REFERENCE MANUAL

MODEL 900 DATA TERMINAL

MDTS POINT OF SALE SYSTEM

SINGER
BUSINESS MACHINES

REFERENCE MANUAL

MODEL 900 DATA TERMINAL

MDTS POINT OF SALE SYSTEM

SINGER

BUSINESS MACHINES

2350 WASHINGTON AVE

SAN LEANDRO. CALIF. 94577

PRINTED IN U.S.A.

PREFACE

This manual describes the Model 900 Data Terminal
of the MDTS* point of sale system, its operation,
a functional description of all keys and locks,
programming procedures for function key sequence
and for variable storage, a brief description of the
options available which affect operation, stored
variables, and programming; and specifications for
data transmission and the terminal.

RELATED DOCUMENTS

For installation planning, specifications, and procedures,
see the Installation Planning Guide, Publication
Number 40-077.

For information about the Model 800 Individual Store
and Forward (ISF) module, see the ISF Reference
Manual, Publication Number 40-118.

*A trademark of The Singer Company

Page	Effective Date
ii thru viii	1/72
1 thru 42	1/72

CONTENTS

CONTENTS

ILLUSTRATIONS

TABLES

1. GENERAL DESCRIPTION

The Model 900 Data Terminal of the MDTS system is a free-standing, self-contained, programmable cash register designed to operate in a retail store environment such as on the selling floor, in checkout lanes, or at wrapping counters. Sales data is entered through the keyboard in a sequence determined by store management. The function keys on the keyboard illuminate in a programmed sequence to guide the sales person in the correct entry of the sales transaction data.

The terminal has its own power supply, processor, memory, and associated logic circuitry. The data processing capabilities of the terminal provide automatic calculation of all sales transaction arithmetic including tax, discounts, and deposits; and accumulative totals of cash received, total tax, total discounts allowed, and total sales value. In addition to being used as a free-standing cash register, the terminal can be connected to a remote computer as part of the MDTS system to provide automatic, computer directed credit account checking and complete management information and control.

Among the many features of the Model 900 terminal are:

- Lighted key sequencing and enforced re-entry to guide the operator correctly through the sales transaction.
- Illuminated display of all digit entries for operator verification.
- Digit keyboard arranged like a pushbutton telephone for ease of use.
- Automatic credit account verification by computer (when so equipped).
- Automatic, key-directed change computation.
- Customer cash sales receipt or credit account sales slip printed automatically.
- Automatic computation of all sales transaction arithmetic.
- Automatic printing of an audit tape of all transactions.
- Cash drawer opening can be programmed to provide maximum security.
- Programmed sales transaction (function) sequence easily changed to meet individual store requirements.
- Stored variables of date, tax rate, discount rate, and terminal identification easily changed by management or supervisory persons.

2. TERMINAL COMPONENTS

The terminal is made up of easily replaced modular units consisting of a keyboard, visual display, printer mechanism, cash drawer, processor, memory, and forwarding circuitry. Four key lock switches, one located on the front cover, one on the cash drawer, and two on the right-hand side of the terminal, provide programming and operating control. An optional key lock switch on the keyboard mask plate provides additional supervisory control.

KEYBOARD

The keyboard consists of thirty keys. Ten keys are the digits 0 through 9, arranged like a pushbutton telephone, used by the operator to enter the sales transaction data and by supervisors and programmers to enter function key parameters and stored variables. The twenty function keys are typically labeled as shown in Figure 1; however, the keys may be labeled in any way according to customer requirements simply by replacing the label.

AUXILIARY KEYS AND INDICATOR

The PAPER ADVANCE key is used to feed sales receipt and audit tape through the unit. The paper will be fed as long as the key is held down.

The DOCUMENT FEED key is used to insert individual sales forms. When sales forms are used, printing on the sales form is duplicated on the audit tape, but the sales receipt (tear-off) part of the tape is not imprinted.

The TRANSMIT indicator light is used when the terminal is part of an MDTS network and indicates that the terminal is in communication with the remote computer or remote storage device.

Function key illumination is described under *FUNCTIONAL DESCRIPTION, LOADING STORED VARIABLES,* and *OPTIONS.* The actions which cause the keyboard to lock are described under *FUNCTIONAL DESCRIPTION* and under *OPTIONS.*

KEYBOARD BUFFER

All models except 900-00 and 900-01 incorporate a seven-character keyboard buffer to accommodate unusually fast operator action. When the buffer is filled, the keyboard locks until at least one of the codes stored in the buffer is sent to the terminal's processor.
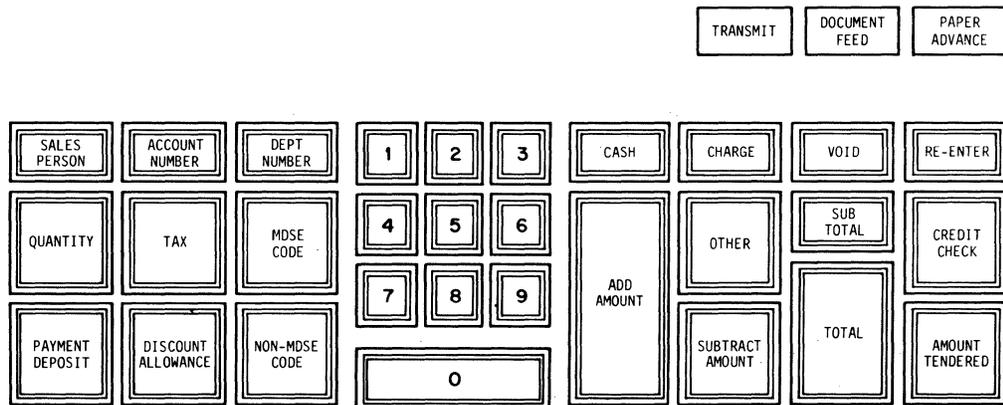
Figure 1. Model 900 Keyboard.

VISUAL DISPLAY

Numeric keyboard entries and arithmetic results are displayed on a thirteen-digit neon display unit at the top of the terminal. As digits are entered from the keyboard they are displayed from right to left; that is, the last digit entered occupies the extreme right position and all digits already displayed move to the left. A decimal point is displayed between the second and third digits of monetary amounts. A minus sign is displayed after a SUBTRACT AMOUNT operation, when a transaction results in a negative subtotal or total, or when credit checking is performed.

An optional visual display unit is available for the top rear of the terminal and displays only monetary amounts.

PRINTER MECHANISM

The printer is a self-contained module with a printed circuit card. Printing is performed by a single, rotating print wheel which has thirty characters on its outer rim as shown in Figure 2. The print wheel is inked by an ink cartridge and prints when a hammer behind the paper strikes the paper against the print wheel.

At a speed of one line per second, including vertical spacing, printing progresses from right to left at twelve characters per inch. Vertical spacing is six lines per inch. Printing speed is not changed by the number of characters printed. Paper is advanced automatically one line after each line of printing. At the end of each transaction (after either the TOTAL or VOID key has been pressed), a logo of the store or company is printed on the original copy by a separate logo mechanism and the paper is advanced eleven lines to bring the printed part of the tape above the tear-off blade and provide sufficient margin for the start of the next transaction.

The paper roll used is standard, two-ply carbonless type. The top ply (original) is fed out of the terminal to be torn off as a customer receipt. The duplicate is rewound within the terminal to be used as an audit tape.

CASH DRAWER

The cash drawer is located in the base of the terminal and has a removable till with ten compartments. The till can be provided with a locking cover.

The cash drawer has a lock (explained below) and, on most models, can also be programmed to open only under certain circumstances or not at all (see *OPTIONS* and *PROGRAMMING*). Additionally, under certain conditions, the function keys on most models can be interlocked until the cash drawer is closed (see *PROGRAMMING*).

PROCESSOR AND MEMORY

The processor and memory are housed below the cash drawer in the base of the terminal. The processor and memory together constitute a small computer system which performs arithmetic operations, data interchange, input, output, and control functions. The processor is a single printed circuit card, and the instruction program within the processor is contained on integrated circuit chips.

The memory defines the functional characteristics originated through manipulation of the keyboard. The memory read and write circuits store and recall characters to and from specific addressable core locations.

Alpha   A C D E H I M O P Q S T V X Y

Numeric   0 1 2 3 4 5 6 7 8 9 + . − % *

Figure 2. Model 900 Print Wheel.

The memory has a capacity of 512 six-bit characters to store the following data:

- Standard alphabetic data for printing (PYMT, TAX, etc.).

- Temporary and accumulative totals.

- Function key programs.

- Stored variables.

- Transaction number.

- Buffer storage.

- Space for 225 characters of an individual sales transaction.

FORWARDING CIRCUITS

The forwarding circuits are contained on one printed circuit card which is located near the processor and memory cards. The forwarding logic transmits sales transaction data to an external data collection unit such as a Model 800 Individual Store and Forward (ISF) Module or a System Ten* computer. Data is transmitted in 7-bit ASCII code in a 10-bit format (7 data bits, 1 start bit, 1 parity bit, and 1 stop bit). When data is being transmitted, the TRANSMIT indicator light will be lit and the keyboard locked on most models. If a transmission is unsuccessful for any reason, a row of X's is printed across the tape under the transaction data not transmitted to permit easy identification and data recovery from the audit tape.

*A trademark of The Singer Company.

Transmission time will vary from two to eleven seconds, depending on the type of network configuration, availability of the remote computer, and other factors. However, most transmissions will be completed within one second. Transmission is through an insulated twisted wire pair.

POWER SUPPLY

Main power to the unit is either a nominal 110 volts AC or 220 volts AC from any convenient wall or floor outlet. The power is converted within the terminal into the specific currents and voltages necessary for operation. If the main power is interrupted, the terminal will automatically set itself into a void condition when the power is restored.

CASH DRAWER LOCK

The cash drawer lock (see Figure 3) is a three-position lock and operates as follows:

Locked The cash drawer cannot be opened under program control. The key is removable.

Operate The cash drawer will open under program control. The key is removable.

Release Spring-loaded position for emergency opening of the cash drawer. When the key is released, the lock returns to the Operate position.
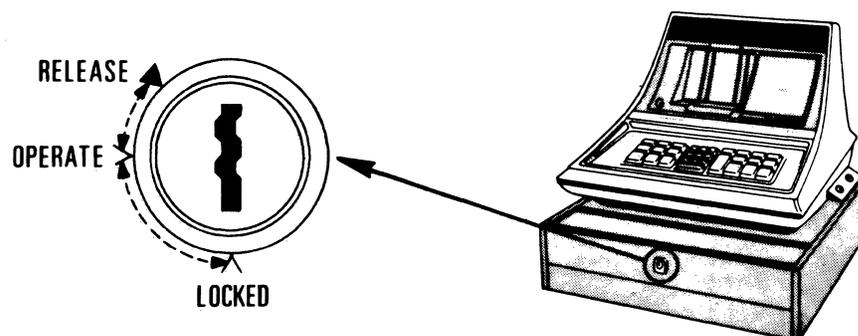
Figure 3. Cash Drawer Lock

PAPER SUPPLY LOCK

The Paper Supply lock (see Figure 4) is a two-position
lock with an integral pushbutton latch permitting
access to the paper roll and ink cartridges. In the un-
locked position, depress the pushbutton latch to raise
the terminal front cover plate. The key is removable
in either position.

MODE LOCK

The mode lock is a four-position key-operated switch
which is used to control terminal operation. See
FUNCTIONAL DESCRIPTION.

PROGRAM LOCK

The program lock is a two-position key-operated
switch used to program the lighting sequence and
some of the operating characteristics of the function
keys. See *FUNCTIONAL DESCRIPTION.*

SUPERVISORY LOCK (Optional)

The supervisory lock is a five-position key-operated
switch mounted on the keyboard mask plate. This
lock switch permits additional supervisory control
over the operation of the terminal. See *OPTIONS.*

KEYS

Three keys are needed to operate the Model 900 Data
Terminal as follows:

Key 1 Fits Cash Drawer, Paper Supply, Mode, and
optional Media Drawer locks.

Key 2 Fits Program lock only.

Key 3 Fits optional Supervisory lock only.
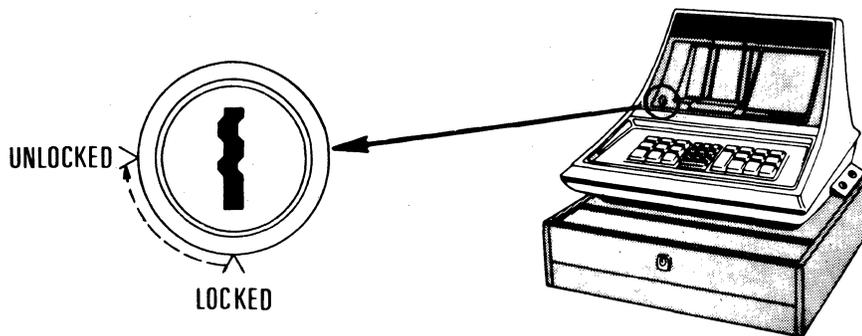
Figure 4. Paper Supply Lock.

3. FUNCTIONAL DESCRIPTION

This section describes in detail the functional operation of all keys and locks exclusive of any wired or programmed options. Also included in this section is a description of the normal operating mode of the Model 900 Data Terminal.

NORMAL OPERATING MODE

In a normal (or typical) operating mode exclusive of any special programmed or wired options, the terminal is set up as follows:

- Mode lock switch in OPERATE.
- Program lock switch OFF.
- Supervisory lock switch in ▪ (if switch is operable).
- Cash Drawer lock in the OPERATE position.
- Standard core load for Modulus 10 (double-add-double) digit verification, and for cash drawer opening when either the TOTAL or VOID keys are pressed (Models 900-02 through 900-05).

During operation, the function keys are illuminated in the sequence determined by the initial programming. Digit entries can be made at any time that the keyboard is unlocked. The keyboard locks when the RE-ENTER key is illuminated, and, on most models, during transmission to a remote data collection device (TRANSMIT indicator is on).

The RE-ENTER key is illuminated if the operator presses two or more keys simultaneously, if digit vertification requirements are not met, if the operator presses the function keys out of their programmed sequence, or if more than thirteen digits are entered. To restart the procedure after the RE-ENTER key is illuminated, press the RE-ENTER key and enter the data correctly. When the RE-ENTER key is pressed, its light will go out, the digital display will be erased, and the keyboard will be restored to its previous condition.

If a mistake is noticed in the digit entry before a function key is pressed, press the RE-ENTER key and re-enter the data correctly.

Digit entries normally precede the use of a function key. When a digit entry is made, the digits will be displayed on the display unit at the top of the terminal. The digit entry will be stored in the Transaction Transmission Area (TTA) of memory and will be preceded in the TTA by the code associated with the function key which was pressed after the digit entry.

When a function key is pressed, the following actions take place:

- Digit verification is performed (if programmed).
- Arithmetic is performed (if required).
- The code associated with the function key is stored in the Transaction Transmission Area of core memory followed by the associated digit entry.
- Function key illumination is turned off.
- The stored or entered data is printed (except for the delayed print keys SALESPERSON, PAYMENT DEPOSIT, DISCOUNT ALLOWANCE, and TAX).
- The function keys to be illuminated next in the sequence are turned on.

NOTE: Some function keys such as RE-ENTER do not cause any of the above actions; others cause only some actions to take place, depending upon the characteristics of the function key or the way it is programmed.

When the TOTAL or VOID keys are pressed, the consecutive number, terminal identification number, date, and company logo are printed on the paper tape (see Figure 5). The four-digit consecutive number is automatically incremented by one at the end of each transaction. When the number reaches 9999, it is automatically changed to 0000.

The terminal identification number can be a maximum of nine digits long. If a number is shorter than nine digits, leading spaces will be printed.

KEYBOARD INTERLOCK NOTE: When the AMOUNT TENDERED key is illuminated, the function keys are interlocked but the digit entry keys are not. When the VOID key is illuminated, the digit entry keys are interlocked but the function keys are not.

Consecutive Number (4 digits)

Terminal Identification Number (9 digits maximum)

```
2973    56789 VOID        VOID
      3 18 70
```
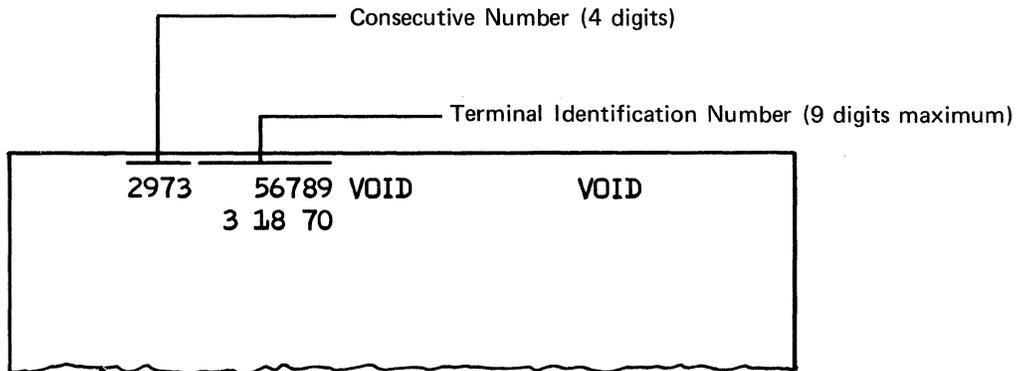
Figure 5. Transaction Number.

FUNCTION KEYS

FUNCTION KEY NOMENCLATURE AND LABELING NOTE: The function keys are normally (or typically) labeled as shown in Figure 6. Since the labels can be changed to suit individual customer or store requirements, the keys have also been given alphabetic designations as shown in the upper left corner of each key. However, because the labels are more easily remembered and more easily associated with the functions the keys perform, this manual uses the label name rather than the alphabetic code in describing the keys. Note, however, that the keys are described in this section in alphabetic code order.

SALESPERSON (A) Key

The SALESPERSON key must be illuminated to be functional. The key is used in two ways:

First, in normal sales transaction operation, enter the employee number and then press this key. Printing is delayed until the next function key is depressed, then the employee number and the letters EMP are printed on the tape.

Second, when loading the stored variables, this key is used to record the terminal identification number. In this operation, enter the terminal identification number and then press the SALESPERSON key. See *OPERATING PROCEDURES.*
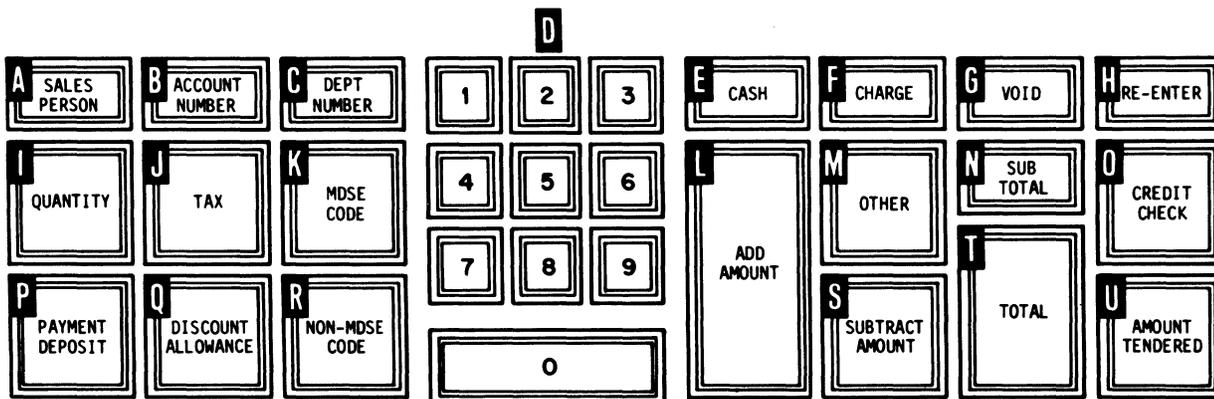
Figure 6. Keyboard Identification Letters.

ACCOUNT NUMBER (B) Key

The ACCOUNT NUMBER key must be illuminated to be functional. Enter the account number, then press the ACCOUNT NUMBER key. If the data terminal is a free-standing unit (no automatic credit checking), the account number followed by the letters ACCT are printed immediately and the next function keys in the sequence illuminated.

If the data terminal is part of an MDTS network with automatic credit account checking, the following actions occur:

- TRANSMIT light goes on, keyboard is locked on most models.

- The account number is transmitted to the remote computer in the following form:

  STX SP @ account number ETB

- CREDIT CHECK key may be illuminated with an appropriate message displayed; or the account number followed by the letters ACCT are printed and the next function keys illuminated.

NOTE: See the description of the CREDIT CHECK (O) key for the messages printed and how the rest of the credit checking procedure is accomplished.

DEPT NUMBER (C) Key

The DEPT NUMBER key must be illuminated to be functional. Enter the department number and then press this key. The department number followed by the letters DEPT will print. Monetary amounts entered immediately after using this key will be accumulated in the Temporary Sales Totals area of memory.

Digit Entry Keyboard (D)

The digit entry keys are arranged like a pushbutton telephone and are used any time digital entry is required. The keyboard locks (and the RE-ENTER key is illuminated on most models) if more than one key is pressed at a time.

DIGIT ENTRY NOTE: All digits of tax, discount, and monetary amounts must be entered. For example:

To enter $10:	1000
To enter $5.49:	549
To enter 10¢:	10
To enter 10%:	1000
To enter 5%:	500
To enter 5½%:	550

On models 900-02 through 05, if leading zeroes are entered, they will be treated as significant digits.

CASH (E) Key

The CASH key must be illuminated to be functional. When CASH is pressed, it sets up a condition within the processor which causes the amounts entered in subsequent functions to be accumulated in the Temporary Cash Totals area of memory.

The function key sequence code for the CASH key also illuminates the CHARGE (F) and OTHER (M) keys. Therefore, a common programming sequence is to start the sales transaction with the salesperson number which will then illuminate the CASH, CHARGE and OTHER keys. The operator then presses the CASH (or CHARGE or OTHER) key with or without any digit entry preceding the CASH key depression. This sequence sets up the initial conditions of the transaction. As soon as the CASH key is depressed, the following characters print:

  xxxxx EMP   CA

Remember, the SALESPERSON key is a delayed print key and the employee number is not printed until the next function key is depressed.

PROGRAMMING NOTE: The CASH key must be illuminated and pressed early in the sales transaction sequence because, since this key sets up the initial sales transaction conditions within the processor, the processor must be alerted about how to process and store the subsequent data entries.

CHARGE (F) Key

The CHARGE key must be illuminated to be functional. When CHARGE is pressed, it inhibits updating of the Temporary Cash Totals area of memory for amounts entered in subsequent functions except any entries made after pressing the PAYMENT DEPOSIT key (these entries are stored in the Temporary Cash Totals area with the sign of the number reversed so that the amount deposited is added to the Temporary Cash Total).

The function key sequence code for the CHARGE key also illuminates the CASH (E) and OTHER (M) keys. Therefore, a common programming sequence is to start the sales transaction with the salesperson number which will then illuminate the CASH, CHARGE, and OTHER keys. The operator then presses the CHARGE (or CASH or OTHER) key with or without preceding digits to indicate the type of charge. This sequence sets up the initial conditions of the transaction. As soon as the CHARGE key is depressed, the following characters print:

xxxxx EMP   x CH
                   ↑
                   └────type of charge

Remember, the SALESPERSON key is a delayed print key and the employee number is not printed until the next function key is depressed.

PROGRAMMING NOTE: The CHARGE key must be illuminated and pressed early in the sales transaction sequence because, since this key sets up the initial sales transaction conditions within the processor, the processor must be alerted about how to process and store the subsequent data entries.

VOID (G) Key

The VOID key is usually not illuminated in normal operation and is used in two sets of circumstances.

First, the VOID key is used at the start of the business day to establish the normal (OPEN/X) operating mode of the terminal. See *LOADING STORED VARIABLES* and *OPERATING PROCEDURES.*

Second, the VOID key is used to void a transaction. In this instance, press the VOID key instead of the TOTAL key. The following actions will occur:

- The amounts in the tax, discount, cash, and sales temporary totals areas of memory are cleared (without adding the amounts to the permanent totals) to be ready for the next transaction.
- The sales transaction data is transmitted to the remote storage device (if part of an MDTS network) with the void notation.
- The cash drawer is normally opened.
- The transaction number is incremented and the following information is printed:

consecutive number terminal i.d. number VOID VOID

date

Logo

RE-ENTER (H) Key

When the RE-ENTER key is not illuminated, it can be used as follows:

If a mistake is noticed in a digit entry before the function key is pressed, press the RE-ENTER key. The numbers entered will be cancelled, the display extinguished, and the current function restarted. Re-enter the data correctly.

The RE-ENTER key is illuminated if one of the following conditions occurs:

- More than one key on the keyboard pressed at the same time.
- More than thirteen digits entered.
- More digits entered than can be accepted by the function.
- No digits entered when digit entry is required.
- Digits entered when digit entry is prohibited.

- Digital entry does not meet digital checking requirements.
- A disabled function key is pressed.
- A function key is pressed out of sequence on most models.

When the RE-ENTER key is illuminated, the keyboard is locked on all models.

When the illuminated RE-ENTER key is pressed, its light goes out, the digital entry is cancelled, the display is erased, the previous function key is re-illuminated, the keyboard is unlocked, and the function can be restarted.

OPERATING PROCEDURE NOTE: The RE-ENTER key should be pressed soon after it is illuminated. If the key is allowed to remain illuminated for a period of time, possible overheating of some of the internal components of the terminal could occur.

QUANTITY (I) Key

The QUANTITY key is never illuminated. The digits entered before pressing this key are stored in the Multiplier Area of memory. *NOTE:* Although this key can be programmed to accept thirteen digits, only the last four entered will be used because the Multiplier Area of memory will accommodate only four digits.

When QUANTITY is pressed, the digits entered and then the letters QTY are printed.

TAX (J) Key

The TAX key is never illuminated in normal operation and is used in two sets of circumstances.

First, the TAX key is used when the Mode lock switch is in the OPEN/X position to store a fixed tax percent which will be automatically calculated and added to the sales transaction during normal operation. See *LOADING STORED VARIABLES.*

Second, the TAX key is used in normal operation to enter and compute the applicable tax rate. Monetary amounts entered or computed immediately after using this key will be accumulated in the Temporary Tax

Totals area of memory. *NOTE:* Although this key can be programmed to accept thirteen digits, only the last four entered will be used because the tax computation is essentially a multiplication and the Multiplier Area of memory will accommodate only four digits.

There are three methods which can be used to enter and compute the tax.

Fixed Tax Percent If the tax rate has been stored in the data terminal, press TAX and then press ADD AMOUNT. The following information will be printed:

$$x.xx\% \quad TAX \quad x.xx+$$

tax rate ⎤ ⎿ monetary amount to be added to sale

Variable Tax Percent If the tax rate is not stored in the data terminal or if the tax rate for a specific sale is different from that stored, enter the tax rate digits, press TAX and then press ADD AMOUNT. The information printed is the same as for Fixed Tax Percent above.

Actual Monetary Tax Amount To enter the actual amount of the tax, press TAX, enter the amount, then press ADD AMOUNT. The following information will be printed:

$$TAX \quad x.xx+$$

⎿ monetary amount to be added to sale

TAX CODE NOTE FOR ACTUAL MONETARY AMOUNTS: A tax code can be used with actual monetary tax amounts to identify the type of tax applied. To include the tax code, enter the code digits, press TAX, enter the amount, then press ADD AMOUNT. The tax code will be printed before the word TAX.

MDSE CODE (K) Key

The MDSE CODE key must be illuminated to be functional. Enter the merchandise code and then press this key. The code followed by the letters MDSE will print. Monetary amounts entered immediately after using this key will be accumulated in the Temporary Sales Totals area of memory.

ADD AMOUNT (L) Key

The ADD AMOUNT key must be illuminated to be functional. Amounts are entered just before pressing the key. When ADD AMOUNT is pressed, the amount printed in the right-hand column of the sales receipt is stored in the appropriate temporary total area of memory. Although a maximum of thirteen digits can be entered before pressing this key, only the last seven entered will be used because only a maximum of seven digits can be accumulated in any one of the temporary totals areas.

ADD AMOUNT automatically computes the extension (quantity times price) amounts. For example,

2 QTY	Two items purchased, 2 entered, QUANTITY key pressed.
520 MDSE	Merchandise code entered, MDSE CODE key pressed.
5.00 EA 10.00+	500 (unit price) entered, ADD AMOUNT key pressed, multiplication performed automatically.

Note that in transactions where a payment deposit is involved, the ADD AMOUNT key causes the amount to be subtracted from the total due in the sales transaction, but reverses the sign of the number within the data terminal and adds the amount deposited to the Temporary Cash Received Totals area of memory when the transaction is a CHARGE or OTHER.

OTHER (M) Key

The OTHER key must be illuminated to be functional and is used under two sets of circumstances.

OTHER Illuminated With CASH And CHARGE When OTHER is pressed, it inhibits updating of the Temporary Cash Totals area of memory for amounts entered in subsequent functions except any entries made after pressing the PAYMENT DEPOSIT key (these entries are stored in the Temporary Cash Totals area with the sign of the number reversed so that the amount deposited is added to the Temporary Cash Total). A transaction code can be entered before pressing the

OTHER key. As soon as the key is pressed, the following characters print:

xx MEMO

transaction code (if used)

PROGRAMMING NOTE: The OTHER key must be illuminated and pressed early in the sales transaction sequence because, since this key sets up the initial sales transaction conditions within the processor, the processor must be alerted about how to process and store the subsequent data entries.

OTHER Illuminated With ADD AMOUNT And SUBTRACT AMOUNT Pressing OTHER (with or without a preceding code) provides a means of documenting a part of a sales transaction without adding it to nor subtracting it from the totals areas in memory. When OTHER is pressed, the following characters print:

xx MEMO

code (if used)

SUBTOTAL (N) Key

The SUBTOTAL key is never illuminated and can be used whenever a subtotal is desired. SUBTOTAL should normally be used before computing tax or discount. When the SUBTOTAL key is pressed, the subtotal amount is displayed and also printed with the arithmetic sign (plus or minus) and with the letter S following it. The consecutive number and the terminal identification number are also printed.

OPERATING NOTE: A way of using the SUBTOTAL key when items are discounted is to discount each item separately, press SUBTOTAL, and then compute the tax. This procedure can be used if any one or combination of the DEPT NUMBER, MDSE CODE, and NON-MDSE CODE function keys is illuminated.

CREDIT CHECK (O) Key

The CREDIT CHECK key must be illuminated to be functional, and is illuminated whenever the data terminal receives a response from a remote computer as a result of an account number credit check.

After the account number is sent to the computer through the use of the ACCOUNT NUMBER key, the CREDIT CHECK key will be illuminated if the remote computer is busy, if the transmission is not completed before the time alloted for the transmission elapses, or when the account number status code is sent back to the data terminal.

If a connection cannot be made with the remote computer, a minus sign (Models 900-00, 01, 06, 07), two minus signs (Models 900-02 through 05) will be displayed. Press CREDIT CHECK. The following characters will print:

<div align="center">account number ACCT *</div>

If desired, void and then restart the transaction.

If a connection is made with the remote computer but the remote computer cannot access the disc file to check the account number a period (Models 900-00, 01, 06, 07), a minus sign and a period (Models 900-02 through 05) will be displayed. Press CREDIT CHECK. The following characters will print:

<div align="center">account number ACCT *</div>

If desired, void and then restart the transaction.

If the transmission is successful and the account is found on the credit file, an account status code (Models 900-00, 01, 06, 07), a minus sign and an account status code (Models 900-02 through 05) will be displayed. The account status code consists of a single digit from 0 through 9. Press CREDIT CHECK. The following characters will print:

<div align="center">account number ACCT * x</div>
<div align="center">status code digit</div>

The meaning of the code and the subsequent action to be taken is a matter of store policy.

In MDTS installations where only a negative credit check is performed, if the transmission is successful and the account is not found on the credit file, the account number is printed and the terminal is stepped to the next entry sequence in the transaction.

PAYMENT DEPOSIT (P) Key

The PAYMENT DEPOSIT key is never illuminated and is generally used in transactions where the CHARGE or OTHER keys have been pressed. To enter a payment deposit, press the PAYMENT DEPOSIT key, enter the amount, then press SUBTRACT AMOUNT. The following information is printed:

<div align="center">PYMT   x.xx–</div>

A deposit code can be used with the PAYMENT DEPOSIT key to indicate the type of payment (cash, check). To include the code, enter the code digits, press PAYMENT DEPOSIT, enter the amount of the payment, then press SUBTRACT AMOUNT. The deposit code will be printed before the letters PYMT. *NOTE:* Monetary amounts entered after pressing PAYMENT DEPOSIT will be accumulated in the Temporary Cash Totals area of memory with the sign of the number reversed if the transaction was previously identified as CHARGE or OTHER.

DISCOUNT ALLOWANCE (Q) Key

The DISCOUNT ALLOWANCE key is never illuminated in normal operation and is used in two sets of circumstances.

First, the DISCOUNT ALLOWANCE key is used when the Mode lock switch is in the OPEN/X position to store a fixed discount percent rate which will be used to calculate and subtract the discount amount automatically from the sales transaction during normal operation. See *LOADING STORED VARIABLES.*

Second, the DISCOUNT ALLOWANCE key is used in normal operation to enter and compute the applicable discount. Monetary amounts entered or computed immediately after using this key will be accumulated in the Temporary Discount Totals area of memory. *NOTE:* Although this key can be programmed to accept thirteen digits, only the last four entered will be used because the discount computation is essentially a multiplication and the Multiplier Area of memory will accommodate only four digits.

There are three methods which can be used to enter and compute the discount.

Fixed Discount Percent If the discount rate has been stored in the data terminal, press DISCOUNT ALLOWANCE and then press SUBTRACT AMOUNT. The following information will be printed:

xx.xx% DISC   xx.xx–
   ↑   ↑
   └discount   └monetary amount to be
     rate   subtracted from sale

Variable Discount Percent If the discount rate is not stored in the data terminal or if the discount rate for a specific sale is different from that stored, enter the discount rate digits, press DISCOUNT ALLOW-ANCE and then press SUBTRACT AMOUNT. The information printed is the same as for Fixed Discount Percent above.

Actual Monetary Discount Amount To enter the actual amount of the discount, press DISCOUNT ALLOW-ANCE, enter the amount, then press the SUBTRACT AMOUNT key. The following information will be printed:

DISC xx.xx–
        ↑
        └ monetary amount to be
           subtracted from sale

DISCOUNT CODE NOTE FOR ACTUAL MONETARY AMOUNTS: A discount code can be used with actual monetary discount amounts to identify the type of discount applied. To include the discount code, enter the code digits, press DISCOUNT ALLOWANCE, enter the discount amount, then press SUBTRACT AMOUNT. The discount code will be printed before the letters DISC.

NON-MDSE CODE (R) Key

The NON-MDSE key must be illuminated to be functional. Enter the code and then press this key. The code followed by the letters MISC will print. Monetary amounts entered immediately after using this key will be accumulated in the Temporary Sales Totals area of memory.

SUBTRACT AMOUNT (S) Key

The SUBTRACT AMOUNT key must be illuminated to be functional. Amounts are entered just before touching the key. Although a maximum of thirteen digits can be entered before pressing this key, only the last seven entered will be used because only a maximum of seven digits can be accumulated in any one of the temporary totals areas of memory.

Note that in transactions where a payment deposit is involved, the SUBTRACT AMOUNT key causes the amount to be subtracted from the total due in the sales transaction, but reverses the sign of the number within the data terminal and adds the amount deposited to the Temporary Cash Received Totals area of memory when the transaction is a CHARGE or OTHER.

TOTAL (T) Key

The TOTAL key is never illuminated in normal operation and is used in two sets of circumstances.

First, the TOTAL key is used during the day to monitor the accumulated totals. See *OPERATING PROCEDURES.*

Second, the TOTAL key is used to conclude a sales transaction. When all entries have been made in a sales transaction, press the TOTAL key. The following actions will occur:

- The amounts in the tax, discount, cash, and sales temporary totals areas of memory are added to their respective accumulative totals areas and the temporary totals are cleared to be ready for the next transaction.

- The following information is printed:

  consecutive no. terminal i.d. no. transaction total ±T

                  date

  Logo
- The cash drawer is normally opened.
- The sales transaction data is transmitted to the remote storage device if the data terminal is part of an MDTS network.
- The consecutive number is incremented by one.

AMOUNT TENDERED (U) Key

The AMOUNT TENDERED key is ordinarily never illuminated, must be programmed to be functional, and can be functional only if the cash drawer is opened, if the transaction is a cash sale, and if another transaction has not been started. However, the key can be programmed to be illuminated (see *OPTIONS* and *PROGRAMMING*).

The AMOUNT TENDERED key is an aid for the operator in making change; it has no effect on data storage or transmission, and nothing is printed on the transaction tape; however, the digital display is lit.

To use the amount tendered feature, enter the amount tendered and then press AMOUNT TENDERED. If the amount given in payment is greater than the transaction total, the processor performs an automatic subtraction and displays the difference (amount of change). If the amount tendered is less than the transaction total, the RE-ENTER key is illuminated and the keyboard is locked on most models.

The display is cleared when another digit entry is made or when the cash drawer is closed.

When the cash drawer is locked or closed, the RE-ENTER key is illuminated if AMOUNT TENDERED is pressed.

LOCKS AND LOCK SWITCHES

Cash Drawer Lock See *FUNCTIONAL DESCRIPTION.*

Paper Supply Lock See *FUNCTIONAL DESCRIPTION.*

Mode Lock The Mode lock (see Figure 7) is a four-position key-operated switch which permits the following conditions:

OFF No power is supplied to the terminal. The key is removable.

OPEN/X This position permits changing the stored variables of terminal identification number, tax rate, discount rate, and the date. This position is also used to monitor accumulated totals during the day. In this position the key can be rotated only to the OPERATE position; the key is not removable.

OPERATE Normal operating and programming position. Key can be rotated either to the OPEN/X or CLOSE positions and can be removed in this position.

CLOSE When the key is moved to this position, the register totals are printed, transmitted, and cleared from the storage area automatically. In this position the key cannot be removed and can be rotated only to the OFF position.
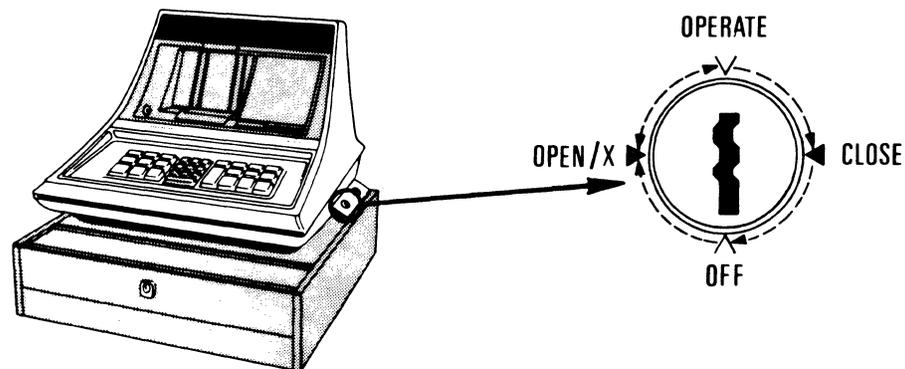
Figure 7. Mode Lock Switch.
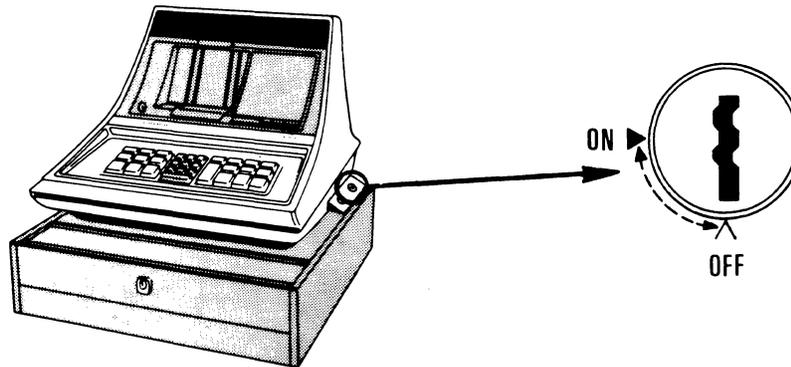
Figure 8. Program Lock Switch.

Program Lock The Program lock (see Figure 8) is a two-position key-operated switch used to program the lighting sequence and some of the operating characteristics of the function keys. The key can be removed in the OFF position, but cannot be removed in the ON position.

Supervisory Lock See *OPTIONS.*

PRINTER MECHANISM
See *TERMINAL COMPONENTS.* The thirty-one printing positions across the paper are numbered from right to left and are assigned as shown in Figure 9.
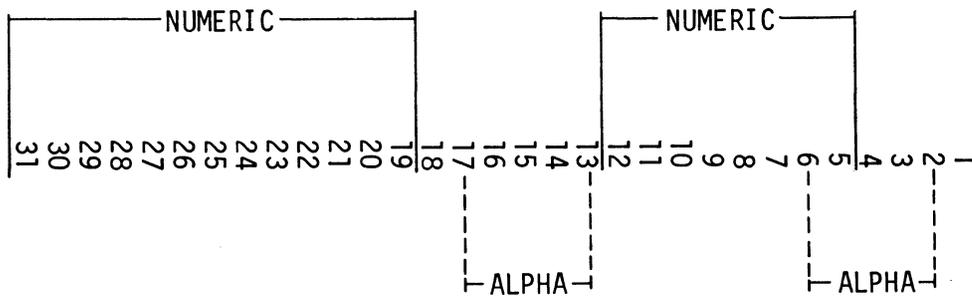
Figure 9. Print Wheel Position Assignments.

Several electronic and mechanical options are available in the Model 900 Data Terminal. These options can be installed by a Customer Service Representative.

KEYBOARD OPTIONS

Several options are available for the keyboard to provide one or more of the following conditions:

- SUBTRACT AMOUNT disabled after TAX is pressed.

- ADD AMOUNT disabled after DISCOUNT ALLOWANCE or PAYMENT DEPOSIT pressed.

- A subtotal is automatically computed and printed after either TAX or DISCOUNT ALLOWANCE is pressed unless a subtotal has just been taken.

Keys disabled by these options will illuminate the RE-ENTER key if they are pressed.

SUPERVISORY LOCK

The Supervisory lock (see Figure 10) is mounted on the keyboard mask plate and is a five-position, key-operated lock switch which permits the supervisor to override the operation of the programmed function keys and/or limit the stored variable changes which can be performed when the Mode lock switch is in the OPEN/X position. The key can be rotated 360 degrees in either a clockwise or a counterclockwise direction.

■ This position permits changing only the date when the Mode lock switch is in OPEN/X; and provides normal operation when the Mode lock switch is in OPERATE. The key is removable.

% This position permits changing the tax rate, discount rate, and terminal identification number when the Mode lock switch is in OPEN/X. The key cannot be removed.

Ⓧ This position disables the VOID key except when the key is illuminated. In this position only the date can be changed when the Mode lock switch is in OPEN/X. The key is removable.

Ⓧ/– This position disables the VOID and SUBTRACT keys except when the VOID key is illuminated. In this position only the date can be changed when the Mode lock switch is in OPEN/X. The key is removable.

– This position disables the SUBTRACT key. In this position only the date can be changed when the Mode lock switch is in OPEN/X. The key is removable.

CASH DRAWER OPENING

If Row 11, Column 4 of core (see Figure 11) is loaded with a binary 63, the cash drawer will open automatically as follows:
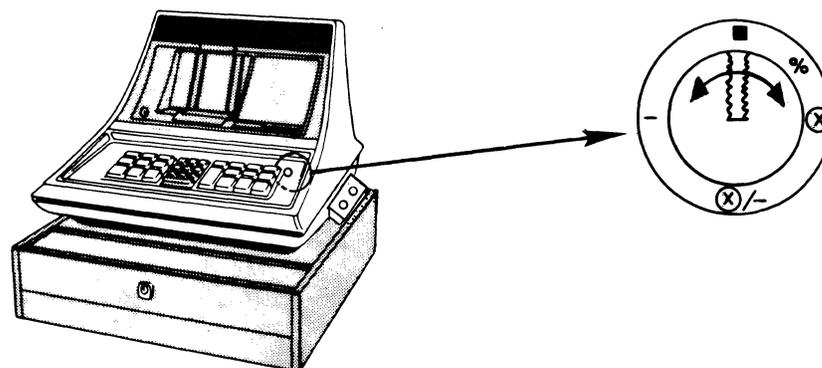
Figure 10. Supervisory Lock Switch.

OPTIONS

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	ROW
−	S	+	S	A	C	C	T	CASH RECEIVED TOTAL (TEMPORARY)							+/−	0
−	T	+	T	V	O	I	D	TAX TOTAL							+/−	1
		C	A	M	D	S	E	SALE TOTAL (TEMPORARY)							+/−	2
E	A	C	H	M	I	S	C	DISCOUNT TOTAL							+/−	3
−		+		D	E	P	T	TRANSACTION TOTAL (TEMPORARY)							+/−	4
M	E	M	O	Q	T	Y		CASH RECEIVED TOTAL							+/−	5
D	I	S	C	T	A	X		TAX TOTAL (TEMPORARY)							+/−	6
P	Y	M	T	E	M	P		TOTAL SALES							+/−	7
TAX PERCENT								DISCOUNT TOTAL (TEMPORARY)							+/−	8
KEYBOARD PROGRAMMING												STANDARD CASH DRAWER OPENING CODE				9
																10
DISCOUNT PERCENT									63							11
		CONSECUTIVE NUMBER			TRANSACTION NUMBER / TERMINAL IDENTIFICATION											12
																13
																14–25

TRANSACTION TRANSMISSION AREA (INCLUDES ROW 12)

*

33	0	1	2	1	2	1	2	1	2	1	2	1	2	1	10	26
MULTIPLIER						DATE STORAGE										27
PRINT BUFFER																28
																29
ENTRY BUFFER																30
LAST AMOUNT PRINTED BUFFER																31

*MODULUS 10 (DOUBLE–ADD–DOUBLE) DIGIT VERIFICATION

Figure 11. Standard Core Load.

Mode Lock Switch Position	Condition For Opening
OPEN/X	After TOTAL pressed
OPERATE	After TOTAL pressed
	After VOID pressed
CLOSE	After printing completed

If Row 11, Column 4 of core is loaded with a binary 00, the only time the cash drawer will open automatically is (with the Mode lock switch in the OPERATE position) when the TOTAL key is pressed if either the CASH key or the PAYMENT DEPOSIT key has been used previously in the transaction.

DIGIT VERIFICATION

Models 900-00, 900-01, 900-06, 900-07 Digit verification is performed automatically depending on the last six digits entered during function key programming. Either 888800 (Modulus 10) or 888888 (Modulus 11) can be entered for any key; all keys need not be programmed alike.

Models 900-02 Through 900-05 When digit verification is required, each key must be programmed for the type of verification scheme loaded into core. Standard loading of Row 26 of core (see Figure 11) is for Modulus 10 (double-add-double) digit verification. Other digit verification schemes can be installed as an option to replace Modulus 10 as follows:

- Any arithmetic weighting from 0 through 63.
- Any modulus through Modulus 23.
- The verification can be identified to add either the digits of products or the products.
- The verification factor can also be loaded to cause a high order shift.

See *PROGRAMMING* for a description of how digit verification is performed for both Modulus 10 and Modulus 11.

SHORTENED TRANSMISSION MESSAGE

When the Model 900 Data Terminal is a part of an MDTS network, an option is available to shorten the data transmission message and hence shorten the transmission time in a busy network. See *DATA TRANSMISSION IN AN MDTS NETWORK* for a complete description of data transmission and formats.

Normally, when ADD AMOUNT and SUBTRACT AMOUNT are pressed, both the digit entry and the amount printed on the transaction tape are stored in the Transaction Transmission Area of memory. However, when the shortened transmission option is installed, only the amount printed is stored in the Transaction Transmission Area.

Normal Transmission In the following example, the ADD AMOUNT and TAX amount are transmitted as follows:

```
                                    L 6 9 5 L 6 9 5 & L L 3 5
```

ADD AMOUNT key code

digit entry

ADD AMOUNT key code

printed entry (total)

TAX key code

ADD AMOUNT key code (stored tax percent, no digit entry)

printed tax amount
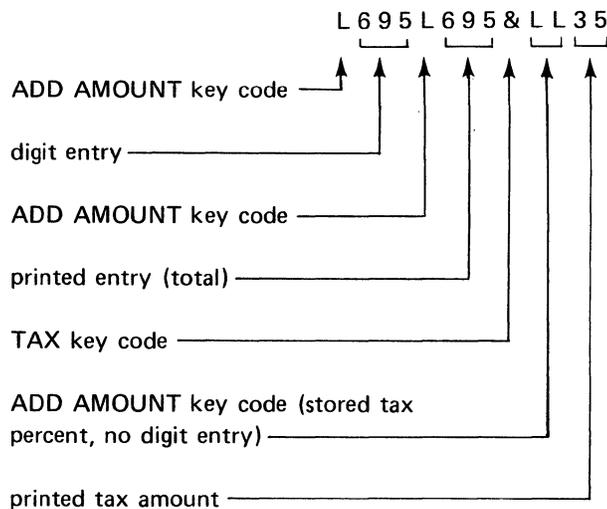
Shortened Transmission If the shortened transmission option is installed, the above example is transmitted as follows:

```
                                    L 6 9 5 & L 3 5
```

ADD AMOUNT key code

printed entry (total)

TAX key code

ADD AMOUNT key code

printed tax amount
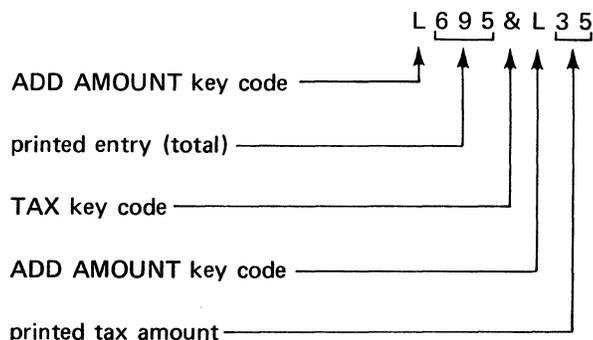
MEDIA DRAWER

The optional media drawer is mounted below the cash drawer and has no effect on the operation of the terminal. The media drawer has a cut-out so that the drawer can be locked and yet still permit sales tickets, money, or other items to be inserted into the drawer. The key which fits the Mode lock switch, cash drawer, and paper supply also fits the media drawer. The cash drawer till can be inserted into the media drawer if desired, or a second till can be used. The media drawer adds four inches to the height of the terminal, and, when fully opened, extends the same distance as the cash drawer (14 inches).

MODEL 900 DATA TERMINAL VARIATIONS

Table 1 provides a brief description of the differences among the production models of the Model 900 Data Terminal.

The model designation is stamped on a plate attached to the base of the data terminal at the rear.

DESCRIPTION	MODEL NUMBER							
	900-00	900-01	900-02	900-03	900-04	900-05	900-06	900-07
Buffered Keyboard	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Rear Display	No	No	No	No	Yes	Yes	No	Yes
Power	110V-60Hz	220V-50Hz	110V-60Hz	220V-50Hz	100V-60Hz	220V-50Hz	110V-60Hz	110V-60Hz
All-Purpose Verification Processor	No	No	Yes	Yes	Yes	Yes	No	No
Digit Verification	Modulus 10 and 11 loaded in processor	Modulus 10 and 11 loaded in processor	One type modulus loaded in processor	One type modulus loaded in processor	One type modulus loaded in processor	One type modulus loaded in processor	Modulus 10 and 11 loaded in processor	Modulus 10 and 11 loaded in processor
Cash Drawer	Opens on Total or Void, operable with drawer open	Opens on Total or Void, operable with drawer open	Option on opening, 0 or Blank option on closing.	Option on opening, 0 or Blank option on closing.	Option on opening, 0 or Blank option on closing.	Option on opening, 0 or Blank option on closing.	Opens on Total or Void, operable with drawer open	Opens on Total or Void, operable with drawer open
Keyboard Buffer	1 character	1 character	7 character	7 character	7 character	7 character	7 character	7 character
Buffer Full	Functional Interlock	Functional Interlock	Mechanical Interlock	Mechanical Interlock	Mechanical Interlock	Mechanical Interlock	Mechanical Interlock	Mechanical Interlock
Interlocks	Single for digit and function	Single for digit and function	Separate for digit and function	Separate for digit and function	Separate for digit and function	Separate for digit and function	Separate for digit and function	Separate for digit and function
During Transmission	Functional for 1st key used only	Functional for 1st key used only	Interlocked	Interlocked	Interlocked	Interlocked	Interlocked	Interlocked
Invalid Keys	Not transferred to processor	Not transferred to processor	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked
Double Keys	Mechanical lockout of one or both	Mechanical lockout of one or both	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked
Key Rollover	Not detected	Not detected	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked	RE-ENTER lit, interlocked

Table 1. Model 900 Data Terminal Variations.

Programming for the Model 900 Data Terminal consists of programming for the function keys.

FUNCTION KEY PROGRAMMING

Programming the function keys determines the operating characteristics of the terminal and the actions required of the operator in entering a sales transaction as follows:

- Next Key Sequence; that is, the sequence in which the function keys are to be illuminated.

- Maximum number of digits allowed for entry before pressing the function key.

- Forced entry of at least one digit before pressing the function key.

- Digit entry verification.

The function keys can be programmed in any order, and can be programmed to be illuminated in any order.

The RE-ENTER key cannot be programmed in any way.

The following keys cannot be programmed to be illuminated:

QUANTITY	PAYMENT DEPOSIT
TAX	CREDIT CHECK
SUBTOTAL	TOTAL
DISCOUNT ALLOWANCE	

Once programmed, any function key can be re-programmed without affecting the programming of the other keys.

Three pairs of function keys are programmed together; that is, programming one key of the pair also programs the other. The three pairs are:

TOTAL and VOID

TAX and DISCOUNT ALLOWANCE

ADD AMOUNT and SUBTRACT AMOUNT (When the next key sequence digit 6 is used—see Table 2— the OTHER key assumes the same program as ADD AMOUNT and SUBTRACT AMOUNT.)

Function Key Parameters

Each function key is programmed with a nine-digit function code which determines the parameters for that key. The nine-digit code is defined as follows:

First Digit of Program

Next Key Sequence. This digit (see Table 2) determines which key or keys are to be illuminated next in the sequence.

Table 2. First Digit of Program.

First Digit	Keys To Be Illuminated Next
blank	None. See CASH DRAWER CLOSING NOTE below.
0	AMOUNT TENDERED. See CASH DRAWER CLOSING NOTE below.
1	SALESPERSON
2	CASH CHARGE OTHER
3	ACCOUNT NUMBER
4	DEPT NUMBER
5	MDSE CODE NON-MDSE CODE
6	ADD AMOUNT SUBTRACT AMOUNT OTHER
7	DEPT NUMBER MDSE CODE NON-MDSE CODE
8	VOID
9	ADD AMOUNT SUBTRACT AMOUNT

CASH DRAWER CLOSING NOTE: Terminals having model numbers 900-02 through 900-05 can be programmed to enforce cash drawer closing before the next transaction by programming the VOID and TOTAL keys with the Next Key Sequence digit either blank or 0. If a blank is used, the keyboard will remain locked and unlighted until the cash drawer is closed.

If a 0 is used, the AMOUNT TENDERED key is illuminated and remains illuminated until the cash drawer is closed, whether or not the AMOUNT TENDERED key is used. Only the digit keys, RE-ENTER, and AMOUNT TENDERED are functional.

In both cases, the AMOUNT TENDERED key must be programmed to illuminate the first key which begins the new transaction sequence.

HOW TO PROGRAM THE NEXT KEY SEQUENCE DIGIT AS A BLANK: Enter only eight digits; that is, start with the second and third (digit entry requirements) digits.

Second and Third Digits of Program

These digits (see Table 3) determine the maximum number of entered digits that will be accepted for the particular function key; however, fewer than the maximum specified can be entered, or no digits can be entered.

Table 3. Second and Third Digits of Program.

Second and Third Digits	Maximum Entry Allowed
10	No digits allowed. See Note 1.
11	1
12	2
13	3
14	4
15	5
16	6
17	7
18	8
19	9
56	10
57	11
58	12 See Note 2.
59	13

NOTE 1: Must be followed by six zeroes in the last six positions; however, see *Disabling A Function Key* below.

NOTE 2: Must be followed by 880000 in the last six positions, or by a digit verification requirement.

Fourth Through Ninth Digits of Program

Digit entry requirements. These digits (see Table 4) specify the number of digits to be entered and whether or not digit verification is to be performed.

Table 4. Fourth through Ninth Digits of Program.

Digits Four Through Nine	Entry and Check Requirements
000000	No digit entry required.
880000	At least one digit must be entered.
888800	At least two digits must be entered. Digit verification will be performed. See Notes 1 and 3.
888888	At least two digits must be entered. Digit verification will be performed. See Notes 2 and 3.

NOTE 1: On Models 900-00, 01, 06, 07 digit entry will be checked by Modulus 10. On Models 900-02 through 900-05 digit entry will be checked by the verification scheme stored in core. See *DIGIT VERIFICATION* under *OPTIONS.*

NOTE 2: On Models 900-00, 01, 06, 07 digit entry will be checked by Modulus 11. On Models 900-02 through 900-05 digit entry will be checked by the verification scheme in core. See *DIGIT VERIFICATION* under *OPTIONS.*

NOTE 3: Only one digit must be entered if the digit verification scheme in core is less than Modulus 10.

Disabling A Function Key

To disable a function key which is illuminated by the Next Key Sequence digits 2, 5, or 7 through programming rather than through a wired or switch lock option, use program code X10880000 (where X is any Next Key Sequence digit). The second and third digits (10) allow no digits to be entered, while the fourth through ninth digits (880000) require that at least one digit be entered. Therefore, whenever a function key is programmed in this way, the RE-ENTER key will be illuminated whenever the particular function key is pressed.

Modulus 10 (Double-Add-Double) Digit Verification

The formula to perform a Modulus 10 (Double-Add-Double) digit verification is as follows:

Start with an account number,	5 2 0 6 3
multiply the units position and every other by 2,	2 2 2
record the products,	10 0 6
bring down the digits not multiplied,	2 6
cross-add all the digits,	1+0+2+0+6+6 = 15[1]
subtract the total from the next higher number which ends in zero,	20 / −15
the result is the check digit .	5
which produces the self-checking account number.	5 2 0 6 3 5

Verify the self-checking account number	5 2 0 6 3 5
by multiplying the units position by 1, the tens position by 2, and the other positions alternately,	2 1 2 1 2 1
recording the products,	10 2 0 6 6 5
cross-adding the numbers,	1+0+2+0+6+6+5 = 20
and dividing the sum by 10.	20 ÷ 10 = 2 and no remainder

When the sum is divisible by 10 with no remainder, Modulus 10 digit checking requirements are met.

[1] If this total ends with a zero, the check digit calculation is completed and zero becomes the check digit.

Modulus 11 (Arithmetic Weighting) Digit Verification

The formula to perform the Modulus 11 (Arithmetic Weighting) digit verification is as follows:

Start with an account number,	5 2 0 6 3
multiply each digit with the weight beginning with 2 in ascending order starting with the units position,	6 5 4 3 2
record the products,	30 10 0 18 6
cross-add the products,	30+10+0+18+6 = 64
divide the sum by 11,	64 ÷ 11 = 5 and a remainder of 9 [2]
subtract the remainder from 11,	11 / −9
the result is the check digit	2 [3]
which produces the self-checking account number	5 2 0 6 3 2

Verify the self-checking account number	5 2 0 6 3 2
by multiplying each digit, starting with the units position, by 1, 2, 3, 4, 5, etc.,	6 5 4 3 2 1
recording the products,	30 10 0 18 6 2
cross-adding the products,	30+10+0+18+6+2 = 66
and dividing the sum by 11.	66 ÷ 11 = 6

When the sum is divisible by 11 with no remainder, Modulus 11 digit checking requirements are met.

[2] When the sum of the products is evenly divisible by 11, the check digit is 0.

[3] When this difference is 10, the account number cannot be used.

Programming Procedure

1. Set the lock switches as follows:

   Program Lock Switch: ON

   Mode Lock Switch: OPERATE

   Supervisory Lock Switch (if operable): In any position.

   The following keys will be illuminated.

   CASH
   CHARGE
   OTHER

2. Enter the nine-digit code for the function key to be programmed.

3. Verify that the entry is correct by observing the visual display.

4. Press the function key to be programmed. The digital entry followed by identification letters will be printed on the tape (see CHARACTER PRINTING NOTE below).

5. Repeat steps 2, 3, and 4 for each function key to be programmed.

6. Turn the Program lock switch to OFF.

7. Press the VOID key and wait for the consecutive number, terminal identification number, total, date, and logo to be printed.

8. Turn the Supervisory lock switch to the desired position. The terminal is now in its normal operating mode with the first function key in the programmed transaction sequence illuminated.

NOTE FOR RE-PROGRAMMING DURING A TRANSACTION: Function keys can be re-programmed during a transaction to suit special circumstances. To do this, void the transaction and proceed as described above to program the function keys. After the Program lock switch is turned to OFF, press the VOID key to terminate programming.

CHARACTER PRINTING NOTE: The characters printed when the function keys are pressed differ in some cases depending on whether the Program lock switch is ON or OFF. Table 5 shows the characters printed in both cases.

Table 5. List of Printed Characters.

Function Key	Program Switch OFF	Program Switch ON
SALESPERSON (A)	EMP	EMP
ACCOUNT NUMBER (B)	ACCT	ACCT
DEPT NUMBER (C)	DEPT	DEPT
CASH (E)	CA	CA
CHARGE (F)	CH	CH
VOID (G)	VOID	ID
RE-ENTER (H)	nothing	nothing
QUANTITY (I)	QTY	QTY
TAX (J)	TAX	TAX
MDSE CODE (K)	MDSE	MDSE
ADD AMOUNT (L)	EA and +	+
OTHER (M)	MEMO	X
SUBTOTAL (N)	+S or –S	+S
CREDIT CHECK (O)	See Note	ME
PAYMENT DEPOSIT (P)	PYMT	P
DISCOUNT ALLOWANCE (Q)	DISC	DISC
NON-MDSE CODE (R)	MISC	MISC
SUBTRACT AMOUNT (S)	EA and –	–
TOTAL (T)	+T or –T	+T
AMOUNT TENDERED (U)	nothing	VOID

NOTE: An asterisk followed by a digit, a minus, or a period. See CREDIT CHECK (O) Key under FUNCTIONAL DESCRIPTION.

Example: Function Key Programming

Table 6 shows a typical programming sequence for a sales transaction.

Table 6. Example of Function Key Programming.

Nine Digit Entry	Function Key Programmed	Function Key To Be Illuminated Next	Digits To Be Accepted
1 10 000000	TOTAL or VOID	SALESPERSON	none
2 14 880000	SALESPERSON	CASH CHARGE OTHER	1 to 4
7 10 000000	CASH	DEPT NUMBER MDSE CODE NON-MDSE CODE	none
3 12 000000	CHARGE	ACCOUNT NUMBER	none, 1, or 2
7 12 880000	OTHER	DEPT NUMBER MDSE CODE NON-MDSE CODE	1 or 2
7 56 888800	ACCOUNT NUMBER	DEPT NUMBER MDSE CODE NON-MDSE CODE	2 to 10 (verifiable)
7 10 000000	CREDIT CHECK	DEPT NUMBER MDSE CODE NON-MDSE CODE	none
5 13 880000	DEPT NUMBER	MDSE CODE NON-MDSE CODE	1 to 3
7 14 880000	QUANTITY	DEPT NUMBER MDSE CODE NON-MDSE CODE	1 to 4
9 16 880000	MDSE CODE	ADD AMOUNT SUBTRACT AMOUNT	1 to 6
6 16 880000	NON-MDSE CODE	ADD AMOUNT SUBTRACT AMOUNT OTHER	1 to 6
7 16 000000	ADD AMOUNT or SUBTRACT AMOUNT	DEPT NUMBER MDSE CODE NON-MDSE CODE	none or 1 to 6
7 10 000000	SUBTOTAL	DEPT NUMBER MDSE CODE NON-MDSE CODE	none
9 14 000000	TAX or DISCOUNT ALLOWANCE	ADD AMOUNT SUBTRACT AMOUNT	none or 1 to 4
9 16 880000	PAYMENT DEPOSIT	ADD AMOUNT SUBTRACT AMOUNT	1 to 6
1 16 880000	AMOUNT TENDERED	SALESPERSON	1 to 6

6. LOADING STORED VARIABLES

Four variables can be stored within the Model 900 Data Terminal to provide automatic calculating and printing of standard data. Any one or all of the variables can be changed any time the need arises. The variables are:

Terminal Identification Number

Fixed Tax Percent

Fixed Discount Percent

Date

LOADING PROCEDURE

1. Set the lock switches as follows:

    Program Lock Switch: OFF

    Mode Lock Switch: OPEN/X

    Supervisory Lock Switch (if operable): At any position except % to enter the date.

    At % to enter the terminal identification number, tax percent, and discount percent.

    The VOID key will be illuminated.

2. Press the VOID key. The transaction number, terminal identification number, and the words VOID VOID will be printed on one line, followed by the date on the second line.

    The following function keys will be illuminated.

    Terminals Without Operable Supervisory Lock Switch CASH, TOTAL, SALESPERSON TAX, DISCOUNT ALLOWANCE.

    Terminals With Operable Supervisory Lock Switch CASH, TOTAL, (Supervisory lock switch at any position except %); SALESPERSON, TAX, DISCOUNT ALLOWANCE (Supervisory lock switch at %).

3. Enter the variable data as follows:

    Terminal Identification Enter no more than nine digits and then press the SALESPERSON key. The numbers followed by the letters EMP print on the tape.

    Tax Percent Enter no more than four digits and then press the TAX key. The digits followed by the word TAX print on the tape.

    Discount Percent Enter no more than four digits and then press the DISCOUNT ALLOWANCE key. The digits followed by the letters DISC print on the tape.

    Date Enter one or two digits for the month, any digit (usually 0) as a spacer, two digits for the day of the month (the first nine days as 01, 02, etc.), any digit as a spacer, and two digits for the year. Press the CASH key. The date prints as xx xx xx followed by the letters CA.

4. If the Supervisory lock switch is operable and is at %, turn it to any other position. CASH and TOTAL will be illuminated.

5. Press TOTAL and wait for the totals to print and the TRANSMIT light to go out.

6. Turn the Mode lock switch to OPERATE.

7. Turn the Supervisory lock switch to the desired position (do not leave at %).

7. OPERATING PROCEDURES

START-UP PROCEDURES

Use the following procedures to start the terminal
and prepare for the first transaction.

1. Make sure the Program lock switch is OFF.

2. Set the Supervisory lock switch (if operable) in
   the desired position.

3. Turn the Mode lock switch to OPEN/X and press
   VOID. Change the date and other variables as
   detailed under *LOADING STORED VARIABLES*
   above.

4. If no changes are to be made to the stored
   variables, or after any changes have been com-
   pleted, proceed as follows:

   Models 900-00, 01, 06, 07 Press the TOTAL
   key, wait until the printing stops, and then
   turn the Mode lock switch to OPERATE.
   The first function key in the programmed
   sales transaction sequence will be illuminated.
   The terminal is now ready for normal
   operation.

   Models 900-02 Through 900-05 Turn the Mode
   lock switch to OPERATE. The terminal will
   perform an automatic void operation. After the
   printing is completed, the first function key
   in the programmed sales transaction sequence
   will be illuminated. The terminal is now ready
   for normal operation.

MONITORING TOTALS

Totals can be monitored during the course of the
business day or shift as follows:

1. Turn the Mode lock switch to OPEN/X and
   press the VOID key.

2. Press the TOTAL key.

3. After the totals print, turn the Mode lock switch.
   to OPERATE.

   PRINTING ORDER OF TOTALS NOTE: A
   transaction void prints on the same line as the
   consecutive number and the terminal identifica-
   tion number. The totals appear in the following
   order:

Accumulated total of tax amount
Accumulated total of discount amount
Accumulated total of cash received
Accumulated total of sales amount

CLOSE OF BUSINESS DAY

At the end of the business day or shift, use the follow-
ing procedure to clear the terminal of all transaction
totals and turn it off.

> *MDTS NETWORK NOTE:* When the Data
> Terminal is part of an MDTS network the totals
> are transmitted to the remote storage device
> during the CLOSE operation. Since it is possible
> that transmission may be interrupted or incom-
> pleted for some reason, it is good practice always
> to print the totals as described under *MONITORING
> TOTALS* above before performing the CLOSE
> operation to ensure that no data is lost.

1. Turn the Mode lock switch to CLOSE. Wait until
   the printing stops. All accumulated totals will be
   printed in the same order as described under
   MONITORING TOTALS above and the totals will
   be cleared from memory automatically.

2. After printing stops and the TRANSMIT light
   goes out, turn the Mode lock switch to OFF.

EXAMPLE: A SIMPLE CASH SALE

To demonstrate how the data terminal is used to record
a sales transaction, a simple cash sale is shown in
Table 7. The customer is purchasing two items at
$5.00 each and one item at $2.00. A fixed 5% sales
tax rate is stored in the terminal. A printed sales
receipt of this transaction is shown in Figure 12.
Assume that the function keys have been programmed
for proper digit entry and verification requirements,
and that the illumination sequence is as follows:

1. SALESPERSON
2. CASH, CHARGE, OTHER
3. DEPT NUMBER
4. MDSE CODE, NON-MDSE CODE
5. ADD AMOUNT, SUBTRACT AMOUNT

Table 7. Example of a Simple Cash Sale.

Step	Function Key Illuminated	Digit Entry	Function Key Depressed	Characters Printed
1	SALESPERSON	5602	SALESPERSON	none
2	CASH, CHARGE, OTHER	none	CASH	5602 EMP CA
3	DEPT NUMBER	520	DEPT NUMBER	520 DEPT
4	MDSE CODE, NON-MDSE CODE	2	QUANTITY	2 QTY
5	MDSE CODE, NON-MDSE CODE	8820	MDSE CODE	8820 MDSE
6	ADD AMOUNT, SUBTRACT AMOUNT	500	ADD AMOUNT	5.00 EA 10.00+
7	MDSE CODE, NON-MDSE CODE	8825	MDSE CODE	8825 MDSE
8	ADD AMOUNT, SUBTRACT AMOUNT	200	ADD AMOUNT	2.00 EA 2.00+
9	MDSE CODE, NON-MDSE CODE	none	SUBTOTAL	0284 12346 12.00+ S
10	MDSE CODE, NON-MDSE CODE	none	TAX	none
11	ADD AMOUNT, SUBTRACT AMOUNT	none	ADD AMOUNT	5.00% TAX .60+
12	MDSE CODE, NON-MDSE CODE	none	TOTAL	0284 12346 12.60+ T 09 30 71 Logo

STEP 9 AND STEP 12 NOTE: 1220 is the consecutive number, 12346 is the terminal identification number.

```
                    5602  EMP            CA
                     520  DEPT
                       2  QTY
                    8820  MDSE
                    5.00     EA     10.00+
                    8825  MDSE
                    2.00     EA      2.00+
        0284       12346            12.00+ S
                    5.00% TAX         .60+
        0284       12346            12.60+ T
                 09 30 71
        NAME OF
        COMPANY
```

Figure 12. Printed Sales Receipt of Cash Sale Example.

8. DATA TRANSMISSION IN AN MDTS NETWORK

Sales transaction data is stored in the Model 900 Data Terminal in the Transaction Transmission Area of memory in ASCII format. When data is sent to a remote storage or computing device, the terminal automatically adds a start bit, a parity bit, and a stop bit for a total of ten bits transmitted for each character. The data is transmitted each time the VOID or TOTAL key is pressed with the Mode lock switch in OPERATE, when TOTAL is pressed with the Mode lock switch in OPEN/X, whenever the Mode lock switch is turned to CLOSE, and whenever the Transaction Transmission Area overflows (225 character capacity) during a long transaction.

When the terminal is part of a network which has the credit checking feature, the customer's account number is sent to the computer whenever the ACCOUNT NUMBER key is pressed. Some responses by the computer may illuminate the CREDIT CHECK key (see *FUNCTIONAL DESCRIPTION*).

Transmission time varies from two to eleven seconds, depending on the type of network configuration, availability of the remote computer, and other factors. However, most transmissions will be completed within one second. Transmission is through an insulated twisted wire pair.

INCOMPLETED TRANSMISSIONS

If a transmission is unsuccessful for any reason, a row of X's is printed across the sales receipt under the transaction data not transmitted to permit easy identification and data recovery from the audit tape.

CODE STORAGE

When a function key is pressed, a code is stored in the next available location in the Transaction Transmission Area. The code is followed by the digits entered before a function key is pressed or by the digits printed as a result of a function key being pressed. Table 8 shows the codes stored.

ADD AMOUNT AND SUBTRACT AMOUNT CODE STORAGE NOTE: When the ADD AMOUNT or SUBTRACT AMOUNT key is pressed an L (ADD AMOUNT) or a \ (SUBTRACT AMOUNT) is stored in the next available location in the Transaction Transmission Area followed by another (L or \), which in turn is followed by the characters printed on the tape. For example, if the amount entered is 500 and then the ADD AMOUNT key is pressed, the contents of the Transaction Transmission Area will contain L 5 0 0 L 5 0 0. See *SHORTENED TRANSMISSION MESSAGE* under *OPTIONS.*

DATA TRANSMISSION SEQUENCE

Transaction data is transmitted in the following sequence:

STX	(Start of Text)
P	
consecutive number	
terminal identification number	
?	(If Mode lock switch turned to OPEN/X or following a power loss)
sales or programming transaction data in the order entered	
ETB	(End of Text Block, that is, the end of an individual transaction)
ETX	(End of Text—only when Mode lock switch turned to CLOSE)

Table 8. Code Storage in Transaction Transmission Area.

Function Key	Code Stored In Transaction Transmission Area
SALESPERSON (A)	'
ACCOUNT NUMBER (B)	space
DEPT NUMBER (C)	$
CASH (E)	J
CHARGE (F)	K
VOID (G)	)
RE-ENTER (H)	none, nothing transmitted
QUANTITY (I)	%
TAX (J)	&
MDSE CODE (K)	"
ADD AMOUNT (L)	L
OTHER (M)	with CASH and CHARGE .
	with ADD AMOUNT and SUBTRACT AMOUNT ,
SUBTOTAL (N)	none, nothing transmitted
CREDIT CHECK (O)	Z (see Note 1)
PAYMENT DEPOSIT (P)	/
DISCOUNT ALLOWANCE (Q)	F
NON-MDSE CODE (R)	#
SUBTRACT AMOUNT (S)	\
TOTAL (T)	positive I
	negative Y
AMOUNT TENDERED (U)	none, nothing transmitted
Transaction Number	P (see Note 2)
OPEN/X or Power Loss	? (see Note 3)
Special Character (Blank)	@ (see Note 4)

Note 1 Z < is stored as a result of pressing the CREDIT CHECK key when the computer returns a minus sign in response to a credit checking request.

Z. is stored as a result of pressing the CREDIT CHECK key when the computer returns a period in response to a credit checking request.

Zx (where x is a digit from 0 through 9) is stored as a result of pressing the CREDIT CHECK key when the computer returns a digit in response to a credit checking request.

Note 2 P is transmitted to define a transaction. A space code is transmitted for an account number for credit transmission.

Note 3 If a power loss occurs or if the Mode lock switch is turned to OPEN/X, a ? is written in the Transaction Transmission Area after the transaction number and the remaining area of memory is cleared.

Note 4 The @ is transmitted with a credit request and also for any unused positions of the nine-digit terminal identification number.

An account number is transmitted in the following sequence:

STX   (Start of Text)

space

@

account number digits

ETB   (End of Text Block)

Example: Transmission Sequence For Example On Page 32

STXP1220@@@@12346'5602J$520%2"8820 L500L1000"
                        8825L200L200&LL60I1260ETB

Example: Transmission Sequence When TTA Overflows

TTA of terminal number 12346 overflows, incompleted transaction transmitted:

STXP1224@@@@12346 . . . I2775ETB

Transaction completed with TOTAL key, rest of transaction transmitted. Note that the consecutive number was not incremented. The transaction total is $277.59

STXP1224@@@@123469ETB

VOIDED TRANSACTION TRANSMISSIONS

All Terminals

Loss Of Power Void A power failure is simulated when the Mode lock switch is turned to the OPEN/X position, the VOID key is illuminated, and a ? is placed in memory following the terminal identification number. No transmission takes place when the VOID key is pressed, but a) is stored in memory.

If a power failure occurs when the Mode lock switch is in the OPERATE position, the VOID key will be illuminated when power is restored, transaction data will be erased, and a ? will be placed in the memory position following the terminal identification number. When the VOID key is pressed, the transaction number will be transmitted, followed by a ? and a) and ending with ETB.

OPERATE Void If the VOID key is used during normal operation, the transaction will be transmitted ending with) ETB.

Models 900-02 Through 900-05

If the Mode lock switch is in OPEN/X and the TOTAL key pressed, the first operation is a void.

If the VOID key was pressed when the Mode lock switch was in OPEN/X and then the switch turned to OPERATE before the TOTAL key is pressed, the data terminal will perform an automatic void operation.

When the Mode lock switch is turned to CLOSE, the first operation will be a void.

Examples: Models 900-02 Through 900-05

1. Mode lock switch turned to OPEN/X, turned to OPERATE, illuminated VOID key pressed.

    1114   12345001   VOID   VOID
            02 10 71

    Transmitted
    STX P1114@12345001?)ETB

2. Mode lock switch turned to OPEN/X, illuminated VOID key pressed, Mode lock switch turned to OPERATE.

    1116   12345001 VOID   VOID
            02 10 71
    1116   12345001 VOID   VOID
            02 10 71

    Logo

    Transmitted
    STX P1116@12345001?))ETB

3. Power failure in OPERATE, illuminated VOID key pressed when power restored.

    1117   12345001 VOID   VOID
            02 10 71

    Transmitted
    STX P1117@12345001?)ETB

4. Mode lock switch turned to OPEN/X, illuminated
    VOID key pressed, TOTAL key pressed.

    ```
    1118    12345001  VOID   VOID
            02 10 71
    1118    12345001  VOID   VOID

                              .00+  T
                              .00+  T
                              .00+  T
                              .00+  T
    ```

    Logo

    Transmitted

    STX P1118@12345001?))I00I00I00I00ETB

5. Mode lock switch turned to OPEN/X, illuminated
    VOID key pressed, digits 1234567890123 entered,
    TOTAL key pressed.

    ```
    1119    12345001  VOID   VOID
            02 10 71
    133%577.%5123     VOID   VOID
            02 10 71
                              .00+  T
                              .00+  T
                              .00+  T
    Logo                      .00+  T
    ```

    Transmitted

    STX P1119@12345001?))1234567890123
                           I00I00I00I00ETB

NOTE: The printing is garbled because of misoperation,
however, the transmitted information is correct.

6. Mode lock switch turned to OPEN/X, illuminated
    VOID key pressed, digits 0012345 entered, SALES-
    PERSON key pressed, Mode Lock Switch turned
    to OPERATE.

    ```
    1120    12345001   VOID    VOID
            02 10 71
            0012345    EMP
            0012345    VOID    VOID
            02 10 71
    Logo
    ```

    Transmitted

    STX P1120@@0012345?)'0012345)ETB

7. Mode lock switch turned to OPEN/X, illuminated
    VOID key pressed, digits 02010071 entered,
    CASH key pressed, TOTAL key pressed.

    ```
    1121    0012345      VOID    VOID
            02 10 71
            02 10 71     CA
    1121    0012345      VOID    VOID
            02 10 71
                                 .00+ T
                                 .00+ T
                                 .00+ T
                                 .00+ T
    Logo
    ```

    Transmitted

    STX P1121@@0012345?)J021071)I00I00
                                I00I00ETB

8. Mode lock switch turned to OPEN/X, turned to
    OPERATE, turned to CLOSE.

    ```
    1122    0012345      VOID    VOID
            02 10 71
                                 .00+ T
                                 .00+ T
                                 .00+ T
    Logo                         .00+ T
    ```

    Transmitted

    STX P1122@@12345?)I00I00I00I00ETX

9. Transaction entered but not completed with VOID
    or TOTAL, Mode lock switch turned to CLOSE.

    ```
                123     EMP            CA
                456     DEPT
                789     MDSE
                56.98   EA        56.98+
    1124    0012345               56.98+ S
                5.50%   TAX         3.13+
    1124    0012345               60.11+ S
               10.00%   DISC        6.01-
    1124    0012345     VOID       VOID
            02 10 71
                                 281.53+ T
                                 152.00- T
                                2147.84+ T
                                5630.61+ T
    Logo
    ```

    Transmitted

    STX P1124@@12345'123J$456"789L5698&LL
        313F\\601) I28I53YI5200I2147841563061ETX

10. Transaction entered but not completed with VOID or TOTAL, Mode lock switch turned to OPEN/X, illuminated VOID key pressed, TOTAL key pressed.

	987	EMP	5 MEMO
	654	DEPT	
	321	MDSE	
	99.98	EA	99.98+
1126	0012345		99.98+ S
	5.50%	TAX	5.50+
1126	0012345		105.48+ S
	10.00%	DISC	10.55–
1126	0012345	VOID	VOID
	02 10 71		
1126	0012345	VOID	VOID
	02 10 71		
			281.53+ T
			152.00– T
			2147.84+ T
			5630.61+ T

Logo

Transmitted

STX P1126@@12345?))I28153Y152001214784
I563061ETB

11. Mode lock switch turned to OPEN/X, illuminated VOID key pressed, digits entered for date change (02011071), Mode lock switch turned to OPERATE.

1127	0012345	VOID	VOID
	02 10 71		
1127	0012345	VOID	VOID
	02 10 71		

Logo

Note that the date was not changed.

Transmitted

STX P1127@@12345?))02011071ETB

9. SPECIFICATIONS

DIMENSIONS

	Width	Depth	Height
Inches	19½	20	19½
Centimeters	49.5	51	49.5

CLEARANCES

The cash drawer extends 14 inches when fully opened.

The optional media drawer extends 14 inches when fully opened.

Allow 4 inches clear space at rear of base of unit for air circulation.

Suggested height of table surface from floor: 30 to 32 inches (without optional media drawer); 26 to 28 inches (without optional media drawer).

WEIGHT

95 pounds   43 kilograms

ELECTRICAL REQUIREMENTS

Voltage Range	115V AC±11.5V	220V AC±20V
Frequency	60±1Hz	50±1Hz
Current	2.7A	1.35A
Maximum Current	15A	8A
Phase	Single	Single
kVA	0.3	0.3

WIRING

Ten feet of wire is provided between the terminal and the processor, and between the terminal and an ISF unit. More than ten feet to be supplied and installed by the customer; see the MDTS System Installation Planning Guide, Publication No. 40-077. All wire is to be connected to the terminal by the technical staff of Singer Business Machines.

POWER CORD

Three-wire grounded cord approximately 8 feet long is provided.

GROUNDING

Model 900 Data Terminals should use true three-wire grounded dedicated AC lines; that is, a non-current carrying ground, not a neutral.

OPERATING ENVIRONMENT

Temperature	+32° through +115°F
	0° through +46°C

Relative Humidity	20% to 80% (noncondensing)

STORAGE ENVIRONMENT

Temperature	-35° through +160°F
	-37° through +71°C

Relative Humidity	20% to 80% (noncondensing)

PAPER AND FORMS

Tape 2-ply carbonless, 3 7/16" (87.3mm) wide. Roll must be no more than 3 1/2" (88.9mm) in diameter.

Sales Forms — Maximum width: 5 1/2" (139.7mm). Minimum width: 3 1/4" (82.5mm). Minimum length: 7 1/4" (184.2mm). The top line of the sales transaction printing on a fully inserted form is 5 1/2" from the bottom edge of the form.

MODEL 900 REFERENCE MANUAL
Publication No. 40-202

We produce manuals for you, and we want you to find them useful and informative. That's our job.

So we're asking you to help us furnish you with the best possible publications. Please take a few minutes to answer the following questions. Add any comments you wish. If you desire a reply to any question, be sure to include your name and address.

Thank you.

———————————————————————————————————

DETACH HERE

- Does this manual meet your needs?   Yes ☐   No ☐
  If not, what additional information would be of help to you?

  _____
  _____
  _____
  _____

- Can you find what you're looking for quickly and easily?   Yes ☐   No ☐
  How can the organization be improved?

  _____

- Is the material easy to read and to understand?   Yes ☐   No ☐
  Are there enough illustrations to support the text?   Yes ☐   No ☐
  Comments_____

  _____
  _____

- Did you find any errors or ambiguities in the manual?   Yes ☐   No ☐
  If yes, please cite page, line, and/or figure number with your comments.

  _____
  _____
  _____
  _____

- Other comments.

  _____
  _____
  _____
  _____
  _____

- What is your relationship to the product described?
    ☐   Operator.
    ☐   Programmer.
    ☐   Other (please specify)

SINGER
BUSINESS MACHINES

FOLD BACK

B U S I N E S S   R E P L Y   M A I L
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY

FRIDEN DIVISION
THE SINGER COMPANY
2350 Washington Ave.
San Leandro, California 94577

Attn: Customer Technical Publications,
      Department 753

FOLD BACK

SINGER
BUSINESS MACHINES