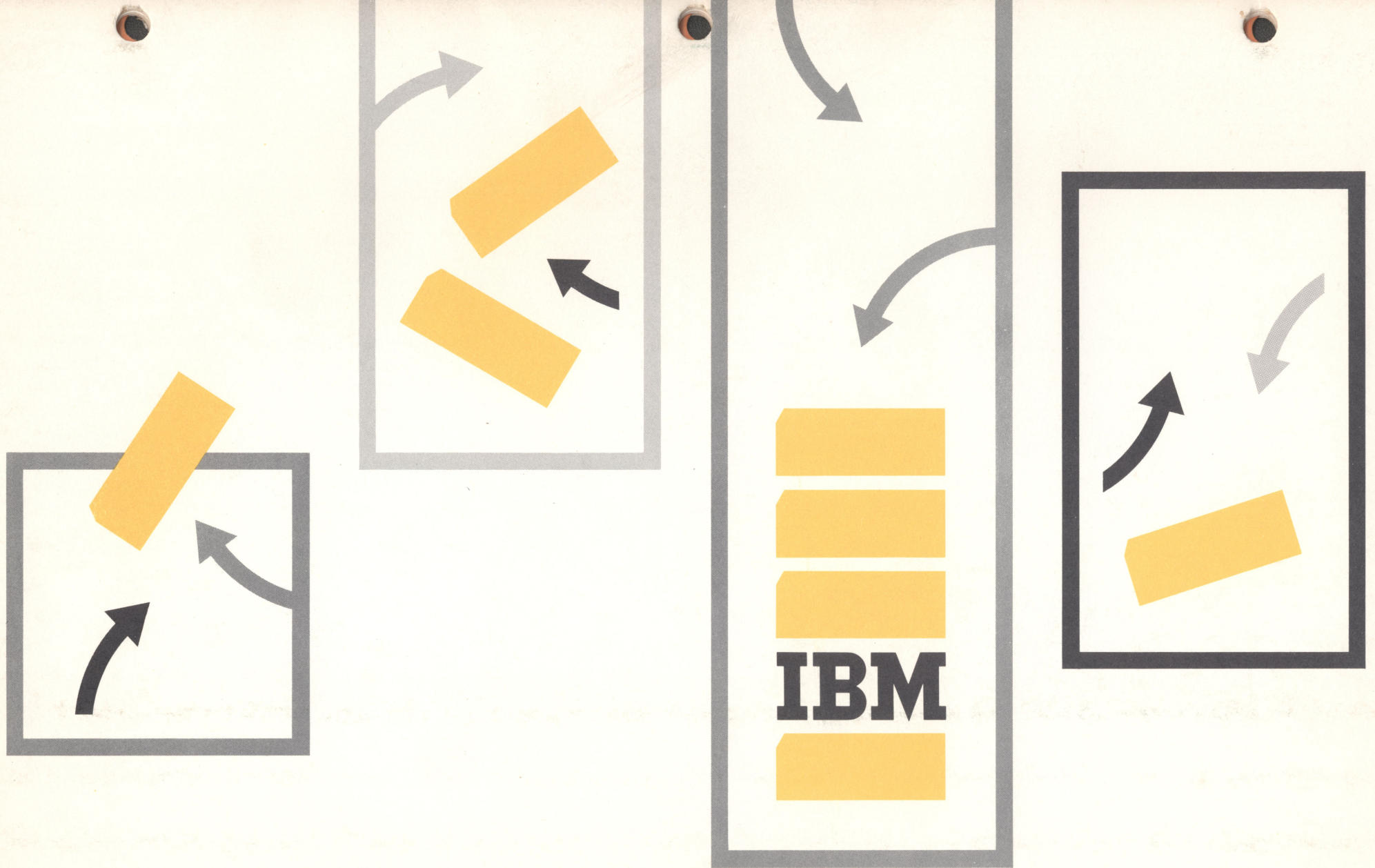


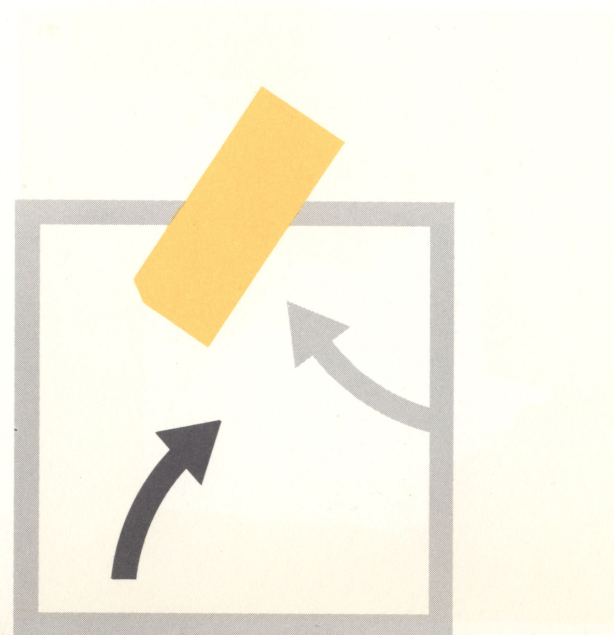


A Quick Reference Guide to IBM Punched Card Data Processing Equipment

Foreword

This guide provides a concise directory to IBM Punched Card Equipment. No attempt has been made to include all features and abilities of the machines listed. In the interest of brevity, only major characteristics have been cited. These should help you to spot readily the machines which will perform the specific functions you require. For full details, ask your IBM salesman for the brochure or manual covering the equipment in which you are interested.

International Business Machines Corporation
Data Processing Division
112 East Post Road
White Plains, New York



IBM Card and Tape Punches

IBM punches serve as the means for recording both numerical and alphabetic data into IBM cards or paper tape in the form of punched holes which are readable by other IBM machines.

Information to be punched is entered into IBM punches by one or more of the following means, as indicated in the tabulations on the following pages:

- 1) Manual operation of the punch's keyboard.
- 2) Manual typing on a connected electric typewriter.
- 3) Automatic reading of all or part of the data punched in another card or cards.
- 4) Automatic "sensing" of electrically conductive marks made by means of a special pencil elsewhere on the card.
- 5) Automatic reading of all or part of the data punched in paper tape.
- 6) Impulses received from another connected IBM machine, as in summary punching of totals accumulated in an accounting machine or other machine having counters or registers.

Some types of IBM punches interpret the punched data by printing the equivalent letters and numerals, usually across the top of the card. Other punches, classed as "automatic," are designed primarily to do high-speed duplicating, gang punching and reproducing and also serve as summary punches. Self-checking features are provided on some punches, particularly those which convert paper tape code to card code, and vice versa.



IBM 26 Printing Card Punch

Foreword • Card and Tape Punches

Card Punches and Verifiers

Interpreters, Tape Punches, and Automatic Punches

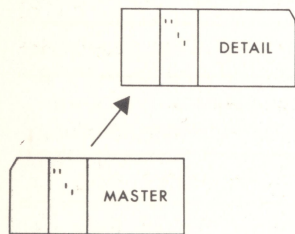
Machines for Arranging and Maintaining Card Files

Accounting Machines

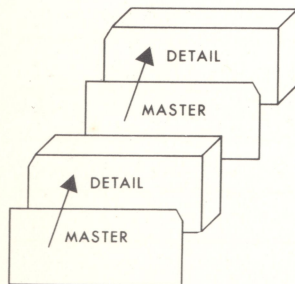
Calculating Punches

IBM TELE-PROCESSING: Card-to-Card Data Transmission Systems

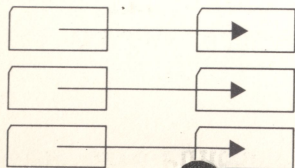
Definitions of Functions



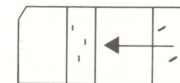
DUPLICATING: One or more items in the data to be punched into a group of cards may be common to all. The common data can be punched into the first card of the group and thereafter be automatically DUPLICATED in the corresponding fields of the following cards. Duplicating can be accomplished automatically either by means of the punch's program card or by manually depressing the DUP key.



GANG PUNCHING: When common data is punched automatically from a master card into one or more following cards, other than as a part of the manual punching operation, the function is called GANG PUNCHING. Gang punching can be performed separately or in combination with reproducing and summary punching. If different master cards are interspersed between groups of cards to be punched with changing common data, the operation is called INTERSPERSED GANG PUNCHING.



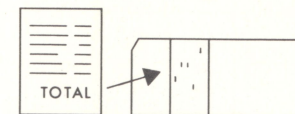
REPRODUCING: Some or all of the fields from a file of punched cards can be REPRODUCED automatically in another file of cards in either the same or different positions. REPRODUCING differs from gang punching in that the data punched in the new cards differs in each card.



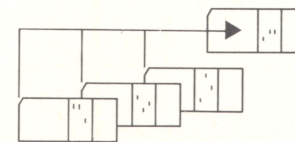
MARK-SENSED PUNCHING: Punches equipped for mark-sensing automatically punch one or more fields of a card in accordance with electrically conductive marks made elsewhere on the card by means of a special pencil.



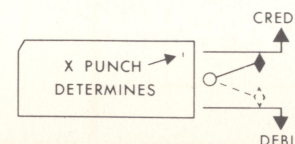
INTERPRETING: The translation of punched holes into printed information on a punched card is called INTERPRETING.



SUMMARY PUNCHING: Attached to an accounting machine, a SUMMARY PUNCH punches into IBM cards the totals or balances accumulated by the accounting machine's counters.



ACCUMULATED TOTAL PUNCHING: When printed reports are not required, the amounts punched in a group of cards can be summarized by the counters of an Accumulating Reproducer. Totals will be punched into summary cards by the same machine.



SELECTION: By means of control punches in cards, machines having selectors can determine different classes of cards being fed through them in the same run. For example, debits can be differentiated from credits.

IBM Card Punches and Verifiers

- Indicates optional feature
 * When reading 8-track tape
 † Summary punch for 402, 403, 419

	Numerical Only	Alphameric	Data Entry From:						Additional Functions				Features	
			Keyboard	Punched Card	Paper Tape	Typewriter	Other Machine	Mark-Sensing	Duplicating	Gang Punching	Reproducing	Interpreting	Has Selectors	Self-Checking
10 Card Punch — Manual feed.	●		●											
24 Card Punch — Card programmed.		●	●	●					●	○				○
26 Printing Card Punch — Card programmed, self-interpreting.		●	●	●					●	○		●		○
27 Card Proof Punch — Prepares adding machine tape while punching cards.	●		●	●					●					
28 Printing Card Proof Punch — Similar to 27 with interpreting added.	●		●	●					●			●		
46 Tape to Card Punch — Punches cards from paper tape.		●			●				●				●	●*
47 Tape to Card Printing Punch — Similar to 46 with interpreting added.		●			●				●			●	●	●*
65 Data Transceiver Card Unit — Receiver/transmitter for card-to-card wire transmission via telephone or telegraph lines when combined with proper signal unit.		●		●					●					●
66 Data Transceiver Printing Card Unit — Similar to 65 with interpreting.		●		●					●			●		●
526 Printing Summary Punch — Like 26 but capable of summary punching.		●	●	●			●†		●	○		●		
824 Typewriter Card Punch — Punches cards simultaneously with typing of a document under program control.		●	●	●		●			●					
826 Typewriter Printing Card Punch — Like 824 with interpreting.		●	●	●		●			●			●		
56 Verifier — Checks cards, pinpoints errors in transcribing from source documents.		●	●	●										

Card Punches and Verifiers

Interpreters, Tape Punches, and Automatic Punches

Machines for Arranging and Maintaining Card Files

Accounting Machines

Calculating Punches

IBM Interpreters, Tape Punches, Etc.

[illegible]

Automatic Punches

	Numerical Only	Alphameric	Data Entry From:						Additional Functions				Features	
			Keyboard	Punched Card	Paper Tape	Typewriter	Other Machine	Mark-Sensing	Duplicating	Gang Punching	Reproducing	Interpreting	Has Selectors	Self-Checking
514 Reproducing Punch.		●		●			●*	○		●	●		○	●
519 Document Originating Machine — Prints up to 8 numerical characters on end of card.		●		●			●*	○		●	●	●	●	●
523 Gang Summary Punch.		●		●			●*			●			○	
524 Duplicating Summary Punch — Used with 101 Statistical Machine.	●		●	●			●		●					
526 Printing Summary Punch — Like 26 Card Punch but capable of summary punching.		●	●	●			●†		●	○		●		
528 Accumulating Reproducer — Net-balance counters; high-speed accumulating and self-contained summary punch.		●		●			●*			●	●		●	●
534 Card Punch — Used with 108 Card Proving Machine, 858 CARDATYPE, 870 Document Writing System, or independently.		●	●	●		●	●		●					
536 Printing Card Punch — Like 534 with interpreting, but not usable with 108. However, is used with the 870 Document Writing System.		●	●	●		●	●		●			●		
549 Ticket Converter — Converts code punched ticket and punches data into IBM cards.	●						●‡			●				

○ Indicates optional feature

* Summary punch for 402, 403, 407, 408, 409, 419

† Summary punch for 402, 403, 419

‡ Summary punch for 402, 403, 407, 408, 409, 419

Interpreters, Tape Punches, and Automatic Punches

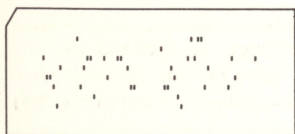
Machines for Arranging and Maintaining Card Files

Accounting Machines

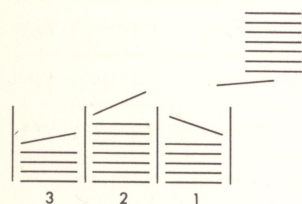
Calculating Punches

IBM TELE-PROCESSING: Card-to-Card Data Transmission Systems

Definitions of Card Arranging Functions



SINCE EACH PUNCHED CARD contains the record of a unit of a transaction, the rearranging and regrouping of cards by various classifications of information punched in them permits the development of a wide range of reports, as well as the printing of invoices, statements, checks and other documents on an IBM Accounting Machine.

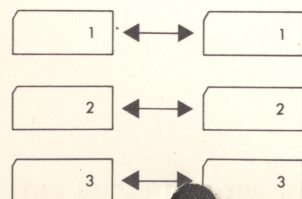


SORTING: The machine reads data punched in a single column of a file of cards and causes the cards to fall into different pockets (stackers) according to the numeral or letter read. By multiple sorts on a number of consecutive columns within a field, the entire file can be put into complete numerical or alphabetic sequence.

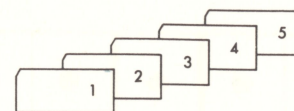
COLLATING: This includes such file maintenance operations, performed on a Collator, as merging, matching, sequence checking and selecting.



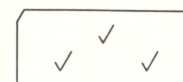
MERGING: Two sets of punched cards arranged in the same sequence may be combined into a single file in which all cards of the same number or designation are placed together. This operation makes possible the automatic filing of new cards in an existing file.



MATCHING: Two sets of cards may be fed through the two feeds of a collator to see whether for each card in the primary file there exists a card of the same number or designation in the secondary file. During the matching run, unmatched cards can be selected or separated from either or both files. Matching is frequently combined with merging.



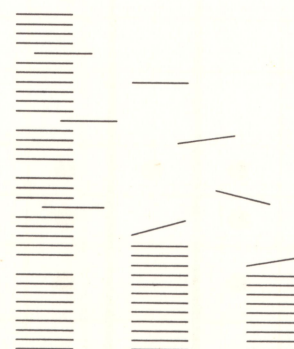
SEQUENCE CHECKING: A file of punched cards may be checked for sequence by passing it through the primary feed hopper of a collator.



EDITING: Checking cards for blank columns, double punches, consistency of coded information, etc., are forms of editing as applied to punched cards.

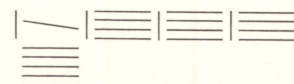
1	8	2	3	8	0
2	5	1	7	4	8

ACCUMULATING: Totals are ACCUMULATED in counters as a result of the addition and subtraction of amounts read from a group of punched cards.

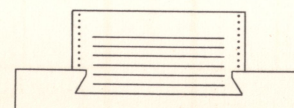


SELECTION: Individual cards or groups of cards can be automatically located and removed from a file without disturbing the sequence of the remaining cards. Selected cards may be caused to stack in certain pockets, according to requirements.

AND



FILE SEARCHING: Cards containing certain multi-digit numbers or words in a field can be selected automatically from a card file without disturbing the sequence of the remaining cards.



NON-STOP UNLOADING: Processed cards can be removed from stacking pockets of some machines without stopping the machine.

PRINTING: Information read from punched cards, or developed as a result of machine calculations, can be reproduced in printed form on documents or reports.

IBM Machines for Arranging and Maintaining Card Files

	Sorts, etc.		Nonstop Unloading	Functions								
	Numerically	Alphabetically		Sorting	Merging	Matching	Sequence Checking	Editing (Checking)	Accumulating	Selecting	File Searching	Printing
82 Sorter — Model 1 sorts 650 cards per minute. Model 50 sorts 450 cards per minute.	●	●		●		○				○	○	
83 Sorter — Sorts at rate of 1000 cards per minute.	●	●		●		○		●		○	○	
84 Sorter — Sorts at rate of 2000 cards per minute.	●	●	●	●				●		●		
77 Collator-Series 50 (Numerical) — Feeds 120 cards per minute at each of two feeds.	●				●	●	●	●		●	●	
85 Collator (Numerical) — Feeds 240 cards per minute at each of two feeds.	●	○			●	●	●	●		●	●	
87 Collator (Alphabetic) — Feeds 240 cards per minute at each of two feeds.	●	●			●	●	●	●		●	●	
88 Collator (Numerical) — Feeds 650 cards per minute at each of two feeds.	●	○	●		●	●	●	●		●	●	
188 Collator — Feeds 650 cards per minute at each of two feeds.	●	●	●		●	●	●	●		●	●	
101 Electronic Statistical Machine — Counts up to 60 classifications of cards in one pass. Accumulates and prints group totals and group identifications. Feeds 450 cards per minute.	●	●		●			●	●	●	●	●	●*
108 Card Proving Machine — In addition to many accuracy checks on punched cards, the 108 can do high speed alphabetical sorting, and checking of crossfooting at the rate of 1000 cards per minute.	●	●	●	●			●	●	●	●	●	●†

○ Indicates optional feature

* Also punches summary cards on attached IBM 524 punch

† Prints on attached IBM 867 typewriter and summary punches on attached IBM 534 punch

Machines for Arranging and Maintaining Card Files

Accounting Machines

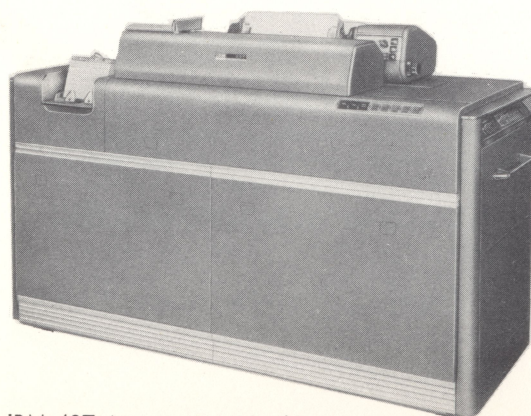
Calculating Punches

IBM Accounting Machines

An IBM accounting machine has both an arithmetical and a printing function. It can print onto continuous or individual forms all or selected data read from punched cards fed through it. It can also read figures from these cards, printing them or not as required, and accumulate group totals and grand totals by addition and subtraction. It can also do cross-addition and cross-subtraction of several figures read from the same card or a group of cards. In addition to identifying and printing the totals accumulated in its counters, it can cause them to be punched into IBM cards on an attached summary punch.

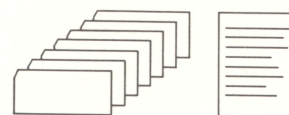
IBM accounting machines are equipped with various types of carriages, but the feeding, movement and ejecting of forms is automatically controlled on all types.

By rearrangement of punched card files and changes in an accounting machine's control panel, an infinite variety of reports, documents and forms can be produced quickly, accurately and automatically.

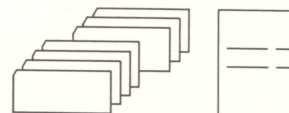


IBM 407 Accounting Machine

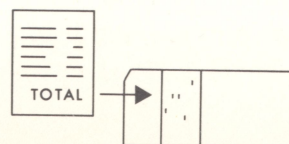
Accounting Machine Functions Defined



DETAIL PRINTING: When an accounting machine is caused to print the data from every card passing through it, thus listing the details of every transaction, the operation is called **DETAIL PRINTING**.

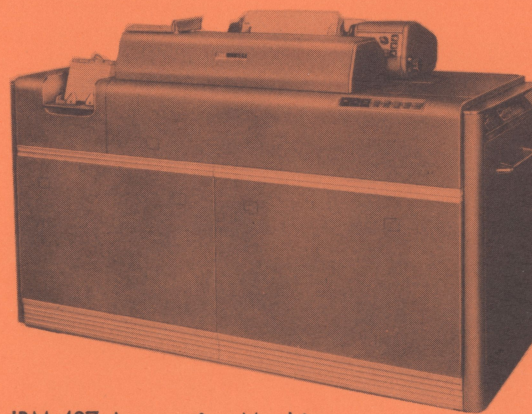


GROUP PRINTING: When an accounting machine is caused to simply accumulate the amounts punched in groups of cards and to print only the totals, the operation is called **GROUP PRINTING**.



SUMMARY PUNCHING: Group totals or grand totals accumulated in the counters of an accounting machine may be recorded automatically by punching into IBM cards by means of an attached **SUMMARY PUNCH**. Several types of automatic punches may be used as summary punches, each of which can also perform additional functions.

$$a \times b = c$$



IBM 407 Accounting Machine

Now! Let the IBM 407 solve your multiplication problems

*Increase the processing power and performance
of your punched card equipment.*

With the new multiply feature, the 407 becomes more efficient, more versatile than ever. In addition to its many other accounting functions, the 407 can now handle easily any multiplication problems of the $a \times b$ variety—and then list the results of calculation in report form and summary punch them into cards.

Two versions of the feature are available:

- The Single Product feature performs single product operations: $a \times b = c$.
- The Double Product feature performs two calculations at the same time using the same multiplier: $a \times b = c$, $a \times d = e$

Both versions provide for a multiplier of up to 4 positions, a multiplicand of up to 7 positions, and a product of up to 8 positions, and both may be field installed.

For all the details, contact your local IBM branch office or

IBM

International Business Machines Corporation
Data Processing Division
112 East Post Road, White Plains, N. Y.

NO.	MACHINE	Multi-Line Printing from the same card	Maximum Speeds: Lines } per Cards } Minute	
			Detail Printing	Group Printing
402	Alphabetical Accounting Machine		100	150
402	Alphabetical Accounting Machine (Series 50)		50	50/100
403	Alphabetical Accounting Machine	●	100	150
403	Alphabetical Accounting Machine (Series 50)	●	50	50/100
419	Numerical Accounting Machine		150	150
407	Accounting Machine	●	150	150
408	Accounting Machine	●	150	150
409	Accounting Machine	●	150	150
858	CARDATYPE Accounting Machine	●	variable	variable

DISTINCTIVE FEATURES

Type bars, some of which are numerical only, print on single sheets or automatically advanced continuous forms. Ability to add and subtract is standard; ability to perform simple multiplication is optional. (Series 50): Same as 402 but operates at lower speeds.

Similar to the 402 except that it can: (1) print up to 3 lines from a single card; and (2) crossfoot three amounts from a single card. (Series 50): Same as 403 but operates at lower speeds.

Similar to the 402 except that it is entirely numerical.

Prints from type wheels, which are alphameric in all 120 positions, onto single sheets or automatically advanced continuous forms. Can recognize debits and credits; can add, subtract and cross-foot amount fields; can store information for repetitive printing and read each card as often as desired. An optional Address Writing Feature permits the 407 to print 9,000 three-line addresses per hour.

Similar to 407 except that it is equipped with a combination Card and Continuous Form Carriage for preparation of card documents such as utility bills, subscription notices or checks while simultaneously printing listings or registers. Name and address can be printed on the same document in several places at once.

Similar to the 408 except that it is equipped with a punch which permits punching in columns 1 to 24 in the left-hand card in the carriage, in addition to printing.

A combination of: (1) card reader/control unit; (2) auxiliary numerical keyboard; and (3) electric typewriter. An arithmetic unit capable of multiplication, addition and subtraction can be added, as can additional typewriters and a card or tape punch. Data to be typed on documents and punched into cards is read from prepunched cards and also manually entered through the typewriter keyboard or auxiliary keyboard. An automatic carriage is optional.

Accounting Machines

Calculating Punches

IBM Calculating Punches

IBM calculating punches not only do adding, subtracting and crossfooting but also multiplying and dividing. Figures to be used in calculation may be read from a punched card and the result punched into the same card. Or factors may be: (1) read from a number of punched cards; (2) be emitted by a device within the machine; or (3) be developed as a result of previous calculations, and the result of the final calculation may be punched into a following card or cards.

In addition to their individually enumerated characteristics, all IBM calculating punches listed can: (1) store results for use in subsequent steps; (2) round off the product to any desired decimal position; and (3) punch a result in one card while calculations are being performed on the next card.

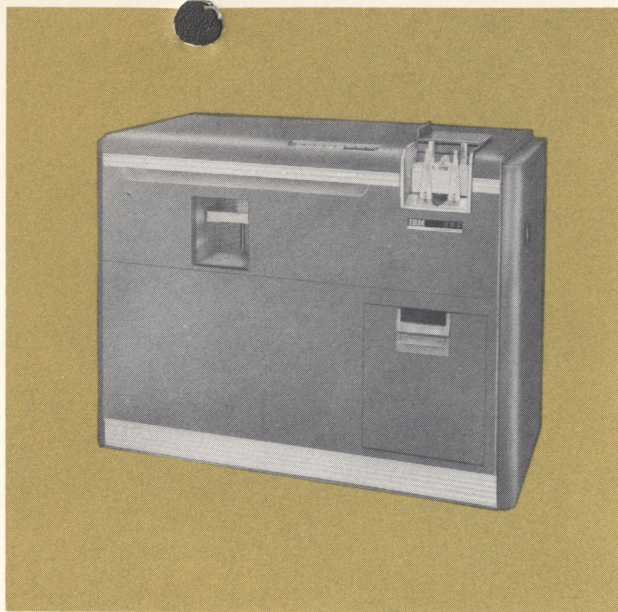
NO.	MACHINE	Maximum Digits of Storage		Most Operations Performed on a Single Card		Maximum Digit Capacity of Arithmetic Counters	
		Std.	Opt.	Std.	Opt.	Std.	Opt.
602	Calculating Punch	72	96	12	--	30	40
602	Calculating Punch (Series 50)	48	--	6	--	22	--
604	Electronic Calculating Punch	37	--	20	60	13	--
609	Calculator (Model A-1) (Model B-1)	240	384	80	144	Limited only by available storage positions	
		84	192	16	64		

DISTINCTIVE FEATURES

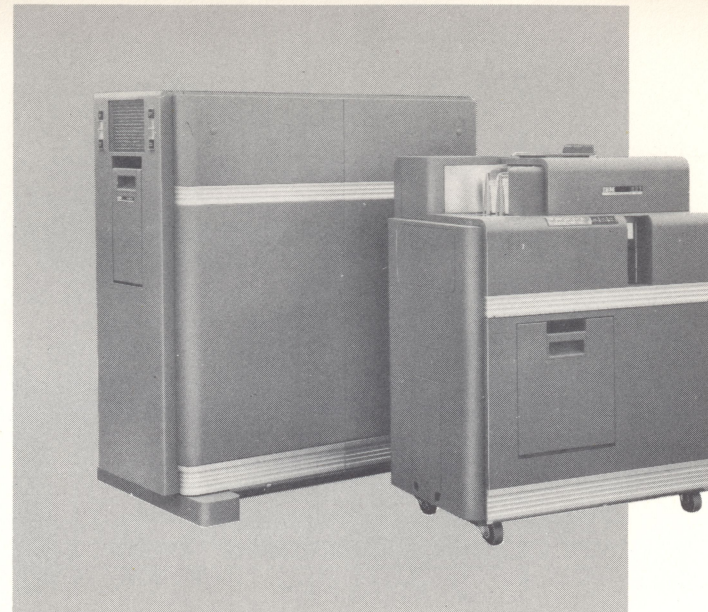
Electro-mechanical. Card output depends on the complexity of the problem and the number of digits involved. Calculating and punch units are combined in a single housing.

Model 1 can read, calculate and punch 100 cards per minute; model 2, 50 cards per minute. Straight and interspersed gang punching can also be done in combination with calculation, or independently.

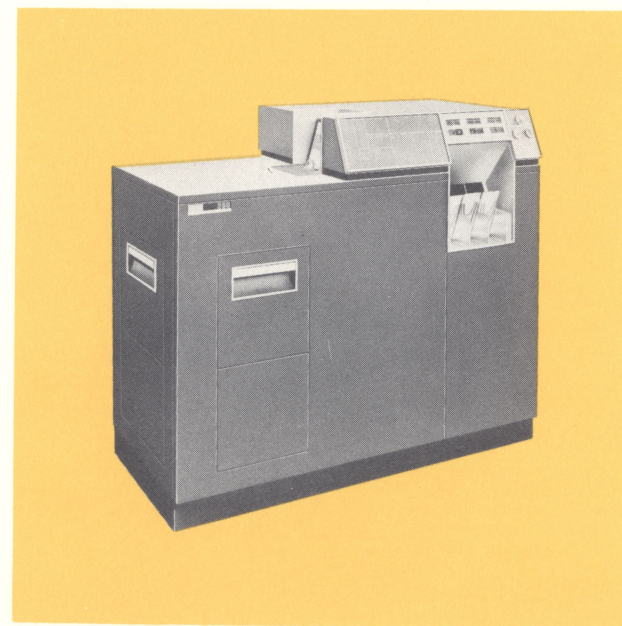
Solid-state (completely transistorized) electronic circuits — combined with superior programming ability, storage and speed — give the 609 big computer performance. Even complex problems are handled in a single pass at a rate of 200 cards per minute. The 609 is housed in a single cabinet. Card selection is provided by three non-stop-unloading stackers.



IBM 602 Calculating Punch



IBM 604 Electronic Calculating Punch

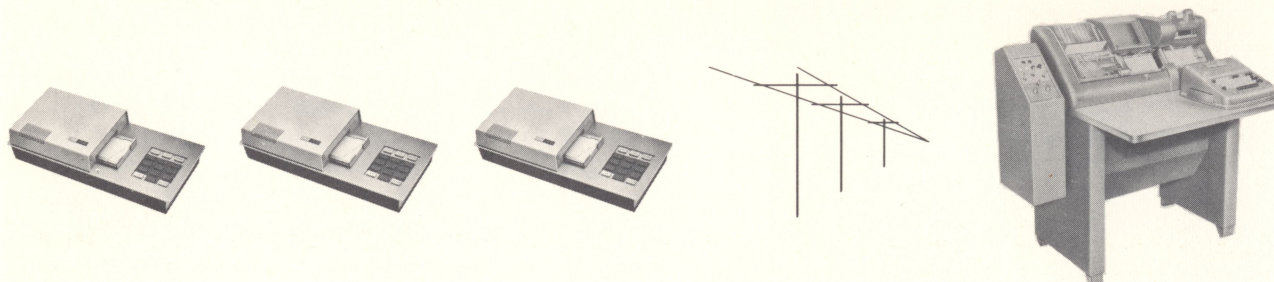


IBM 609 Calculator

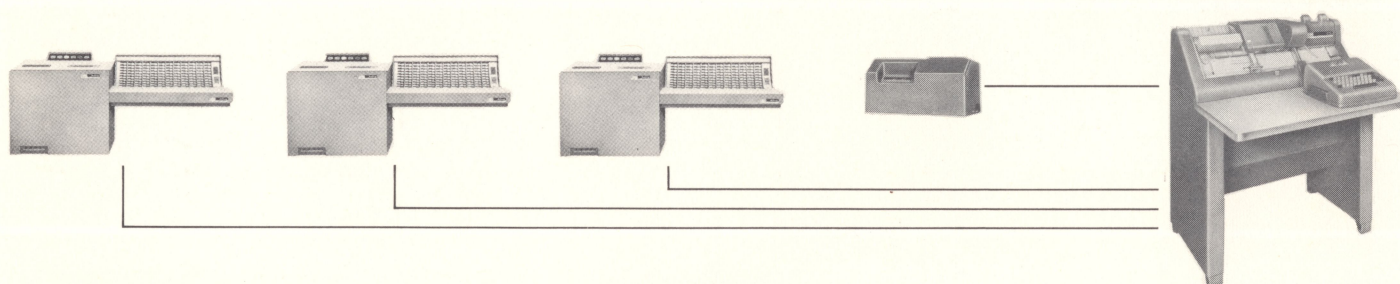
Calculating Punches

IBM TELE-PROCESSING*: Card-to-Card Data Transmission Systems

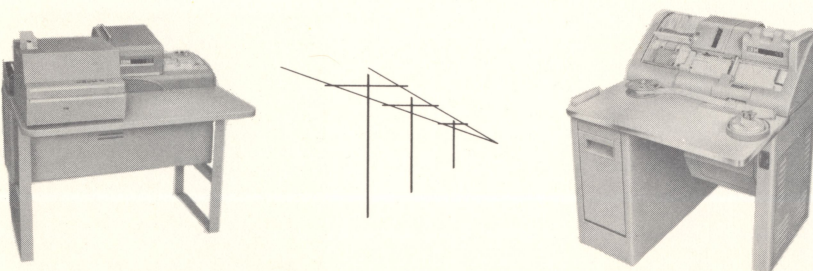
IBM 1001 Data
Transmission System



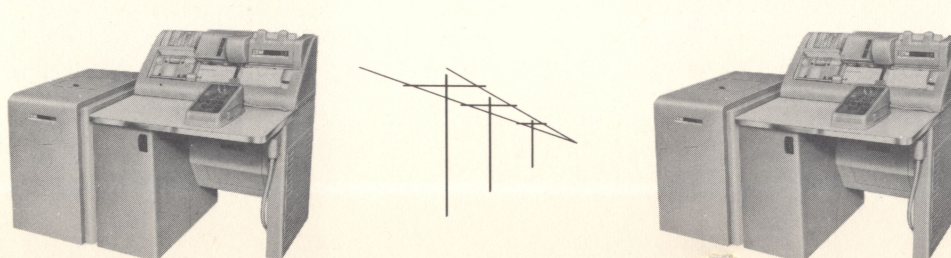
IBM 357 Data
Collection System



Card-to-Paper Tape-
to-Card System



IBM Data Transceiver



IBM 1001 Data
Transmission System

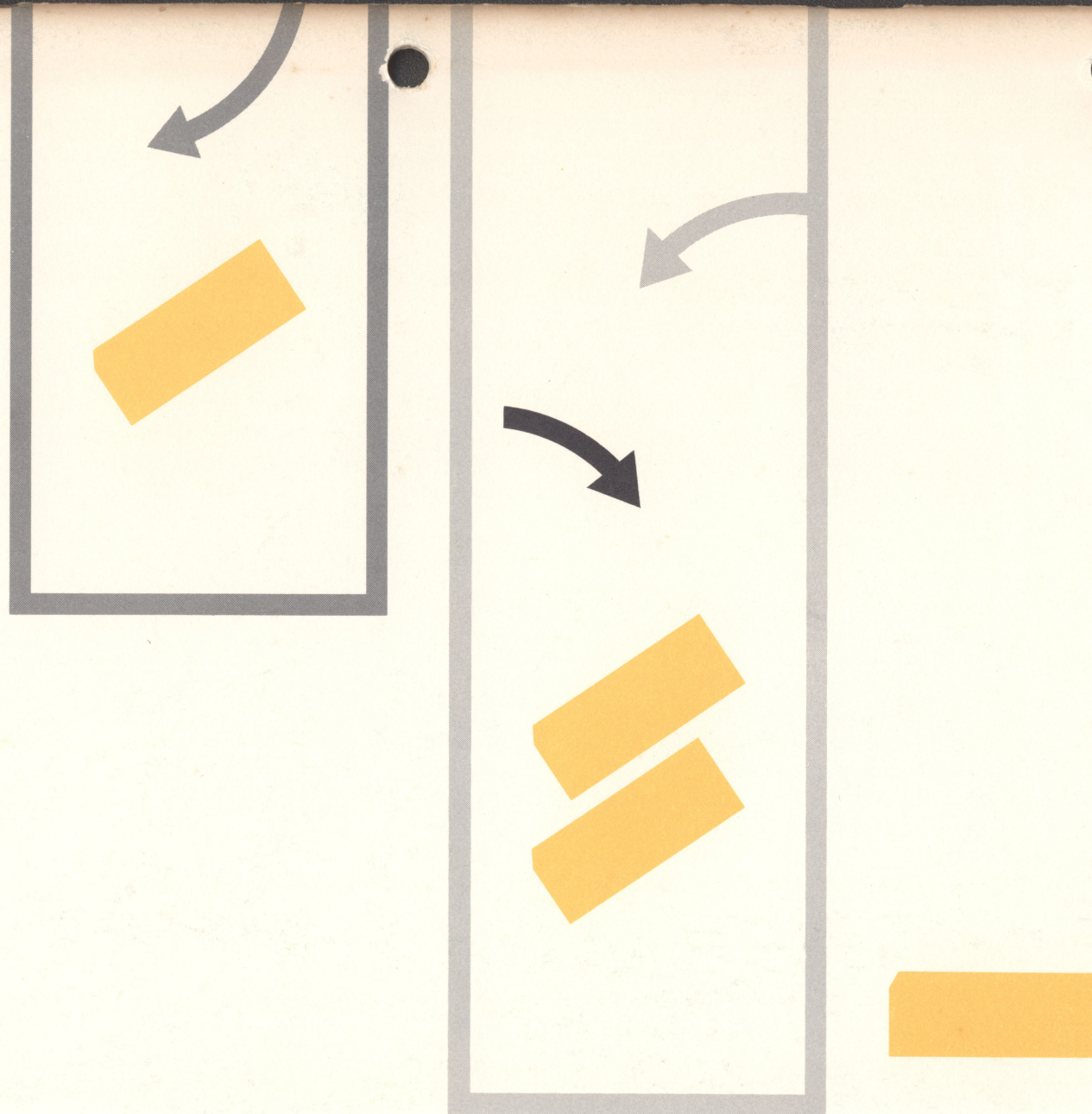
IBM 357 Data
Collection System

Card to Paper Tape
to Card System

IBM Data Transceiver
(Telephone type)

IBM Data Transceiver
(Telegraph type)

DATA TRANSMITTED FROM:	VIA:	TO:	FEATURES
Low-cost transmitting unit reads up to 22 columns of fixed numerical data from a pre-punched, manually inserted card. Additional variable data can be manually entered on integral numeric keyboard. No limit on number of transmitting points.	Conventional or leased local or long distance telephone lines.	One or more IBM 24 or 26 punches which automatically punch fixed and variable data into cards under control of transmitting unit.	Permits low-cost transmission of data in machine language from numerous remote points to a central location. Receiving punch can be dialed without intervention of an operator.
Prepunched job cards and workmen's punched badges inserted into reading units in work areas. Additional numerical data can be entered through attached keyboard. No limit on number of transmitting points.	Private interplant wire system.	One or more IBM 24 or 26 punches which automatically punch transmitted fixed and variable data into cards.	Permits production data to be collected from its sources in machine language for centralized analysis and control. A single IBM 361 readout clock supplies time data to all input stations.
An IBM 63 card-controlled tape punch automatically converts data from IBM cards and punches it into 5-channel paper tape.	Telegraph lines. Also via mail or messenger. (A tape roll equals 1500 cards.)	Telegraphic tape receiver punch. Tape is then converted into cards by an IBM 46 or 47 Tape-to-Card punch.	Permits telegraphic transmission via paper tape from punched cards to punched cards.
An IBM 65 or 66 punch, combined with a 68 telephone signal unit, reads and transmits alphameric and special character data from automatically fed 80-column cards.	Conventional toll or leased telephone lines.	Equipment identical with transmitting unit recreates transmitted cards. If a 66 punch is used, cards are interpreted across the top.	Transmits and punches alphabetic, numerical and special characters for two-way exchange of 80-column cards. New optional feature permits connection over toll lines with any other similarly equipped Data Transceiver.
Similar to above except that a 67 telegraph signal unit is used.	New, high-speed telegraph lines.	Equipment identical with transmitting unit recreates transmitted cards. If a 66 punch is used, cards are interpreted.	Cards are checked for accuracy automatically.



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Data Processing Division

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