1481 A/G/W Display Station

Operator's Manual

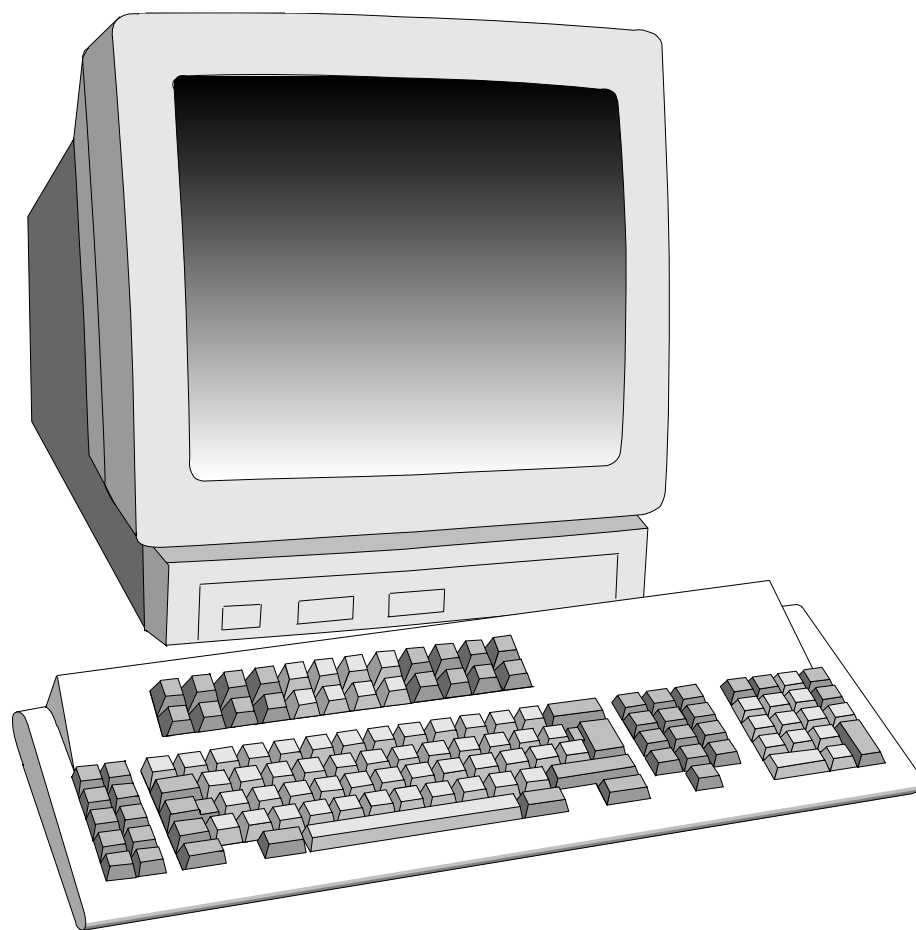| ISSUE/REVISION SCHEDULE		
Comments	**Rev. No.**	**Date**
Initial Release	701408-001	05/01/93
MTX Release	701408-002	05/29/98

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WARNING!

This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case users, at their own expense, will be required to take whatever measures may be necessary to correct the interference.

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1481 Display Station

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Chapter 1. Introduction

This manual describes the 1481A/G/W Display Station, identifies controls and operating procedures, and presents diagnostic and maintenance procedures that can be performed by the operator. The manual also describes its data entry and editing procedures.

The 1481 is an ergonomically designed data entry display station that offers a wide range of functions and applications. It has a monochrome 14-inch monitor and can be ordered in amber (A), green (G), or white (W).

Screen Size	1920
Characters per Row	80
Rows per Screen	24

Figure 1-1. Screen Characteristics

As part of a system configuration, the 1481 can transmit and receive data from a central processor unit (CPU) via the attaching controller. The operator enters or changes information on a keyboard that resembles a typewriter. Entered data is simultaneously displayed as alphanumeric characters and symbols on the display screen. Function keys are used to transmit entered data to the CPU or to recall data from the CPU to the display screen.

Hardware within the display station processes data during transmit and receive operations. Attachment of a coax printer via the controller or an optional local screen printer allows the operator to generate hard copy of all data displayed on the display station screen.

Subsequent manual sections are:

Customer Installation – Provides information on how to install the display station.

Setup Procedures – Describes the setup procedures and keyboard controls on the display station.

Operating Procedures – Provides information required for entering and editing data at the display station and for transmitting data messages.

Entry Assist – Describes access to and operation of the Entry Assist function.

Problem Determination and Maintenance – Describes available maintenance plans, system manager controls, and provides information required for diagnosing and correcting display station-related problems.

Standard Features

The 1481 is a customer-installable, ergonomically packaged, tabletop display station capable of displaying up to 1920 characters on the screen. The display screen can be formatted by a controller or host program for a variety of data entry applications. Data can also be displayed as unformatted information. If it is interfaced with a coax printer through a controller, or is attached to a local screen printer, it can provide a hard copy of displayed information. Refer to Chapter 4, "Operating Procedures," for more information about formats and data entry procedures.

With the 88-key, 102-key, 104-key, and 122-key keyboards, the display station can operate in Emulation mode or Native mode. With the 102-key keyboard, it can operate in Native mode only. The operation mode is determined by the Keyboard Type setting. (See the "Offline Keyboard Menu" section in Chapter 3.)

The 1481 can be attached to any of the following control units or their plug- compatible equivalents:

- Telex 076 Control Unit

- Telex 174 Control Unit

- Telex 274 Control Unit

- Telex 276 Control Unit/Display Station

- MTX/MTC 1174 Network Controller

- Memorex Telex 1274 Control Unit

- Memorex Telex 1374 Control Unit

- Memorex Telex 2374 Control Unit

- Memorex 2274 Control Unit

- IBM 3174 Control Unit

- IBM 3276 Control Unit Display Station

- IBM 3274 Control Unit or plug-compatible equivalent

- IBM 4321 Processor by way of its Display Printer Adapter

- IBM 4331 Processor by way of its Display Printer Adapter

- IBM 4361 Processor by way of its Display Printer Adapter

The 1481 display station has the following standard features:

Tilt/Rotate Stand – Allows the display to be tilted over 20 degrees of arc and rotated a full 180 degrees for viewing ease.

Offline Pull-Down Menus – The pull-down menus offer simplicity and ease of use for all setup functions.

Mono/Dual Case Mode – Allows the operator to specify all uppercase character entry or upper- and lowercase character entry.

Mark Unprotected Field Indicator – The 1481 provides a menu option to activate the Mark Unprotected Field indicator. When this option is activated, an underscore is displayed in each unprotected field on the screen. This is particularly useful in entering fields of data.

Auto Screen Cutoff – The screen automatically blanks when a specified amount of time passes during which a keystroke is not entered. Hold down the Alt key while you press the Shift key to restore the screen without adding characters. The amount of time before cutoff can be specified in Setup mode as 2, 5, 10, 20, or 30 minutes. The feature can be disabled for no cutoff.

Power Saver Function – When Auto Screen Cutoff is enabled and the "Status Row Only" option is selected from the Dim Style function, only the status line is displayed on the screen for the first 30 minutes. After 30 minutes, the entire screen, including the status row, is blanked. Regardless of the dim style you choose (Status Row Only or Monitor Off), the Power Saver function turns off the circuitry inside the terminal and cuts power consumption by 50 percent.

Numeric Lock – Allows a field to be defined to accept only numeric characters, and the Period, Minus, and Dup keys. The comma can be substituted for the period on some international keyboards.

Audible Alarm – Sounds when a character is entered in the next-to-last character position of the screen (if the last character position is unprotected), or when the host system signals the display station.

Local Screen Print – Allows you to make a hard copy of displayed text using the screen print function. The feature can be used with any desktop/screen printer, which must be ordered separately.

Host Print – Allows you to make a hard copy of displayed text using a coax printer via the controller.

Response Time Monitor – Supports host-controlled transaction response time monitoring.

Modifiable Keyboard – Using the Keyboard Definition mode, the operator can modify the keyboard layout by interchanging and adding keycaps. The control unit must be properly configured to support this feature.

Entry Assist Function – Facilitates the creation and editing of text, such as memos, letters, and documents. Refer to Chapter 5 for Entry Assist operation information. The attached controller must support this function.

Serial Number Entry – This function allows you to verify or enter the display station serial number. This information, along with Vital Product Data, is stored in the display nonvolatile memory and is available to be read by the control unit for systems statistics gathering by networks. The control unit to which you are attached must support this function.

Optional Features

Keyboards – The 1481 offers a variety of keyboard types, each with a keyboard cable that extends up to 72 inches (183 cm).

Light Pen – Allows the operator to select data from a display panel by pointing to it with a pen-like device. This selection method provides a quick alternative to keying.

Security Keylock – Mechanical switch which allows the operator to secure and unlock the terminal keyboard and display with a key.

Chapter 2.   Customer Installation

This chapter lists the physical statistics and environmental requirements of the 1481 Display Station. It also describes the procedures for setting up the workstation and performing a preliminary operating test.

The display station is designed to be installed by the user. No special tools are required to set up the display station.

Physical Statistics

Weight:	16.00 lb (7.25 kg)
Height:	13.70 in (34.80 cm)
Depth:	12.80 in (32.51 cm)
Width:	12.60 in (32.00 cm)

Environmental Requirements

Clearance:	Six inches on all sides of the unit. Damage can result if air vents are blocked.
Operating Temperature Range:	50° to 105°F (10° to 40.6°C)
Relative Humidity:	8 to 80%, no condensation
Maximum Wet Bulb:	80°F (26.7°C)
Power:	90-132 VAC or 180-264 VAC at 47 to 63 Hz
Power Consumption:	Normal Mode – 35 watts maximum Power Screen Mode – 18 watts maximum
Heat Dissipation:	118 BTU/hr average

For units set at 100-120V: The power cable required for domestic units is a UL listed, CSA certified, 18/3 AWG, type SVT or SJT cable (4.6 meters [15 feet maximum]). It is terminated on one end by a 125V, 15A grounding type attachment connector. It is terminated at the other end by a 125V, 15A parallel blade grounding type attachment plug.

For units set at 200-240V: The power cable required for domestic units is a UL listed, CSA certified, 18/3 AWG, type SVT or SJT cable (4.6 meters [15 feet maximum]). It is terminated on one end by a 250V, 15A grounding type attachment connector. It is terminated at the other end by a 250V, 15A tandem blade grounding type attachment plug.

The power cable required for international units is an 18/3 AWG, type SJT cable (4.6 meters [15 feet maximum]). It is terminated on one end by a 250V, 15A grounding type attachment plug body. It is terminated at the other end by a 250V, 15A grounding type cord connector. The cord set is marked HAR to signify appropriate safety approvals.

The installation site must provide a properly wired and grounded power outlet. Do not attach the display station to circuits that are connected to air conditioners or to devices that generate significant transient electrical noise.

Electrostatic discharge in the vicinity of the unit should be minimized by avoiding high-resistance floor material and carpeting that does not have antistatic properties, by avoiding the use of plastic seats and covers, and by avoiding low humidity levels. The unit should be located away from areas that generate electromagnetic interference (for example, transformers, power distribution panels, welding equipment, and motors). The 1481 should not be installed where the atmosphere contains corrosive elements that can damage the unit.

Do not run the cable in areas that produce electromagnetic interference (for example, near transformers, switching equipment, welding equipment, power distribution panels, and under carpets where vacuum cleaning is done). Also, heavy equipment should not be moved or rolled over the cable.

Inspecting the Packages

Before you unpack the Display/Logic element and Keyboard element, inspect the carton for physical damage.

If the exterior package is damaged, contact your local MTX sales office or distributor. Also contact the carrier to request examination of the damage. The carrier is required to complete and sign a damage report form.

Note: To report damage, customers in the Continental U.S. should call MTX toll-free at 1-888-648-7826 and ask for the Customer Service Department.

If the package is not damaged, remove the package contents as described on page 2-3.

Unpacking Instructions
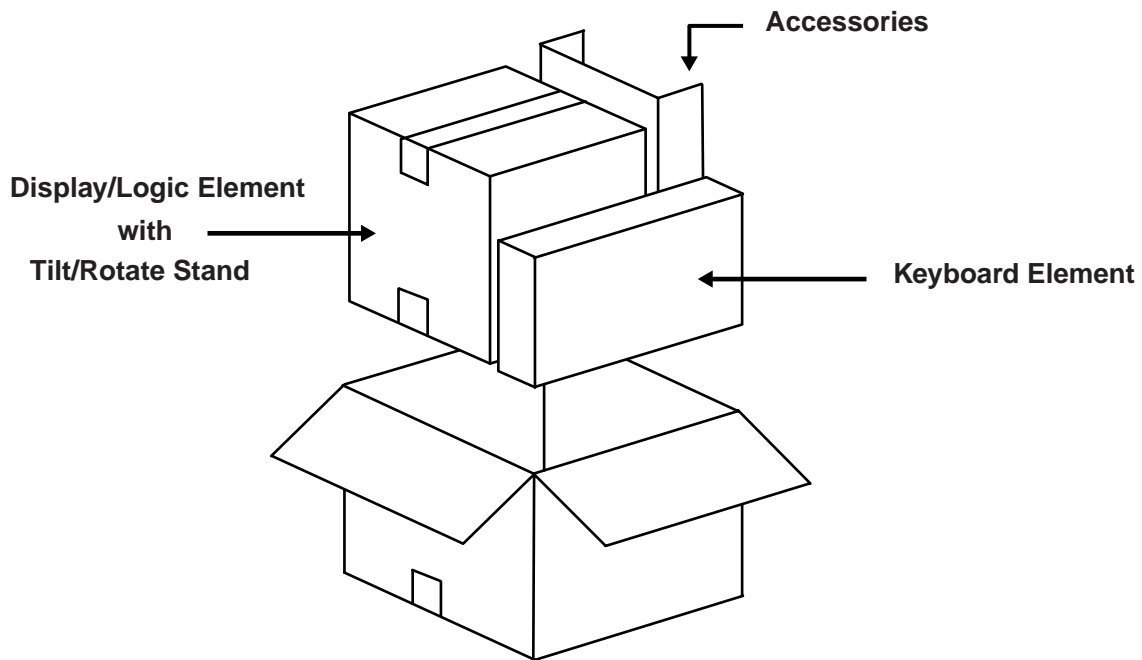
Figure 2-1. Display Station Packaging

1) Move the carton to the work area.

2) Open the carton from the top.

3) Remove the accessories carton. From the accessories carton, remove the operator's manual, power cord, and, if ordered, the light pen. Place these items conveniently aside.

4) Remove the carton containing the Keyboard element. Remove the keyboard and place it aside.

5) Remove the carton containing the Display/Logic element. Open the carton and remove the Tilt/Rotate stand and the Display/Logic element. Remove the two side cushions. Place the Display/Logic element on a sturdy, flat surface. See "Installing the Tilt/Rotate Stand" on Page 2-4 for instructions on how to install the Tilt/Rotate stand.

Packing Instructions

1) To pack the Display/Logic element for shipment, repack the element in its appropriate box. Use reinforced nylon tape to close the box.

2) To pack the Keyboard element for shipment, repack the element in its appropriate box. Use reinforced nylon tape to close the box.

Installing the Tilt/Rotate Stand

1) Turn the Display/Logic element face down with the bottom facing toward you.

2) Insert the four tabs on the Tilt/Rotate stand into the slots on the bottom of the Display/Logic element and slide the Tilt/Rotate stand up until it locks into place in the slots (see Figure 2-2).

3) Turn the display element with the installed Tilt/Rotate stand upright.
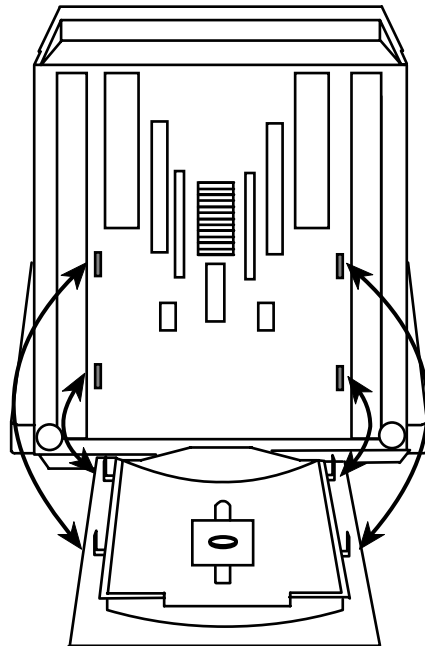
Figure 2-2. Installing the Tilt/Rotate Stand

Installing the Optional Light Pen

Use this procedure to install the optional light pen:

1) Remove the light pen and its holder from the protective wrap.

2) Insert the light pen's cable connector into its 4-pin receptacle on the rear of the display cabinet. Check to ensure that the connector is firmly seated. Figure 2-4 shows the location of the light pen cable connector's receptacle.

3) Peel the protective cover from the light pen holder's mounting surface.

4) Mount the light pen holder onto the side of your display station as displayed in Figure 2-3.

5) Measure the amount of cord needed for the light pen to reach from the holder to any point on the screen. Leaving this amount free, place the light pen cord into the cord retainers.

Setting Up the Workstation

1) Place the Display/Logic element within connecting distance of an appropriate AC power outlet.

2) Place the keyboard in front of the Display/Logic element. Pull out the feet underneath the keyboard to adjust it to a higher setting, if desired. Insert the keyboard plug into the receptacle on the back of the Display/Logic element. See Figure 2-4 for the keyboard plug receptacle location.

3) Attach the printer cable (provided with your printer) to the connector on the back of the Display/Logic element as displayed in Figure 2-4.

4) Make sure that the Power-On/Off switch is set to Off (see Figure 2-3).

5) Plug the power cord into the power receptacle on the back of the Display/Logic element (see Figure 2-4).
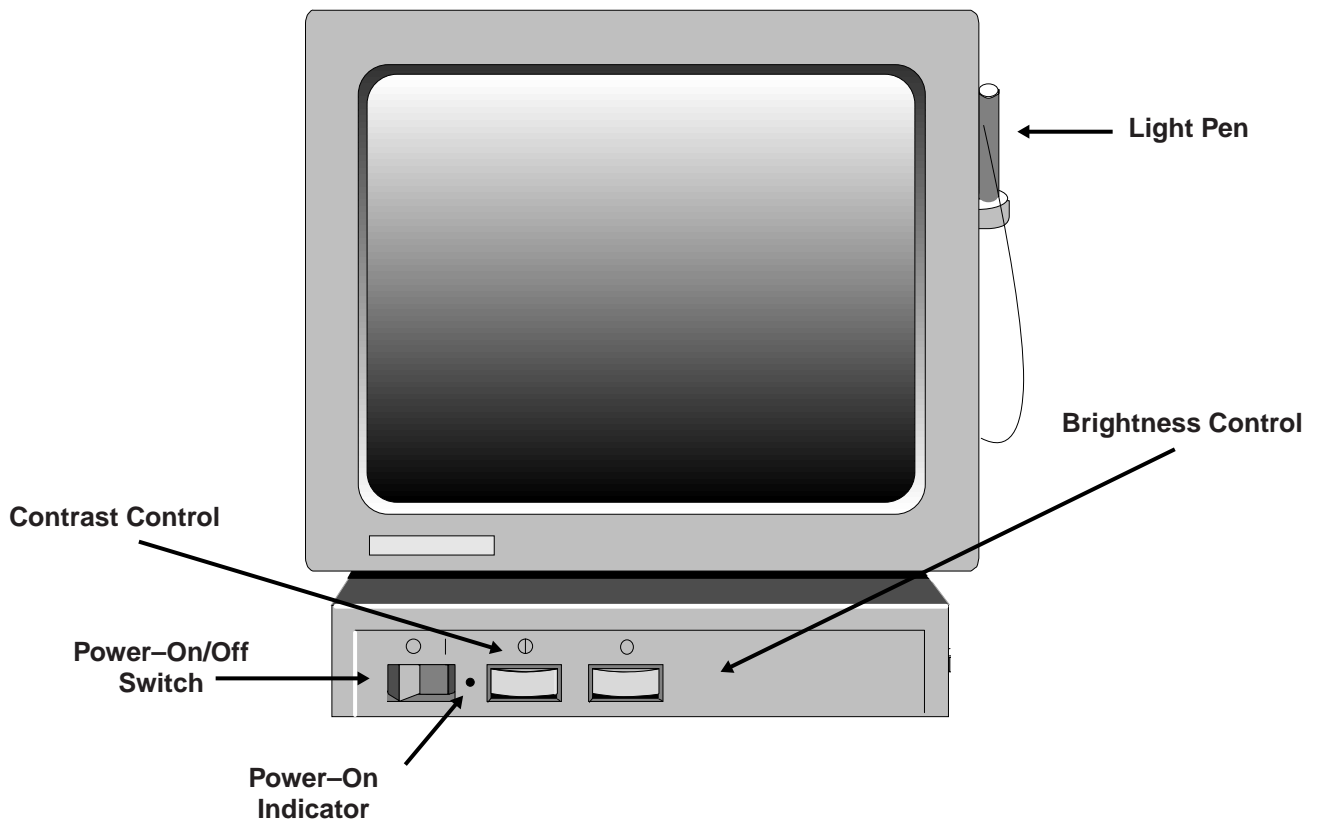
Figure 2-3. 1481 Front View

Connecting the Display Station to the Host System

Connect the display station to the host or to a controller with a coax cable up to 1500 meters (4920 feet) long, or a twisted-pair cable with a minimum length of 30.5 meters (100 feet) and a maximum length of 277 meters (900 feet). Coax cable and twisted-pair cables can be combined. This formula shows lengths:

(coax length) + (5 x twisted-pair length) $\leq$ 1370 meters (4500 feet)

Follow these steps to connect the display station to the host system or to a controller:

1) Locate the coax or twisted-pair cable extending from the controller.

2) Align the end of the connector cable with the Dual Purpose connector on the back of the Display/Logic element (see Figure 2-4). Connect the cable and secure it in place by turning the retaining ring clockwise until it is tight.
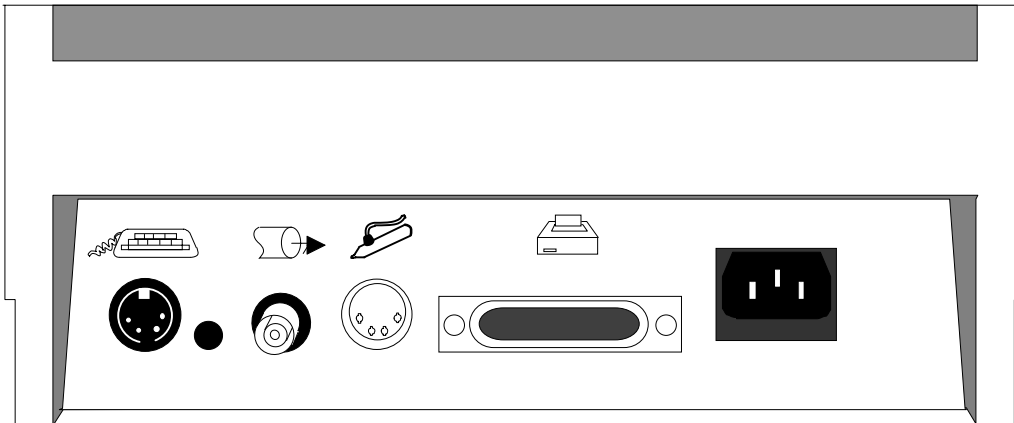
Figure 2-4. 1481 Receptacle Connectors

Preliminary Operating Test

1) Ensure that the system control unit is powered on and operational.

2) Set the Power-On/Off switch to On (|) while simultaneously holding down any key except the Reset key. After a few seconds, an alarm sounds.

3) Hold the key down until a screen resembling the one in Figure 2-5 appears. If the screen remains blank, the Contrast and Brightness controls may need adjusting.

```
                              Offline Test Menu



     Select One of the Following

        ⟶      User Menu

               System Manager Menu
               Product ID
               Go Online
```
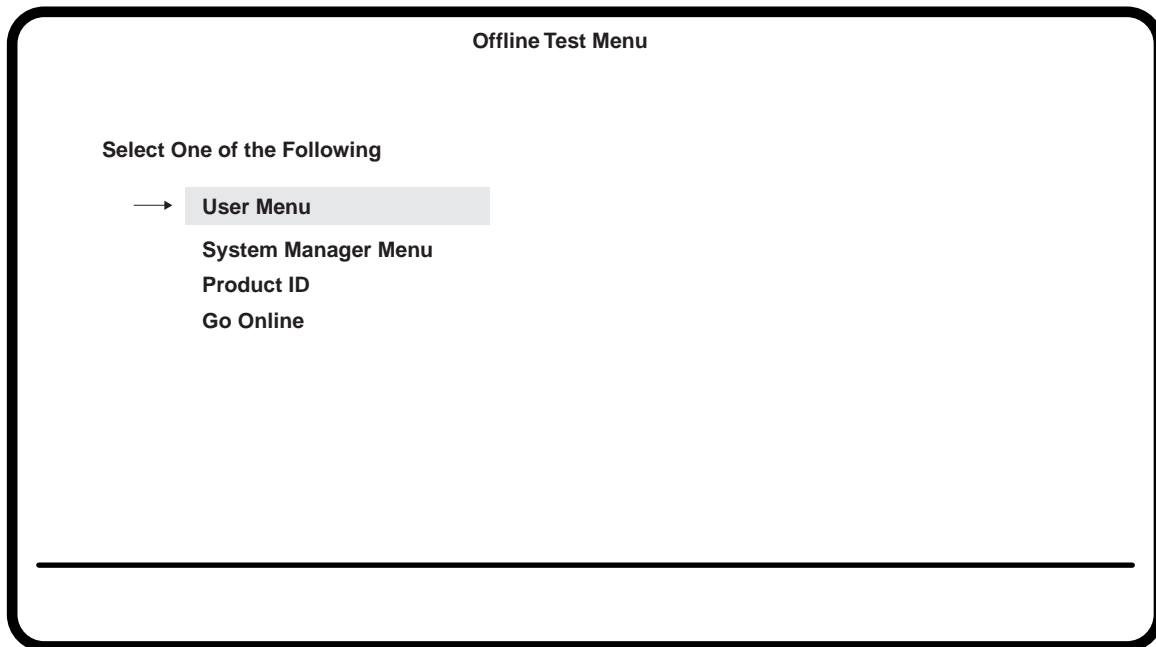
Figure 2-5. Offline Test Menu

4) Obtain the proper settings for your display station from your system operator. The controller to which the unit attaches must be configured to support the settings selected. To adjust the display station's controls or change the settings for screen, cursor, keyboard, printer, or other attributes, see Chapter 3, "Setup Procedures."

If the display station is set correctly, it is ready to go online. Use the Up and Down arrow keys to highlight **Go Online** on the Offline Test menu and press the Enter key. The displays station goes online.

If the display station is not connected to a controller, the cursor is displayed in the upper left corner of the screen and the operator status row is displayed at the bottom.

If the display station is connected to a controller, the type of controller determines the appearance of the online screen.

5) If the cursor and operator status row are not displayed, adjust the Contrast and/or Brightness controls. If adjusting the Contrast and/or Brightness controls does not display the cursor and operator status row, refer to Chapter 6, "Problem Determination and Maintenance."

6) Installation of the display station is now complete.

Chapter 3.   Setup Procedures

The following sections describe the setup procedures for the 1481 Display Station and its attached keyboard. Both offline and online setup functions are described.

Keyboards

Optional Keyboards:

- 88-Key Typewriter/PF1-12 Pad

- 88-Key Typewriter/PF13-24 Pad

- 88-Key Typewriter/Tripad

- 88-Key Typewriter/Numeric Pad

- 102-Key Typewriter

- 102-Key PC Typewriter

- 104-Key Typewriter

- 104-Key Data Entry

- 122-Key Typewriter

- 122-Key Data Entry

- International Keyboards

Keyboard Operation Modes

You can select either of two keyboard operation modes, Emulation or Native. The default setting is to emulate an IBM 3278 88-key keyboard. You can change the keyboard operation mode by changing the Keyboard Type under the Offline Keyboard menu. See "Offline Keyboard Menu" in this chapter for information on how to select keyboard operation modes.

Keyboard Definition mode is supported with Native Mode selections.

Emulation Mode

Emulation mode is available for a 122-key, a 104-key, or an 88-key keyboard. In this mode, the keyboard emulates an IBM 3278 88-key keyboard and the Typewriter Numeric Pad operates only in Nonshift mode. Some keys on the 122-key keyboard do not function in Emulation mode. The control unit to which the display station is attached must be configured to support Emulation mode.

Native Mode

Native mode is available on the 88-key, 102-key, 104-key, and 122-key keyboards. All 122-key keyboard functions and the Keyboard Definition mode are available in Native mode. To use Native mode, you must be connected to one of the following controllers:

- MTX/MTC 1174 Network Controller

- Memorex Telex 1274 Control Unit at firmware release level 11.0 or higher

- IBM 3174 Control Unit

- IBM 3274 Control Unit at configuration support D microcode release level 63.0 or higher

To use Native mode with a 102-key keyboard, you must be connected to one of the following controllers:

- MTX/MTC 1174 Network Controller

- Memorex Telex 1274 Control Unit at firmware release 16.0 or higher (if the 1274 supports Multiple Logic Sessions, firmware release 53.0 or higher)

- IBM 3174 Control Unit

The control unit to which the display station is attached must be configured to support Native mode.

Keyboard Definition Mode

In Native mode, the 1481 supports Keyboard Definition mode. With Keyboard Definition mode, you can modify the keyboard layout by using the control unit's Keyboard Definition Utility. The attached control unit must be configured to support this feature.

Keyboard Controls

This section describes keys on the 88-key, 102-key, 104-key, and 122-key keyboards that control display station functions.

Alt – Simultaneously press the Alt key and any other key to activate functions specified on the front key face. Only keys with labeled front faces have Alt (alternate) functions.

Shift – Press and hold the Shift key and press any key with a shifted function on the keytop to activate that shift function.

Reset – Press the Reset key to restore keyboard operations after an error condition, to end character insertion in Insert mode, or to terminate a printer identification sequence before all characters have been entered.

Change Screen – Press the Change Screen key to toggle between sessions. The Change Screen key does not work with all controllers. The Change Screen key may not function on the 88-key keyboard.

PA3 – The PA3 key is an additional function key. It does not work with all controllers. To use the PA3 key on the 88-key keyboard, hold down both the Alt and Shift keys while you press the PA3 key.
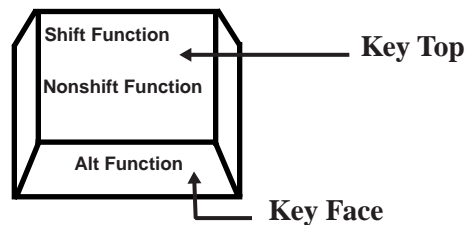
Figure 3-1. Keyboard Key Functions

Each keyboard type contains autorepeat keys that repeat their functions as long as they are pressed. The autorepeat keys include all keys that enter alphabetic, numeric, or symbol characters, the space bar, all keys that assign or move the cursor position, and the following special-purpose Data Entry keyboard keys:

- Field Mark

- Duplicate

- Skip

The following keys are not supported by the 1481:

- Recrd

- Play

- Back

- Fwd

- Pause

Entering Offline Setup Mode

Most screen, cursor, keyboard, and printer options, as well as several miscellaneous attributes, are selected or changed with offline user menus.

To enter Offline Setup mode, hold down any key while you turn the display station on. The Offline Test menu is displayed (Figure 2-5 on Page 2-7).

To enter setup mode when the display station is online, press and hold down at the same time the Alt key, the Caps Lock key, and the Test key. The Offline Test menu is displayed (Figure 2-5 on Page 2-7).

Use the Up and Down Arrow keys to highlight **User Menu** on the Offline Test menu and press Enter. The Offline menu is displayed (Figure 3-2).

Offline Menu Screen

| **Screen** | **Cursor** | **Keyboard** | **Printer** | **Miscellaneous** |

Use Arrow Keys to choose item
Use ENTER Key to change item
RESET Key Exits

Figure 3-2. Offline Menu

Offline Menu Screen

To display the options on the Offline Screen menu, use the Left and Right Arrow keys to highlight **Screen** on the Offline menu and press the Enter key. The Offline Screen menu is displayed (Figure 3-3).

```
                        Offline Menu Screen


     Screen      Cursor      Keyboard     Printer    Miscellaneous




  ──→   MONOCASE/DualCase        DualCase

        Mark Unprotected         Yes

        Reverse Video            Off






        Use Arrow Keys to choose item
        Use ENTER Key to change item
        RESET Key Exits
```

Figure 3-3. Offline Screen Menu

MONOCASE/DualCase

To choose the monocase or dualcase option, use the Up and Down Arrow keys to highlight **MONOCASE/DualCase** and press the Enter key to toggle between **MONOCASE** and **DualCase**. Select **MONOCASE** if you want all letters on the screen to appear in uppercase. Select **DualCase** if you want characters to appear in both upper- and lowercase.

You can also select monocase or dualcase with the Online MONOCASE/DualCase Function. See "MONOCASE/DualCase Function" on Page 3-17.

Mark Unprotected

Use the Up and Down Arrow keys to highlight **Mark Unprotected**. Press the Enter key to toggle between **On** and **Off**. When Mark Unprotected is turned on, an underline (_) is displayed in each unprotected field on the screen. When Mark Unprotected is turned off, no unprotected field indicator is displayed.

You can also turn Mark Unprotected on and off with the Online Mark Unprotected Fields function. See "Mark Unprotected Fields Function" on Page 3-19.

Reverse Video

The Reverse Video option can only be set on the 1481W. Use the Up and Down Arrow keys to highlight **Reverse Video** and press the Enter key to toggle between **On** and **Off**. Set Reverse Video on to display black characters on a white background. Set Reverse Video off to display white characters on a black background.

Leaving the Offline Screen Menu

To leave the Offline Screen menu, use the Left and Right Arrow keys to display another offline setup menu or press the Reset key to exit from Offline Setup mode and return to the Offline Test menu.
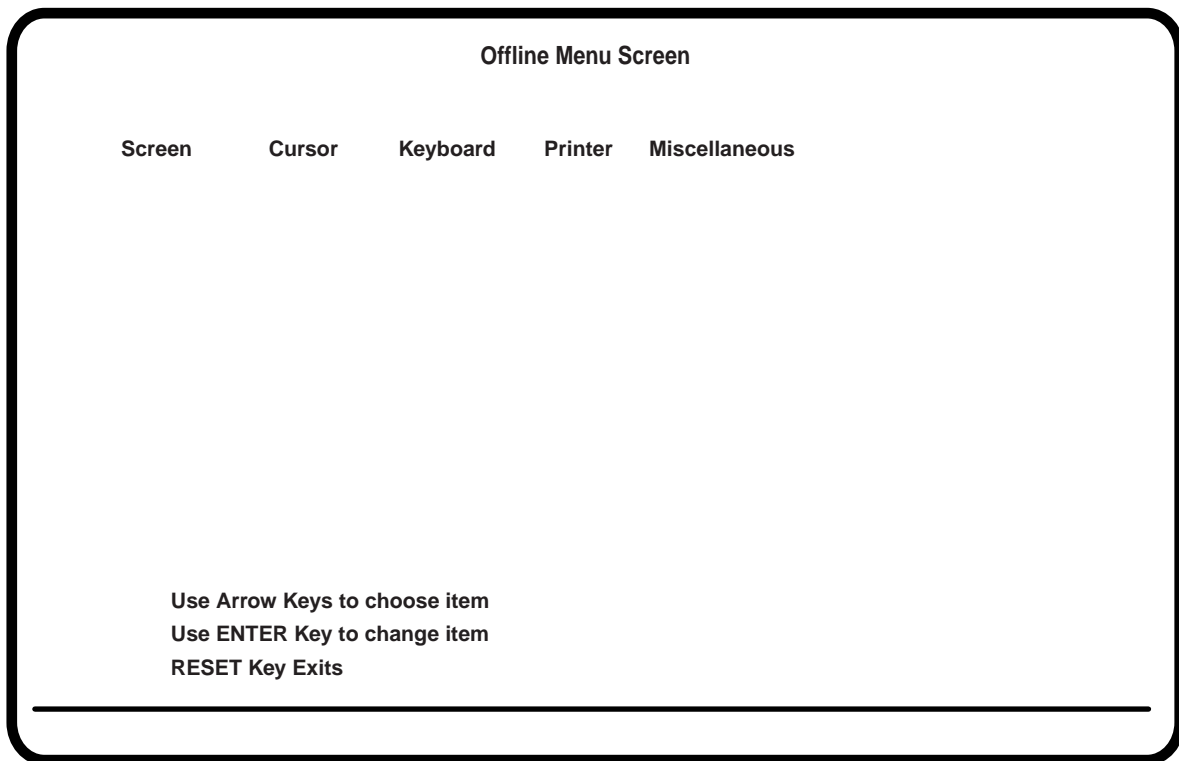
Offline Cursor Menu

To display the options on the Offline Cursor menu, use the Left and Right Arrow keys to highlight **Cursor** on the Offline menu and press the Enter key. The Offline Cursor menu is displayed (Figure 3-4).

Offline Menu Screen

Screen	Cursor	Keyboard	Printer	Miscellaneous

→ **Cursor Size**   **Block**

Cursor Blink   **On**

Rule Style   **+**

Use Arrow Keys to choose item
Use ENTER Key to change item
RESET Key Exits

Figure 3-4. Offline Cursor Menu

Cursor Size

Use the Up and Down Arrow keys to highlight **Cursor Size** and press the Enter key to toggle between **Block** and **Underline**. Use this option to choose either a block (■) cursor or an underline (_) cursor.

Cursor Blink

Use the Up and Down Arrow keys to highlight **Cursor Blink** and press the Enter key to toggle between **On** and **Off**. Select **On** if you want a blinking cursor or **Off** if you want a nonblinking cursor.

Rule Style

To chose a rule cursor style of either dash (-), bar (|), or cross (+), use the Up and Down Arrow keys to highlight **Rule Style** and press the Enter key to toggle between +, |, and **-**.

You can also choose a rule cursor style with the Online Rule Cursor function. See "Rule Cursor Function" on Page 3-15.

Press the Rule key (on the 88-key and 102-key keyboards, hold down the Alt key while you press the Rule key) to turn the rule cursor on or off.

Leaving the Offline Cursor Menu

To leave the Offline Cursor menu, use the Left and Right Arrow keys to display another offline setup menu or press the Reset key to exit from Offline Setup mode and return to the Offline Test menu (Figure 2-5 on Page 2-7).

To save the options you set on the Offline Cursor menu, after you leave Offline Setup mode, you *must* highlight **Go Online** on the Offline Test menu and press the Enter key.

Offline Keyboard Menu

To display the options on the Offline Keyboard menu, use the Left and Right Arrow keys to highlight **Keyboard** on the Offline menu and press the Enter key. The Offline Keyboard menu is displayed (Figure 3-5).
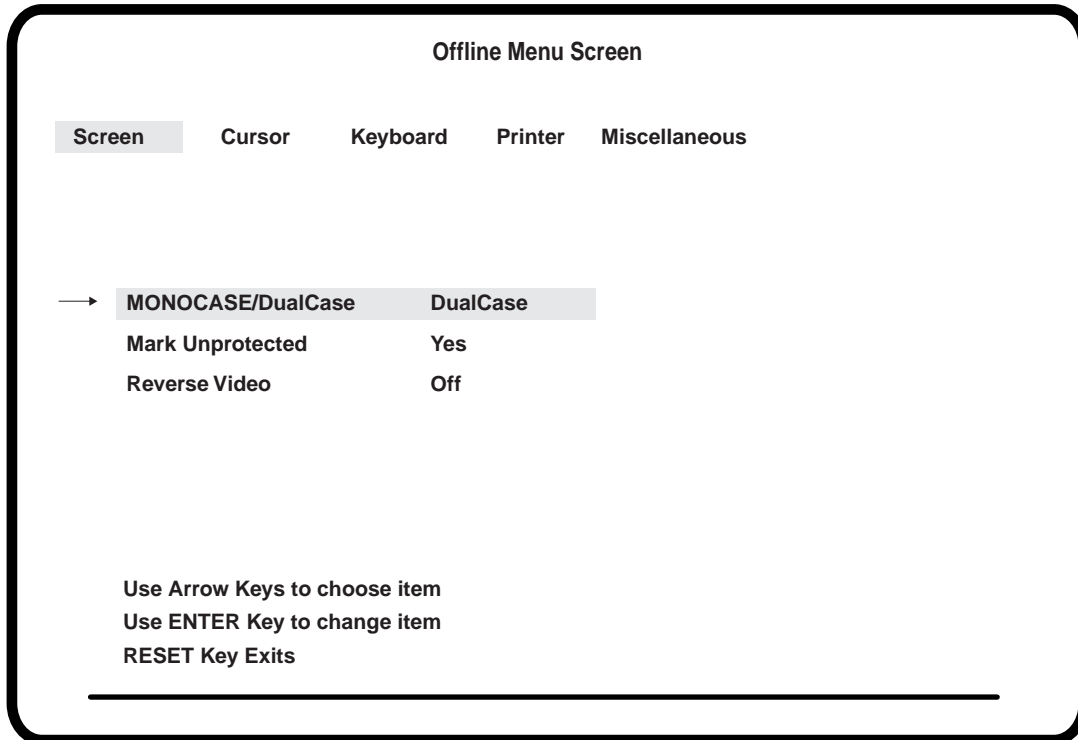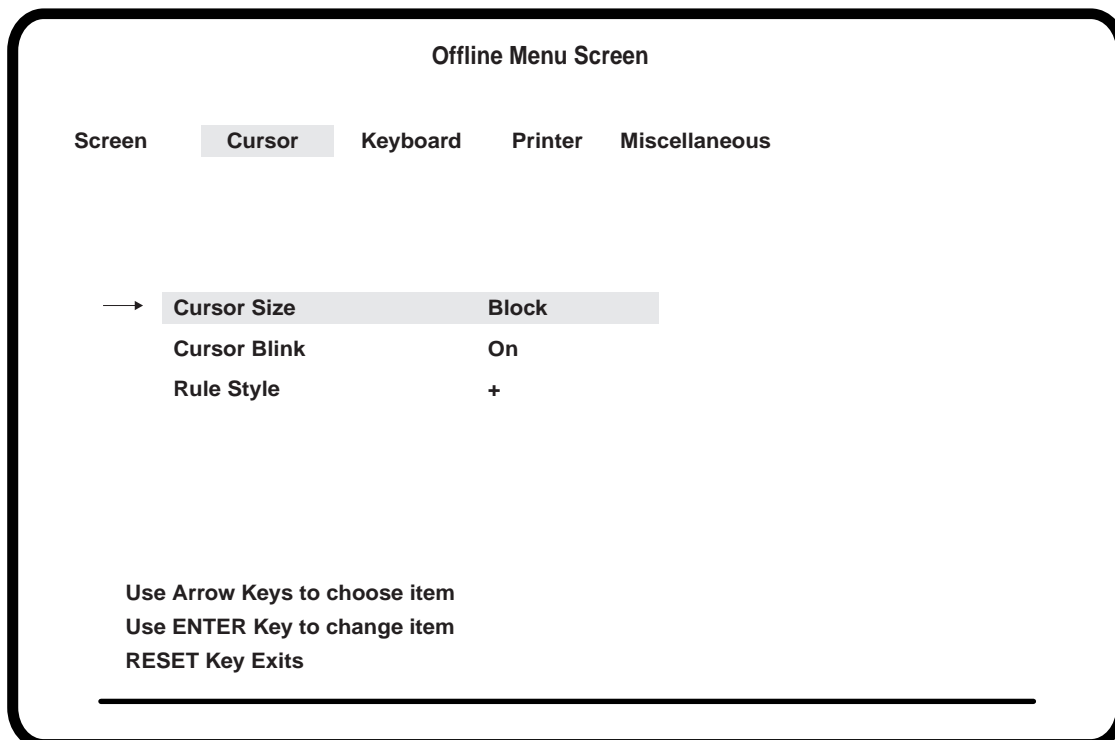
```
                        Offline Menu Screen


   Screen        Cursor        Keyboard      Printer     Miscellaneous


   ──→   Alarm Volume              Off
         Click Enable              On
         Click Volume              Off
         Cursor Speed              10 CPS
         Repeat Delay              Short
         Keyboard Type             TW
         Numeric Lock              Off
         Change KEYLESS Password


         Use Arrow Keys to choose item
         Use ENTER Key to change item
         RESET Key Exits
```
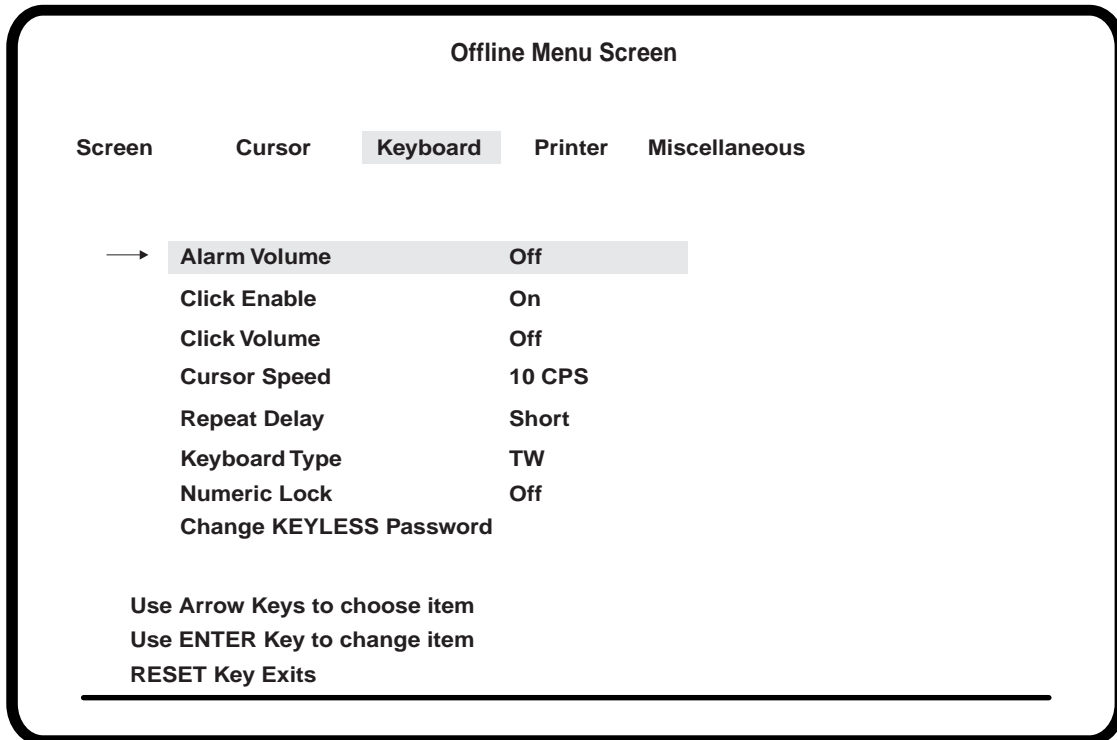
Figure 3-5. Offline Keyboard Menu

Alarm Volume

To turn the alarm volume off and on, use the Up and Down Arrow keys to highlight **Alarm Volume** and press the Enter key to toggle between **Off** and **1**, **2**, **3**, **4**, **5**, **6**, and **7**. Turn the alarm off by selecting **Off**, or select an alarm volume from 1 (lowest) through 7 (highest).

You can also set the alarm volume with the Online Alarm Volume Function. See "Alarm Volume Function" on Page 3-17.

Click Enable

Use the Up and Down Arrow keys to highlight **Click Enable** and press the Enter key to toggle between **On** and **Off**. Select **On** to make the keyboard click with each keystroke or select **Off** to deactivate the keyboard click.

If an "Input inhibited" error occurs while Click Enable is activated, the keyboard click is turned off. If an error occurs while the feature is deactivated, the keyboard click is turned on.

Click Volume

Use the Up and Down Arrow keys to highlight **Click Volume** and press the Enter key to toggle between **Off**, **1**, **2**, **3**, **4**, **5, 6,** and **7.** Turn the keyboard click off by selecting **Off**, or select a click volume from 1 (lowest) through 7 (highest).

You can also adjust the keyboard click volume with the Online Click Volume function. See "Click Volume Function" on Page 3-18.

Cursor Speed

Use the Up and Down Arrow keys to highlight **Cursor Speed** and press the Enter key to toggle between horizontal cursor speeds of **10 CPS**, **20 CPS**, and **30 CPS**.

Repeat Delay

Press the Up and Down Arrow keys to highlight **Repeat Delay** and press the Enter key to toggle between typeamatic speeds for autorepeat keys of **Short**, **Medium**, and **Long**.

Keyboard Type

Note: Check with your system operator before you change this value.

Use the Up and Down Arrow keys to highlight **Keyboard Type** and press the Enter key to toggle between the following keyboard settings:

- **TW** (native typewriter)

- **DE** (data entry) – not available with 102-key keyboard

- **01** (user defined)

- **02** (user defined)

- **03** (user defined)

- **04** (user defined)

- **88** (Emulate 88-key keyboard) – not available with 102-key keyboard

Numeric Lock

Note: Check with your system operator before turning the numeric lock off or on.

Use the Up and Down Arrow keys to highlight **Numeric Lock** and press the Enter key to toggle between numeric lock **On** and **Off**.

Change KEYLESS Password

The user-definable password for Electronic Security Lock mode can be modified by performing the following steps:

1) Move the pointer (with the Up or Down Arrow keys) to the **Change KEYLESS Password** prompt and press Enter.

2) The user is then prompted to input the current password. (As each keystroke is input, the leftmost underscore is changed to an "X"). If an incorrect password is input, "FAIL" is added, and the Change prompt and the password prompt are removed. To retry, the user must press Enter to restore the prompt.

   Note: The default password as shipped or after RESET NVRAM is "OPR".

3) If the password is correctly entered, the user is then prompted for a new password. The next three keystrokes are taken as the new password.

4) The user is then prompted to reenter the new password to verify the change. When the third keystroke is entered, all of the password prompts are removed. If the keystrokes do not match, "FAIL" is added to the Change prompt.

Leaving the Offline Keyboard Menu

To leave the Offline Keyboard menu, use the Left and Right Arrow keys to display another offline setup menu or press the Reset key to exit from Offline Setup mode and return to the Offline Test menu.

To save the options you set on the Offline Keyboard menu, after you leave Offline Setup mode you *must* highlight **Go Online** on the Offline Test menu and press the Enter key.

Offline Printer Menu

To display the options on the Offline Printer menu, use the Left and Right Arrow keys to highlight **Printer** on the Offline menu and press the Enter key. The Offline Printer menu is displayed (Figure 3-6).

```
                          Offline Menu Screen


  Screen        Cursor        Keyboard      Printer    Miscellaneous


     ⟶      Printer Type              1201
             Print Type               Screen Print
             Auto Skip                Off


         Use Arrow Keys to choose item
         Use ENTER Key to change item
         RESET Key Exits
```

Figure 3-6. Offline Printer Menu

Printer Type

Use the Up and Down Arrow keys to highlight **Printer Type** and press the Enter key to toggle between an **1173** and a **1201** local screen printer.

You can also select the printer type with the Online Print/Printer Type function. See "Print/Printer Type Function" on Page 3-18.

Note: Use of any local screen printer other than the 1173 or the 1201 for local screen print could produce unpredictable results and is neither recommended nor supported.
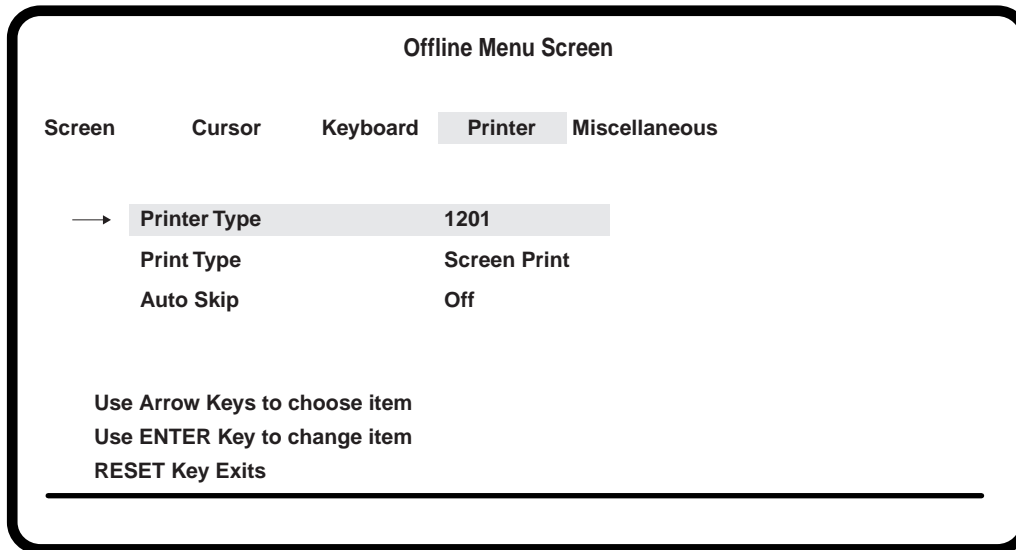
Print Type

Use the Up and Down Arrow keys to highlight **Print Type** and press the Enter key to toggle between the following types of printing jobs:

• **System Print** – The display station contents are printed on the printer attached to the control unit.

• **Screen Print** – The display station contents are printed on the local printer attached to the display station.

Auto Skip

You can configure your display station's local printer to advance a selected number of lines after it performs a local print. To set up or change the lines to be advanced, use the Up and Down Arrow keys to highlight **Auto Skip**, then follow these steps:

1) Press Enter. The selection area for the Auto Skip function is highlighted.

2) Use arrow keys to select a new value. Allowable values are **Off**, **1–14**, and **Form Feed**. The number you select is the number of lines you want the local printer to advance after performing a local print operation.

Leaving the Offline Printer Menu

To leave the Offline Printer menu, use the Left and Right Arrow keys to display another offline setup menu or press the Reset key to exit from Offline Setup mode and return to the Offline Test menu (Figure 2-5 on Page 2-7).

To save the options you set on the Offline Printer menu, after you leave Offline Setup mode, you *must* highlight **Go Online** on the Offline Test menu and press the Enter key.

Offline Miscellaneous Menu

To display the options on the Offline Miscellaneous menu, use the Left and Right Arrow keys to highlight **Miscellaneous** on the Offline menu and press the Enter key. The Offline Miscellaneous menu is displayed (Figure 3-7).
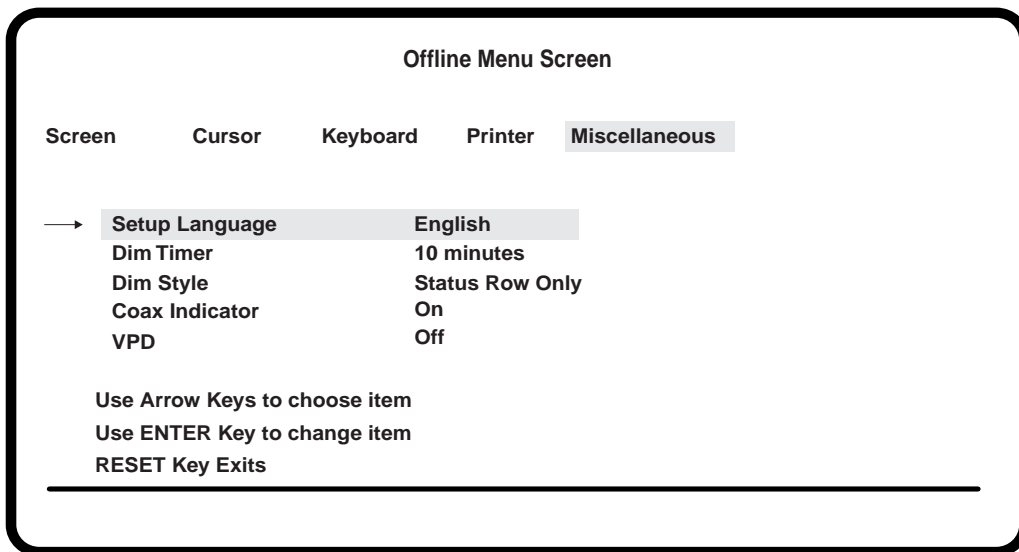

Figure 3-7. Offline Miscellaneous Menu

Setup Language

Choose between English, German, French, and a set of International symbols to display in the pull-down menus. Use the Up and Down Arrow keys to highlight **Setup Language**. Press Enter to toggle between **English**, **German**, and **French**.

Dim Timer

Use this option to turn the Auto Screen Cutoff function on or off by using the Up and Down Arrow keys to highlight **Dim Timer**. Press Enter to toggle between **Off**, **2**, **5**, **10**, **20**, and **30** minutes. The Auto Screen Cutoff functions blanks the screen if no data is received from the keyboard or a host system for the amount of time specified in the online Auto Dim Time setup option. See "Auto Dim Time Function" on Page 3-16 for instructions on how to select the auto dim time.

Dim Style

You must turn the Auto Screen Cutoff function on with the Dim Timer function (above) in order to use the dim style you choose with this function.

Use the Up and Down Arrow keys to highlight **Dim Style** and press the Enter key to toggle to **Monitor Off**. The **Monitor Off** selection blanks the entire screen. Press Enter again to toggle to **Status Row Only**. The **Status Row Only** option displays only the operator status row when the screen is blanked. The symbol ☼ appears on the operator status row. Press any key to restore the screen without adding characters. Also, if the host initiates a write message, the screen is restored.

If you select **Status Row Only**, the screen remains blanked with only the status row displayed for 30 minutes. After 30 minutes, the status row is also blanked (power down mode).

To restore a blanked screen, press the Shift key. The screen is also restored when the control unit writes to the screen.

Coax Indicator

When this feature is turned on, a filled circle (●) is displayed in column 69 of the status row to indicate an active coax line while online. A blinking circle indicates a very slow poll cycle indicative of a coax line being disconnected then reconnected. If your display station displays a blinking circle, power down the display station for at least 10 seconds before turning the power on to reestablish communication.

To turn the Coax indicator on or off, highlight **Coax Indicator** on the Miscellaneous menu and press the Enter key to toggle the indicator **On** or **Off**.

VPD

Use the Up and Down Arrow keys to highlight **VPD** (Vital Product Data) and press the Enter key to toggle between **On** and **Off**. Turn the VPD option On to send VPD such as the serial number, the M/C type, the EC number, the manufacturing plant, and the software level to the controller.

Leaving the Offline Miscellaneous Menu

To leave the Offline Miscellaneous menu, use the Left and Right Arrow keys to display another offline setup menu or press the Reset key to exit from Offline Setup mode and return to the Offline Test menu (Figure 2-5 on Page 2-7).

To save the options you set on the Offline Miscellaneous menu, after you leave Offline Setup mode you *must* highlight **Go Online** on the Offline Test menu and press the Enter key.

Online Setup Mode

Some screen, cursor, keyboard, and printer options can be selected or changed in online setup mode. They can also be changed or selected in Offline Setup mode. See "Entering Offline Setup Mode" on Page 3-4 for instructions on how to change these options in Offline Setup mode.

In Offline Setup mode, the coax indicator is a filled triangle (▶).

Going Online

To go online when you power up, turn the Power-On/Off switch to On (|).

To go online from the Offline Test menu (Figure 2-5 on Page 2-7), use the Up and Down Arrow keys to highlight **Go Online** and press the Enter key.

Entering Online Setup Mode

To enter Online Setup mode, your display station must first be online. Follow the instruction in "Going Online," above, to put your display station online.

To enter Online Setup mode from a 104-, 122-, or 88-key keyboard, hold down the Alt key while you press the Setup key. The online Rule Cursor function is displayed in the last 10 characters on the operator status row.

To enter Online Setup mode from a 102-key keyboard, hold down the Shift key while you press the Setup key. The online Rule Cursor Function is displayed in the last 10 characters on the operator status row.

Use the Up and Down Arrow keys to toggle through the following online setup functions:

- Rule Cursor

- Auto Dim Time

- MONOCASE/DualCase

- Alarm Volume

- Click Volume

- Print/Printer Type

- Mark Unprotected Fields

Rule Cursor Function

Rule Cursor Character

► – + – (+)

Figure 3-8. Online Rule Function

The rule cursor character is displayed inside the parentheses at the end of the Rule Cursor function. Use the Enter key to scroll through the following choices for the rule cursor character:

- **|** (vertical bar)

- **-** (dash)

- **+** (cross)

When the rule cursor character you want is displayed in the parentheses, press the Up and Down Arrow keys to scroll forward or backward to the next online setup function or hold down the Alt key while you press the Setup key (for the 102-key keyboard, hold down the Shift key while you press the Setup key) to exit from Online Setup mode.

Press the Rule key (on the 88-key and 102-key keyboards, hold down the Alt key while you press the Rule key) to turn the rule cursor on or off.

Auto Dim Time Function

**Auto Dim Time
(in minutes)**

▶ ¤ ⊙ **nn**

Figure 3-9. Online Auto Dim Time Function

The auto dim time is the time the display station waits for input before blanking the screen. The number of minutes to wait for auto dim is displayed in the last two fields of the Auto Dim Time function. Use the Enter key to scroll through the following choices:

- **0** (auto dim off)

- **2** (minutes)

- **5** (minutes)

- **10** (minutes)

- **20** (minutes)

- **30** (minutes)

When the auto dim time you want is displayed, press the Up and Down Arrow keys to scroll forward or backward to the next online setup function or hold down the Alt key while you press the Setup key (for the 102-key keyboard, hold down the Shift key while you press the Setup key) to exit from Online Setup mode.

To restore a blanked screen, press the Shift key. The screen is also restored when the control unit writes to the screen.

MONOCASE/DualCase Function

DualCase Selection

↓

▶   **A,a**

Figure 3-10. Online MONOCASE/DualCase Function

Use the Enter key to select all uppercase characters on the screen (MONOCASE) or both upper- and lowercase characters (DualCase). To select **MONOCASE**, display **A,A** in the last two fields of the MONOCASE/DualCase Function. To select **DualCase**, display **A,a** in the last two fields.

When the character mode you want is displayed, press the Up and Down Arrow keys to scroll forward or backward to the next online setup function or hold down the Alt key while you press the Setup key (for the 102-key keyboard, hold down the Shift key while you press the Setup key) to exit from Online Setup mode.

Alarm Volume Function

Alarm Volume

↓

▶   🔊 **n**

Figure 3-11. Online Alarm Volume Function

Use the Enter key to select an alarm volume of **0** (off) through **7** (loudest). The alarm volume is displayed in the last field of the Alarm Volume function.

When the alarm volume you want is displayed, press the Up and Down Arrow keys to scroll forward or backward to the next online setup function or hold down the Alt key while you press the Setup key (for the 102-key keyboard, hold down the Shift key while you press the Setup key) to exit from Online Setup mode.

Click Volume Function

Click Volume

▶ ■))) n

Figure 3-12. Online Click Volume Function

Use the Enter key to select a keyboard click volume of **1** (softest) through **7** (loudest). The click volume is displayed in the last field of the Click Volume function.

When the click volume you want is displayed, press the Up and Down Arrow keys to scroll forward or backward to the next online setup function or hold down the Alt key while you press the Setup key (for the 102-key keyboard, hold down the Shift key while you press the Setup key) to exit from Online Setup mode.

Print/Printer Type Function

Printer Type

▶ ▭–▭ 1201

Figure 3-13. Online Print/Printer Type Function

Use the Enter key to select the host printer (▭), or one of two local screen printers, the **1173** or the **1201**. The printer is displayed in the last four fields of the Print/Printer Type function.

When the printer you want is displayed, press the Up and Down Arrow keys to scroll forward or backward to the next online setup function or hold down the Alt key while you press the Setup key (for the 102-key keyboard, hold down the Shift key while you press the Setup key) to exit from Online Setup mode.

Use of any local screen printer other than the 1173 or the 1201 could produce unpredictable results and is neither recommended nor supported.

Mark Unprotected Fields Function

Mark Unprotected Fields
Turned Off

▶ '—' 0

Figure 3-14. Online Mark Unprotected Fields Function

Use the Enter key to turn Mark Unprotected Fields off or on. **0** (off) or **1** (on) is displayed in the last field of the Mark Unprotected Fields function.

When your selection for Mark Unprotected Fields is displayed, press the Up and Down Arrow keys to scroll forward or backward to the next online setup function or hold down the Alt key while you press the Setup key (for the 102-key keyboard, hold down the Shift key while you press the Setup key) to exit from Online Setup mode.

Indicators

Power-On Indicator

When lit, indicates that the display station is powered on. See Figure 2-3 on Page 2-5.

Cursor

After the display station is powered on and warmed up, if it is attached to an inactive host, a cursor is displayed in the upper left corner of the screen. If the host is active, the cursor is positioned as specified by the host. As data characters are entered through the keyboard, the cursor moves to the next available screen character position.

Operator Status Row Indicators

This is the area below the last data row and is separated from the rest of the screen by one nonintensified line. The operator status row contains symbols that indicate current operating conditions. These symbols can be divided between System indicators and Local indicators.

The symbols shown below are generated when the display station is attached to an MTX/MTC 1174 Network Controller, a Memorex Telex 1274 Control Unit, a Memorex Telex 1374 Control Unit, an IBM 3274 Control Unit, or an IBM 3174 Control Unit.
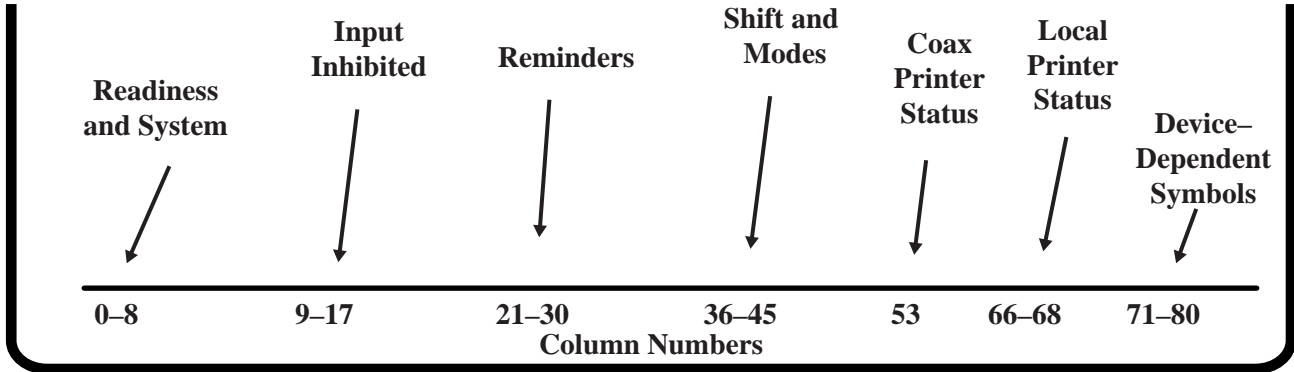

Figure 3-15. System Operator Status Row Fields

Readiness and System Connection Symbols

These symbols, either alone or in combinations, indicate the readiness status of your display station, control unit, and system.

READINESS AND SYSTEM CONNECTION SYMBOLS		
Symbol	Name	Meaning
6 , 4 or S	Control Unit Ready	Memorex Telex 1274, Memorex Telex 1374, IBM 3274 Control Unit (4), Telex 276, Telex 174, or IBM 3276 Control Unit (6), MTX/MTC 1174 Network Controller, or IBM 3174 Control Unit is connected to the display station.
I or i	IBM 43XX Ready	An IBM 43XX system is connected to the display station.
A or B	Online A or B	Control Unit is connected to host system under online rules A (A) or B (B). Online rules govern display station and control unit transactions with the host system; the set of applicable rules may change the meaning of some symbols in the operator status row.
■	My Job	Display station is working with your application program.
👤	System Operator	Display station is connected to system operator (control program).
?	Unowned	Display station is connected to host system; but not to the application or control program.

"Do Not Enter" (Input Inhibited) Symbols

The X (Do Not Enter) symbol indicates that your display station will not accept input from your keyboard. Additional symbols are displayed to the right of the X to explain why your input is not accepted.

"DO NOT ENTER" (INPUT INHIBITED) SYMBOLS		
Symbol	**Name**	**Meaning**
X ⊙	Time	Host system requires time to perform function you have requested. Wait for the function to be completed.
X?+	What?	The last operation you attempted was not accepted by the display station. Check your display station to ensure the operation you want to perform is correct. Press Reset key and retry operation. If Sys Req or Attn key was used, repeated retries may be necessary.
X SYSTEM	System Lock	Host system has locked keyboard. Look for message or press Reset key. On SDLC models, host program uses System Lock symbol to request the operator to send the next message.
X ← ⚥ →	Go Elsewhere	You have attempted an operation in a protected or invalid field. Go to another position to take action. Press Reset key, move cursor, and repeat operation.
X ⚥ >	More Than	Too much data for this field. Press Reset key and correct the entry.
X ⚥ NUM	Numeric	Only numeric characters may be entered in this field. Press Reset key and correct the entry.
X ⚥ # ?	What Number?	Only certain numeric characters may be entered in this field. This symbol appears when a selected Printer ID number is not numeric or is not defined. Press Reset key and correct entry.
X–f	Minus Function	Requested function unavailable. Press Reset key.
X ⬔ nn **X ⬔ nnn**	Machine Check	Display station is not operating properly. Press the Reset key to recover. If error recurs, refer to Chapter 6 in this manual for appropriate action.
X ⤌⤍ 5nn	Communication Check	Problem with communications line between control unit and host system. Press the Reset key to recover. If error recurs, refer to Chapter 6 in this manual for appropriate action.
X PROGnnn	Program Check	Control unit detected programming error in data from host system. Press Reset key. The application program in use may be the wrong one for your display station. If problem persists, refer to Chapter 6 in this manual for appropriate action.

"DO NOT ENTER" (INPUT INHIBITED) SYMBOLS		
Symbol	**Name**	**Meaning**
X ☐—☐ ⊙	Printer Busy	Coax printer assigned to your display station is busy. If ☐—■ is displayed on the right while the printing is in process, you can either wait for the operation to finish or cancel the pending print operation by pressing the Quit key. This cancels the request if it has not started or cancels the remainder of the job if it has started, erases X ☐—☐ ⊙ and unlocks the keyboard. Pressing the Quit key while the printer is printing from the host system replaces this symbol with X⊙. A current print operation cannot be canceled by pressing the Alt and Reset keys.
X ☐—☐ ⊙⊙	Printer Very Busy	Same as above, except that print operation requires additional time to finish.
X ☐—◁	Printer Not Working	Coax printer selected by display station is not working. Press the Quit key to unlock the keyboard and cancel the print request. If ☐—■ **nn** is present on the operator status row, the printer stopped during the last print operation. If X ☐—◁ is present, a host system–requested printing causes X⊙ to appear and you must wait until the print completes.
X ⚡ X	Operator Unauthorized	Your display station is not authorized to do the requested printer–related function. Press the Reset key. One of the following conditions caused this symbol to appear: The Print key was pressed without entering the printer number or ☐—☐ **??** is present. The Ident key was pressed and the control unit has no printer assigned. The number entered is defined by the control unit, but not allowed for the display station. The printer is unable to accept all of the contents of a display station during local printing.
X � 3	Security Lock	Security lock is working. Refer to "Electronic Security Lock" on Page 4–11.
X – S	Minus Symbol	The symbol typed is not recognized by the control unit. Press the Reset key.
X ☐←▨	Message Received	Message from the control operator was received and rejected. Press Reset key.

"DO NOT ENTER" (INPUT INHIBITED) SYMBOLS		
Symbol	**Name**	**Meaning**
X ⚸*+?	Invalid Dead–Key Combination	An invalid dead–key/character–key combination (where * is an accent character) was entered (on display stations configured for French, Spanish, Canadian French, Swiss/German, and Swiss/French applications only). Press the Sys Rq or Reset key and enter the dead–key/character–key combination again.

Reminder Symbols

These messages are a reminder that a condition has occurred.

REMINDER SYMBOLS		
Symbol	**Name**	**Meaning**
⌁ 5nn	Communications Reminder	Control unit/host system communications link is producing errors. You are not communicating with the system. The error number, **nn** or **nnn**, indicates the type of communication problem.

Shift and Mode Symbols

These messages indicate the shift and mode your keyboard is using.

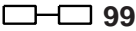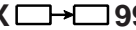| SHIFT AND MODE SYMBOLS		
Symbol	**Name**	**Meaning**
NUM	Numeric	The Numeric Lock function is on and the keyboard is in Numeric mode. (Only 0 through 9, Period (.), Minus (-), and Dup keys operate.)
⇧	Upshift	Keyboard is in Shift mode.
⌢	Insert	Display station is in Insert mode. A character may be inserted at the cursor position. Insert mode can be turned off by pressing one of the following keys: Reset, Test, SysRq, Enter, PA, PF (or F)
▶	Extended Select	Display station is in Extended Select mode.
A	Caps Lock	Alphabetic characters and accented characters appear as uppercase characters.
⌧	Auto Dim	A key has not been pressed or the display station has not received any data for the specified minutes. Pressing any key returns the display station contents.

Coax Printer Status Symbols

These messages appear during print operations to indicate where the operation is performed and the progress of the print job.

COAX PRINTER STATUS SYMBOLS		
Symbol	**Name**	**Meaning**
▭━▭ _ _	Assign Coax Printer	When coax printer ID/Class is changed by pressing the Ident key, the two-numeral ID is entered from the keyboard and is displayed in the underlined positions
▭━▭ **nn**	Coax Printer Assignment	Display station is authorized to use coax printer nn. The possible printer assignment numbers follow. – 01 through 31 – individual printer port number – A0 through A7 – individual printer port number – B0 through B7 – individual printer port number – C0 through C7 – individual printer port number – D0 through D7 – individual printer port number – 70 through 85 – printer class number – 99 – local printer attached to the display station
▭━■ **nn**	Coax Printer Printing	The selected coax printer is printing your job.
▭━◥ **nn**	Coax Printer Failure	The selected coax printer has failed while printing your work. The symbol remains on until you clear the condition or press the Quit key.
▭━▭ **??**	What Coax Printer	Coax printer assignment has changed. Press the Ident key to display the new printer assignment. (This symbol only appears on 1481 Display Stations attached to a Telex 274, a Memorex Telex 1274, or an IBM 3274 Control Unit.)

Local Printer Status Codes

These symbols are displayed during local print operations.

PRINTER STATUS SYMBOLS		
Symbol	**Name**	**Meaning**
☐—☐ 99	Printer On	The local screen printer is attached and on.
☐—■ 99	Screen Print	The selected printer is printing your job.
☐—◁ 99	Printer Inoperative (Print has not been requested)	This symbol is displayed when a print has been requested and the printer is inoperative. The printer may be jammed, out of paper, or not selected. Fix the printer and select it for use. The display station cannot be placed in Setup mode while this symbol is displayed.
☐—■ 99	Printer Inoperative (Print has been requested)	This symbol is displayed when a print has been requested and the printer is inoperative. The printer may be jammed, out of paper, or not selected. Fix the printer and select it for use. The display station cannot be placed in Setup mode while this symbol is displayed.
X ☐→☐ 99	Keyboard Locked	The display station is transferring data to the screen buffer. The keyboard remains locked until the data transfer is completed. The display station cannot be placed in Setup mode while this symbol is displayed.

Local Error Indicators

LOCAL ERROR INDICATORS		
Symbol	**Name**	**Meaning**
← ⚡ →	Invalid Cursor Movement	You attempted to move the cursor out of the screen area while setting the print area. Move the cursor within the screen area to clear the symbol.
L and K	Display Station Error	The display station detected an error in its elements. Refer to Chapter 6 for more information.

Entry Assist Indicators

ENTRY ASSIST INDICATORS		
Symbol	**Name**	**Meaning**
DOC	Document Mode	The display station is in Document mode. For more information, refer to Chapter 5, "Entry Assist."
⇩	Word Wrap	The Word Wrap (automatic new line) function is enabled. For more information, refer to Chapter 5, "Entry Assist."

Response Time Monitor Indicators

RESPONSE TIME MONITOR INDICATORS		
Symbol	**Name**	**Meaning**
☼**:**	Display Unauthorized	The display station is not allowed to display the response time by the host system, although the control unit enabled the Response Time Monitor.
☼**ss.t**	Short Type	Indicates the time required for the last data to be transmitted to the host system ("**ss**" for seconds and "**t**" for tenths of seconds). This symbol remains displayed until a new Response Time Monitor symbol is displayed.
☼**mm:ss**	Long Type	Indicates the time required for the last data to be transmitted to the host system ("**mm**" for minutes and "**ss**" for seconds). The symbol remains displayed until a new Response Time Monitor symbol is displayed.
☼**???**	Display Canceled	The current Response Time measurement was canceled.

Chapter 4.   Operating Procedures

The operating procedures described in this manual work for a 1481 that is attached to a powered, operational control unit or processor. Refer to Chapter 1 for a list of compatible control units and processors. Before operating the display station, ensure that it is connected to the control unit.

Preparation for Operating

After the display station has been installed and is connected to its control unit, it is ready to operate online. To ensure that your display station is prepared to operate, perform the following procedure. Refer to Chapter 6 for further information if the display station does not operate or malfunctions.

1) Turn the security lock key clockwise to unlock the keyboard.

2) Turn the power on by setting the Power-On/Off switch to On (|).

3) An alarm sounds briefly. The cursor appears in the upper left corner of the screen and the operator status row displays the Ready symbol:

   - $\boxed{6}$ – If attached to a Telex 276 Control Unit/Display Terminal, or IBM 3276 Control Unit Display Station

   - $\boxed{4}$ – If attached to a Memorex Telex 1274, a Memorex Telex 1374, a Memorex 2274, or an IBM 3274 Control Unit

   - I or i – If attached to an IBM 4300 processor

   - S – If attached to a MTX/MTC 1174 Network Controller or IBM 3174 Control Unit).

   The Power-On indicator is lit.

   Note: See "Operator Status Row Indicators" on Page 3-19 for explanations of all operator status row symbols.

4) If the Power-On indicator fails to light, the cursor fails to appear, or a display like the one described above is not produced, refer to Chapter 6 of this manual.

   If "B" is displayed in the first character position of the operator status row, refer to Chapter 6 of this manual.

5) Adjust the Contrast and/or Brightness controls for viewing comfort.

Assigning a Coax Printer

Each display station in a system configuration can be assigned a host printer that can generate copies of information displayed on the screen. These copies can be used to maintain records of display station/CPU transactions.

For 88-key, 102-key, 104-key, and 122-key keyboards, press and hold the Alt key, then press the Ident key to display the Assign Printer condition symbol ▭—▭ _ _ in the operator status row. For 102-key keyboards, press and hold the Shift key, then press the Ident key to display the symbol.

Note: If ▭—▭ **99** is displayed on the operator status row when the Ident key is pressed, ▭—▭ _ _ does not display. Enter Setup mode and select host printer instead of screen printer. This allows you to assign the coax printer.

Consult your supervisor for an available coax printer's ID number and enter that two-digit ID number. The two-digit number replaces the underscore positions on the operator status row. Once the printer's ID number is entered, the sequence ends automatically.

If an invalid ID number is entered for a host printer, the "What?" symbol (**X?+**) appears on the operator status row. If this occurs, press the Reset key and try another number.

Data Entry Function

The data entry function consists of writing data messages in an acceptable form for computer processing. As messages are entered through the keyboard, they are displayed on the screen either as unformatted information or according to a program-determined format. Attributes of the formatted screen fields control the amount and type of entered data (alphanumeric or numeric).

Figure 4-1 on Page 4-3 shows a typical formatted screen. All fields on the screen are preceded by a nondisplayed attribute character and are defined as protected or unprotected (entry) fields. For protected fields, the application program fills in the information following the attribute characters. Attempts to change displayed information in a protected field cause a "Go Elsewhere" condition symbol (**X ← ⚡ →**) to appear on the operator status row. The unprotected (or entry) fields accept new or revised information from the operator. Some application programs further designate an entry field by displaying the cursor in the unprotected field's first character position.
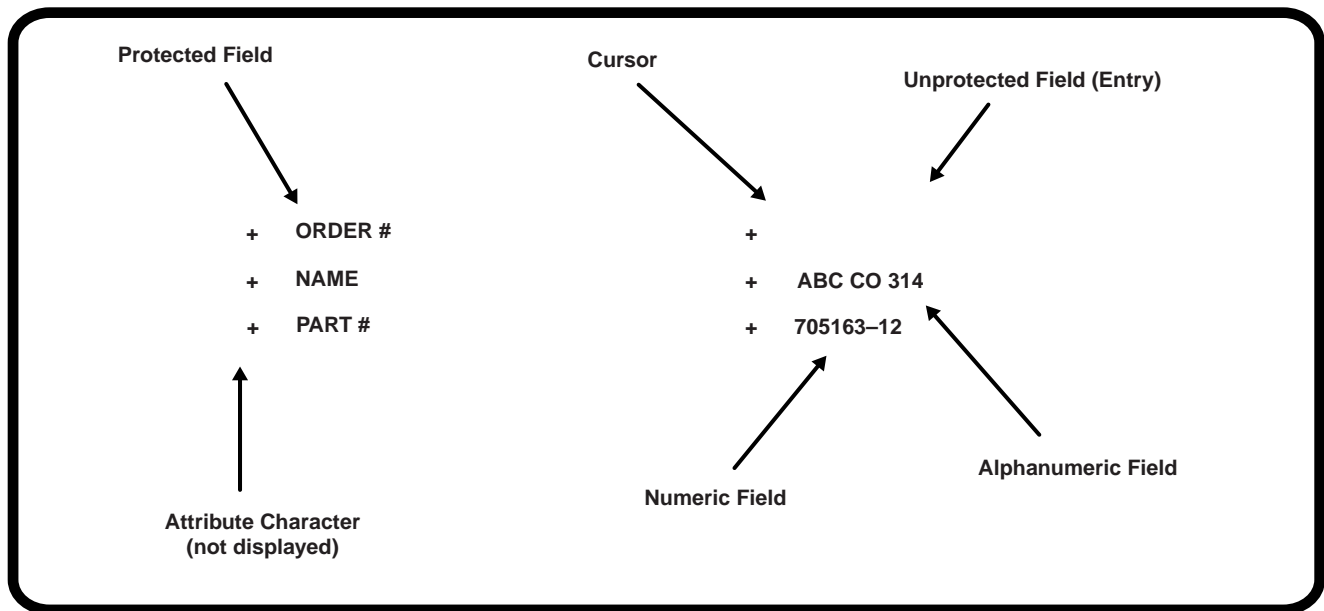
Figure 4-1. Typical Formatted Screen

Unprotected fields are classified as either alphanumeric or numeric. Alphanumeric fields can accommodate both alphabetic and numeric data characters. Numeric fields are controlled by the application program so that attempts to enter characters other than digits 0 through 9, a period, a Dup key, or a minus sign result in an error. On international keyboards, the comma can be entered instead of the period. Display stations with Data Entry keyboards automatically shift into Numeric mode when the cursor enters a numeric field.

Data characters in unprotected fields can also be displayed as intensified (brighter) fields. In applications requiring use of confidential information, both the protected and unprotected fields can be programmed to be nondisplayed fields.

Note: Use of nondisplayed fields precludes visual verification of entered data before transmission to the CPU.

Before you can begin entering data characters on the screen, the display station must access the CPU and its application program. Access is usually accomplished through use of the Attention, Program Access (PA), Program Function (PF), Clear, or Enter key, or through a series of sign-on commands and programmed CPU responses. This series is initiated when the display station comes online. Contact your supervisor or refer to a system user's guide for appropriate program-accessing procedures.

Keyboard Operations

The description of keystroke functions and operations initiated from the keyboard in this section applies to display stations attached to 88-key, 102-key, 104-key, or 122-key keyboards. If symbols are different from keyboard to keyboard, all are illustrated in the text. The symbols for each function can be found on the keyboard attached to your display station. Remember that legends that appear on the key face are Alt functions and legends that appear on the key top can be shifted or nonshifted functions as illustrated in Figure 3-1 on Page 3-3.

Moving the Cursor

The cursor always indicates the next available character position on the screen. For applications using an unformatted screen, the operator selects where the next character is to be entered by moving the cursor to the desired screen position. The following keys are used for positioning the cursor:

Press the Up key (↑) to move the cursor up the screen.

Press the Down key (↓) to move the cursor down the screen.

Press the Left key (←) to move the cursor horizontally left one space for each depression.

Press and hold the Alt and Left keys (⇐) to move the cursor left at double speed. When the cursor moves beyond the edge of the screen, it "wraps" or reappears at the last character position of the previous line.

Press the Right key (→) to move the cursor horizontally right one space for each depression.

Press and hold the Alt and Right keys (⇒) to move the cursor right at double speed. When the cursor moves beyond the edge of the screen, it "wraps" or reappears at the first character position of the next line.

Press the New Line key (↵) to move the cursor to the first entry position in the next line. When the cursor is at the last entry position on the bottom line of the screen, pressing the New Line key will move the cursor to the first entry position at the top of the screen.

Press the Backspace key (⟵) to move the cursor backward.

Press the Home key to move the cursor to the first available character position on the screen (Alt– ⌐ on the 88-key keyboard, Home on the 102-key keyboard, and Alt– ↖ on the 104/122-key keyboards).

If the application uses a formatted screen, the following keys can be used for positioning the cursor:

- Press the Tab key (�straightarrow|) to move the cursor forward to the first entry position of the next entry field.

- Press the Backtab key (|←) to move the cursor back to the first entry position in the current or preceding entry field.

- Press the Skip key (Data Entry keyboards only) to move the cursor to the first entry position in a subsequent entry field.

For applications using unformatted screens, pressing the Tab, Backtab, or Skip key returns the cursor to the first available character position on the screen.

Entering Data Characters and Selecting Modes

Alphabetic, numeric, and special characters can be entered to compose data messages on the screen by pressing their corresponding keys.

After filling the last data line of the screen, the cursor automatically returns to the first available character position, and entry of additional data may write over any previously entered characters. To prevent loss of previous entries, transmit the data message to the CPU whenever the screen has been completely filled with data. Refer to the "Message Transmitting Function" on Page 4-8 for additional information.

Uppercase characters or the upper characters on dual-character keys are entered by selecting the Shift or Numeric mode before the key is pressed. On Data Entry keyboards, enter alphabetic characters in numeric fields by using the Shift (⇧) and Alpha (⇩) keys (see "Numeric Lock Mode" on Page 4-6).

Shift Mode

Hold the Shift key (⇧) while entering data to select upper characters on dual-character keys or uppercase characters for alphabetic keys; or press and release to turn off the Shift Lock feature for keyboards with typewriter layouts. Shift mode is designated on the operator status row by the ⇧ symbol.

Press the Shift Lock key (⦵) to lock the keyboard into Shift mode. For Typewriter keyboards, press the Shift key to unlock. For Data Entry keyboards, press the Shift Lock key again to exit Shift mode. For 102-key keyboards, use the Caps Lock key in place of the Shift Lock key.

Numeric Lock Mode

Numeric Lock mode is set or reset in Offline Setup. The Numeric Lock feature allows fields to be defined to accept only the entry of the digits 0 through 9, Period (.), Minus (-), and Dup keys (and comma [,] on some international keyboards). When the cursor enters a numeric field, the NUM symbol appears on the operator status row, and only the permitted characters can be entered. If you attempt to enter nonnumeric characters in a numeric field, the keyboard locks. Locking the keyboard turns off the keyboard click if it was on, and turns the keyboard click on if it was off. Press the Reset key to restore normal operation.

On Typewriter keyboards, the display station goes into lowercase mode when the cursor enters a numeric field. On Data Entry keyboards, the display station goes into uppercase mode when the cursor enters a numeric field.

Nonnumeric characters can be entered in numeric fields by doing the following:

For Data Entry keyboards and Typewriter keyboards, press the Shift key (⇧) to enter uppercase characters in a numeric field.

For Data Entry keyboards only, press the Alpha key (⇩) to enter any lowercase character in a numeric field.

Note that using the Shift Lock key does not override the Numeric Lock feature.

See "Numeric Lock" on Page 3-9 for information on how to set the Numeric Lock.

Cursor Select Data Entry

The Cursor Select key, Cr Sel (Cursr Sel for 88-key keyboards), can be used to select certain data fields from a formatted screen. The application program must define selectable fields by writing the appropriate attribute. These data fields are read by the application program for additional processing.

Each selectable data field is preceded by an appropriate field attribute character and a designator character. Designator characters precede one of two types of fields: selection fields and attention fields. Items in a selection field can be selected with the Cursor Select key and the program can be notified of the selection by selecting an attention field.

A nonselected selection field is preceded by a question mark (?) that changes to a greater than symbol (>) when the field is selected. Attention fields are preceded by an ampersand (&) or a space. These symbols do not change when an attention field is selected.

To select or deselect a field, move the cursor to cover the appropriate designator character or any character in the field and press the Cursor Select key. The question mark preceding a field changes to a greater than symbol. If the wrong field is selected, it can be deselected by pressing the Cursor Select key again in the same field. The greater than symbol preceding a field changes to a question mark after the field has been deselected.

For some programs, when you finish selecting fields, press the Enter key to send the fields to the host application program for further processing. The selected fields can also be sent by selecting an attention field designator character using the Cursor Select key. The ampersand and space characters designate attention fields. Move the cursor to cover any character in the field and press the Cursor Select key to send the attention field data along with data in any other selected field on the screen.

Exiting the Cursor Select operation depends on the program in use. Refer to a user's guide for your application for the proper procedure.

Data Editing Function

After a data message has been composed, you can change the information before sending it to the CPU or you can call up previously entered data messages for editing.

Use the Attention, PA, PF, F, Clear, or Enter key to call up previously entered data messages, or use a series of sign-on commands and programmed CPU responses. This series is initiated when the display station comes online. Contact your supervisor or refer to a system user's guide for appropriate recalling procedures.

All keys described in "Data Entry Function" on Page 4-2 can also be used in editing data messages. In addition, the following keys can be used to add or delete information:

Press the Insert key (�ân) (Insert on the 102-key keyboard) to enter Insert mode and add characters at the cursor's current position. Press Reset to exit Insert mode. The symbol ⌒ appears on the status row to indicate the display station is in Insert mode.

Press the Delete key (ⱥ) (Delete on 102-key keyboard) to remove a character at the cursor's current position. The remainder of the line shifts one character position to the left.

Hold down the Alt key while you press the Delete Word key (ⱥⱥⱥ) (DelWd on the 102-key keyboard) to delete a word beginning at the current cursor position. This key combination is functional only if the control unit to which your display station attaches supports the Entry Assist feature.

Press the Erase to End of Field key (ErEOF) (Erase EOF on the 88-key keyboard) to erase all entry field positions from the cursor's current position to the end of field. The cursor does not move from its current position.

Hold down the Alt key while you press the ErInp key (Erase Input on 88-key keyboards) to erase all entry field positions and move the cursor to the first available character position.

Hold down the Shift key (⇧) while you press the Dup key to repeat entered data and move the cursor to the first entry position of the next entry field.

Hold down the Field Mark key, or the Shift key (⇧) while you press the Field Mark key, to enter a character that marks the end of an input field.

Message Transmitting Function

After you have filled all character positions on the screen, send the displayed information to the CPU before continuing data entry. When a data character is entered in the next-to-last character position on the screen, the audible alarm sounds to remind you that the cursor is near the end of the screen. If you continue to enter data, the cursor "wraps" and reappears in the first available character position of the screen. Subsequently entered characters replace displayed characters, resulting in loss of previous entries.

After filling all required character positions on the screen, press the Enter key to request a communications line for sending displayed data to the CPU.

Press the Clear key to erase all displayed data on the screen, return the cursor to the first available character position, and signal the CPU that a "clear" operation has occurred.

The application program in use determines specific functions of the Program Access (PA) and Program Function (PF or F) keys. Contact your supervisor or refer to a system user's guide for further information regarding these keys.

Press a Program Access key to initiate a program-determined function. Program Access keys are designated by numbers PA1, PA2, and PA3.

Press a Program Function key to initiate a program-determined function. Program Function keys are designated by numbers PF1 or F1 through PF24 or F24.

As described in "Assigning a Coax Printer" on Page 4-2, you can assign a printer in the system configuration that generates copies of information displayed on the screen. The following procedure explains how to initiate a print operation on a coax printer.

After entering data on the screen, press the Print key to send data to the assigned coax printer for generating copy.

Press the Alt and Reset keys to cancel a pending request by the Print key and restore keyboard operation. If the assigned printer is not operating, press the Alt and Reset keys to restore keyboard operation and reset the ☐▬■ condition symbol.

The display station also can be used to send system request messages to the CPU, depending on the online rules condition symbol that appears in the operator status row.

If online rules A apply (<u>A</u> appears in the operator status row), press the Alt and Sys Rq (System Request) keys to send the CPU a message that the display station may be failing or that a test request message is on the screen. If online rules B apply (<u>B</u> appears in the operator status row), press the Alt and Sys Rq keys to clear the display station and switch the display station between the control (or master) program and application programs. Contact your supervisor or refer to a system user's guide for further information regarding this key combination.

Print Function

The display station can send a print request to the host system or it can print data locally if it is attached to a local screen printer. A desktop/screen printer must be ordered separately. To access either host printing or local screen printing, enter Setup mode and specify the Print mode. (See Setup mode procedures in Chapter 3.) Press the Print key to initiate the print function.

Extended Select Function

There are two Extended Select functions, Entry Assist and the Response Time Monitor (RTM).

Entry Assist

The Entry Assist function facilitates the creation and editing of text, such as memos, letters, and documents. For more information on the Entry Assist function, see Chapter 5.

In order to use the Entry Assist function, the control unit to which your display station is attached must provide Entry Assist support. Consult your control unit operator's manual for further Entry Assist specifications and operating procedures.

Response Time Monitor

The Response Time Monitor (RTM) records the speed of communications between the devices attached to a valid, properly configured control unit (Memorex Telex 1274 or IBM 3274) and the host CPU to which they are attached. The RTM is accessed and exited by pressing the Extended Select key (ExSel for 104- and 122-key keyboards, Alt-ExSel for 102-key keyboards, and EXSEL for 88-key keyboards), followed by the PF19 or F19 key. Consult your control unit operator's manual for further specifications and operating procedures.

Extended Select Keyboard Overlays

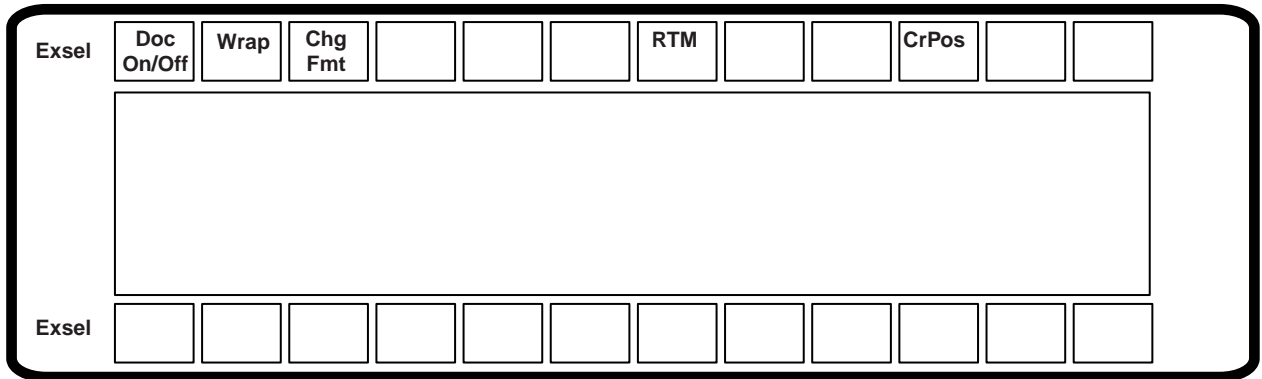| Exsel	Doc On/Off	Wrap	Chg Fmt				RTM			CrPos		

Exsel												

Figure 4-2. Extended Select Function Overlay
(104-Key and 122-Key Keyboards)

Doc On/Off	Wrap	Chg Fmt							Rtm	
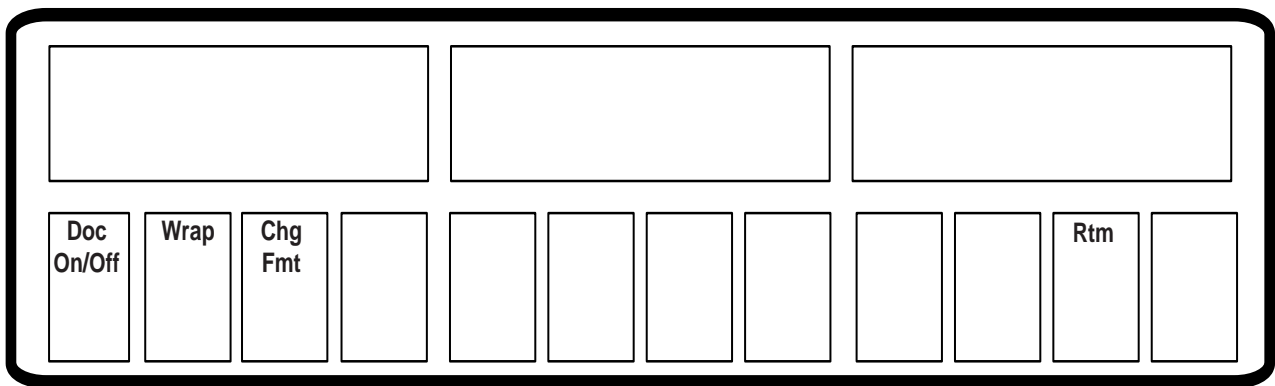
Figure 4-3. Extended Select Function Overlay
(102-Key Keyboards)

EXSEL Functions

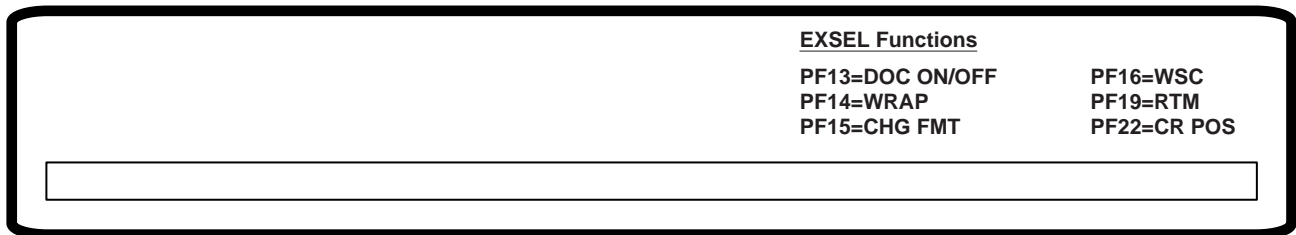|	
PF13=DOC ON/OFF	PF16=WSC
PF14=WRAP	PF19=RTM
PF15=CHG FMT	PF22=CR POS

Figure 4-4. Extended Select Function Overlay
(88-Key Keyboards)

Using the Light Pen to Select Data

You can use the optional light pen to select data from fields that are defined for light pen operations. Ask your supervisor to tell you which fields on the panels you use are set up for light pen selection.

Follow these steps to select an item with the light pen:

1) Press the light pen to the screen on the field you want to select.

2) If you have turned on the light pen click, a click occurs when the field is selected.

3) If the field is preceded by **?**, the **?** changes to **>** when the field is selected.

4) If the field is preceded with **&**, processing begins as soon as you select the item.

5) If necessary, complete the selection by pressing a keyboard key (for example, Enter) or perform an additional light pen selection (like pointing to an End command) to conclude.

Electronic Security Lock

To invoke the secure (locked) mode, the operator enters the Lock sequence (Right Alt key, Right Shift key, and Enter key). The control unit displays ⊶ on the status line and the terminal adds a **3** to act as a prompt for a user-definable three-key password to "unlock" the terminal. To Unlock, type in the three-key password. Each key decrements the prompt number. If the password does **not** match, the **3** redisplays on the status line. When the password matches, the terminal is unlocked and the control unit removes the ⊶ symbol.

Powering off the terminal while locked means it will be locked when powered on next time. Upon power-up ⊶ is displayed, requiring all three password keys to be entered to unlock the terminal. To change the password, see "Change KEYLESS Password" on Page 3-10.

Chapter 5. Entry Assist

Description

The Entry Assist function enhances data entry, formatting, and editing on the 1481 Display Station. Access the Entry Assist function with the 104-key and 122-key keyboards by pressing the ExSel key (EXSEL key for the 88-key keyboard) followed by the PF13 (Document-On/Off) key. For display stations attached to 102-key keyboards, press the Alt key and the ExSel key followed by the F1 key. Extended Select mode is entered when the Extended Select key is pressed. In Extended Select mode, the following keys become redefined to perform the Extended Select functions.

Note: Entry Assist is a controller feature, available only if the display station is attached to a controller that supports Entry Assist capability.

88–Key Keyboards	
DOC On/Off	PF13 (in Extended Select Mode)
Word Wrap On/Off	PF14 (in Extended Select Mode)
Change Format	PF15 (in Extended Select Mode)
Delete Word	aaa⁺ (while pressing Alt key)
Next Word	�straight (while pressing Alt key)
Previous Word	◄── (while pressing Alt key)

102–Key, 104–Key, and 122–Key Keyboards	
DOC On/Off	F1 (in extended Select Mode)
Word Wrap On/Off	F2 (in extended Select Mode)
Change Format	F3 (in extended Select Mode)
Delete Word	102–Key Keyboard – DelWd (while pressing Alt key) 122/104–Key Keyboard – aaa⁺ (while pressing Alt key)
Next Word	──➤ (while pressing Alt key)
Previous Word	◄── (while pressing Alt key)

In addition to the format controls supported in Change Format mode and discussed below, the following functions are supported in Document mode:

- Screen margins

- Tabbing

- Audible alarm that indicates the approach of the end of the line

- Word wrap that automatically moves an unfinished word to the next line if the word would extend beyond the right-hand margin

- Autorepeat word-forward and word-reverse cursor movement

- Autorepeat character deletion

- Autorepeat character-deleting backspace in Insert mode

- Word deletion

After formats are established, additional data entry takes place in Document mode with the entry and editing functions listed above. Once text is entered, it remains in the given format, even if the format is changed later or the display station is taken out of Document mode.

Entry Assist Functions

This section describes the Entry Assist functions for display stations attached to 88-key, 102-key, 104-key, and 122-key keyboards.

The Entry Assist functions (formatting controls, cursor movement, and editing functions) are activated by entering Document mode (PF13 or F1) and pressing the Change Format key (PF15 or F3). A format scale appears at the bottom of the screen that allows format parameters to be altered. Cursor movement and editing controls are given to certain keys upon entry into Document mode.

Entering Document Mode

When the display station enters Document mode, the DOC message is displayed on the status row. The DOC message disappears when the display station is taken out of Document mode.

Format Controls

When the display station is in Document mode, press the Change Format key to display the format scale. This scale appears at the bottom of the display screen. A reverse video block cursor is displayed on the format scale in the same column position as the chosen cursor in the display area (the cursor's vertical position has no effect on the format scale cursor's position). See Figure 5-1 for an example of the format scale.

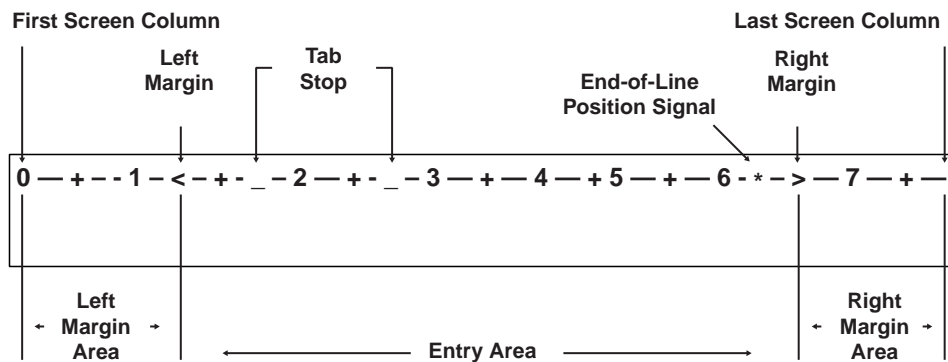To hide the format scale, press the Change Format key again.

Figure 5-1. The Format Scale

Use the Cursor Left (←) and Cursor Right (→) keys to move the format scale cursor. Once the format scale cursor is in position, press the appropriate format function key. When a function key is pressed, the format scale cursor disappears and the appropriate format symbol is displayed in its place. To make the cursor reappear, press the Cursor Left or Cursor Right key.

All of the format parameters are saved whenever the display station exits Document mode. The last values established for the format parameters before exiting Document mode are in effect when the display station returns to Document mode. The following format parameters (shown with their corresponding format symbols) can be changed on the format scale:

- Left margin (<)

- Right margin (>)

- Tab stops (_)

- End-of-line signal position (*)

- Alternate right margin type (|)

- Format scale origin (changes the scale origin from 1 to 0 and vice versa)

Left and Right Margins

To set or move the left or right margin, move the format scale cursor to the desired position and press the less than symbol (<) key for the left margin or the greater than symbol (>) key for the right margin. The symbol is displayed on the format scale in the selected position. Only one left margin and one right margin can be defined on the format scale at a time.

When a margin is redefined, the previous margin symbol is replaced by the new symbol. Tab stops and the end-of-line signal marker are retained, even if they are placed outside the new margins. If the new left margin is to the right of the old right margin, the right margin is moved to its default position (the far right scale position). If the new right margin is to the left of the old left margin, the left margin is moved to its default position (the far left scale position). The right margin cannot be entered in the left margin default position, and vice versa.

When data is entered between the margins, the cursor can be located over the left margin column, and data can be entered in this column. The cursor wraps before it reaches the right margin column. Data cannot be entered in this column during normal typing.

Even though a margin is defined and the display station is in Document mode, data can still be entered to the left of the left margin or the right of the right margin. The left and right margins are established to stop the cursor during normal data entry. The Cursor Left and Cursor Right keys allow you to move the cursor beyond the margins where data can be entered and modified the same as between the margins.

Alternate Right Margin Type

The standard right margin remains in effect during Document mode whether the Word Wrap function (described on Page 5-6) is active or not. Some typing situations call for a margin release in which no right margin is observed. Setting the alternate right margin type allows you to define a right margin that is in effect when Word Wrap is on and that is ignored when Word Wrap is off.

When the right margin is disabled (the alternate right margin is set and Word Wrap is turned off), the right side of the screen acts as the right margin and text wraps at the screen's margin, regardless of word divisions. When Word Wrap is turned back on, the right margin previously in effect is reinstated.

To give an existing right margin the alternate right margin attribute, place the format scale cursor over the right margin symbol and press the Cursor Select key. The greater than symbol turns into a broken vertical bar (¦), indicating that the right margin is released when the Word Wrap function is turned off. To restore the standard right margin, place the cursor over the broken vertical bar and press Cursor Select again. The greater than symbol (>) returns to the format scale.

Tab Stops

Setting tab stops on the format scale allows the tab keys to function the way they do on a typewriter, treating the defined column positions as tab stops. Once they are set, tab stops are used in Document mode by pressing the Forward Tab (⇥) key or Reverse Tab (⇤) key to move the cursor to the next tab stop to the right or left.

Tab stops are set by placing the format scale cursor in the desired position and pressing the Forward Tab key. The format scale displays an underscore (_) in the new tab stop position unless a margin symbol or end-of-line signal symbol is in the selected position. Even if the tab stop symbol cannot be displayed in a position, the tab function is still in effect.

Up to 20 tab stops can be defined in any position on the format scale. Attempts to enter more than 20 tab stops are ignored.

To clear a tab stop, place the format scale cursor on the tab stop symbol in question and press the Delete Character key (✍) (Delete key on the 102-key keyboard). To clear all tab stops from the format scale at once, press the Clear key. All tab stop symbols are removed from the format scale.

End-of-Line Signal

For the end-of-line signal to work, the audible alarm feature must be turned on. When the end-of-line signal is set, the display station sounds the audible alarm as the cursor enters the selected column position. This function can be used to warn of the approach of the right bell on a typewriter.

To set the end-of-line signal, place the format scale cursor in the desired position and press the Asterisk (*) key. An asterisk is displayed in the selected position. The end-of-line signal function is enabled and remains in effect during Document mode until the asterisk is removed.

To disable the end-of-line signal function, place the cursor over the asterisk and press the Delete Character key (✞) (Delete on the 102-key keyboard). The asterisk is removed and the function is disabled. If a tab stop is located at the end-of-line signal position, removing the asterisk also removes the tab stop.

The Format Scale Origin

The format scale numbers can be shifted so that the scale begins with Position 1 instead of Position 0. Tab stops, margins, and end-of-line signal positions are not shifted with respect to the screen when the scale numbers are shifted.

To change the scale origin, place the format scale cursor at the leftmost position on the scale and press the Cursor Select key. The numbers on the line are shifted one space to the left. Pressing Cursor Select again returns the origin to 0.

Cursor Movement and Editing Functions

Cursor movement and editing functions are active whenever the display station is in Document mode. These functions are subject to the limitations imposed by the format parameters currently set on the format scale.

The following cursor movement and editing functions are available in Document mode:

- Word wrap

- Autorepeat cursor movement to next word

- Autorepeat cursor movement to previous word

- Delete word to the right

- Autorepeat deletion of character to the right

- Tab function inserting space characters

- Backtab function

- Backspacing with deletion

- New line function observing left margin

Word Wrap

The Word Wrap function is turned on and off in Document mode by pressing the PF14 or F2 (Word Wrap) key. This parameter, like other format parameters, is saved when the display station is removed from Document mode and returns to its last state when the display station returns to Document mode. The Word Wrap symbol (⇩) indicates that word wrapping is in effect. When the function is on, text entry is subject to word wrapping between the left and right margins.

Word wrapping occurs when a word being entered would extend beyond the right margin. When the character is entered that would go beyond the right margin, the entire word is moved down one line and to the left margin. If a space is entered in the position one character left of the right margin, the cursor is moved to the left margin of the next line without word wrapping. If the cursor is one space left of the right margin and the Dup key is pressed, the Dup character appears on the right margin and the Dup function works as defined outside of Document mode.

The positions previously occupied by the first part of the word are replaced by space characters. When a word is wrapped to the left margin of the next line, any null characters to the left of the left margin are changed to space characters to preserve the format when it is sent to the host CPU.

Word wrapping does not occur unless the entire row onto which the word is wrapped contains only nulls or spaces. In some cases, word wrapping cannot occur. In these cases, input is inhibited and the status row shows the Too Much symbol (X ⚡ >). The Reset key must be pressed for further entry. The following conditions prevent word wrapping:

- The word takes up the entire length of the line.

- There is already text on the next line.

- The current line is the last line on the screen.

- The next line begins with a protected field.

If the display station is in Insert mode and a word is inserted on a line, any word pushed beyond the right margin is wrapped to the next line if the next line contains enough spaces after its last word or its margins contain enough nulls to make room for the wrapped word. If the word cannot be wrapped onto the next line, input is inhibited and the Too Much symbol is displayed on the status row.

Move Cursor to Next Word (Autorepeat)

To move the cursor to the next word, hold down the Alt key while you press the Cursor Right key (➔). The cursor moves to the first character in the next word, or, if currently in a word at the end of a line, to the first space or null character following the current word. The cursor does not move into protected fields with this function.

The cursor moves to the next word regardless of the location of the margins. If text is located outside the margins, the cursor moves to the text without recognizing the margins. The cursor wraps to the next row only when there are no more words in the current row. When the last word is reached on the last row, the cursor is wrapped to the first word on the first row of the screen.

To make autorepeat continue automatically, hold down the Alt and Cursor Right keys.

Move Cursor to Previous Word (Autorepeat)

Press and hold the Alt key, then press the Cursor Left key (←) to move the cursor to the beginning of the current word (or, if already at the beginning of a word, to the beginning of the word to the left). If the cursor is located at the first word on a row, it is wrapped to the beginning of the last word on the previous row. If the cursor is located at the top left position on the screen, it is wrapped to the beginning of the last word on the screen.

To make autorepeat continue automatically, hold down the Alt and Cursor Left keys.

Delete Next Word

The Delete Word (aaaʳ) key (DelWd key on the 102-key keyboard) is the alternate function of the Delete Character (aʳ) key (Delete key on the 102-key keyboard) when the display is in Document mode. Pressing the Delete Word key erases the character at the cursor location and the remainder of the word to the right of the cursor. If the cursor is on the first character of a word, the whole word is erased. If the cursor is on a space or null, only the space or null is erased. Punctuation and spaces following a word are also erased (unless only part of the word is erased, in which case the space or null remains).

When a word is deleted, the cursor remains in place and subsequent data on the line moves to the left. Shifting does not occur for attributes, characters to the right of attributes, or subsequent lines of data. If deletion is attempted on an attribute or a protected field, input is inhibited and the Go Elsewhere symbol (X ← ⅄ →) is displayed on the status row. Press the Reset key to enable further entry.

Cursor Tabbing

Pressing the Forward Tab (→|) key causes the cursor to move to the next unprotected tab stop. Intervening unprotected null characters are converted to space characters to preserve the format when data is transmitted to the host CPU. If the cursor reaches an unprotected attribute before it reaches a tab stop, it stops at the attribute. If no tab stops and no attributes are defined, the cursor moves to the top left position on the screen.

If there are tabs or unprotected attributes on the screen, tabbing does not allow the cursor to wrap from the lower right corner of the screen to the upper left corner of the screen.

For some programs, the introduction of additional data (in the form of nulls being converted into space characters) can cause problems. Verify that a program can be used with the tab function in Entry Assist before using the tab function with the program.

Backtab Function

The Cursor Backtab function works like the Forward Tab function, except that the cursor is moved to the previous tab stop or the first unprotected character of the current or previous field. Pressing the Backtab (⊢) key causes a backtab operation. Nulls are not changed to spaces when a backtab operation is performed. The cursor does not wrap from the upper left corner of the screen to the lower right corner.

Backspacing with Deletion

Pressing the Backspace (⟵) key in Insert mode deletes the character to the left of the cursor and causes the cursor to move left one character space. Characters to the right of the cursor on the same line move one character to the left. Attributes and characters to the right of attributes do not move.

If the cursor is located at the left margin when the Backspace key is pressed, input is inhibited and the Go Elsewhere symbol (X ← ⚡ →) is displayed on the status row. Press the Reset key to resume entry.

New Line Function

Pressing the New Line (⏎) key causes the cursor to move down one line and return to the established left margin. If the left margin is protected, the cursor moves to the first unprotected position to the right of the left margin. Unprotected null characters to the left of the left margin are converted to spaces as long as there are no fields between the nulls and the cursor.

If the cursor is on the last row of the screen and the New Line key is pressed, the cursor is positioned on the first row of the screen.

If there are no unprotected locations between the margins, the cursor moves to the left margin of the first row on the screen.

Chapter 6.   Problem Determination and Maintenance

Diagnostic Testing Function

The 1481 Display Station can perform two types of diagnostic tests: offline tests that check the operation of the display station independent of its attached control unit, and online tests that check the 1481 as it interacts with the attached control unit. For purposes of customer problem determination, some offline tests are presented in this section. For information about online tests, refer to your controller's user's guide.

Offline Tests

The display station temporarily enters Offline Test mode each time it is powered on. The display station's own series of Basic Assurance Tests (BATs) are run each time the display station is powered on. If an error is detected, the alarm sounds and an error condition may be displayed in row 1, column 1. **K** is displayed for a keyboard error and **L** is displayed for a logic error.

Hold down a key while simultaneously turning on the Power-On/Off switch to enter Offline Test mode. From Offline Test mode, you can enter Setup mode to set or change special controls, such as the Numeric Lock and the Serial Number. Offline Test mode is also used to determine hardware malfunctions by running tests from the System Manager menu. Special controls that can be set from the System Manager menu are also presented here.

System Manager Menu

You can test the keyboard, align the screen, and display information about your display station from the System Manager menu. To display the System Manager menu, enter Offline Setup mode and display the Offline Test menu (Figure 2-5 on Page 2-7).

To enter Offline Setup mode, hold down any key while you turn the display station on. The Offline Test menu is displayed (Figure 2-5 on Page 2-7).

To enter setup mode when the display station is online, press and hold down at the same time the Reset key, the Alt key, and the Test key. The Offline Test menu is displayed (Figure 2-5 on Page 2-7).

Use the Up and Down Arrow keys to highlight **System Manager Menu** and press the Enter key. The System Manager menu is displayed (Figure 6-1, below).

These screens are for System Managers and service technicians.
Highlighted Tests may destroy data!!

→ **KBD Test**	
Screen Alignment	
NVRAM Counters	**0000 0000**
Enter Serial #	**123456789**
KBD Switches	**10111000 1111**
Reset NVRAM	

Figure 6-1. System Manager Menu

KBD Test

To test your keyboard, use the Up and Down Arrow keys to highlight **KBD Test** and press the Enter key. A keyboard layout like the one below is displayed.

Figure 6-2. KBD Test

Note: The keyboard tests for the 88-key and 122-key keyboards are the same because the 88-key keyboard imitates the 122-key keyboard. If you are testing an 88-key keyboard, the key that toggles on the keyboard test screen may not be the same key you press on the keyboard.

The actual keyboard layout and the numbers that appear on the display during the KBD Test may be different from the ones shown in Figure 6-2. The test display depends on the keyboard type and the switch settings.

Each key on the keyboard can be tested by pressing the key. If the key is operating correctly, the corresponding key on the display station toggles from an open box to a filled box and back with each keystroke.

To exit this test and return to the System Manager menu, press the Alt Test key.

Screen Alignment

This test provides a series of test screens to be used by service technicians to adjust display station parameters. To display the test screen, use the Up and Down Arrow keys to highlight **Screen Alignment** and press the Enter key. A test screen like the one in Figure 6-3 is displayed. Use the Up, Down, Left, and Right Arrow keys to adjust and center the data on the screen. Press Reset to return to the System Manager menu.
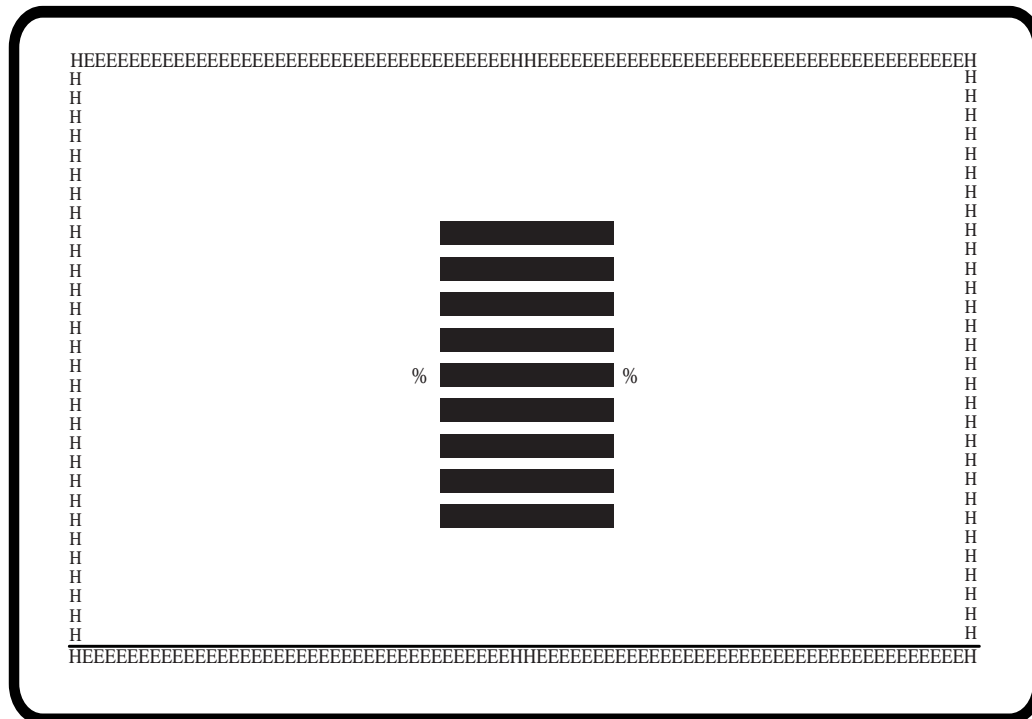

Figure 6-3. Screen Alignment

NVRAM Counter

The NVRAM Counter counts the number of times the NVRAM has been written to.

Enter Serial

Note: Check with your system operator before changing this value.

Enter your display station's serial number by using the Up and Down Arrow keys to highlight **Enter Serial #** and pressing the Enter key. The numbers 1–10 and the alphabet appear above the status row line. Follow these steps:

1) Move the underline cursor using the Left and Right Arrow keys until the appropriate symbol is displayed in the first character image block in the serial number entry area.

2) Press the Enter key when the underline cursor is located under the character that you want to select. The entry block automatically moves to the next position in the serial number entry area and the underline cursor moves under the displayed character.

3) Repeat Steps 1 and 2 until all digits of your serial number are entered. You can correct the characters you enter when the last character is entered and the cursor wraps. To clear all entries, press the Clear key.

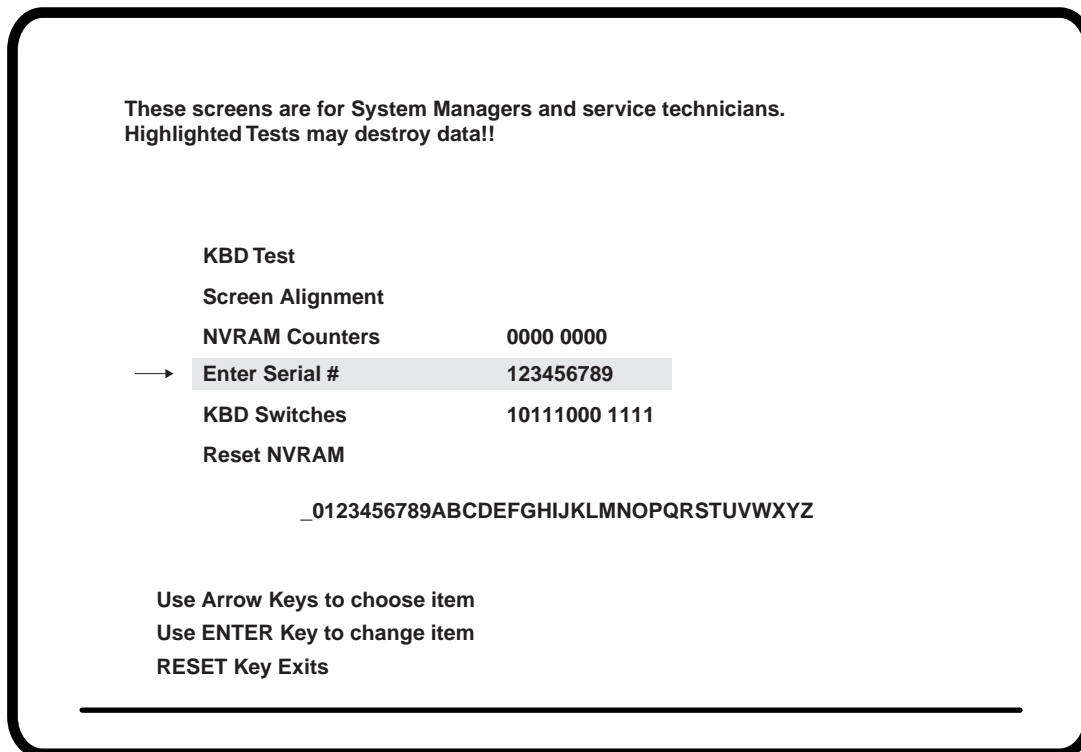4) When you complete the entry of your serial number, press the Reset key. The System Manager menu is displayed.

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These screens are for System Managers and service technicians.
Highlighted Tests may destroy data!!



      KBD Test

      Screen Alignment

      NVRAM Counters          0000 0000

  →   Enter Serial #          123456789

      KBD Switches            10111000 1111

      Reset NVRAM


          _0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ


  Use Arrow Keys to choose item
  Use ENTER Key to change item
  RESET Key Exits
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Figure 6-4. Enter Serial # Screen

The serial number, along with other Vital Product Data (VPD), is stored in the display station's nonvolatile memory and is available to the control unit for system statistics gathering by some network products. The control unit must be at the appropriate micro-code level to support SNA host requests for VPD.

KBD Switches

Select this option to display the current keyboard switch settings. You cannot change the settings from this menu. The keyboard switches are preset at the factory. If you need to change them, contact your local service representative for information on how to change the keyboard switch settings.

Reset NVRAM

To reset NVRAM and all setup functions to their default settings, use the Up and Down Arrow keys to highlight **Reset NVRAM** and press the Enter key. This resets the NVRAM and counts the NVRAM counter up one to record the reset function.

Note: The default Electronic Security Password is "OPR".

Leaving the Offline System Manager Menu

Press the Reset key from the Offline System Manager menu to return to the Offline Test menu (Figure 2-5 on Page 2-7).

To save the options you set on the Offline System Manager menu, after you leave this menu you *must* highlight **Go Online** on the Offline Test menu and press the Enter key.

Product ID

Display product information by entering Offline Setup mode.

To enter Offline Setup mode, hold down any key while you turn the display station on. The Offline Test menu is displayed (Figure 2-5 on Page 2-7).

To enter setup mode when the display station is online, press and hold down at the same time the Reset key, the Alt key, and the Test key. The Offline Test menu is displayed (Figure 2-5 on Page 2-7).

Use the Up and Down Arrow keys to highlight **Product ID** and press the Enter key. The product number, **1481**, is displayed. Press the tab key to display the PROM level.

Symptom/Action Chart

Symptom	Recommended Action
The Power–On indicator stays off.	1. Ensure that the Power switch is switched on. 2. Be sure the power cord is securely connected to the display station. Visually inspect the power cord for signs of damage. 3. Be sure the power cord is plugged into an operational AC outlet. 4. If the symptom persists, the Display/Logic element has probably failed.
The Audible Alarm continuously sounds (will not shut off).	Switch off the display station power, then switch the power back on. If the symptom persists, the Display/Logic element has probably failed.
⊶ 3 appears in the operator status row (display screen blank).	1. Refer to "Electronic Security Lock" on Page 4–11. 2. If the symptom persists, the Display/Logic element has probably failed.
The Control Unit Ready symbol, (6, 4, |, i, or S), does not appear in the operator status row.	Ensure that the coax cable is securely connected to both an operational control unit and the display station.
The screen is completely dark.	Adjust the Contrast and/or Brightness controls. If the screen still remains dark, replace the Display/Logic element. If the problem recurs or your screen needs frequent contrast adjustments, replace the Display/Logic element.
The screen is distorted.	If the screen exhibits any of the following problems 1. Nothing displayed (no operator status row). 2. Display area drifts horizontally or vertically. 3. Characters fuzzy, out of focus. 4. Display area is noticeably reduced or expanded. 5. Display are is tilted. 6. Abnormal sound or odor. 7. Characters have extra or missing dots. Set the Power switch to Off (O). While holding down the space bar, set the Power switch to On (|). Hold down the space bar until the Offline Test menu appears. If the menu does not display as shown in Figure 2–5 on Page 2–7, replace the Display/Logic element.

Symptom	Recommended Action
The alarm fails to sound.	1. Enter either Offline Setup mode (Keyboard menu) or Online Setup mode (Alarm Volume Function) as described in Chapter 3 to set the Alarm Volume to the desired level. 2. If the selection does not cycle from Off to 7 when the Enter key is pressed several times in succession, the Keyboard element is failing. 3. If the selection changes, but the alarm does not sound when the alarm volume is set to 7, the Display/Logic element is failing.
The Keyboard Click fails to sound.	1. Enter Offline Setup mode (Keyboard menu) as described in Chapter 3 and turn Click Enable On, then select Click Volume (Keyboard menu). 2. Press Enter. 3. If the selection fails to cycle to 7 after you press Enter several times, the Keyboard element is failing. 4. If the selection cycles to 7, but the click does not sound when the Enter key is pressed, the Display/Logic element is failing.

Note: The symptoms and actions that follow apply only to display stations connected to the following control units: MTX/MTC 1174 Network Controller, Memorex Telex 1274; IBM 3174, 3274, or 3276. For a more detailed explanation of some of these symbols, refer to Chapter 3, "Setup Procedures."

Error Code (Operator Status Row)	Recommended Action
X ⬎ 2%% **X ⬎ 73** **X ⬎ 200**	1. Be sure the appropriate Keyboard Type has been selected in Offline Test mode. Refer to the "Offline Keyboard Menu" section of Chapter 3. 2. Be sure your controller supports the attached keyboard.
X ⬎ 210	Ensure that the keyboard switch setting coincides with the mode in which you are operating (either Data Entry or Typewriter). Your local service representative will know the correct settings.
X ⬎ nn, or **X ⬎ nnn, or** **X ⬎ nn, nnn–nnn** **(n=a number, zero through nine)**	1. Press the Reset key and retry the failed operation. 2. Verify that the other display stations connected to your control unit are operational. 3. If they are not, notify your supervisor.

Error Code (Operator Status Row)	Recommended Action
X ⌇ nn, or X ⌇ nnn (n=a number, zero through nine)	1. This is not a display station failure. 2. Press the Reset key to retry the failed operation. 3. If the symptom persists, notify your supervisor.
X PROGnn, or X PROGnnn (n=a number, zero through nine)	1. This is not a display station failure. 2. Report the problem to your supervisor.
L	The Display/Logic element is failing.
K	1. Set the Power switch to Off (O). 2. Disconnect the keyboard cable from the Display/Logic element. 3. Set the Power switch to On (	). 4. If "K" still appears, replace the Display/Logic element. If "NK" appears, replace the Keyboard element.
NK	1. Set the Power switch to Off (O). 2. Ensure that the keyboard cable is tightly connected. 3. Set the Power switch to On (	). 4. After ten seconds, if "NK" reappears, replace the Keyboard element.
▭—◼ 99	1. Set the printer Power switch to On (	). 2. If the ready lamp of the printer is on and the printer selected, the printer or the printer cable is probably failing.

Preventive Maintenance

Preventive maintenance for the 1481 is limited to keeping the display station clean and dust-free. Use a nonabrasive solution (such as alcohol or window cleaner) and a soft, lint-free cloth to clean the screen. All ventilation ports must be kept free of dirt and dust.