

MACHINE METHODS OF ACCOUNTING

AUTOMATIC SUMMARY PUNCHES

Each step in the development of Electric Accounting Machines is characterized by the more automatic performance of various record-keeping operations. The manual punching of total cards from data appearing on tabulated reports was one of the time-consuming routines formerly encountered in the Electric Accounting Method. Summary punches, built in two different models, now accomplish the automatic preparation of total or new-balance cards simultaneously with the accumulation of totals and the printing of reports. These cards may be prepared as a by-product of any tabulation—daily, weekly, or monthly.

Such summary cards and new-balance cards are utilized to reduce the volume of cards in the

current file and to speed up the compilation of accounting and statistical analyses.

Properly planned summary-punching at periodic intervals, such as daily or weekly, as shown in the illustration below, can be used to reduce markedly the time required for the preparation of month-end reports.

The automatic summary punches also possess recording possibilities that are unique. One example of this feature is the punching of a total card for the debit entry to Accounts Receivable simultaneously with preparation of the bill on an Invoicing Tabulator. Another common use is the preparation of a tabulating card payroll check as a by-product of the payroll tabulation.

SALES MANAGER'S COPY				DAILY SALES REPORT				INTERNATIONAL CO. N. Y. C.			
BY DEPARTMENT AND KIND OF SALE											
DATE		DEPT.	CHARGE		CASH		C. O. D.		TOTAL AMOUNT		
NO.	DAY		TRANS.	AMOUNT	TRANS.	AMOUNT	TRANS.	AMOUNT			
924	21	124	124	637	64	52682	21	16420	193739		
924	22	201	165	122	109	89420	42	41687	296229		
924	23	116	91	708	43	42537	17	15219	149464		
924	24	184	100	716	68	55469	51	26481	162666		
924	25	175	132	900	105	84115	65	41476	258491		
924	26	240	201	526	159	98640	106	52533	352699		
924	27								58682		
924	28								82809		
924	29								00129		
924	30								01135		
924	31								06322		
924									71336		
924									35283		
924									62743		
924									82426		

SALES SUMMARY						INVENTORY SUMMARY					
YEAR	MO	DAY	DEPT	TRANS	AMOUNT	TRANS	AMOUNT	TRANS	AMOUNT	TRANS	AMOUNT
924	0	0	0	0	0	0	0	0	0	0	0
924	1	1	1	1	1	1	1	1	1	1	1
924	2	2	2	2	2	2	2	2	2	2	2
924	3	3	3	3	3	3	3	3	3	3	3
924	4	4	4	4	4	4	4	4	4	4	4
924	5	5	5	5	5	5	5	5	5	5	5
924	6	6	6	6	6	6	6	6	6	6	6
924	7	7	7	7	7	7	7	7	7	7	7
924	8	8	8	8	8	8	8	8	8	8	8
924	9	9	9	9	9	9	9	9	9	9	9

18 M. 522697
441
LICENSED FOR USE UNDER PATENT 1,772,492

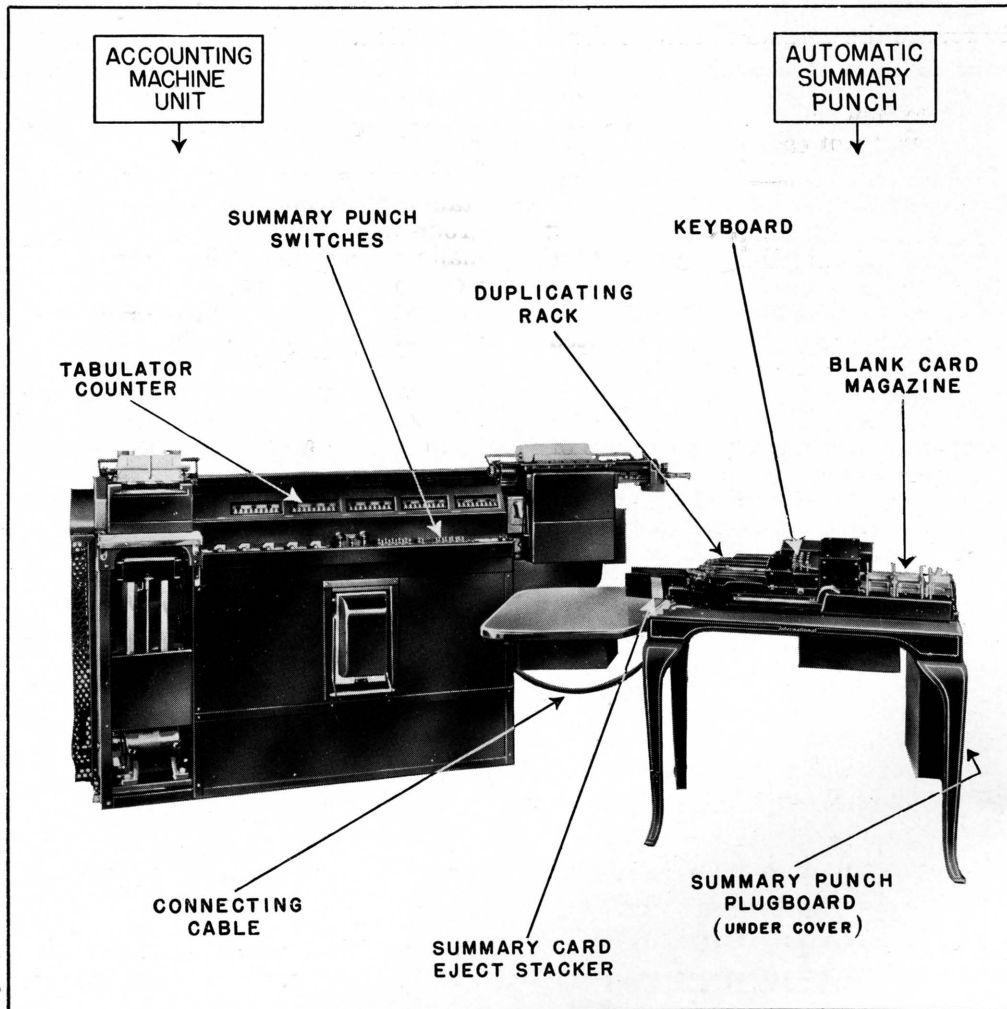
Duplicator Summary Punch (Type 516)

THE Duplicator Summary Punch is designed for the automatic preparation of total cards or new-balance cards simultaneously with the tabulating operation. The indications and accumulations in the counters of an Electric Accounting Machine, at any desired control change, are recorded in punched-hole form in summary cards as shown previously. These cards, therefore, are punched transcriptions of the printed results shown on any tabulation, and may be used for further analyses of such data or for other specific purposes.

The machine consists of a Motor Drive Duplicating Key Punch connected to the counter wheels of the Accounting Machine by means of a flexible, multiple-wire cable. With the exception of this cable and a plugboard which per-

mits flexibility in plugging the data to be punched, the punching unit is identical in appearance and mechanical operation with the standard punch. The punch may be actuated in three different ways—by manual key depression (key-punching), by a master card in the duplicating rack (duplicating), and by the counter wheels of the Accounting Machine (summary-punching). All three methods of punch actuation may be used in the punching of a single total card.

The punching mechanism may be attached to any numerical Accounting Machine equipped with commutator-type top counters and impulse emitters. The Accounting Machine may be of either the single-reset or the successive-reset type.



Operation

The tabulating, printing, and punching operations are fully automatic, the cycle of operation being as follows:

The Accounting Machine tabulates as usual until a change occurs in the control for which totals are to be punched. The Accounting Machine stops but does not reset until all punching in the summary card has been completed. The punch magnets are actuated through the medium of an emitter which reads the amounts standing in each counter and transmits the impulses to the punch magnets in a sequence determined by the plugging arrangement. For key-punching and duplicating, the punch magnets are actuated in the normal manner.

The reset circuit on the Accounting Machine is made operative at the moment the summary card is ejected from the punch. At this time the machine resets, prints the totals, and starts tabulating the next control group in the normal manner. Simultaneously with the reset of the Accounting Machine, a new card is fed automatically into the Summary Punch. This card positions itself (either by punching or skipping, as described later) at the first field to be punched from the counter totals and remains stationary until the control change.

Punching may be duplicated from master cards if desired. In this operation the master card is placed in the duplicating rack of the punch in the usual manner. If the duplicated information is punched in card fields to the left of the first total-punched field, the duplicating operation is performed while the Accounting Machine is accumulating the particular group of detail cards. If the duplicated information is punched to the right of the first total-punched field, the duplicating operation is not performed until the control change. Thus, to obtain maximum operating speed, the fields to be duplicated must appear to the left of the fields to be total-punched. Special skip bars and cut-out bars for this use are discussed later.

Data may be manually key-punched if desired. In this case also, the key-punched fields must appear to the left of the fields to be total-punched if a maximum operating speed is to be obtained.

Operation of the Accounting Machine is normal on any control change at which totals are not to be punched; that is, if only major totals are to be punched, the machine resets and starts as usual following a change in intermediate or minor control.

When punching summary cards, each machine is under electrical control of the other. When desired, however, each machine may be operated independently and simultaneously. The current supply for both Accounting Machine and Summary Punch is obtained from a single outlet, each machine having an individual switch.

Accounting Machine Features

The information appearing in any normal adding or balance counter can be transferred to summary cards. It is not possible to transfer information from the list banks. Such information can, however, be summary-punched if there are sufficient unused counter positions in which it may be group-indicated but not printed. This operation is illustrated later.

The attachment of the punching mechanism to the Accounting Machine does not change the normal listing and tabulating speed of the machine. It does, however, increase the reset time because the punching occurs before the totals are printed. The time required for punching is governed by the amount of punching to be done.

The plugboard of the Accounting Machine is standard except that provision is made for group indication on those machines which normally do not have this feature. Twenty positions of group indication are provided on all machines. Additional positions may be supplied at a slight additional charge.

If any indicated information appearing in a counter is to be punched, it must be plugged through the Group Indicator hubs.

The Accounting Machine is equipped with several switches which are used in summary-punching operations. These are as follows:

The "Summary Punch" switch when ON, makes both units (Accounting Machine and Punch) function synchronously. It should be OFF when the Accounting Machine and the Punch are to be used independently of each other.

The "Major," "Intermediate," and "Minor" switches, located near the Summary Punch switch, govern the totals to be transferred to cards. The machine may be made operative for the major, the intermediate, or the minor totals, but never for more than one class of total in any one tabulation. When the tabulating and punching units are to be used independently, these switches should be OFF.

Summary Punch Features

The keys and operating switches on the Automatic Summary Punch perform the same functions as those on the Motor Drive Duplicating Key Punch.

High skip bars are provided to skip automatically those fields in which no punching is desired. (Regulations regarding automatic skip bars are applicable.)

A card lever in the punching unit prevents operation of the punch should a card fail to feed or the card magazine become exhausted while the Accounting Machine is in operation.

Common information not appearing in any counter of the Accounting Machine may be transcribed to the summary cards from master cards which are placed in the duplicating rack of the punch. This information may appear in any position of the new card provided the proper skip bar and cut-out bar are used.

For maximum operating speed, the duplicated or key-punched data must be punched to the left of total-punched fields. (See section on skip bars.)

A plugboard mounted on the punch base permits plugging from any top counter positions to any card columns desired. The arrangement of the data in the counter wheels places no restriction as to the positions on the card in which these same data can be punched. Complete flexibility in the transposition of data is afforded through the plugboard.

Zeros will be punched automatically to the left of figures when digits in the total are fewer than the wired columns of the field. For example, if eight columns are plugged to punch and the amount is \$42.45, the card is punched 00004245.

Credit amounts in balance counters may be summary-punched in true or in complement figures, as desired. X-punching of summary cards to designate various types of balances may be accomplished with complete flexibility. X-punching is controlled by a switch unit for each balance counter, as described and illustrated later.

General Features

If, on the Summary Punch plugboard, the counter hub positions are plugged to the "Punch Columns" hubs, the figures in the respective counter positions are transcribed during the reset for which the punch is set, regardless of whether the counter resets or not. By means of this feature it is possible to punch progressive totals in summary cards.

The punch is equipped with a cable approximately six feet long. Where it is necessary to have a punch at a greater distance than six feet, an extra length of cable, not exceeding fifty feet, can be furnished at a nominal installation charge.

The transfer of information from the Accounting Machine to the summary card is accomplished at the speed of about ten holes a second. Since the feeding and the ejecting of summary cards are simultaneous with the printing of the report, the actual punching time is the only additional time required for producing summary cards. The duplication or the manual punching of additional information in the summary cards can be performed while the tabulator is running. No additional time need be allowed for these operations unless the tabulating time of the group is less than the time required for recording the additional information. If summary-punching and additional punching are interspersed, it becomes necessary to add the additional punching time to the summary-punching time.

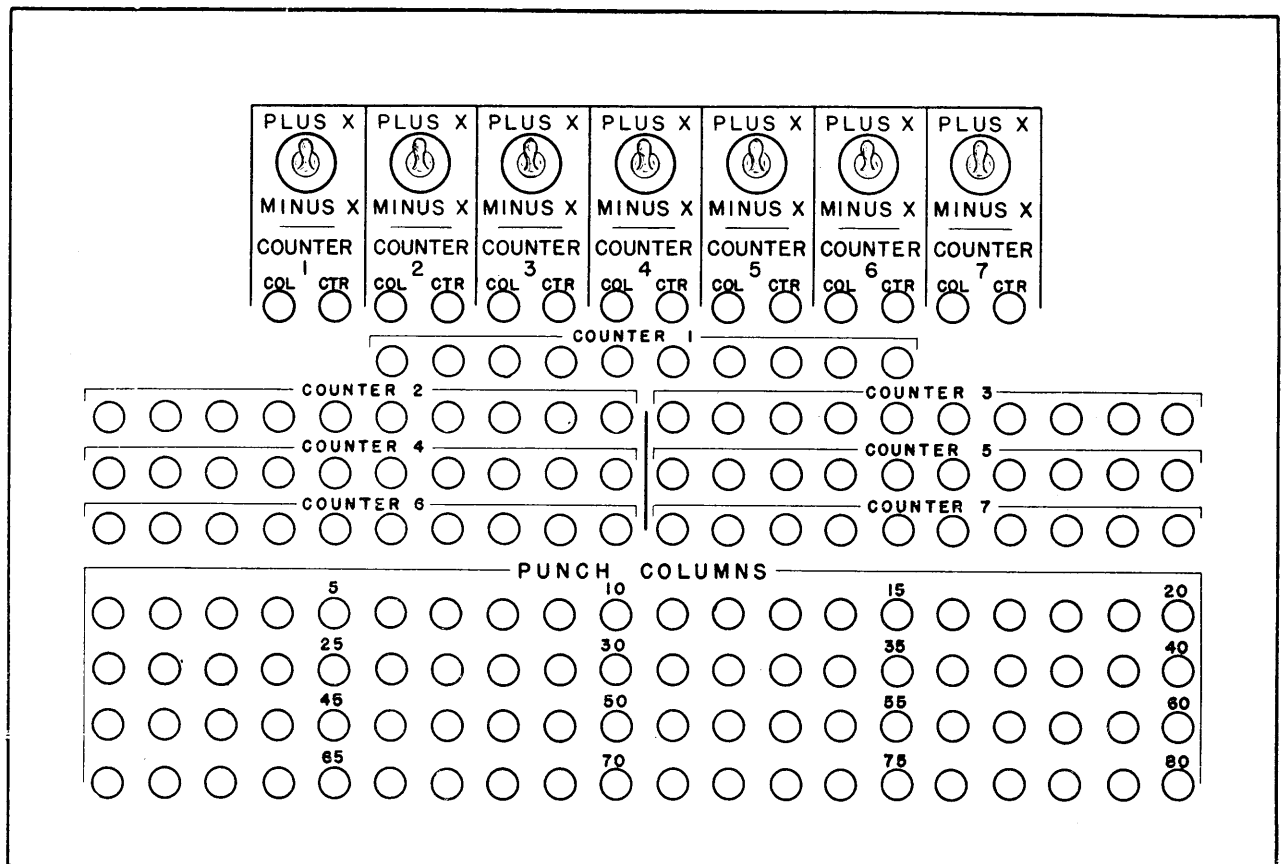
Plugboard

The diagram shows the Summary Punch plugboard for an Accounting Machine of maximum capacity—that is, an 80-column machine with seven balance counters. Machines of less capacity have plugboards arranged similar to the above except that positions which are not applicable to the particular machine are not wired.

The plugboard is mounted at the right-hand end of the punch base, as noted on the machine illustration.

Counter

A row of ten (or nine on Type 285 machines) hubs is supplied for each counter of the Accounting Machine. Each hub represents the outlet



Plugboard of Duplicator Summary Punch

for the corresponding wheel of the particular counter. These hubs may be plugged to the punch columns and to the counter hubs of the X-punch switches.

Punch Columns

A single hub is provided for each column of the summary card. Each hub represents the inlet for the corresponding column of the card to be punched. These hubs are plugged to the counter positions and to the column hubs of the X-punch switches.

X-Punch Switches

An X-punch switch is provided for each balance counter of the Direct Subtraction Accounting Machine. The switch assembly consists of a toggle switch and two hubs—a column hub and a counter hub. The toggle switch is thrown up if it is desired to punch an X in the summary card when the amount in the balance counter is plus; and down when the X is to be punched for minus amounts. Further details on the operation of this unit are presented later.

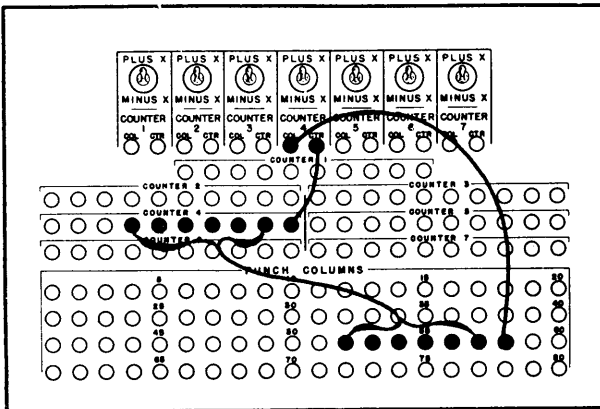
Summary Card X-Punching

All Summary Punches are arranged to permit complete flexibility for X-punching summary cards to designate either plus or minus amounts being punched from balance counters. The X's may be punched over any column of the field corresponding to the particular balance counter, or over any other summary-punched column of the card.

When summary-punching from a balance counter, the entire counter is plugged in the usual manner. For punching an X over any summary-punched column, the particular position in which the X is to appear is plugged as follows—the punch column hub is plugged to the "COL" hub of the switch corresponding to the governing counter; the "CTR" hub is plugged to the corresponding counter hub position. This plugging is illustrated in the following diagram.

Thus, to punch an X in any summary-punched column, the switch unit of the governing bal-

ance counter is injected between the counter and punch column hubs selected.



Wiring for X-Punching of Selected Balances

The switch is thrown up if it is desired to punch an X when the amount standing in the counter is positive, and down if an X is to be punched for a negative amount.

General

The examples shown in the following sections serve to illustrate the various operations and plugging arrangements referred to in previous sections.

Each example is outlined to bring out a specific point. The plugging diagrams, therefore, are not complete for an entire case, but illustrate only the point being discussed. In some cases, more than one point is illustrated on the one diagram. The reports and cards show the complete flexibility of the machine for printing and punching.

Examples of Plugging and Operation

The exhibit shows a Daily Sales Report prepared on a Type 285 Direct Subtraction Accounting Machine. In order to convey most clearly the points to be illustrated by this report, a short description of its contents precedes the detailed description of the separate points to be discussed.

Daily detail cards are sorted by department and tabulated with a minor control on department number. The horizontal distribution of "Kind of Sale" is obtained through the use of the X-distributor. Date and department number are group-indicated in the left side of counter No. 1. The right-hand positions of counter No. 1 are used to accumulate a card count of charge transactions. The amounts for charge transactions are accumulated in counter No. 2, and corresponding amounts for cash and C. O. D. transactions in counters No. 3 and No. 4, respectively. The total amount of departmental sales is accumulated in counter No. 5.

The Summary Punch is set to punch a card at each minor total, as shown in the illustration.

Standard Plugging

Standard plugging of the Summary Punch is from counter hubs to punch columns, as shown in section A of the illustration. The C. O. D. transactions and amounts, as illustrated in the printed report, are plugged to be punched directly from the counter to columns 28 to 36 of the summary card.

To print the transactions and amounts totals as shown, one special point regarding the Ac-

counting Machine plugging should be observed. The report, as arranged, calls for the accumulation of a transaction card-count in the left side of a counter, and an accumulation of amounts in the right side of the same counter. Normally, a zero would be printed between these two sides, but the zero is prevented from printing, and the two separate items are printed with an intervening space as shown, by means of locking the hammer of the type bar separating the two accumulations.

It should be noted also that even though no symbol is printed from this type bar, nevertheless this blank column on the report is represented on the summary-punched card by a punched zero. The reason for this is that, as previously stated, zeros are punched automatically in the summary card for every punch column wired, even though the corresponding counter position does not register a significant digit.

Non-Sequence Plugging

Section B of the exhibit opposite illustrates the flexibility of the Summary Punch, in that information may be punched in the summary card in a sequence which is different from that of the same information as printed on the tabulated report. For example, note that month, day, department, and transaction, printed in sequence on the report, are split for punching as follows: month, day, and department in columns 2 through 7, and transaction in columns 17 through 19.

It should be noted also that counter No. 1 is split for simultaneous group-indicating and adding. Month, day, and department must be plugged (in the Accounting Machine) through the group indicator, while the plugging of transaction is direct from add brushes to the counter. The Summary Punch wiring is as illustrated.

In accordance with the requirements governing the skipping of those columns in the summary card which are to remain unpunched, an automatic (high) bar is used in the case of the card illustrated, to skip column 1 and columns 45 through 80, in order to bring the card into the eject position.

Summary-Punching of Data in List Banks

To obtain the stock report illustrated on the opposite page, a Type 297 Direct Subtraction Accounting Machine is used. The cards employed are the previous stock-balance cards and all subsequent detail cards affecting those balances. The cards for each zone and division are sorted by commodity number and tabulated with a minor control on commodity.

The Summary Punch is set to punch a card at each minor total, as shown in the illustration.

In this example, it is desired to summary-punch zone and division, which, being registered in a list bank, cannot be summary-punched except by special provision for such punching. This special provision is as follows:

The detail-card columns which contain this information are wired, for printing, to the list bank. In addition they are also wired (for subsequent punching) to the unused left-hand positions of counter No. 1 (which also contains old balance in its right-hand side). The printing of zone and division in counter No. 1 is suppressed by locking the hammers of the corresponding

type bars. The summary-punching of zone and division is effected by plugging these three counter hubs on the Summary Punch plugboard to the proper hubs of the punch columns. The other information in counter No. 1 (old balance) is not summary-punched in this example.

Thus, data printing from list banks may be summary-punched by plugging this information to unused counter positions and locking out the corresponding type bars to prevent printing. All data plugged in this manner must be plugged through the group-indicator hubs on the Accounting Machine.

Summary-Punching of X

This exhibit illustrates also the summary-punching of X's for subsequent use in designating the particular types of cards, and for class selection or X-distribution of the data as required. In this case, the X is plugged to be punched in column 60 whenever the balance in counter No. 7 is a negative one. The X-switch for counter No. 7 is thrown down, thus making the X-punch operative only for a negative balance.

Note that the wiring for the entire counter is normal, with the exception of column 60. This column is to be punched with the left-hand digit of "balance" (printed from counter No. 7), and is also to be X-punched on negative cards. This one hub of counter No. 7, instead of being wired directly to its punch-column hub, is first plugged through the X-switch unit of counter No. 7—the counter hub to the "CTR" hub of the switch unit, and the "COL" hub of the unit to punch column hub 60. The switch unit is thus injected between the counter hub and the punch-column hub for this one position.

The plugging through the X-switch does not in any way affect the punching of any significant information from the counter position involved.

Skip Bars and Duplicating Cut-Out Bars

In summary-punching, the entire card is seldom punched completely because of the limited number of counter hubs (ranging from 27 to 70) which may be plugged. All other columns must be either key-punched, duplicated from a master card, or skipped in order to position the card properly for punching and also to bring the card to the last column for ejection.

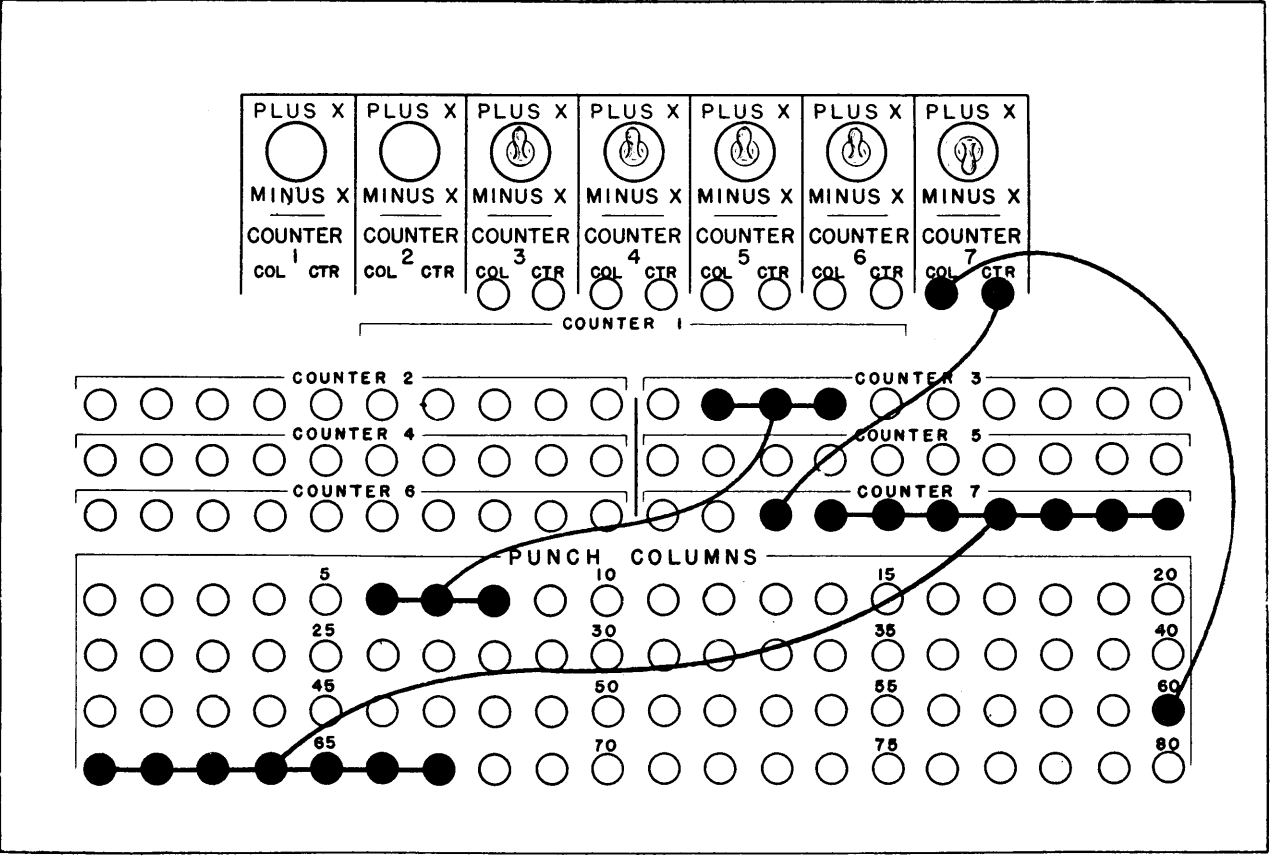
Skipping is accomplished either automatically, by the use of an automatic (high) skip bar, or by the low bar governed by a hole punched in the X-position of the master card. The customary rules governing the design of skip bars are applicable in all cases.

For most efficient operation and increase of speed, information to be duplicated from a mas-

STOCK REPORT
TOBACCO COMPANY

COPY TO						DATE				
ZONE	DIVISION	COMMODITY				OLD BALANCE	MANUFACTURED	TRANSFERRED	SHIPMENTS (INCLUDING ORDERS)	NEW BALANCE
		PROD	BRAND	STYLE	SIZE					
6	24	2543010	250			3250	743209	15000	725061	6398
6	24	2543010	500			4165	8105432	14450	8080027	15120
6	24	2677270	25 1/2			9450	410055		435805	16300-
6	24	2677270	500			0025	76529	1200	75098	256
6	24	2677270	75 1/2			1625	15000	1000	11525	4100
6	24	2744330	10 1/2			5051	2840		496	7395
6	24	2744330	20							39
6	24	2789008								29
6	24	2789008								64
6	24	2789008								66
6	24	2798999								91
6	24	2998400								99
6	24	2998400								82
6	24	2998400								09

DATE		COMMODITY		SALES SUMMARY		STOCK DETAIL AND SUMMARY	
MONTH	DAY	BRAND	STYLE	SIZE	QUANTITY	AMOUNT	MANUFACTURED
0	0	0	0	0	0	0	0
1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9

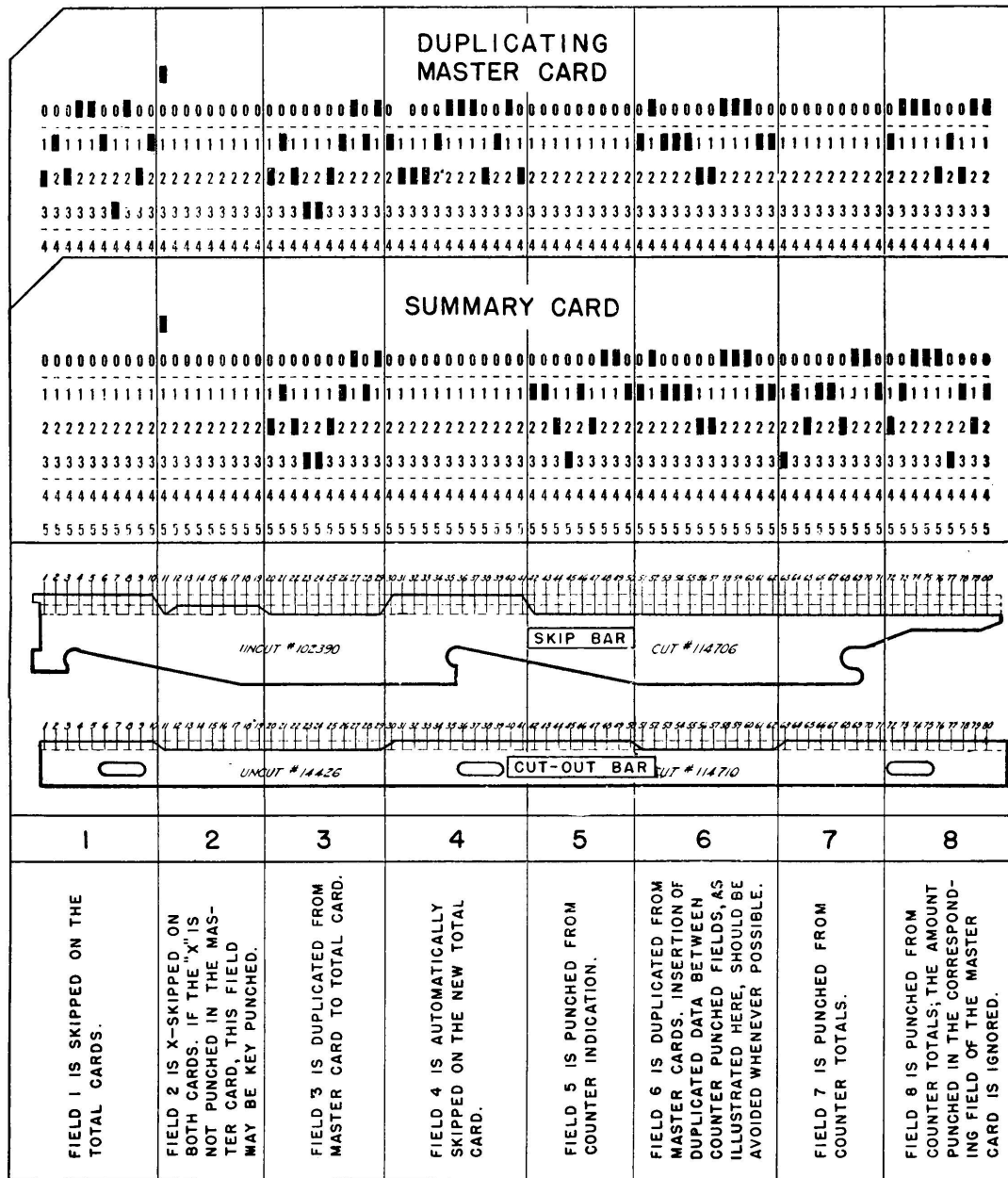


ter card or manually punched must appear at the left end of the card. The reasons for this requirement have already been explained fully.

Predetermined cut-out bars are used when a punched master card appears in the master rack, and only selected information is transcribed to the total card. The cut-out bar is merely a mechanical device for raising or lowering the duplicating circuit cut-out rod on the

punch carriage. When the duplicating cut-out rod is raised, the circuits between the master card reading brushes and the punch magnets are broken. When it is lowered these circuits are complete. Thus, the cut-out bar must be high for those positions which are to be punched from the counters.

The illustration appearing below shows the method of specifying skip bars and cut-out bars for various functions.

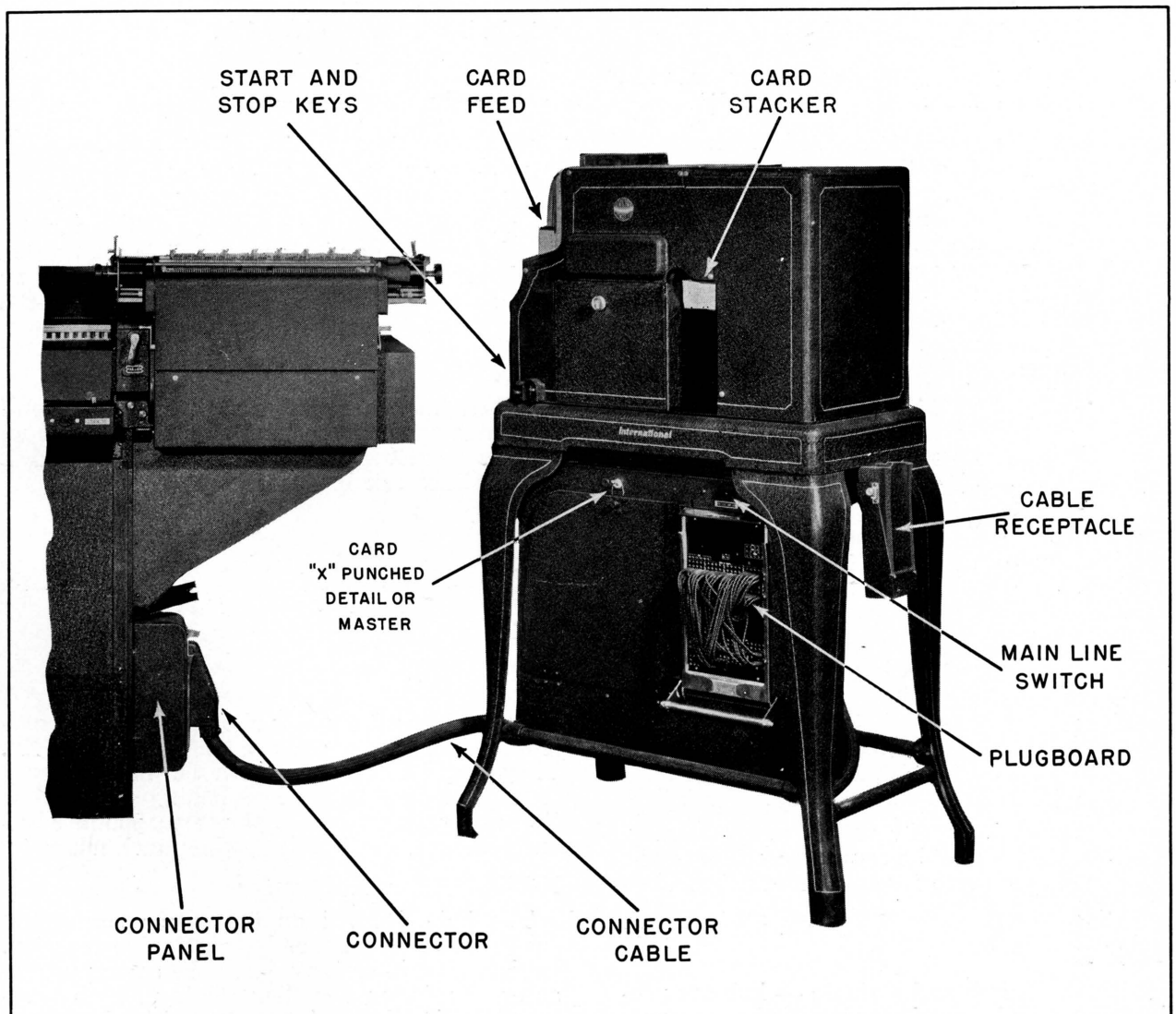


Gang Summary Punch (Type 518)

The Gang Summary Punch is a dual-function machine. Although it is designed primarily as a fast summary punch, it is capable also of performing gang-punching operations independently.

For summary-punching it performs the same functions as the Duplicator Summary Punch (Type 516) in the preparation of total or new balance cards. It may be attached, by means of a flexible connector cable, to any numerical Accounting Machine which is arranged for summary-punching.

For gang-punching operations the machine functions entirely independently of the Accounting Machine to which it is attached. The operating principles of the Type 518 Gang Summary Punch are identical with those of the Type 512 Automatic Reproducing Punch, except that the Summary Punch magnets are capable of receiving impulses not only from punched cards passing the punch brushes, but also from the counters of the Accounting Machine. This permits both summary-punching and gang-punching operations, either independently or in combination.



Features

The operation of the Accounting Machine to which the Gang Summary Punch is attached is not materially altered by the addition of this unit. The Accounting Machine has the same general features as one to which a Duplicator Summary Punch is attached.

Type of Punching

In summary-punching operations, only numerical data may be punched from the tabulator counters, but duplicated (gang-punched) data may be either numerical or alphabetic.

In gang-punching operations, both alphabetic and numerical data may be punched.

Class of Summary Cards

The machine may be made operative for summary-punching major, intermediate, or minor totals, but never for more than one class of total in any one tabulation.

Card Feed

The card feed is of the continuous type similar to that used on the Reproducer. The capacity of the feed hopper is 800 cards; that of the card stacker, 1,000 cards. If the supply of cards in the feed hopper becomes exhausted, or if a card should fail to feed, the machine stops automatically, thus enabling the operator to correct the condition. Suitable interlocking circuits between the Punch and the Accounting Machine are provided.

Speed

For summary-punching operations the speed is *.8 seconds per summary card*, regardless of the number of columns simultaneously gang-punched from a master set-up card or the number of columns of group indication or totals punched.

For gang-punching operations the speed is 100 cards a minute, regardless of the number of columns gang-punched into each card, or the number of holes punched in any column of a card.

NOTE: Eight-tenths (.8) seconds for a summary card represents the additional time required at each tabulator reset cycle for accomplishing summary-punching. This *may or may not* be less than the time required with the Duplicator Summary Punch, depending entirely upon the character of the particular summary-punching to be done. Therefore, a careful study should be made in every case to determine accurately which type of Summary Punch will be best for any given job. For this purpose a chart appears later which can be used for determining the time required by the Duplicator Summary Punch to punch summary cards under varying circumstances.

It should be borne in mind also that actual summary-punching time, in the majority of cases, represents only a minor portion of total tabulating time and, therefore, it is imperative to determine the difference in overall time as well as the difference in time required by the respective Summary Punches.

Automatic Plugboard

All wiring is accomplished through the use of an automatic plugboard. One manual set-up slide is furnished with each machine, but additional slides can be furnished.

Current

The machine is designed to operate on 110- or 220-volts direct current only.

Plugboard

Counters

The double rows of hubs located at the bottom of the automatic plugboard, labelled with the numbers of the respective banks to which they correspond, are the outlets of the counter impulses. They may be connected either to the punch magnets or to the hubs marked "Punch 0 to 9."

Punch X

A single + hub and a single — hub are provided for each balance counter of the Accounting Machine for control X punching. These

hubs are located directly above the counter outlets for No. 1 Bank and are labelled "Punch X". They may be connected with the hubs marked "Punch 11 and 12" for X-punching a column of the card under control of the corresponding balance counter, or directly to the punch magnets.

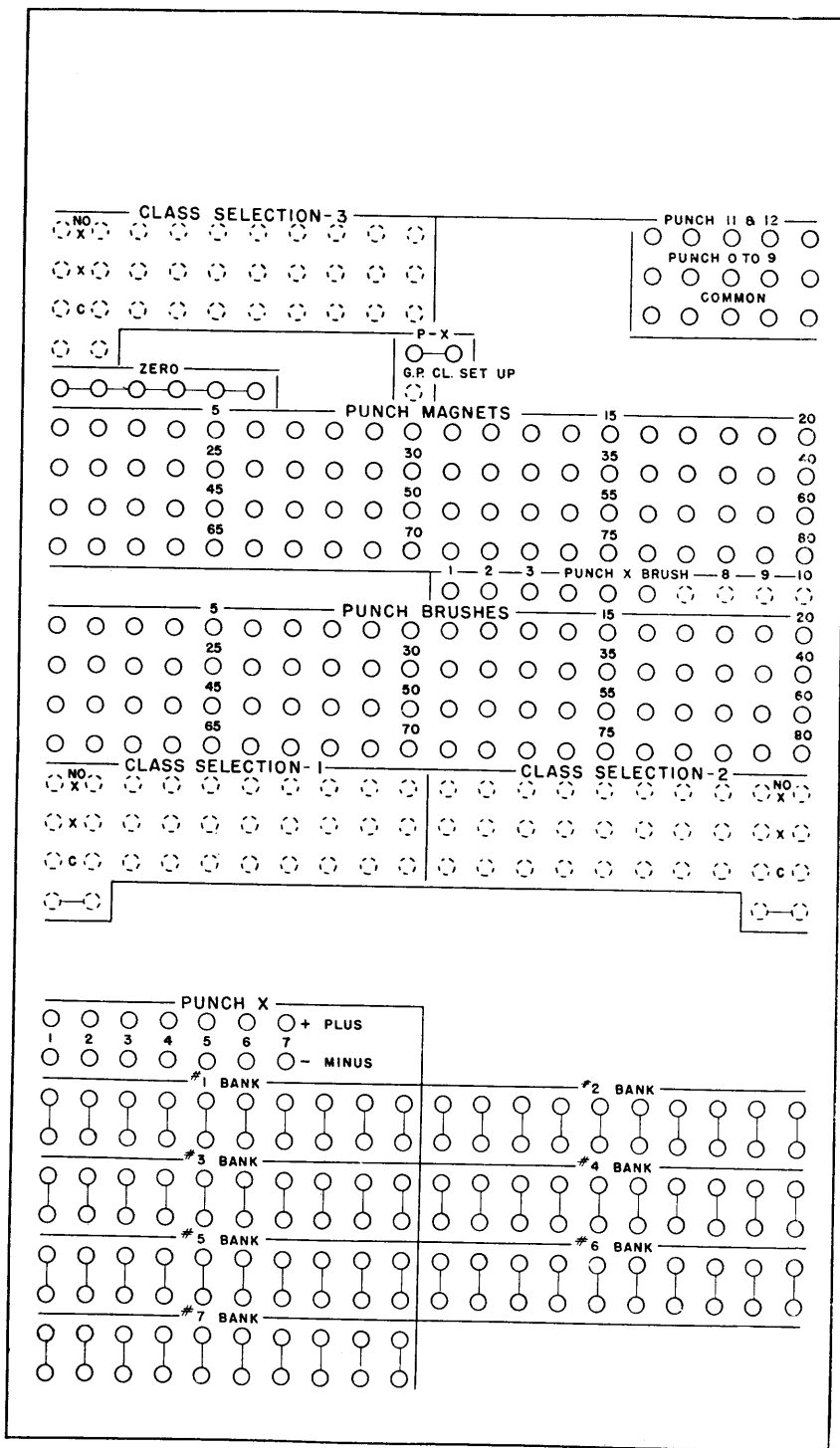
X-Eliminator and Transfer

The hubs located on the upper right-hand corner of the plugboard have a double function. In gang-punching they serve the same purpose as on the Automatic Reproducing Punch plugboard for X-elimination or transfer. For summary-punching operations they provide a means

of collecting the X punch designating selected balances and the digit of a counter total which are to appear in a single column of the summary card. The method of wiring is described in the paragraphs concerning Plugging and Operation.

Other Hubs

The other hubs pertain only to gang-punching operations and perform the functions described in the Automatic Reproducing Punch booklet.



Plugboard of Gang Summary Punch

Plugging and Operation

The Gang Summary Punch is attached to the Accounting Machine by inserting the end of the flexible connector-cable into the receptacle on the Accounting Machine. The Summary-Punch switches on the latter must be set for the class of total to be summarized.

The wiring of the automatic plugboard for each of the special uses for which the machine may be employed is illustrated in the following examples:

Regular Summary Punching

The setting up of the Gang Summary Punch is effected by wiring from the counter outlet hubs to the punch magnet hubs in the same

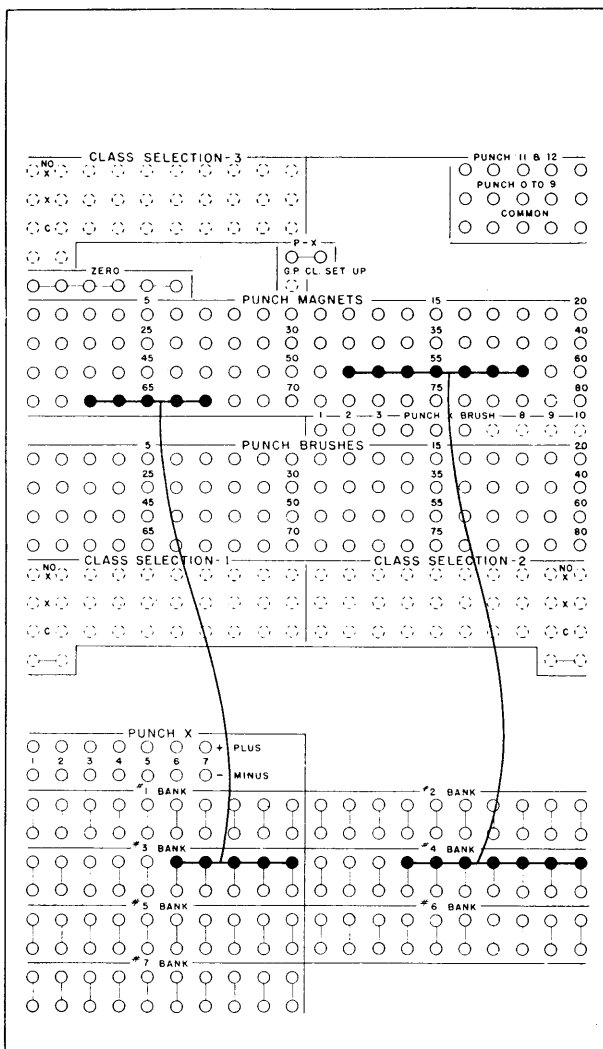
manner as on the Duplicator Summary Punch. This plugging is entirely flexible so that any counter positions may be plugged to any columns of the summary card.

Summary Punching of Control X

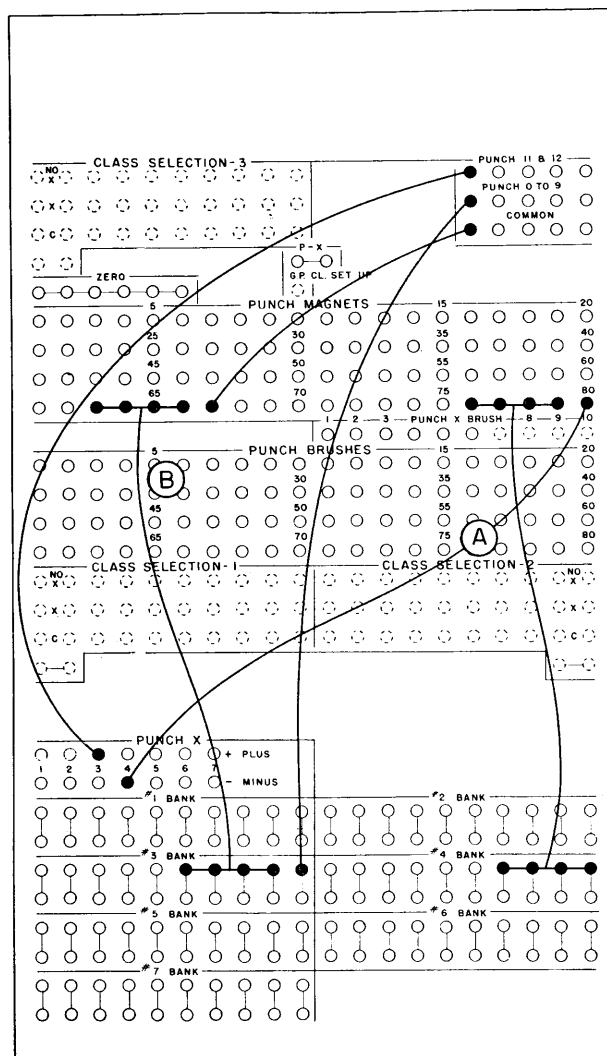
The wiring to accomplish X-punching under the control of a particular counter is as follows:

When the X is to be punched over a card column which is not being summary punched, the + (or -) hub is wired directly to the punch magnet as shown in Section A.

When the X is to be punched over a column which is to contain summary-punched numerical data, it is necessary to wire from the + (or



Regular Summary-Punching



Punching of Control X

—) hub of the wired balance counter to the Punch 11 & 12 row of the X-eliminator. The counter total hub is wired to the Punch 0 to 9 row; and the Common hub is connected to the desired Punch Magnets position as shown in Section B.

Summary Punching and Duplicating

If it is desired to duplicate common information (either alphabetic or numerical) into the summary-punched cards, it is only necessary to supplement the wiring already described with the wiring to effect the gang-punching.

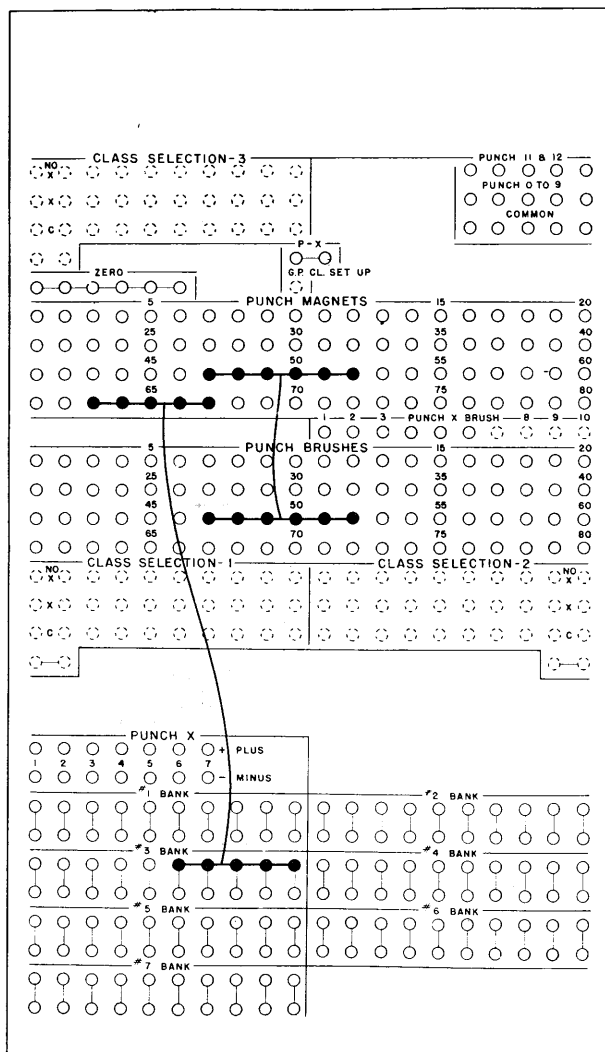
The information appearing on master cards must be in the same columns as in the total cards to be prepared. Wiring must be column

for column between the Punch Brushes and Punch Magnets.

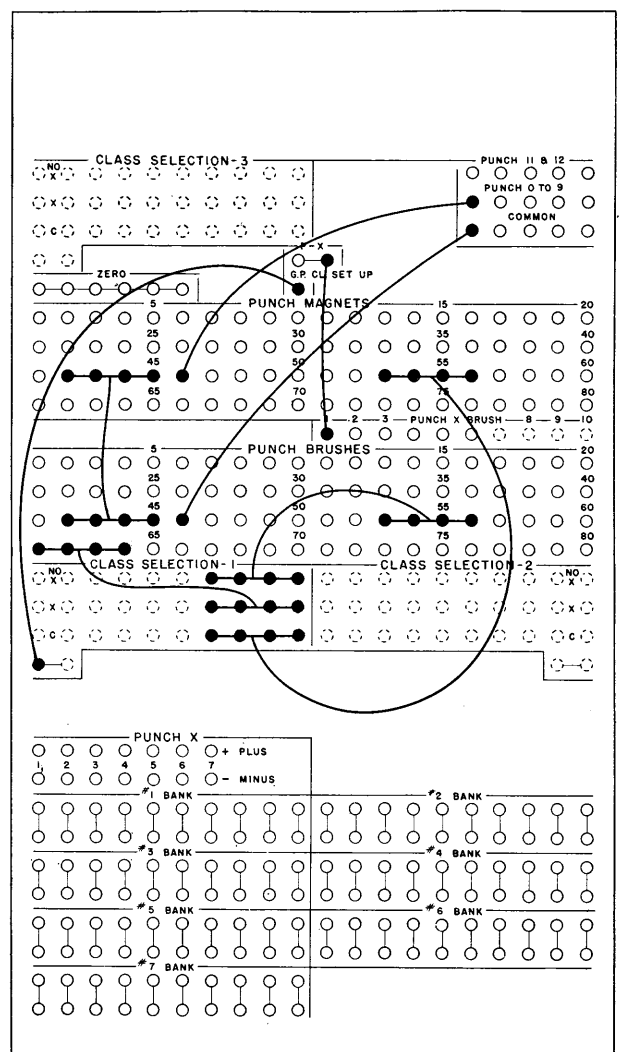
Gang-Punching

For gang-punching operations the machine operates entirely independently of the Accounting Machine. The end of the flexible connector-cable must be placed in the receptacle provided on the punch itself.

The plugging and operation of the machine for gang-punching is exactly the same as that for the similar operations on the Automatic Reproducing Punch. The unit is capable of performing straight gang-punching, off-set gang-punching, X-elimination or -transfer, and O-punching; but it cannot perform the operation of gang-punch checking.



Summary-Punching and Duplicating



Gang-Punching

This chart permits graphic determination of the time required to punch each summary card under any combination of circumstances. The dotted line indicates the proper use of this chart in a typical case (1) Start on the left margin at the number of columns to be duplicated and move horizontally to the right to meet the line representing the listing speed of the machine involved. (2) From that point move vertically down to meet the line representing the number of columns to be group indicated. (3) From that point move up to the line representing the average number of cards in each control group. (4) From that point move up to the line representing the tabulating speed of the machine involved. (5) From that point move down to meet the line representing the number of columns to be total-punched. (6) From that point move down to meet the right margin the number of additional seconds required to punch each summary card (i.e. in addition to the time required by the tabulator).

Note A - Start at 12 when the number of columns to be duplicated is less than 12
 Note B - Turn of listing speed if machine is set to list all cards.
 Note C - Turn on one card per group unless a Summary Punch Indication Device is being used. If that device is being used, turn right upon reaching the line representing the average number of cards per group, or upon reaching the top margin of the chart

TIME CHART FOR TYPE 516 DUPLICATOR SUMMARY PUNCH

