Reese

MACHINE FEATURES

Their Uses, Operations and Limitations

CLASSES 8, 9 AND 10

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Burroughs

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PREFACE

The purpose of this text is to furnish a more complete description of certain features than is given in the Price List of Machine Features. Features which are self-explanatory in the Price List are not described in this text.

Some combinations of features are subject to mechanical conflicts and many are restricted to certain classes of machines. Restrictions as to class, and carriage size, and certain mechanical conflicts are indicated in the Price List, but it is impracticable to designate all mechanical conflicts. If desired results cannot be obtained with the features listed, submit your problem to the Mechanical Accounting Engineering Department.

Changes and improvements are being continually made in machine features, hence the descriptions in this text are correct only as of the date of publication.

CARRIAGES

1 17/32 Inch (See illustration on page 9.)

This is a narrow stationary carriage which accommodates XN $1\frac{17}{32}$-inch paper and is used by many chain stores in counter adding machines and cash machines. The principal purpose of this carriage is to effect a reduction in paper cost, the XN $1\frac{17}{32}$-inch paper being approximately 30 per cent lower in price than the regular NB paper. The standard construction provides for single space only, but adjustable single and double spacing may be obtained. The paper feed mechanism is constructed to insure the paper feeding straight. It will straighten, even though started at a slight angle. A paper release lever for adjustment of the paper is at the left. A tear-off blade is positioned $\frac{5}{8}$ inch above the printing line.

3 7/8 Inch

The basic construction of Classes 8, 9 and 10 includes the stationary $3\frac{7}{8}$-inch carriage. Unless otherwise specified, all machines with style numbers ending in an odd figure are equipped with this carriage. It accommodates either NB $2\frac{9}{32}$-inch or BB $3\frac{7}{16}$-inch roll paper. The standard construction provides for single space only, but adjustable single and double spacing may be obtained. The paper feed mechanism is constructed to insure the paper feeding straight. It will straighten, even though started at a slight angle. A paper release lever for adjustment of the paper is at the left. A tear-off blade is positioned $\frac{5}{8}$ inch above the printing line.

12 1/4 Inch

This is a movable carriage that is standard on all machines having style numbers ending in an even figure, except 0. It accommodates sheet paper $12\frac{1}{4}$ inches wide on which the machine will print within $\frac{1}{4}$ inch from either edge. A stationary holder is included on the back of the case for NB or BB roll paper. An adjustable spacing control makes possible no space, single and double spacing. Tabulator stops are provided with stop positions 1/10 inch apart, thus columnar forms should have column widths in multiples of 1/10 inch. The carriage release lever is located on the right so that the carriage is shifted with the right hand. The paper release lever is on the left-hand side so it may be pulled forward with the left hand while the paper is adjusted with the right hand. A tear-off blade extends the entire width of the carriage and is $1\frac{1}{4}$ inches above the printing position.

Front Feed Carriage

This is a stationary 6-inch carriage that provides rapid insertion and removal of forms from the

front when the carriage is open. A table, or chute, in front of the platen facilitates insertion between the platen and the pressure rolls.

Normally, the front feed carriage is opened and closed manually, but may be constructed to open automatically, either from each machine operation or from an operation control key. If constructed to open automatically, a normalizing lever may be provided. The machine will not operate when the carriage is open.

The left-hand paper guides on the aligning table are adjustable for forms 3 inches to 6 inches in width. The distance from the right-hand edge of a form to the center of the units of cents type is $\frac{11}{32}$ inch for a 10-column machine and $\frac{1}{2}$ inch for other machines.

Forms are normally inserted to a fixed printing limit against a bill stop held in place by means of a thumbscrew. The minimum distance from either the top or the bottom of the form to the first printing line is $1\frac{3}{8}$ inches and the minimum distance from the last printing line to the bottom of the form is $\frac{5}{8}$ inch. The maximum distance from the first printing line to the bottom of the form is $7\frac{3}{8}$ inches. Different limit stops are used for different requirements, therefore the printing positions must be specified when ordering. While the bill stops that are included in the 6-inch front feed carriage feature are adjustable, other limit stops that are more easily adjustable to desired positions are provided by optional features—see Form Limit Stops on the next page.

Operation Control Key to Lock Front Feed Carriage from Manual Opening

This feature was developed for use in Cash Receipting machines. With these machines, the bill is inserted in a front feed carriage, the amount received is printed on the stub, which is cut off and ejected into a locked receptacle. The amount is then reprinted on the bill. To prevent the bill being withdrawn before the amount printed on the stub is reprinted on the bill, the operation control key used for printing the amount on the stub and repeating the keyboard set-up is constructed to lock the carriage so that it cannot be opened before the end of the next machine operation which prints the amount on the bill. This key is usually also constructed to prevent change in the keyboard set-up.

Carriage Stop and Bail to Limit Carriage Travel

Removable carriage limit stops with a special bail may be furnished to limit the movement of $12\frac{1}{4}$-inch carriages. This feature is desirable when a machine is used for ledger posting, or on other work where the carriage is shifted back and forth on a standard form.

Removable Stop Bars

Stop bars, which are easily removed or replaced by means of two thumbscrews, are valuable whenever a machine is used on different columnar forms. This is frequently the case when a Style 9 10 80 or 9 10 82 is used on an S.A.P. application.

Extra Paper Release Lever

An extra paper release lever for controlling the left-hand pressure roll gives the effect of a split platen. With this feature, it is possible to insert and remove ledger sheets or other forms up to $8\frac{1}{2}$ inches wide in the right-hand side of the platen without disturbing roll paper that is feeding around the left-hand side.

By pulling forward on the extra paper release lever, the pressure roll that is against the roll paper is released; thus when the platen twirler is turned to insert a ledger sheet, the roll paper is not affected. The ledger sheet may be removed in the same manner, or the regular paper release lever may be used and the ledger sheet merely pulled out, the left-hand pressure roll holding the roll paper firmly in place.

The extra paper release lever is located immediately behind the regular lever. To adjust forms more than $8\frac{1}{2}$ inches in width, both levers are used together.

CHUTES, PAPER HOLDERS, ETC.

Ticket Chute (See illustration on page 16.)

With this feature on the 3⅞-inch carriage it is unnecessary to insert a ticket around the platen to print upon it; the ticket is inserted from the left-hand side, in front of the platen directly to the printing position. The printing position is limited to a fixed point $\frac{13}{16}$ inch from the bottom of the ticket unless otherwise specified. If required, however, the chute may be constructed with fixed limit stops so that the printing position may be from ½ inch to $\frac{13}{16}$ inch from the bottom of the form, as specified.

As the pressure rolls do not grip the ticket, it is not spaced upward. The machine may, however, be equipped with the Ticket Lifting Device to provide two or three lines on a ticket inserted in the ticket chute. (See page 8.)

The right-hand edge of the form is inserted against a limit stop which may be from ⅜ inch to 2⅜ inches from the center of the symbol type bar. The form may extend to the left as far as desired except that it should be not less than 2⅜ inches wide on 8-column machines or 2¾ inches wide on 10-column machines.

In order to print on a ticket and on the continuous tape at the same time, the machine may be equipped with the double ribbon mechanism, or double carbonized roll paper may be used, or the ticket may be provided with a spot carbon on the back. The ticket is inserted from the side to avoid catching on the ribbon or type bars. This side insertion also permits printing on forms of very large size.

The ticket chute is sometimes called the "validating device" or "certifying device" because its primary use is in the validation or certification of various types of transactions. This device is most frequently used in conjunction with a cash machine when it is desired to create a continuous record of all transactions handled during the day, and at the same time make a record of the actual amount of the transactions on "Paid-Out" slips, "Charge" slips, and "Received On Account" slips. This provides positive proof that every transaction was handled through the machine.

Form Limit Stop

The 6-inch front feed carriage includes, when needed, a stop for limiting the distance the form is inserted. This stop provides a printing position between $3\frac{5}{16}$ inches and 5⅝ inches from the bottom of the form. The stop is held in place by means of a thumbscrew and, although the position may be easily changed, it is designed primarily for adjustment to a single printing position on the form. The following optional features provide other limit stops:

The *adjustable form limit stop* is similar to that on a ledger chute. It is easily adjustable in steps of ⅙ inch to provide printing positions from 1⅜ inches to 8¼ inches from the bottom of a form. Thus there may be forty-two writing lines. This is usually used as ledger chutes are used on other machines to post a number of accounts at a fixed printing position which is changed for each day's posting.

The *permanent form limit stop* provides a single printing position that may be from 1⅜ inches to 7⅜ inches from the bottom of the form.

The *selective form limit stop* provides a dial at the left of the carriage by means of which any position from 1⅜ inches to 7⅜ inches, in steps of ⅙ inch, may be readily selected. Thus a form with line numbers may be quickly and easily inserted to any desired position.

Rewind Device with Cover and Lock (See illustration on page 16.)

This feature should be supplied when it is desired to retain a continuous printed record, either original or carbon, in the machine. Practically all Classes 8, 9 and 10 Cash Registering machines are equipped with this feature. Before feeding under the cover, the paper feeds over a writing table that

provides about two inches of writing surface for making notations regarding any special transaction such as paid-out, charge sale or received on account. The record of the last twenty transactions is visible, thus providing an additional safeguard for cash, as the manager and other clerks have ample opportunity to check the amount recorded for any transaction.

To provide a separate record of each transaction or operation, the ticket chute feature is usually used when not more than three lines of writing on the inserted form are required. For a tape list of the separate operations, double wound paper is used. In either case, the impression on the continuous tape may be made by means of a double ribbon or by means of carbon.

Writing Table

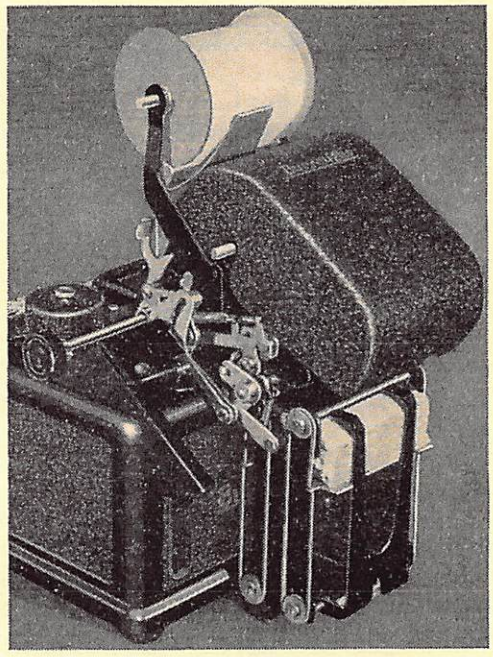
The writing table provides a smooth surface for writing on the adding machine tape, customers' names in conjunction with charge sales or received on account transactions, or any desired description with paid-out or other special entries. It is a standard part of the rewind device feature, but may be obtained separately. When furnished separately, it may be easily attached over the paper roll without the use of tools.

Cover for Writing Table on Rewind Device

When the rewind device is used, about twenty items on the tape are visible as the tape feeds over the writing table. In some cases, where protection is required or little use is made of the writing table, it is preferred to have the tape covered. A cover, hinged at the top, which may be easily raised for inserting or removing paper, reading items on the tape or to permit writing on the tape, may be obtained.

Ticket Stacker

When a machine with back space mechanism and cut-off knife is used for creating unit tickets, the ticket stacker should be used. This device receives and stacks the tickets neatly and in correct order. The tickets are pressed firmly down on the stack as they accumulate. The device will accommodate a stack of tickets about 3¾ inches high.



Ticket stacker, back space mechanism and cut-off knife. Paper in rewind device feeds in usual way. Paper from roll above rewind feeds downward and is cut off into units

An extra roll paper holder is required if the machine is to be equipped with Rewind Device.

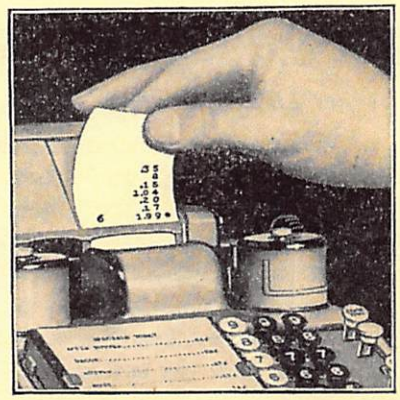
Receptacle for Coupons

A machine with back-space mechanism and cut-off knife ejects coupons or tickets from the rear. Some receptacle is desirable for keeping the coupons or tickets in order. For small tickets, the ticket stacker is used. For larger coupons, the receptacle, with locked cover, is recommended. This is of particular value for cash receipting purposes. The bill with stub is inserted in the front feed carriage, the amount of the receipt is then printed on the stub, which is cut off and ejected into the receptacle. The amount is next repeated on the bill which is returned to the customer as a receipt. As the coupons are ejected face down, they accumulate in the receptacle, arranged in the order received. Only the manager, auditor or other authorized person has access to the tickets, the detail tape and the machine total.

PAPER SPACING

Single and Double Spacing

This is an optional feature on narrow carriage machines. It is standard on all 12¼-inch carriage machines. Double spacing is useful when it is desired to write any descriptive matter between items. This is particularly valuable in recording the names on lists of delinquent accounts, for making out deposit slips, etc.



Paper automatically spaced to tear-off position. Automatic count of items

1/4-Inch Spacing

This spacing is often used on ruled forms which were originally designed for pen and ink.

5/6-Inch Spacing

To eliminate the operation of manually turning the paper up to the proper tear-off position and also to eliminate the usual waste of paper when it is turned up farther than necessary for tearing it off, the machine may be constructed to provide an automatic spacing of 5/6 inch, which brings the paper to the tear-off position. This may be controlled from the Total key or from an operation control key. Thus, normal spacing may be used for adding amounts, then the paper may be automatically spaced to the tear-off position when the total is taken or when a single item is entered with an operation control key. If desired, the feature may be constructed to function on each machine operation, or it may be constructed with an adjustable lever which provides 1/6-inch spacing when in one position and 5/6-inch spacing when in the other position.

1 3/4-Inches Spacing on Each Machine Operation

When it is desired to create a larger size unit distribution tag than the preceding feature permits, this feature may be ordered on 1$\frac{17}{32}$-inch or 3⅞-inch carriages. Since this spacing is not adjustable, it must be understood that when it is built into a machine, the machine can not be used conveniently for ordinary addition. This feature is not furnished on machines equipped with C&N, DC&N, or SC&N.

Carriage Controlled Platen Spacing

With this feature, platen spacing is controlled by easily adjustable rolls at the back of the carriage. The amount of spacing—single or double—is governed in the usual manner by the lever at the side of the carriage. This feature is of particular value in connection with the extra paper release lever feature as it permits spacing an adding machine tape at the left, once for each posting, and at the same time post items in several columns of a form at the right side of the carriage without spacing it.

Non-Turn-Back-Platen Spacing Mechanism with Cover

This feature prevents turning the platen back manually, and recording the same amount twice in one position, either intentionally or accidentally, thus protecting the store owner and the customer. When this feature is combined with the feature "Symbol to Print with Every Machine Operation" an excellent "No Sale" protection is provided. With a cash machine equipped in this manner, the till can be equipped to open only by the operation of the machine. Each time the machine operates, a symbol prints and the paper spaces up and since it is impossible to turn the platen back, the till cannot be opened without leaving a record of its opening on the tape.

Reciprocating Progressive Platen Spacing

When a Food Control machine, Style 10 10 55, is used, the food check is inserted and the amount of charge printed by the machine opposite each item. Since the printing position is behind the ribbon,

a special platen spacing mechanism was developed which first spaces the food check backward so that the line that was visible above the ribbon is brought down to printing position. Then, after printing, the check is spaced up to provide spacing of ⅓ inch between items. This feature, the Reciprocating Progressive Platen Spacing Mechanism, is available for other Class 8, 9 or 10 machines. When a machine is equipped with this feature, the form limit stop may be adjusted by a set screw for a printing line from 4½ inches to 6$\frac{3}{16}$ inches from the bottom. A permanent stop may be placed for a printing position from 3$\frac{3}{16}$ inches to 4½ inches from the bottom, if required.

Ticket Lifting Device

When a ticket is inserted in a ticket chute on a 3⅞-inch carriage, the printing line is $\frac{13}{16}$ inch from the bottom of the ticket. Often it is desired to print two or three lines on a ticket. Since the ticket is not spaced by the regular platen spacing mechanism, the Ticket Lifting Device is required. With this, the ticket may be lifted by specified result keys, operation control keys or by the minus motor bar, to provide two additional lines on the ticket—19/32 inch and 12/32 inch from the bottom of the ticket. For example, "quantity" may be entered on the top line with the motor bar, "employee number" with operation control key No. 6, constructed to non-add and lift the ticket so that the printing line is 19/32 inch from the bottom, and "job number" with operation control key No. 5, constructed to non-add and lift the ticket for printing 12/32 inch from the bottom. This feature is not available on machines with the credit balance mechanism. (Plus and minus bar machines may have the credit balance mechanism omitted at no change in price.) The ticket may be from 3⅛ inches to 6⅛ inches wide. The center of the form must align with column 4 on 8-column machines or column 5 on 10-column machines. If this is not possible, an additional charge will be necessary for special construction.

Back-Space Mechanism with Cut-off Knife (See illustration on page 6.)

The Back-Space Mechanism was designed principally for unit ticket making machines, but it has a number of other uses. For example, it has been used without the cut-off knife merely to obtain greater spacing between lines than is available with the regular spacing mechanism. It may be constructed to back-space either ⅞ inch or 2¼ inches on each operation. For single-line tickets, the cut-off also functions on each operation. For multiple-line tickets, the cut-off is controlled from an operation control key.

The cut-off occurs 3¾ inches below the printing position before back-spacing; therefore, for a two-line ticket with ⅞ inch back-space, the key which actuates the cut-off knife should be used for the first line entered (bottom line of the ticket); with 2¼ inches back-space, the cut-off key should be used for the second line entered. For a three-line ticket with ⅞ inch back-space, the cut-off key should be used for the second line.

Ticket making machines should be equipped with the ticket stacker to properly hold the tickets as they are cut off.

The back-space mechanism is independent of the regular forward-spacing mechanism—hence, a roll of NB double carbonized paper may at the same time be spaced up in the regular way and provide a condensed list of all items entered on the unit tickets or other back-spaced forms. For this purpose, the machine may be equipped with a rewind device. When so equipped, an additional holder above the rewind device may be furnished for holding BB roll paper that is to be back-spaced.

Bell on Carriage

The bell may be easily adjusted to ring when the platen has been turned up any number of spaces up to 100. It is commonly used to serve as a warning that the bottom of the sheet is approaching. After the warning, the carriage may be shifted to the next column and the paper turned back to the first writing line. This may be done quickly as the bell provides an automatic lock that stops the reversing of the platen at the first writing line. The bell is easily disengaged.

KEYBOARD

Complementary Keytops

The figures on these keytops are similar to those on the Calculator. In addition to the regular figure of value, each keytop contains a small complementary figure in the upper left-hand section of the face of the keytop. The two figures appearing on each keytop always total 9. On Classes 8 and 10 machines, this feature may be used to facilitate subtraction and to make possible the figuring of trade or chain discounts without mentally computing the difference between the discount and 100 per cent.

Bridged Key Stems

Bridged key stems serve the purpose of bridged keytops used on other machines. The key stems of two keys in adjacent columns may be bridged so that depression of one key will actuate the two type bars. Since a three-letter character may be placed on an outside type bar and a two-letter character on an inside type bar, this feature permits writing a four- or five-letter word or abbreviation with one key depression.

Spread Keyboard

The spread keyboard has been used by certain chain stores for a number of years. Its purpose is to provide greater space between columns so that there will be no danger of persons with large fingers, who are unaccustomed to the use of a machine, accidentally depressing adjacent keys instead of a single key. Each alternate column of keys is omitted, but the printing mechanism is so linked with the keyboard that the normal space appears between the printed figures. The maximum listing capacity is four columns. The totaling capacity is six columns on a six-column machine and eight columns on a ten-column machine. The feature is not furnished on an eight-column machine. Several standard styles of counter adding machines are equipped with this feature.

Monetary Key Caps. $1\frac{17}{32}$-Inch Carriage. Item Counter on Platen Shaft

Monetary Key Caps

Monetary key caps are similar to key caps used on typewriters and Type 70 machines, in that the faces are paper, covered with a glass top, held in place with metal bands. The key caps give the full value of each key as 1¢, 10¢, $1, $10,etc., in large, prominent figures. The keys are white except that the 5¢ key may be red. The figures on the key caps are printed in black. This feature is used where the cash register type of keytop is preferred to the adding machine type.

Operation Control Key to Restore Only by Depressing Another Key in Same Column

Any operation control key on a non-standard Class 10 machine may be constructed so that it remains depressed after the machine operation, and is restored only by the depression of another key in the same column. This is a very desirable feature when the same operation requiring an operation control key is to be performed a number of times successively. This feature is also used in connection with the selection of a register from the operation control key. For example, operation control key 4, constructed to select register 1 and non-restore, may be depressed and a number of items added in register 1 by pulling the handle or operating the motor bar. When an item or group of items for register 2 is reached, operation control key 5 is depressed to restore key No. 4 and cause the items to add in register 2.

No-Sale Key

The non-add key is sometimes used on cash machines as a no-sale key to open the cash till when an amount is not to be registered. To guard against mis-operation, this key may be constructed so that the machine will not operate when keys on the keyboard are depressed.

Operation Control Keys to Repeat Items

The regular repeat key, key 5, repeats the keyboard set-up and remains depressed after the machine operation. It is restored only by depression of another key in the same column—a result key, the non-add key or the error key. The error key also restores the amount keys. Amount keys may be changed by depressing other keys in the same columns.

Operation control key 6 also may be constructed to repeat the keyboard set-up on Classes 8 and 10 and if desired prevent change in the keyboard set-up to insure against accidental change in the figures reprinted. This key will restore on each machine operation and thus can be constructed to operate an electric machine, whereas the regular repeat key can not. This is particularly valuable when an item is commonly repeated only a limited number of times.

For an application such as cash receipting, where the amount is printed on the stub and on the customer's receipt, operation control key 6 may be constructed to repeat and to lock the keyboard so that no key can be depressed until the machine is again operated with operation control key 5, which releases all keys. This guards against defalcation as well as accidental changing of the keyboard set-up or mis-operation of the machine. This is usually used in connection with the back-space mechanism and cut-off knife and a locked receptacle for the coupons.

On Class 9 machines with the credit balance mechanism, the repeat key (operation control key 5) may be constructed to restore on each operation.

Repeat of Specified Columns

The dates, characters or folio numbers controlled by the repeat mechanism are normally constructed to print on each operation so that they will print with results as well as with listed items. In many cases, they may be constructed to print only with result or non-add key operations.

When a machine is equipped with the extended total feature, it is obvious that repeated figures and an extended total in the same column cannot be printed at the same time. There are also other cases when it is not desired to have repeated dates, characters or folio numbers print with totals. The keys in the repeated section may be constructed to restore on depression of a result key.

When there is no repeat normalizing lever, a key under control of the repeat mechanism may be restored by flipping, or partly depressing, another key in the same column.

Form Heading Holder

A form heading holder similar to that used with Type 70 machines may be affixed to the case just above or below the keys on the keyboard. This is used to indicate the purposes for the various columns of keys. For example, the headings "Clerk," "Oil," "Gas" and "Amount" may be placed above or below the appropriate columns of keys of a cash registering machine so that the proper columns will be used when registering sales.

COMPUTING

Sterling Currency

The sterling currency keyboard provides for listing whole numbers (pounds), twentieth fractions (shillings), twelfth fractions (pence), and quarter fractions (farthings). Each key in the fourth column

has a value of one and adds ten shillings. Thus, any value from 11 to 19 shillings may be added by depressing two adjacent keys in columns 3 and 4, nineteen shillings, for example, being written by depressing the two top keys in those columns. Keys 1 to 9 in the second column and two keys at the top of the first column are used for pence. The four keys for farthings are also in the first column. Farthings convert into pence, pence into shillings and shillings into pounds.

On 8-column machines the farthings may be omitted, if desired, and the pence placed in the first column with the 10 and 11 pence keys between the first column and the result keys. This provides an additional column of capacity.

Fractions

(1) *1/2, 1/3, 1/4, 1/8, or 1/10*—These fractions require only one column of keys, usually the extreme right-hand column. They are used for listing and adding or subtracting common fractions or mixed numbers. ½, 1/3, ¼ and ⅛ fractions are usually constructed to print both numerator and denominator; however, only numerators need be printed, if desired. 1/10 fractions print numerators only, in .070 inch type.

(2) *1/12*—These fractions require two columns of keys, usually the two extreme right-hand columns. Numerators only are printed, in .070-inch type. This feature is frequently used for listing and adding dozens and single items, or gross and dozens at one operation.

(3) *1/12 and 1/8*—These fractions require two columns, usually the extreme right-hand columns. A machine with this feature is often called the architect's model and is used for adding feet, inches and fractions of inches. The 1/12 fractions are usually located in column 2, with the 10/12 and 11/12 keys occupying positions 8 and 9 of column 1. The 1/12 fractions print numerator only, in .070 inch-type. The ⅛ fractions occupy the seven remaining positions of column 1 and print both numerator and denominator.

(4) *1/16*—These fractions require two columns and print numerator only in .070-inch type. They are frequently used when it is desired to list and add pounds and ounces at the same time.

(5) *1/16 and 1/12 or 1/12 and 1/16*—These combination fractions require three columns of the keyboard. Numerators only for both types of fractions are printed, in .070-inch type. The combination 1/12 and 1/16 fractions is similar to the 1/12 and ⅛ fraction combination except that it makes possible the listing and adding of feet, inches, and sixteenth inches at the same time.

(6) *1/20*—These fractions require two columns and print numerators only, in .100-inch type. This is standard construction in the shilling section of English currency machines. All the keys in the left-hand column of this section print and add 1, each keytop being inscribed with the figure "1." The common use for this feature in the United States is for listing and adding or subtracting short tons (2,000 lbs.) and hundredweights at one operation.

(7) *1/60 (1 to 59 or 5 to 55)*—These fractions require two columns and print numerators only, in .070-inch type. The 1 to 59 combination prints 1 to 9 in the right-hand column and 1 to 5 in the left-hand column. This combination is frequently used for adding hours and minutes at the same time when the exact number of minutes is required. This feature is standard on the Grain Special machines, Styles 8 08 13 and 8 08 14, for adding bushels and pounds at the same time.

The combination 5 to 55 is used to add hours and minutes where it is necessary to record the minutes in units of five only. This is a standard feature of Styles 8 10 25 and 8 10 26. These fractions require two columns, the location of the keytops being the same as for 1/12 fractions.

Note: ⅛ fractions are not available on Class 9 credit balance machines and 1/16 fractions are not available on any Class 9 machines.

Operation Control Keys to Operate Machine

On an electric machine, the depression of the motor bar may be eliminated for each operation in which an operation control key is used by having the operation control key constructed to operate the machine. Thus the functions of the operation control key are obtained without any extra effort.

When both registers are selected by operation control keys, the motor bar is usually omitted and it is necessary that the keys which select the registers, as well as other operation control keys, be constructed to operate the machine.

Carry Over From Column 1 to 3

This feature permits the accumulation of units and twelfths, or units and eighths, *at separate runs* on a machine equipped with combination 1/12 and 1/8 fractions. The 1/12 fractions are located in column 2 and the 1/8 fractions in column 1. When adding feet and inches, for example, the 1/8 fractions in the first column are not used.

When accumulating 1/8 fractions, as in the adding of yards and fractions of yards, the 1/12 fractions are not used. Each time the fractions of yards accumulate to a whole number, the carry goes directly to the third column. (This differs from the combination of twelfths and eighths as found in Style 8 10 11 where the eighths carry into the twelfths and only the twelfths carry directly into the units column.)

This feature may be used in the same manner on machines with twelfth and sixteenth fractions.

Non-Add From Motor Bar

This feature is used where most of the figures are non-added numbers. For example, in writing job tickets, it may be desired to record the employee number, the job number, the operation number, the part number and the quantity, only the quantity being added. With this feature, it is necessary to specify operation control keys to operate the machine for added amounts. The feature does not provide for designating the non-added items with a symbol, therefore it is usually desirable to have the operation control keys which are used for adding amounts constructed to print symbols, or to use the feature Symbol to Print on Each Machine Operation.

Subtract Lever to Automatically Return to Add Position when Sub-total, Total, Non-add, or Error Key is Depressed

This feature permits a total to be taken without manually returning the subtract lever from the subtract position to the add position. It is a useful feature on many Class 9 machines particularly those used for making statements. It permits the listing of debits, the listing of credits, and the taking of the total without the necessity of moving the subtract lever manually to the add position before taking the total.

Subtract Lever to Automatically Return to Add Position Following Each Machine Operation —Also when Sub-total, Total, Non-add, or Error Key is Depressed

This feature automatically returns the subtract lever to the add position following each machine operation and also upon the depression of a result key. Where items are alternately added and subtracted, as in taking off an old and new balance proof or obtaining the difference between cost and selling price, it saves one half of the subtract lever operations. It also eliminates errors in other work due to the operator forgetting to restore the lever to add position after subtracting.

Subtract Lever Latched in Subtract Position—Manually Restored

When a Class 9 machine is provided with the feature which restores the subtract lever following each machine operation, and where several items may be subtracted in succession, this feature may be specified. When successive subtractions occur, it saves shifting the subtract lever into subtract position.

Non-Simultaneous Addition

This feature is used when simultaneous addition is not required for the majority of items, as it permits adding amounts in register No. 1 with the motor bar or handle-pull, which is easier than using an operation control key for selecting register No. 1.

With this feature, the basic construction of the machine, which is normally simultaneous addition in both registers, is changed so that amounts add only in register No. 1 when the machine is operated. Operation control keys must be provided for adding in register 2 or for adding simultaneously in both registers, as required.

Operation Control Key to Select Register

The term "register selection" is used to indicate the effect accomplished and not necessarily the exact mechanical functioning of the feature. On a Class 10 machine with the basic construction of simultaneous addition, the "selection" of register No. 1 from an operation control key is accomplished by non-adding register No. 2. Register No. 2 is "selected" by non-adding register No. 1.

On a machine constructed to normally add in register No. 1 only, as is the case when the feature "Non-simultaneous Addition" is specified, an operation control key designed to select register No. 2 is constructed to non-add register No. 1 and to cause addition in register No. 2. An operation control key designed for simultaneous addition selects register No. 2 without non-adding register No. 1.

Manager's Lock

The manager's lock, furnished on most detail adding cash machines, makes it possible for the manager or otherwise authorized person who possesses a key to the lock to use a machine for miscellaneous adding without affecting the total in the accumulating register. Normally items entered with the motor bar add simultaneously in both registers. When the manager's key is used, the accumulating register is non-added so that amounts add only in the detail register. All such items are designated with the symbol MGR. As a further protection, the manager's key cannot be withdrawn without restoring the machine to the normal simultaneous addition.

On machines equipped with enforced designation, the manager's lock is usually constructed to normalize the enforced designation so that it will not interfere with miscellaneous adding.

On machines with operation control key to select register 2, used for entering single items, both registers are non-added when the single item key is used with the manager's key inserted in the lock—the manager's key non-adds register 2 and the single item key non-adds register 1. The regular single item symbol would print. To prevent this operation which would cause confusion, the manager's lock can be constructed so that when the key is inserted, register selecting operation control keys will be locked against depression.

SPLITS

Cipher Split (CS)

This feature prevents the printing of automatic ciphers from left to right when an amount is entered to the left of the split. It does not prevent the carry over of accumulations from the right to the left of the split, nor does it affect the adding capacity of the machine. It is frequently used on Cash Machines when it is desired to record gallons and amount, quarts and amount, etc., at one operation. The full capacity of the machine may be used for entering large amounts, except that ciphers will print only as described above.

Permanent Split (PS) (Add or Non-add at the Left of the Split)

The permanent split not only prevents the printing of the automatic ciphers from the left to the right of the split when an amount is entered at the left, but also prevents the carrying over of accumulations from the right to the left of the split. This feature also may be used when it is desired to add

two separate totals at the same time. If it is desired to use the left side of the permanent split for numbers only, such as ticket numbers, weight slip numbers, etc., the feature should be ordered to "non-add to the left of the split."

Split and Normal

With this feature, a cipher split may be established at any position specified by shifting a lever at the top of the case near the left-hand ribbon spool. When the lever is shifted to "N" (Normal), the split is eliminated. Since a cipher split affects only the printing of ciphers to the right of the split when figures are entered in the left-hand section, incorrect results will be obtained with a Class 9 with credit balance mechanism unless the totals in both sections are positive or both negative. When the split and normal feature is required on machines with the credit balance mechanism, the sales contract which is signed by the customer must state—"For use only when both sides of split are positive or negative." This will insure against misunderstanding. In many cases the extended total and normal feature will serve the purpose and will be more satisfactory on machines with credit balance mechanism.

Split, Count and Normal (SC&N)

The lever which controls this feature is located at the top of the case near the left-hand ribbon spool. The three positions in which it may be set are designated "S," "C," and "N." With the lever set at "S," the machine functions the same as described under "Split and Normal." With the lever set at "C," the machine functions the same as described under "Count and Normal." The location of the split, with the lever set at "S" or "C," must be the same; with the lever set at "N," the split is normalized and the full capacity of the machine may be used for listing and totaling. This feature is not furnished on machines equipped with 5/6-inch or 1¾-inch platen spacing.

Split-Repeat and Normal

This is a style feature on the standard Leather and Textile machines. When the lever is set at "S" position, the keys at the left of the split remain depressed but restore when the total or sub-total key is depressed or when the lever is moved to "N" position.

In the leather business the number of skins in each bundle of a shipment is usually uniform. This number is set up at the left of the split and automatically repeated as the square feet in each bundle is listed. When the total key is depressed, the machine prints the number of skins and the total footage.

Cipher Split Controlled From Operation Control Key

A machine may be constructed so that a cipher split may either be established or may be normalized from depression of an operation control key.

Depression of operation control key No. 6, which is usually the non-add key, may establish a cipher split between columns 2 and 3. This is excellent for providing numerical punctuation for non-added numbers.

The machine may be constructed with a cipher split which normally functions on all operations but which is normalized by a specified operation control key. This is sometimes used in a ticket-making machine where the keyboard is split for entering several small numbers or quantities, but where full capacity is required for entering amounts.

Automatic Cipher Split

The automatic cipher split permits having character and numeral keys in the same column and actuating the same printing sector or type bar. When a numeral key in such a column is depressed, ciphers will print to the right in the normal manner when no key is depressed in the column to the right. But when a character key is depressed in such a column, a cipher split will be automatically established and ciphers will not print to the right.

Since the calendar feature on Classes 8, 9 and 10 includes only the months and days, this feature is particularly valuable on these classes when characters similar to those furnished on other classes are desired with the calendar feature. On Classes 8, 9 and 10 equipped with the calendar feature and automatic cipher split, the characters DR, CR and BL will be furnished instead of numerals in positions 4, 5 and 6 of column 9 at no additional charge.

COUNTING AND NUMBERING

Count, Automatic (See illustration on page 7.)

The machine automatically adds 1 in the count section for each item listed. When the machine is operated without keys being depressed on the keyboard, the count mechanism does not operate. The total number of items which have been listed is printed at the same time as the total amount, and in .070-inch type. No provision is made for normalizing the automatic count feature.

The combined totaling and count capacity determines the style of machine. For example an eight-column machine, provided with the automatic count mechanism, allows six columns of adding and listing capacity and provides, in addition, a count of from 1 to 99. (On Class 10 machines two extra columns totaling capacity is included in the accumulating register.) This feature is particularly useful on all retail counter machines, cafeteria machines, etc.

If this feature is ordered to count in both registers of a Class 10 machine, particular care must be taken to provide sufficient capacity in the machine to accommodate a grand total of the count.

Count and Normal

This feature makes possible the adding of weights, yards, pieces, etc., and the counting of items in one operation, and then the conversion of the machine into a full capacity adding machine by simply moving the count and normal lever from "C" to "N" position.

The lever which controls this feature is located at the top of the case near the left-hand ribbon spool. With the lever at "C" position, the total number of items listed will be printed when the total amount is printed. When the lever is set at "N" position, the action of the count section is normalized and the machine becomes a full capacity adding and listing machine.

The capacity of the count section of the machine must be determined at the time of ordering the machine and is usually governed by the totaling capacity needed at the right of the count section. Since no amounts may be added in the count section when the control lever is set at "C," an eight-column machine, built to count to 999, would have only five columns on the right-hand section of the keyboard to be used for listing and adding amounts.

This feature is not furnished with 5/6- inch or 1¾-inch platen spacing.

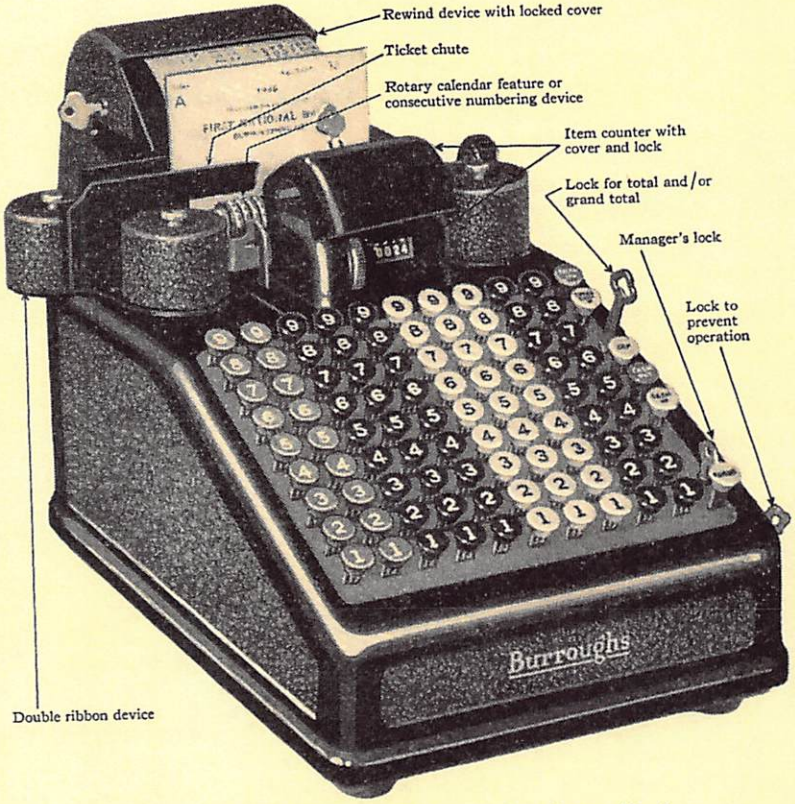
Item Counter on Platen Shaft (1 17/32- and 3 7/8-Inch Carriages) (See illustration on page 9.)

This type of item counter is located on the right-hand side of the platen shaft. It counts from zero to twenty but does not print the result. This feature does not affect the adding or totaling capacity of the machine. It is used most often on machines for retail stores. Before printing the total, the number in the dial of the counter is compared with a physical count of the packages to insure that none have been omitted.

Item Counter (See illustration on next page.)

The item counter consists of four dials built into the case in front of the type bars. It is cleared manually by turning a knurled wheel at the left of the dials. It may be used for counting printed added, subtracted or non-added items, printed totals or grand totals, printed subtract totals or subtotals or any combination of these.

In many cases it is desired to keep the count of items under control of the manager, just as the total of the accumulating register is kept under his control by means of a lock. For this purpose a locked cover which covers the dials and the clearing wheel may be provided.



Burroughs Machines and Features Meet Every Need

Rotary Consecutive Numbering Device (Illustrated above.)

For numbering unit tickets, cash receipts, etc., the rotary consecutive numbering device is used. This may have a capacity of 9999 or 99999. It prints to the left of the regular printing section in the same manner as the rotary calendar feature. The printing width of the four-digit number is $\frac{21}{32}$ inch. The distance from the center of the units of the number type to the center of the symbol type is $2\frac{1}{16}$ inches on 8-column machines and $2\frac{1}{4}$ inches on 10-column machines. This feature is normally equipped with .080-inch italic type, but .100-inch type may be obtained.

The number is changed on the forward stroke of the machine before printing takes place; therefore, to start the work, the dials should be set at one less than the number to be printed. Normally, this feature is constructed so that the number advances and prints on each machine operation, but there are several optional controls to meet any particular requirement. It may be constructed to change only from one or more result or operation control keys, thus permitting the repeating of a number. Also the printing may be controlled by specified result or control keys or by carriage position.

The consecutive numbering device may be normalized by the split and normal lever, by a special lever in the position of a split and normal lever, by insertion of the key in the Manager's lock as specified, or by specified result or operation control keys.

An additional dial wheel for characters may be added at the right of the consecutive numbering device if desired. This may have twelve characters with type .100 inch high or six characters with

.190-inch type. In either case the maximum width is .185 inch. This permits three-letter characters if .100 inch high. The space required for the extra dial wheel for characters does not permit of two- or three-letter characters in column 10.

In many cases, consecutive numbers are used as a protective feature to insure that all transactions are accounted for. To prevent the number being manually changed, a cover may be provided. This covers only the numeral wheels. If there is a character wheel at the right, it is exposed.

RESULTS

Extended Total

The extended total feature increases the totaling capacity of a machine which has a non-add or date section at the left. The adding wheels in a listing non-add section may be used for accumulating the carry from an adding section immediately to the right, and, with this feature, the full extended total or sub-total may be printed. This feature will not be furnished on machines with calendar feature and date repeat lever constructed so that dates print with totals only.

The extended total feature is usable only for miscellaneous adding where days (or characters or account numbers) are not to be printed with the total. When a machine is used with date repeat, the total must never exceed the listing capacity to the right of the split, and an extra machine operation is necessary before printing the total in order to print the complete date. The month will print a second time with the total. For some applications, the date keys may be constructed to release from depression of the total key, in which case the totaling may exceed the listing capacity.

The extended total feature will not be furnished to the right of column 4 on 10-column machines or column 3 on 8-column machines.

Extended Total and Normal

This feature is similar in results to the date and normal feature. With date and normal, amounts entered to the left of the split add, but the total does not print. With extended total and normal, amounts entered to the left of the split do not add, but any total resulting from carry-overs from the right of the split will print. In both features, the split is removed and full listing and totaling capacity is provided when the controlling lever is placed at normal. Since credit balances are not affected by the extended total and normal feature, this feature may be used on Class 9 machines with the credit balance mechanism. It is of particular value on Styles 9 10 80 and 9 10 82 when open-item statements are to be prepared at the end of the month, as it permits recording days of the month with the numeral keys in columns 8 and 9 and provides full capacity for other work. It will not be furnished to the right of column 4 on 10-column machines or column 3 on 8-column machines.

Sub-Total Keys and Lever

The basic construction of Class 10 provides for totaling each of the two registers. Often a sub-total is desired, and several features are available for the purpose. A sub-total key may be substituted for either of the total keys at no additional charge. Also, a key may be substituted for the register 2 total key, which will normally sub-total register 2, but will clear register 2 when the manager's key is used. This is used principally on cash machines. It permits persons other than the manager to obtain register readings, but prevents the total being cleared except by the manager or one to whom he furnishes a key.

Totals and sub-totals of both registers are provided by the feature Total and Sub-total Lever for register No. 2. When the lever is pushed backward, it operates the electric machine and sub-totals register 2; when pulled forward, it operates the electric machine and totals register 2. A register 1 sub-total key is furnished instead of the register 2 total key; thus register 1 is totaled and sub-totaled in the same manner as on Classes 8 and 9. The register 2 total and sub-total lever is to the right of the register 1 total and sub-total keys, in the machine case. A lock may be had to lock the lever.

Register 2 Sub-Total Key to Total When Manager's Key Used

Where it is desired to periodically clear the accumulating register of a machine with a sub-grand total key, the manager's lock can be constructed so that when the key is inserted and turned in it, the sub-grand total key will clear the accumulating register.

MISCELLANEOUS

Ribbon Feature, Double (See illustration on page 16.)

The use of this feature permits the printing of an original and duplicate record of transactions with standard ribbon and without the use of carbon paper. A double wound roll of paper may be used. The double ribbon feature may also be used in conjunction with the ticket chute and rewind device to permit printing on a ticket or slip of paper and recording the amount on a single continuous tape.

Date and Normal; Date, Split and Normal

When the date and normal lever is set at "D," a split is established and totals or sub-totals of items entered at the left of the split do not print. When set at "N," the full listing and totaling capacity is provided. This is usually, but not necessarily, used in connection with the calendar feature. It provides greater capacity for listing trial balances or other miscellaneous adding than is available at the right of the calendar section.

On machines without the calendar feature, the split may be established at any place desired for certain classes of work where ticket numbers, truck numbers or other folio numbers or quantities are entered at the left of the split and amounts added at the right. The full machine capacity is provided for other work where a split is not needed.

The date, split and normal lever functions the same as the date and normal lever when in the "D" or "N" position. When the lever is placed at "S," the split is established in the same position as when at "D," but the totals of items entered at the left of the split will print. This permits adding both quantities and values, cost and selling prices, etc.

EXAMPLES	Lever at D		Lever at S		Lever at N
	JAN 5	5.00	5	5.00	500,005.00
	JAN 12	7.50	12	7.50	1200,007.50
		12.50 ✲	17	12.50 ✲	1700,012.50 ✲
Capacity (Split between Cols. 7 and 8) Machine with Calendar Feature					
Listing		69/99,999.99		69/99,999.99	6999,999.99
Totaling		99,999.99		99/99,999.99	9999,999.99

Enforced Designation

On all machines where clerk or department designation is desired, this feature should be provided, since it prevents operation unless the item has been properly designated. The machine may be constructed so as to enforce the depression of any designating key in one or more columns or a key in each of certain columns or groups of columns. There may be, for example, more than nine commodity designating keys in two or more columns, only one of which would be used to designate an item. Or there may be a column of clerk keys and one or more columns of commodity keys and it is desired to enforce the depression of both a clerk key and a commodity key.

There are two enforced designation features, one requiring the depression of proper designating keys as described above for each operation, the other requiring designation as described above only for certain result or operation control key operations. The former may be normalized, if desired, from

any result or operation control key. The latter is used when it is desired to list detail items without designating them but to enforce the designation of the total or of a single item added in the accumulating register only. When it is desired to designate the commodity for detail items and the clerk for totals, both enforced designation features are required.

Either of the features may be normalized by the manager's lock, lock for the total key or by a special lock.

Symbol ".." to Print with Every Machine Operation

Every time the handle is pulled or the motor bar is operated, this symbol prints whether an item is listed or not. When the feature is combined with the features "Non-turn-back-platen Mechanism" and "Till to Open with Every Machine Operation," it provides an ideal operation for handling "No Sale" transactions in a retail store. The only way the drawer can be opened is by the operation of the motor bar or handle, which in turn prints the symbol and spaces up the paper. Since the paper cannot be spaced back, even intentionally, it is impossible to open the drawer without leaving a record of its opening on the tape. If desired, the store's initials or some other symbol may be substituted for the double dot, in which case a special symbol type bar is required.

Ciphers in Columns 1 and 2 to print with Total Symbol

Classes 8, 9 and 10 are normally constructed so that only the total or sub-total symbol prints when the total or sub-total key is used and the machine is clear.

For bookkeeping work, it is often desired to have the double cipher clear signal print from the total or sub-total key when the machine is clear. This may be obtained by the gratis feature "Ciphers to Print in Columns 1 and 2 with Symbols." With this feature, however, the double ciphers would print from the subtract bar, the white overdraft key and the non-add key. They would also print from any operation control key that caused a symbol to print. To limit the printing of the double cipher signal to totals and sub-totals, the feature "Ciphers in Columns 1 and 2 to Print from Total and Sub-total Keys" has been developed for Class 9 with credit balance mechanism.

Rotary Calendar Feature (See illustration on page 16.)

This rotary calendar feature is similar to that on Type 70 machines. The date prints to the left of the regular printing section thus providing full adding capacity. The feature consists of four dials. Each dial provides for twelve characters in addition to one position which is usually left blank—one dial for three-letter characters (months), two for numerals (days) and one for numerals (year) and two-letter characters. The full width of the printing is $\frac{11}{16}$ inch. The distance from the center of the right-hand date type to the center of the symbol is $2\frac{11}{32}$ inches on 10-column machines and $2\frac{5}{32}$ inches on 8-column machines.

The feature may be constructed in either of three ways—to print on each machine operation; to print only on operation of specified result or operation control keys or with the printing controlled from carriage position. When carriage controlled, the control is obtained from adjustable rolls on the carriage.

The printing of the date may be normalized from the date repeat lever, the split and normal lever or the date and normal lever, or a special normalizing lever may be provided. Only one of these four levers may be obtained, as they occupy the same position.

Cash Drawer Opening Controls

Almost any desired control of the opening of the cash drawer till may be obtained. If no control is specified on the order, the machine will be constructed so that the cash till will open on each machine operation. Because of the many possible controls, it is advisable to always carefully specify just how the cash till is to be opened and under what conditions it is not to open.

It may be opened from each machine operation (standard); it may be opened only from specified

result or operation control keys; or it may be opened only with printed results and with non-add key operations.

The feature, Cash Drawer Till to Open Only from Specified Result or Operation Control Keys differs from the feature Cash Till to Open Only With Printed Results and Non-add Key Operations in that the cash till will open from result key operation whether or not a result is printed. With this construction, the total key on Class 10 may be used as a no-sale key but it is not practical to print a clear symbol before listing amounts as the cash till would open with the printing of the clear symbol.

Characters

(a) *1, 2, or 3 Letters on 10-pitch sector*—These may be placed in any column. Three-letter characters require two columns unless placed in the right-hand or the left-hand column of the keyboard. All characters other than the two columns of standard characters listed below are included in this group. If even one abbreviation of a standard row of characters is altered, the entire character sector must be ordered as non-standard and comes under this classification. Special characters are usually made to print with .100-inch type but may, however, be ordered to print with .070-inch type.

(b) *A, B, C, D, E, H, CH, RA, PO or A, B, C, D, E, H, K, L, M*—These standard characters for general retail use occupy one column, usually at the extreme left of the keyboard, and print with .100-inch type. The two-letter characters represent "Charge," "Received on Account," and "Paid Out"; and the single letter characters may be used to represent clerks or departments.

(c) *NO SALE, MISC, REP, GRS, ACC, T-T, HT, GAS, OIL*—These standard three-letter garage characters occupy the left-hand column of the keyboard and print with .100-inch type. They represent storage, towing, repairs, grease, accessories, tires and tubes, high test (gas), gas (ordinary), and oil.

(d) *11 Characters on 12-pitch sector*—Nine of the eleven keys are placed in one column. Positions 8 and 9 in the next column to the right are used for the other two keys. These two characters will not affect the totaling capacity in that column but will reduce its listing capacity to 7. This is not considered a limitation, however, as the addition of either 8 or 9 in the last column of the amount section would usually cause the total to exceed the capacity of the machine.

If three-letter characters are required, this feature must be located at the extreme left of the keyboard.

(e) *15 Three-letter characters in two columns on 16-pitch sector*—These keys may be placed in any part of the keyboard. Nine keys are located in one column and six positions, 4 to 9, of the next column to the right or left. Two of the remaining positions may be used in connection with a 12-pitch sector if desired. This construction provides twenty-six three-letter characters in three columns if placed at the extreme left or right of the keyboard, or fifteen three-letter characters and eleven one- or two-letter characters if placed elsewhere.

(f) *Characters to print with totals*—When it is desired to print descriptive characters at the same time a total is printed, this construction should be specified. It prevents the disengaging of the handle or motor bar, which normally takes place when a total is attempted with an amount key depressed. This feature is sometimes used on cash machines to identify only the total of the sales of a department or a clerk.

Offset Type

The standard distance between the centers of type is .190 inch. This is true regardless of punctuation marks. Type in one or more columns may be offset .048 inch either to the right or to the left so that the distance between the centers of the offset type and regular type in an adjacent column is .238 inch. This is usually used to provide space to indicate the division between dollars and cents when the same section is used for listing numbers or quantities and a decimal point is not desired. Usually when this feature is used, all type to the right or to the left of the division are offset. It should be borne in mind that if regular type is placed to the left of type that is offset to the left, the distance between type centers is only .142 inch.

MACHINE FEATURES—CLASSES 8, 9 and 10

Supplement to Form 2-8-106

JANUARY, 1934

This supplement is a reproduction of feature descriptions issued since the publication of Form 2-8-106 and makes unnecessary reference to the various Field Force Letters in which these descriptions were published.

No additional copies of this supplement are available.

Back-Space Mechanism With Cut-Off Knife—Non-Standard Classes 8 and 10

The back-space mechanism was designed principally for unit ticket-making machines. It may be constructed to back space either $\frac{7}{8}''$ or $2\frac{1}{4}''$ on each operation. For single-line tickets, the cut-off also functions on each operation. For multiple-line tickets, the cut-off is controlled from an operation control key.

The cut-off occurs $3\frac{3}{4}''$ below the printing position before printing and back spacing. Therefore, for a two-line ticket with $\frac{7}{8}''$ back space, the key which actuates the cut-off knife should be used for the first line entered (bottom line on the ticket); with $2\frac{1}{4}''$ back space, the cut-off key should be used for the second line entered. For a three-line ticket with $\frac{7}{8}''$ back space, the cut-off key should be used for the second line. Ticket-making machines should be equipped with the ticket stacker to properly hold the tickets as they are cut off. The ticket stacker may be obtained for $1\frac{3}{4}''$, $2\frac{1}{4}''$ or $2\frac{5}{8}''$ tickets.

Bridged Key Stems or Type Bars

Two adjacent key stems may be bridged to permit the printing of characters on two type bars from a single key depression.

Two or more adjacent type bars may be bridged together, so that all will operate from a depression of a single key. Only one column of keys is furnished for the bridged type bars. Not more than four type bars may be bridged.

These features are used for writing words or abbreviations from single key depressions.

Rotary Calendar Feature—Non-standard Classes 8, 9 and 10

This rotary calendar feature is similar to that on Type 70 machines. The date prints to the left of the regular printing section thus providing full adding capacity. The feature consists of four dials. Each dial provides for twelve characters in addition to one position which is usually left blank—one dial for three-letter characters (months), two for numerals (days) and one for numerals (year) and two-letter characters. The full width of the printing is $\frac{11}{16}$-inch. The distance from the center of the right-hand date type to the center of the symbol is $2\frac{11}{32}$ inches on 10-column machines and $2\frac{5}{32}$ inches on 8-column machines.

The feature may be constructed in either of three ways—to print on each machine operation ($25 in United States; $34 in Canada); to print only on operation of specified result or operation control keys ($40 in United States; $54 in Canada;) or with the printing controlled from carriage position ($50 in United States; $68 in Canada). When carriage controlled, the control is obtained from adjustable rolls.

The printing of the date may be normalized from the date repeat lever, the split and normal lever or the date and normal lever at an additional charge of $10 in the United States; $14 in Canada. This is a reduction from the price previously announced. Or a special normalizing lever may be provided at $15 in the United States; $20 in Canada. Only one of these four levers may be obtained as they occupy the same position.

Front Feed Carriage

Normally the front feed carriage is opened and closed manually, but may be constructed to open automatically. Forms are inserted to a fixed printing limit. The machine will not operate when the carriage is open.

The left-hand paper guides are adjustable for forms 3″ to 6″ in width. The distance from the right-hand edge of a form to the center of cents is $\frac{11}{32}$″ for a 10 column machine and $\frac{1}{2}$″ for other machines. The minimum distance from the top of the form to the first printing line is $1\frac{3}{8}$″ and the minimum distance from the last printing line to the bottom of the form is 1″. The first printing line may be between 5″ and 6″ from the bottom of the form.

Features are provided for automatic opening of the carriage as follows:

Carriage to open on each machine operation
- With normalizing lever
- Without normalizing lever

Carriage to open from operation control key

Other features for the front feed carriage are the back space mechanism with cut-off knife and the rewind device.

Carriage Stop and Bail to Limit Carriage Travel

Removable carriage limit stops with a necessary special bail may be furnished to limit the movement of $12\frac{1}{4}$″ carriages. This feature is desirable when a Style 9 10 70 or 9 10 74 is used for ledger posting, or on other work where the carriage is shifted back and forth on a standard form.

Cash Drawer Opening Controls—Classes 8, 9 and 10

It is now possible to obtain almost any control of the opening of the cash drawer till that may be desired. If no control is specified on the order, the machine will be constructed so that the cash till will open on each machine operation. Because of the many possible controls, it is advisable to always carefully specify just how the cash till is to be opened and under what conditions it is not to open.

It may be opened from each machine operation (standard); it may be opened only from specified result or operation control keys; or it may be opened only with printed results and with non-add key operations. With one exception, on Class 9 machines, all of these controls are gratis.

The features, Cash Drawer Till Not to Open on Non-add Key Operation, and Operation Control Key to Prevent Opening of Cash Drawer Till are now gratis.

The new feature, Cash Drawer Till to Open Only from Specified Result or Operation Control Keys is now available. This differs from the feature Cash Till to Open Only With Printed Results and Non-add Key Operations in that the cash till will open from result key operation whether or not a result is printed. With this construction, the total key may be used as a no-sale key but it is not practical to print a clear symbol before listing amounts as the cash till would open with the printing of the clear symbol.

Consecutive Numbering Device, Rotary

This feature is similar to the rotary calendar feature. It normally operates on each machine operation, but may be controlled in the same manner as the rotary calendar feature. Italic type .080″ high is used.

Date and Normal; Date, Split and Normal—Non-Standard Classes 8, 9 and 10

When the Date and Normal lever is set at "D," a split is established and totals or sub-totals of items entered at the left of the split do not print. When set at "N," the full listing and totaling capacity is provided. This is usually, but not necessarily, used in connection with the calendar feature. It provides greater capacity for listing trial balances or other miscellaneous adding than is available at the right of the calendar section.

On machines without the calendar feature, the split may be established at any place desired for certain classes of work where ticket numbers, truck numbers or other folio numbers or quantities are entered at the left of the split and amounts added at the right. The full machine capacity is provided for other work where a split is not needed.

The Date, Split and Normal lever functions the same as the Date and Normal lever when in the "D" or "N" position. When the lever is placed at "S," the split is established in the same position as when at "D," but the totals of items entered at the left of the split will print. This permits adding both quantities and values, cost and selling prices, etc.

EXAMPLES	Lever at D		Lever at S		Lever at N
	JAN 5	5.00	5	5.00	500,005.00
	JAN 12	7.50	12	7.50	1200,007.50
		12.50 *	17	12.50 *	1700,012.50 *

Capacity (Split between Cols. 7 and 8)
Machine with Calendar Feature

Listing	69/99,999.99	69/99,999.99	6999,999.99
Totaling	99,999.99	99/99,999.99	9999,999.99

Enforced Designation Feature

The enforced designation feature has been continually improved since its introduction, until it is now possible to enforce designation in almost any manner that may be desired.

The various features previously listed are now summarized under two features—one to prevent operation of the machine, the other to prevent operation of result or operation control keys unless the operation is properly designated. The first is usually used when it is desired to enforce the designation of added items. A common use for the second is to permit the adding of items without their designation, but to enforce the designation of the total. These features may be normalized from result or operation control keys, or from locks. The Manager's lock is usually used for this purpose, but the lock for the total, sub-total or grand total key is also used.

Extended Total—Non-standard Classes 8, 9 and 10

The mechanical conflict between the extended total feature and the rotary date or numbering device controlled from Operation Control Key has been overcome. Please, therefore, delete this restriction from your Price List.

The extended total feature increases the totaling capacity of a machine which has a non-add or date section at the left. The adding wheels in a listing non-add section may be used for accumulating the carry from an adding section immediately to the right, and, with this feature, the full extended total or sub-total may be printed. The price for the extended total feature covering 1 or 2 columns is $25 in United States; $34 in Canada. There is an additional charge of $10 in United States; $14 in Canada for each column above two covered by the extended total feature. This feature will not be furnished on machines with calendar feature and date repeat lever constructed so that dates print with totals only.

The extended total feature is usable only for miscellaneous adding where days (or characters or account numbers) are not to be printed with the total. When a machine is used with date repeat, the total must never exceed the listing capacity to the right of the split, and an extra machine operation is necessary before printing the total in order to print the complete date. The month will print a second time with the total. It is important that these restrictions be kept in mind in connection with Style 9 10 78, recently released in Field Force Letter 1808. (For some applications, the date keys may be constructed to release from depression of the total key, in which case the totaling may exceed the listing capacity.)

Extended Total and Normal—Classes 8, 9 and 10

This feature is similar in results to the Date and Normal feature. With Date and Normal, amounts entered to the left of the split add, but the total does not print. With Extended Total and Normal, amounts entered to the left of the split do not add, but any total resulting from carry-overs from the right of the split will print. In both features, the split is removed and full listing and totaling capacity is provided when the controlling lever is placed at normal. Since credit balances are not affected by the Extended Total and Normal feature, this feature may be used on Class 9 machines with the credit balance mechanism. It is of particular value on Styles 9 10 80 and 9 10 82 when open-item statements are to be prepared at the end of the month, as it permits recording days of the month with the numeral keys in columns 8 and 9 and provides full capacity for other work.

Adjustable Form Limit Stop—Classes 8, 9 and 10 with Front Feed Carriage

The 6-inch front feed carriage on Classes 8, 9 and 10 includes, when needed, a stop for limiting the distance the form is inserted. The stop is held in place by means of a thumbscrew and, although the position may be easily changed, it is designed primarily for adjustment to a single printing position on one form. It does not permit of changing and then easily resetting to a fixed point.

The optional feature, Adjustable Form Limit Stop, the price of which is $25 in the United States; $34 in Canada, should be ordered when a stop position is desired for a printing line not provided by the standard limit stop, or when a limit stop that is easily adjustable to fixed points similar to that on ledger chutes, is desired. This feature provides a form limit stop that is easily adjustable in steps of 1/6-inch to provide printing positions from 1 3/8-inch to 8 1/4-inch from the bottom of a form. Thus there may be 42 writing lines.

Item Counter—Non-standard Classes 8, 9 and 10

The item counter, formerly available only on Classes 8 and 10, is now available on Class 9 machines with the credit balance mechanism. It consists of four dials built into the case in front of the type bars. It is cleared manually by turning a knurled wheel at the left of the dials. It may be used for counting printed added, subtracted or non-added items, printed totals or grand totals, printed subtract totals or sub-totals or any combination of these.

In many cases it is desired to keep the count of items under control of the manager, just as the total of the accumulating register is kept under his control by means of a lock. For this purpose a locked cover which covers the dials and the clearing wheel may be provided.

Manager's Lock

The feature Manager's Lock for printing special symbol as shown in the price list is a revised wording for the feature previously released as "Lock to print special symbol."

The special symbol which prints when the key is turned in the lock may take precedence over any other symbol or symbols specified. The principal use for this feature is to permit printing a different symbol on each machine operation for each of two clerks. It may be designed to print a different total symbol for each of two clerks. This feature requires a special symbol sector. The lock is located in position 2 and hence cannot be furnished with the Manager's Lock to permit adding in the detail register and non-adding in the accumulating register, which is also located in this position.

Manager's Key to Prevent Depression of Register Selecting Operation Control Key—Class 10

On cash machines with operation control key to select register 2 used for entering single items, both registers are non-added when the single item key is used with the manager's key inserted in the lock. To prevent this operation, the manager's lock can be constructed so that when the key is inserted, register selecting operation control keys will be locked against depression.

Manager's Key to Permit Clearing Sub-Grand Total—Class 10

Where it is desired to periodically clear the accumulating register of a machine with a sub-grand total key, the manager's lock can be constructed so that when the key is inserted in it, the sub-grand total key will clear the accumulating register. There is no charge for this construction over the regular charge for the manager's lock feature.

Non-Space and Non-Print—Non-Standard Classes 8, 9 and 10

Operation control keys 5 and 6 may be constructed to cause the machine to non-space or to non-space and non-print.

Non-space from operation control key is sometimes desired when items are entered across a wide form. One use for the non-space and non-print feature is to permit adding amounts without printing or spacing, then print the total only.

Non-print only from operation control key will not be furnished.

Non-Add From Motor Bar—Class 8

The feature Non-Add from Motor Bar may be obtained on a non-standard Class 8 machine at $25, United States; $34, Canada. This feature is used where most of the figures are non-added numbers. For example, in writing job tickets, it may be desired to record the employee number, the job number, the operation number, the part number and the quantity, only the quantity being added. With this feature, it is necessary to specify operation control keys to operate the machine for added amounts. The feature does not provide for designating the non-added items with a symbol, therefore it is usually desirable to have the operation control keys which are used for adding amounts constructed to print symbols, or to use the feature Symbol to Print on each Machine Operation.

New Feature For Handling Two Forms in Carriage of Classes 8, 9 or 10

An extra paper release lever for controlling the left-hand pressure roll gives the effect of a split platen at a price of only $25 in United States; $34 in Canada. With this feature, it is possible to insert and remove ledger sheets or other forms up to 8½ inches wide in the right-hand side of the platen without disturbing roll paper that is feeding around the left-hand side.

By pulling forward on the extra paper release lever, the pressure roll that is against the roll paper is released; thus when the platen twirler is turned to insert a ledger sheet, the roll paper is not affected. The ledger sheet may be removed in the same manner, or the regular paper release lever may be used and the ledger sheet merely pulled out, the left-hand pressure roll holding the roll paper firmly in place.

The extra paper release lever is located immediately behind the regular lever. To adjust forms more than 8½ inches in width, both levers are used together.

Operation Control Key to Non-Restore—Non-Standard Class 10

Any operation control key on a non-standard Class 10 machine may be constructed so that it remains depressed after the machine operation, and is restored only by the depression of another key in the same column. This is a very desirable feature when the same operation requiring an operation control key is to be performed a number of times successively. This feature is also used in connection with the selection of a register from the operation control key. For example, operation control key 4, constructed to select register 1 and non-restore, may be depressed and a number of items added in register 1 by pulling the handle or operating the motor bar. When an item or group of items for register 2 is reached, operation control key 5 is depressed to restore key No. 4 and cause the items to add in register 2.

Operation Control Key 6 to Repeat and Prevent Change in Keyboard Set-Up—Non-Standard Class 10

With this feature, operation control key 6 serves as a repeat key that restores after the machine operation and prevents any change in the keyboard set-up. This feature is used in the cash receipting machine that has been demonstrated in most agencies. With this machine, the amount received is first printed on the stub by using operation control key 6. On the next operation, the amount is repeated on the bill. Agreement of the two amounts is assured by this feature, which prevents change in the keyboard set-up between the two operations.

No Sale Key—Non-Standard Classes 8, 9 and 10

The non-add key is sometimes used on cash machines as a no-sale key to open the cash till when an amount is not to be registered. To guard against mis-operation, this key may be constructed so that the machine will not operate when keys on the keyboard are depressed.

5/6" Platen Spacing—Classes 8, 9 and 10

To eliminate the operation of manually turning the paper up to the proper tear-off position and also to eliminate the usual waste of paper when it is turned up farther than necessary for tearing it off, the machine may be constructed to provide an automatic spacing of 5/6", which brings the paper to the tear-off position. This may be controlled from the Total key or from an operation control key. Thus, normal spacing may be used for adding amounts, then the paper may be automatically spaced to the tear-off position when the total is taken or when a single item is entered with an operation control key. When controlled from Total key and/or operation control key, the price is $5 in United States; $7 in Canada on Classes 8 and 10. On Class 9 machines without credit balance mechanism, the price is $25 in United States; $34 in Canada. This represents an increase in the price previously announced. Please, therefore, correct your price list accordingly. If desired, the feature may be constructed to function on each machine operation at $5 in United States; $7 in Canada. Or it may be constructed with an adjustable lever which provides 1/6" spacing when in one position and 5/6" spacing when in the other position.

Carriage Controlled Platen Spacing—Classes 8, 9 and 10

Classes 8, 9 and 10 machines with 12¼ inch carriages may now be equipped with carriage controlled platen spacing. With this feature, platen spacing is controlled by easily adjustable rolls at the back of the carriage. The amount of spacing—single or double—is governed in the usual manner by the lever at the side of the carriage. This feature is of particular value in connection with the extra paper realease lever feature as it permits spacing an adding machine tape at the left, once for each posting, and at the same time post items in several columns of a form at the right side of the carriage without spacing it.

Receptacle for Coupons

A locked receptacle for receiving coupons on a machine with the back space mechanism and cut-off knife is available. Coupons are held in this receptacle in the same order in which received.

Repeat of Specified Columns—Classes 8, 9 and 10

The Date Repeat and Permanent Repeat features are the same, except that the former has a repeat normalizing lever. Since they are used to repeat folio numbers and characters as well as dates, a more appropriate name for the feature is Repeat of Specified Columns. This name will be used in the future.

When there is no repeat normalizing lever, a key controlled by the repeat mechanism may be restored by flipping, or partly depressing, another key in the same column.

The dates, characters or folio numbers controlled by the repeat mechanism are normally constructed to print on each operation so that they will print with results as well as with listed items. In many cases, they may be constructed to print only with result or non-add key operations

When a machine is equipped with the extended total feature, it is obvious that repeated figures and an extended total in the same column cannot be printed at the same time. There are also other cases when it is not desired to have repeated dates, characters or folio numbers print with totals. The keys in the repeated section may be constructed to restore on depression of a result key

Cover for Rewind Device Writing Table, Classes 8, 9 and 10

When the rewind device is used, about fourteen items on the tape are visible as the tape feeds over the writing table. In some cases, where little use is made of the writing table, it is preferred to have the tape covered. A cover, hinged at the top, which may be easily raised for reading items on the tape or to permit writing on the tape, may be obtained.

Split and Normal—Classes 8, 9 and 10

With this feature, a cipher split may be established at any position specified by shifting a lever at the top of the case near the left-hand ribbon spool. When the lever is shifted to "N" (Normal), the split is eliminated. Since a cipher split affects only the printing of ciphers to the right of the split when figures are entered in the left-hand section, incorrect results will be obtained with a Class 9 with credit balance mechanism unless the totals in both sections are positive or both negative. When the split and normal feature is required on machines with the credit balance mechansim, the sales contract which is signed by the customer must state—"For use only when both sides of split are positive or negative." This will insure against misunderstanding. In many cases the extended total and normal feature will serve the purpose and will be more satisfactory on machines with credit balance mechanism.

Cipher Split Controlled From Operation Control Key—Non-standard Classes 8, 9 and 10

A Class 8, 9 or 10 machine may be constructed so that a cipher split may either be established or may be normalized from depression of an operation control key.

Depression of Operation Control Key No. 6, which is usually the Non-add Key, may establish a cipher split between Columns 2 and 3. This is excellent for providing numerical punctuation for non-added numbers.

The machine may be constructed with a cipher split which normally functions on all operations but which is normalized by a specified Operation Control Key. This is sometimes used in a ticket making machine where the keyboard is split for entering several small numbers or quantities, but where full capacity is required for entering amounts.

Automatic Cipher Split—All Non-Standard Full Keyboard Machines

The automatic cipher split permits having character and numeral keys in the same column and actuating the same printing sector or type bar. When a numeral key in such a column is depressed, ciphers will print to the right in the normal manner when no key is depressed in the column to the right. But when a character key is depressed in such a column, a cipher split will be automatically established and ciphers will not print to the right.

Since the calendar feature on Classes 8, 9 and 10 includes only the months and days, this feature is particularly valuable on these classes when characters similar to those furnished on other classes are desired with the calendar feature. On Classes 8, 9 and 10 equipped with the calendar feature and automatic cipher split, the characters DR, CR and BL will be furnished instead of numerals in positions 4, 5 and 6 of column 9 at no additional charge.

Sub-total Lever for Class 10

A lever which makes possible the sub-totaling of both registers of Class 10 machines may now be obtained. When this lever is pulled forward, the detail, or No. 1 register is sub-totaled. When it is pushed back, the accumulating, or No. 2 register is sub-totaled. A special symbol type bar is included in this feature.

Ticket Lifting Device—Classes 8, 9 and 10

When a ticket is inserted in a ticket chute, the printing line is 7/8" (28/32") from the bottom of the ticket. Often it is desired to print two or three lines on a ticket. Since the ticket is not spaced by the regular platen spacing mechanism, the Ticket Lifting Device is required. With this, the ticket may be lifted by specified result keys, operation control keys or by the minus motor bar, to provide two additional lines on the ticket—21/32" and 14/32" from the bottom of the ticket. For example, "quantity" may be entered on the top line with the motor bar, "employee number" with operation control key No. 6, constructed to non-add and lift the ticket so that the printing line is 21/32" from the bottom, and "job number" with operation control key No. 5, constructed to non-add and lift the ticket for printing 14/32" from the bottom. This feature is not available on machines with the credit balance mechanism. (Plus and minus bar machines may have the credit balance mechanism omitted at no change in price.)

Ticket Stacker—Non-standard Classes 8 and 10

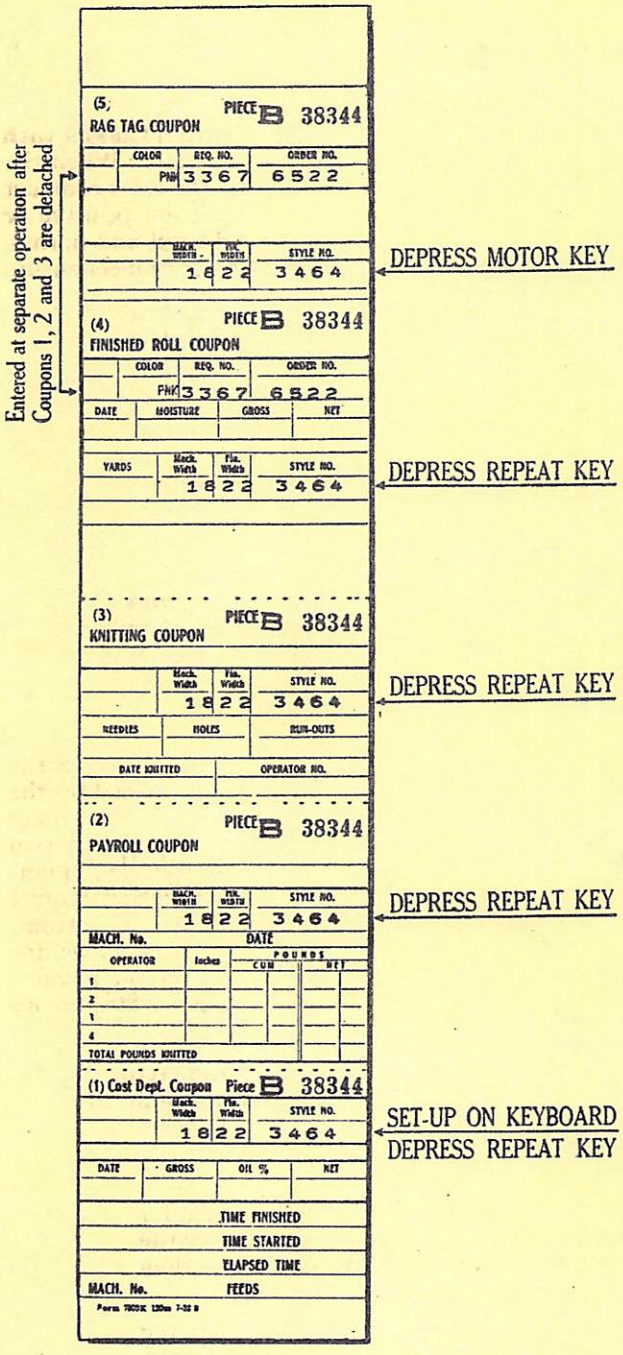
When a Class 8, 9 or 10 machine with back space mechanism and cut off knife is used for creating unit tickets, the ticket stacker should be used. This device receives and stacks the tickets neatly and in correct order. The tickets are pressed firmly down on the stack as they accumulate. The device will accommodate a stack of tickets about 3¾ inches high.

An extra roll paper holder is required if the machine is to be equipped with Rewind Device. The price of the extra roll paper holder is $10 in United States, $14 in Canada.

NEW RAPID TAG WRITING MACHINE

For Textile Manufacturers

Tags for Production Scheduling, Cost, Payroll, Stores Records or Other Purposes Quickly Written with Minimum Operations



The strip of tags is placed in the front feed carriage to a fixed stop, for printing on the first tag. The machine width, finished width and style number are entered on the keyboard only once and are printed on each tag by a single key depression. Spacing from tag to tag is automatic. When the information is printed on the last tag, the carriage automatically opens and releases the strip of tags.

At a subsequent operation (after the first three tags have been detached) the color, requisition number and order number are entered in the same manner on the remaining two tags. In the form illustrated tag 5 is faced with cloth which is easily removed from the tag-board backing, providing a cloth tag.

The tags shown at the left represent only one application. Numerous variations are available for individual requirements in many lines of business.

Principal machine features include 6-inch front feed carriage; back space mechanism; operation control key 6 to repeat and prevent change in keyboard set-up; operation control key 5 to open carriage; bold face type. (Back space mechanism without cut-off knife same price as with cut-off knife.)

Burroughs