

INSTRUCTIONS



Operator's Manual *TermiNet³⁰⁰ Printer*



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GENERAL  **ELECTRIC**

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These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

Operator's Manual

TermiNet³⁰⁰ Printer

DESCRIPTION

GENERAL

The TermiNet 300 printer is a quiet, compact, high speed data communications terminal designed for local or "on line" use or for printing received or transmitted information from computer systems or other terminals using the USASCII Code.*

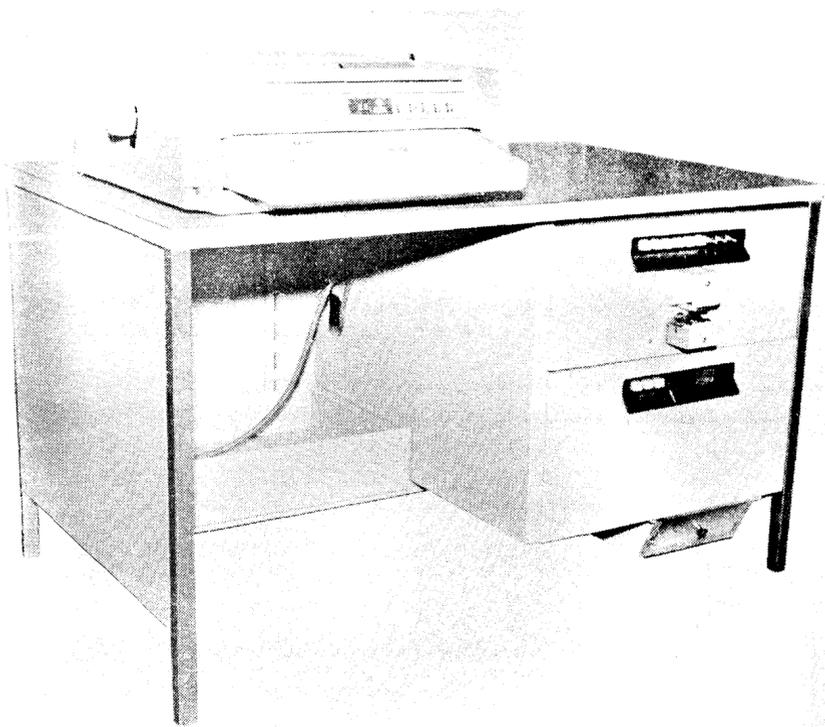


Fig. 1. Desk model ASR TermiNet 300 printer

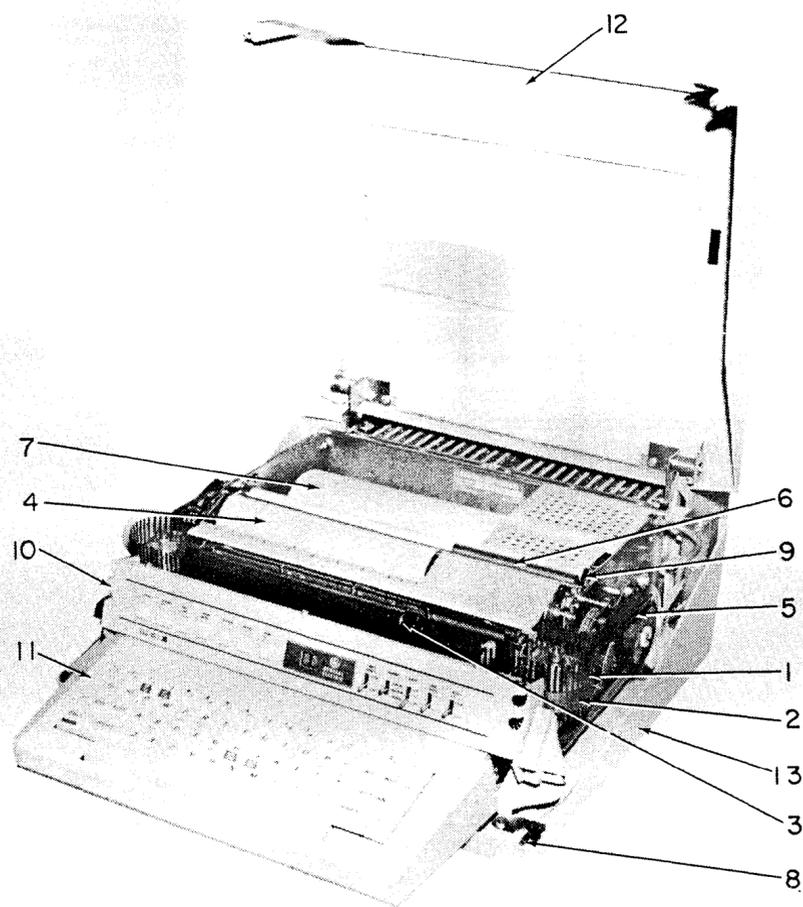
The TermiNet 300 printer is capable of receiving or transmitting the entire 128 USASCII transmission characters at speed rates of 10, 15 and 30 characters per second (cps). It can print from received data or keyboard operation on form feed, continuous roll, or single sheets of paper.

Optional equipment for the TermiNet 300 printer includes a tape punch and a photoelectric tape reader, both of which utilize the eight-level USASCII code.

Communication with other teleprinters and computers over common carrier transmission lines or

* United States of America Standard Code for Information Interchange.

telephone networks, using a compatible data set, is standard for the TermiNet 300 printer.



- | | | | |
|---|-------------------------|----|---------------------|
| 1 | Print fingers | 7 | Paper roll |
| 2 | Print finger belt | 8 | Cover release latch |
| 3 | Fluorescent lamp shield | 9 | Paper release lever |
| 4 | Paper shield | 10 | Control panel |
| 5 | Ribbon guide arm | 11 | Keyboard |
| 6 | Paper dancer bar | 12 | Upper cover |
| | | 13 | Lower cover |

Fig. 2. TermiNet 300 printer with cover up

MODEL CONFIGURATION

Receive Only (RO)

This model consists of a TermiNet 300 printer without keyboard and is used for the printing of received information only.

Keyboard Send Receive (KSR)

This model consists of a TermiNet 300 printer with a keyboard which enables it to print local, transmitted, and received information.

Automatic Send Receive (ASR)

This is a KSR TermiNet 300 printer, with a paper tape punch and reader.

OPTIONAL EQUIPMENT

Tape Reader

A photoelectric tape reader is available which can read at 10, 15, and 30 characters per second when used with a printer, and can also send data at 120 characters per second if tape reader options are included.

The tape reader is versatile in a number of ways. It can be made to read or omit the next character, word, or line by simply pushing the appropriate buttons. The reader can also backspace and can be reversed from either a remote or local location.

Tape Punch

A tape punch is available which operates at 10, 15, and 30 characters per second. The solenoid-driven punch has no moving parts, except during the punching operation. This reduces wear and noise. The punch can automatically prepare a leader.

OPTIONAL FEATURES

Long Print Line

TerminiNet 300 printers are available with 118 print positions for those applications where a long print line is required.

Pin Feed Platen

Pin feed platens are available for rapid and accurate handling of business forms.

Answerback

Up to a 20-character message can be supplied in the answerback option. This gives a remote location positive identification of another terminal without requiring an operator to be present.

Horizontal Tab Set (1)

This feature allows either local or remote setting of the tabs. The tabs can be set at all positions on the print line. To set a tab move to the column position desired. Hold the escape key and depress the Horizontal Tab Set key button. When the tabs are set, the first tab position becomes the left-hand margin. To clear tabs, hold the Escape key and depress the Horizontal Tab Clear key button. This will clear all tabs.

Upper/Upper Lower Case Switch

This switch enables either upper case printing only or normal upper and lower case printing.

Additional Options Available Soon

Transparency Switch

Form Feed and Vertical Tabulation

Red and Black Ribbon

Character Parity Detection

Parallel Interface

PREPARING THE TERMINET 300 PRINTER FOR OPERATION

POWER CONNECTIONS

Plug the double-ended power cord into the receptacle at the right rear of the machine and then into a 115 volt a-c, grounded outlet. (See the Service Manual for specifications and power requirements.)

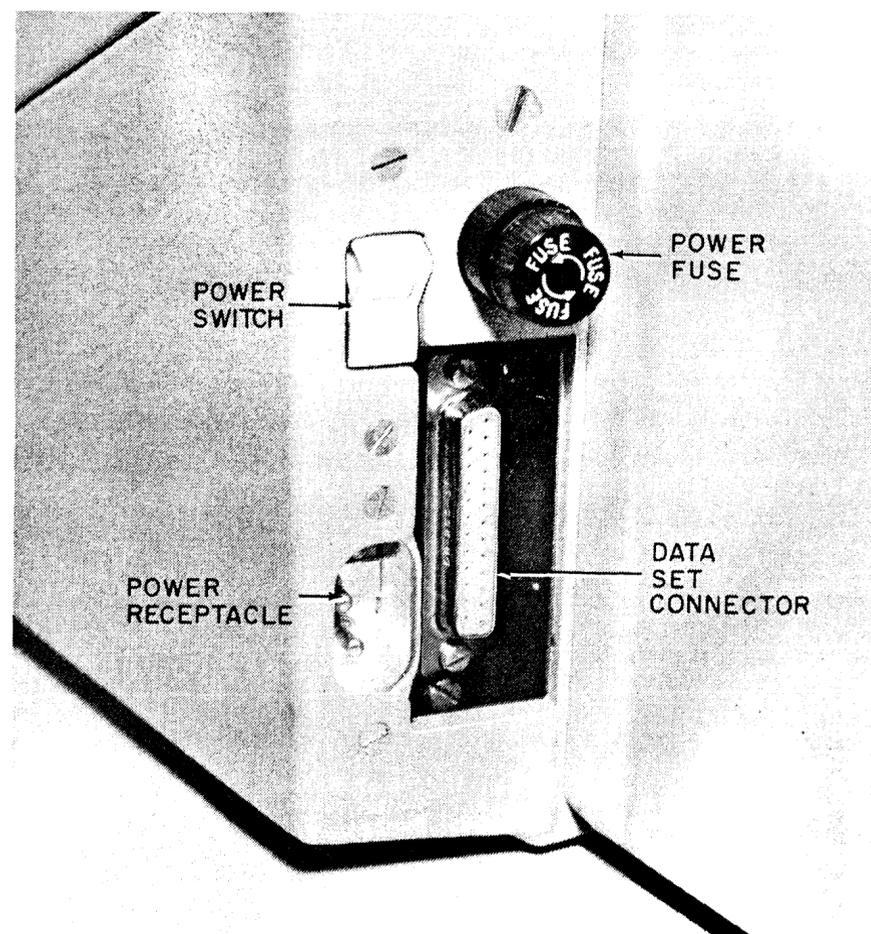


Fig. 3. Power cable connections

NOTE: ASR models have the 115 volt a-c outlet at the right rear of the desk.

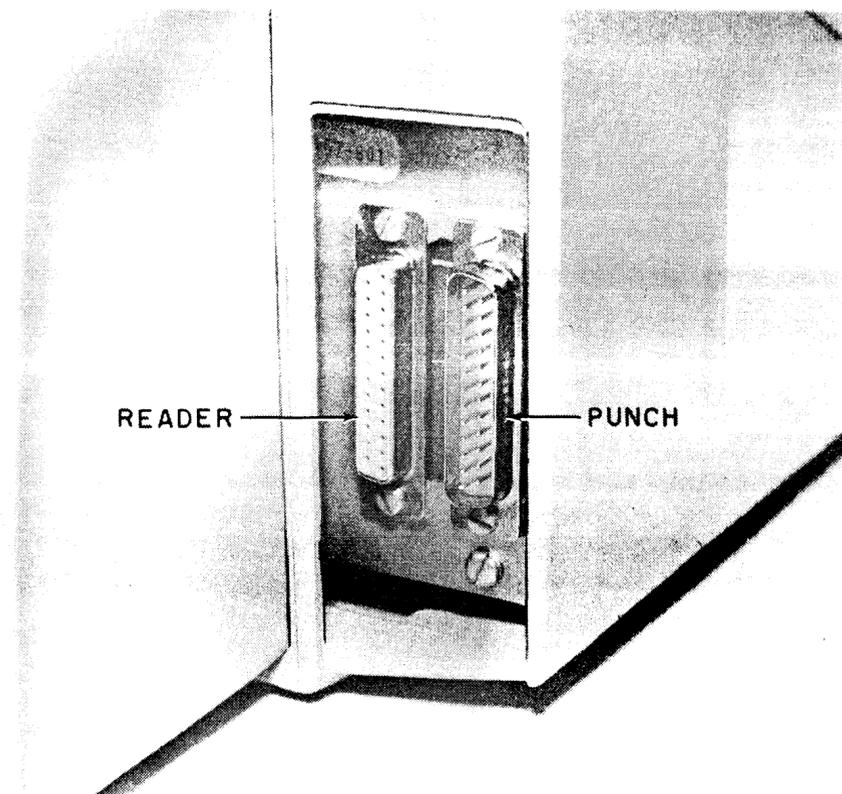


Fig. 4. Control cable connections

CONTROL CONNECTIONS

For remote transmission, plug the control cord for the data set being used into the data set receptacle at the right rear of the terminal.

CAUTION: DO NOT PLACE THE TERMINET 300 PRINTER WITH THE BUSTLE FLUSH AGAINST A WALL AS REAR VENTILATION MAY BE BLOCKED.

If a tape reader or punch is used, their respective control cords are plugged into the reader and punch receptacles at the left rear of the terminals.

POWER ON

The power ON/OFF switch is located at the right rear of the terminal.

NOTE: In order for the TermiNet 300 to operate, the plastic paper shield and the terminal top cover must be down.

OPERATION

See OPERATING PROCEDURES on page 10.

RIBBON

Installation

See Figure 5 and the decal under the top cover of the machine.

Replacement

A recommended replacement ribbon is the medium inking, #33, 150 FS Underwood (GE Catalog Number 44A417013-002). Printing takes place in the upper half of the ribbon. To utilize the lower half, remove both spools with the ribbon, and install the original spools on opposite sides of the printer.

PAPER INSTALLATION

Friction Feed Paper

Use standard 8 1/2" wide, 5 inch diameter roll paper, or 8 1/2" and 12.85" sheets may be used. (See Fig. 6.)

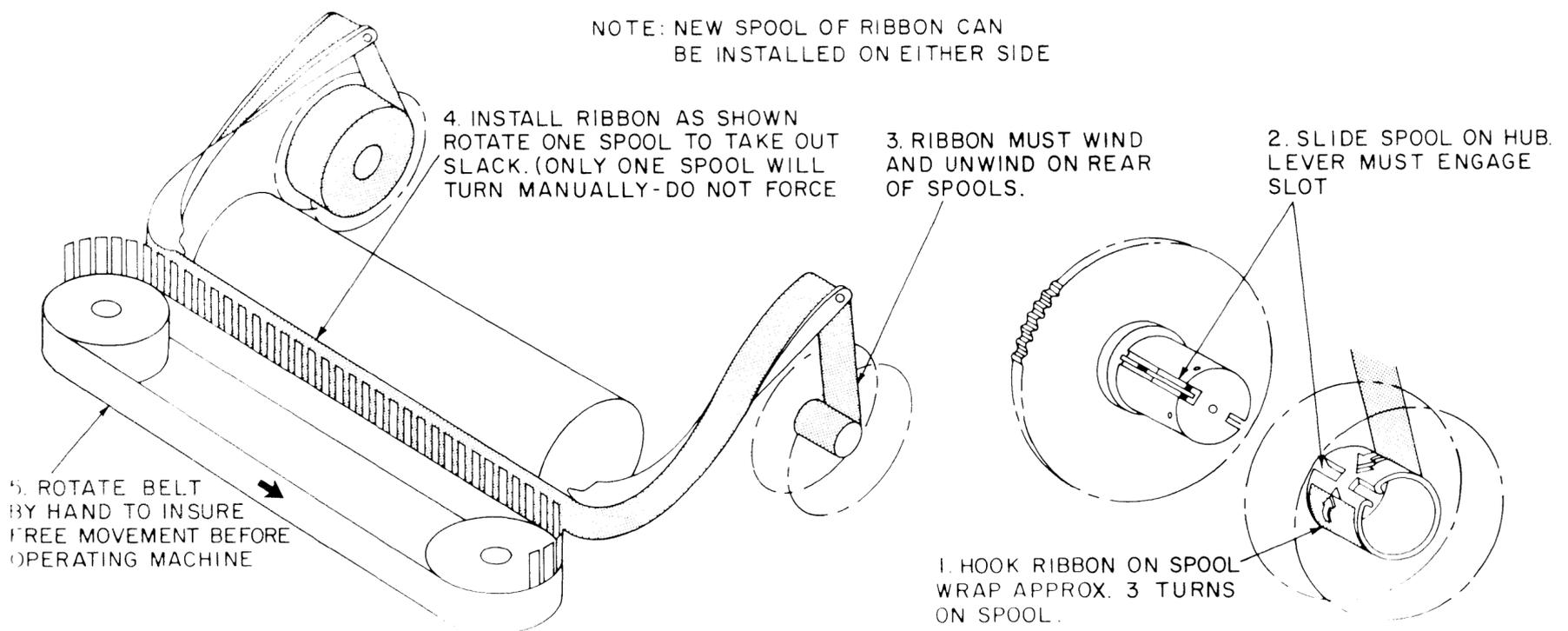


Fig. 5. Ribbon installation diagram

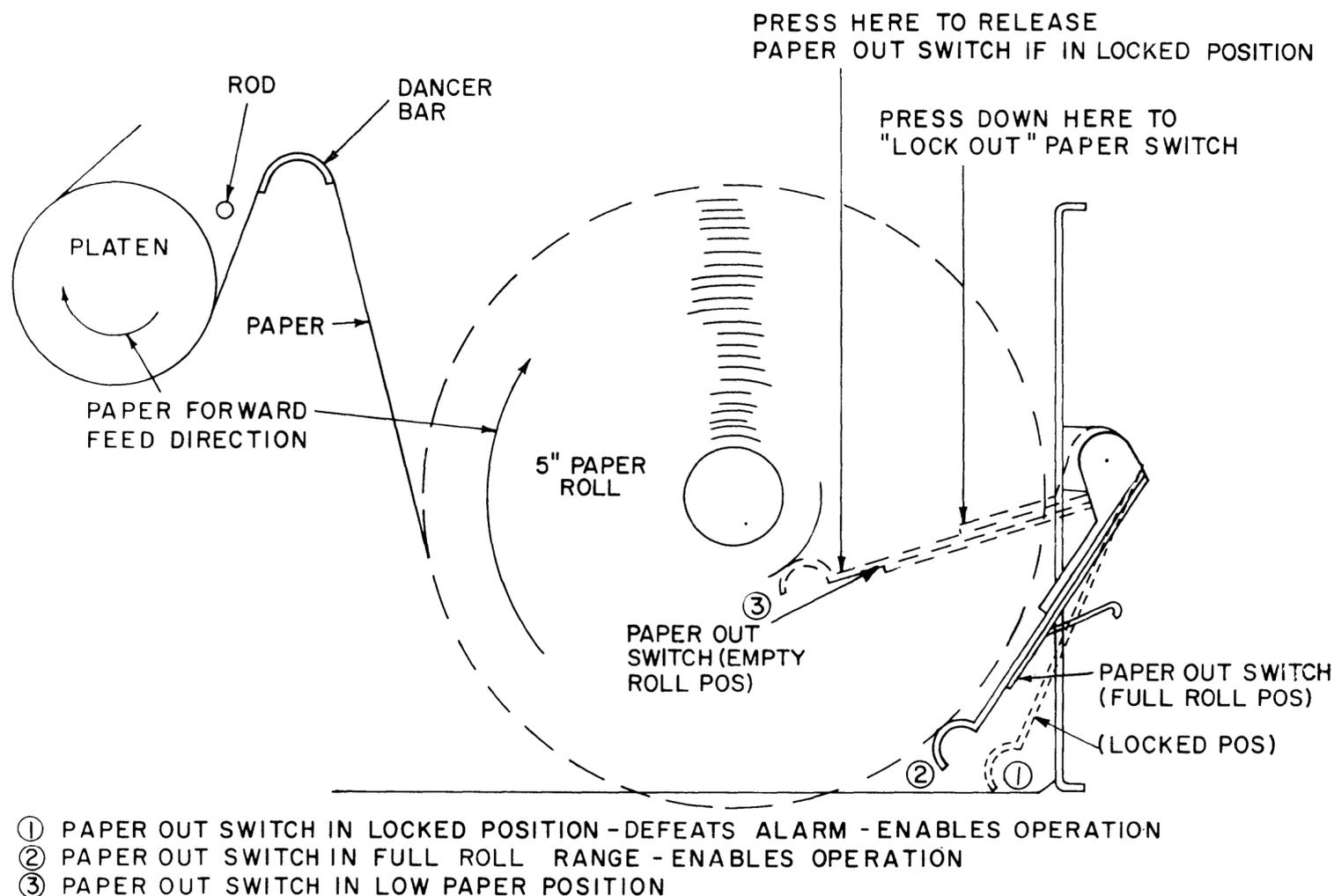


Fig. 6. Paper installation diagram

Installation

Follow the steps listed below in order.

1. Press the cover release latches and raise the cover.
2. Place the tube in the center of the roll.
3. Set the roll in place.
4. Feed the paper from the bottom of the roll over the dancer bar and under the platen.
5. Push the platen knob in, and rotate to advance the paper.
6. To align the paper, release the paper friction lever and align the left edge of the paper with the red line on the shield.
7. Return the paper release lever to the engaged position.
8. When using sheet or pin feed paper, depress and lock the paper-out lever.

Pin-feed Paper (Optional)

Follow the additional steps listed below for the installation of pin-feed paper.

1. The paper release lever must be in the released position.
2. Lock the paper-out lever.
3. Insert the paper and align paper holes with the sprocket pins.
4. Advance the paper with the platen knob.

NOTE: Paper release lever must be left in the release position (forward) while using a pin feed platen.

PUNCH TAPE (OPTIONAL)

Inserting Punch Tape

1. Place a roll of 1-inch wide tape on the supply spool (see Fig. 7).
2. Feed the tape around the guide rolls (2) and through the angle arm.
3. Move the tape guide arm forward. Place the tape under the hold down, leaving enough excess tape to fit through the opening in the front of the drawer.

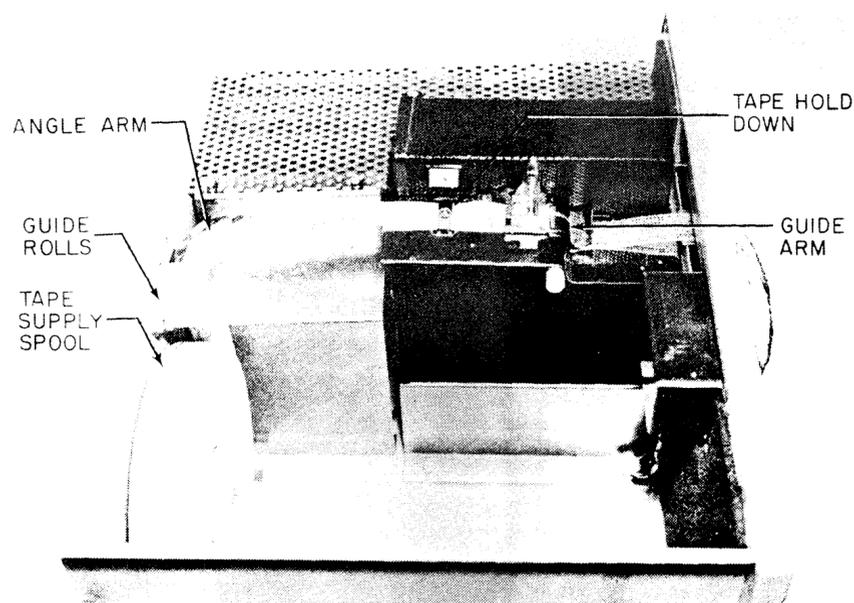


Fig. 7. Tape punch with paper tape in position

OPERATION

CONTROLS

Name	Type	Function
Power On	Switch	One located at right rear of Terminal, another located in the desk kneehole.* Turns on main power to Terminal and switch in desk controls Terminal, reader and punch.
Rate Selector	3 Position Switch	Selects 10, 15, or 30 characters per second receiving and transmitting speed.
Auto Line Feed	Switch	Automatically advances paper when carriage return key is depressed.
Line Feed	Switch	Single or double line feed.
Suppress	3 Position Switch	Normal, Suppress print or suppress transmission.
Transparency (Optional)	Switch	Allows reader to transmit or punch to receive codes other than ASCII.
Here Is (Optional)	Pushbutton	Triggers terminal answerback code.

* (ASR models)

Name	Type	Function
Interrupt	Illuminated Pushbutton	<ol style="list-style-type: none"> 1. Illuminates light if "break" or "interrupt" is received. 2. If received, keyboard is deactivated. 3. Extinguishes light when depressed, but does not send break. 4. When light is out, depress to transmit break.
Ready	Light	Indicates data set is ready for transmission.
Alarm	Illuminated Pushbutton	<p>Indicates one or more of the following:</p> <ol style="list-style-type: none"> 1. Low paper 2. Paper out of punch 3. Shield up 4. Cover open 5. Something caught in print belt 6. Low voltage 7. Other problems in the machine
Print Position Indicator	Digital Display	Shows position of next character to be printed.
Upper/Lower Case (Optional)	Switch	Located in rear of Terminal. Allows printing of upper case letters only.
On Line	Illuminated Pushbutton	Turns terminal motor on and after communication channel is established, permits transmission and reception of data.
Standby	Illuminated Pushbutton	Same as On Line with motor off.
Local	Illuminated Pushbutton	Enables local terminal operation but does not allow receiving and transmitting data.

AUDIBLE INDICATORS

1. Beep each time key is depressed.
2. High pitch beep at print position 69, and after print position 75.
3. Short beep when alarm is lit.
4. Short beep when interrupt is received.

KEYBOARD

General Description

The keyboard of the TermiNet 300 printer can generate all of the 128 USASCII codes.

Special codes are generated by the "ESCAPE" key and the "CONTROL" key. Either one may be pressed simultaneously with another key to generate these special codes. The "ESCAPE" key and its associated keys are shaded. To utilize the escape function, hold the ESCAPE key and then depress the appropriate shaded key.

To generate any of the USASCII control codes, depress and hold the "CONTROL" key and then depress the desired control function key. Most control function keys are identified on their front edge.

NOTE: The "ESCAPE", "CONTROL", and "REPEAT" keys must be held while the associated key is depressed.

The angle of the keyboard on the TermiNet 300 printer is adjustable.

Keyboard Keys

CARRIAGE RETURN

With the automatic line feed switch "off", the carriage return key returns the printer to the first column or printing position. With the automatic line feed switch "on", the carriage return key advances the paper at the same time.

REPEAT

Holding this key will cause any other depressed key to repeat at the rate of 5 characters per second.

SHIFT AND SHIFT LOCK

Holding the shift key down causes the upper case characters to be printed and transmitted when other keys are operated. The shift lock mechanically locks the shift key until the shift key is depressed.

BACKSPACE (BS)

This key moves the printing position one position to the left without printing a character.

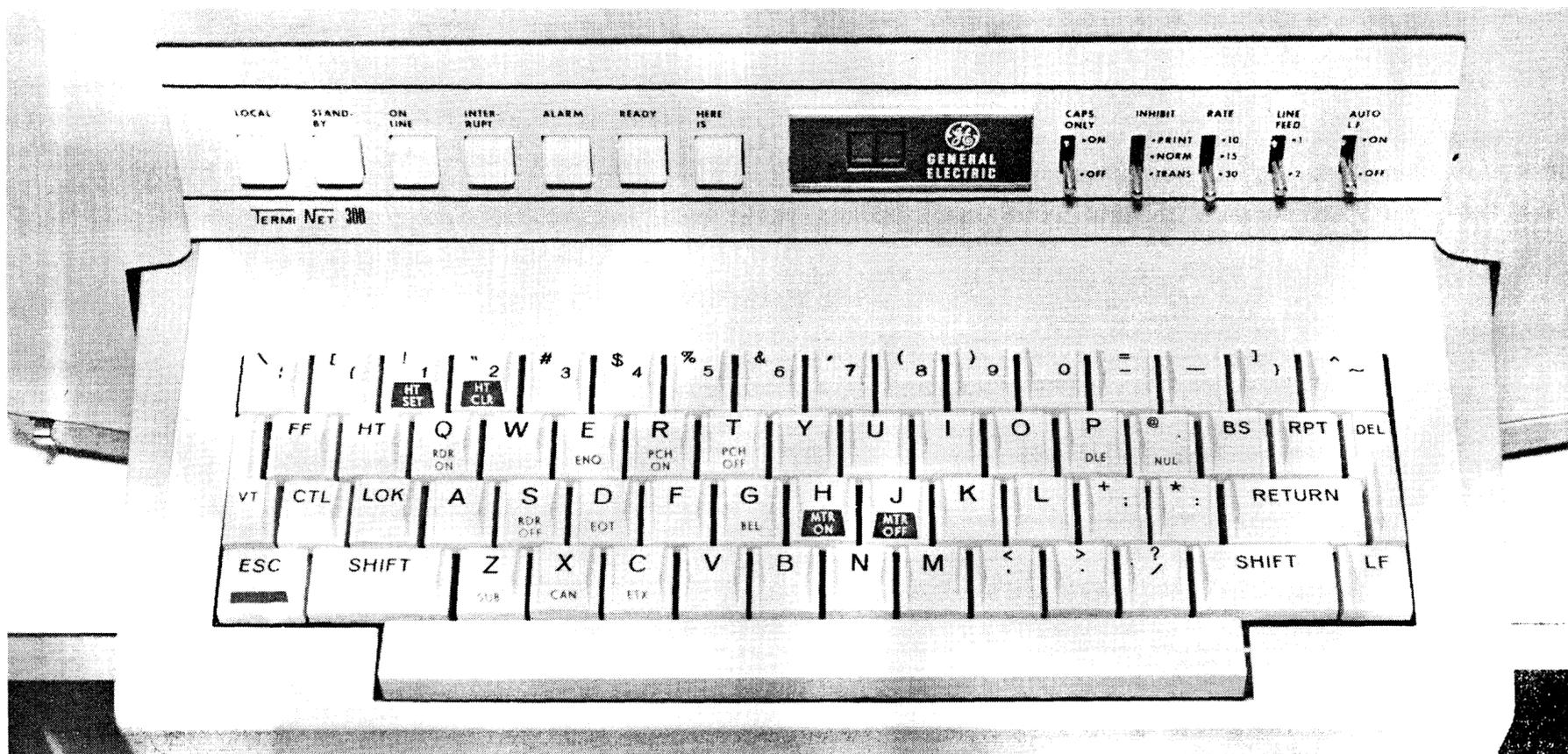


Fig. 8. TermiNet 300 keyboard

SPACE (SP)

This bar moves the printing position one position to the right without printing a character.

LINE FEED (LF)

This key advances the paper one print line if the spacing lever is set for single spacing, or two printed lines if the spacing switch is set for double spacing.

Codes

END OF TEXT (EOT)

This control code will transfer the state of the Terminal from local or on-line to standby.

DATA LINK ESCAPE (DLE-EOT)

These two control codes, in sequence, will initiate the disconnect sequence with the connected data set, after which the Ready light will go off. The Terminal is then automatically in the standby mode.

ESCAPE J (MOTOR OFF)

These two control codes, when recognized in the proper sequence, turn the motor off.

ENQUIRY (ENQ)

The control code when received causes the answerback or terminal identification to be transmitted if this option is included.

BELL (BEL)

Causes the audible alarm to be sounded when recognized.

ESCAPE H (MOTOR ON)

These two control codes, when recognized in the proper sequence, turn the motor on to permit printing.

TAPE READER

General

The photoelectric tape reader will read and transmit data at the 10, 15, and 30 cps rate, depend-

ing upon how the TERMINAL RATE SELECT switch is set. The reader is capable of 120 cps operation.

The READ-OMIT switch will enable the reader to READ or OMIT the next character, word or line. To backspace the tape one space, depress the backspace key. Place the LOCK/NORMAL switch in the LOCK position in order to prevent the reader from being turned on either remotely or locally. Place the SKIP-DELETE switch in the "on" position to skip tape deletes. To start a remote reader, hold the control key and press the READER ON (Q) key of the local terminal. To turn the reader off press the INTERRUPT button. To start a local reader, push the RUN button.

Operation

Proceed as follows:

1. Place the LOCK-NORM switch in the NORM position.
2. Lift the shield over the photo-cell head and insert 1-inch wide punched tape from right to left, as shown in Figure. Close shield.
3. Put the SKIP-DELETE switch in the desired position.

The reader may now be operated from a remote location or locally by using the reader control functions.

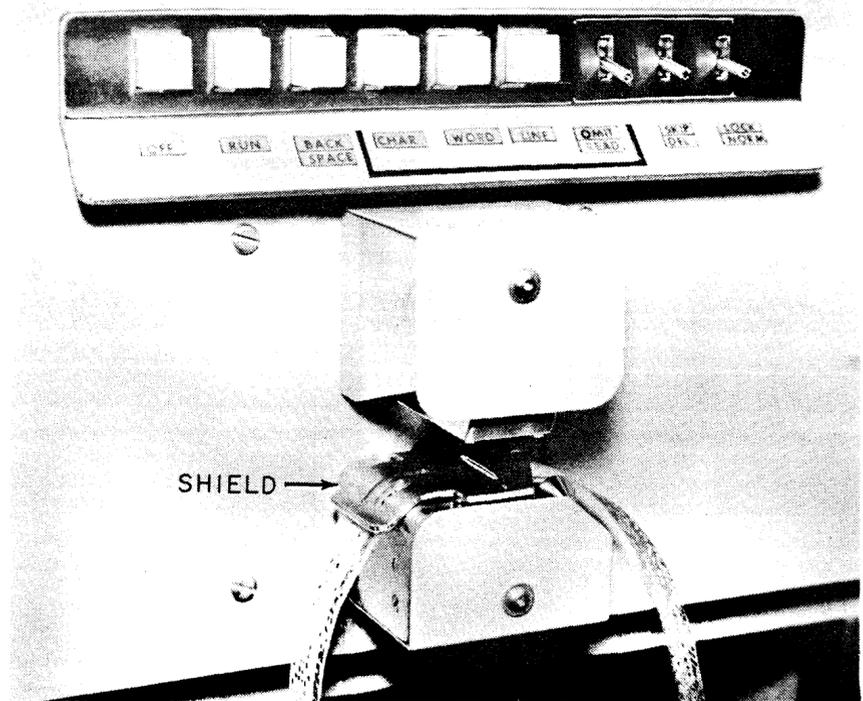


Fig. 9. Tape reader

TAPE EDITING

To prepare a new correct tape, place the uncorrected tape in the tape reader. Follow Steps 1 through 3 under Operation, and then proceed with the following steps:

1. Scan the printed copy made during the first punching of the tape to determine the areas that need to be corrected.

2. Turn the punch and reader ON.

3. Determine that the tape punch has blank tape ready for punching.

4. Copy punch a new tape until the incorrect character, word, or line is reached.

5. Stop the reader and place the READ-OMIT switch in the OMIT position.

6. To correct a word, press the WORD pushbutton on the reader. The word containing the error will run through the reader, but will not be punched on the new tape. The same applies to a character or line.

7. The correct word should now be typed. It will then appear on the corrected tape.

8. Proceed with the new tape by turning the reader ON.

TAPE PUNCH

Operation

Press the OFF or ON button on the front of the punch drawer to stop or start the punch.

Pushing the TAPE FEED pushbutton on the punch drawer will produce tape feed if depressed while the punch switch is ON.

To turn a remote punch ON or OFF, hold down the control key and depress the PUNCH ON (R) or PUNCH OFF (T) key.

OPERATING PROCEDURE

CAUTION: AS A SAFETY PRECAUTION DO NOT OPERATE THE TERMINET 300 PRINTER WITH THE COVER LIFTED.

LOCAL MODE

Press the LOCAL button. The button will light and the print belt will rotate. Set the SUPPRESS PRINT switch in the normal position.

1. Local Printing – The terminal will print-out when the keys are depressed.

2. Local Tape Punching – Press the Punch ON button. The punch will generate a tape in addition to print-out when the keys are depressed.

3. Printing from tape – Insert the punched tape in the reader and press the reader ON button. The tape will advance and print-out will take place at the speed of the rate selector switch setting on the terminal.

ON-LINE MODE

Depressing the ON-LINE pushbutton will enable the TermiNet 300 terminal to be operated remotely. When in this condition, all of the functions mentioned previously under LOCAL MODE can be used to access another terminal or computer.

To Access a Computer

1. Set the upper-lower case switch on the back of the bustle to the desired position.

2. Set the rate switch on the control panel to a speed compatible with the computer.

3. Set the line-feed to single or double spacing.

4. Set the auto line-feed to the OFF position.

5. Set the suppress switch to normal. If print-out is not desired, the suppress switch should be in the Suppress Print position.

6. Dial the computer number. When the audible tone is heard, push the data button on the data-set, or place the phone in the cradle on the coupler. The READY light will come on. The terminal is now coupled with the computer.

To Disconnect a Computer

1. Use computer "Cut Off" code, i.e., "done", "bye", etc. or hold control key and depress DLE (P) – EOT (D). This will drop the data-line and return the terminal to "Standby".

To Access Another Terminal

The following steps should be followed:

1. The suppress switch should be in the normal position.

2. The rate select switch setting must be the same as the terminal being accessed.

3. Dial the terminal number and proceed as in item 6 above.

4. If the remote terminal has answerback, a test may be made to determine the rate selector position of that terminal. Holding the control key and depressing ENQ (E) key will cause the answerback of the remote terminal to be printed locally. If the message is garbled, change the rate selector switch and try again until the message is correct.

STANDBY MODE

The terminal is in a standby state when power is first applied. The standby condition is similar to that of ON-LINE. However, in standby the print belt is not running. When the terminal is in LOCAL or ON-LINE state, standby can be achieved by de-

pressing the standby pushbutton. The terminal can be left in this state when not in use, or when expecting data from a remote location.

CUSTOMER CARE OF THE TERMINET PRINTER

CLEANING AND MAINTENANCE

The exterior covers and key faces can be cleaned with a sponge or cloth moistened with domestic water-base household cleaners.

The print finger type should be cleaned when dirt accumulates in the depressions. Use a type cleaning brush with gentle up-and-down motions.

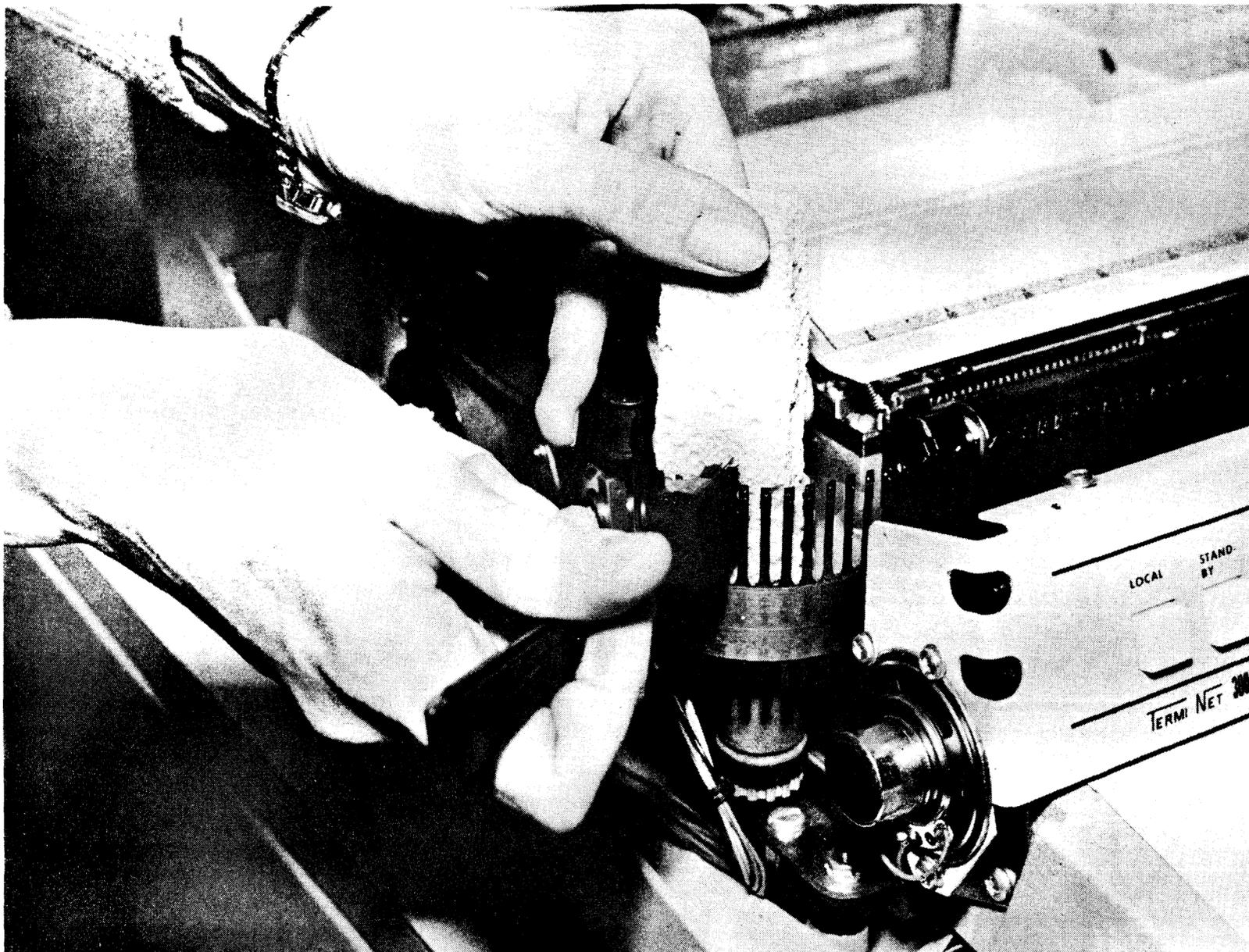


Fig. 10. Cleaning the print fingers

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ADDENDUM 1 TO GEH-2184A

OPERATING INSTRUCTIONS FOR VERTICAL TAB AND FORM FEED (VTFF)

DESCRIPTION - This option allows the Printer to rapidly feed paper (6 3/4 inches per second) to a predetermined line position upon recognition of a locally or remotely generated form feed (FF) or vertical tabulation (VT) code.

A programmable disc (see figure 1) containing 60 divisions (corresponding to the number of print lines on a 11 inch sheet of paper) is coupled to the line feed drive shaft.

For form-feed operation, this disc can be punched with the disc punch (see figure 1) so that the recognition of a FF code causes the line feed drive to run quickly to the first line of printing on a new form.

The vertical tabulation operates in the same manner as the form feed. The programmable disc controls the response of the Printer to a recognized VT code. This operation is used for rapid consecutive line-feeds within a particular form.

The VTFF is designed to help prevent mis-indexing of a form if the operator should inadvertently press the VT rather than the FF key. Recognition of a VT code causes either vertical tabulation or form feed indexing depending on which hole appears next on the programmed disc. If there are no holes punched in the disc or there is a malfunction in the sensing mechanism, a timer will stop paper feeding within a few seconds.

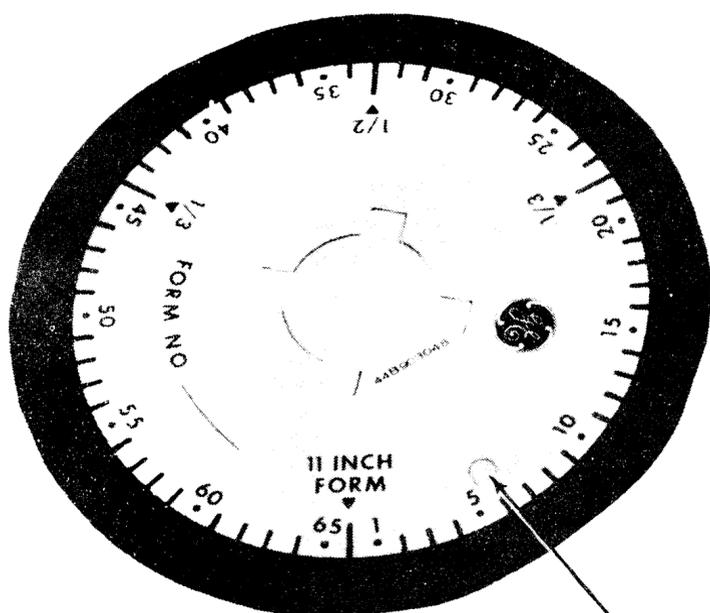
FORM FEED OPERATION

1. Make sure the disc is in the disc keyhole and is turned through the disc key.
2. Be prepared to stop the disc when the desired number in line with the disc keyhole is reached. This number should correspond to the number of lines on the form to be printed.
3. Press the FF key. The disc will rotate to the desired position.
4. Press the print key. The printer will print VT position.

VERTICAL TABULATION OPERATION

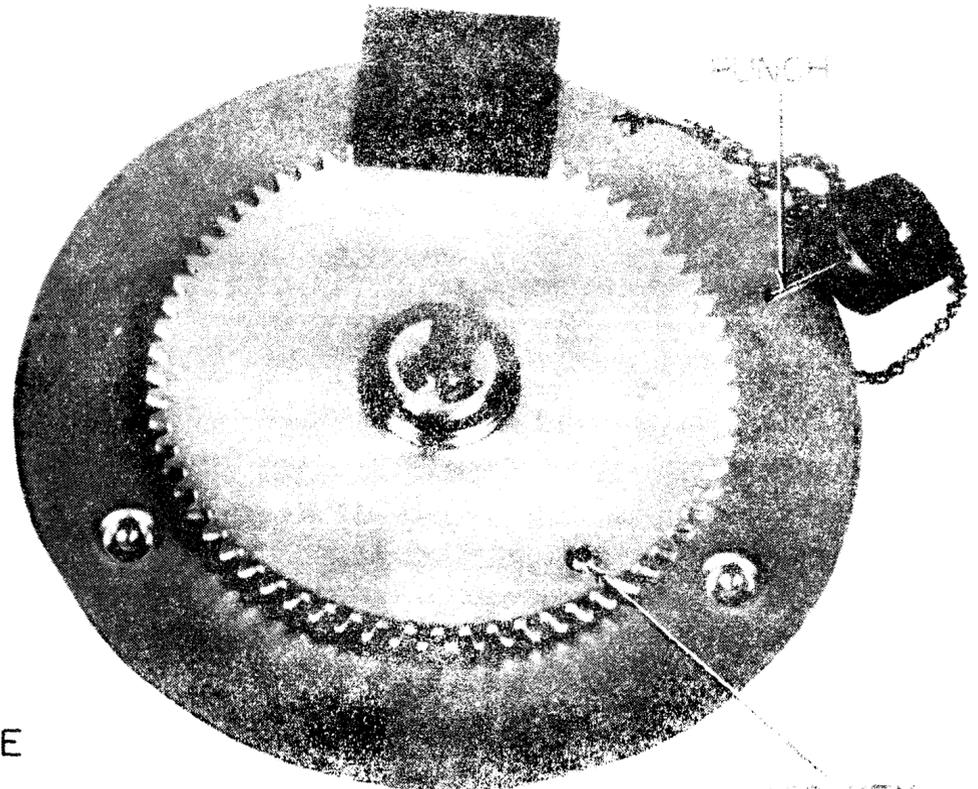
(See 2-2)

1. Press the VT key. The disc will rotate to the keyed hole of the disc and the disc key will be ejected. Rotate disc until key on the disc comes through the disc keyhole.
2. Press the print key. The printer will print the line to the position of the disc key.
3. Press the VT key again. The printer will re-printed in another line. The disc will rotate to the next hole. The Printer is now ready to print.



DISC KEY HOLE

PROGRAMMABLE DISC

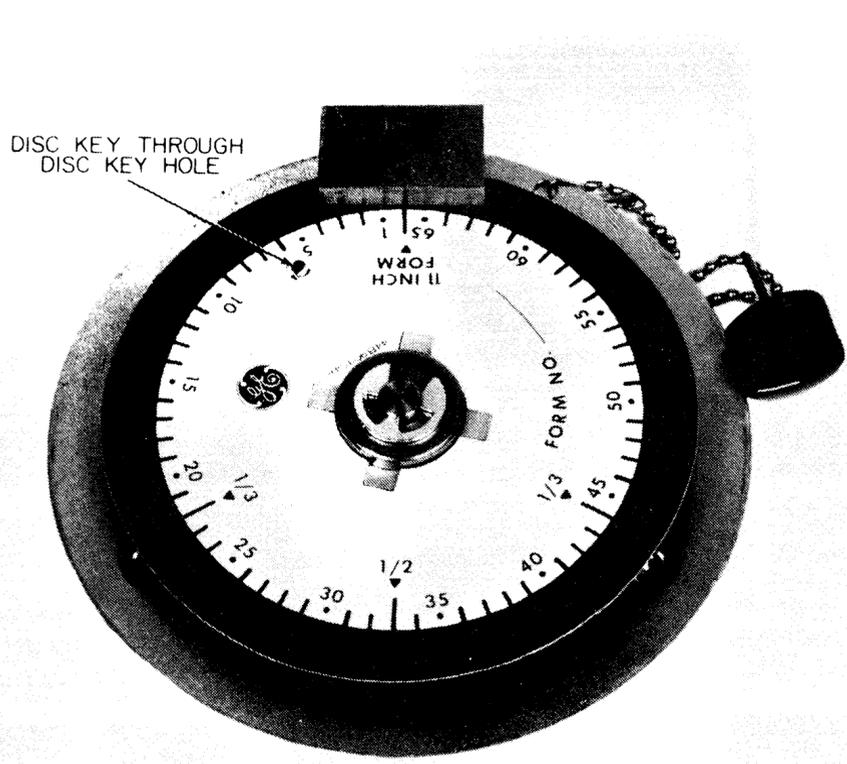


DISC KEY

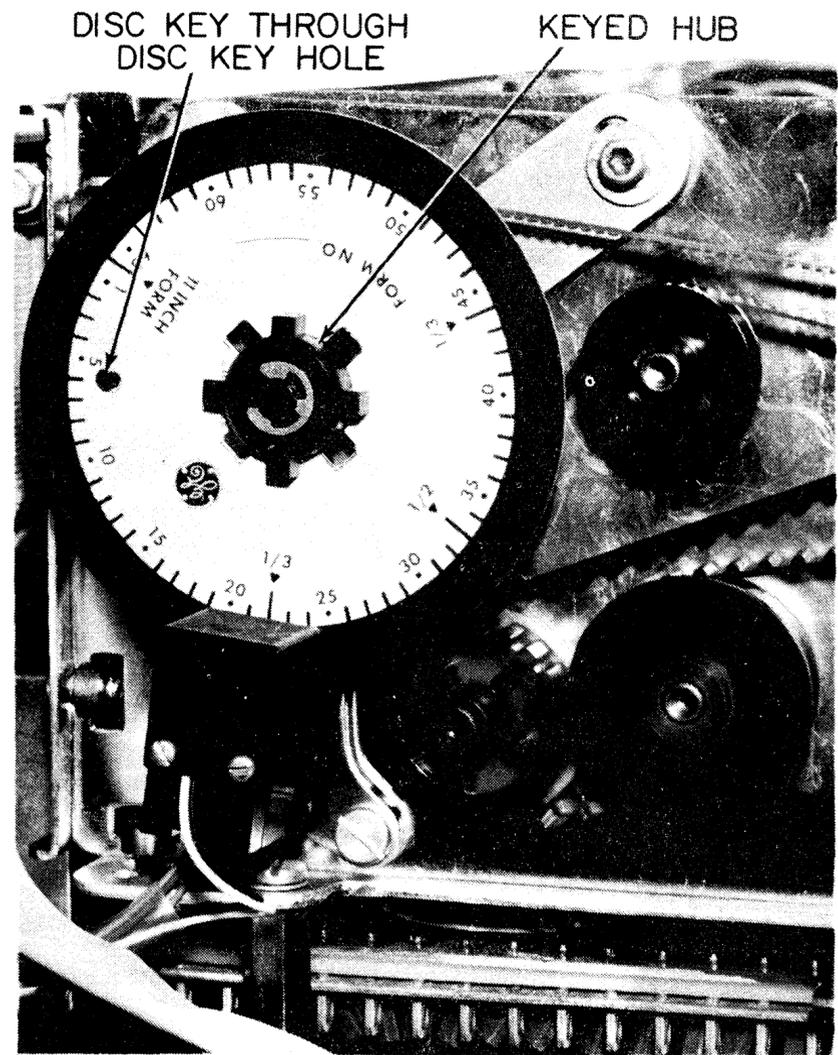
DISC PUNCH

Programmable Disc and Disc Punch

Figure 1



Programmable Disc on Disc Punch
Figure 2



Programmed Disc Mounting
Figure 3

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OPERATING INSTRUCTIONS FOR THE MAGNETIC TAPE CASSETTE ACCESSORY (TCA)

INTRODUCTION

The Magnetic Tape Cassette Accessory (See Figure 1) is used with the TermiNet* 300 Printer to "Write" (record) or "Read" (playback) data on a magnetic tape cassette. The data "Written" on the cassette can be from the Printer's keyboard or from a remote source that is connected to the printer. Data "Read" from the cassette can be printed locally by the Printer or transmitted to a remote device by the Printer.

NOTE

For convenience, the Magnetic Tape Cassette Accessory will be referred to as the TCA.

The TCA can be controlled locally or from a remote location by the use of control codes. The use of control codes will be discussed later.

All of the following instructions should be read thoroughly. A thorough knowledge of the terms and procedure steps involved in each operation will maximize trouble-free and efficient operation.

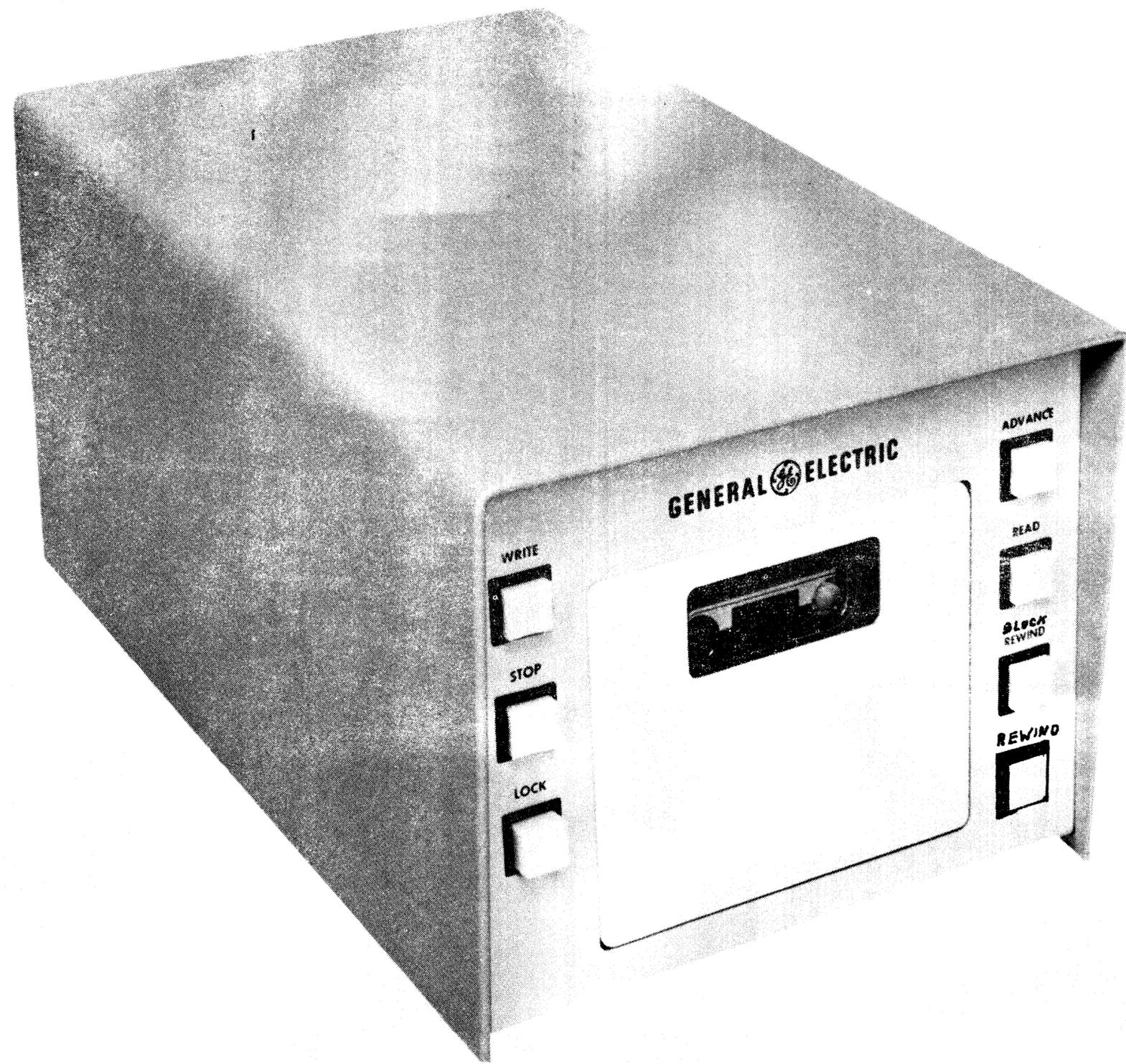


Figure 1 Magnet Tape Cassette Accessory (TCA)

DEFINITION OF TERMS

Data - A general term used to denote numbers, letters, symbols, and control codes.

Character - A letter, digit, or symbol that can be printed; a non-printable character such as a space or a character that is used for a control function. Each character is made up of a seven bit code that is written on the tape.

Tape (Magnetic Tape) - A special mylar (or similar type material) tape that is coated with a magnetic material. The tape can be magnetized in such a way that data is stored on the tape. (Data is stored a character at a time.)

Cassette - An enclosure with two built-in spools for transportation of the tape. The cassette is usually made of a plastic or similar material.

Write - "Write" (record or store) data on the tape. The data is "Written" one character at a time.

Read - "Read" (Playback) the data on the tape. Usually printing the data so it can be used. The data is "Read" one character at a time.

Character Space - That space required on the tape that one character of data can be "Written" or "Read".

Advance - Physically moving (at a rapid rate) the tape from one spool of the cassette to the other spool in such a direction that data (if previously "Written") is moving from the beginning to the end.

Incremental Backup - The tape backs up one character space at a time.

"Block" and "Inter-Block" Gap - A "Block" is a set of related data on the tape. For example; a letter, parts list, computer program, etc. Several "Blocks" can be put on a tape cassette. The number of "Blocks" on a tape depends on the length of each "Block". Each "Block" must be separated by a space of no data called an "Inter-Block Gap". Figure 2 graphically shows how "Blocks" are "Written" on a tape.

Rewind - Physically moving (at a rapid rate) the tape from one spool of the cassette to the other spool in such a direction that data (if previously "Written") is moving from the end to the beginning.

NOTE

Figure 2 is not to scale. The actual tape is about 300 feet long and a "Block" may be "Written" on a few inches to several feet of tape. Likewise an "Inter-Block Gap" will be a few inches of tape.

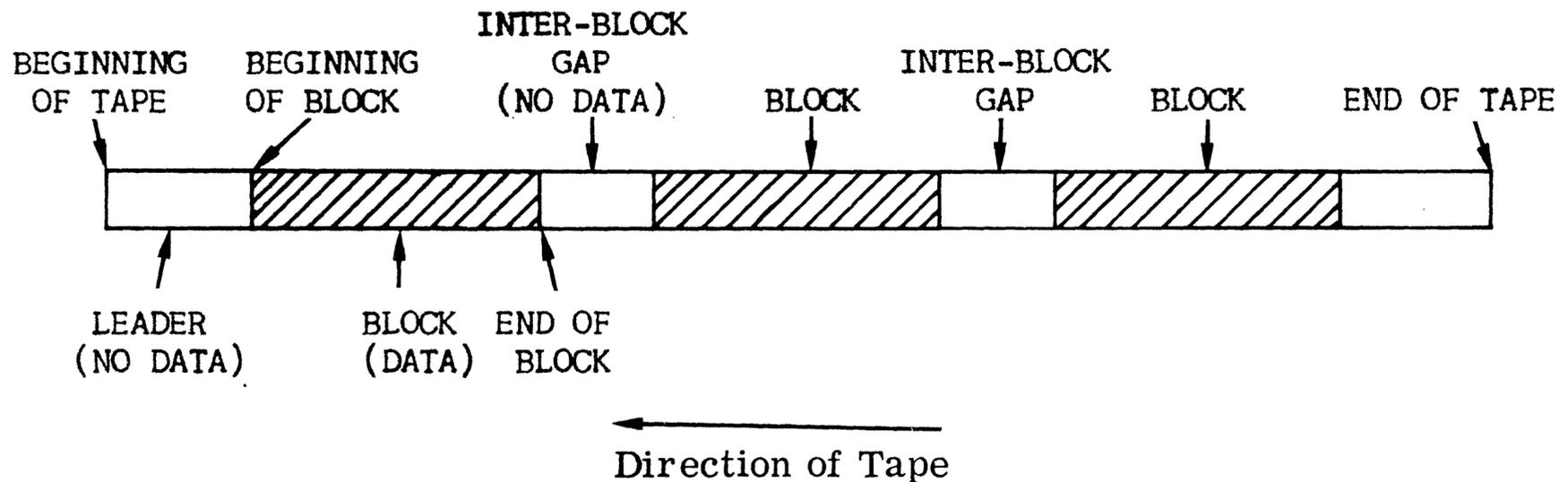


FIGURE 2

PUSHBUTTONS AND INDICATORS

Seven pushbutton switches (See Figure 3) are used to manually control the TCA. These pushbuttons are on the front panel of the TCA and are named LOCK, STOP, WRITE, ADVANCE, READ, BLOCK REWIND, and REWIND. These pushbuttons are pressed individually or two simultaneously to accomplish most all of the control functions required. Each pushbutton, except the ADVANCE and REWIND, is also an indicator that lights to indicate the operational status of the TCA.

NOTE

Always press pushbutton switches firmly.
Do Not punch or jab at switches.

CASSETTE REQUIREMENTS

The cassette must be of a good quality, and certified. Certification is a process of testing the tape to verify that the tape does not have any flaws. The cassette body must be highly reflective in color.

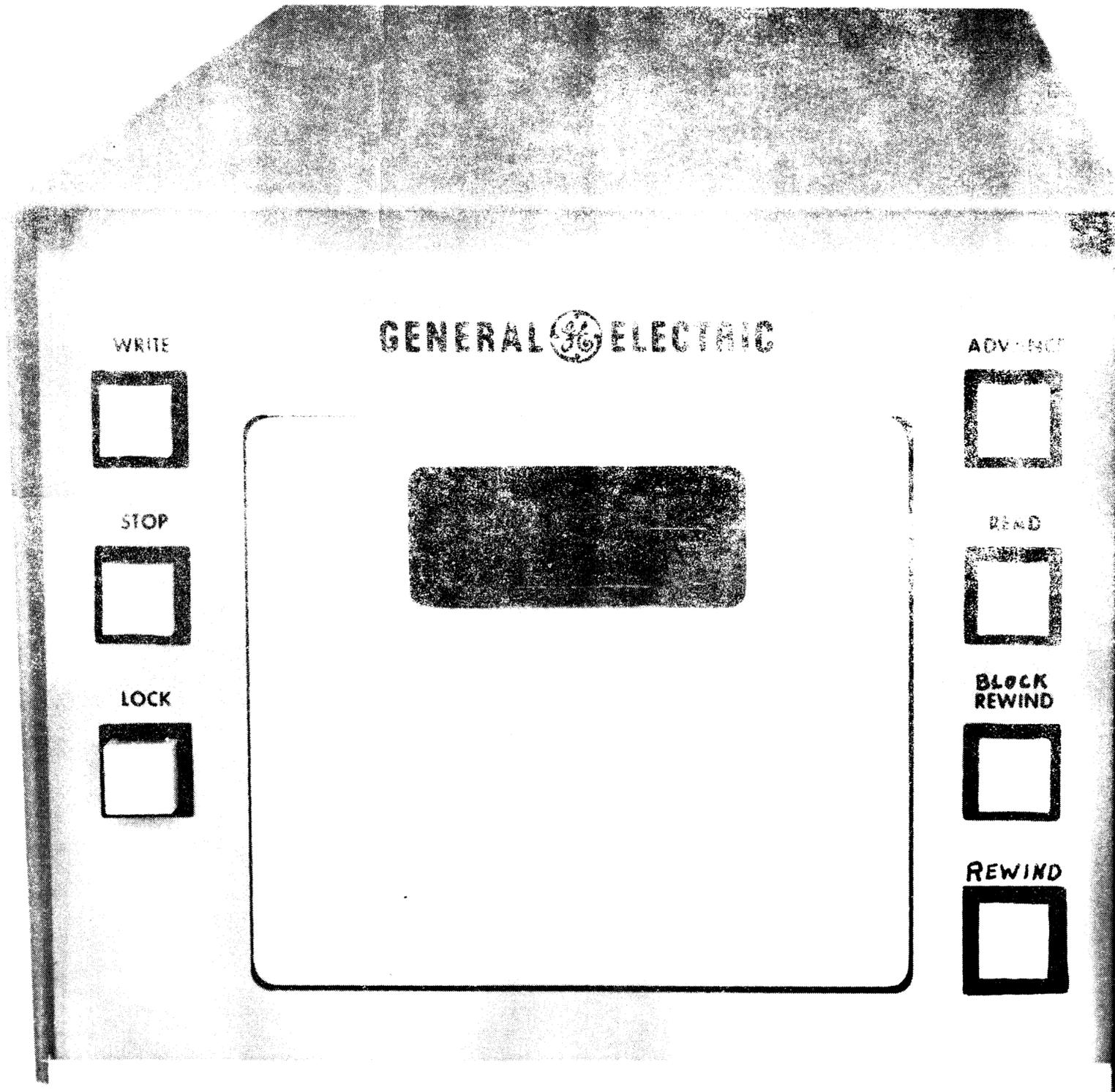


Figure 3 Pushbuttons And Indicators

INDIVIDUAL OPERATIONS

CASSETTE LOADING AND HANDLING

CAUTION

Do not bring cassette near magnets or a strong magnetic field. Data previously written on the cassette can be erased if the magnetic field is strong enough. To avoid contamination, never remove a cassette from its storage case unless it is to be used in the TCA.

Loading.

1. Press bottom of cassette door (See Figure 4). Door should swing out approximately 35 degrees.
2. Insert cassette so that the side of the cassette marked FRONT is toward the front of the TCA and open end is down (See Figure 5). If the cassette is not marked FRONT, orientate the cassette so that the full spool of cassette is to your left and the open end (tape exposed) is down (See Figure 6). Mark cassette FRONT and insert cassette.
3. Press top of cassette door toward TCA to close (See Figure 7).

NOTE

When "Writing" over data previously written on a cassette, use the same TCA that wrote the original data. This practice will avoid possible errors. If this is not possible, bulk erase the cassette before using.

Knockout Tab. The knockout tab feature prevents permanent data from being destroyed by accidental "Writing" or "Erasing". The knockout tab is on the top left side of the cassette as viewed from the front (See Figure 8). If you want to permanently store the data on a cassette, knock out the tab with a pencil or similar pointed object. Do not use an object that could be magnetized such as a screwdriver because you may destroy data on the tape.

With the tab out, the TCA will not go into the "Write" or "Erase" mode of operation; thereby permanently storing the data on the cassette.



Figure 4 Opening the Cassette Door

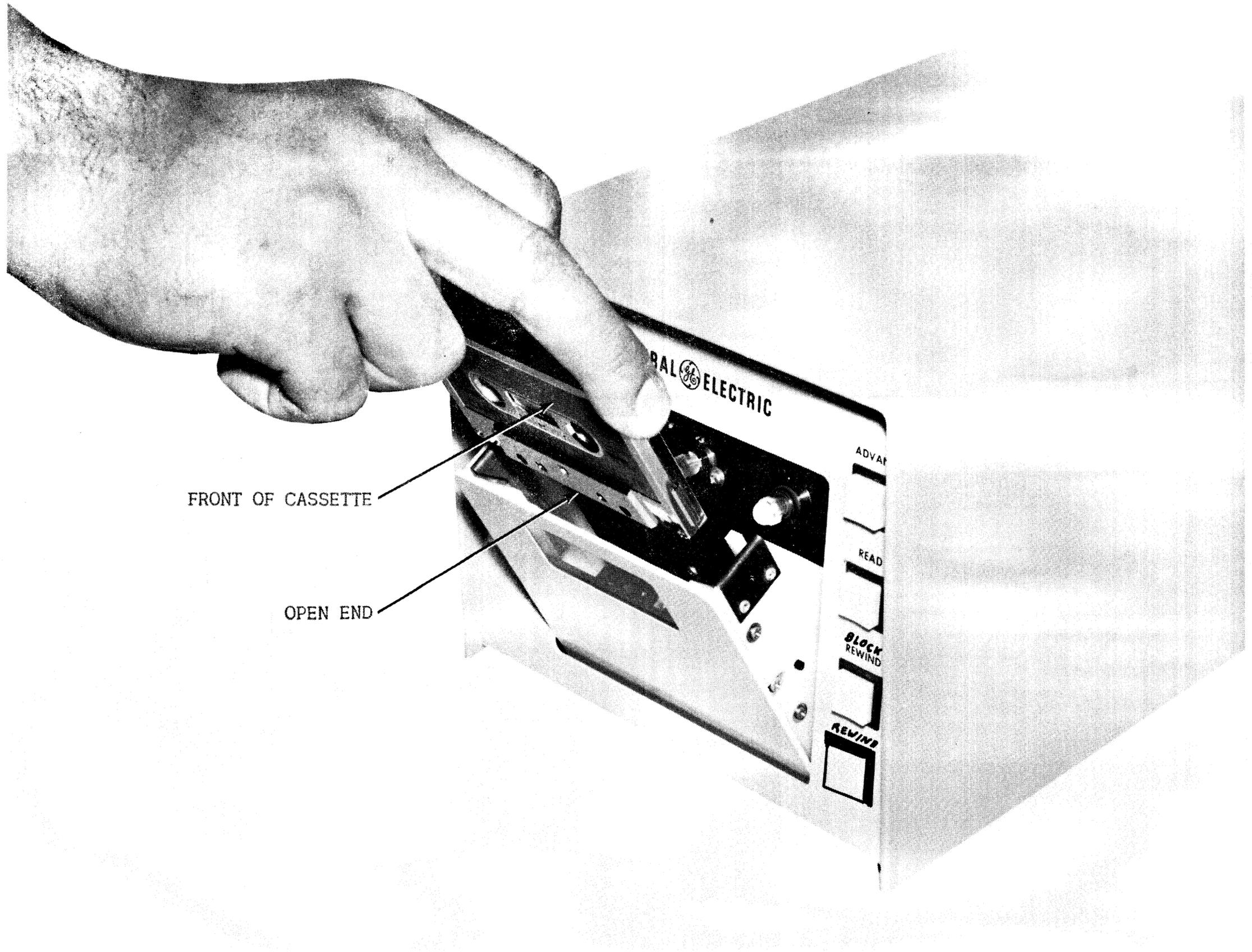


Figure 5 Loading Cassette

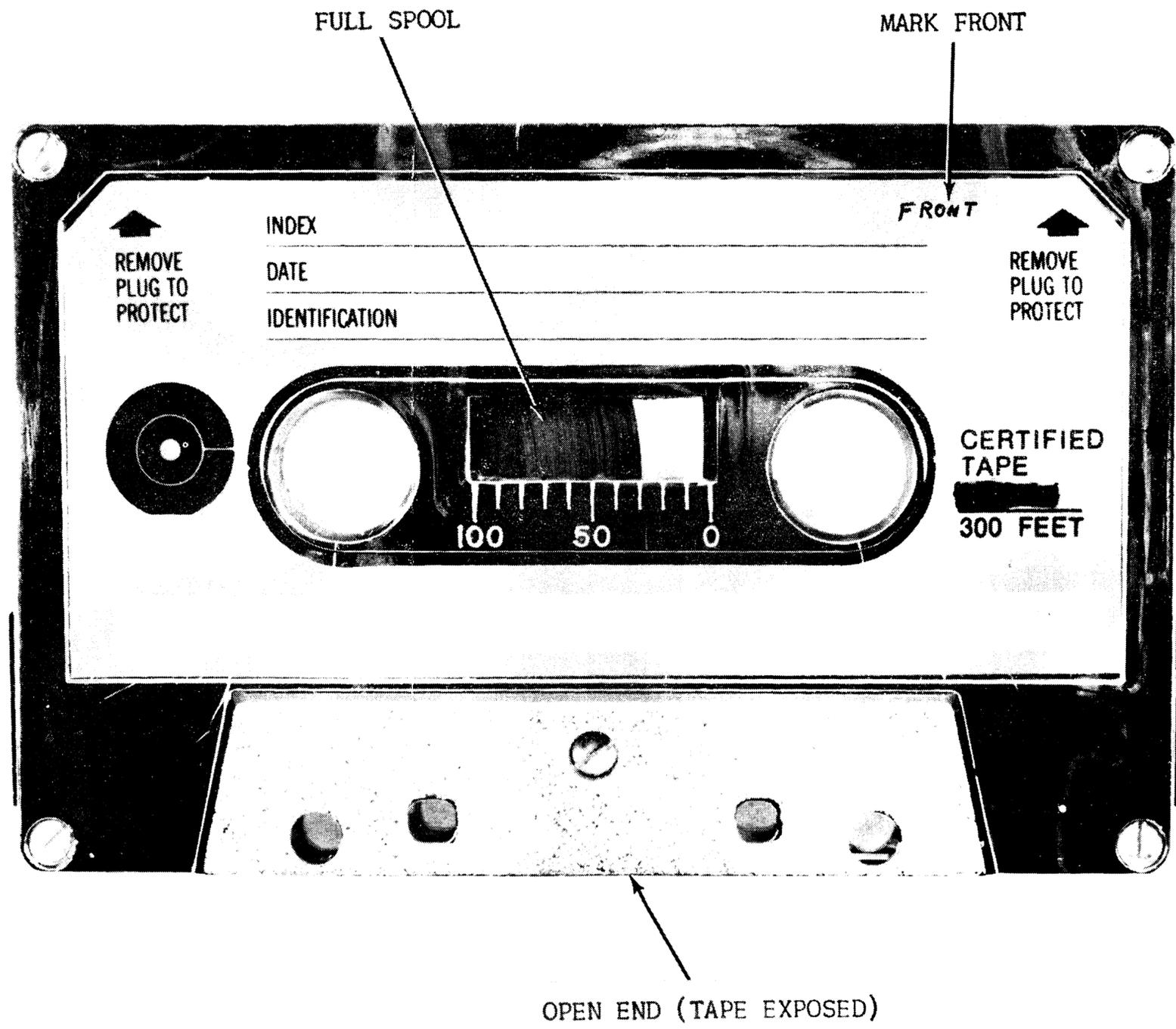


Figure 6 Cassette Orientation

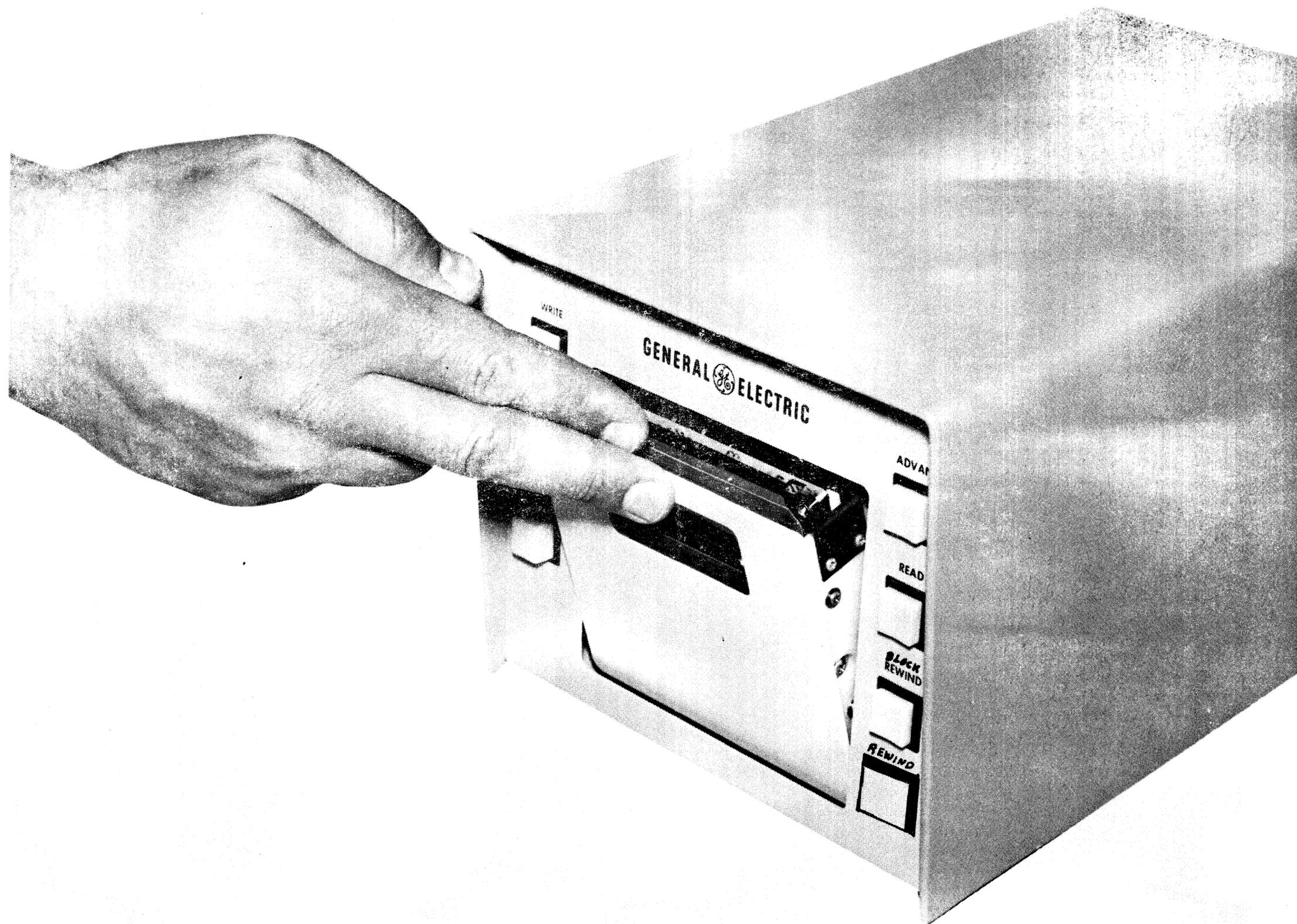


Figure 7 Closing the Cassette Door

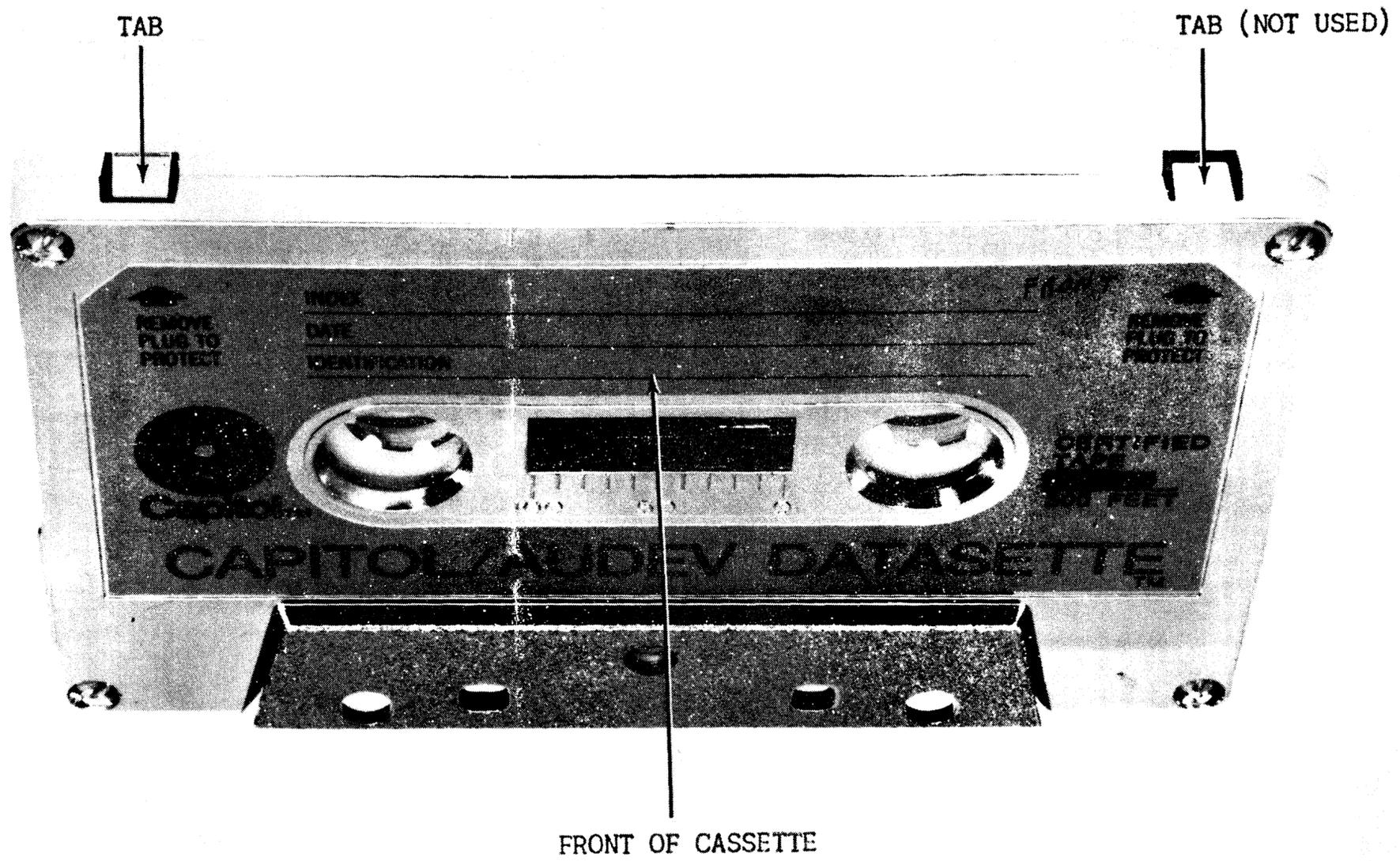


Figure 8 Knockout Tab

Cassette Storage and Handling. When you are finished using a cassette do the following:

1. Rewind the tape in the cassette.
2. Store cassette in its container.
3. Store cassette and container in a clean location at room temperature and away from tools or large metal objects that may be magnetized.

SELECTING SPEED OF OPERATION

The RATE switch on the TermiNet 300 Printer determines the speed that the TCA will "Write" or "Read". 10, 15, and 30 characters per second are the normal selections. A 120 characters per second rate is available as an option. Because the speed you "Read" data is not dependent on the speed you "Write" data, you can read the data at any speed you desire. When "Reading" data, you should "Read" at the fastest rate permitted by the situation. You can "Read" and print at 30 characters per second or read at 120 characters per second (if you have that option) to transfer information to another tape, a printer, a computer, etc.

NOTE

You can not "Write" from the keyboard at 120 characters per second. Also, do not change speed while the TCA is in the "Read" or "Write" mode of operation.

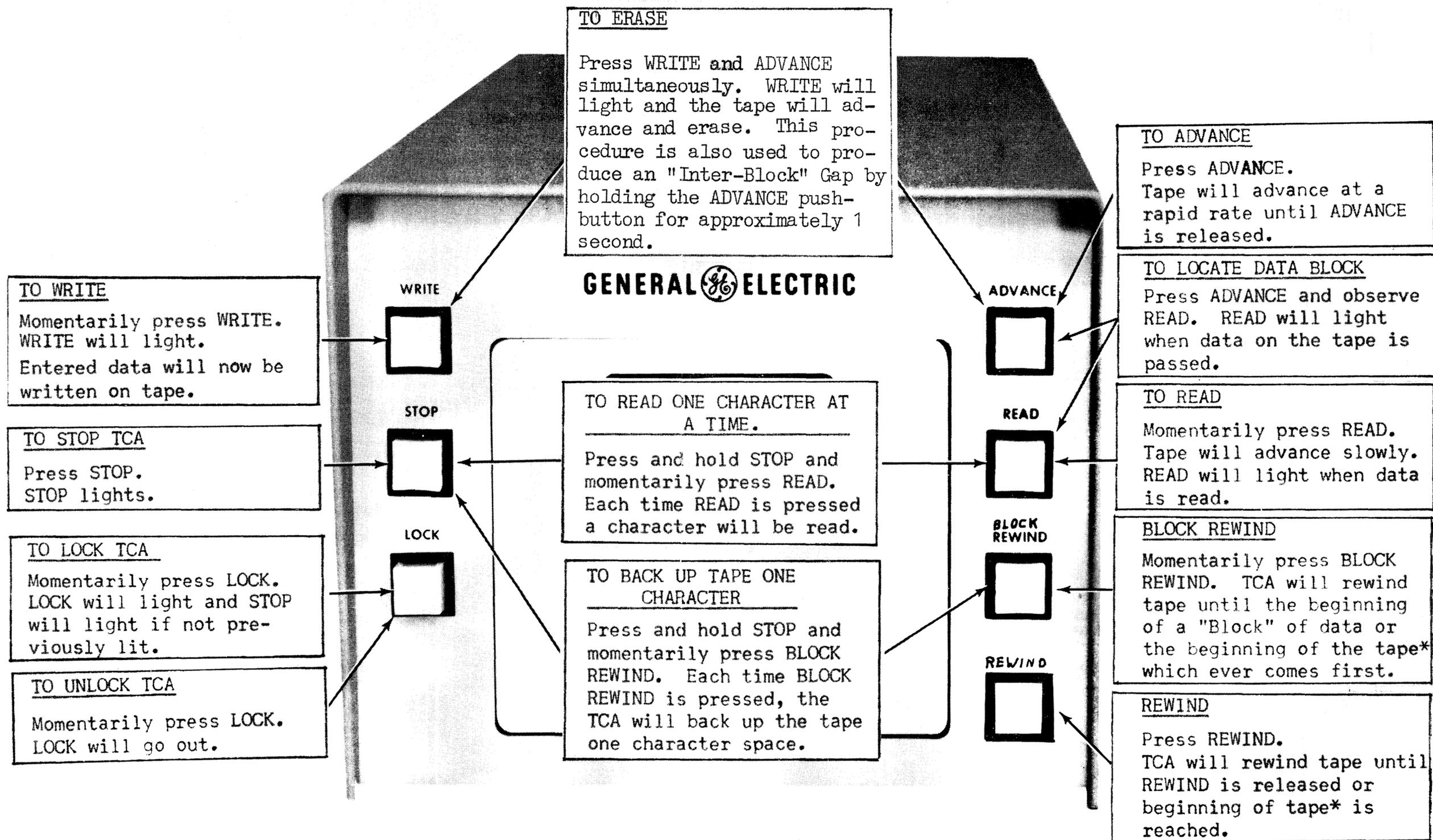
POWER CONTROL

Power is applied to the TCA when the TermiNet 300 Printer power switch is turned on. If a cassette is **already** installed, the TCA will be energized and the STOP pushbutton will light. If the TCA was left in the "Locked" state, the LOCK pushbutton will light. If the cassette is not installed or the cassette door is open, the TCA will not be energized and the pushbuttons will not light.

STOPPING THE TAPE

(See Figure 9)

To stop the TCA in any mode of operation (except "Advance" or "Rewind") press the STOP pushbutton. The TCA unit will stop and the STOP pushbutton will light.



*When beginning of tape is reached, BLOCK REWIND will light.

Figure 9 TCA Pushbutton Operations

BLOCK REWIND
(See Figure 9)

When the BLOCK REWIND pushbutton is pressed, the tape will back up rapidly (if not in the "Write" mode of operation) and stop at the beginning of a "Block" or on the leader at the beginning of the tape (BOT) depending on which comes first. Each time the tape stops, the STOP pushbutton will light. When the beginning of the tape is reached, the BLOCK REWIND pushbutton will light. To stop at a point other than the beginning of the tape or the beginning of a "Block", press the STOP pushbutton. The TCA will stop and the STOP pushbutton will light.

REWINDING THE TAPE
(See Figure 9)

To rewind the tape, press and hold the REWIND pushbutton. The tape will rewind until the pushbutton is released or the "Rewind" is complete. When "Rewind" is complete, the STOP and BLOCK REWIND pushbuttons will light.

ADVANCING THE TAPE
(See Figure 9)

To advance the tape, press the ADVANCE pushbutton. The tape will rapidly move forward. When pressed, the ADVANCE pushbutton over-rides all other modes of operation. The tape advances only while the ADVANCE pushbutton is pressed. When the ADVANCE pushbutton is released, the TCA stops and the STOP pushbutton lights.

WRITING (RECORDING) ON THE TAPE
(See Figure 9)

To "Write" on the tape, press the WRITE pushbutton. The WRITE pushbutton should light.

NOTE

The "Write" mode of operation can only be attained when the TCA is in the "Stopped" condition.

In the "Write" mode, any data you type from the keyboard or receive from another source is "Written" on the tape. When you finish "Writing" a "Block" of data you should "Write" a Reader Off Code (Control S). When "Reading" the data, the Reader Off Code stops the TCA at the end of the "Block" and prevents a possible error condition. To stop the "Write" mode of operation, press the STOP pushbutton. The TCA cannot be taken out of the "Write" mode of operation except by pressing the STOP or ADVANCE pushbutton or by receiving a Recorder Off (DC4) code from a remote source.

READING THE TAPE
(See Figure 9)

To "Read" the tape, press the READ pushbutton. The STOP pushbutton (light) should go out, and the tape should start moving.

NOTE

The "Read" mode of operation can only be attained when the TCA is in the stopped condition.

While data is being "Read" the READ pushbutton will light. It should also be noted at this time that while you are advancing or rewinding the tape, the READ pushbutton will light as a "Block" of data is passed. This feature enables you to locate a "Block" by counting the number of times the READ pushbutton lights while advancing the tape. You can get out of the "Read" mode of operation by pressing the STOP, ADVANCE or REWIND pushbutton.

CAUTION

If you leave the TCA unattended while in the "Read" mode of operation, be certain that a "Reader Off" code is recorded at the end of data. If there is no "Reader Off" code recorded, the TCA will run in a stalled condition when the tape runs out. This can damage the rubber rimmed drive wheel.

READING ONE CHARACTER AT A TIME
(See Figure 9)

To "Read" one character at a time, press and hold the STOP pushbutton and momentarily press the READ pushbutton. This action will increment the tape by one character and cause that character to be read.

BACKING UP ONE CHARACTER AT A TIME
(See Figure 9)

To back up, press and hold the STOP pushbutton and momentarily press the BLOCK REWIND pushbutton. This action will cause the tape to back up one character each time the BLOCK REWIND pushbutton is pressed.

SUBSTITUTING A CHARACTER
(See Figure 9)

To substitute a character just written while in the "Write" mode, press and hold the CTL (Control) key and press the "Z" key on the keyboard. This action will cause the TCA to back the tape up to the beginning of the character to be substituted. You can now write the desired character.

ERASING TAPE
(See Figure 9)

To erase the tape, press and hold the WRITE pushbutton and press the ADVANCE pushbutton. The tape is erased as it is advanced. To erase a complete cassette rapidly, use a commercially available bulk cassette erase unit.

NOTE

Before using a bulk eraser, check the knockout tab. If the tab is missing, this would indicate that there is permanent data stored on the cassette.

LOCKED MODE OF OPERATION
(See Figure 9)

When the LOCK pushbutton is pressed, the pushbutton will light and the STOP pushbutton will light if it was not lit previously. When the TCA is in the "Locked" mode of operation, it cannot be put in the "Read" or "Write" mode of operation; and the TCA cannot be controlled by externally generated control codes if you are in an "On Line" condition. The ADVANCE and REWIND pushbuttons are still active and can be pressed to move the tape.

USING THE TCA

WRITING A "BLOCK" OF DATA

1. Load cassette into TCA.
2. Completely rewind cassette if it is not in the rewound condition.
3. If you are "Writing" on an erased cassette or a cassette that is being erased while "Writing", proceed with step 5. If you are "Writing" on a cassette that contains data, you must advance the tape past the last "Block". For example; if there are 5 "Blocks" on the cassette, advance the tape until the READ pushbutton lights and goes out 5 times. Then erase the tape approximately 1 second to establish an "Inter-Block Gap".
4. Press the WRITE pushbutton. The WRITE pushbutton lights and you are ready to "Write" data. Proceed to step 6.
5. Press the WRITE pushbutton. The WRITE pushbutton lights and the tape moves off of the leader. You are ready to "Write" data.
6. "Write" in data.
7. After you complete "Writing" the data, "Write" a Reader Off Code by simultaneously pressing the "CTL" and "S" keys.
8. Erase the tape for 1 second to establish an "Inter-Block Gap" at the end of the "Block" you just made.
9. Record the number and title of the "Block" that you just made. If you made the new "Block" after "Block 5" as in the example given in step 3, the new "Block" number would be 6. If you made the first "Block" on a cassette, the "Block" number would be 1.

LOCATING AND READING A "BLOCK" OF DATA

1. Load cassette into TCA.
2. Completely rewind the cassette if it is not already in the rewound condition.
3. Determine which "Block" number you need.
4. Advance the tape and count the times the READ pushbutton lights and goes out. When the count is the same as the number of the "Block" you want, stop the tape just as the READ pushbutton (Lamp) goes out.
5. Press the BLOCK REWIND pushbutton. The tape should rewind and stop at the beginning of the "Block" you selected.
6. Select the speed you wish to "Read" by setting the RATE switch on the control panel of the TermiNet 300 Printer.
7. Press the READ pushbutton. The TCA will read the selected "Block" which can be printed and/or transmitted to another location.

MAKING CORRECTIONS

If you make an error while writing a "Block" from the keyboard, or find an error while reading a "Block", you can substitute the incorrect character with the correct character as follows:

1. -Back up one character at a time, by pressing the STOP and BLOCK REWIND pushbuttons, until you back over the incorrect character.

-If it is more convenient, print one character at a time, by pressing the STOP and READ pushbuttons, until you print the incorrect character. If you do this, proceed with Step 3.
2. Print the selected character by pressing the STOP and READ pushbuttons, to verify you are on the character to be substituted.
3. Press the WRITE pushbutton. The WRITE pushbutton should light.
4. Back up tape by pressing the CTL and Z (SUB) keys on the TermiNet 300 Printer. The TCA will back up the tape one (1) space to the beginning of the character to be substituted.
5. Enter the correct character from the keyboard.
6. Press STOP pushbutton to take the TCA out of "Write" mode.

INDEXING BLOCKS OF DATA

An index **should** be established for each cassette to tell the user how many blocks of information are on the cassette and what is contained in each block. The following are suggested methods to index a cassette.

Master List

1. Use a looseleaf binder, ledger, etc., for a master list.
2. Assign each cassette a control number.
3. Record cassette number and contents of cassette by "Block" number on the master list.

Index Card

1. Use a 3 x 5 card or a card that can fit in the cassette container.
2. Record contents of cassette by block number.
3. Keep card with cassette at all times.

Index On Tape - If the index is long or detailed, it may be advantageous to put the index on tape.

1. Reserve the first "Block" on the cassette for the index. The amount of tape to be reserved for the index "Block" should be estimated according to the anticipated size of the index. The following factors could be used as a rough guide to estimate the tape required:
 - A) A large index could take a full page ($8\frac{1}{2}$ x 11") which would be approximately 2500 characters.
 - B) Advancing the tape 5 seconds would give you space to "Write" 2500 characters.
2. Enter the index in the first "Block" as the other "Blocks" of information accumulate.
3. When you need information from that cassette, print out the index block to determine what is on that cassette and the block number that contains the desired information.

CONTROL CODES

TCA Response To Control Codes. The TCA can be controlled remotely by Received control codes. When the codes are received, they cause the TCA to respond as follows:

DC1- Reader On (CTL and Q keys) - TCA goes into "Read" mode of operation if it is in the "Stopped" condition.

DC3- Reader Off (CTL and S keys) - TCA stops if it is in the "Read" mode of operation.

DC2- Recorder On (CTL and R keys) - TCA goes into "Write" mode of operation if it is in the "Stopped" condition.
The Initial Recorder On code is not written.
Subsequent Recorder On codes are written.

DC4- Recorder Off (CTL and T keys) - TCA stops if it is in the "Write" mode of operation. The Recorder Off code is not written.

Rewind (ESC and 0 (zero) keys) - TCA rewinds to the beginning of a "Block" or to the beginning of the tape, whichever comes first (if TCA was stopped when code was received).

Reader Off Code On Tape. If the Reader Off (CTL and S keys) code has been "Written" on the tape and the TCA is in the "Read" mode of operation, the TCA will stop when it "Reads" the Reader Off code. This code is not transmitted.

Writing Control Codes. Control codes can be "Written" on the tape if the TCA is in the "Write" mode of operation. Except for the Recorder Off code all the control codes can be "Written" on the tape locally or when received. The Recorder Off code can only be written locally.

GENERAL OPERATING CHARACTERISTICS

End Of Tape. When the end of the tape is reached while in the "Write" mode of operation, the alarm will sound in the TermiNet 300 Printer and a break will be generated.

"Write" At 1200 Baud Rate. When "Writing" a "Block" at a 1200 baud rate, you must have a fill character (delete) at the beginning of the data being "Written". This is to allow the TCA to come up to speed before data is "Written". The Fill character will not be recorded.

Slow Rewind Condition. If there is no data on the tape and you attempt to back up the tape by pressing the STOP and BLOCK REWIND pushbuttons or by generating the SUB control character (CTL and Z keys), the TCA will go into a "slow rewind" condition. To stop the "slow rewind" condition, press the LOCKED or ADVANCE pushbuttons. Also the "slow rewind" condition will stop when data on the tape is sensed.

FUNCTIONAL RESPONSE CHART
(See Figure 10)

The Functional Response Chart is a quick reference for operating the TCA. The extreme left hand column describes the TCA's mode of operation. The extreme top row describes an action. By intersecting the appropriate column with the appropriate row, the resulting block will describe the TCA's response to the action taken.

	PRESS WRITE	PRESS READ	PRESS STOP	PRESS ADVANCE	PRESS BLOCK REWIND	PRESS REWIND	READ DC1	RECEIVE DC1 (READER ON)	RECEIVE DC2 (RECORDER ON)	RECEIVE DC3 (READER OFF)	RECEIVE DC4 (RECORD OFF)	RECEIVE ESC 0 (RETURN)
STOPPED ON BOT LEADER	Rapid advance off leader and leader lamp goes out. Write lamp goes on.	Stop and leader lamps go out and tape advances rapidly until data lamp comes on. Normal data transfer then takes place.	No change.	Tape moves for- ward rapidly while button is pressed. Data lamp indicates data.	No change.	Tape rewinds to beginning of leader and sits stalled.	-----	Stop and leader lamps go out and tape advances rapidly until data lamp comes on. Normal data transfer then takes place.	Rapid advance of leader and leader lamp goes out. Write lamp goes on.	No change.	No change.	No change.
STOPPED ON EOT LEADER	Tape advances to end of leader and sits stalled until advance MV times out.	Tape advances rapidly and sits stalled at end of leader.	No change.	Tape moves for- ward rapidly while button is pressed. When end of leader comes, the deck stalls.	No change.	Tape rewinds while button is pressed.	-----	Tape advances rapidly and sits stalled at end of leader.	Tape advances to end of leader and sits stalled until advance MV times out.	No change.	No change.	No change.
STOPPED OFF LEADER	Stop lamp goes out and Write lamp comes on.	Stop lamp goes out and tape advances rapidly until data lamp comes on. Normal data transfer then takes place.	No change.	Tape moves for- ward rapidly while button is pressed. Data lamp indicates data.	Tape rewinds to beginning of text or BOT leader, which- ever comes first.	Tape rewinds while button is pressed.	-----	Stop lamp goes out and tape advances rapidly until data lamp comes on. Normal data transfer then takes place.	Stop lamp goes out and Write lamp comes on.	No change.	No change.	Tape rewinds to beginning of text or to BOT leader, whichever comes first.
READING	No change.	No change.	Tape stops on character. If tape is blank, tape moves to EOT leader and stops.	Reading ceases and tape moves rapidly while button is pressed.	Reading ceases and tape rewinds to beginning of text or BOT leader, which- ever comes first.	No change.	Tape stops on character.	No change.	No change.	Tape stops on character. If tape is blank, tape moves to EOT leader and stops.	No change.	Reading ceases and tape rewinds to beginning of text or to BOT leader, which- ever comes first.
WRITING	No change.	No change.	Write light goes out and stop light comes on.	Write light goes out and tape moves rapidly while button is pressed.	No change.	No change.	-----	No change. DC1 is recorded.	No change. DC2 is recorded.	DC3 is recorded. No change.	Write light goes out and stop light comes on.	No change. ESC 0 is recorded.
REWINDING	No change.	No change.	Tape stops and stop light comes on.	Rewind ceases and tape advances while button is pressed.	No change.	-----	-----	No change.	No change.	No change.	No change.	No change.
STOP BUTTON PRESSED WHEN STOPPED OFF LEADER	No change.	One character is read and unit returns to stop mode.	-----	Tape moves for- ward rapidly while button is pressed. Data lamp indicates data.	Tape backs up one character and stops. If tape is blank, it backs to BOT leader and stops.	Tape rewinds while button is pressed.	-----	One character is read and unit returns to stop mode.	No change.	No change.	No change.	No change.
WRITE BUTTON IS PRESSED	-----	No change.	Write lamp goes out and stop lamp comes on.	Tape moves for- ward rapidly and is erased.	No change.	No change.	-----	No change. DC1 is recorded.	No change. DC2 is recorded.	No change. DC3 is recorded.	No change. DC4 is recorded.	No change.

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Figure 10 TCA Functional Response Chart.