computer manipulates data in fixed lengths, i.e., Words and Blocks.

Basic Unit of Data

The basic unit of data is the character. The RPC-9000 can interpret 64 different character codes. The character code employed is a 7 level, binary-excess three notation. "Excess-3" indicates that, for internal computer reasons, a 3 had been added to each number in the binary coded decimal system. The character code format is:

Following are the RPC-9000 code assignments:

XS-3	00	01	10	11
0000			.	@
0001			A	N
0010			B	O
0011	0		C	P
0100	1		D	Q
0101	2		E	R
0110	3		F	S
0111	4		G	T
1000	5		H	U
1001	6		I	V
1010	7		J	W
1011	8		K	X
1100	9		L	Y
1101	☆		M	Z
1110	☆		☆	,
1111	☆	%	$	Null

The blanks in above chart represent codes for operating Typewriter and Printer. Parity Bits not shown.

RPC-9000 COMMANDS

COMMAND SYMBOL	FUNCTION
Word Transfers	
F	Copy (W) into (Reg. 1)
D	Copy (W) into (Reg. 1) (Unmasked Portion)
P	Copy (W) into (Reg. 2)
O	Copy (W) into (Reg. 3)
C	Copy (Reg. 1) into (W)
B	Copy (Reg. 1) into (W) (Unmasked Portion)
G	Copy (Reg. 1) into (W) and Clear (Reg. 1) to Zero
E	Exchange (Reg. 1) with (W)
M	Copy (Reg. 1) into (S. R.) Copy (Reg. 3) into (Mask Holder)
M	Set Mode of Tape -- Type of Search
Block Transfers	
I	Copy (Transfer Block) into (W)
J	Copy (W) into (Transfer Block)
K	Exchange (Transfer Block) with (W); and set Comparator
H	Change Mode of Buffer to Input or Output
Arithmetic	
V	Add (W) into (Reg. 1)
U	Subtract (W) from (Reg. 1)
A	Add (Reg. 1) into (W)
X	Multiple (Reg. 1) by (Reg. 3), Add Product in (Reg. 2)
W	Divide (Reg. 1) by (Reg. 2), Quotient into (Reg. 3)
Test Commands for Setting Comparator	
Q	Is (C_{12}) of Reg. 1 Equal to Desig. Addr. Char.?
R	Is (C_1) of Reg. 1 Equal to Desig. Addr. Char.?
S	Is (Reg. 1) Equal To or Greater Than (W) (Unmasked)?
T	Is (W) Equal to (Reg. 1) (Unmasked)?
☆	Is Corresponding Panel Switch in True Position?
☆	Is the M. R. Switch in True Position?
☆	Force the Comparator to False
☆	Stop Computer and Force Comparator to False.
☆	Is Error Test Switch in True Position?

COMMAND SYMBOL	FUNCTION
Shift and Insert	
*	Shift (Reg. 1) Left and Insert Zeros
*	Shift (Reg. 1) Right and Insert Zeros
*	Shift (Reg. 3) Right and Insert Zeros
*	Shift (Reg. 3) Right and Insert "Y's"
,	Insert Desig. Addr. Char. into C_1 of Reg. 1
$	Insert Desig. Addr. Char. into C_{12} of Reg. 1
Instruction Feeding	
.	Feeding Command Word into Re. 5
%	Feed Address Word into Reg. 4
@	Copy the Binary Ones of C_1 of (W) into C_1 of Address Reg. (4)
Conditional Commands Dependent Upon State of Comparator	
Y	Branch to New Address if True
Z	Branch to New Address if False
L	Skip No. of Commands if True (See Table)
L	Skip No. of Commands if False (See Table)
N	Do Nothing for One Word Time

NOTE: ( ) Means "Contents of"
W Means the Address Letter

GENERAL SPECIFICATIONS

Numeric System:	Binary Coded Decimal
Word Length:	Fixed - 12 Alphanumeric Characters
Block Length:	8 Words - 96 Alphanumeric Characters
Character Code:	Binary Excess 3
Circuit Elements:	Transistors
Timing:	Synchronous
Pulse Repetition Rate:	364KC
Circuitry:	Serial by Character and Bit
Instruction Code:	Single Character Command Single Character Address
Operation:	Serial, Fixed Point

Computation Speed: (excluding access time)

Addition: 220 Microseconds

Subtraction: 220 microseconds

Multiplication: Number of digits of the multiplier plus the sum of the digits of the multiplier times 220 microseconds. For example, the number 583427 is to be multiplied by the number 123. The time for this multiplication would be

3+ 6 x 220 mms or 1.98 ms

Division: Number of digits in the quotient plus the sum of the digits of the quotient times 220 microseconds. For example, if the quotient of a division is 234, the time it takes to perform the division would be

3 + 9 x 220 mms or 2.64 ms

Average Access Time

Registers: None

Main Internal Memory (Magnetostrictive Delay Lines) 0.83 ms

Checking Features

Automatic checking of all transfers of data within the computer by means of parity check.

Automatic checking of all transfers of data into and out of computer by means of parity check.

Registers

Arithmetic Registers:	Register 1, 2 and 3 used for data manipulation, testing and arithmetic computations, (12 character register)
Command Register:	Register 5 used to hold and execute the current command word, (12 character register)
Address Register:	Register 4 is used to hold and execute the current address word (12 character delay line).
Search Register:	A 96 (8 word line) character register used to hold "addresses" for the Magnetic Tape Drums.
Mask Holder:	A 96 (8word line) character register used to mask or filter the contents of the desired address register.

INTERNAL MEMORY

The internal memory of the Central Computer is divided into two segments: Basic memory and Expandable memory.

The Basic Memory consists of 9 blocks of rapid access storage (800 micro-seconds average). Each block contains 96 characters for a total of 864 characters of Basic Memory.

The Expandable Memory consists of Expandable Memory Units (Model 9230). Each Expandable Memory Unit contains 4 blocks of information. Up to 15 of these Expandable Memory Units may be added to Expandable Memory for a total of 60 blocks of 5760 characters. (Access to this memory is 1.76 ms.)

The internal memory of the computer and its relation to Central Computer Logic are represented in the logic schematic.

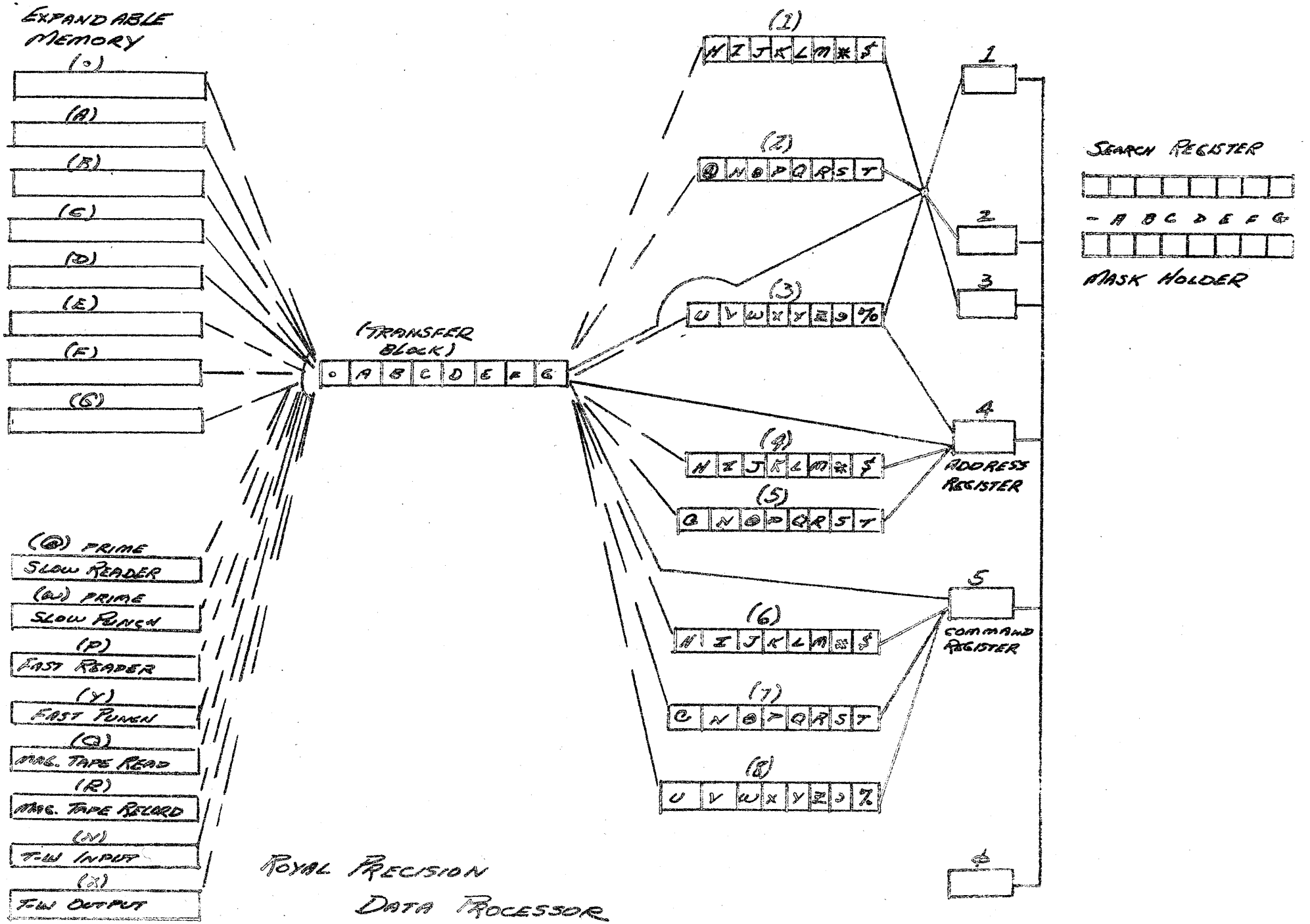
MAGNETO STRICTIVE DELAY LINES

All of the internal storage of the Computer consists of Magneto-Strictive Delay Lines. Each delay line consists of a length of nickel wire, together with the means of recording onto and reading bits from that line. A bit (binary digit) is recorded by passing a pulse of electric current through a coil wrapped around one end of the nickel wire. The magnetic field set up by the current causes a mechanical constriction (torsional vibration) in the nickel wire. This mechanical disturbance travels down the wire and reaches another coil 1.76 milliseconds later. The mechanical movement of the wire causes a change in the current (magnetic flux) in the "reading" coil which is then amplified, instantaneously re-circulated and re-recorded at the "recording" coil.

672 bits (8 words) are recorded on one delay line before the first bit recorded reaches the "reading" coil. The delay line is thereby used as a storage device because the information recorded is actually "stored" during the time delay traveling down the wire.

Of the 672 bits recorded on one delay line, 96 are parity bits used in checking data transfers within the system. This leaves 576 data bits which allows the storage of 96 alphabetical characters (6 bits each).

Many of these lines go to make up the internal operating memory of the computer. They are reasily replaceable, inexpensive and additive since they are independent units.



ROYAL PRECISION
DATA PROCESSOR
RPC 9010 COMPUTER

EXPLANATION - CENTRAL COMPUTER LOGIC SCHEMATIC

Basic Memory - Each computer contains 9 blocks as part of its basic hardware.

Blocks (1) thru (8) and the Transfer Block.

Expandable Memory - This is an additive internal storage area used to supplement the Basic Memory when required. It is possible to add 50 additional blocks of memory in this area.

Buffer Memory - These blocks are used as buffers between the input/output equipment and the central computer. It is possible to have 60 blocks used as input/output buffers.* Even though a block is installed as a buffering device, if on a given application or at any time during a given computer run it is not being used as a buffer it can be used as a regular storage location.

Transfer Block - In addition to its secondary use as a part of Expandable Memory, the primary use of the Transfer Block is as a buffer in data transmission between the central computer and peripheral equipment, and in data transmissions of items longer than 12 characters (1 word) within the central computer itself.

Registers - Registers 1, 2, 3, 4, and 5 are one Word registers.

Register 1 - is used in additions and subtractions to hold one of the operands (the other operand comes from memory) and the result of the computation when completed. It also holds the Multiplicand in multiplication and the Dividend in division. It is used in Word Transfers within the Central Computer. The contents can be shifted a maximum of

8 character positions right or left, packing zeros in the positions left "empty" from the shift.

*NOTE: It is possible to have a total of 60 blocks of memory shared as Expandable Memory or as I/O Buffers. This limitation is imposed by address structure.

Register 2 - is used primarily in multiplication and division. It holds the Product in multiplication and the Divisor in division.

Register 3 - is used in multiplication to hold the Multiplier and in division to hold the Quotient. It is also used to develop "masks" for filtering Search Identifiers being held in the Search Register. The contents can be shifted right, packing either zeros or the letter "y" in the positions left "empty" from the shift.

Register 4 - is a one Word register used in conjunction with Register 5 as a part of the Program Control circuitry. Register 4 holds the addresses of operands and result storage locations that are related to the Commands simultaneously being held and executed in Register 5.

Register 5 - is a one Word register that holds the word of Commands that are executed in relation to the Word of Addresses being held and executed in Register 4.

Search Register - an 8 Word register designed to hold 8 different Search Identifiers at any point in time during a computer run. It is used in searching the Magnetic Tape Drum files for unit records or items filed therein.

Masked Holder - an 8 Word register that holds "masking" words used to filter out unwanted parts of the Search Identifiers concurrently held in the S.R.

Register Ø - A source of decimal zeros.

RPC-9100

MAGNETIC TAPE STORAGE UNIT

Large capacity memory unit for the RPC-9000 Electronic Data Processing System. Magnetic tape in an endless loop revolves continuously at high speed. Separate reading and recording stations permit record updating in the same cycle. Data may be filed in random order, or in any desired sequence. Information retrieval is on the basis of content—not location. Maximum capacity for one loop is 10,000 records (approximately 1,000,000 alpha-numeric characters). As many as 15 magnetic tape storage units may be connected on-line. Off-line file storage of quickly-interchangeable tape cartridges is unlimited.

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THE MAGNETIC TAPE DRUM SYSTEM (MODEL 9100)

GENERAL

The Model 9100 Magnetic Tape Drum is the unit that provides the RPC-9000 System its large capacity random access memory.

The RPC-9000 System can utilize from 1 to 30 Magnetic Tape Drums, each buffered for time-shared operations. The Magnetic Tape Drum utilizes a continuous loop of magnetic tape, constantly revolving (like a magnetic drum) within a stationary cartridge. The tape is stopped only for the removal of one cartridge and the loading of another (which takes from 1 to 2 minutes).

Each Magnetic Tape Drum cartridge holds approximately 1,000,000 alphanumeric characters and each Magnetic Tape Drum holds 1 cartridge. Therefore, with a maximum of 30 Magnetic Tape Drums on-line simultaneously, the system has a total of 30,000,000 alphanumeric characters on-line.

Each Magnetic Tape Drum, Model 9100, may have up to 7 Magnetic Tape Transport Units, Model 9101, (auxiliary tape drums) acting under program control and utilizing the input/out control circuitry and buffers of the Magnetic Tape Drum to which they are assigned. Therefore, 30 Magnetic Tape Drums 7 Magnetic Tapes Transports 1,000,000 characters of storage each, provides the system with a maximum on-line storage of 210,000,000 characters -- an almost unlimited amount of on-line storage.

The foregoing concerns itself primarily with on-line considerations. If a large file is required, but input or inquiries to the file can be batched, the user has an unlimited random access memory available to him by using only 1 Magnetic Tape Drum. Each cartiridge containing approximately 1,000,000 characters can be replaced in a matter of 1 to 2 minutes, thus providing the system with all the memory required within that period of time.

Information is stored on the tape in block format. Each block containing 96 alphanumeric characters of 144 numeric characters or any combination thereof. Information is transferred to and from the tapes in units of whole blocks. However, a record can be larger than a block by merely using multiple blocks; as in the case of punched cards where multiple cards are required for a record.

Each Magnetic Tape Drum (or auxiliary) has a stationary Read Station and a stationary Write Station. The tape, constantly in motion, passes these stations and is read from or recorded upon. A record that is read at the Read Station may be processed and recorded back on the tape at the Write Station during the same tape cycle. This is possible if the processing time does not exceeed the time it takes the record location on the tape to move from the Read Station to the Write Station. The time allowed for processing, therefore, depends upon the distance the tape must travel from the Read Station to the Write Station. As noted, these stations are stationary; however, the distance can be increased or decreased in effect by the manner in which the tape is threaded through the tape handling mechanism. The minimum time allotted for processing is 100 milliseconds. This time can be increased in increments of 100MS to the maximum time of 600 MS.

MODEL 9100

SUMMARY OF MAGNETIC TAPE DRUM

SPECIFICATIONS

Maximum Number:	30
Packing Density:	400 characters per inch
Number of Channels:	16 14 channels accomodate the data and party bits 1 channel is for the clock track 1 channel is for the block mark
Tape Capacity:	Variable. Maximum approximately 1,000,000 characters
Record Length:	Fixed - 96 characters
Record Gap	.083 inch
Tape Speed:	120 inches per second
Change Tape Time:	1 - 2 minutes
Composition:	Mylar Base
Length:	Variable. Maximum approximately 256 feet.

TAPE SEARCHING

Records on the tapes are found by a method referred to as "tape searching." The method used is to place an identifying key in the Search Register that will compare only with the record sought in the Magnetic Tape. When a comparison is made on this identifier in the Search Register and upon the key in the contents of a record, a "Match" is said to have occurred and the matching record will automatically be read into the computer for processing.

The time it takes to get a "Match" depends upon a number of things foremost of which are:

1. The Length of the Tape - each tape loop can be tailored to the exact requirements of the user. The minimum length is 12 feet 8 inches (with a capacity of 500 blocks) to a maximum of 256' plus (10,000 blocks plus)*. With a tape speed of 10 feet per second, the minimum loop would take approximately 1.5 seconds and the maximum loop would require approximately 25 seconds to complete a cycle.
2. Number of Simultaneous Searches - with one Search Register it is possible to be searching for as many as 7 records simultaneously. (It is possible to have up to 4 Search Registers if desired.)
3. File Layout - although the tape drum allows complete randomness in operation, the file may be ordered if so desired to optimize searching time.

* Currently, we are using 256' tape loops as a maximum. However, this was an arbitrary selection and the maximum length can be increased if desired.

PROCESSING TIME

In the RPC-9000 System, Magnetic Tapes are normally processed in the following manner:

1. The tape is searched for the desired record in the manner described above.
2. When the desired record is found, it is brought into the central computer and processed.
3. The updated record is written back onto the same location in the tape that it was taken from.

The total time to process a record, i.e., the time it takes to locate the record, update it, and write it back on tape, may now be determined by calculating the time required to locate a record and adding to this the length of time required for the tape to pass from the reading station thru the writing station.

SORTING AND COLLATING

Several standard routines are available for the sorting and collating of magnetic tapes. For example, one routine is available which will provide for the sequential output of 16 records per tape revolution. Other standard tape sorting routines are available for both single and multiple Tape Drum Systems.

Collating routines are available which will provide sequential output from two or more tape drum systems.

INPUT AND OUTPUT UNITS

The RPC-9000 employs a variety of input/output units. Punched Cards, Magnetic Tape, Punched Paper Tape, Inquiry Typewriter and two On-Line Printers. Up to 32 of these units may be used in any combination with one Central Computer to form an integrated data processing system. Furthermore, it should be stressed that each of the input/output units are completely buffered to operate independently and provide for time sharing the Central Computer.

INPUT

1. Manual Typing
2. Punched Paper Tape
3. Magnetic Tape
4. 80 to 90 Column Punched Cards

OUTPUT

1. Typewriter
2. Punched Paper Tape
3. Magnetic Tape
4. 80 to 90 Column Punched Cards
5. On-Line Printing

RPC-9500

TAPE TYPEWRITER SYSTEM

Standard input-output for the RPC-9000 Electronic Data Processing System. The electric encoding-decoding typewriter is used for direct computer input-output or for off-line tape preparation. Typewriter operates at a speed of 12 characters per second as an automatic output typing station. Punched paper tape console contains a 60-characters-per-second reader and a 30-characters-per-second punch. All units can operate independently or together, as desired.

The RPC-9600 Tape Typewriter System is similar to the RPC-9500, except that it is designed for off-line use.

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MODEL 9500 TAPE TYPEWRITER SYSTEM

GENERAL

The 9500 consists of a modified Royal Electric Typewriter, a punched paper tape reader and a punched paper tape perforator interconnected so as to print, punch paper tape and read paper tape.

The typewriter unit is mounted on its own console the interior of which contains some of the control circuitry.

The Tape Reader and Tape Punches form an integral unit which is mounted in a specially designed cabinet. This cabinet also contains the remaining control circuitry. This cabinet is equipped with facilities for tape handling, permitting either strip or reel handling.

An operator's chair designed in matching motif is supplied as a part of the 9500 system at no extra charge.

Modes of Operation

The three basic units of the system may be interconnected as follows:

1. Typewriter keyboard driving tape punch.
2. Tape Reader driving typewriter.
3. Modes '1' and '2' above activated simultaneously for printing and punching a new tape.
4. Regen -- The output of the tape reader directly driving the tape punch for regenerating paper tape at the maximum speed of the punch unit.
5. Inch Mode -- When in the Inch Mode, modes '2' and '3' above which require the tape reader to drive the typewriter will read and type only one character for each depression of the start button.

6. Special Controls -- In addition to the basic modes of operation described above, a number of special features have been incorporated into the unit.

A. "Skip" button -- When correcting an error in a tape, the reader may be stopped by using the Inch Mode just prior to the character in error. The correct character is then punched into the new tape by depressing the correct typewriter key. The incorrect character in the original tape is passively skipped past the reader station by depressing the "Skip" button. This button is operative only when the Inch Mode is depressed.

B. Reader Tape Code Lights -- A group of seven lights, one for each channel of the seven tape channels, indicate the character code under the reading brushes. This character will be the next one to print and/or punch. These lights are especially valuable for tape editing since the tape may be "Inched" along and each character examined for error before it is printed or punched. The operator would, of course, only enter the Inch Mode when the character in error was known to be near the reading brushes.

C. Carriage Return Stop and Alternate Stop -- Two buttons labeled "Carriage Return Stop" and "Alternate Stop" are provided. When depressed, they will cause the unit to stop reading tape after either a carriage return code or an asterisk code respectively has been read. This feature permits the typewriter to print just one line at a time from paper tape for easy proof reading.

D. Punch Tape Indicator -- The punch is equipped with two interlock switches for sensing that the tape supply has been depleted. The first of these is placed so that when the end of the tape activates

it, about ten inches of tape are still available for punching. When activated, the "Preliminary out of Tape" Indicator lights, the keyboard of the typewriter locks and the "Keyboard Lock" Indicator is lit. Depression of the "Keyboard Release" button will override the locking, releasing the keyboard lock, thus permitting the operator to finish punching the unit record or line in the last ten inches of the blank tape.

The second out-of-tape sensing switch is located at the punch dies. When no tape is under the punch dies, the keyboard again locks. It may be released only by the insertion of a new supply of tape.

E. "Special" Key on Typewriter -- To facilitate correcting errors which are detected at the time the operator punched them, a "Special" key has been provided which works as follows:

When the special key is held depressed, depressing the back-space key causes the tape under the punch dies to be backed up one character instead of punching the back-space code into the tape. Similarly, the letter "X" key when depressed while the "Special" key is depressed will punch the Null or Code Delete code pattern instead of the "X" code, obliterating the character under the punch dies. Together, these allow the operator to back up the tape and printing, remove the error code from the tape and overprint with the "X" the printed error character, then go on with the correct character.

Units

Typewriter
Modified Royal Electric Typewriter
Thirteen-inch Carriage
Available with or without pin feed platen
Available with or without Linefinder Format Controller

OTHER INPUT/OUTPUT UNITS

High Speed Photo Electric Reader (Model 9410)

The High Speed Photo Electric Reader can read paper tape files at the rate of 500 characters per second.

80 Column Card System (Model 9460)

The 80 Column Card System can read 80 Column punched cards at the rate of 400 cards per minute.

High Speed Paper Tape Punch (Model 9440)

The High Speed Paper Tape Punch can perforate paper tape at the rate of 300 characters/second.

High Speed Line Printer (Model 9450)

This High Speed On-Line Printer can print at two speeds:

667 lines per minute or 1000 lines per minute

Line Printer (Model 9470)

This On-Line Printer can print at a speed of 120 lines per minute.

Paper Tape Punch and Reader (Model 9430)

Reads paper tape at 60 characters/second

Punches paper tape at 30 characters/second

RPC-9430

PUNCH/READER

An on-line punch/read unit for the RPC-9000 Electronic Data Processing System. Reads punched paper tape on reels or strips into computer at 60 characters per second. Also serves as selective output paper tape punch under program control of the computer. Punching speed is 30 characters per second.

RPC-9431 AUXILIARY PUNCH/READER Additional units may be operated on-line, in conjunction with the RPC-9430. Multiple units may be connected on-line, within the limit of the buffer assignments.

RPC-9430 is a product of the Royal Precision Corporation, owned jointly by the Royal McBee and General Precision Equipment Corporations.

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RPC-9410

PHOTOELECTRIC READER

Auxiliary high-speed punched paper tape input for the RPC-9000 Electronic Data Processing System. Capable of reading tape bi-directionally on strips or reels at 500 characters per second. Multiple units may be connected on-line within the limits of the buffer assignments.

RPC-9410 is a product of the Royal Precision Corporation, owned jointly by the Royal McBee and General Precision Equipment Corporations.

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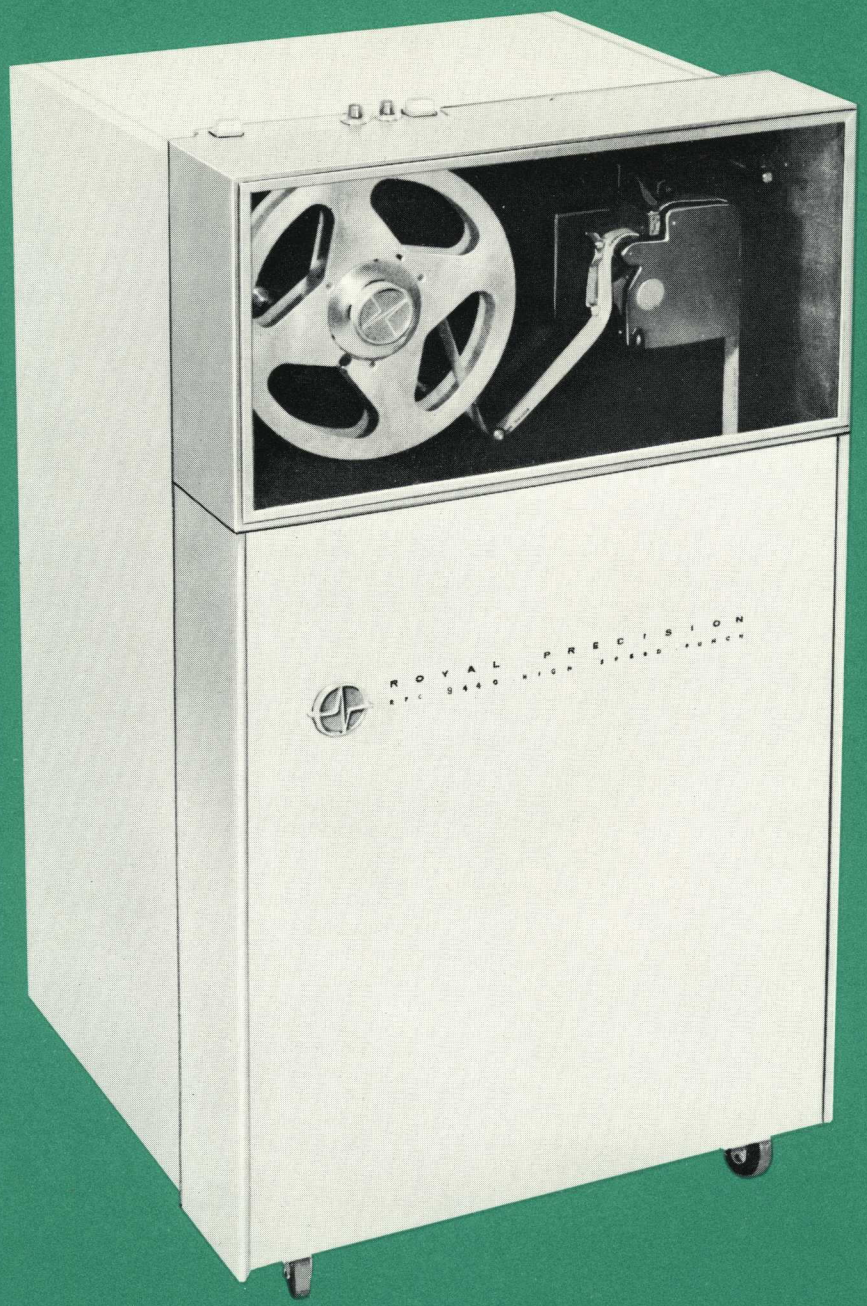

RPC-9440

HIGH SPEED PUNCH

Optional punched paper tape output for the RPC-9000 Electronic Data Processing System. Speed: 300 characters per second. Multiple units may be connected on-line within the limits of the buffer assignments.

RPC-9440 is a product of the Royal Precision Corporation, owned jointly by the Royal McBee and General Precision Equipment Corporations.

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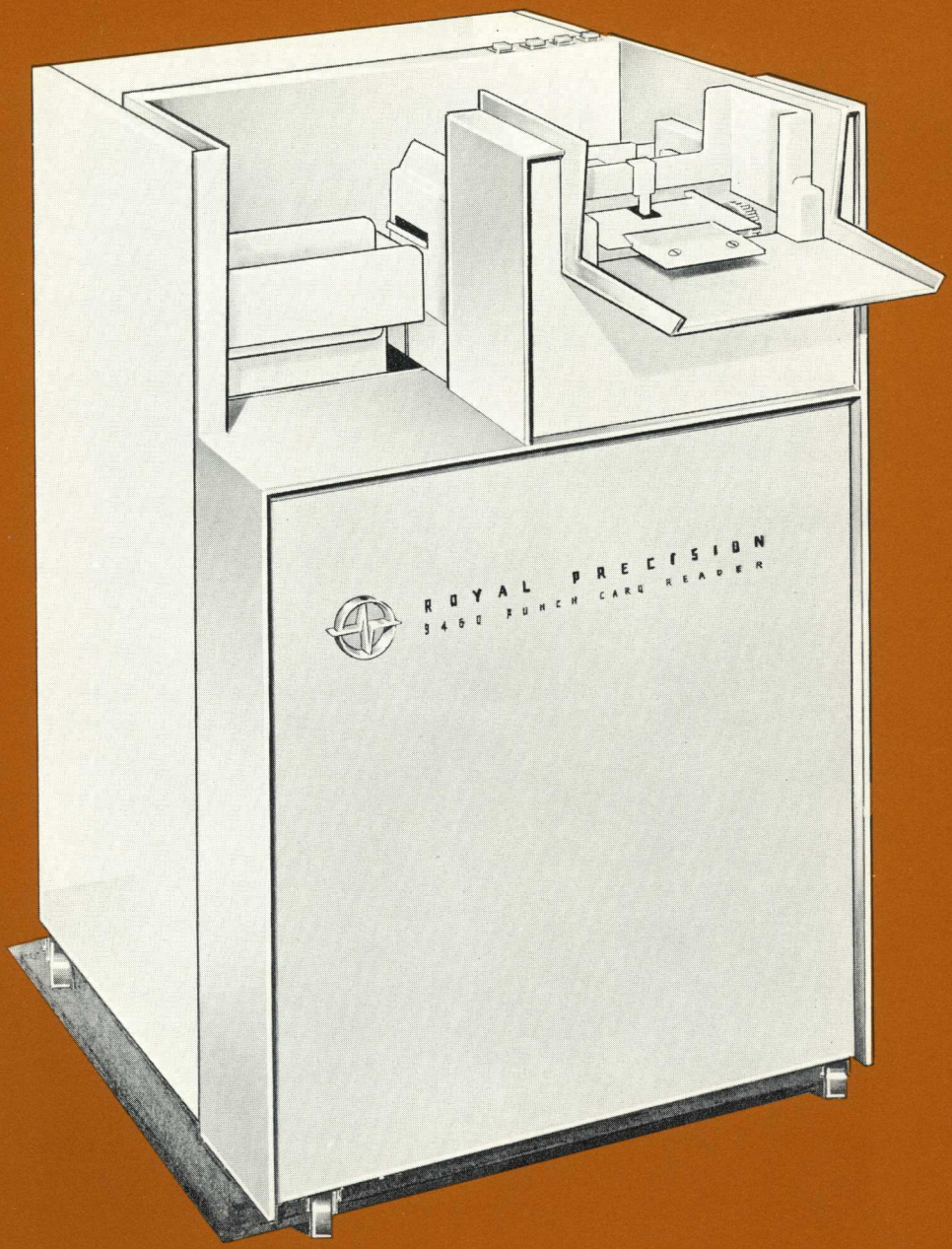

RPC-9460

PUNCHED CARD READER

An optional input unit for the RPC-9000 Electronic Data Processing System. Reads 80-column punched cards photo-electrically at 400 per minute. Multiple units may be connected on-line within the limits of the buffer assignments.

RPC-9460 is a product of the Royal Precision Corporation, owned jointly by the Royal McBee and General Precision Equipment Corporations.

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SITE PREPARATION

General: There is no special site preparation necessary.

Floor Space: 400 Sq. Ft. for typical system

Item	Dimensions in L x W x H
Processing Unit (RPC 9070)	66 x 27 x 42
Tape Typewriter System (RPC 9500)	66 x 27 x 30
Punch and reader (RPC 9430)	22 x 27 x 30
Photoelectric Reader (RPC 9410)	22 x 27 x 30
Punch Card Reader (RPC 9460)	22 x 27 x 30
Magnetic Tape Drum (RPC 9100)	44 x 27 x 30
Line Printer (RPC 9450)	22 x 27 x 42
High Speed Punch (RPC 9440)	22 x 27 x 42

Air Conditioning: Heat generated by equipment is negligible. Air conditioning requirements would be dependent upon heat generated by personnel, only.

Power: 115 Volts - no special wiring or power requirements.

Humidity Control: Humidity control is not required.