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COMPUTER SYSTEMS

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The changes incorporated in this document reflect the additional parameterization capabilities of the UTS 20 as well as implementation of the screen bypass feature. Miscellaneous technical additions or corrections have also been included.

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SPERRY UNIVAC

Universal Terminal System 20 (UTS 20) Single Station

Operator's Guide

SPERRY UNIVAC
Universal Terminal
System 20 (UTS 20)
Single Station

Operator's Guide

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Preface

This operator's guide is designed for your initial training on the UTS 20 and for later use as a reference manual when you need a reminder or when you are going to use a procedure you haven't tried before.

The basic concepts and terminology introduced in Section 1 will primarily aid operators with only limited experience with computer systems and terminals. Much information in this section can be applied to computer processing as a whole; however, many of the concepts presented will help the operator to better understand how the UTS 20 itself operates.

Section 2 contains general descriptions of the keyboard, controls, and indicators of the UTS 20. The control page, a critical component of UTS 20 functions, is covered in Section 3.

Specific instructions for operating the terminal are presented in Section 4. Sections 5 and 6 deal with operating instructions for the printers and the magnetic stripe reader, respectively. Since many instructions are interrelated, the instructions are cross-referenced when applicable. Keep in mind, however, that all possible combinations of operations cannot be covered in this manual. As you become more familiar with the UTS 20, you will probably discover your own unique operating procedures and even some shortcuts in their performance.

Within the text of the manual, some special data-processing-related terms are italicized in their first usage. These and other commonly used terms are defined when they are used or in the glossary at the back of the book.

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PREFACE

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1. Introduction to the UTS 20

The SPERRY UNIVAC Universal Terminal System 20 Single Station, or more simply, the UTS 20, is a general-purpose display terminal that functions as a single, freestanding station attached to a host processor (Figure 1-1).

Through a typewriter-like keyboard attached to the UTS 20, you may enter, edit, update, and store data, and then request printed copies of it — all accomplished almost as soon as you can press a key.

Learning to operate the UTS 20 takes just a little time and practice. Once you know the location and functions of the various keys, using them will become nearly a reflex action. And, once you have mastered the UTS 20, your work will become easier and more accurate.

If you have used terminal equipment before, you probably know how data processing systems work. But, if terminals are new to you, you will understand the UTS 20 better if you first understand the structure within which it has to work.

HOW DATA PROCESSING SYSTEMS WORK

The applications for data processing systems, or computers, can be as diverse as are the businesses and organizations that use them. Although these systems are capable of running increasingly complex operations at incredible speeds, the machines themselves are getting smaller and simpler to operate.

Basically, all data processing systems have three elements: an *input* location where an operator enters data; a *processor,* which handles and stores the data as requested; and an *output* location where the processed data is received.

The UTS 20 functions as both the input and the output location, allowing you, the operator, to enter data and operating commands and to obtain the output or the processed results of the data entered.

The processor is the heart of the data processing system. The data you enter is stored in the processor memory for immediate or future operations to be performed on it. The processor can also use the information you send and can combine or compare it with other stored information to produce a desired result.

Some data processing networks involve more than one processor handling data from numerous input sources. To avoid confusion, the main processor in this type of network is called the *host,* or *host processor.*
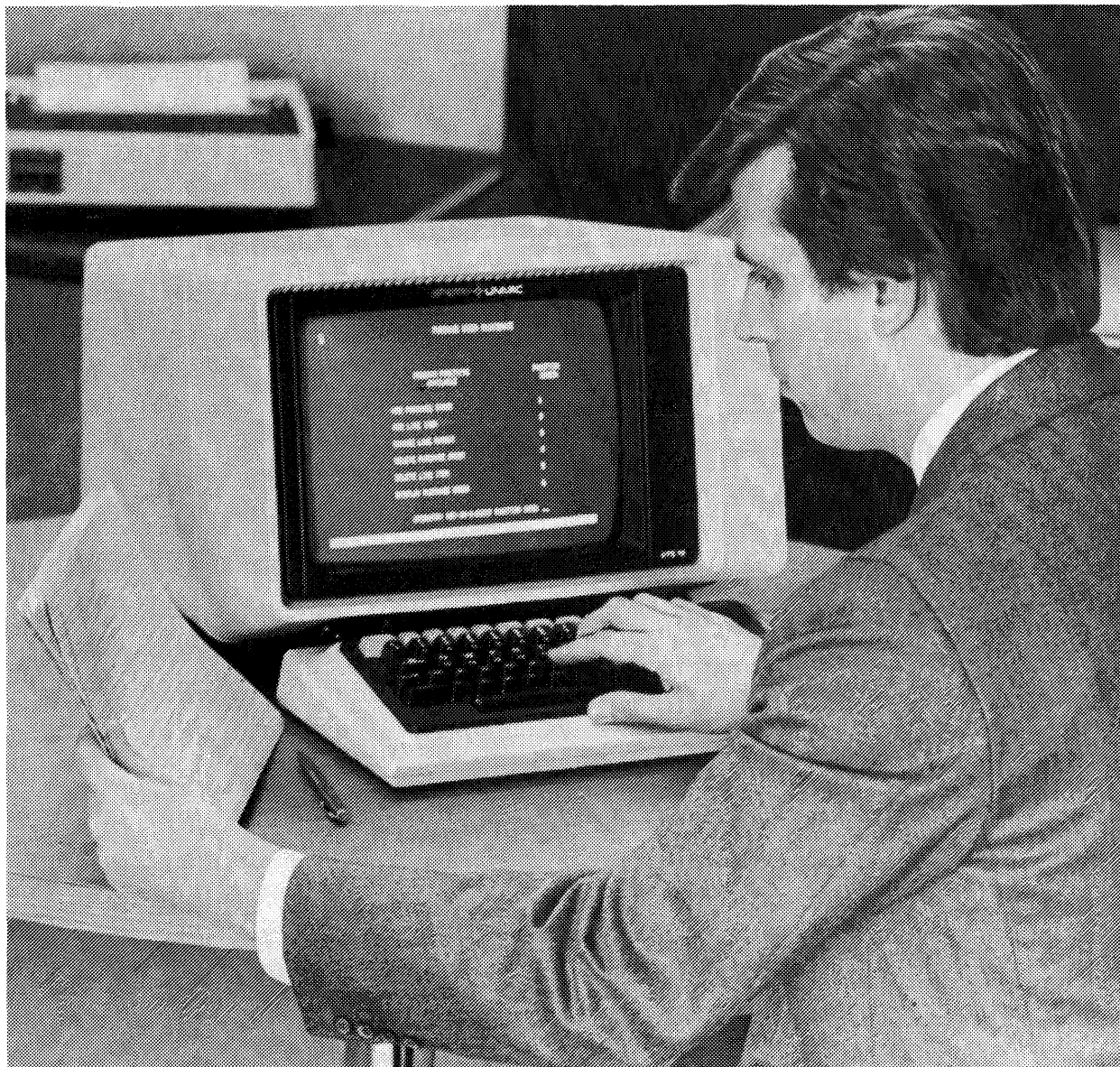
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Figure 1-1. Operator Using the UTS 20

Essential to making the processor perform its expected tasks is *programming.* Programs are sets of detailed instructions that define every processor action. These programmed instructions are referred to as *software.*

Although a data processing system can perform complicated operations, it can only respond to instructions someone originally put into the processor through an input device. A computer can do only what its instructions dictate. It cannot modify those instructions in any way nor can it improve on them if the instructions are inadequate.

As an operator, your link into the UTS 20 system is critical. You control the UTS 20, which is both the input and the output location of the data being entered into the system. You are the one who must ensure that the information and instructions you enter are appropriate as well as the data sent back to the terminal or peripheral device by the host processor.

UTS 20 TERMINAL

The UTS 20 looks much like a television set with a typewriter keyboard. The keyboard is the primary means of accessing the system. Through the keyboard, data can be entered and codes can be sent that the host interprets into meaningful commands.

Cursor

As you press the keyboard keys, data is simultaneously displayed on the screen, or cathode ray tube (CRT). A rectangular figure, called a *cursor,* moves along the screen as you press the keys. The cursor, like a pointer, shows you where the next character entered will be displayed. After an alphabetic or numeric character is entered, the cursor moves automatically to the next sequential location on the screen.

By positioning the cursor in the appropriate location on the page, you can add a character, a word, or several lines of data without destroying material you wish to keep and without retyping large amounts of information. Much of this manual is devoted to explaining how to properly position the cursor to manipulate data on the screen.

Screen

The screen contains 1,920 possible character locations — a maximum of 80 columns across 24 rows. The characters are "painted" on the screen by a series of electronic impulses within a dot matrix that causes the screen to light in the selected pattern. You can adjust the display brightness and select the number of columns and rows to use. You can also generate *reverse video,* in which the cursor appears dark against a green background (Figure 1-2).

Communications

The UTS 20 can communicate with the host processor in the next room or with a host thousands of miles away through telephone lines or similar connections.

Lines permanently connected between the terminal and host are called *dedicated* lines. When you are working with a UTS 20 on a dedicated line, you need not be concerned with establishing and breaking connections with a host processor. If you are using a *switched* line, however, you must dial a number to establish contact with the the UTS 20. If you want to generate a screen of data

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Figure 1-2. Screen Showing Reverse Video Display

and print it without storing the data in memory, you may operate the UTS 20 in an *offline* mode. Once communications are established with the host processor, you are working in an *online* mode. You must be online whenever you want to store data or retrieve data from the memory of the host processor.

The UTS 20 may be on its own line to the host processor, or it may share its line with other terminals through a *multiplexer.* The multiplexer is simply a device that helps to maintain the order in which a given terminal will communicate with the host processor.

The host processor may be handling transmissions from hundreds of sources during the same time period. Just as a panel chairman moderates and directs a formal discussion, so must the host processor maintain order among all the devices sending or requesting information.

The rules that govern a data processing system are called *communications protocol.* One of the basic rules is that the host will not acknowledge data transmitted from a terminal unless the host has first requested the transmission. This request for data, which the host processor sends out intermittently to all the online terminal locations, is called a *poll.*

The UTS 20 lets you know when it is being polled by the host. When the host is polling, you can transmit data or request the host to send back stored data. A maximum of one full screen of data can be transmitted at a time. A full screen is much like a full page of typing. When a full screen is transmitted, the host files it in memory, in proper relationship to the other "pages" already transmitted.

Fields, Records, and Files

Field, record, and *file* describe organization of data as it is entered into the UTS 20.

One of the most important structures you will be working with is the field. The screen may consist of one or more fields, as shown in the examples in Figure 1-3.
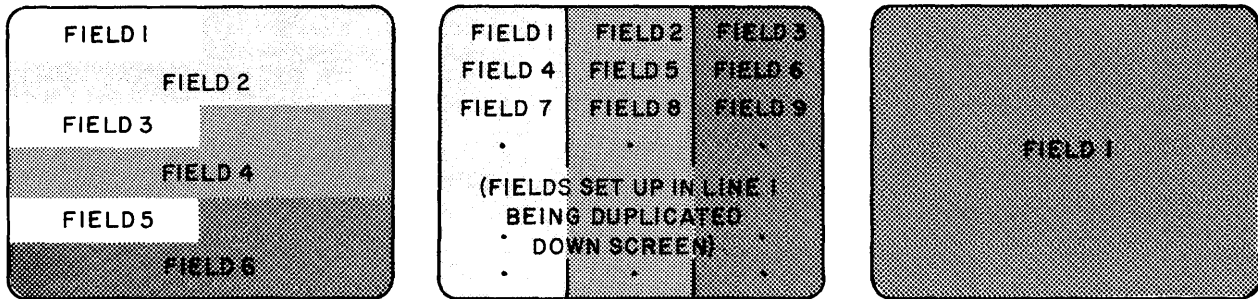
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Figure 1-3. Sample of How Fields Are Used in Formatting the Screen

Any portion of the screen, from one character to the entire screen, may be defined as a field. A field is usually considered the location of one particular category of information. For instance, the space or location for a name may be a field, the location for a serial number may be another field, and several lines of descriptive information may be another field.

The start and end of a field are assigned by the way the screen is formatted with *field control characters.* Field control characters, or FCCs, are 5-character codes entered to distinguish one field from another and to define it with certain characteristics. Inasmuch as FCCs are an important capability of the UTS 20, detailed information on how to use them is given in Section 4.

The next level of organization is the *record* or *block.* Records may consist of one or more fields that relate to the same general topic, but contain different segments of information.

A *file* is a collection of records and fields that all relate to one topic. An example of this structure could be a payroll file for a specific department, with each employee being a separate record and whose name, pay grade, salary, deductions, etc., represent different fields within the record.

FEATURES OF THE UTS 20

Three distinct features available on the UTS 20 expand your control over machine functions. Two of these features, the FCCs and the *control page,* are accessed through the keyboard. The third feature, the *program cartridge,* is a small pack fastened in the back of the UTS 20. Its internal *firmware,* or the software that is stored within its components, becomes an integral part of the UTS 20 operation until that cartridge is removed and replaced with another.

Field Control Characters (FCCs)

Field control characters, or FCCs, allow you to establish the start and end of each field and to define each field with desired characteristics. The field characteristics you can select by generating FCCs are:

■   Display Intensity

     A field in which characters appear in normal intensity, low intensity, blinking, or reverse video.

■ Tab Stop

A field in which the TAB FORWARD or TAB BACK key can be used to locate a tab stop at the beginning of the field.

■ Type of Accepted Entry

A field in which only numeric characters are allowed, in which only alphabetic characters are allowed, in which no additional entries are allowed *(protected)*, or in which any type of entry is accepted (unrestricted).

■ Right Justification

A field in which all entries occur from the right end of that field.

Control Page

The control page is actually a 2-line protected display that you may call up on the screen by pressing a key. The control page display contains several fields into which specific codes can be entered to define an operation or a function parameter (Figure 1-4).

Some parameters or instructions control the types of data to be transmitted or sent to peripheral devices. Several additional parameters can be entered that can alter the display appearance and the function of the UTS 20.

```
(**PRINT*)STA-        (**XFER**)PRNT(PRNT)XFER(VAR )XMIT(VAR )MM (PARAM)
( /  / )ADR-          ( /  / )SEARCH(                        )  ( / )
                                                              9135-4
```

Figure 1-4. Control Page Display

Once codes have been entered into the UTS 20 control page, they remain in effect until the control page is recalled to the screen and new codes are entered. They remain in effect even after power to the terminal has been turned off, between uses. If the portion of the UTS memory holding these codes fails, however, you will be notified by a screen message as soon as you turn on the power.

Power-On Confidence (POC) Test

Each time you turn on the UTS 20 POWER switch, a test display appears on the screen, showing the results of the power-on confidence test, or the POC test. The POC test is a series of internal diagnostic procedures automatically performed by the UTS 20 to ensure that critical portions of its functions are operational (Figure 1-5). For additional information on the POC test, see Appendix A.
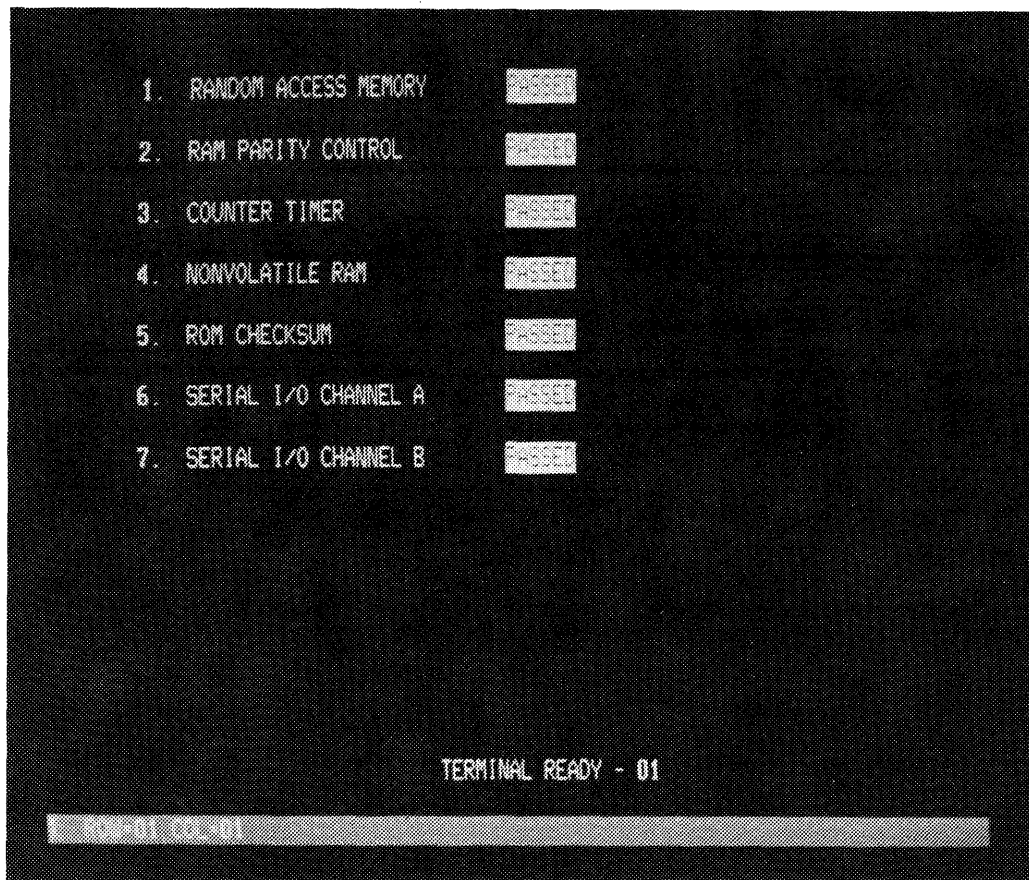
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Figure 1–5.   Sample of a POC Display

PERIPHERAL ATTACHMENTS

Two *peripheral devices* can be attached to the UTS 20, a printer and a magnetic stripe reader.

Printers

A printer enables you to obtain a printed or *hard copy* version of the information you have keyed into the UTS 20. The information can come directly from the terminal in an offline mode, or online through the terminal from the host. Thus, you may enter data that you do not intend to store permanently and then transfer it offline to the printer or you may recall files from the host and print copies of anything previously entered and stored.

Either the SPERRY UNIVAC 0797 Printer Subsystem or the SPERRY UNIVAC 0798 Printer Subsystem can be connected to the UTS 20 (Figure 1–6).
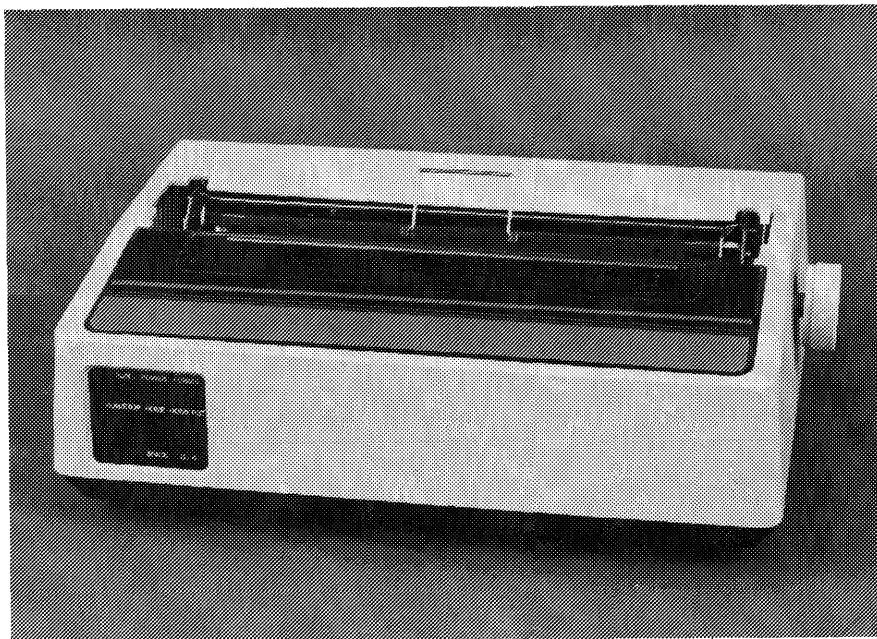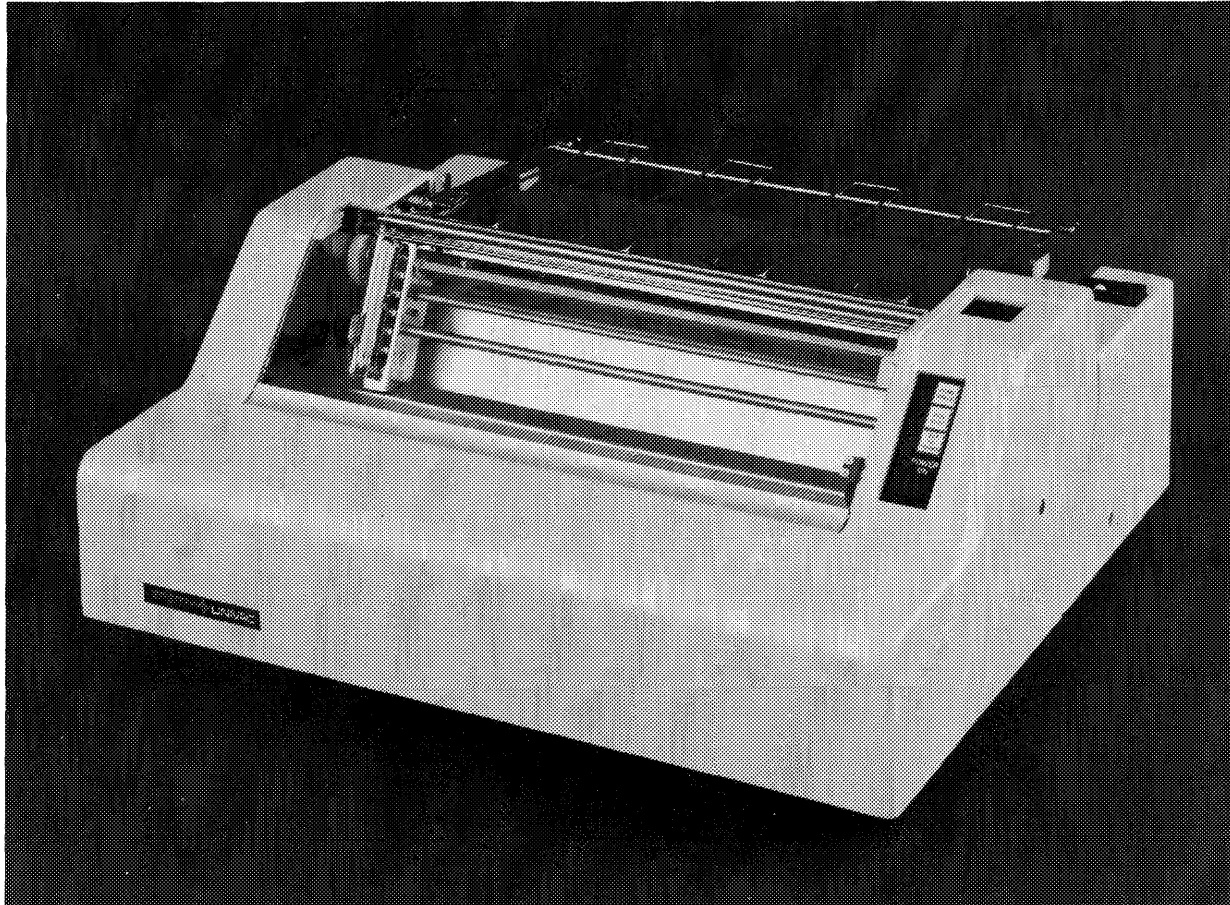
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Figure 1-6. 0798 (Top) and 0797 Printers

Magnetic Stripe Reader

You can rapidly enter blocks of data by running a specially encoded plastic card through a channel in the SPERRY UNIVAC Magnetic Stripe Reader. The magnetic stripe reader is a peripheral device in that it is a supplemental attachment to the UTS 20; however, because its data is recognized as originating within the terminal and does not require a device identifier for communication, it is generally not included in a discussion of other peripheral devices (Figure 1-7).
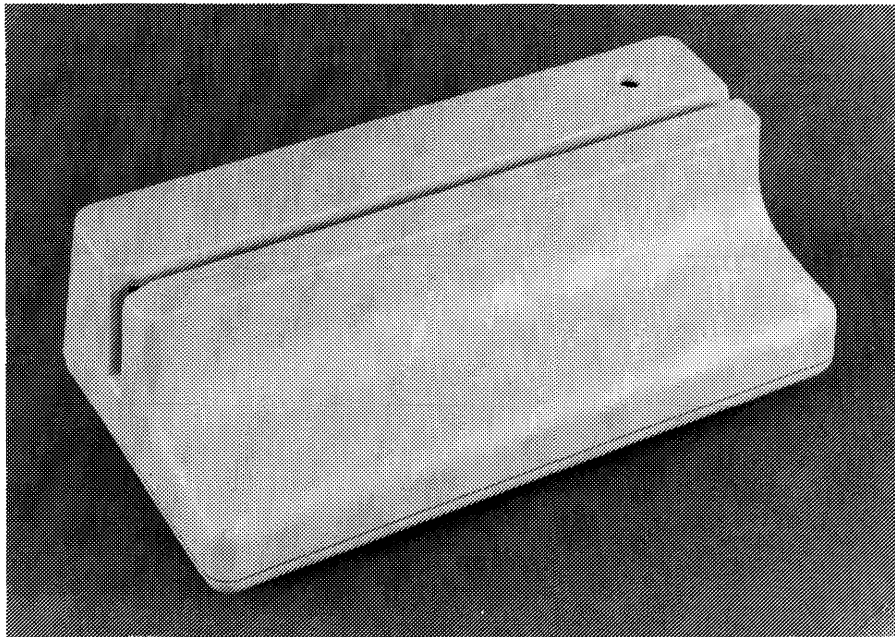
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Figure 1-7. The Magnetic Stripe Reader

Screen Bypass

Screen bypass, an optional feature of the UTS 20, provides use of two screens on the same terminal — one is displayed while the other is stored. This feature allows you to work on one screen while the host processor accesses the stored screen for operation of the printer.

Each screen has a separate indicator line and control page. Either screen can be displayed by a keyboard command.

2. The Keyboard, Controls, and Indicators

The keyboard and controls allow you to enter data and operating instructions into the UTS 20. The UTS 20 indicators inform you of status conditions, error alarms, operating modes, and messages. This section acquaints you with the purpose and function of the various UTS 20 controls and indicators. For specific operating instructions for these items, refer to Section 4.

2.1. THE KEYBOARD

Although fixed types of data can be entered through the magnetic stripe reader, data is usually entered into the terminal through the keyboard (Figure 2-1). Three different keyboard models are available with the UTS 20:

■ Typewriter — Smallest of the three keyboards, with 70 keys; looks much like a normal typewriter keyboard except for an additional row of keys.

■ Expanded Typewriter — An expanded version of the typewriter keyboard, having additional editing and function control capabilities and a separate adding-machine-style keypad.

■ 400-Mode Keyboard — A keyboard similar to the one provided with the SPERRY UNIVAC Universal Terminal System 400 (UTS 400).

Although the labels on some of the keycaps vary slightly among the models, the key functions shared by all models are identical.

2.1.1. Physical Differences Among the Models

Because the typewriter keyboard does not contain all of the control keys that the other keyboards have, the functions of the UTS 20 vary accordingly. The most important difference is that the typewriter keyboard cannot accommodate keyboard-entered FCCs. The following list shows the keys that are not on the typewriter keyboard but do appear on the other keyboards and are discussed in this section.

■ LINE DUP

■ DELETE LINE

■ INSERT LINE

■ ERASE TO EOF
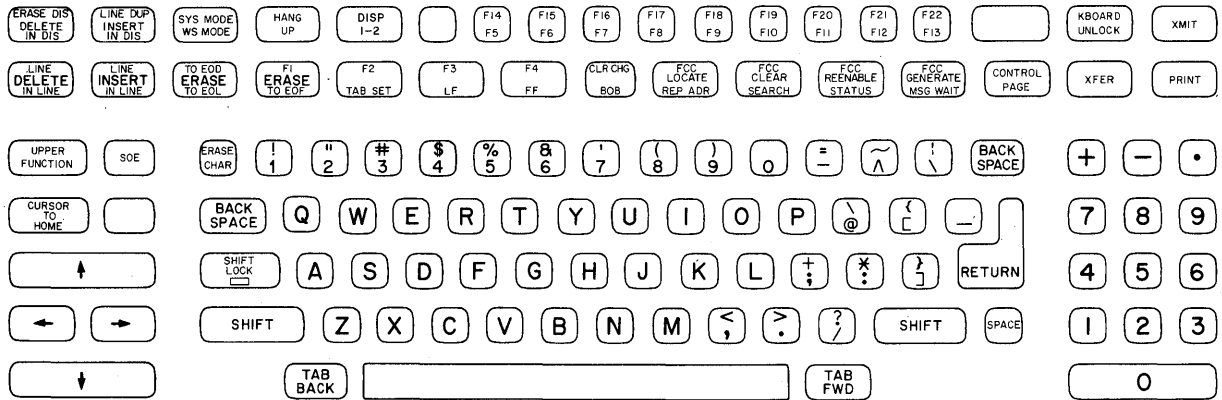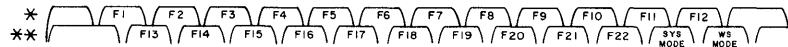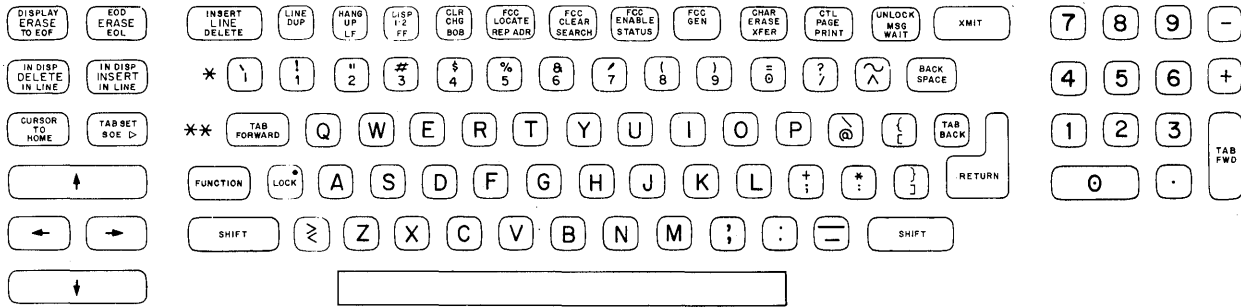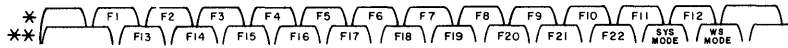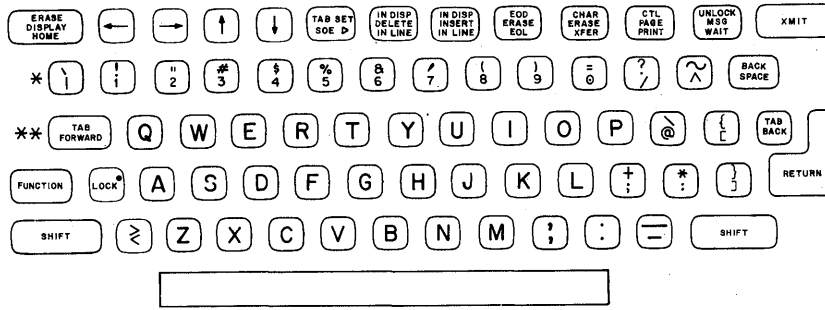
Figure 2-1. Typewriter (Top), Expanded Typewriter, and 400-Mode Keyboards

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- LF (line feed)

- FF (form feed)

- CLR CHG

- FCC GEN

- FCC LOCATE

- FCC ENABLE

- FCC CLEAR

The expanded typewriter and UTS 400-mode keyboards contain keys that have no function on the UTS 20 and are not discussed in this guide. Those keys are:

- REP ADR

- SEARCH

- BOB

- SYS MODE

- WS MODE

2.1.2. Keyboard Characteristics

The keyboard is composed of *data* keys and *control* keys. Data keys are the alphabetic and numeric keys found on a typewriter. Control keys control keyboard operation and can be divided into five groups: cursor control, editing, function control, program attention, and peripheral device keys.

2.1.2.1. Automatic Cycling

Cycling is the rapid, automatic repetition of a single keystroke accomplished by pressing a key down and holding it for 0.5 second or more. All keys on the keyboards have cycling capability, providing a fast and easy means to repeat a data keystroke or to perform editing operations on a full screen of data.

2.1.2.2. Using the FUNCTION Key

Many control keys have two control functions (Figures 2-2, 2-3, and 2-4). To activate the uppermost key function, you must press the FUNCTION key simultaneously with the desired control key. For example, in Figure 2-3, the first key has both DELETE IN DISP and DELETE IN LINE on it. If you press the control key alone, the DELETE IN LINE function will be actuated; if you press the FUNCTION key and the control key together, the DELETE IN DISP function will be activated.

Do not confuse the FUNCTION key with the SHIFT key. The FUNCTION key selects the upper function of a control key or the front face function of a data key (such as the F1 through F22 keys on the typewriter and expanded typewriter keyboards). The SHIFT key relates only to selecting the uppercase of a data key.
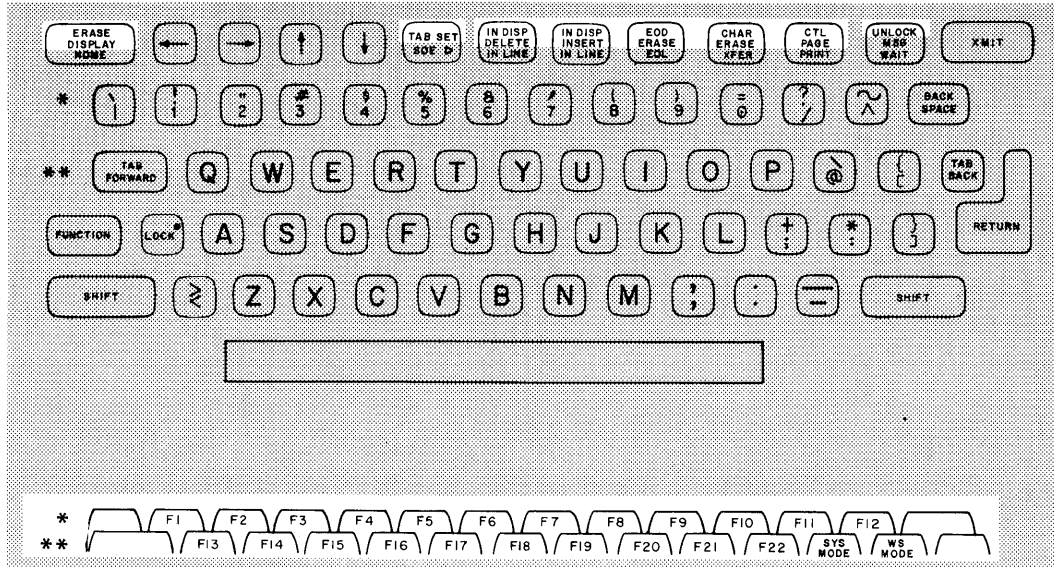
9135-8

Figure 2-2. Keys Requiring Use of FUNCTION Key on Typewriter Keyboard
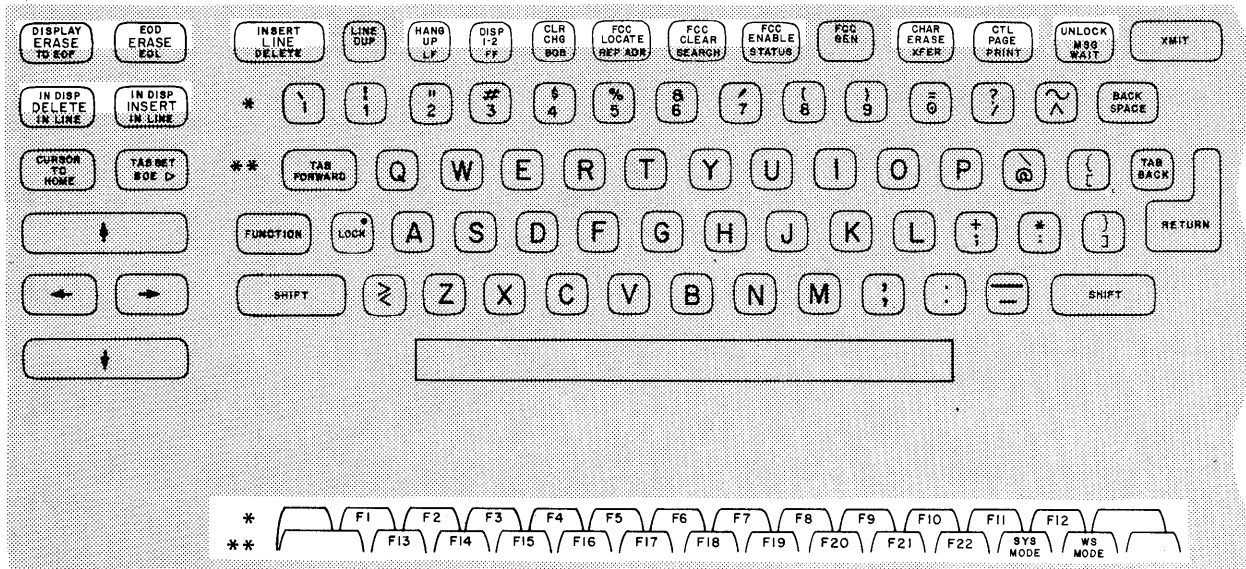
9135-14

Figure 2-3. Keys Requiring Use of FUNCTION Key on Expanded Typewriter Keyboard
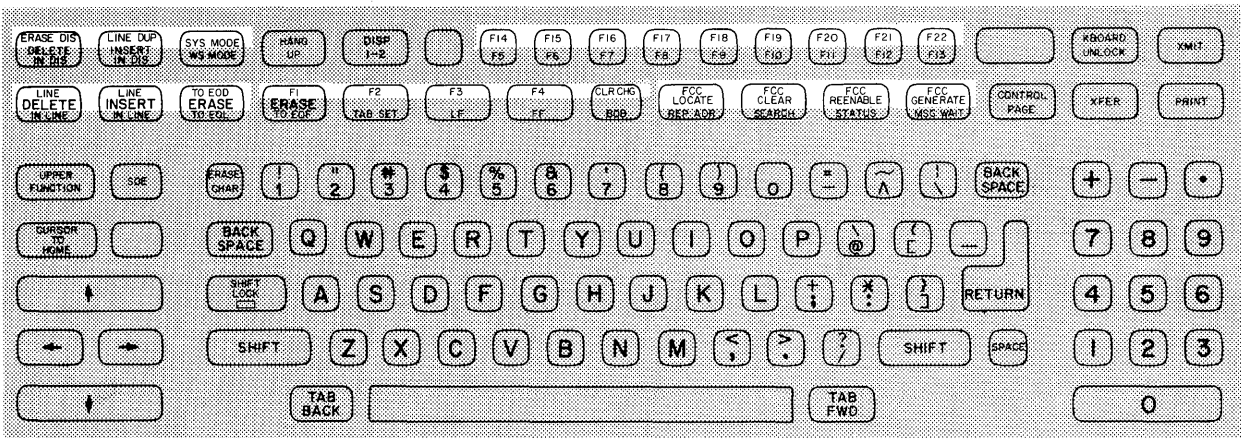
9135-23

Figure 2-4. Keys Requiring Use of FUNCTION Key on 400-Mode Keyboard

NOTE:

If you press the FUNCTION key simultaneously with a data key on which there is no front face function, the alarm will sound once and the keyboard will lock.

2.1.2.3. Cursor Control Keys

Figures 2-5, 2-6, and 2-7 highlight the keys that allow you to position the cursor on the screen.
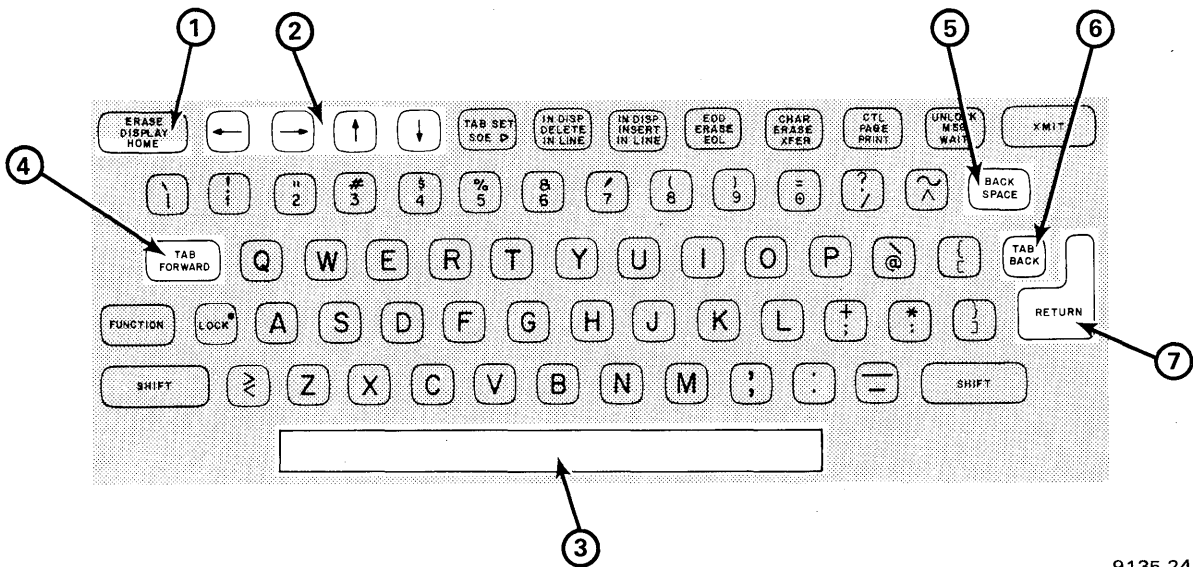
9135-24

Figure 2-5. Cursor Control Keys on Typewriter Keyboard
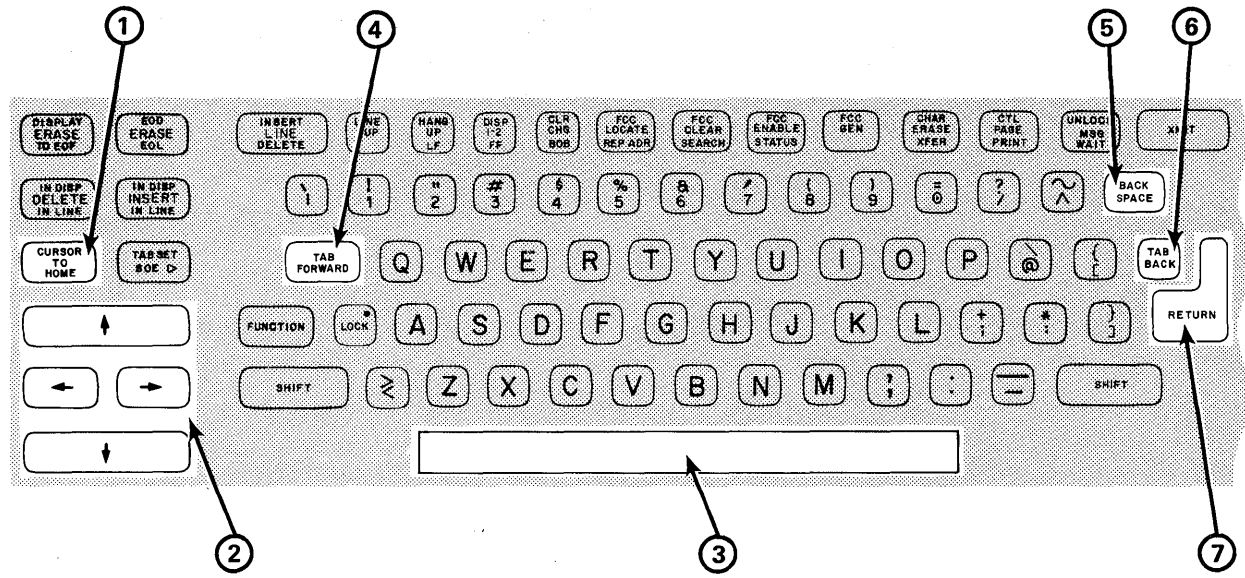
Figure 2-6. Cursor Control Keys on Expanded Typewriter Keyboard
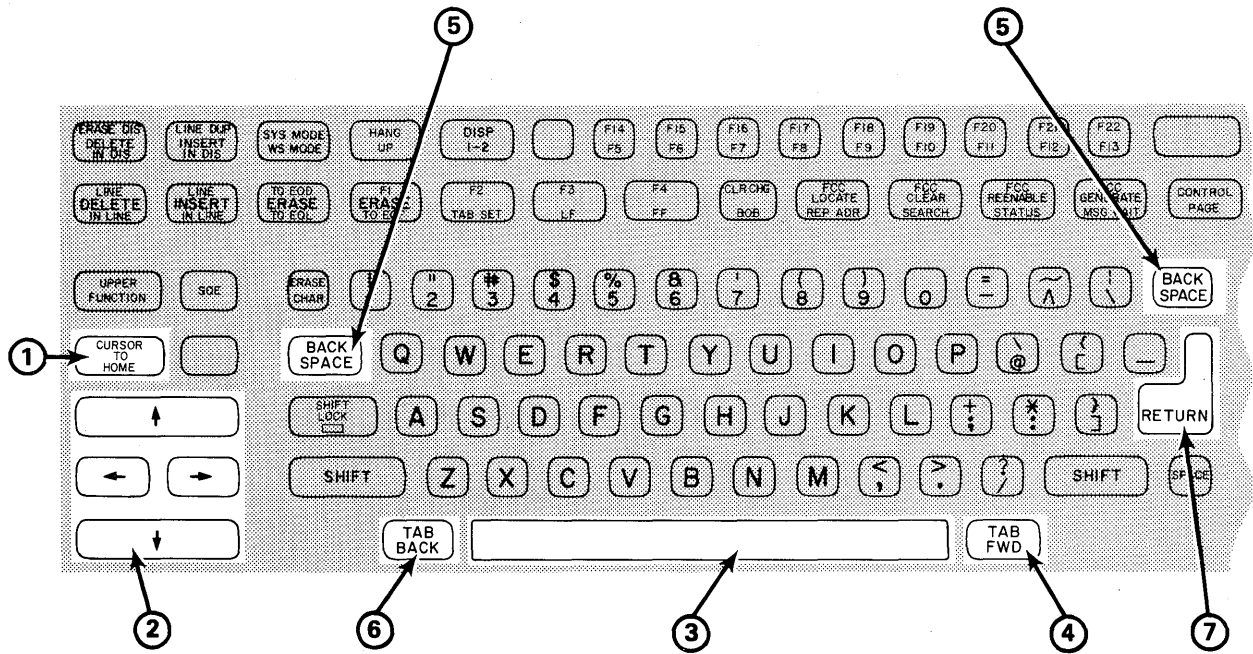
Figure 2-7. Cursor Control Keys on 400-Mode Keyboard

CURSOR TO HOME ①

This key moves the cursor from anywhere on the screen back to *home,* which is the first position at the upper left corner of the screen. If the home position is protected, the cursor moves to the first unprotected position after the home position.

Scan Keys ②

The scan keys move the cursor one or more spaces in the direction shown by the keycap arrow. If the cursor is in the last position in a line when the forward scan key is pressed, the cursor wraps around to the first position of the next line. Pressing the forward scan key causes the cursor to continue moving in this way until it reaches the last position of the last line. Then, if the key is pressed again, the wraparound will continue back to the first position of the first line.

The backward scan key functions in the reverse manner. That is, if you cycle that key, the cursor moves across the screen to the left. When it reaches the first position of a line, it jumps up one line to the far right-hand column and continues moving left until it reaches the home position. If you continue to press the key, the cursor moves from home position to the last position of the last line.

When either vertical scan key is pressed, the cursor wraps around the screen continually from the top to the bottom or the bottom to the top position of a column, but always within the same column.

If a scan key is cycled over a protected field and the key is released, the cursor jumps to the first unprotected character.

Space Bar ③

The space bar has the same function as it does on a typewriter, moving the cursor one position to the right each time it is pressed. One important difference is that a control page parameter can be set that causes the space bar to erase the characters it passes over. This use of the space bar is called *destructive.* Otherwise, you can leave the space bar function *nondestructive,* so that the space bar spaces past characters without erasing them. The procedure for defining the space bar is explained in 3.2.

TAB FORWARD ④

If the TAB SET key was used to set a tab, the TAB FORWARD key moves the cursor to the first unprotected position to the right of the nearest tab stop. If no tab stops are set from the cursor to the end of the screen, the TAB FORWARD key returns the cursor to home position.

If FCC tab stops have been defined, the TAB FORWARD key positions the cursor directly over the tab stop location. If the FCC field is protected, the cursor moves to the first unprotected position.

BACK SPACE ⑤

Like the backspace key on a typewriter, this key moves the cursor backward one position each time the key is pressed, as long as that position is not protected. If the position to the left is protected, the cursor remains stationary when the BACK SPACE key is pressed.

TAB BACK ⑥

If the TAB SET key was used to set a tab, the TAB BACK key moves the cursor backward to the first unprotected position to the right of the last tab stop. If the cursor is already located on a tab stop, the TAB BACK key moves the cursor to the next previous tab stop. If the entire screen is protected or if there are no tab stops between the cursor and home position, the TAB BACK key moves the cursor to the home position.

If FCC tab stops have been defined, the TAB BACK key positions the cursor on the tab stop itself, instead of one position to the right.

RETURN ⑦

This function is identical to that of a typewriter. Pressing the RETURN key moves the cursor to the first position of the next line. If that space is protected, the cursor moves to the next unprotected position.

2.1.2.4. Editing Keys

Editing keys allow you to change data on the screen as you are entering it or to modify existing data recalled from the host before retransmitting it (Figures 2–8, 2–9, and 2–10).

ERASE DISPLAY ①

The ERASE DISPLAY key erases all data, protected and unprotected, as well as any existing FCCs, from the cursor position through the end of the screen.

ERASE EOD (Erase to End of Display) ②

This function deletes all unprotected data from the cursor position to the end of the screen. Protected fields remain intact, including FCCs entered on the screen.

ERASE EOL (Erase to End of Line) ③

This key erases all unprotected characters from the cursor to the end of the line or the end of the field, whichever occurs first. If protected data falls within the defined area, only the unprotected data up to that point will be erased.

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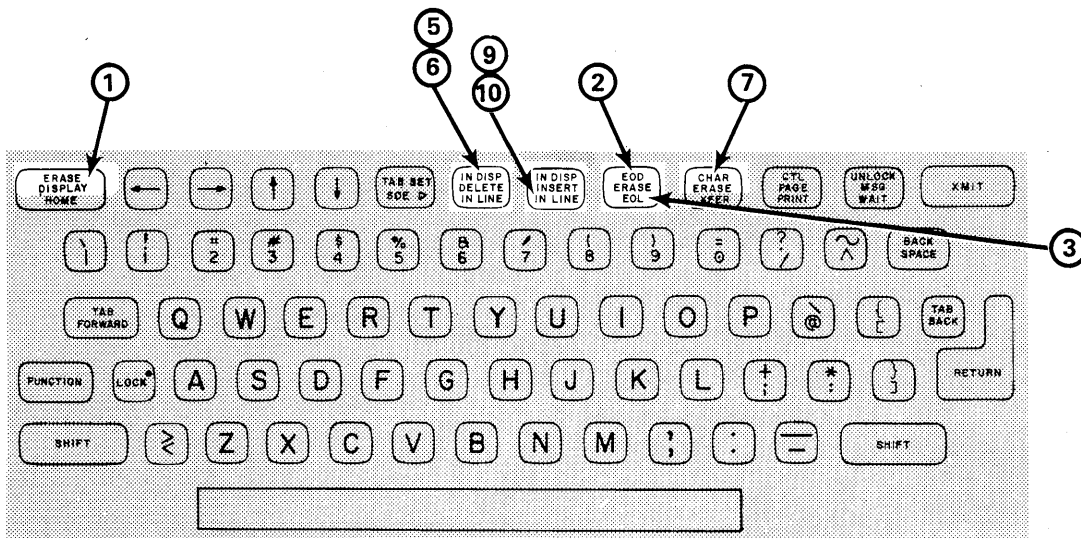
Figure 2–8.   Editing Keys on Typewriter Keyboard
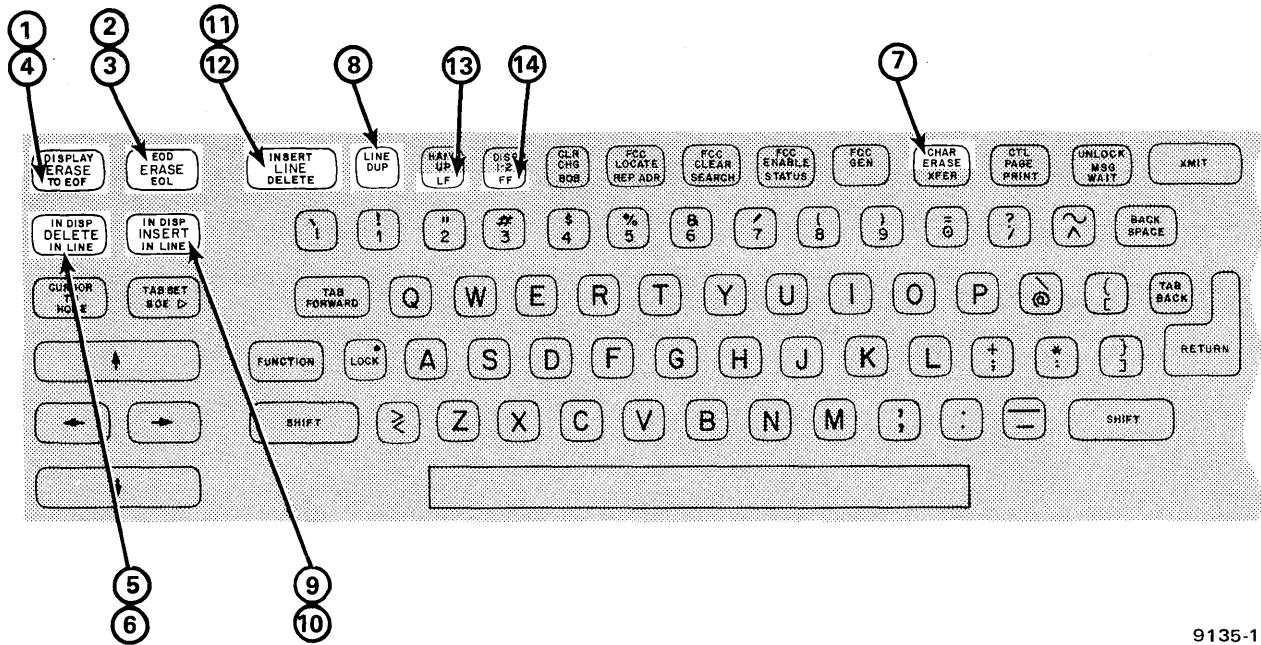
9135-10

Figure 2-9. Editing Keys on Expanded Typewriter Keyboard
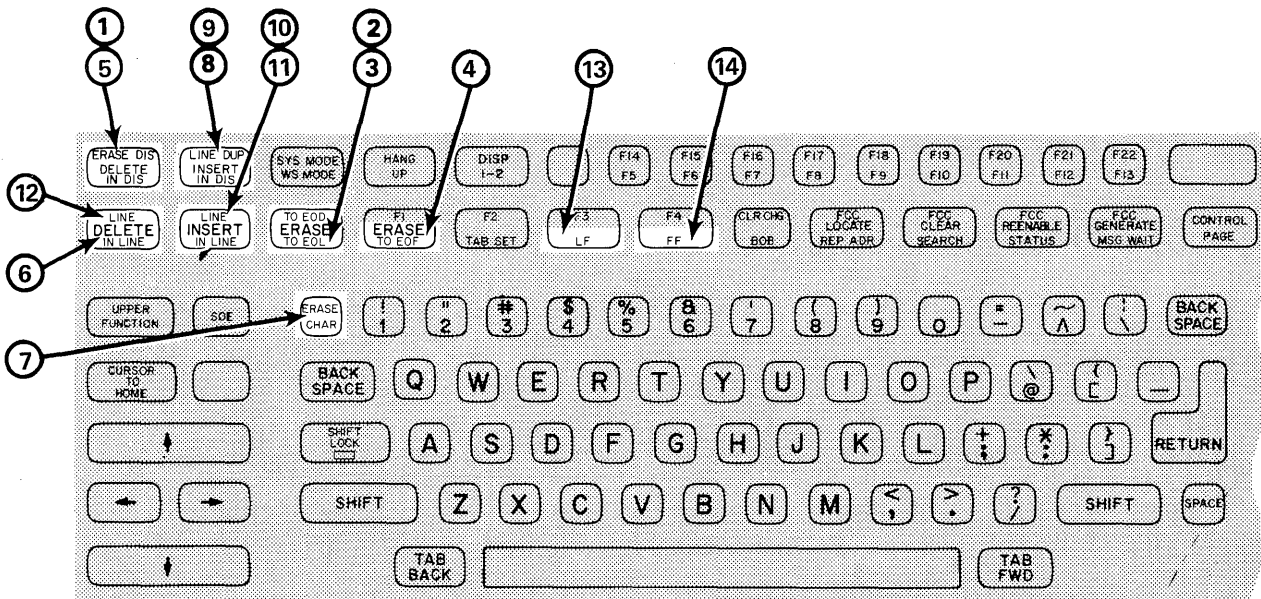
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Figure 2-10. Editing Keys on 400-Mode Keyboard

ERASE TO EOF (Erase to End of Field) ④

This function deletes all unprotected characters within the field from the cursor to the end of the field or the end of the display, whichever comes first. If protected data occurs within the defined area, only the unprotected data up to that point will be erased.

DELETE IN DISP (Delete in Display) ⑤

This key repositions all data between the cursor and the end of the screen. The character beneath the cursor is deleted and the entire display to the right of the cursor shifts one position to the left each time the key is pressed. Characters formerly in the first position of a line shift to the last position of the preceding line. A space is inserted in the last position of the last line of the screen.

If the end of a field occurs before the end of the screen, shifting action is limited to that field. If a protected character occurs within the field or before the end of the screen, shifting action stops one space to the left of the protected character. Deletions are not reversible. That is, once a character has been deleted, it must be rewritten and reinserted to be placed again in the data.

DELETE IN LINE ⑥

Pressing this key repositions all data from the cursor to the end of a line. If the end of a field occurs before the end of the line, the shifting action is limited to the end of that field. The character beneath the cursor is deleted and all characters to the right of the cursor shift one position to the left each time the key is pressed. A space is inserted at the end of the line or the end of the field, whichever occurs first.

If a protected character falls within the line or field affected, the shifting action stops one position to the left of the protected character.

CHAR ERASE (Character Erase) ⑦

This key erases the character beneath the cursor (creating a space) and moves the cursor to the next unprotected position. Cycling this key rapidly erases one character at a time for as long as you hold the key down. Protected characters and FCCs are not erased with this key.

If the CHAR ERASE key is used in a right-justified field, spaces are inserted each time the key is pressed, with any preceding characters moving to the left one position.

LINE DUP (Duplicate Line) ⑧

This key causes the line in which the cursor is located to be duplicated on the line below it, whether the line overwrites an existing line or fills a previously blank line. The cursor moves to the same column position in the duplicated line each time the key is pressed, until the last line of the screen.

Cycling the LINE DUP key is especially useful when you are setting up duplications of FCCs or tab stops for repetitive text or tabular material. The column position of the cursor is irrelevant in duplicating the line.

INSERT IN DISP (Insert in Display) ⑨

This key allows you to insert spaces or data in existing material. When this key is pressed, the cursor remains stationary, a space is inserted between it and the character that was beneath it, and the remainder of the characters in the display move one position to the right. Characters that formerly occupied the last position of each line wrap around to the first position of the following line. The character occupying the last position on the screen is moved off the screen.

If the end of a field occurs before the end of the display, the shifting action is limited to that field.

If a protected character falls within the screen portion affected, the shifting action stops one position to the left of the protected character.

INSERT IN LINE ⑩

This key inserts a space between the stationary cursor and the character formerly beneath it, thus moving all other characters within the line one position to the right. The character occupying the last position of the line is removed from the screen.

If the end of a field occurs before the end of the line, the shifting action is limited to the field.

If a protected character falls within the line or field affected, the insertion action stops one space to the left of the protected character.

INSERT LINE ⑪

When you press the INSERT LINE key, a blank line is inserted in place of the line in which the cursor is located, and that line and all lines below it are moved down one line position on the screen. The line at the bottom of the screen is discarded. The cursor may be located in any position within the line for the INSERT LINE key to function.

FCCs that fall within the affected lines are moved down the screen within the lines.

DELETE LINE ⑫

This key removes the line in which the cursor is located. All lines that were below it are moved up to fill the void and a blank line is inserted at the bottom of the screen. The cursor may be in any position within the line when the key is pressed and will remain in the same position.

LF (Line Feed) ⑬

The LF key is used when you are entering data to be printed later on specially formatted paper or forms. When you press the LF key, the UTS 20 internally flags that location with an instruction to the printer to perform a carriage return when printing.

NOTE:

The line feed character (LF) is displayed when "ON" has been entered in the control characters parameter (3.2) of the control page.

FF (Form Feed) (14)

The FF key is another printer format control key that is used when you are entering data to be printed in a special format or on preprinted forms. Pressing this key generates an internal form feed indicator that instructs the printer to perform a carriage return at that location and advance the paper to the beginning of the next form.

NOTE:

The form feed character (FF) is displayed when "ON" has been entered in the control characters parameter (3.2) of the control page.

2.1.2.5. Function Control Keys

These keys, shown in Figures 2-11, 2-12, and 2-13, allow you to control the way in which the data you enter will be manipulated by the UTS 20 and its host.
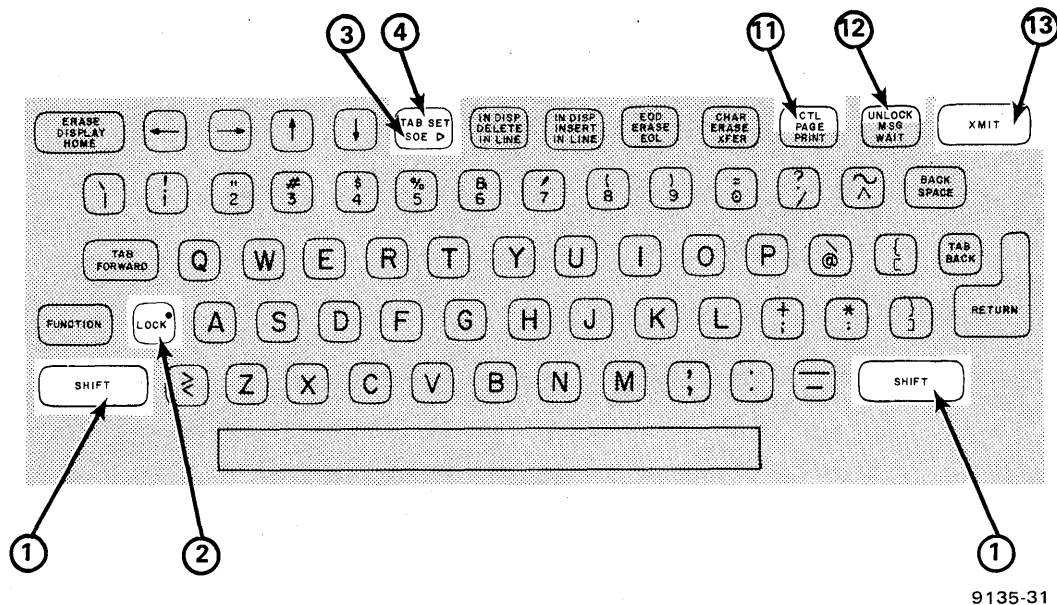
9135-31

Figure 2-11. Function Control Keys on Typewriter Keyboard

SHIFT (1)

LOCK (2)

These key functions are the same as they are on a typewriter. Pressing the SHIFT key produces the uppercase character of a data key. Pressing the LOCK key locks the keyboard into the uppercase state until the SHIFT key is pressed again to release the lock. The red indicator light on the LOCK key remains lit for as long as the shift state is in effect.
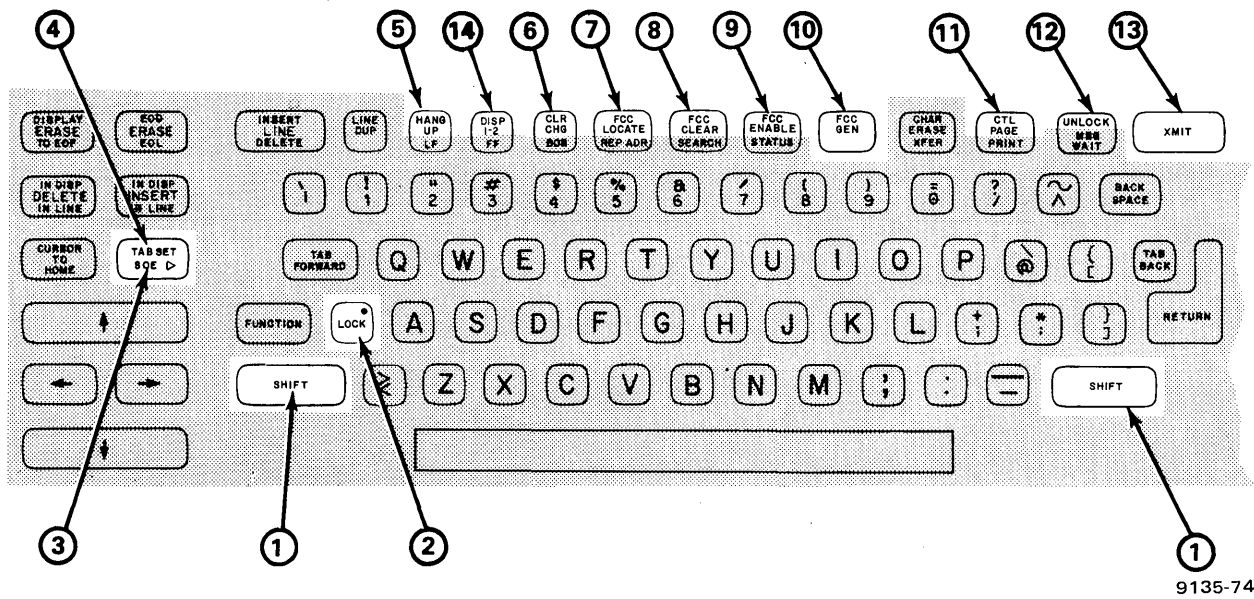
Figure 2-12. Function Control Keys on Expanded Typewriter Keyboard
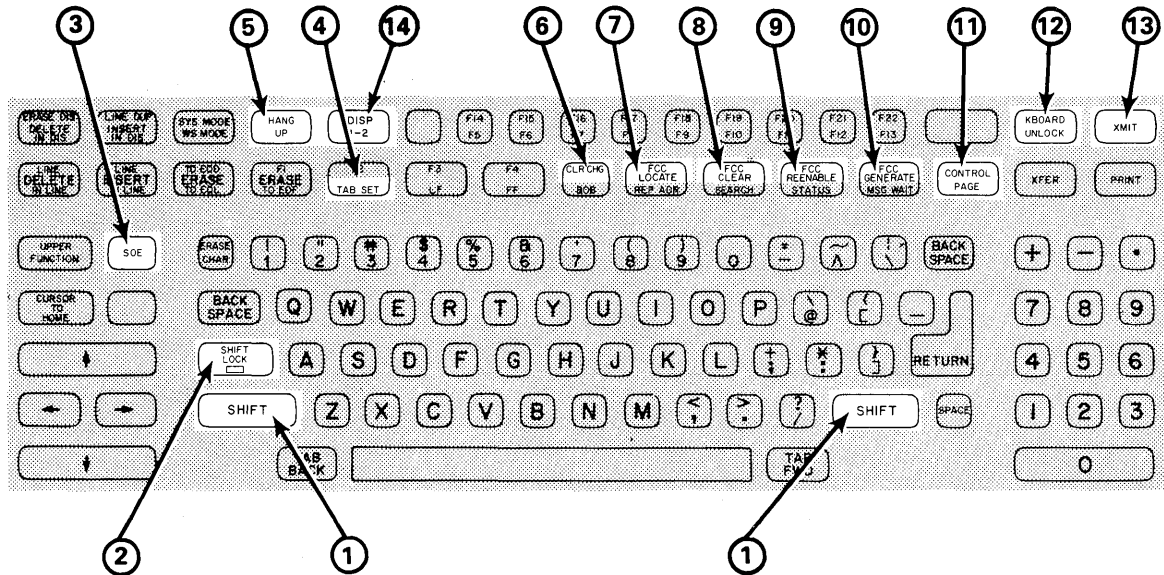
Figure 2-13. Function Control Keys on 400-Mode Keyboard

SOE (Start of Entry) ③

To identify the starting point of the information you are sending, you must enter an SOE character where the message begins if that message begins in any position other than home position. The data between the SOE character and the cursor will be transmitted. If more than one SOE character appears on the screen, the one on the left nearest the cursor will be recognized as the starting point.

TAB SET (4)

This key function is the same as it is on a typewriter. The TAB SET key allows you to establish cursor stops within data even though you have not defined any fields with FCCs. Pressing the TAB SET key generates an undisplayed tab stop code in the next position to the right. That position is where the cursor will stop when you later press the TAB BACK or TAB FORWARD key. The tab set function itself takes up one character position on the screen. That is, wherever you have used the TAB SET key to establish a tab stop, that position is not available for data entry. Remember to allow for this space when you set the tab and remember that the TAB FORWARD and TAB BACK keys automatically position the cursor at the first position to the right of the tab set location for data entry. If that position is protected, the cursor moves to the first unprotected position to the right.

NOTE:

The TAB SET indicator (.) is displayed when "ON" has been entered in the control characters parameter (3.2) of the control page.

Entering data over the tab set location erases the tab set code.

HANG UP (5)

The HANG UP key is used to break the connection when the UTS 20 is on a switched line for communication to the host.

CLR CHG (Clear Changed-Field Indicators) (6)

Changed field indicators are codes set internally by the UTS 20 each time data is entered or changed in a field defined by FCCs. If you want to transfer or transmit only data that is new or has been changed since the last operation (3.5, 3.6), you must clear the previous changed-field indicators before entering the new data.

FCC LOCATE (Locate Field Control Characters) (7)

The FCC LOCATE key moves the cursor to the first position of the next FCC-defined field in the display. If no FCCs have been defined to the right of the cursor, the FCC LOCATE key moves the cursor to home position.

The FCC LOCATE key locates all FCC-defined fields, regardless of whether a tab set was designated within the FCC characteristics. On the other hand, the TAB FORWARD key locates only those fields in which the TAB SET has been specifically defined, either through generation of the FCC tab characteristic or by use of the TAB SET key.

Pressing the FCC LOCATE key automatically disables both the protect and right-justify characteristics, allowing data to be entered in those fields without first clearing the FCC. (You must press the FCC ENABLE key to reenable all FCCs.)

FCC CLEAR (Clear Field Control Characters) (8)

This key clears the FCC at the cursor position or, if the cursor is not on an FCC, the first FCC to the left of the cursor. (The cursor may be located in any position of the field to be cleared.) If you do not generate a new FCC in that location, that field automatically becomes part of the field to the left of the cleared FCC.

FCC ENABLE (Enable Field Control Characters) (9)

This key must be pressed to put the selected FCC characteristics into effect. Once the FCC ENABLE key has been pressed, all FCCs set up on that displayed page become enabled. Therefore, all FCCs for the page should be generated before you press this key. If you are setting up a protected field, you can enter data only before the field is enabled. Once the FCC ENABLE key has been pressed, additional data cannot be entered into a protected field without first disabling the FCCs. You must press the FCC ENABLE key to enable all FCCs on that display if a new FCC was generated or the FCC LOCATE key was used.

FCC GEN (Generate Field Control Characters) (10)

This key initiates the beginning of the FCC code sequence, thereby establishing the start of a new field. Once the FCC GEN key is pressed, the cursor remains stationary for the next five character entries which define the characteristics of the field you are setting up — the display intensity, FCC tab stops, type of entry accepted, and right or normal justification of the field.

If you enter an unacceptable character in the FCC generation sequence, the alarm will sound once and the UTS 20 will no longer be in the generate mode. If you wish to continue generating the FCC at that point, you must press the FCC GEN key again and reenter all the codes for that field.

As soon as the FCC GEN key is pressed and a correct sequence of codes has been entered, all existing FCCs on the screen become temporarily disabled until you press the FCC ENABLE key.

Once you have pressed the FCC GEN key, all data positions from that location to the next field or the end of the screen become part of that field. Generating another FCC marks the beginning of the next field.

Although the FCC LOCATE key positions the cursor where the FCC was generated, the generation of an FCC does not take up a physical screen location as does the TAB SET key. Theoretically, you could generate 1,920 FCCs, one for each screen location, and still be able to enter a full screen of data. (The host can restrict the number of FCCs that it will accept in a single screen transmission.)

CTL PAGE (Control Page) (11)

Pressing the CTL PAGE key once displays the 2-line control page on the screen; pressing it again removes the control page from the screen.

Pressing the CTL PAGE key also enables FCCs.

UNLOCK (12)

The UNLOCK key cancels the transmission of data, clears an error condition and silences the alarm, and opens the keyboard to additional keyboard entries.

XMIT (Transmit) (13)

The XMIT key sends the data you have specified on your screen to the host. The type of transmission — whether it will include all data on the screen or only the changed information — is something you specify on the control page.

Once you press the XMIT key, the cursor temporarily disappears from the screen and the keyboard becomes locked or disabled. (Program attention keys still function.) The keyboard becomes operational again after the host receives the transmission.

DISP 1-2 (14)

This key functions only when the UTS 20 is equipped with the screen bypass feature.

When the terminal is first turned on or reset, screen 1 is displayed, designated by a 1 in the first position of the indicator line and the third position of the special code field in the control page. To display the other screen, press the DISP 1-2 key. The second screen is designated by a 2 in the same positions of the indicator line and control page. Each time the DISP 1-2 key is pressed, the alternate screen is displayed while the previously displayed screen is stored.

2.1.2.6. Peripheral Device Keys

Only three peripheral device keys on the keyboard pertain to the printer as the sole peripheral device connected to the UTS 20. (See Figures 2-14, 2-15, and 2-16.) These keys operate in conjunction with the control page commands you enter to control transfer of data to the printer.
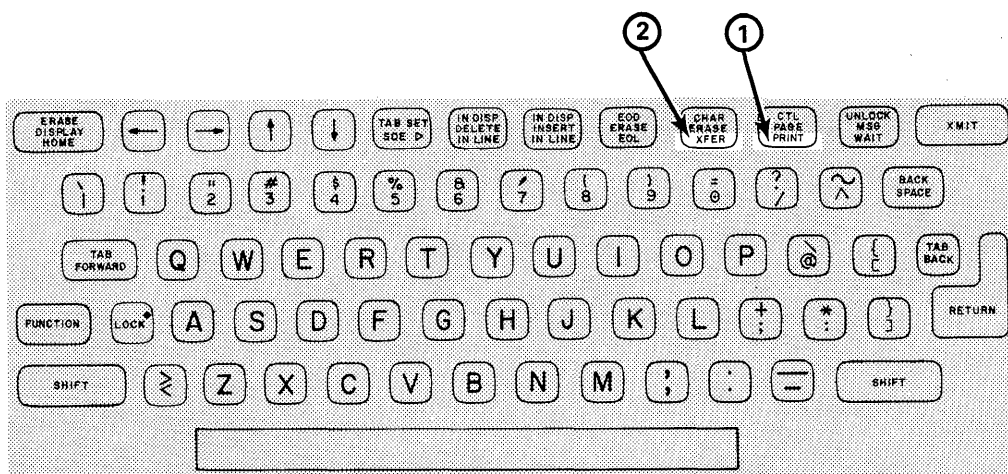
9135-2

Figure 2-14. Peripheral Device Keys on Typewriter Keyboard

PRINT (1)

The PRINT key operates with the control page instructions entered in the (**PRINT*) and PRNT( ) fields. Pressing the PRINT key sends up to one screen of data to the printer as specified by these control page instructions and by SOE character and cursor placement on the screen. (See 3.2 for control page instructions; Section 6, for specific printing operations.)

9135-12

Figure 2-15. Peripheral Device Keys on Expanded Typewriter Keyboard

9135-66

Figure 2-16. Peripheral Device Keys on 400-Mode Keyboard

XFER (Transfer) ②

The XFER key operates in conjunction with the control page instructions entered in the (**XFER**) and XFER( ) fields. Pressing the XFER key sends up to one screen of data to the printer, as specified by these control page instructions and by SOE character and cursor placement on the screen. (See 3.2 for control page instructions; Section 6, for specific transfer operations.)

STATUS ③

When you press this key, a code is displayed in the 6-character control page field describing the operational status of the printer.

To display the status in the control page, type the 2-character device identifier anywhere on the screen, position the cursor over the second character of the code, and press the STATUS key.

2.1.2.7. Program Attention Keys

The program attention keys are used to access routines or functions designated by specially designed programs unique to your own company needs.

The symbols "F1" through "F22" that appear on the front face of the top two rows of data keys are program attention keys (Figures 2-17, 2-18, and 2-19). You activate the program attention functions by pressing the FUNCTION key simultaneously with selecting the appropriate "F" key. All "F" keys may or may not have functions associated with them. As these functions are determined by the user, you will need to ask your supervisor which keys to use, if any.

9135-3

Figure 2-17. Program Attention Keys on Typewriter Keyboard
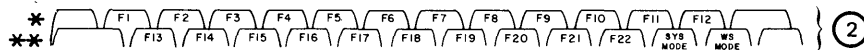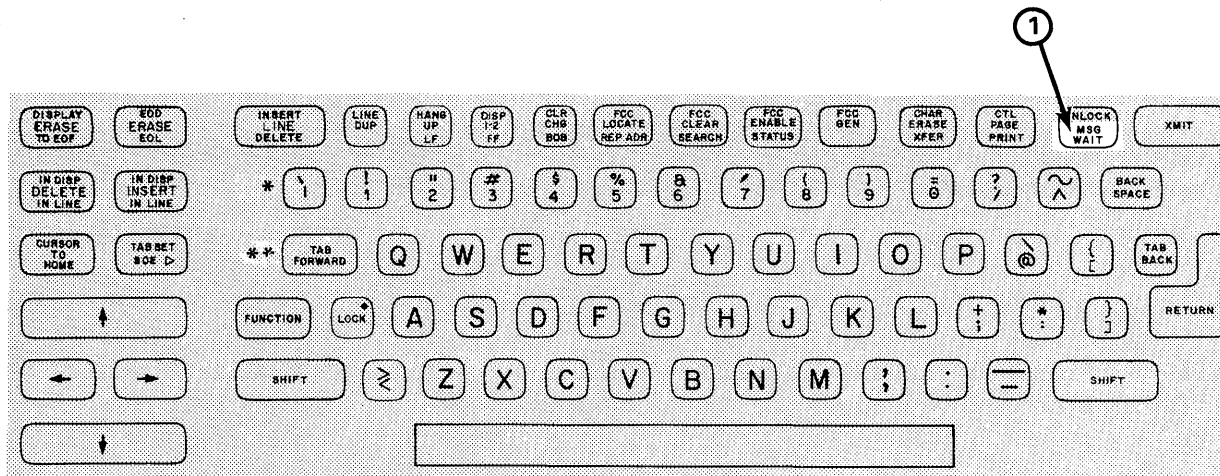
Figure 2-18.   Program Attention Keys on Expanded Typewriter Keyboard
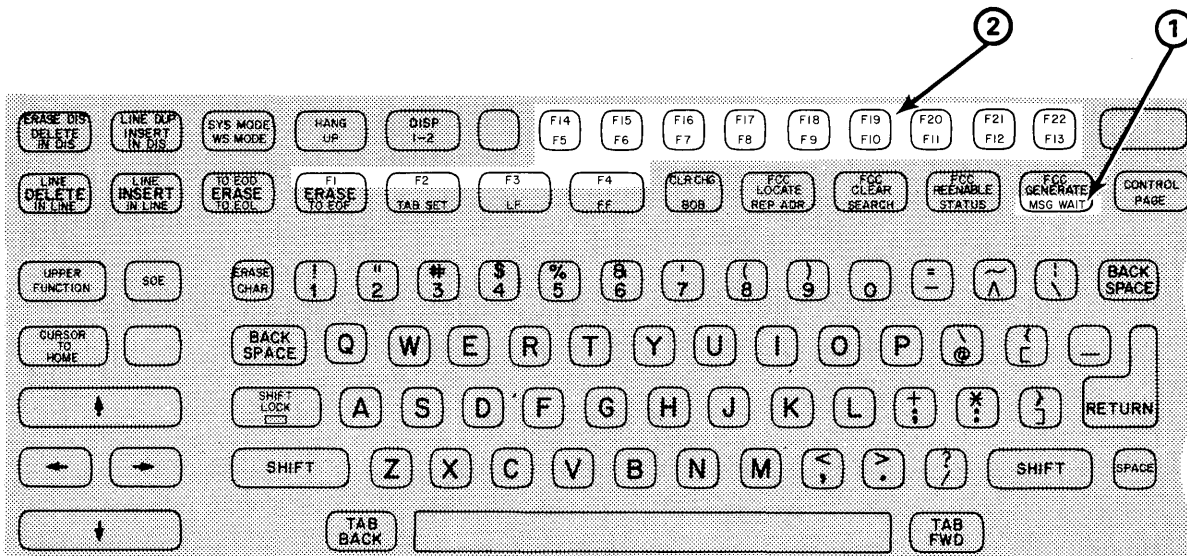
Figure 2-19.   Program Attention Keys on 400-Mode Keyboard

MSG WAIT (Message Wait) (1)

The MSG WAIT key is usually used to display an incoming message sent to your terminal by the processor, as signaled by the MSGW indicator on the indicator line of the screen. This function could be reassigned, however, so confirm its use with your supervisor.

F1 through F22 (2)

These keys, used to access routines or functions designated by specially designed programs unique for your company's needs, may not have programs assigned to them. You must check with your supervisor for the ones assigned for use with your UTS 20.

2.2. FRONT PANEL CONTROLS AND INDICATORS

Besides the keyboard controls, there are other indicators and controls located on the UTS 20 front panel (a recessed area on the main cabinet beneath the screen). These front panel indicators and controls are shown in Figure 2-20.
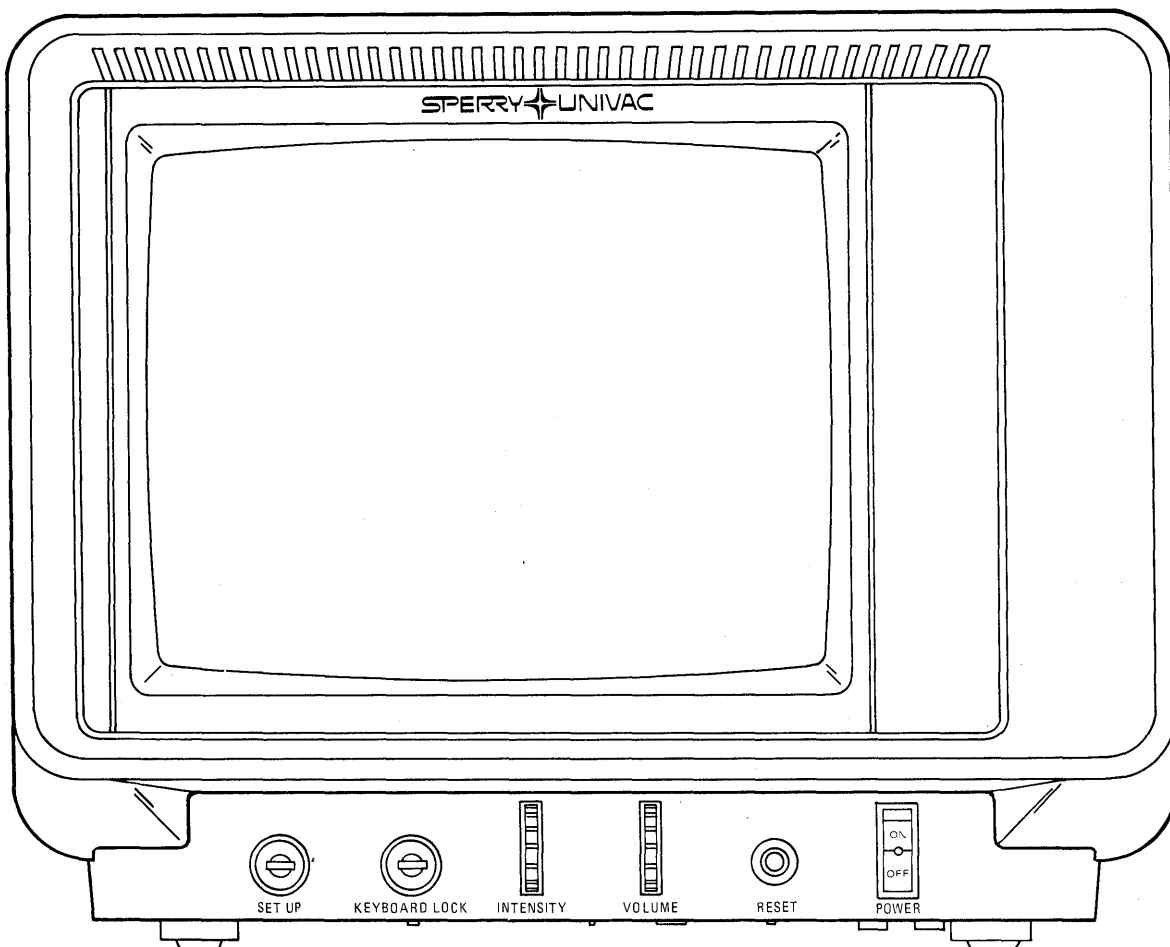
9135-60

Figure 2-20. Front Panel (With Keyboard Pulled Aside)

KEYLOCKS (Optional Features)

These keylocks ensure the security of the UTS 20 by requiring special keys to use the keyboard or to change certain types of operating parameters in the control page.

The SET UP keylock must be unlocked to enable changes to the parameter section of the control page. (If this keylock is not featured on your UTS 20, you have unlimited access to changing control page parameters.)

Next to the SET UP keylock is the KEYBOARD LOCK, which controls data entry from the keyboard and the magnetic stripe reader. Although the UTS 20 can receive and display incoming messages with this keylock locked, the keyboard and magnetic stripe reader cannot be used to enter data.

INTENSITY

This control adjusts the brightness of the display. Rotating it upward brightens the display, while downward rotation dims the display.

VOLUME

This control adjusts the volume of the keyboard click (when a key is pressed) and the audible alarm. The alarm, with a sound like a beep, occurs once with the following conditions:

■   The cursor moves into the eighth position from the end of the line.

■   The cursor enters any position in the last line.

■   You try to enter data that does not conform to the FCC criteria for that field.

■   You enter an unacceptable code while generating an FCC.

■   You attempt to store the control page with an invalid entry on it.

■   A keyboard parity error has occurred.

■   The FUNCTION key is pressed with a data key that does not have an upper function.

■   The magnetic stripe reader has successfully completed a read function.

■   The POC test has been completed.

■   You pressed a key that has no function with the UTS 20.

The alarm sounds repeatedly in the following conditions:

■   Your terminal has an incoming message (MSGW) to be displayed.

■   The printer is unable to successfully implement the desired printing function and must be checked or restarted.

RESET

Pressing the RESET button has the same effect on the UTS 20 as turning the POWER switch ON and OFF. Any existing data on the screen is removed and the POC test is rerun and displayed. The PRNT( ), XFER( ), and XMIT( ) control page fields default to their original entries when the RESET button is pressed.

The RESET button must also be used to activate certain control page codes after initially entering them. Specific instructions for use of the RESET button with the control page codes are given in Section 3.

If the cycle POC (CY) parameter has been selected in the control page, the RESET button must be pressed to stop the cycling.

The RESET indicator light is an overtemperature warning indicator. The indicator remains lit if the terminal is overheating and power should be turned off.

POWER

This control allows you to turn on the terminal, automatically initiating the POC test. An indicator light on the switch comes on when power is being supplied to the terminal.

2.3. INDICATOR LINE DISPLAY

The indicator line appears on line 25 (the bottom line) of the screen display whenever the UTS 20 is turned on. It shows you the current status of the terminal, together with any operating peripheral devices. If all indicators on the line were to be displayed at once (which would not happen in actual use), it would appear as shown in Figure 2-21.


```
   2                                        AXER
   or                                        or

  1 ROW = XX COL = XX    WAIT        MSGW    AUXB    POLL

                                             RNAK
                                              or
                                             RACK
```
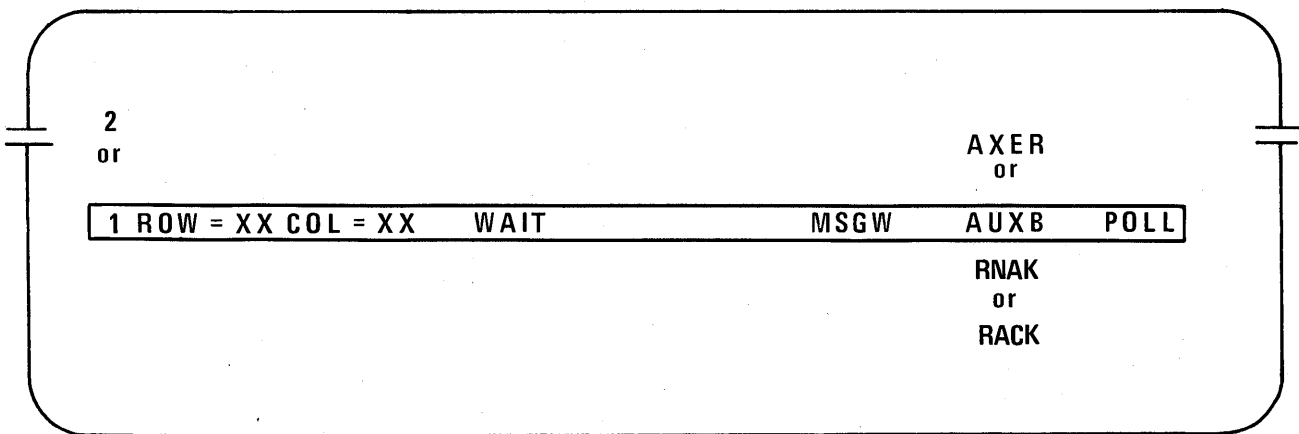
9135-73

Figure 2-21. Indicator Line

ROW=XX COL=XX

This indicator tells you exactly the row and column occupied by the cursor. For example, row=01 indicates row 1 (top line); ROW=24 indicates row 24 (bottom line). COL=01 indicates column 1 (extreme left); COL=80 indicates column 80 (far right).

The 1 or 2 preceding the row and column indicators shows which screen is currently being displayed, using the screen bypass feature. On terminals without screen bypass capability, the 1 always appears.

WAIT

The blink characters on either side of the WAIT message flash whenever data is being transmitted to or from the UTS 20 or whenever the keyboard is locked and is unable to accept additional entries.

MSGW (Message Waiting)

The blink characters on either side of the MSGW indicator flash whenever an unsolicited message from another station is on your line. An alarm tone sounds repeatedly and the indicator remains on until you press the MSGW WAIT key to display the message.

AUXB, AXER, RACK, RNAK

The AUXB (auxiliary busy) indicator lights whenever the printer is currently involved in a transfer of data. The AXER (auxiliary error) indicator lights and the alarm sounds repeatedly whenever an unrecoverable error occurs during data transfer to the printer.

The RACK and RNAK indicators appear only when a magnetic stripe reader is being used for data entry. If a card has been read successfully, the RACK indicator appears briefly and is accompanied by a single alarm tone.

If the card has not been read successfully, the RNAK indicator blinks and the alarm tone does not sound. The RNAK message remains on the indicator line until the card has been read successfully or until you press the UNLOCK key.

POLL

The POLL indicator blinks whenever the UTS 20 is being polled by the host and is cleared to transmit data.

3. The Control Page

Another control, the control page, consists of codes keyed into preestablished fields and stored in a portion of the UTS 20 memory.

These codes control or modify the function of some keys or the operating characteristics of the terminal itself.

The control page consists of a 2-line group of fields (Figure 3-1). These consist of both protected areas that you cannot change or modify and unprotected areas in which you may enter codes.

```
(**PRINT*)STA-         (**XFER**)PRNT(PRNT)XFER(VAR )XMIT(VAR )MM  (PARAM)
( /  / )ADR-           ( /  / )SEARCH(                      )  ( / )
                                                                9135-4
```

Figure 3-1. Control Page Display

Wherever you do not enter a code in a control page field, the UTS 20 is programmed to default to a standard operating condition. The default conditions of the different control page fields are given in 3.2.

Several control page fields are set up to control different types of peripheral devices. Since the UTS 20 is linked only to a printer, many fields will not be used. You will use fields that control the type of transmissions and operating parameters desired for a specific job.

3.1. DISPLAYING AND REMOVING THE CONTROL PAGE

The control page can be displayed by pressing the FUNCTION key and the CTL PAGE key simultaneously. (The cursor can be in any screen position.) The control page can be displayed even when other data is present in those lines on the screen. The data in this space is shifted to temporary storage while the control page is on the screen.

To remove the control page from the screen, press the FUNCTION key and CTL PAGE key again. The original data will be returned to the screen exactly as it appeared before.

3.2. (PARAM) FIELD

The parameter (PARAM) fields of the control page allow you to adjust the screen display and certain other operating characteristics of the UTS 20.

The (PARAM) field is divided into two subfields: the first identifies the parameter type (pt); the second, the characteristic or parameter option (po) that defines the parameter type.

Example: (PARAM)
(sp/ns)

In the example, "sp" is the parameter type, referring to the space bar and "ns," meaning nondestructive, is the parameter option with which you are defining the space bar.

If you enter an unacceptable code in a parameter subfield and then attempt to remove the control page, the alarm sounds once. Then the next time you display the control page, the incorrect entry will appear in the same location. The UTS 20 will not store an incorrect parameter entry. If you do not redisplay the control page to correct the erroneous entry, the UTS 20 will refer to the previously entered parameter of that type or will default to the standard condition.

When you turn the UTS 20 power off or when you press the RESET button, only the (PARAM) subfield entries remain in effect when the terminal is turned on again. Other subfields revert to their default condition regardless of the last entries made.

NOTE:

If the POC display produces the message, "NON-VOLATILE RAM DATA INVALID — DEFAULT VALUES ASSUMED," all control page entries, including the last entered (PARAM) codes, revert to their default condition.

Table 3-1 lists the parameter types and their options. As in the other control page fields, the codes can be entered either in uppercase or lowercase characters.

Table 3-1. Control Page Parameter Types and Options (Part 1 of 3)

Parameter	PT Codes	PO Codes	Defaults To	Parameter Function
Alternate brightness	AB	NI (normal intensity) LI (low intensity) RV (reverse video)	LI	Determines brightness of display
Number of lines and columns	LN CL	02-24 01-80	24 80	Sets number of lines and columns in screen display
Printer speed*	PS	03 (300 baud) 06 (600) 12 (1200) 24 (2400) 48 (4800) 96 (9600)	96	Sets data transfer rate from UTS 20 to printer. NOTE: The 0798 and 0797 printers will function only with "96" entry.
Placement of control page	CP	(01-23)	01	Selects line on which two-line control page begins.

Table 3-1. Control Page Parameter Types and Options (Part 2 of 3)

Parameter	PT Codes	PO Codes	Defaults To	Parameter Function
Space bar	SP	DS (destructive) NS (non destructive)	NS	Defines space bar function.
Device code	DV	(any 2-character entry)	—	Names printer for control page identification.
Video-off time*	VO	01 (min) 04 16 64	04	Blanks screen display after specified lapse of keyboard activity.
Keyboard click	KK	ON OF (off)	ON	Turns keyboard click on or off.
Refresh rate	RR	50 (Hz) 60 (Hz)	60	Selects display refresh rate.
Auto answer hangup*	AA	NO (no auto) y1 (30 sec) y2 (1 min) y3 (3 min) y4 (5 min)	NO	Sets allowable interval between polls from the host processor.
Communication mode*	CM	MX (multiplexer) MD (modem) DC (direct connect)	MX	Identifies communication link to host.
Channel A rate* (Use only if "DC" above)	AR	24 (2400 baud) 48 (4800 baud) 96 (9600 baud)	96	Specifies speed at which characters are passed to and from host.
Remote, station, and device* identifier	RI SI DI	Hexadecimal number		Identifies UTS 20 and peripheral addresses to host.
Automatic transmit (Magnetic stripe reader)	AT	YS (yes) NO	NO	Selects manual or automatic transmission of card data.
Uppercase characters	UC	YS (yes) NO	NO	Causes all alphabetic keys to be entered in uppercase. Does not affect numeric or symbol keys.

After these parameters are entered in the parameter subfields, they must be activated by pressing the RESET button on the front panel. These parameters have no effect until after the RESET button is pressed.

Table 3-1. Control Page Parameter Types and Options (Part 3 of 3)

Parameter	PT Codes	PO Codes	Defaults to:	Parameter Function
Uppercase range	UR	Any lowercase character in column (1) of Table 3.2.	a–z	Determines the characters to be displayed when the uppercase characters parameter is set to YS.
Indicator line intensity*	IL	RV NI (normal)	RV	Displays the indicator line either in same intensity or intensity contrasting with the rest of the display.

*After these parameters are entered in the parameter subfields, they must be activated by pressing the RESET button on the front panel. These parameters have no effect until after the RESET button is pressed.

3.2.1. Entering or Changing Parameter Codes

1. Unlock the SET UP keylock on the cabinet front panel. (If your UTS 20 does not have keylocks, this step is unnecessary.)

2. Call up the control page.

3. Enter a parameter type and its option by typing in the appropriate codes in the pt/po subfields.

NOTE:

You may also enter other field codes at this time, but only one pt/po parameter code may be entered at a time.

4. Press the CTL PAGE key again to place the control page in storage.

5. If you have additional pt/po codes to enter, call up the control page again.

6. Continue in this manner until all parameter codes have been entered.

3.2.2. Explanation of Parameters

3.2.2.1. Alternate Brightness

The code entered in this subfield determines the effect of the FCC intensity characteristic on a given field. "LI" (low intensity) is the default condition of this parameter.

Reverse video (RV), a dark display against a green background, or normal intensity (NI) becomes the prevailing intensity characteristic if it is entered into the control page. The FCC intensity selections (normal (N), low (L), and blink (B)) have the following effect on the appearance of the display.

Parameter Code	FCC Selection	Field Appearance
LI	L	low
	L	normal
	B	low to normal
NI	L	normal
	N	normal
	B	normal
RV	L	reverse video
	N	normal
	B	normal to reverse

3.2.2.2. Screen Size

By entering a 2-digit number (02 through 24 for rows or 01 through 80 for columns), you can structure the display format to suit a particular need. For example, you can specify a 4-line by 2-column format, a 10-line by 10-column format or any other. The control page itself always takes up 2 lines across 80 columns, regardless of the screen size setting. (The indicator line always appears in the 25th line of the screen across all columns.) If no line or column option is entered, the UTS 20 defaults to a 24-line by 80-column format.

NOTE:

Entries in the PRNT( ), XFER( ), and XMIT( ) fields are changed to default values whenever the line or column parameter is changed. Existing data on the screen will be erased if you call up the control page and change either the line or column parameter.

If you are operating a UTS 20 with the screen bypass feature and you wish to change either the row or column parameter of either screen, always enter both the. desired row and column options, even if you are changing only one of them.

3.2.2.3. Printer Speed

This parameter specifies the speed at which the UTS 20 passes characters to the printer. This parameter defaults to 9600 baud, the speed of either the 0797 or the 0798 printer subsystem. Changing this parameter is necessary only if the printer you are using with the UTS 20 is set for a different baud rate. The RESET button must be pressed to activate this parameter.

3.2.2.4. Placement of Control Page

You may dictate the placement of the control page on the screen through this parameter. The 2-digit code you enter will be the screen line in which the first line of the control page will appear. (The code entry should be at least one less than the total number of lines selected for the display.)

3.2.2.5. Space Bar

You may define the space bar as either destructive or nondestructive through this parameter. Defining the space bar as destructive simplifies the erasure of single characters, but requires that you get in the habit of using the forward scan keys instead of the space bar to space over characters.

3.2.2.6. Device Code

This parameter contains the code name of your printer. Whenever you enter a PRINT or XFER function in the control page, the identification of the device that appears in those subfields must match the code you have entered in this parameter. You may designate any two characters as the identifier, with the UTS 20 defaulting to "P1" if no code is entered.

3.2.2.7. Video Off

These codes provide internal instructions to the UTS 20 to blank the screen display after a specified time has elapsed with no activity from your station. (Although the screen is blanked, power to the terminal is still on.)

If you leave the UTS 20 and later return to a blank screen, press any data key to redisplay the data. If the WAIT indicator is on, press the UNLOCK key to bring back the display.

3.2.2.8. Keyboard Click

The default condition of a UTS 20 keyboard is a clicking sound when any key is pressed. If you wish to silence that click, however, enter an OF (off) in this parameter option.

3.2.2.9. Refresh Rate

This parameter allows you to manually adjust the screen refresh rate without affecting terminal frequency. If you do not select a parameter option (50 or 60) the UTS 20 defaults to 60 Hz. The only sign you will have of a problem in the frequency parameter will be a flutter in the screen display.

If this flutter occurs, try setting the parameter option to the opposite selection. (Remember that 60 is automatically selected if no other choice was keyed in.) If the display is not obviously improved or flutters worse than before, reenter the original parameter code in that subfield.

3.2.2.10. Auto Hang Up

These codes allow you to specify the time that may elapse between polling before the UTS 20 automatically breaks connection with the host processor.

3.2.2.11. Communications Mode

The device through which you will be linked to the host will be a multiplexer (default condition), a modem, or through a direct connection. The information for entering or changing this parameter must come from someone familiar with your system configuration.

3.2.2.12. Channel A Rate

Only if DC (direct connect) was selected in the communication mode parameter does this parameter need to be entered. It specifies the speed at which characters are passed to and from the host.

3.2.2.13. RID, SID, and DID

These parameters determine for the host the addresses at which the UTS 20 and its peripheral device are located. Changing these parameters indiscriminately renders the host unable to properly transmit data and results in a communications breakdown. Information for entry or change to these parameters must be supplied by someone familiar with your station configuration.

3.2.2.14. Automatic Transmit (When Magnetic Stripe Reader is Used)

Setting this parameter to NO (the default condition) means that any card data read by the magnetic stripe reader will not be automatically transmitted to the host. Instead, the data will be read and displayed on the screen, allowing you to change it, if necessary, through the keyboard before manually transmitting it by pressing the XMIT key. The YS (yes) option selects the automatic transmit mode, in which card data is automatically sent to the host without being displayed on the screen.

3.2.2.15. Uppercase Characters *

When YS is entered in this parameter type, all alphabetic characters entered in the display appear in uppercase, regardless of the use of the SHIFT or LOCK keys. Numeric or symbol keys are not affected.

3.2.2.16. Uppercase Range *

This parameter is designed primarily for operators using non-English keyboards, in which all required uppercase characters do not fall within the UC (uppercase) parameter default range of a–z.

To use this parameter, YS must first be entered as the UC parameter option. Uppercase range is then specified in the UR parameter by entering in lowercase the first and last characters to be included in the range. Uppercase characters or any symbols other than those shown in Table 3–2 that are entered in the parameter option subfield are invalid entries.

NOTE:

This is the only parameter in which the parameter option must be entered in lowercase.

As an example, if an operator of a German-language keyboard wants to automatically display the symbols "Ä", "Ö", and "Ü" without having to press the SHIFT key, the following entries must be made in the (PARAM) field:

    (UC/YS)
    (UR/aü)

All characters from "a" through "ü" will then appear as uppercase characters when typed.

---

*Earlier models of the UTS 20 do not include this function. If this function is required for your application, it may be obtained by ordering a new program cartridge for the UTS 20. Please contact your Sperry Univac representative for ordering information.

Table 3—2. Characters Included in Uppercase Range Parameter Selection

USA		Spain		Denmark/ Norway		France		Germany		Sweden/ Finland		U.K.		Italy	
(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
`	@	`	§	`	@	`	@	`	§	é	E	`	@	ù	§
a	A	a	A	a	A	a	A	a	A	a	A	a	A	a	A
b	B	b	B	b	Ḃ	b	B	b	B	b	B	b	B	b	B
c	C	c	C	c	C	c	C	c	C	c	C	c	C	c	C
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
y	Y	y	Y	y	Y	y	Y	y	Y	y	Y	y	Y	y	Y
z	Z	z	Z	z	Z	z	Z	z	Z	z	Z	z	Z	z	Z
{	[	°	¡	æ	Æ	é	°	ä	Ä	ä	Ä	{	[	á	°
ǀ	\	ñ	Ñ	ø	Ø	u	ç	ö	Ö	ö	Ö	ǀ	\	o	#
}	]		¿	å	Å	è	§	ü	Ü	å	Å	}	]	è	é
~	^	~	^	—	^	¨	^	β	^	ü	Ü	~	^	í	^

(1)   Character Entered

(2)   Character Displayed

3.2.2.17. Indicator Line Intensity *

When the default condition reverse video is entered, the indicator line appears in an intensity contrasting to the rest of the display. When the normal intensity option is selected, the indicator line appears in the same intensity as the data display.

*Earlier models of the UTS 20 do not include this function. If this function is required for your application, it may be ordered by ordering a new program cartridge for the UTS 20. Please contact your Sperry Univac representative for ordering information.

3.3. (**PRINT*) AND (**XFER**) FIELDS

3.3.1. PRINT and XFER Functions

The (**PRINT*) and (**XFER**) fields have similar formats because their functions are so similar. Both fields control movement of data from the UTS 20 to a peripheral (in this case, a printer) when the respective PRINT or XFER key is pressed. The two functions differ significantly in their manner of handling data, however. The PRINT function prints the screen data you specify without the internal FCC code characters. The XFER function prints the screen data you specify, but it includes printing of the FCC characters. Seldom in any use of the printer, will you need to (or want to) produce the FCC characters in the printout; therefore, any use of the XFER function on the UTS 20 will probably be infrequent.

3.3.2. Entering Codes into the (**PRINT*) and (**XFER**) Fields

The top line of both fields is protected, so you can neither enter nor erase characters. Because the UTS 20 may work only with a printer peripheral, the only codes you must enter in the "to" field are the printer's 2-character identifiers.

<table>
<tr><td>(**PRINT*)</td><td>(**XFER*)</td></tr>
<tr><td>(/to/)</td><td>(/to/)</td></tr>
</table>

The middle subfield (to) identifies the printer you are using and is the only subfield in which you must enter a code. The code must be the same 2-digit code already entered as the DV option in the (PARAM) subfield.

3.4. PRNT( ) FIELD

The 4-character code you enter between the parentheses defines the type of data you wish to move to the printer when you press the PRINT key. All data from the home position or SOE character through the cursor position is moved, under the constraints of the following allowable entries:

- **PRNT**

  This is the default condition of the PRNT( ) field if no other entry is made. The printer prints all data from the SOE character through the cursor position in the same line format that appears on the screen.

- **XPAR**

  This selection ignores the end-of-line format that occurs as you enter data on the screen and instead prints a continuous stream of data. This function is useful when used with the line feed (LF) or form feed (FF) keys to mark within the data specifically where you want a new line or start of new page to occur.

- **FORM**

  This selection replaces protected display characters with spaces in the printout. Thus, a form can be generated with the permanent information, such as column headers, entered as protected data. The protected data will be replaced by spaces in the printout and the unprotected data will be printed.

NOTE:

The PRNT function does not transfer the internal FCC codes to the printout.

3.5. XFER( ) FIELD

The code you enter between the parentheses defines the type of data you wish to move to the printer when you press the XFER key. All data from the home position or SOE character through the cursor position is moved according to the following allowable entries:

- **ALL**

  The entire block of data from SOE to cursor position, including FCC characters, is printed.

- VAR (default condition)

  Only unprotected data and the associated FCCs are printed.

- CHAN

  Only data that has been changed, as indicated by the internal changed-field indicators, and their associated FCCs are printed.

3.6. XMIT( ) FIELD

The 4-character code you enter between the parentheses defines the type of data that will be transmitted to the host when you press the XMIT key. Allowable entries are:

- ALL

  All data and FCCs between home position or the SOE character up to the cursor position are transmitted.

- VAR (default condition)

  Only unprotected fields and their associated FCCs are transmitted.

- CHAN

  Only fields that have been changed and their associated FCCs (indicated by the internal changed-field indicators) are transmitted.

3.7. STA- FIELD

A 3-digit status code for the printer condition is displayed in this field when you press the STATUS key. The status is called up by placing the cursor over the second character of the 2-character parameter option code you entered for the DV parameter type. Positioning the cursor over the second character of the 2-character (**PRINT*) or (**XFER**) subfields or anywhere in the display itself, and pressing the STATUS key produces one of the following status codes in the STA- field:

<div style="padding-left: 2em">

XX 100   Printer not ready

XX 000   Printer ready
</div>

The X's in the code are replaced by the DV code you are using to identify the printer.

NOTE:

Printer condition is also signaled by the AXER indicator, although an indication of this type will probably refer to a communications failure in transferring the data from the host to the printer.

3.8. ADR- AND SEARCH FIELDS

These fields serve no function on the UTS 20.

3.9. MM FIELD

Codes entered into this 2-character field bring up maintenance monitoring displays on the screen. This field is used primarily by maintenance personnel and requires additional knowledge of the system. See the UTS 20 trouble isolation guide, UP-9182 or the UTS 20 programmer's reference manual, UP-9136, for additional information on using these diagnostics.

- EL

    Displays an error log which provides a count of errors in the communications sequence. Press the RESET button to remove the display and reset the error counters.

- LM

    Displays the line monitor on the screen, enabling you to see the polling and transmission sequences.

- MO

    Shuts off the line monitor display.

- CY

    Cycles the power-on confidence display until an error occurs or until the RESET pushbutton is pressed.

- LX

    Initiates loopback test if UTS 20 is connected to a modem, multiplexer, or DCM. (Additional equipment may be necessary to run the test).

    To remove the loopback display, press the RESET pushbutton.

4. UTS 20 Operating Instructions

Operating the UTS 20 terminal requires little more than knowing the keys to press to effect the appropriate actions — either positioning data on the screen or performing the desired transmission or peripheral function.

The information in Section 2 generally defines the function of each key, control, and indicator; Section 3 describes the coding you must enter in the various control page fields. This section tells you how to combine the information from the previous two sections to perform specific operations.

4.1. TURNING THE TERMINAL ON AND PREPARING FOR DATA ENTRY

1.   Expose the front control panel by moving the keyboard away from the UTS 20 cabinet.

2.   Unlock the KEYBOARD keylock (if provided).

3.   Press the POWER switch to ON.

The POWER switch indicator (and the indicator on the magnetic stripe reader, if attached) lights immediately. The POC test display and the indicator line appear on screen.

4.   Observe the POC display and the general appearance of the screen. (See Appendix A for description of proper display.) If you note any discrepancies, turn the power off and repeat steps 3 and 4.

5.   Press the CURSOR TO HOME key to place the cursor in home position and to clear the screen.

6.   Call the control page to the screen (3.1) to verify or enter the codes you want for your operation.

4.2. ADJUSTING DISPLAY INTENSITY

To brighten the display, rotate the INTENSITY control on the front panel up. To dim the display, rotate the control down.

NOTE:

The intensity should be bright enough to read comfortably but not so bright that the characters begin to blur and thicken. The screen may be blanked according to the video off parameter entered in the control page or by reducing the display intensity by turning the INTENSITY knob completely down. Blanking the screen is a good practice if the terminal is to be left on but unused for a long time. Continued high display intensity shortens the life of the screen.

4.3. USING THE CURSOR

The cursor serves as a pointer to show you where the next character will appear on the screen. You can position the cursor anywhere by pressing one of the cursor positioning keys: space bar, scan keys, BACK SPACE key, TAB FORWARD key, and TAB BACK key.

NOTES:

If you tab either forward or backward and there are no tab stops between the cursor and home position, the cursor will return to home position.

The cursor will not stop on a protected data position when the TAB FORWARD, TAB BACK, or any other cursor-positioning key is used. Remember, if the space bar has been defined in the control page as destructive, it will erase characters as it moves the cursor over them.

4.3.1. Entering Data

1.   Move the cursor to where you wish to begin entering information.

2.   Using the appropriate data keys, enter the information that you want on the screen. The data appears one character at a time in the cursor location and the cursor moves to the right one position with each character entered. (If the next character position is protected, the cursor moves to the next unprotected position to the right.) A single alarm tone sounds when the cursor moves into the eighth character position from the right side of the screen.

3.   When the cursor is in the last position of the line and you press another data key, the cursor will automatically move to the beginning of the next line and the character will be entered there. If you are near the end of a line and do not wish to run a word from that line to the beginning of the next line, press the RETURN key. The cursor will move to the first unprotected position of the next line.

4.   Continue typing in this fashion until you have finished or the screen is full. The alarm sounds once as the cursor moves into the last line of the screen.

5.   To enter the uppercase character of any data key, press and hold the SHIFT key simultaneously with the desired data key. To enter a series of uppercase characters, press the LOCK key once. The indicator on the LOCK key will light as long as the shift state is in effect. To return to lowercase characters, press the SHIFT key once.

4.3.2. Overwriting the Character To Replace Unwanted Information

1. Position the cursor over the unwanted character.

2. Press the desired data key. The old character will be replaced by the new character and the cursor will move to the right one position.

3. Repeat this process as often as required to replace the unwanted characters.

4.3.3. Erasing the Character To Replace Unwanted Information

1. Position the cursor over the unwanted character.

2. Press the FUNCTION key and the ERASE CHAR key, or press the space bar if it has been defined in the control page as being destructive. The cursor will move to the next unprotected position to the right.

3. Repeat this procedure as often as required to remove the unwanted characters.

4.3.4. Erasing One Line at a Time

POSITION CURSOR OVER FIRST UNWANTED CHARACTER. ▉LL UNPROTECTED DATA TO THE END OF THE LINE WILL BE ERASED.

POSITION CURSOR OVER FIRST UNWANTED CHARACTER. ▨ END OF THE LINE WILL BE ERASED.
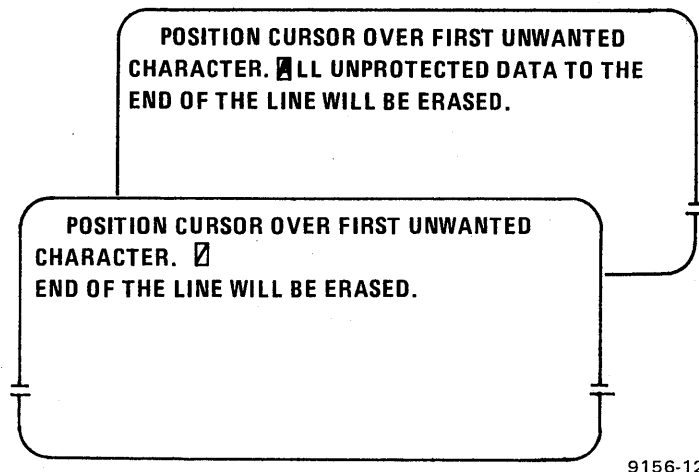
9156-12

1. Position the cursor over the first unwanted character in the line to be erased.

2. Press the ERASE EOL key. All information from the cursor to the end of the line will be erased.

NOTE:

If the end of a field occurs before the end of the line, the ERASE EOL key will remove only the remaining characters within that field. If protected data occurs before the end of the line or field, erasure will stop at that point.

4.3.5. Erasing A Field
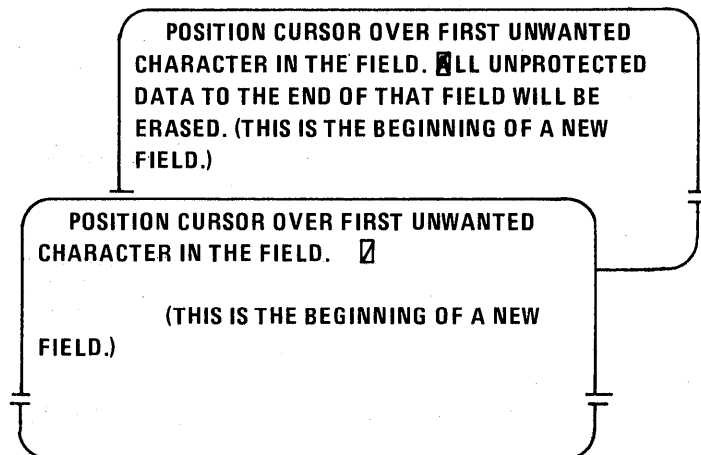
```
┌─────────────────────────────────────────────┐
│     POSITION CURSOR OVER FIRST UNWANTED       │
│   CHARACTER IN THE FIELD. ▓LL UNPROTECTED     │
│   DATA TO THE END OF THAT FIELD WILL BE       │
│   ERASED. (THIS IS THE BEGINNING OF A NEW     │
│   FIELD.)                                     │
│   ┌───────────────────────────────────────────┐
└───│     POSITION CURSOR OVER FIRST UNWANTED    │
    │   CHARACTER IN THE FIELD.   ▢               │
    │                                            │
    │          (THIS IS THE BEGINNING OF A NEW   │
    │   FIELD.)                                   │
    │                                            │
    └────────────────────────────────────────────┘
```
                                                            9156-13

1.   Position the cursor over the first unwanted character in the field to be erased.

2.   Press the ERASE TO EOF key. All information from the cursor to the end of the field will be
     erased, even though that field extends beyond the end of one or more lines.

NOTE:

If protected data occurs before the end of the field, erasure will stop at that point.

4.3.6. Erasing All Data
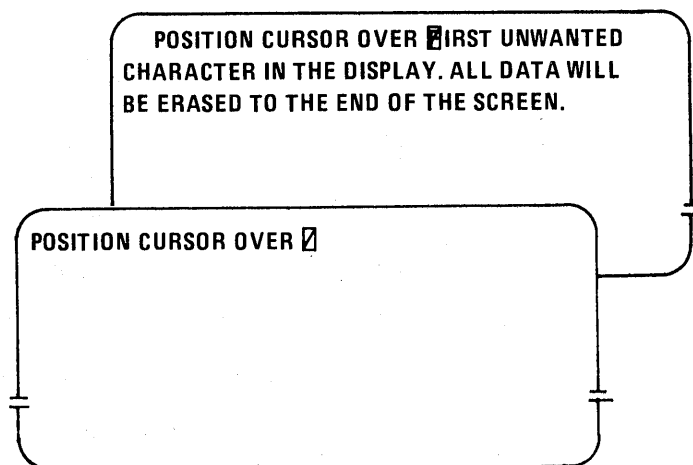
```
┌─────────────────────────────────────────────┐
│     POSITION CURSOR OVER ▓IRST UNWANTED       │
│   CHARACTER IN THE DISPLAY. ALL DATA WILL     │
│   BE ERASED TO THE END OF THE SCREEN.         │
│   ┌───────────────────────────────────────────┐
└───│   POSITION CURSOR OVER ▢                   │
    │                                            │
    │                                            │
    │                                            │
    │                                            │
    │                                            │
    └────────────────────────────────────────────┘
```
                                                            9156-14

1.   Position the cursor over the first unwanted character on the display.

2.   Press and hold the FUNCTION key.

3.   Press the ERASE DISPLAY key. All information, including protected data and FCCs, from the
     cursor to the end of the display will be erased.

4.3.7. Erasing All Unprotected Data
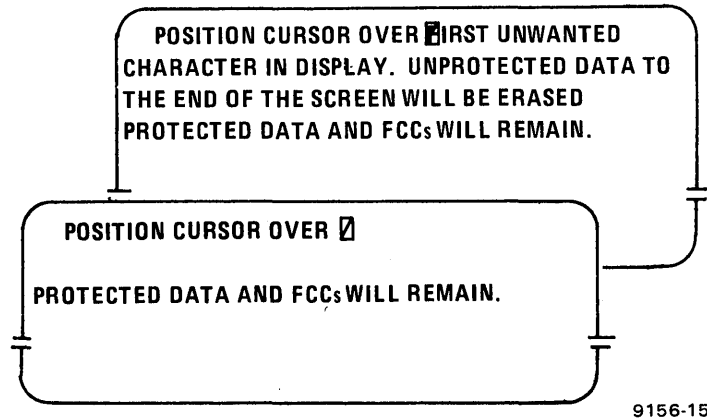
```
POSITION CURSOR OVER ▊IRST UNWANTED
CHARACTER IN DISPLAY. UNPROTECTED DATA TO
THE END OF THE SCREEN WILL BE ERASED
PROTECTED DATA AND FCCs WILL REMAIN.

POSITION CURSOR OVER ▨

PROTECTED DATA AND FCCs WILL REMAIN.
```
9156-15

1. Position the cursor over the first unwanted character on the display.

2. Press and hold the FUNCTION key.

3. Press the ERASE EOD key. All unprotected information from the cursor to the end of the display will be erased. Protected data and FCCs will remain.

4.3.8. Setting Conventional Tab Stops

```
▨ ACCT#     ▨ DESCRIPTION     ▨ UNIT     ▨ PRICE        TAB SET
                                                         SOE

▨ ACCT#.   ▨ DESCRIPTION    ▨ UNIT    ▨ PRICE      TAB
                                                   BACK

                                                   TAB
                                                   FORWARD
```
9156-32
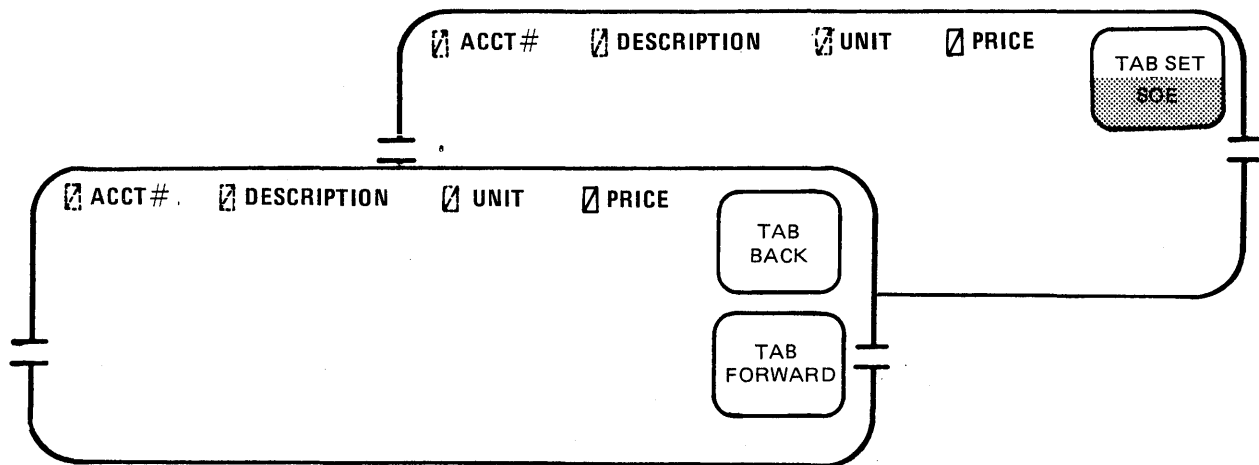
Establish conventional tab stops within your data with the TAB SET key as follows:

1. Place the cursor one position to the left of where you want the tab stop.

2. Press the TAB SET key. The tab stop position is marked internally and the cursor moves one position to the right.

NOTE:

When you press the TAB FORWARD or TAB BACK keys to locate the tab stop, the cursor automatically moves to the first unprotected position right of the tab. If you manually position the cursor over the tab stop position and then enter data in that position, the tab stop will be erased.

4.4. DUPLICATING COMPLETE LINES

```
ACCT. #      DESCRIPTION      UNIT      PRICE

7123▨          PENCILS        BOX        2.10
```

```
ACCT. #      DESCRIPTION      UNIT      PRICE

7123          PENCILS        BOX        2.10
7123 ▨        PENCILS        BOX        2.10
```
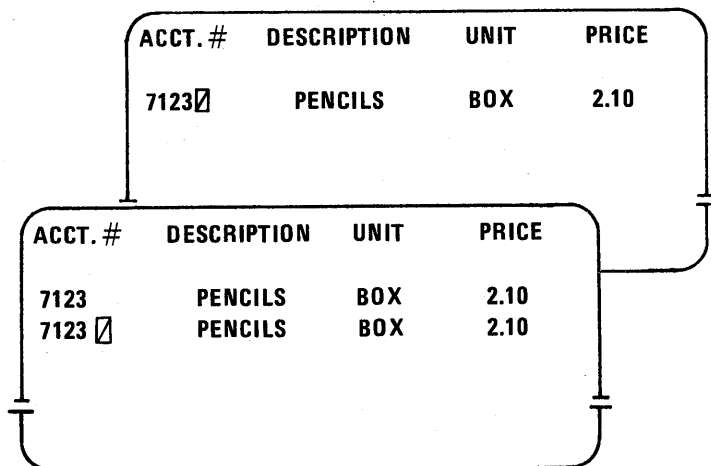
9142-61

1. Position the cursor to any position in the line you wish to duplicate.

2. Press the LINE DUP key. The line will be duplicated in the next line down on the screen. The cursor will move down into the same column location of the new line.

3. Hold the LINE DUP key down to repeat duplication of the same line. (This function is particularly useful for producing tabular or repetitive forms.)

NOTE:

If the line below the one you wish to duplicate already contains data and you press the LINE DUP key, that line will be replaced with the duplicated line. If you wish to retain the data in the second line, first insert a new blank line (4.7) before duplicating the line above it. Then, when you press the LINE DUP key, the line will be repeated in the new blank line.

4.5. EXPANDING A LINE TO INSERT CHARACTERS

```
      TO INSERT A CHARACTER IN A LINE,
PO▨ITION THE CURSOR OVER THE SPACE IN WHICH
THE NEW CHARACTER IS TO APPEAR.


THIS KEY AFFECTS ONLY ONE LINE.
```

```
    TO INSERT A CHARACTER IN A LINE,
PO▨ITION ON THE CURSOR OVER THE SPACE IN WHIC
THE NEW CHARACTER IS TO APPEAR.


THIS KEY AFFECTS ONLY ONE LINE.
```
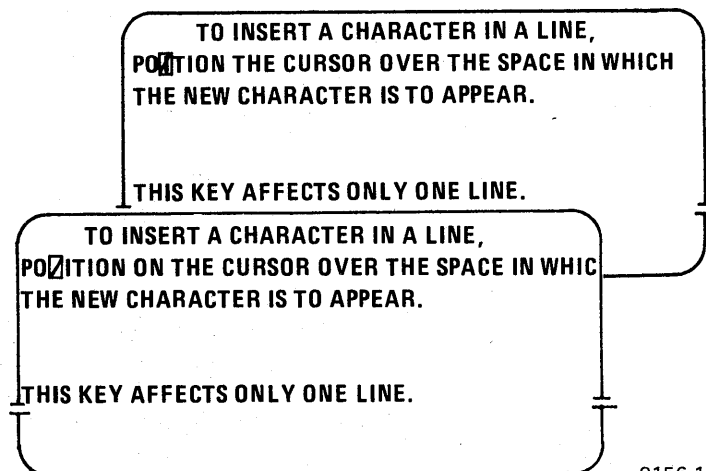
9156-19

1. Position the cursor where the new character is to appear.

2. Press the INSERT IN LINE key. The cursor remains stationary. The character under the cursor and all characters in the line to the right of the cursor will move one position to the right, creating a space for the insertion.

3. Enter the desired character.

4. Holding down the INSERT IN LINE key will repeatedly insert spaces.

NOTE:

Each time you press the INSERT IN LINE key, the character in the last position of the line will be moved off the screen permanently. (There is no wraparound to the next line.)

If the INSERT IN LINE key is used in a field that ends before the end of the line, characters will be moved only within that field. If the field extends onto another line, the character will be moved only within the original line.

4.6. EXPANDING THE DISPLAY TO INSERT CHARACTERS

TO INSERT A CHARACTER AND SHIFT THE
ENTIRE DISPLAY, POSITION THE CURSOR OVER
THE SPACE IN WHICH THE NEW CHARACTER IS TO
APPEAR.

ALL TEXT IN THE DISPLAY WILL SHIFT TO THE
RIGHT.

TO INSERT A CHARACTER AND SHIFT THE
ENTIRE DISPLAY, POSITION THE CURSOR OVER
THE SPACE IN WHICH THE NEW CHARACTER IS T
O APPEAR.

ALL TEXT IN THE DISPLAY WILL SHIFT TO TH
E RIGHT.

9156-21
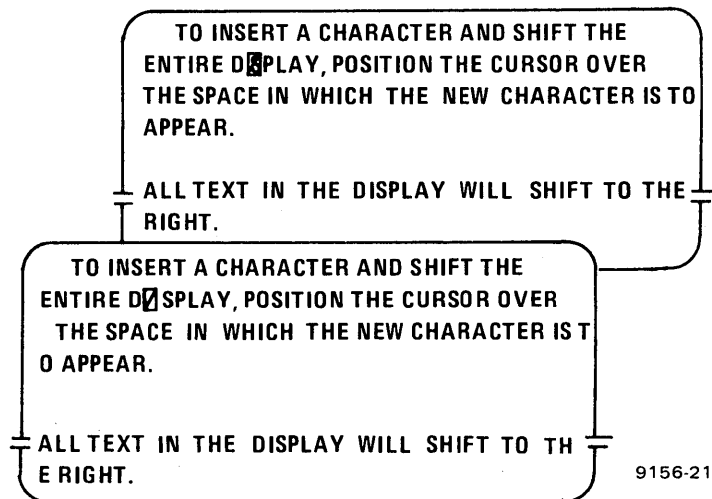
1. Position the cursor where the new character is to appear.

2. Press and hold the FUNCTION key.

3. Press the INSERT IN DISP key. The cursor will remain stationary. The character under the cursor and all characters to the right of the cursor will be moved one position to the right. A space will be inserted at the cursor position.

4. Enter the desired character.

5. Cycling the INSERT IN DISP key inserts a succession of spaces. Characters moving out of the last position on any line are moved into the first position of the next line. The character in the last position of the last line will be moved off the screen.

NOTE:

If the INSERT IN DISP key is used in a field that ends before the end of the display, characters will move only within that field.

4.7. INSERTING A BLANK LINE BETWEEN EXISTING LINES

ACCT. #	DESCRIPTION	UNIT	PRICE
7123	PENCILS	BOX	2.10
7123▨	PENCILS	BOX	2.10

ACCT. #	DESCRIPTION	UNIT	PRICE
7123	PENCILS	BOX·	2.10
▨			
7123	PENCILS	BOX	2.10

9156-17
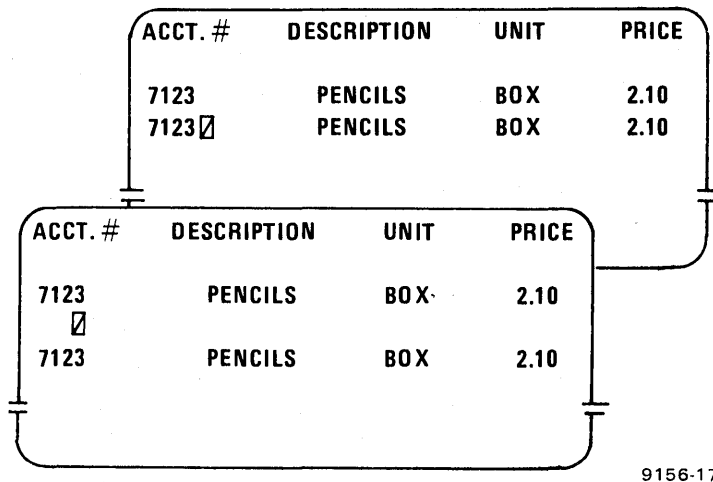
1. Position the cursor anywhere in the line that occupies the position desired for the new line.

2. Press and hold the FUNCTION key.

3. Press the INSERT LINE key. The line occupied by the cursor and all lines following to the bottom of the screen will be moved down one line. The cursor remains stationary. If you are using FCCs, the blank line will become part of the previous field until you set up new fields and characteristics by generating FCCs.

4. You may insert up to one full screen of blank lines by cycling the INSERT LINE key.

4.8. DELETING CHARACTERS WITHIN A LINE

TO DELETE A CHARACTER FROM A LINE AND CLOSE THE ▆SPACE, POSITION THE CURSOR OVER THE UNWANTED CHARACTER.

THIS KEY AFFECTS ONLY ONE LINE.

TO DELETE A CHARACTER FROM A LINE AND CLOSE THE ▆PACE, POSITION THE CURSOR OVER THE UNWANTED CHARACTER.

THIS KEY AFFECTS ONLY ONE LINE.

9156-20

1. Position the cursor over the character to be deleted.

2. Press the DELETE IN LINE key. All characters in the line to the right of the cursor are moved one position to the left with a space inserted at the end of the line. The unwanted character that was beneath the cursor is removed.

3.   To quickly remove a succession of characters, cycle the DELETE IN LINE key.

NOTE:

If the DELETE IN LINE key is used in a field that ends before the end of the line, the action will occur only in that field.

4.9. DELETING CHARACTERS WITHIN THE DISPLAY

```
TO DELETE A █ CHARACTER AND SHIFT THE
ENTIRE DISPLAY, POSITION THE CURSOR OVER
THE SPACE IN WHICH THE NEW CHARACTER IS TO
APPEAR.

ALL TEXT IN THE DISPLAY WILL SHIFT TO THE
LEFT.
```
```
TO DELETE A █HARACTER AND SHIFT THE E
NTIRE DISPLAY, POSITION THE CURSOR OVER T
HE SPACE IN WHICH THE NEW CHARACTER IS TO A
PPEAR.

                                        A
LL TEXT IN THE DISPLAY WILL SHIFT TO THE L
EFT.
```
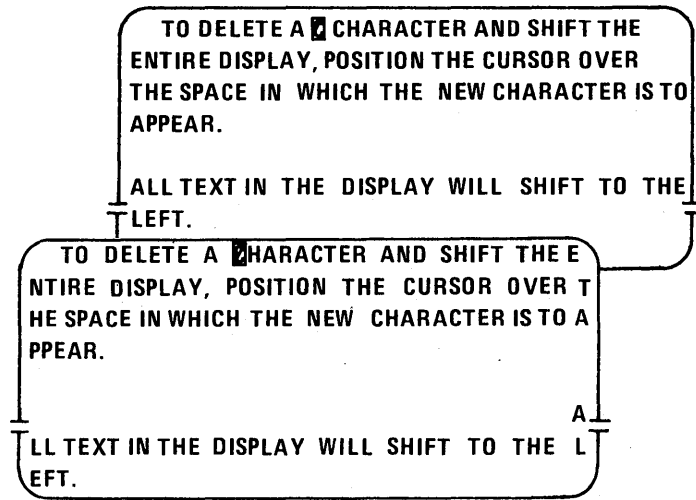
9156-22

1.   Position the cursor over the character to be deleted.

2.   Press and hold the FUNCTION key.

3.   Press the DELETE IN DISP key. The character under the cursor will be deleted and all characters in the display will be moved one position to the left. The shifting action will wrap around the screen from the last position of the display left to the cursor.

4.   To quickly delete a succession of characters, cycle the DELETE IN DISP key.

NOTE:

If the DELETE IN DISP key is used in a field that ends before the end of the display, the action will occur only in that field.

4.10. DELETING AN EXISTING LINE AND FILLING THE SPACE


```
ACCT. #       DESCRIPTION       UNIT      PRICE

7123            PENCILS          BOX       2.10
7123▨           PENCILS          BOX       2.10
1044            CLIPS            BOX        .72

ACCT. #     DESCRIPTION       UNIT      PRICE

7123          PENCILS         BOX       2.10
1044▨         CLIPS           BOX        .72
```

9156-18

1.   Position the cursor to any position in the line to be deleted.

2.   Press the DELETE LINE key. The line in which the cursor is located will be deleted from the screen, and all lines below this position will move up one line. The cursor will not change its location on the screen but will appear in the lin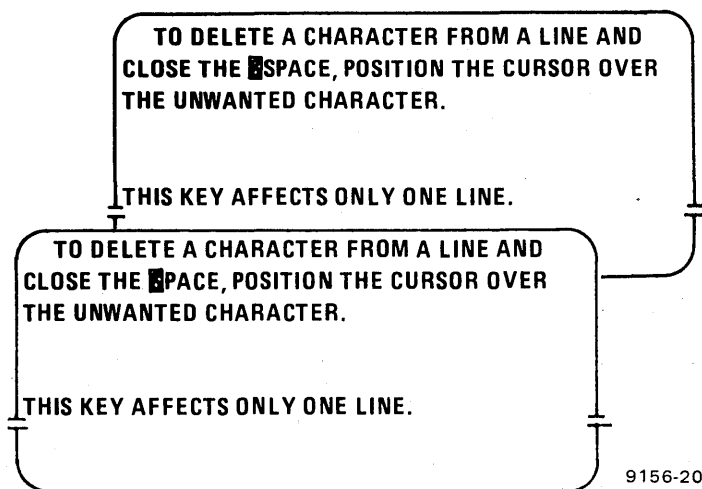e that is moved into the space occupied by the deleted line. A blank line will appear at the bottom of the screen. If you are using FCCs, the blank line becomes part of the previous field until you set up new fields and characteristics by generating new FCCs. (If FCCs were deleted by the use of this key, the characteristics of fields defined by those FCCs were also changed.

3.   Cycle the DELETE LINE key to delete a succession of lines.

4.11. CLEARING CHANGED FIELD INDICATORS FROM FCCs

On UTS 20 terminals with FCC capability, change indicators are automatically set when you enter or change data in a field. These indicators must be cleared before you set up a display to be transmitted as a CHAN (changed field), as determined in the control page (3.6).

1.   With the cursor anywhere on the screen, press and hold the FUNCTION key.

2.   Press the CLR CHG key. Although there is no visible reaction, any change indicators set will be cleared from the FCCs.

4.12. USING FIELD CONTROL CHARACTERS (FCCs)

4.12.1. Generating and Enabling FCCs
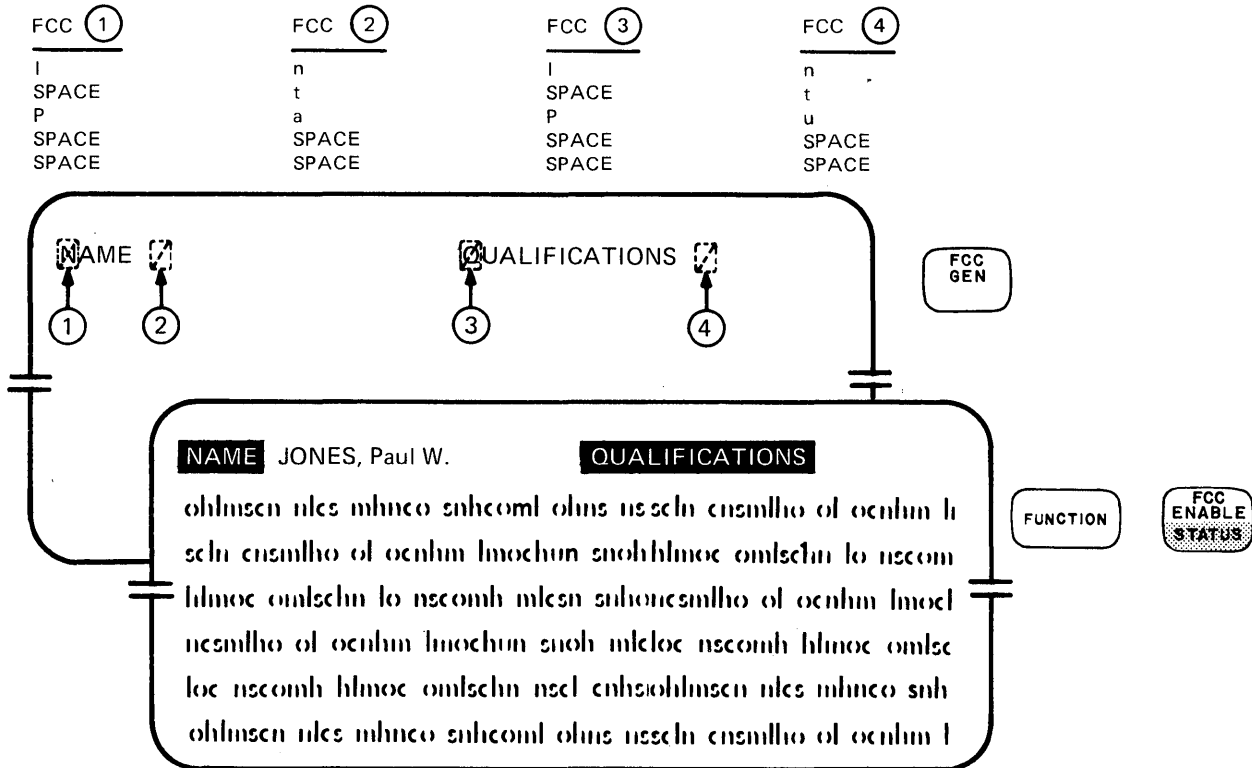
9135-71

1.   Place the cursor in the position that marks the beginning of the field to be formatted.

2.   Press the FCC GENERATE key.

3.   Press the appropriate data keys as given in Table 4-1.

You must enter the proper codes in order or an alarm will sound once and the UTS 20 will terminate the FCC generate mode. (To place the UTS 20 in the FCC generate mode again, you must press the FCC GENERATE key.)

As you enter the FCC codes, the cursor will remain in the same position and the last-entered character code will blink.

The appropriate codes within the selection sequence are given in Table 4-1.

Table 4–1. Code Selection Sequence

Step	Data Key	Field Characteristics
1	N (or space) L B	Normal display intensity Low display intensity Blink
2	T S (or space)	Tab stop (in FCC location) No FCC-defined tab stop
3	P A N U (or space)	Protected (no entry accepted) Alphabetic entries only Numeric entries only Unprotected (any entry accepted)
4	R Space	Right justification of all data entered Normal data positioning
5	Space bar	Ends FCC sequence; activates intensity and tab selections

4.   Press and hold the FUNCTION key.

5.   Press the FCC ENABLE key. Protected or right-justified fields will now be fully enabled.

NOTES:

The UTS 20 does not allow a protect and right-justify FCC code to be selected within the same field.

Successfully generating an FCC disables all existing FCCs in the display. When several FCCs are being generated, do not press the FCC ENABLE key until all of the FCCs have been set up.

Cursor position is not significant when you are enabling FCCs. Normally, the cursor remains stationary when you press the FCC ENABLE key. However, if the cursor is in a protected position at the time the enable key is pressed, the cursor will move forward to the first unprotected position. If the cursor is in a right-justified field when this key is pressed, the cursor will move left to the first location in that field.

Pressing the FUNCTION and CTL PAGE keys after an FCC has been generated also enables the FCC.

4.12.2. Locating an FCC

1.   Press and hold the FUNCTION key.

2.   Press the FCC LOCATE key. The cursor will move immediately to the first position of the nearest FCC at the right of the cursor.

NOTE:

The FCC LOCATE key locates the first position of all FCCs, whether or not they have been defined with a tab stop or as a protected field. That is, a field defined in the FCC as protected would normally prevent the cursor from resting in any position in that field. The FCC LOCATE key, however, allows you to place the cursor at the location in which the FCC was generated.

The FCC LOCATE key disables any previously enabled protect, right-justify, alpha-only and numeric-only FCC selections. Any time you use the FCC LOCATE key, you must press the FCC ENABLE key afterward to reenable those fields.

4.12.3. Changing an FCC

1.   Locate the existing FCC with the FCC LOCATE key. (All FCCs on the screen will be disabled.)

2.   Use the FCC GENERATE key to generate a new FCC.

3.   Enter the desired characteristics.

4.12.4. Clearing an FCC

1.   Locate the FCC field to be cleared.

2.   Position the cursor anywhere within that field.

3.   Press and hold the FUNCTION key.

4.   Press the FCC CLEAR key. The FCC in or immediately to the left of the cursor location is cleared.

NOTE:

The field defined by the cleared FCC becomes part of the preceding field until a new FCC is generated.

4.12.5. Using an FCC-Formatted Field

The following gives you additional information on how the various FCC characteristics work. You will need to experiment on your own, however, to determine the best way to format the screen for your own applications.

Remember that, except for the right-justify characteristic, a field extends from the position of the FCC generation to the end of the screen or the beginning of the next FCC field, whichever is first.

4.12.6. Using FCC Intensity Characteristics

The effect of the FCC intensity characteristics — low, normal, and blink — on the display is modified by the alternate brightness parameter entered in the control page and by the INTENSITY control knob on the cabinet front panel.

The effect of the control page parameter on the FCC intensity characteristic is as follows:

Parameter Setting	FCC	Display
LI (low)	L	Low
	N	Normal
	B	Low to normal
*NI	L	Normal
	N	Normal
	B	Normal
RV	L	Reverse video
	N	Normal
	B	Reverse video to normal

The intensity characteristics are useful for setting up screen displayed data. You cannot transfer the intensity characteristics to a printed copy, however.

4.12.7. Using the FCC Tab Set Characteristic

The UTS 20 offers you three different ways to quickly locate a specific field in the display:

FCC LOCATE key	Locates all FCC fields, whether or not they are protected fields.
Conventional tab stop (TAB SET key)	Establishes tab stops so that you can tab forward or backward to data, whether or not you are using FCCs.
FCC tab stop	FCC selection characteristic that lets you use the TAB FORWARD or TAB BACK keys to locate FCC fields in which tab stops are selected.

4.12.8. Defining FCC Accepted Entry Characteristic

■   Protected Only

A protected field is one in which data entry is not accepted. A blank portion of the screen may be protected to prevent data entry in that portion, or a block of data may be protected to prevent modification of the data.

Any FCC intensity characteristic selected with "NI" alternate brightness parameter produces a normal intensity display. Thus, a "blink" FCC characteristic alternates normal intensity with normal intensity and appears to be unblinking.

When you generate an FCC with the protected field characteristic, you may enter data into that field until you enable the FCCs. After the FCCs have been enabled, data cannot be entered into that field, until that field is redefined or the FCC is disabled.

The scan keys can move the cursor through a protected field, but as soon as the scan key is released, the cursor jumps to the first unprotected position.

The FCC LOCATE key will position the cursor to where a protected FCC was generated, but will simultaneously disable the protected field characteristic, allowing you to change data in the field. If you press the FCC ENABLE key again, the protected field characteristic will again be in effect.

■   Alphabetic Only

$$Aa \quad - \quad Zz$$

▶   \ |

●   —   ~

'

@   `   ∧

[{

]   }

9135-56

No entries other than alphabetic are accepted. If a non-alphabetic entry is attempted in an alphabetic-only field, the alarm sounds once, the cursor does not move, and the disallowed keystroke is ignored.

■   Numeric Only

$$0-9 \quad ▶$$

+

—

●

'

9135-57

No entries other than numeric are accepted.

If a non-numeric entry is attempted in a numeric-only field, the alarm sounds once, the cursor does not move, and the disallowed keystroke is ignored.

■   Unprotected (any entry allowed)

Any type of data entry is allowed in this field.

4.12.9. Defining a Field for Right-Justification

FIELD A
(RIGHT-JUSTIFIED)

FIELD A

FIELD B

9156-33
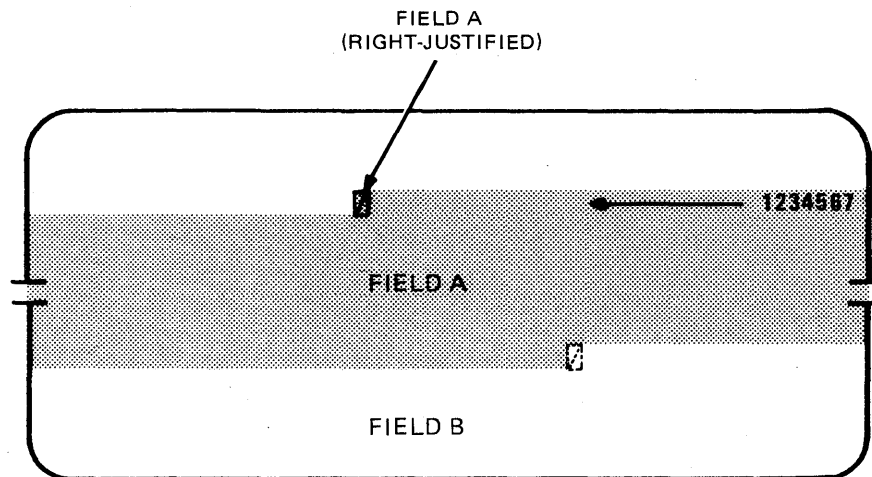
In a right-justified field, the cursor remains stationary at the far left end of the field, each character enters from the far right end of the field, and moves to the left (toward the cursor) as additional characters are entered. Right-justification can only occur within the first line of a field, even if the defined field extends beyond the end of that line.

When a character shifts beneath the cursor in a right-justified field, the field is full and the cursor will move automatically to the first unprotected position of the next field.

The cursor can be moved within the right-justified field with the scan keys. Once the cursor is within the field, however, the field no longer functions as a right-justified field. You can overwrite or edit characters normally, as characters enter the field at the cursor position, move toward the right, and the cursor advances.

NOTE:

You use the scan keys to place the cursor in a blank portion of a right-justified field preceding previously entered characters. If you attempt to enter characters into that position of the field, the alarm will sound, the cursor will remain stationary, and the character will not be entered.

Generating a new FCC anywhere on the screen, or pressing the FCC LOCATE key temporarily disables the right-justified characteristic. Press the FCC ENABLE key to reenable the characteristic.

4.13. TRANSMITTING AND TRANSFERRING INFORMATION

4.13.1. Defining the Beginning and Ending of a Message

ALL DATA DOWN TO THE SOE WILL BE
IGNORED. ▶ THIS IS THE DATA THAT WILL
BE PRINTED.▨THIS DATA WILL BE IGNORED.

▨
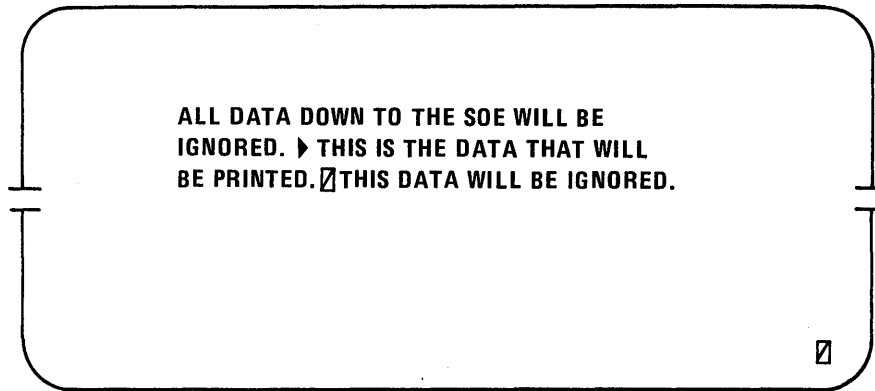
9135-50

The UTS 20 can transmit or transfer all or part of the screen display, as designated. Define the text you wish to send as follows:

1. Call up the control page to verify the XMIT( ) field selection.

2. Place the cursor one space to the left of the text to be sent.

3. Press the SOE key. A start-of-entry character ( ) will be entered at the cursor location and the cursor will move one position to the right.

4. Move the cursor to the last position of the text to be included in the transmission.

5. Perform the desired transmission or transfer. The information to the right of the SOE character through the cursor position will be included in the transmit or transfer operation. Data outside those parameters is ignored.

NOTES:

If you want to send the entire screen of data, the home position is automatically interpreted as the start of entry. Entering an SOE character is unnecessary, and one extra data position is allowed at the beginning of the display.

If an FF character for print format is entered at any location in the message, the data following the FF character is printed in the first column and the first data position of the next form. Thus, the format of the following lines may be changed unless you remember this characteristic while you are formatting the data on the screen.

4.13.2. Using the XMIT Key

When your text is ready for transmission to the host, perform the following steps:

1. Verify that the communications connection has been made and the POLL indicator is blinking.

2. Verify that the desired transmission type is entered in the control page XMIT( ) field.

3.   Press the XMIT key. The WAIT message on the indicator line will light and the cursor will disappear until the text has been received and acknowledged by the host. The keyboard is locked to additional entries at that point until the host repaints the display on the screen. The cursor then reappears, the WAIT indicator goes out, and the keyboard is unlocked.

NOTE:

While the WAIT indicator is flashing, the keyboard is locked. The UTS 20 will ignore all keystrokes except for the program attention keys or the MSG WAIT key.

4.   When the WAIT indicator goes out, you may continue your work.

4.13.3. Using the PRINT Key

When your text is ready to be printed, perform the following steps:

1.   Verify that the desired function and type have been entered in the control page (**PRINT*) and PRNT(   ) fields.

2.   Be sure you have formatted the screen with any necessary LF or FF characters.

3.   Press the PRINT key. The WAIT and AUXB indicators on the indicator line will appear and remain lit until the text has been printed. The cursor will disappear briefly and will return when the transfer is complete. While these indicators are on, the keyboard will be locked to additional entries.

4.   When the WAIT indicator goes out, you may continue with your work. (See Section 5 for specific printing functions.)

4.13.4. Using the XFER Key

If you wish to use the transfer function to print a screen display, perform the following steps. (Remember that any FCCs you have formatted in the display will be printed with your data.)

1.   Verify that the function and type have been entered in the control page (**XFER**) and XFER(   ) fields.

2.   Press the XFER key. The WAIT and AUXB indicators will appear and remain lit until the text has been completely transferred from the display. The cursor will disappear briefly and will return when the transfer is complete. During the transfer, the keyboard will be locked to additional entries. See Section 6 for specific transfer functions.

4.13.5. Unlocking the Keyboard

A locked keyboard indicates that either data transfer or transmission is taking place, or that an error condition has occurred. Further data entry is impossible until the transfer or transmission is complete or the error condition is cleared.

Pressing the FUNCTION and UNLOCK keys unlocks the keyboard by aborting whatever operation is in process.

4.13.6. Using the Program Attention Keys

The UTS 20 keyboard has 22 program attention keys, labeled F1 through F22, plus the MSG WAIT key. The functions of these keys are assigned by the user, so consult your supervisor to identify the keys necessary to perform a specific operation or to setup a preestablished screen display.

Typically, the MSG WAIT key is used to display an unsolicited message from another station through the host.

If you are going to use any of these special F1 through F22 program attention keys, perform the following:

1.   Press and hold the FUNCTION key.

2.   Press the keycap containing the F-numeral designation of the program you wish to call to the screen.

NOTE:

Specific instructions for full implementation of these keys will be supplied by your supervisor.

4.14. COMMUNICATION CONCEPTS

4.14.1. Dedicated Lines

A dedicated line is a permanent communications connection between the UTS 20 and the host processor. Usually, several other terminals will be sharing the same dedicated line. Whenever you turn on the UTS 20, you become part of the active communications network, being polled regularly as long as your terminal remains active. If you are on a dedicated line, you need not be concerned with performing any additional hook-up operations. You need only to turn the UTS 20 on.

4.14.2. Dialing in a Switched Line

A switched line is similar to a dialed telephone connection. You dial a special number to call the host processor and you are connected to the communications line when the processor answers your call. As long as you (and the processor) remain active, you are part of the communications network.

Several types of dialed connections are available to interface with the UTS 20. You will need to check with your supervisor about the exact type that you have and how to operate it.

The following instructions relate to the Bell System DATAPHONE,* which is one of the most widely used dialed connections. These instructions for use of the DATAPHONE will give you an idea of how to dial in any connection:

1.   Press the TALK pushbutton on the DATAPHONE.

2.   Lift the handset and dial the number as though you were making a regular telephone call.

3.   When you have finished dialing, listen for the line to ring once or twice. When the processor answers the call, the ringing will stop and a continuous tone will be heard.

_____
DATAPHONE is a trademark of the BELL System.

4. When you hear the continuous tone (called a "carrier"), press the DATA button and replace the handset in its cradle. The DATA button indicator will light and will remain lit while your connection is active.

4.14.3. Hanging Up a Switched Line

When you are ready to break the connection between the host and the UTS 20, simply press the HANG UP key.

4.14.4. What the POLL Indicator Means

The POLL indicator blinks whenever the UTS 20 is on and connected to an active communications line. (It does not blink when you are operating offline.) The blink occurs each time the UTS 20 is being polled. If the UTS 20 is connected to a multiplexer, the blink indicates that the stations sharing a common station address on the multiplexer are jointly being polled.

When you have a message ready for transmission and have already pressed the XMIT key, or when you have pressed one of the program attention keys, the blink will generally correspond to the activity that results in the transmission of the message.

If a system problem or error condition occurs, either at your station or one of the other stations on the communications line, the POLL indicator may not blink and the system, therefore, is not accepting transmissions from your station. Wait a few minutes before attempting any diagnostic or corrective procedures to see if the polling delay is only temporary.

5. Operating the Printer

The UTS 20 can be linked to either of two SPERRY UNIVAC printers: the 0798 printer subsystem or the 0797 printer subsystem. General descriptions and operating instructions for these machines are contained in the following Sperry Univac documentation:

    0798 Printer Subsystem General Description (UP-8871)
    0798 Printer Subsystem Operator's Guide (UP-8882)
    0797 Printer Subsystem General Description (UP-8159)
    0797 Printer Subsystem Operator's Guide (UP-9160)

The instructions in this section are based upon the assumption that you are already familiar with the contents of these manuals or have the books available for reference.

5.1. GENERAL PREPARATION OF THE PRINTER

1.   Make sure the paper and ribbon supplies are adequate for the job you intend to print.

2.   If the printer is equipped with a vertical format unit (VFU), check that the VFU tape unit is the correct one for the forms to be used and that the forms are properly aligned with the tape loop.

3.   Make sure that both the front cover and the clear plastic cover are fully closed.

4.   Press the POWER switch to ON. (The indicator should light when printer power is on.)

5.   Press the RUN/STOP switch. The indicator should light.

6.   Verify that the "to" subfield of the (**PRINT*) or (**XFER**) field matches the code specified as the device identifier (DV parameter type.)

5.2. EFFECT OF THE LINE FEED (LF) CHARACTER

When you use the LF key in entering data on the screen, the printed format of the data is affected whether you are using the print (**PRINT*) or the transfer (**XFER**) function. Be sure to press the LF key where you want the printer to perform a carriage return and line feed. The next character after the undisplayed line feed code will be printed in the first position of a new line.

NOTE:

When "ON" is entered in the control characters parameter (3.2), the line feed and form feed characters are displayed.

5.3. EFFECT OF THE FORM FEED (FF) CHARACTER

When you use the FF key in your data, the printer will end the printing of one page and roll the paper up to begin the printing on the next page or form. The first displayed character after the form feed location will be printed in the first position of the new form.

If the printer is equipped with a VFU, the FF character causes the printer to stop printing on the present form and advance to the first data line of the next form. If the printer is not equipped with a VFU, or if the tape is not installed, the FF key causes a line feed function.

5.4. DIFFERENCES IN USE OF THE XFER AND THE PRINT KEYS

Be sure you understand the results of designating a PRINT or an XFER function before you press the corresponding key. The PRINT function allows you to use FCCs to format the display without actually printing them. Also, the PRINT function maintains the same format you used in entering the data on the screen (with the exception of the PRINT function in XPAR mode) by recognizing the end-of-line and cursor return codes at the end of each line in the display.

In XPAR mode, the UTS 20 eliminates the cursor return codes at the ends of the lines before data is transferred to the printer.

The XFER function prints screen data plus FCC characters as they occur in the display.

Generally, for most printing operations, use the (**PRINT*) field and the PRINT key (instead of the XFER function) to transfer data to the printer.

5.4.1. Using the PRINT Key

5.4.1.1. Printing the Total Display in PRNT Mode

If the LF key was not used in the display, the exact format of the display is observed, with the printer automatically performing a line feed after the last data character of each line.

NOTE:

Although the SOE (▶) character occupies a space on the screen, it is stripped out in the printing process and may alter the alignment of the data.

If the LF key was used in the display, the printer performs a line feed each time the undisplayed LF character is encountered in the data as well as after the last data character of each line. Therefore, if you have pressed the LF key at the end of a line, the printer will double space between the end of that line and the beginning of the next line.

5.4.1.2. Printing the Total Display in XPAR Mode

The XPAR mode automatically eliminates all cursor returns that occurred when you entered the data and results in a continuous stream of data being printed on the same line. The LF or FF key must be used to format the data as you want it to appear in the printed version.

5.4.1.3. Printing in FORM Mode

Unprotected data is printed as it appears on the screen, while spaces are substituted for the protected portion of the display. The printer performs a line feed following the last data character or protected character in each line.

1.   Display the control page to verify that the device code matches the entry in the "to" subfield of the (**PRINT*) field.

2.   Enter FORM in the PRNT( ) field.

3.   Remove the control page.

4.   Verify that the printer is ready for operation.

5.   Be sure the cursor and SOE character (if needed) are properly positioned on the screen, and that the LF or FF key is used if necessary.

6.   Press the PRINT key. The WAIT and AUXB indicators will light and the unprotected portions of the data will be printed.

7.   When the data has been printed, the WAIT and AUXB indicators will go out and the keyboard will be unlocked for additional entries.

8.   Repeat steps 5 through 7 for each additional screen of data.

5.4.1.4. Printing on Preprinted Forms (FORM Mode)

When you want to print data on preprinted forms, you will use FCCs to define protected and unprotected fields and the PRINT function to transfer data to the printer.

1.   Prepare a set of FCCs to correspond to the preprinted form. For each term preprinted on the form, set up an FCC that includes the protected-field function.

2.   Enter the preprinted terms that appear on the form, allowing for the spacing difference between the screen characters and those on the printed form.

      For each blank to be filled in on the form, set up an FCC with unprotected format. You may want to set the protected-format FCC in low intensity and the unprotected-format FCC in normal intensity (or other combination) to highlight the display of the variable data. (The intensity characteristics do not affect the printout.) You may also find it convenient to set each unprotected FCC to act as a tab stop.

NOTE:

Do not press the FCC ENABLE key until the form has been fully set up. You can then enter and modify or correct the protected fields as necessary.

3.   Press the FUNCTION and FCC ENABLE keys. The protected field characteristic, together with any right-justified and alpha-only or numeric-only fields, is now in effect.

4. Enter some random or typical characters in the unprotected data fields.

5. Make a test printing by setting the PRNT( ) field to FORM and pressing the PRINT key.

6. Make any necessary adjustments to placement of the fields.

7. Repeat steps 3 through 5 as required until the variable fields in the display exactly fit into the preprinted form.

8. When the form has been printed, erase all unprotected data by pressing the CURSOR TO HOME key and then the FUNCTION and ERASE EOD key, or erase selected fields by pressing the ERASE TO EOF key.

5.4.2. Using the XFER Key

5.4.2.1. Printing All Data

Without an LF character, the displayed data is printed in one continuous stream until the last character has been printed.

NOTE:

The printer will attempt to print full 132-character lines regardless of the form width. Printing off the form is possible if the form is less than 132 characters wide.

The printer performs a line feed each time an LF occurs.

1. Call the control page to the screen.

2. Enter the printer code in the "to" subfield of the (**XFER**) field.

3. Verify that "ALL" appears in the XFER( ) field.

4. Return the control page to storage.

5. Verify that the printer is ready for operation.

6. Position the cursor as desired.

7. Press the XFER key. The WAIT and AUXB indicators will light and the display will be printed.

NOTE:

The printed display will not appear exactly as your screen display unless LF codes have been used and no FCCs were used. Remember that the "XFER" function prints all FCC machine code characters, so the position of the data will be altered with each FCC printed.

8. When the display has been printed, the WAIT and AUXB indicators will go out.

9. Repeat steps 6 through 8 for each additional screen of data to be printed.

5.4.2.2. Printing in "VAR" Mode

In "VAR" mode, all FCCs and unprotected data are printed. Protected data is not printed and spaces are not inserted at ends of lines and fields.

1. Call the control page to the screen.

2. Enter the printer code in the "to" subfield of the (**XFER**) field.

3. Enter "VAR" in the XFER( ) field.

4. Verify that the printer is ready for operation.

5. Position the cursor within the display as needed. If you want the display to be formatted, use the LF character.

6. Press the XFER key. The WAIT and AUXB indicators will light and the unprotected fields of the display, together with their FCCs, will be printed. Unless you used the LF character in setting up the display, no formatting will occur.

7. When the display has been printed, the WAIT and AUXB indicators will go out.

8. Repeat steps 4 through 6 for each additional screen of data to be printed.

5.4.2.3. Printing Only Changed Data ("CHAN" Mode)

In the "CHAN" mode, only the data that is new or changed from a previous entry, as indicated by the changed-field indicator, is printed. The result is a continuous stream of characters, with the lines broken wherever the automatic printer line feed occurs. The unchanged fields are replaced by spaces.

5.5. POSITIONING THE CURSOR FOR THE DESIRED PRINT OUTPUT

The position of the cursor is critical when you are printing data from the screen display. The cursor determines the end of the text you are sending, even if the screen contains more text after the cursor.

5.5.1. Placing the Cursor Immediately Following the Last Data Character

THIS IS THE DATA THAT WILL BE
PRINTED. ▨

9135-47
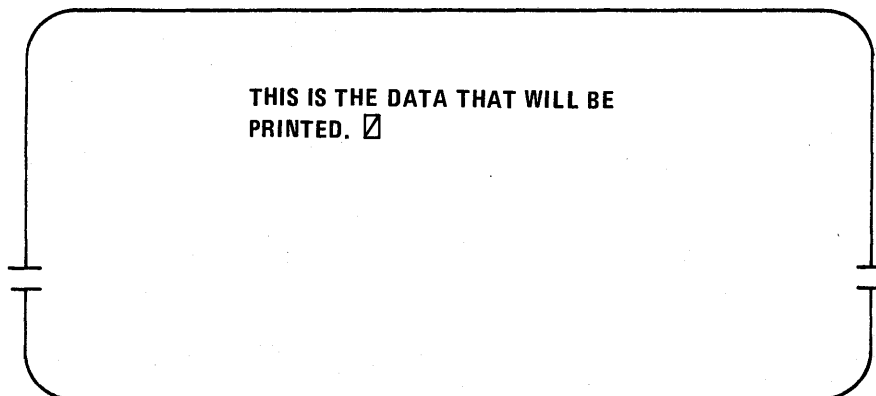
Immediately following the last data character is the normal position for the cursor to mark the end of a print. When printing is completed, the printer performs a line feed.

To insert a single blank line between blocks of text, place an LF code after the last data character. The LF code causes the printer to perform another line feed in addition to the automatic line feed.

To place more than a single blank line between blocks of text, enter an LF code after the last data character for each additional line desired.

5.5.2. Placing the Cursor in the Line Below the Last Data Line

```
        THIS IS THE DATA THAT WILL
        BE PRINTED.
        ▨
```
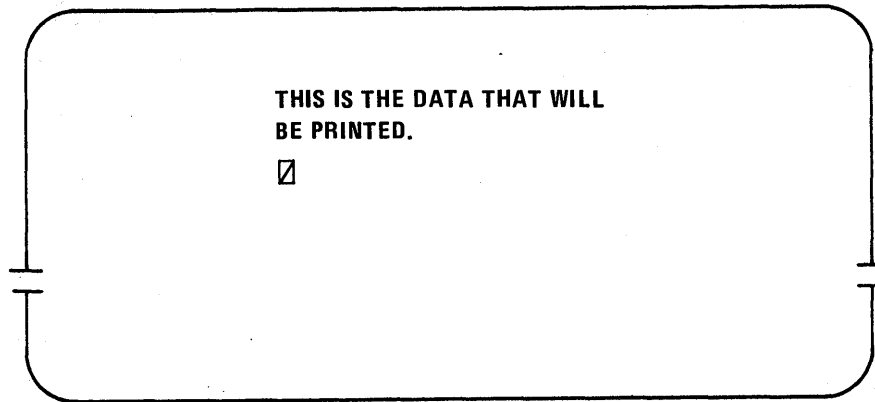
9135-46

When the cursor is in this position, printer action will be the same as that described in 5.5.1, except that it will perform one more line feed.

5.5.3. Placing the Cursor in the Last Position on the Screen

```
        THIS DATA WILL BE PRINTED AND
        BLANK LINES WILL BE INSERTED TO
        THE BOTTOM OF THE DISPLAY.




                                   ▨
```
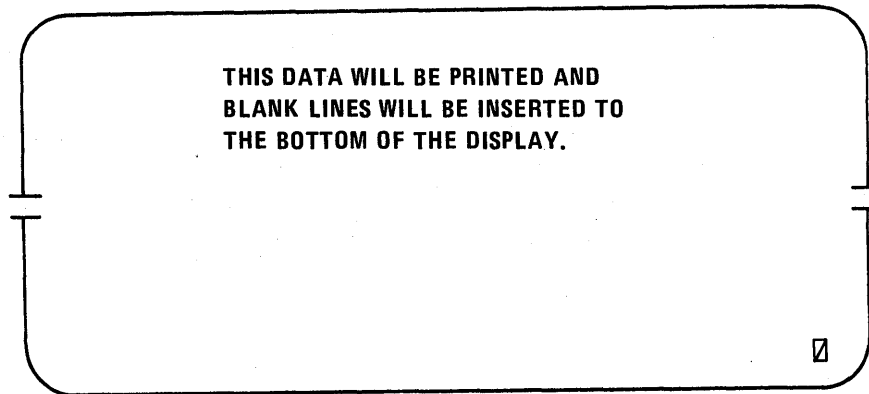
9135-48

When the cursor is in this position, printer action will be the same as that described in the preceding section, except that it will perform one more line feed.

5.5.4. Placing the Cursor in the Home Position

```
▨
   NO DATA WILL BE PRINTED.
```
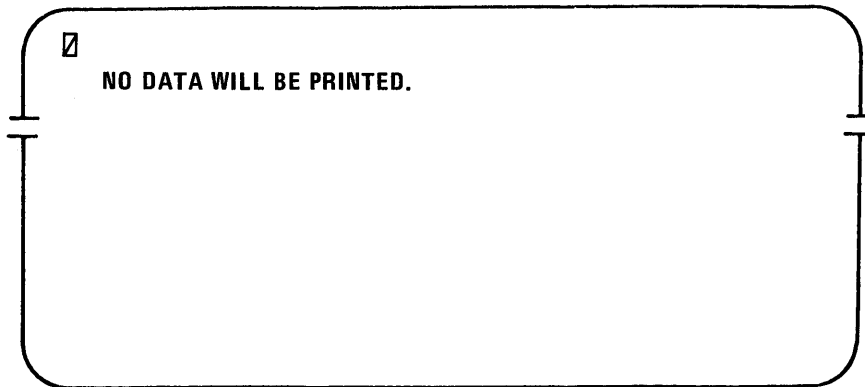
9135-49

The home position designates the start of entry, and with the cursor in that same position, the start of entry and end of entry (cursor position) are identical. No data will be transferred if no character is beneath the cursor, but an automatic line feed will occur.

5.5.5. Placing the Cursor Following SOE-Designated Entry

```
   Any text not properly designated on the screen will be
   ignored.  ▶ This portion of the screen will be included
   in the transmission because it is preceded by an SOE
   character and followed by a cursor. ▨ ▶ Even with an
   SOE character beginning this sentence, this portion of
   the text will be ignored.
```
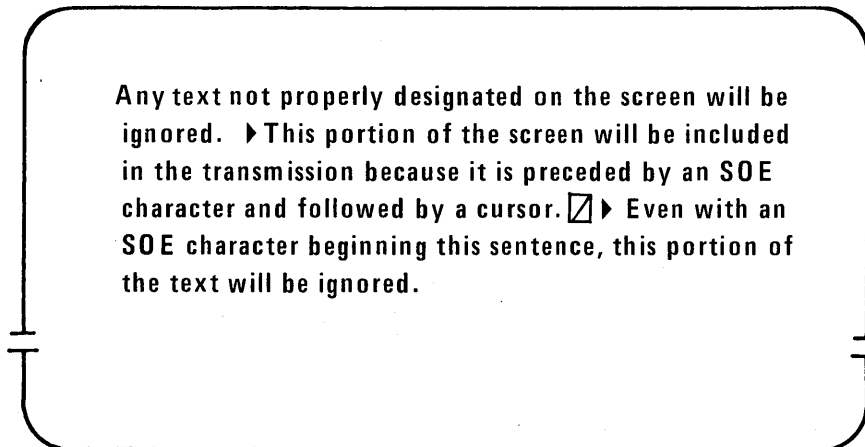
9135-41

This arrangement terminates the data transfer that starts at the SOE symbol. The printer performs an automatic line feed when it reaches the cursor. All data following the cursor as well as all data preceding the SOE will be ignored.

NOTE:

If the printer runs out of paper before completing a print operation sent from the host, press the UNLOCK key before changing paper.

6.   Using the Magnetic Stripe Reader

The SPERRY UNIVAC Magnetic Stripe Reader reads prerecorded data from the magnetic stripe on a plastic card which is manually passed through a channel in the reader (Figure 6–1). The reader enables you to enter blocks of data at a time, instead of entering data through the keyboard a character at a time.

Figure 6-1. Using the Magnetic Stripe Reader

6.1.   MAGNETIC STRIPE FORMAT OPTIONS

The information prerecorded on the magnetic stripe of the card is encoded in a certain format. You must set a switch on the bottom of the magnetic stripe reader to read either an International Air Transport Association (IATA) format or an American Banking Association (ABA) format.

6.2. AUTOMATIC TRANSMIT OPTION

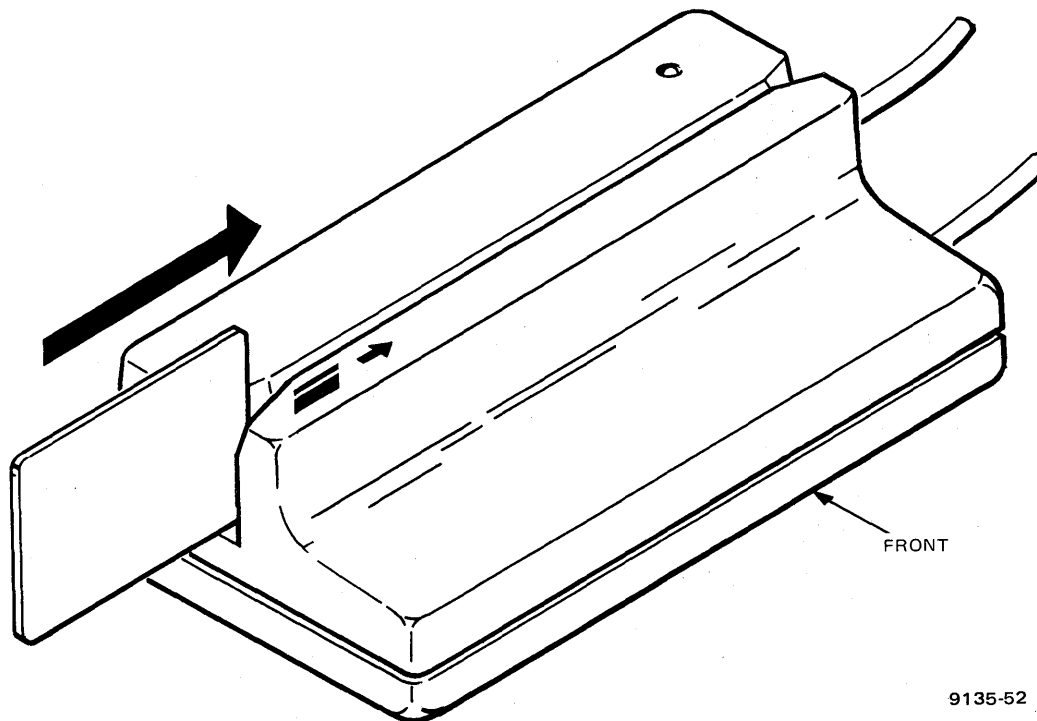An entry in the UTS 20 control page (PARAM) field selects either the automatic or the manual transmit option for the magnetic stripe reader. (The parameter option defaults to manual transmit.)

If the parameter option is set for automatic transmit, the card data is automatically sent to the host as it is read without being displayed on the screen.

If the parameter option is set for manual transmit, the card data is displayed on the screen after the card is passed through the read channel. You may change the data from the keyboard before pressing the XMIT key to send the data to the host.

6.3. PREPARING THE MAGNETIC STRIPE READER FOR OPERATION

For the magnetic stripe reader to function, the UTS 20 power must be turned on and the green indicator on the reader must be lit, the switches must be set for the appropriate card format, and the read channel must be free of dirt and foreign material that could interfere with successful card reading.

6.4. READING THE CARD

1. Position the cursor on the screen where you want the card data to begin. Be sure to allow sufficient room for the card data to be displayed without running into an existing field of data on the screen.

2. Enter the card through the left end of the channel in the reader. The card must be positioned so that the magnetic stripe is toward the rear of the reader. The card should be positioned as shown in Figure 6-1.

<div align="center">

CAUTION

</div>

Do not pass a card through the magnetic stripe reader backward. The card or the stripe reader could be damaged and could result in data not being read.

3. Push the card through the read channel, pressing the card firmly against the bottom surface of the channel.

NOTE:

If the card will not enter the channel, you could be holding the card the wrong way. Position the card as described in step 2 and enter the card into the channel again.

4. Once the entire card has been passed through the station, you will hear a faint clicking sound, indicating that the card has been read.

The magnetic stripe reader automatically inserts two characters in front of any card data to identify that data as coming from a magnetic stripe reader. At the end of a card data sequence, the magnetic stripe reader adds another character signifying the end of an information block. Therefore, if you are in the manual transmit mode and can observe the screen as you enter card data, a data block may appear as follows:

In IATA format: | ½ % | data data data data data data | / ? . 3 |

In ABA format: | ½ ; | data data data data data data | ? 5 |

The read station of the stripe reader is located just beyond the middle of the narrow channel. From the time the leading edge of the card enters the read station area until it exits the other side, the the UTS 20 keyboard is locked.

6.5. USING THE AUTO TRANSMIT (AT/YS) OPTION

To transmit card data to the host processor automatically, perform the following steps:

1. Verify that the desired transmission type is entered in the control page XMIT( ) field.

2. Read the data from the card.

3. If the card was read successfully, you will hear one short alarm tone and the RACK indicator will appear briefly on the indicator line. If the card was not read successfully, you will not hear a tone and the RNAK indicator will appear and blink on the indicator line until the card is read successfully, or until you press the UNLOCK key.

6.6. USING THE MANUAL TRANSMIT (AT/NO) OPTION

To display card data on the screen before manually transmitting it to the host, perform the following steps:

1. Verify that the communications connection has been made and the POLL indicator is blinking.

2. Verify that the desired transmission type is entered in the control page.

3. Read the data from the card.

4. If the card was read successfully, you will hear one short alarm tone accompanied by the appearance of the RACK indicator. If the card was not read successfully, the short alarm tone will not sound and the RNAK indicator will appear and blink until the card has been read successfully, or until you press the UNLOCK key.

5. Press the XMIT key. The WAIT indicator will light and remain lit while the message is being sent and the host processor responds with a text message. The cursor will disappear briefly and then return when the message has been sent and acknowledged.

Appendix A.　The Power-On Confidence (POC) Test

The first display you see when you turn on the power to the UTS 20 is the power-on confidence (POC) test. The display is the result of a series of internal tests automatically initiated to check critical machine functions before you use the terminal.

A successful POC display appears as shown in Figure A-1 and includes a single beep tone, blinking corner indicators, the "TERMINAL READY" message, and the "PASSED" message following each of the indicated tests.
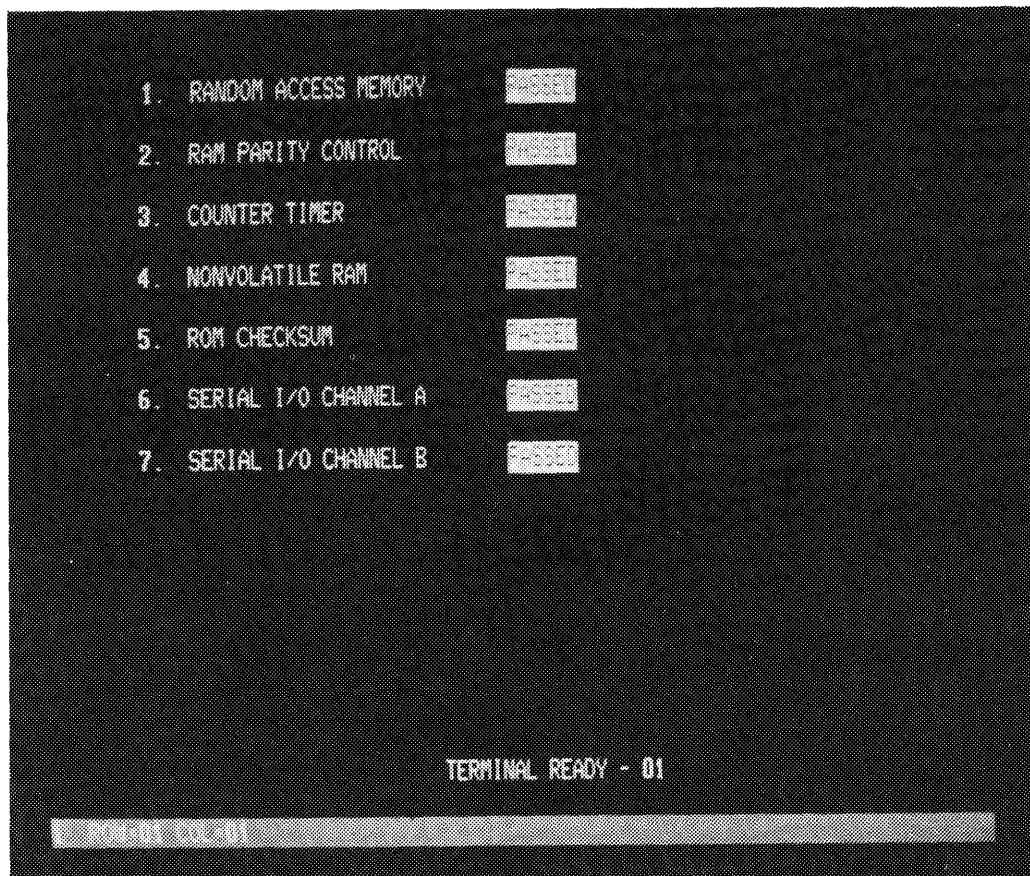

Figure A-1.　Successful POC Display

If any POC test was not successful, either a "FAILED" or "??????" (indeterminate results) message appears after the given test. Other indications of failure should be noted at the time the POC display first appears on the screen. As you turn on the power, watch the screen for any of the folllowing indications:
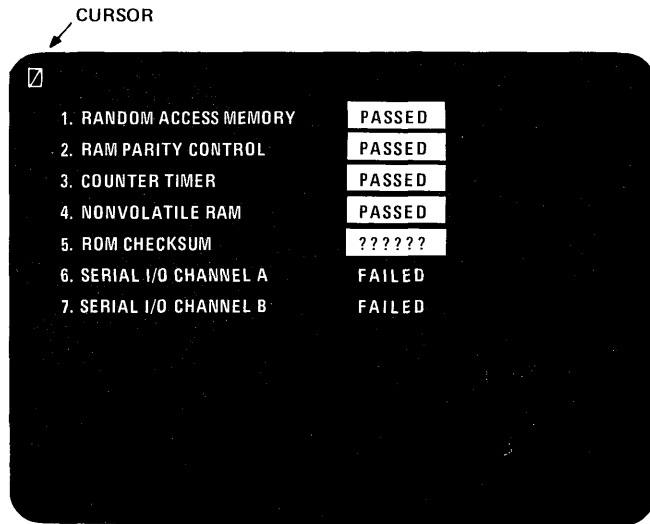
■   Corner indicators are not displayed.

■   Indicator line at bottom of screen is not displayed.

■   Screen is blank and a long alarm tone is heard.

■   Display flutters or swims.

■   Partial POC display automatically cycles.

Figures A–2, A–3, and A–4 show examples of unsuccessful or abnormal POC results.

If any display other than the successful POC test appears, press the POWER switch OFF and ON again or press the RESET pushbutton to redisplay the POC test results. If two or three attempts fail to produce a successful POC display, report the appropriate trouble code listed in Table A-1 to your Sperry Univac customer services representative.

Table A-1. POC Test Error Indications

Error Indications	Corrective Action	Trouble Code
No alarm tone.	Rotate VOLUME control upward.	3560U-0016
Display appears blurred.	Press RESET pushbutton to rerun POC test.	3560U-0001
Display is distorted/illegible.	Press RESET pushbutton to rerun POC test.	3560U-0002
RANDOM ACCESS MEMORY failure (screen stays) blank and alarm alarm sounds continuously.	Check all cable and program connections. Press RESET pushbutton to rerun POC test.	3560U-0003
RAM Parity Control failure.	none	3560U-0005
COUNTER TIMER failure.	none	3560U-0006
NONVOLATILE RAM failure.	none	3560U-0007
ROM CHECKSUM failure.	Turn power off. Remove and reinsert program cartridge. Make sure connection is secure while tightening thumbscrew. Turn power on. If test still fails, report code.	3560U-0008
SERIAL I/O CHANNEL A failure.	none	3560U-0009
SERIAL I/O CHANNEL B failure.	none	3560U-0010
Corner indicators not displayed or not blinking.	Press RESET pushbutton to rerun test.	3560U-0011
"NONVOLATILE RAM DATA INVALID DEFAULT VALUES ASSUMED" message appears.	Reenter selected (PARAM) field values if default values are not satisfactory.	none

CURSOR

1. RANDOM ACCESS MEMORY — PASSED
2. RAM PARITY CONTROL — PASSED
3. COUNTER TIMER — PASSED
4. NONVOLATILE RAM — PASSED
5. ROM CHECKSUM — ??????
6. SERIAL I/O CHANNEL A — FAILED
7. SERIAL I/O CHANNEL B — FAILED

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Figure A-2.   Sample of Failed Tests

CURSOR

1. RANDOM ACCESS MEMORY — PASSED
2. RAM PARITY CONTROL — PASSED
3. COUNTER TIMER — PASSED
4. NONVOLATILE RAM — PASSED
5. ROM CHECK — ??????
6. SERIAL I/O CHANNEL A — ??????
7. SERIAL I/O CHANNEL B — ??????

9182-44

Figure A-4.   Distorted Screen Appearance; Test Failures

CURSOR

1. RANDOM ACCESS MEMORY — PASSED
2. RAM PARITY CONTROL — PASSED
3. COUNTER TIMER — PASSED
4. NONVOLATILE RAM — PASSED
5. ROM CHECKSUM — PASSED
6. SERIAL I/O CHANNEL A — PASSED
7. SERIAL I/O CHANNEL B — PASSED

NONVOLATILE RAM DATA INVALID--DEFAULT VALUES ASSUMED

1 ROW = 01 COL = 01

9140-59

Figure A-3.   Tests Passed, but Default Values Are in Effect

In addition to the trouble code, your Sperry Univac customer services representative may want to know some other POC test indications. Before reporting the trouble code, make note of the following information.

Indication	Yes	No
Normal display		
Distorted display		
Short beep		
Long tone		
No tone		
Keyboard LOCK indicator lights when pressed		
RANDOM ACCESS MEMORY test "PASSED"		
RAM PARITY CONTROL test "PASSED"		
COUNTER TIMER test "PASSED"		
NONVOLATILE RAM test "PASSED"		
ROM CHECKSUM test "PASSED"		
SERIAL I/O CHANNEL A test "PASSED"		
SERIAL I/O CHANNEL B test "PASSED"		

Appendix B. Changing The Program Cartridge

The only time you will need to change the program cartridge is when directed by your supervisor. A different cartridge inserted into the UTS 20 will substantially change the terminal characteristics.

To change a program cartridge, first turn the power off; then follow these procedures:

1. Locate the position of the program cartridge at the back of the UTS 20. You will see one end of a rectangular box fastened into the back of the terminal with a thumbscrew.

2. Turn the thumbscrew counterclockwise with your fingers until the cartridge pulls away from the back of the terminal. Slide the cartridge out.

Figure B-1. Changing the Program Cartridge (Part 1 of 4)

9135-42

Figure B-1. Changing the Program Cartridge (Part 2 of 4)

3.   Insert the new program cartridge in the same location by pushing it up inside the back of the
     UTS 20 until the thumbscrew hole matches the position of the thumbscrew itself.

4.   When the thumbscrew is properly aligned, press the lower end of the cartridge into place with
     your thumbs, as shown. Turn the thumbscrew clockwise until it is finger-tight.

9135-58

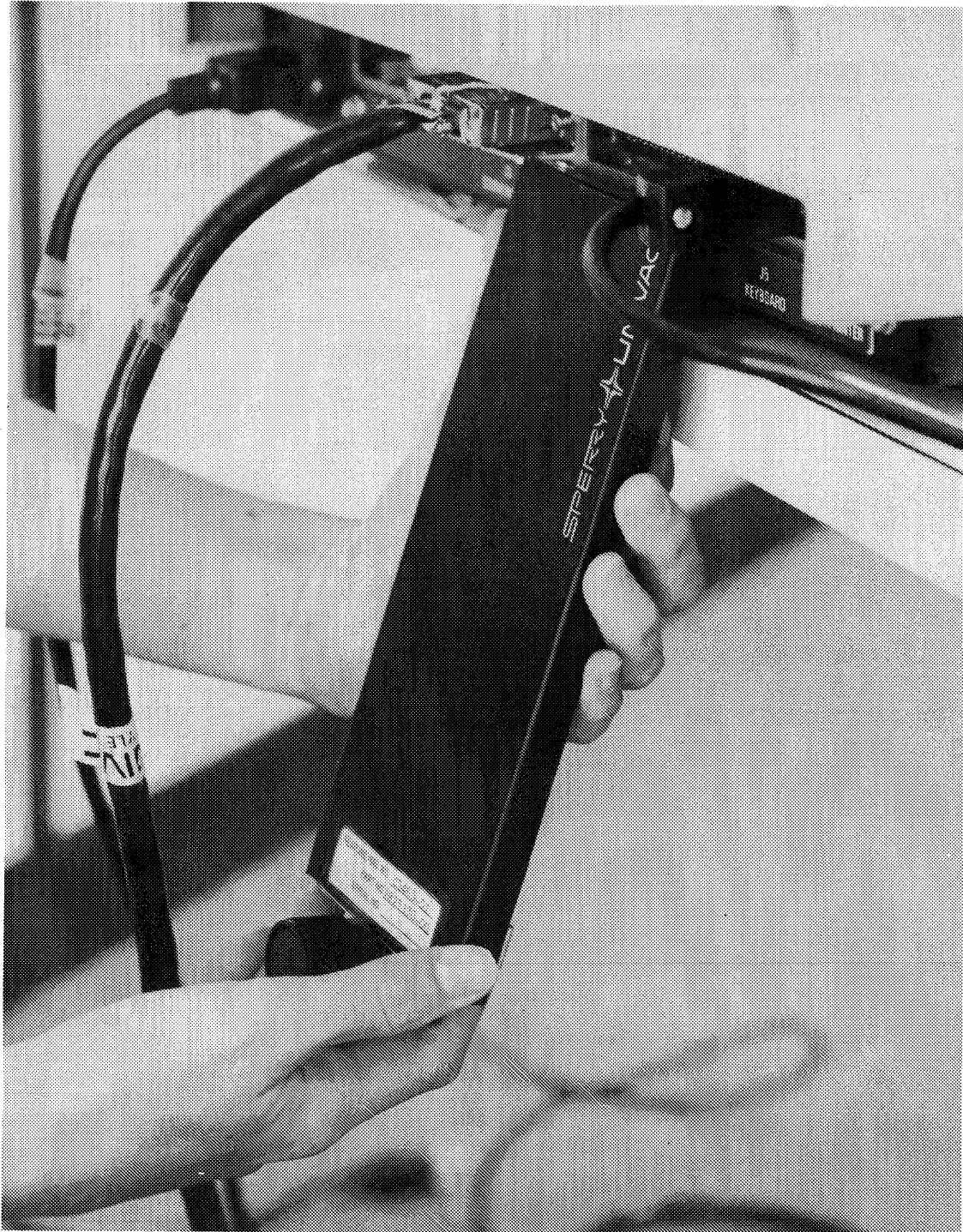*Figure B-1.   Changing the Program Cartridge (Part 3 of 4)*

9135-43

Figure B-1. Changing the Program Cartridge (Part 4 of 4)

Appendix C. UTS 20 Compatibility
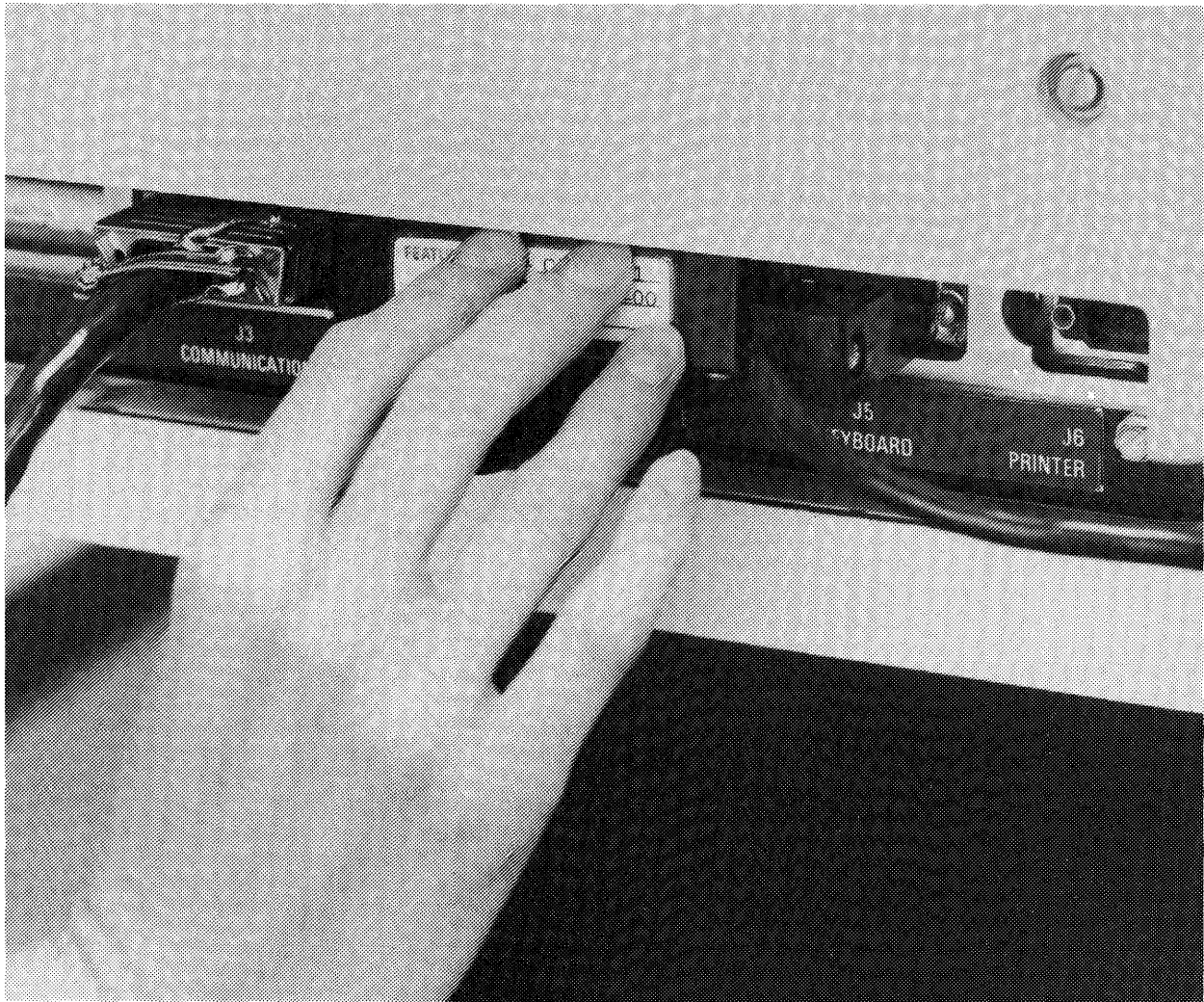
This appendix summarizes the compatibility of the SPERRY UNIVAC Universal Terminal System 20 Single Station (UTS 20) operating characteristics with those of the SPERRY UNIVAC Universal Terminal System 400 (UTS 400) and the SPERRY UNIVAC UNISCOPE 100 and 200 display terminals.

C.1. UTS 20 FEATURES

The UTS 20 can be used in the same configurations with UTS 400 or UNISCOPE 100 and 200 terminals, with the following additional capabilities:

- Keyboard-generated field control characters (FCCs)

- Control page

- Ability to alter print and transmit operations through control page instructions

- Eighteen additional program attention keys (F5 through F22)

- Selectable display intensities—reverse video or light intensity

- Additional screen editing capability

- Keyboard and control page security keylocks

- Attachable magnetic stripe reader

- Keyboard click when keys are pressed

- Alarm and keyboard click volume control

- Power-on confidence test resident in terminal

- Integral line monitor and error log

- Status indicators protected within display

In addition to these features, other areas affecting operator usage are:

- The UTS 20 offers a selection of keyboards which differ in the number of keys, additional functions supported by these keys, and the cycling capability of most keys on all the UTS 20 keyboards. The keyboard itself is freestanding from the terminal, allowing more flexibility of use.

C.2. COMPARISON of UTS 20 USAGE WITH UTS 400

Operation of the UTS 20 is similar in many respects to operation of the UTS 400. The exceptions are:

■   Peripheral output buffering is not available with the UTS 20. (BUFFER RECOVER and BUFFER RELEASE keys are excluded on the UTS 20 400-style keyboard.)

■   Key layout on the UTS 400 keyboard and UTS 20 400-style keyboard is similar except the 400-style keyboard does not include the BUFFER RECOVER/RELEASE, LOAD PROG, and cycle keys.

■   Key function cycling on the UTS 20 is automatic when a key is held down 0.5 second or longer. Cycling of data or function keys on the UTS 400 requires concurrent pressing of the CYCLE key.

■   FCCs in the UTS 20 can be generated in every screen location. A maximum of 15 FCCs per line can be generated on the UTS 400.

■   UTS 20 RESET pushbutton clears the error log and changes some control page entries to default conditions. Comparable TEST switch on the UTS 400 leaves error log and control page entries intact.

■   Status indicators are protected within the screen display of the UTS 20. Comparable indicators on the UTS 400 are hard-wired illuminators on the casework of the terminal.

■   Character protect mode in UTS 20 is always active, eliminating the need of the hard FCC/PROTECT mode switch on the UTS 400.

■   OFF intensity (no visible display) is not available on the UTS 20.

■   Terminal overtemperature indicator is located in the UTS 20 RESET switch.

■   SET UP security keylock setting on the UTS 20 allows or disallows changes in the control page parameter field.

■   RID, SID, and screen memory 1 or 2 (for use with screen bypass) are displayed in the UTS 20 control page. RID, SID, and firmware level are displayed in UTS 400 control page.

■   UTS 20 power-on confidence test display appears in English language words rather than in symbols.

■   Line monitor display on UTS 20 is selected through control page entry. UTS 400 has LINE MONITOR switch.

■   UTS 20 cursor in blink field blinks over all characters and spaces for visibility in reverse video displays.

■   Protected fields of the UTS 20 control page are displayed in an alternate intensity from the entry fields, depending on the alternate brightness selection.

■   FCC protect, right-justify, alphabetic-only, and numeric-only characteristics are disabled when the FCC GENERATE or the FCC LOCATE keys are pressed on the UTS 20.

■ Pressing the BACKSPACE key and the space bar causes the cursor to move out of a protected field in the UTS 20. On the UTS 400, these keys do not move the cursor within a protected field.

■ The following keys do not function in the UTS 20 control page: FCC GENERATE, FCC CLEAR, FCC LOCATE, INSET LINE, DELETE LINE, and LINE DUP. These keys will function in the UTS 400 control page.

■ Pressing the ERASE DISP key while the UTS 20 control page is displayed resets the print, transfer, and transmit entries to their default conditions.

■ The cursor may enter a right-justified field in the UTS 20 for editing and jumps to the next unprotected field when the right-justified field is full.

■ Default condition of the XFER( ) and XMIT( ) fields is "VAR"

C.3. SUMMARY of UTS 20, UTS 400, UNISCOPE 100 and 200 COMPATIBILITY

Compatibility of the UTS 20, UTS 400, UNISCOPE 100 and 200 is summarized in Table C-1.

Table C-1. UTS 20, UTS 400, UNISCOPE 100 and 200 Compatibility (Part 1 of 2)

CAPABILITY	UTS 20	UTS 400	UNISCOPE 100/200
KEYBOARD			
FCC generation	Yes	Yes	No
Program attention keys	F1–F22	F1–F22	F1–F4
Line duplication	*Yes	Yes	No
Line insert/delete	*Yes	Yes	No
Erase to end of field	*Yes	Yes	No
Control page	Yes	Yes	No
Line/form feed	*Yes	Yes	No
CONTROL PAGE	Yes	Yes	No
Parameter change dependent on SET UP keylock	Yes	No	No
Protected fields appear in alternate intensity	Yes	No	No
ERASE DISP resets print, transfer, transmit to default	Yes	No	No
RESET pushbutton causes control page entries to default	Yes	TEST switch does not affect control page	No
Default of XFER( ) and XMIT( ) fields is "VAR"	Yes	No	No
RID, SID, and communications mode (D, M, or X) is displayed	Yes	RID, SID, and firmware level is displayed	No

*Expanded typewriter keyboard only

Table C-1. UTS 20, UTS 400, UNISCOPE 100 and 200 Compatibility (Part 2 of 2)

CAPABILITY	UTS 20	UTS 400	UNISCOPE 100/200
Line monitor and error log display accessed through control page entry	Yes	LINE MONITOR switch access	No
Resident power-on confidence test	Yes	Yes	No
Results displayed in English language	Yes	Results are in code	No
INDICATORS AND CONTROLS			
Keyboard and parameter SET UP security keylocks	Yes	No	No
Screen-displayed indicator line	Yes	Indicators on casework	Indicators on casework
Overtemperature light on RESET pushbutton	Yes	No	No
FIELD CONTROL CHARACTERS	Yes	Yes	No
Can be placed in every screen location	Yes	Maximum 15 per line	No
Right-justify characteristic allows cursor into field for editing; field then functions as normal entry field	Yes	No	No
When right-justified field is full, cursor jumps to next unprotected position	Yes	No	No
Protected, right-justified, alphabetic-only and numeric-only fields are disabled by FCC LOCATE and FCC GENERATE keys	Yes	No	No
Protected, right-justified, alphabetic-only and numeric-only characteristics are not effective until until FCC ENABLE key is pressed.	Yes	Only protected and right justified fields are not effective until FCC REENABLE key is pressed	No
PERIPHERALS SUPPORTED			
0797 printer	Yes	No	No
0798 printer	Yes	No	No
0786 printer	No	Yes	Yes
CQP (printer)	No	Yes	Yes
600 TCS	No	Yes	Yes
800 terminal printer	No	Yes	Yes
250K byte diskette	No	Yes	No

Glossary

accessing	Entering mass storage files from a terminal system for purposes of reference, change, or any other file function for which the terminal is equipped.
addressing	A communications protocol method of identifying one communications line interface point and a specific terminal system at that location. Also the same method is used to identify a specific peripheral device associated with the addressed terminal system.
ASCII	Acronym for American Standard Code for Information Interchange.
bit	Contraction of binary and digit. The smallest unit of information into which data can be broken for transmission.
buffer	A place or function for temporary holding of data. Also, a device (or software routine) used to compensate for a difference in data flow rates, or in timing of events, when data is being transmitted from one device to another.
communications protocol	The means used to control the orderly communication of information between data communication terminals and a data communications link (a processor or another terminal.)
CRT	Abbreviation for cathode ray tube, the element used as a display screen in a terminal.
deselection	The sequence by which peripheral devices are removed from active participation on an interface, thus precluding their involvement in data transfer.
display	The visual presentation of data either being prepared for entry into the host storage or being retrieved from host storage.
disable	To prevent a function or device from performing its intended operation.
enable	To make it possible for a device or function to carry out its intended purpose, as in enabling or activating an FCC.
FCC	Abbreviation for field control character, a code for setting apart and defining the display characteristics of a field.

firmware

A program permanently resident in a processor read-only memory and providing basic machine instructions through the use of microprogramming techniques.

host or
host processor

Refers to the data processing system controlling the communications environment in which the UTS 20 is operating.

I/O

Abbreviation for input and output.

modem

A communications device providing an interface point to a communications line. One is required at each end of a host-to-terminal connection. The name is a contraction of modulator-demodulator.

multiplexer

A device which permits two or more terminals to be connected to the same communications line interface point, providing a terminal selecting service to coordinate line access for terminals connected to it.

offline

Refers to the activity between a terminal and a peripheral device without involving communication with the host.

online

Refers to activity performed between the terminal and the host, involving use of the storage, processing, and communications capabilities of the host.

parity

An element added to the basic message or character for the purpose of checking accuracy of the data transmission.

peripheral device

A device linked to a terminal to perform various read/write functions, which may be operated either online or offline.

polling

A technique for inviting a data communications terminal system to transmit status or messages at a given time.

protected field

A field that is specially defined to prevent entry or change by normal keyboard use. Data in the field is "protected data."

refresh rate

The number of times per second that the screen dot matrix pattern for character generation is repainted to eliminate flicker in the display.

selection

The sequence by which a particular peripheral device is designated as the source or destination of data.

software

The programs and routines that determine the internal types of operations that will take in a data processing system.

transfer

The moving of data between a terminal system and one of its peripheral devices across a peripheral interface.

transmit

The moving of data or procedural messages between the host and the terminal. across a communications line.

transparent

A command specified in the control page for the PRINT function in which the carriage return at the end of each data line is internally removed, resulting in the printing of a continuous stream of data. This command is used when the LF or FF characters are controlling printing format.

unprotected field

A field that is available for entry by normal keyboard usage. Usually, this term is used to distinguish an unprotected or variable field from a protected field. Data in this type of field is "unprotected" or "variable."

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