User's Guide

Computer Lab International

Display Station

Leading The Way In 5250 Display Station

5488   5488V
5486   5487
5477-C 5477-D
5476-C 5476-D
Terminal
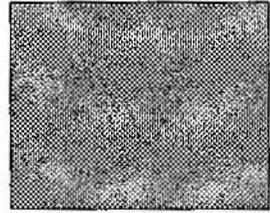
User's Guide

Federal Communications Commission (FCC) Statement

Warning:

> This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Instruction to User:

If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient the receiving antenna.

* Relocate the computer with respect to the receiver.

* Move the computer away from the receiver.

* Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.

For further information, you may write for the following booklet published by the FCC, "How to Identify and Resolve Radio-TV Interference Problems" from:

> U.S. Government Printing Office
> Washington, DC 20242
> Stock Number 004-000-000345-4

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◎Logic Unit
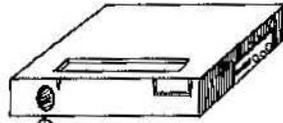
Power Switch

◎Keyboard

◎User's Guide

User's Guide

◎Smart Y Cable

◎Power Cord

Outlet Locations

Right Side

To keyboard   To Light-pen

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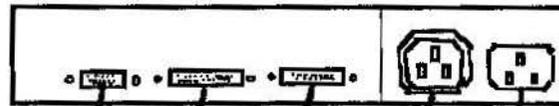
Back Side

To Display   To Printer   To Host   Power Cord   Power Cord
                                      (Display Element) (AC Input)

Chapter 2. Offline Setup

Starting the Offline Setup Function

Set the power switch to Off. Press and hold the Space Bar and set the power switch to On. Hold the Space Bar until the Model number and Version number screen appears.

```
          MODEL : 547x-x WORKSTATION
                 Version  x.xx

          (C) Copyright 1992 , All Rights Reserved




     Please press SPACE BAR to enter the SETUP mode .....
```
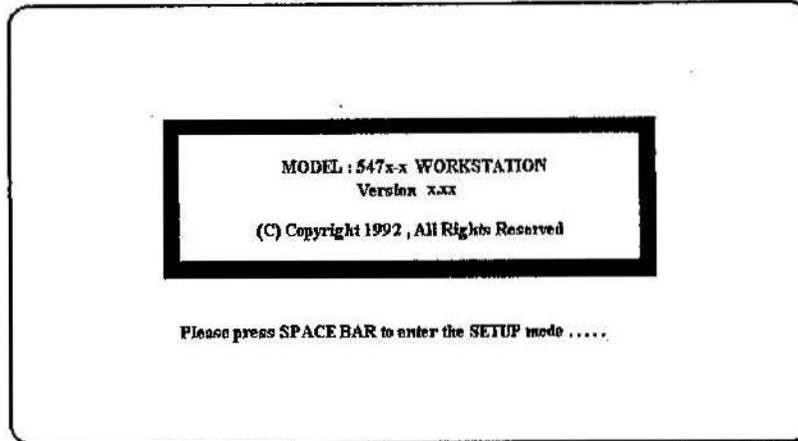
Model number : 5476-C/D, 5477-C/D, 5486, 5487 or 5488.

NOTE:

> If the screen presents "CMOS MEMORY ERROR OR BATTERY FAILURE", please reference " Appendix C. CMOS Memory Error or Battery Failure ".

Offline Setup Menu

This is the first screen you will see when the display is entering the Offline Setup mode.

This screen allows you to select your language option, customize the workstation for your particular needs, printer configuration, option another Enter key, test the workstation and update the serial number for your display station.

Use the cursor key to select each function, and press the Enter key to enter the selected function. Press the F3 key or SetUp key to quit the Main menu.

All the options selected in the Offline Setup Menu are stored in the display station and do not need to be reset each time you power on your unit.

```
┌─────────────────────────────────────────────────────────────┐
│         MODEL / 547x-x OFFLINE SETUP MENU      Version x.xx   │
│ ─────────────────────────────────────────────────────────── │
│ Move cursor to desired selection and press ENTER.            │
│                                                              │
│  ████████████████                                            │
│  █Language Option                                            │
│  ████████████████                                            │
│  Customize workstation                                       │
│                                                              │
│  Option another ENTER key                                    │
│                                                              │
│  Printer configuration                                       │
│                                                              │
│  Update serial number                                        │
│                                                              │
│  Test workstation                                            │
│                                                              │
│                                                              │
│                                                              │
│  F3=Exit                                                     │
│  ████████████████████████████████████████████████████████   │
│  █ SETUP                                                     │
└─────────────────────────────────────────────────────────────┘
```
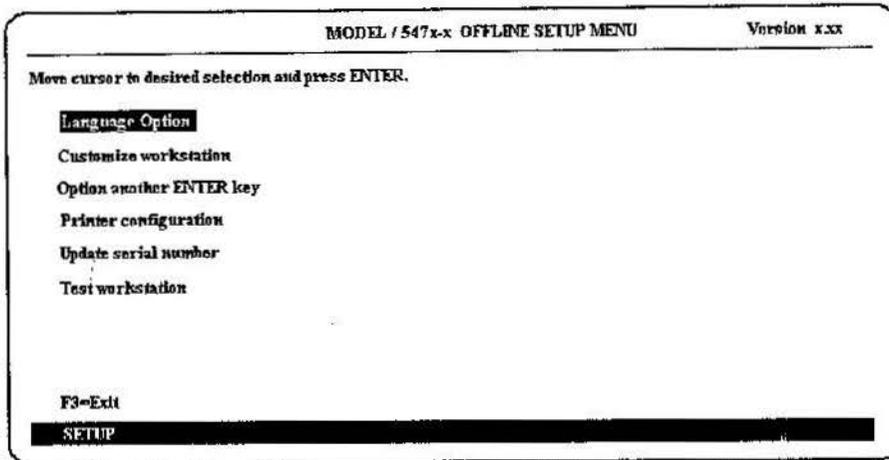
Offline Setup Menu (Main Menu) panel

2.1 Language option

From the Main Menu, highlight Language option and press Enter key. Select character set and language set with the cursor move keys (arrow keys). Press the Space Bar at the desired setup parameters.

This validates the selections and displays them in highlight.

```
┌─────────────────────────────────────────────────────────────┐
│                      Language option              More: +    │
│ ─────────────────────────────────────────────────────────── │
│ Move cursor to desired choice, then press SPACE BAR to select.│
│                                                              │
│   Character set ....  ███████████████  Multinational         │
│                       █Country Specific                      │
│                                                              │
│   Language set ....   U.S. English     Italian               │
│                       U.K. English     French (AZERTY)       │
│                       Austrian/German  Belgian               │
│                       Swiss German     Swiss French          │
│                       Spanish          Spanish-Speaking      │
│                       Portuguese       Finnish/Swedish       │
│                       Danish           Norwegian             │
│                       Icelandic                              │
│                         :                  :                 │
│                                                              │
│   F3=Save and Exit                                           │
│  ████████████████████████████████████████████████████████   │
│  █ SETUP                                                     │
└─────────────────────────────────────────────────────────────┘
```

Language option panel

2.2 Customize workstation

Selecting the Customize workstation option from the Main menu, you can change the values/parameters that define the configuration of your display station.

This validates the selections and displays them in highlight.

```
                              Customize workstation                    More: +
Move cursor to desired choice, then press SPACE BAR to select.

Terminal mode :
    Number of Display Sessions ....    1    2    3    4    5    6    7
    Number of Printer Session  ....    0                        1


              Address                              Emulation

Display 1 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 2 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 3 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 4 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 5 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 6 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 7 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D




F3=Save and Exit
SETUP
```

7 Display Mode panel

```
                              Customize workstation                    More: +
Move cursor to desired choice, then press SPACE BAR to select.

Terminal mode :
    Number of Display Sessions ....    1    2    3    4    5    6
    Number of Printer Session  ....    0                        1


              Address                              Emulation

Display 1 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 2 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 3 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 4 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 5 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Display 6 ....  0   1   2   3   4   5   6    =>   3476    3197C    3197D
Printer  .....  0   1   2   3   4   5   6    =>   5256  5224  4214  5219  3812



F3=Save and Exit
SETUP
```

6 Display - Printer Mode panel

Set the display device ID

This function alternately changes the display device an IBM 3476, 3197C (Model-C only), 3197D, 3477, 3486, 3487 or 3488.

MODEL/5476-C :

Emulation				MODEL/5476-D : Emulation		
3476	3197C	3197D	< Display 1 >	3476		3197D
3476	3197C	3197D	< Display 2 >	3476		3197D
3476	3197C	3197D	< Display 3 >	3476		3197D
3476	3197C	3197D	< Display 4 >	3476		3197D
.	.	.	.	.		.
.	.	.	.	.		.

MODEL/5477-C :

Emulation					MODEL/5477-D : Emulation		
3476	3197C	3197D	3477	< Display 1 >	3476	3477	3197D
3476	3197C	3197D	3477	< Display 2 >	3476	3477	3197D
3476	3197C	3197D		< Display 3 >	3476		3197D
3476	3197C	3197D		< Display 4 >	3476		3197D
.	.	.		.	.		.
.	.	.		.	.		.

MODEL/5487,5488-C :

Emulation				MODEL/5486,5487,5488-D : Emulation		
3486	3487	3488	< Display 1 >	3486	3487	3488
3486	3487	3488	< Display 2 >	3486	3487	3488
3476	3197C	3197D	< Display 3 >	3476		3197D
3476	3197C	3197D	< Display 4 >	3476		3197D
.	.	.	.	.		.
.	.	.	.	.		.

Set the printer device ID

This function alternately changes the printer device ID for the attached PC printer to an IBM 5256, 5224, 4214, 5219 or 3812.

NOTE: *Before starting this section you have to get information about your printer device ID from your supervisor.*

< Printer >   Emulation

.

5256 5224 4214 5219 3812

◎If the terminal model you are using is 5488V, you will find the Customize workstation Menu like below :

```
                                Customize workstation                      More: +
Move cursor to desired choice, then press SPACE BAR to select.

 Terminal mode :
     Number of Display Sessions  . . . .    0    1    2    3    4         1
     Number of Printer Session   . . . .         0                        1
     Shared Addressing  . . . . . . . .           No                     Yes

                          Address                        Emulation
 Display 1  . . . .   0  1  2  3  4  5  6  ->  3486  3487  3488  3197C  3197D


 Printer  . . . . .   0  1  2  3  4  5  6  ->  5256  5224  4214  5219  3812



 F3=Save and Exit
 SETUP
```

Shared Addressing function is for 5488V Model only. By choosing Yes for Shared Addressing, you can assign one single address and have (up to) four display sessions sharing the same one address. All sessions sharing the single address are totally independent of one another. Printer session cannot share the same address.

Prerequisites for Shared Addressing are : OS/400 Version 3 Release 1 with WSC #6050, #2661, #9146, #9148 or later, or 5494 Remote Control Unit Release 3.0 or later.

2.3 Option another ENTER key

This option allows you to program a second Enter key on the keyboard. When you press the Enter key to enter this option, you will see a keyboard layout with the symbol 'X' in each position that cannot be changed, and a blank box ' □ ' in each position that can be changed into a second Enter key. The solid box ' ■ ' shows the current position of the Enter key. Press the key that you want to map as a second Enter key, and press the F3 key to store and exit.

122-Key Keyboard :

Enhanced Keyboard :

2.4 Printer Configuration

From the Main menu, select this option and move the cursor to select the printer configuration and press the Enter key.

When you attach a printer to your display station, you must select the printer type and translation table set with the cursor move keys (arrow keys). Press the Space Bar at the desired setup option.

The available selections are IBM Graphics (same as Proprinter), IBM Laser (HP Mode), HP Laser, EPSON FX/LQ, OKIDATA 321, 19X/29X/39X (IBM Mode), Panasonic KX-P109X (IBM Mode), and Others.

Press the F10 key to enter the Print support screen.

```
                          Printer configuration              More: +

Move cursor to desired choice, then press SPACE BAR to select.

    Printer type :    IBM Graphics Printer      IBM Laser Printer, HP Mode
                      EPSON FX Printer          HP Laser Printer
                      EPSON LQ Printer          Panasonic KX-P109X, IBM Mode
                      OKIDATA 321, IBM Mode     OKI 19X/29X/39X, IBM Mode
                      Other Printers


    EBCDIC to ASCII translation table select :
                      IBM Character Set         NON-IBM Character Set




    F3=Save and Exit                            F10=Printer support
    SETUP
```

Printer Configuration panel

Printer support

The Printer support screen is where you can choose the transparent mode lead and end characters, create a custom EBCDIC-ASCII character conversion, power on sequence, and select drawers.

You can edit the codes required by the host system to properly output on your printer. Enter the required codes on the screen.

Make any necessary changes and press the F3 key to store.
If you want to delete codes of the cursor position, press the Delete key or F4 key.
Use the F12 key to cancel codes you just entered, and restore the original codes to screen.

```
                            Printer support                   More: ++
 _____

  Transparent Mode Sequences :      LEAD Code ....  6A 79 ( | \ )
                                     END  Code ....  5B _  ( $ )

  Customize EBCDIC to ASCII Conversion :
      (EBCDIC - ASCII) : ( ___ · ___ ),( ___ · ___ ),( ___ · ___ ),( ___ · ___ )
                         ( ___ · ___ ),( ___ · ___ ),( ___ · ___ ),( ___ · ___ )
                         ( ___ · ___ ),( ___ · ___ ),( ___ · ___ ),( ___ · ___ )


  Power on Sequence ....  ___ ___ ___ ___ ___ ___

  Selects Drawer 1 ....  ___ ___ ___ ___ ___ ___
  Selects Drawer 2 ....  ___ ___ ___ ___ ___ ___
  Selects Drawer 3 ....  ___ ___ ___ ___ ___ ___


  F3=Save and Exit      F4=Delete                        F12=Cancel
  SETUP
```

Printer support panel

©Transparent Mode LEAD Code and END Code:

This feature allows you to control your PC printer features that do not correspond to the emulated IBM models. An example would be to print bar codes on a printer that has a bar code mode.

Enter the lead and end codes that you wish to use to send with the printer codes from the host to enable or disable the special functions. You may use any characters you want, subject to the limitation below. You may use either 1 or 2 lead or end characters, however, we recommend the use of 2 lead characters and either 1 or 2 end codes, so as not to enter transparent mode in error. The codes you choose for the lead and end codes are shown next to their HEX equivalents.

Valid codes begin at HEX 40. Any character below HEX 40 is reserved as an attribute or a 5250 control character and therefore cannot be changed.

To use the PC printer enhanced functions from your System/3X or AS/400, add the hex codes from your printer manual into the file that you want to print. In the example below, ' | ¬ ' is the lead code and '$' is the end code.

Example: For exampe, character string includes

   | ¬ 1B 41 0C $.(6A 5F F1H C2H F4H F1H F0H C3H 5BH)

the printer emulation program will automatically take out

   F1H C2H F4H F1H F0H C3H   (without the header ' | ¬ ' and end '$')

and pack every two bytes into one byte

   (F1H C2H -> 1BH; F4H F1H -> 41H; F0H C3H -> 0CH)

and then send those three bytes '1BH 41H 0CH' to the printer.

©Customize EBCDIC to ASCII Conversion (from EBCDIC change to ASCII):

This item allows you up to twelve sets of customized printer codes.

The first code shows the EBCDIC hexadecimal value of the character to be changed.
Your display station will show the character of the EBCDIC hexadecimal value.
The second code shows the ASCII hexadecimal value of the character to be changed.

Note: *The table starts at HEX 40. Any character below HEX 40 is reserved as an attribute or a 5250 control character and therefore cannot be changed.*

Other Printers :

```
|                                                                  |
|                                                                  |
| F3=Save and Exit     F4=Delete           F8=Forward   F12=Cancel |
| SETUP                                                            |
```

Printer support screen

If you selected 'Other printers' type, use the F8 key to page forward to the next screen (Other printers support screen). The table shown below provides the rules for entering data in these screens. In Other printers support screen, press the F7 key to page backward to the last screen.

The Other printers support screen is where you can choose the printer quality (Draft/Letter), character height (Standard/Double), lines per inch (3/4/6/8/ LPI), character per inch (5/8.5/10/12/15/17 CPI), LPI to nn/72 inch, nn lines per page, proportional space, superscript, subscript, bold print mode, underline, landscape mode, and portrait mode.

Note: *You must enter a printer code in each position without any spaces between the codes. If you enter a wrong code in any position, move the cursor to the wrong code and enter the correct code.*

```
                         Printer support                 More: ++
  _____

  Printer Quality :    Draft    ....  ■ __ __ __ __ __ __
                       Letter   ....  __ __ __ __ __ __ __
  Character Height :   Standard ....  __ __ __ __ __ __ __
                       Double   ....  __ __ __ __ __ __ __
  Lines Per Inch :     3  LPI   ....  __ __ __ __ __ __ __
                       4  LPI   ....  __ __ __ __ __ __ __
                       6  LPI   ....  __ __ __ __ __ __ __
                       8  LPI   ....  __ __ __ __ __ __ __
  Character Per Inch : 5  CPI   ....  __ __ __ __ __ __ __
                       8.5 CPI  ....  __ __ __ __ __ __ __
                       10 CPI   ....  __ __ __ __ __ __ __
                       12 CPI   ....  __ __ __ __ __ __ __
                       15 CPI   ....  __ __ __ __ __ __ __
                       17 CPI   ....  __ __ __ __ __ __ __

              * LPI to nn/72 inch  ....  __ __ __ __ __ __ __
              * nn lines per page  ....  __ __ __ __ __ __ __
     * : Enter "FF" if nn is HEX , "FE" if nn is ASCII Character.

  F3=Save and Exit     F4=Delete     F7=Backward   F8=Forward  F12=Cancel
  SETUP
```

Other Printers support panel.A

```
                              Printer support                    More: ++
  ────────────────────────────────────────────────────────────────────────

  Proportional Space :      On    ....  ■ ── ── ── ── ── ──
                            Off   ....  ── ── ── ── ── ── ──

  Superscript :             On    ....  ── ── ── ── ── ── ──
                            Off   ....  ── ── ── ── ── ── ──

  Subscript :               On    ....  ── ── ── ── ── ── ──
                            Off   ....  ── ── ── ── ── ── ──

  Bold print mode :         On    ....  ── ── ── ── ── ── ──
                            Off   ....  ── ── ── ── ── ── ──

  Underline :               On    ....  ── ── ── ── ── ── ──
                            Off   ....  ── ── ── ── ── ── ──

              Landscape Mode  ....  ── ── ── ── ── ── ──
              Portrait  Mode  ....  ── ── ── ── ── ── ──


  F3=Save and Exit    F4=Delete    F7=Backward              F12=Cancel
  SETUP
```

Other Printers support panel.B

©Control Code to set the LPI to nn/72 inch

This string needs to be completed only if you will be printing Display Write/36 or other word processing documents; otherwise it may be left blank. The display program needs to compute various increments of 1/72 (nn/72) line spacing when supporting some word processing output. Therefore, the program must know whether the variable 'nn' in the printer string for nn/72 lines per inch should be an ASCII character or a hexadecimal value. Locate the printer control string for nn/72 of an inch line spacing. If the variable 'nn' is an ASCII character, then enter a constant "FE" in the 'nn' value. If the variable 'nn' is a hexadecimal value, then enter a constant "FF" in the place of the 'nn' in the string.

Example: Actual printer control string for nn/72 inch line spacing: 1B 26 6C nn 43

       If the 'nn' value is to be a hexadecimal, enter the string as: 1B 26 6C FF 43

       If the 'nn' value is to be an ASCII character, enter the string as: 1B 26 6C FE 43

©Control Code to set the Page Length (nn lines per page)

The program must know whether the variable 'nn' in the printer string for page length should be an ASCII character or a hexadecimal value. Locate the printer control string for page length spacing. If the variable 'nn' is an ASCII character, then enter a constant "FE" in the 'nn' value. If the variable 'nn' is to be a hexadecimal value, then enter a constant "FF" in the place of the 'nn' in the string.

Example: Actual printer control string for page length spacing: 1B 26 61 nn 56

       If the 'nn' value is to be a hexadecimal, enter the string as: 1B 26 61 FF 56

       If the 'nn' value is to be an ASCII character, enter the string as: 1B 26 61 FE 56

2.5 Update Serial Number

This option allows you to define, if desired, a serial number for the Unit. Some hosts may use this ID for assit management or trading.

From the Main menu, select this option and move the cursor to select the Update serial number and press the Enter key. You can update the serial number with the cursor keys, and press the Space Bar.

```
                              Update serial number           More: +

Move cursor to desired choice, then press SPACE BAR to select.

                    1 2   3 4 5 6 7 8 9
Machine serial .....  0 0 · 0 0 0 0 0 0 0


Plant of manufacture :
   1. position ....  0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
   2. position ....  0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Serial number :
   3. position ....  0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
   4. position ....  0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
   5. position ....  0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
   6. position ....  0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
   7. position ....  0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
   8. position ....  0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
   9. position ....  0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

F3=Save and Exit
SETUP
```

2.6 Test Workstation

This function can be used to check the keyboard functions. By pressing any key on the keyboard, the equivalent key shown on the screen change from ☐ to ■ , or vice versa.

```
                              Test workstation             More: +
```

Chapter 3. Online Setup

Set the power switch to on. The display station will connect to the host system automatically. Press the SetUp key to enter the Online Setup menu screen.

There are four selections - Setup Display, Setup Printer, Browse Display Information, and Browse Printer Information in this screen.

Use the cursor key to select each function, and press the Enter key to enter the selected function. Press the F3 key or SetUp key to quit the Online Setup menu.

```
┌─────────────────────────────────────────────────────────────┐
│           MODEL /5486-C  ONLINE SETUP MENU        Version x.xx │
│  Move cursor to desired selection and press ENTER.           │
│                                                              │
│      Setup display                                           │
│      Browse display information                              │
│      Setup printer                                           │
│      Browse printer information                              │
│      Setup mouse          ──────────      5486,5487,5488 only │
│      Lock sessions  ──────                                   │
│                                                              │
│                                                              │
│      F3= Exit                                                │
│      SETUP                                                   │
└─────────────────────────────────────────────────────────────┘
```
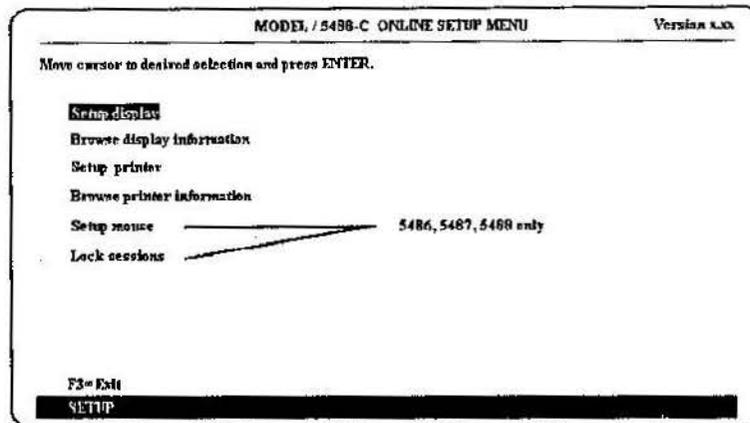
Online Setup Menu panel

3.1 Setup display

Selecting the Setup display option from the Online Setup menu. You will see twelve selections: Alarm volume, Clicker volume, Clicker action, Cursor style, Cursor blink, Rule style, Rule follow cursor, Auto dim, Row/Column indicator, Extended display, Background color (Model-C), Reverse image (Model-D), and Keyboard buffer.

Move the cursor to the desired setup values/parameters and press the Space Bar for each selection. The selected values/parameters will be highlighted.

◎Alarm volume (Off / 1 / 2 / 3 / 4 / 5)
   The user can adjust the alarm volume including value 0 (Off).

◎Clicker volume (Off / 1 / 2 / 3 / 4 / 5)
   Clicker action (On / Off)
      The user can turn On/Off and adjust the volume of the audible clicker.

◎Cursor style (Block / Underline)
   Cursor blink (Yes / No)
      The user can change the style and blinking state of the cursor.

Move cursor to desired choice, then press SPACE BAR to select.

Alarm volume	ON	1	2	3	4	5
Clicker volume	Off	1	2	3	4	5
Clicker action	On				Off	

Cursor style	Block			Underline
Cursor blink	Yes			No
Rule style	Horizontal		Vertical	Cross
Rule follow cursor	Yes			No

Auto dim	Off	2	5	10	15	20
Row/Column indicator	On				Off	

Extended display	On			Off
Background color	Black	Blue	Red	Purple

Keyboard buffer	On	Off

F3=Save and Exit   F8=Forward

SETUP

Setup display panel (5476 model C)

◎Rule style (Horizontal / Vertical / Cross)
Rule follow cursor (Yes / No)
You can change the attributes of the rule line: style and follows-cursor.

◎Auto dim (Off / 2 / 5 / 10 / 15 / 20)
The screen becomes blank if the user does not press a key, or the display station does not receive any data from the host, in the specified time in 'Delay'.

◎Row/Column indicator (On / Off)
When turned On, the current row and column numbers are displayed in the operating status line.

◎Extended display   (On / Off, 5476 model)
(Off / PS / ECB1 / ECB2 / ECB3, 5477/5487/5488 model C)
(Off / PS / ECB1 / ECB2 , 5477/5486/5487/5488 model D)
When either PS, ECB1, ECB2, ECB3, or On is selected, the attributes and characters are displayed in hexadecimal format.

◎Background color (Black / Blue / Red / Purple) -- Model-C
The user can select either of four background color: black, blue, red, or purple. In 5488V Model, Purple is replaced by 'User Define'. You may use Color Palette to adjust the background color.

◎Reverse image (On / Off) -- Model-D
The user can select either of two screen images: (On) light graphics on dark background, or (Off) dark graphics on light background.

◎Keyboard buffer (On / Off)
When turned On, there are 32 keystrokes with erase function.

5476 model D :

Extended display	On	Off
Reverse image	On	Off

5477, 5487, 5488 model C :

Extended display	Off	PS	ECB1	ECB2	ECB3
Background color	Black		Blue	Red	Purple

5477, 5486, 5487, 5488 model D :

Extended display	Off	PS	ECB1	ECB2
Reverse image	On			Off

If you press F8 key, you will enter the following screen :
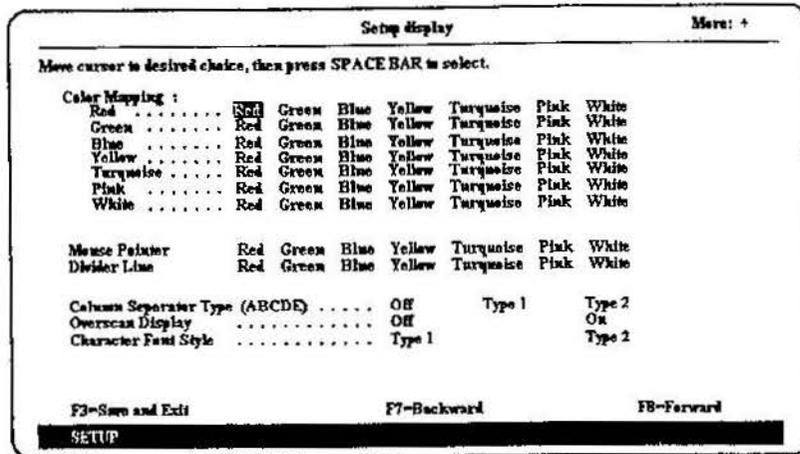
Under this Menu, functions to be displayed include : Color Mapping, Mouse Pointer, Column Seperator Type, Overscan Display and Character Font Style.

In 5488V Model, you are allowed to press F8 key to enter the following menu:
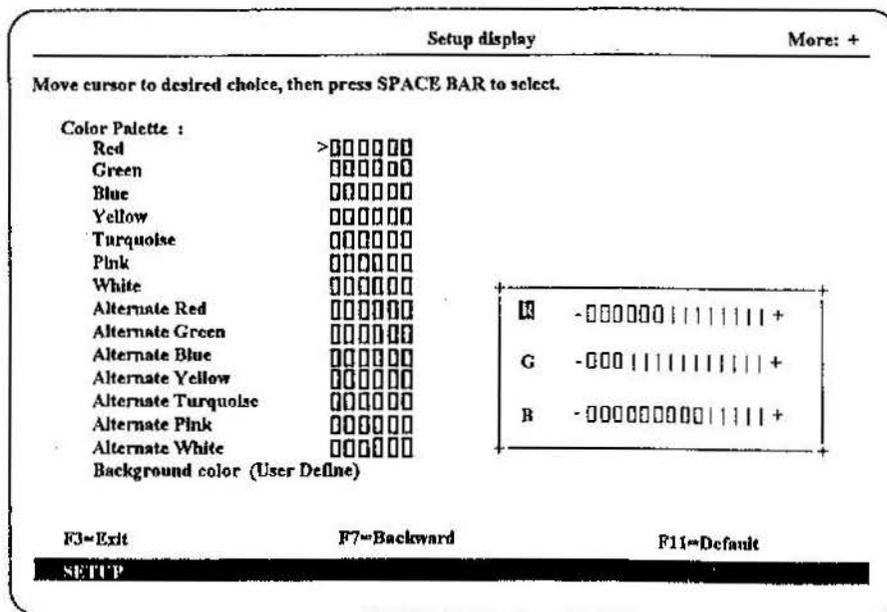
You can use the Color Palette function to adjust the colors according to your preference.

3.2 Browse display information

Selecting the Browse display information option from the Online Setup menu. This screen gives you the following information about the display: Language, Character set, Terminal mode, and Display address.

```
                        Browse display information              More: +
    ──────────────────────────────────────────────────────────────────

    Language :  U. S. English    ( Country Specific )

    Terminal mode :   6 Display - Printer

    Display 1 Address :  2      Emulation :  3476
    Display 2 Address :  1      Emulation :  3476
    Display 3 Address :  0      Emulation :  3476
    Display 4 Address :  3      Emulation :  3197D
    Display 5 Address :  4      Emulation :  3197D
    Display 6 Address :  5      Emulation :  3197C




    F3=Exit
    SETUP
```

Browse display information panel

If you use Shared Addressing function in 5488V Model, the display information panel is like the following :

```
                        Browse display information              More: +
    ──────────────────────────────────────────────────────────────────

    Language :  U. S. English    ( Country Specific )

    Terminal mode :   4 Display

    Display 1 Address :  2      Emulation :  3468 (Shared Addressing)






    F3=Exit
    SETUP
```

3.3 Setup printer

Selecting the Setup printer option from the Online Setup menu. You will see eight selections: Lines Per Inch, Characters Per Inch, Print Quality, Character Height, Sheet Feeder, Source Drawer, Buffer Print, and Printer Key.

Move the cursor to the desired setup values/parameters and press the Space Bar for each selection. The selected values/parameters will be highlighted.

```
                                    Setup printer                      More:  +

Move cursor to desired choice, then press SPACE BAR to select.

      Lines per inch   . . . . . . .   [System]    3      4      6      8

      Character per inch  . . . . . .  System   5   8.5   10   12   15   17  PS

      Print quality   . . . . . . . .  System          Draft          Letter

      Character height  . . . . . . .  Standard                        Double

      Sheet feeder    . . . . . . . .  Yes                             No

      Source drawer   . . . . . . . .  System    1           2         3

      Buffer print    . . . . . . . .  Yes                             No



      F3=Save and Exit                              Quit=Print cancel
      SETUP
```

Setup printer panel (5224,4214,5219,or 3812 printer emulation)

5256 Printer Emulation or Non Printer Emulation :

```
                                    Setup printer

Move cursor to desired choice, then press SPACE BAR to select.

      Lines per inch   . . . . . . .   [3]      4      6           8

      Character per inch  . . . . . .  5   8.5   10   12   15   17   PS

      Print quality   . . . . . . . .  Draft                       Letter

      Character height  . . . . . . .  Standard                    Double

      Sheet feeder    . . . . . . . .  Yes                         No

      Source drawer   . . . . . . . .  1              2            3

      Buffer print    . . . . . . . .  Yes                         No


Non Printer Emulation :


      Print key   . . . . . . . . . .  System                      Local

      F3=Save and Exit
      SETUP
```

©Lines per inch (System / 3 / 4 / 6 / 8) -- 5224,4214,5219, or 3812 printer emulation
              (3 / 4 / 6 / 8) -- 5256 or non printer emulation
      You can select the number of lines printed per inch.
      If 'System' is selected, the host system specifies the line pitch.

◎Character per inch (System / 5 / 8.5 / 10 / 12 / 15 / 17 / PS) -- 5224,4214,5219, or 3812
(5 / 8.5 / 10 / 12 / 15 / 17 / PS) -- 5256 or non printer emulation
You can select the number of characters printed per inch.
If 'System' is selected, the host system specifies a character pitch.

◎Print quality (System / Draft / Letter) -- 5224,4214,5219, or 3812
(Draft / Letter) -- 5256 or non printer emulation
The Draft selection sets the printer into draft mode; the Letter selection sets the
printer into letter quality mode.
When 'System' is selected, the host system will designate the print quality.

◎Character height (Standard / Double)
The user can select two character heights : Standard or Double.

◎Sheet feeder (Yes / No)
Source drawer (System / 1 / 2 / 3) -- 5224, 4214, 5219, or 3812
(1 / 2 / 3) -- 5256 or non printer emulation
The 'No' selection means that the printer does not support cut sheet feeder drawer
changing. If 'Yes' selected, you can select the number of source drawer. When
'System' is selected, the host system designate the drawer number.

◎Buffer print (Yes / No)
If the printer is not ready (the Printer ready indicator is off) and the System
available indicator is on, you can turn on the Buffer print indicator to have the
printer print out the received data directly (in the directly printing out mode).

◎Printer key (System / Local) -- non printer emulation only
The System selection allows the host system to directly address the printer. The
Local selection allows the operator to determine when to print by pressing the
Print key, the printer is not addressed by the host system in this mode, and does
not use a device address.

System Screen Data Print

Assumption: You have data displayed that is ready to be printed. You want to use the
system designated printer.

Note: *The function of the Print key can be defined by the host application program.*

Remember to pre-select the 'System' parameter in the 'Print key' on the Setup Printer panel.

1. Press the Print key. The terminal sends a screen print request to the host system.
2. The system designated printer will start printing.

The system screen data printing is now completed.

Local Screen Data Print

You have already pre-set the printer parameters above for the attached printer and you can
now print screen data as specified. To print the screen data, follow the steps below.

1. Press the Print key to enter print mode. The following operator messages appear at the bottom of the screen.

```
┌─────────────────────────────────────────────────────┐
│                                                       │
│                                                       │
│                                                       │
│                                                       │
│              Screen Data                              │
│                                                       │
│                                                       │
│                                                       │
│                                                       │
│  ──────────────────────────────────────────────────  │
│  PRINT (SCREEN) ☞   Enter=Print    Print=Exit   F13=Trim │
└─────────────────────────────────────────────────────┘
```
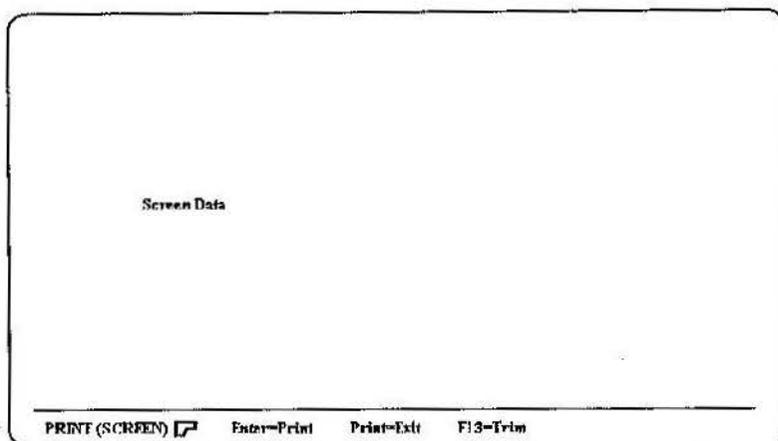
Local Screen print panel

2. If the following screen is displayed, press the F13 key to return to the screen data panel shown above.

```
┌─────────────────────────────────────────────────────┐
│  ┌──────────────────────────────────────────────┐    │
│  │▢                                             │    │
│  │                                              │    │
│  │                                              │    │
│  │              Trimming Area                   │    │
│  │                                              │    │
│  │                                              │    │
│  └──────────────────────────────────────────────┘    │
│  ──────────────────────────────────────────────────  │
│  PRINT (TRIM) ☞   Enter=Print   Print=Exit  F13=Screen  F14=Jump marker │
└─────────────────────────────────────────────────────┘
```
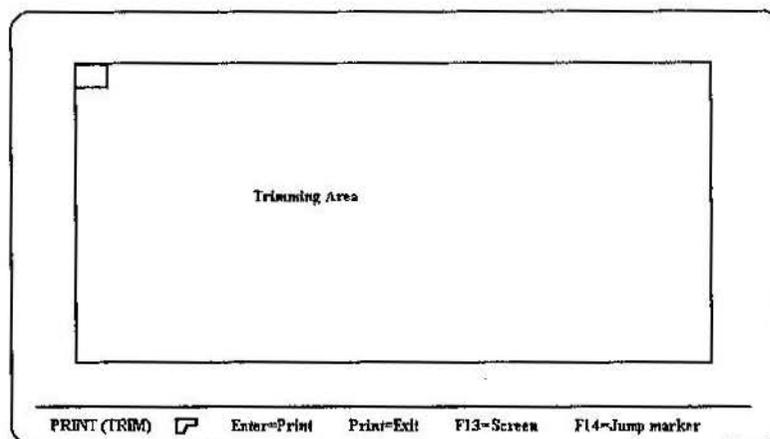
Local Trim print panel

3. Check the indications on the bottom line.

   If a ☞ is displayed, make sure that the printer is securely connected to the terminal and the printer power switch is set to On. If a ☞ is displayed, the attached printer is ready to print.

4. Press the Enter key. The entire screen data will be sent to the attached printer and starts printing.

The local screen data printing is now complete.

Partial Screen Data Print

Note: *When you select the 'Multi-Display' terminal mode and use a split-screen, the partial screen data print cannot be used.*

Assumption: You have data displayed that is ready to be printed. You want to print a part of the screen data.

1. Press the Print key to enter print mode. The following operator messages and trimming rectangle appear.

   If the displayed screen is other than the panel shown below, press the F13 key return to the trimming panel.

   ```
   PRINT (TRIM)   ☞     Enter=Print     Print=Exit     F13=Screen     F14=Jump marker
   ```

Local Trim Print Panel

2. Check the indications on the bottom line.

   If a ⯈ is displayed, make sure that the printer is securely connected to the terminal and the printer power switch is set to On. If a ☞ is displayed, the attached printer is ready to print.

3. The data within the trimming area can be printed. If you want to change the trimming area, move the Trim Marker (box cursor at upper left corner) using the cursor move keys. If the cursor is moved to the right, the width gets smaller.

   If the cursor is moved downward, the depth gets smaller. If you want to move the Trim Marker from the upper left corner to the lower right corner, press the F14 key.

4. When you complete the trimming area definition and want to print the data, press the Enter key. The attached printer starts to print.

The partial screen data printing is now complete.

3.4 Browse printer information

Selecting the Browse printer information option from the Online Setup menu. This screen gives you the following information about the printer: Printer emulation, Printer type, and the following indicators: System available, Printer ready, Buffer print, Graphic check, Paper out.

```
                    Browse printer information              More: +

    Printer type :   IBM Graphics Printer

    Printer Address :   6

    Emulation : 5219



    INDICATORS :    ■   System available        ■   Printer ready

                    □   Buffer print            □   Graphic check

                    □   Paper out

    F3=Exit                                     Quit=Print cancel
    SETUP
```
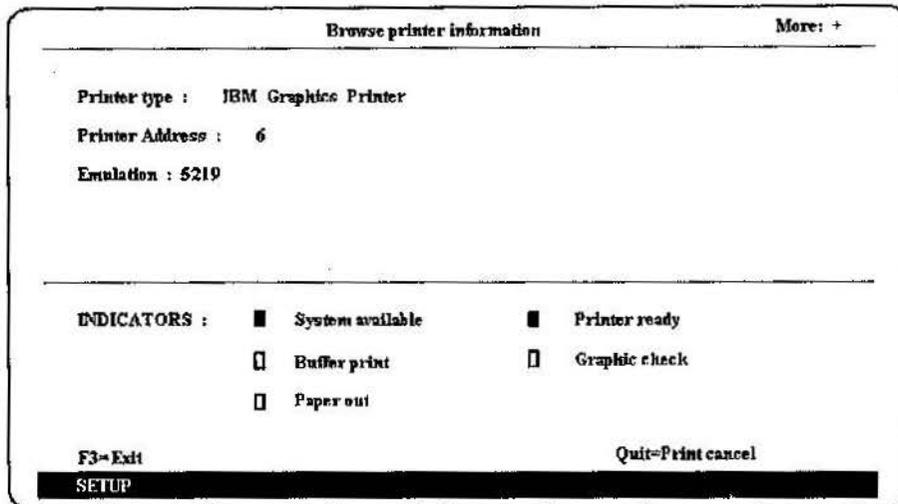
Browse printer information panel (Printer emulation mode)

Non Printer Emulation :

```
                    Browse printer information              More: +

    Printer type :   IBM Graphics Printer





    F3=Exit
    SETUP
```
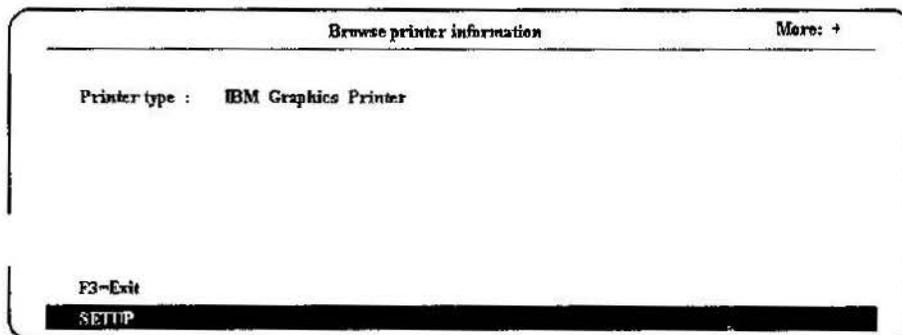
Cancellation of Print Operations

The operator can cancel the print request by performing the following steps.

1. Press the SetUp key to enter the Online setup menu screen.

2. Move the cursor to 'Setup printer' or 'Browse printer information' using the cursor move keys and press the Enter key. The " Quit=Print cancel " appears on the screen.

3. Press the Quit key. The cancel request will then be accepted. The printer will continue printing data that was sent to the printer buffer.

4. Press the SetUp key to return to communication mode.

3.5 Setup Mouse -- 5486, 5487, 5488 only

Selecting the Setup mouse option from the Online Setup menu, you will see six selections: Mouse Speed, Mouse Double Click, Mouse Primary Button, Mouse Control Cursor, Hotspot Function, and Keyboard Pad.

Move the cursor to the desired setup values/parameters and press the Space Bar for each selection. The selected values/parameters will be highlighted.

```
                              Setup Mouse                          More: +

Move cursor to desired choice, then press SPACE BAR to select.

     Mouse Speed    . . . . . . . . . . . . . . . . . . .  Slow   1    2    3    Fast
     Mouse Double Click  . . . . . . . . . . . . . .  0.25   0.5   0.75   1.0   2.0
     Mouse Primary Button  . . . . . . . . . . . . .  Left                Right
     Mouse Control Cursor  . . . . . . . . . . . . .  On                  Off
           (Primary Mouse Button)
     HotSpot Function  . . . . . . . . . . . . . . . .  On                  Off
           (Secondary Mouse Button)
         Function    [ ie. f3-Exit      ]   On               Off
         Number      [ ie. 90-Sign Off  ]   On               Off
         Word        [ ie. Computer     ]   On               Off
         Character   [ ie. A            ]   On               Off
     Keyboard Pad  . . . . . . . . . . . . . . . . . . .  On               Off

     F3-Save and Exit
      SETUP
```
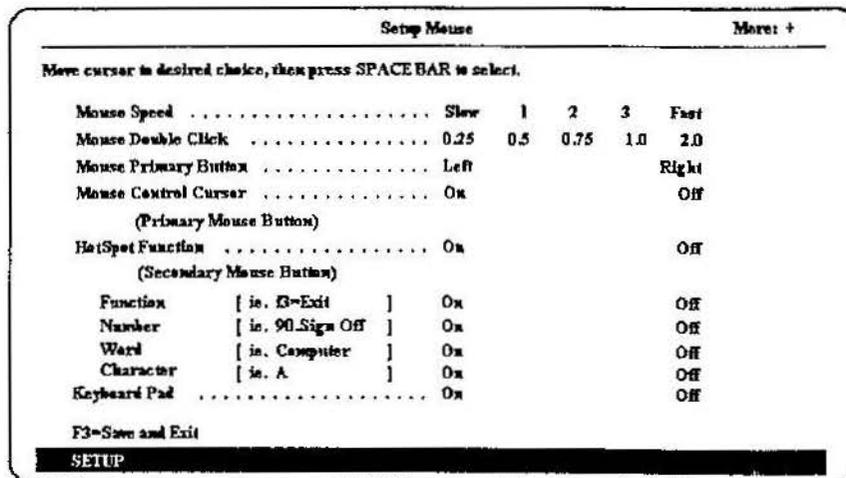
©Mouse Control Cursor (On / Off)
    Move Cursor with mouse primary button.

©HotSpots (Function, Number, Word, and Character, On / Off)
    Use Hotspots to enact host menu items and commands by clicking on them with mouse.

©Keyboard Pad (On / Off)
    The Keyboard Pad is for using the mouse to click on the host command you want to enact.

| Reset | Attn | SysRq | Print | Help | PgUp | PgDn | Enter | Next |

| Ins | Del | Fd Ex | Fd + | Fd - | L-Tab | R-Tab | Enter | Next |

| Home | Dup | Test | Clear | ErInp | Hex | BkSpc | Enter | Next |

| F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | F12 | Next |

| F13 | F14 | F15 | F16 | F17 | F18 | F19 | F20 | F21 | F22 | F23 | F24 | Next |

Attn : Attention
SysRq : System Request
Ins : Insert
Del : Delete
PgUp : Page Up
PgDn : Page Down
Test : Test Request
Fd Ex : Field Exit
Fd + : Field +
Fd - : Field -
ErInp : Erase Input
BkSpc : Backspace
L-Tab : Field Backspac
R-Tab : Field Advance

3.6 Lock Sessions -- 5486, 5487, 5488 only

Selecting the Lock sessions option from the Online Setup menu, you will see two selections: Lock Session and Modify Password. Move cursor to desired selection and press Enter.

If there is no password then "Modify Password" selected automatically.

```
                              Lock Sessions                      More: +
─────────────────────────────────────────────────────────────────────────
 Move cursor to desired selection and press ENTER.

    Lock Session
    Modify Password








    F3=Exit
    SETUP
```
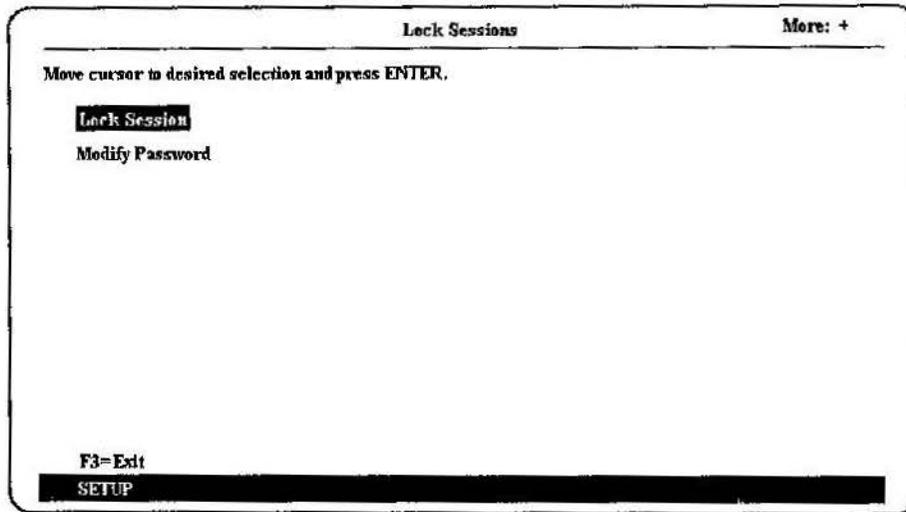
©**Modify Password**

You can modify password by typing password twice. The screen should look like this:

Specify password twice and press Enter.

Password   _____
Password   _____

F3=Exit   **F11=Clear Password**

©**Lock Sessions**

The session is locked now. The screen should look like this:

The session is locked now! Please enter password to unlock!

Password   _____

Chapter 4. Display Screen and Operator Messages

This chapter describes three different display screen available and various symbol.

4.1 Display Screen

The display screen is divided into two basic areas: the data area and the message area.

The data area displays data received either from your keyboard or the host system. The data area can display up to **1920 characters** (24 lines of 80 characters, See Figure 4-1), **3360 characters** (42 lines of 80 characters, See Figure 4-1), **3564 characters** (27 lines of 132 characters, See Figure 4-2) or **5544 characters** (42 lines of 132 characters, See Figure 4-2).
Format selection depends on the terminal mode or the host application programs.

The message area is divided into two sub-areas: the message line and the operating status line.
The message line is an area to display error messages and help messages received from the host or the controller. The operating status line is used to display your display station or attached printer operating status.

In Multi-Display' terminal mode, one of the following two formats can be selected using the Zoom (◻⇔◻) key (Split Hot Key).

◆ Normal Screen (Non-split screen)

◆ Split Screen
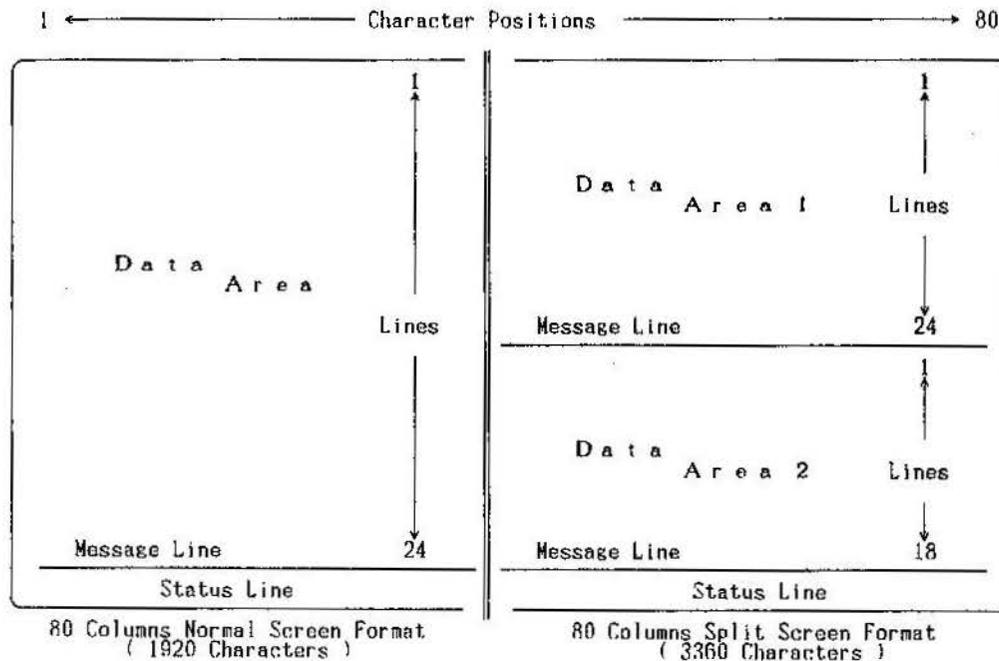
Figure 4-1. 1920 Characters and 3360 Characters Screen Format
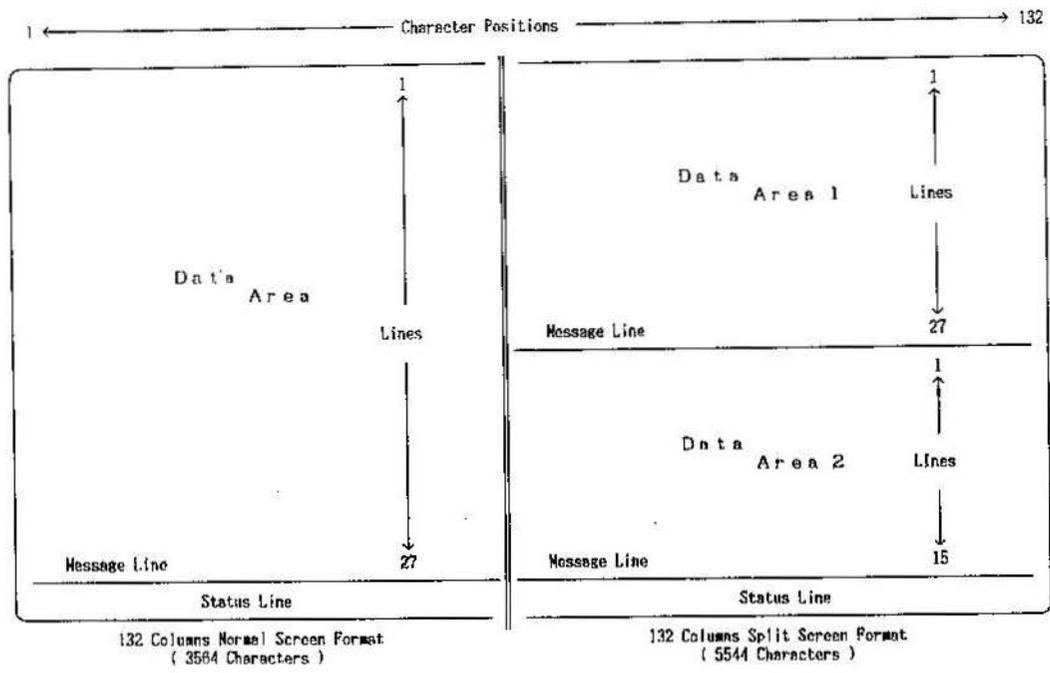
Figure 4-2. 3564 Characters and 5544 Characters Screen Format

Normal Screen Operation

When the user selects the Multi-Display' terminal mode, either a 24 x 80 screen or a 27 x 132 screen for the logical display station 1 will be displayed.

If you want to communicate with the host system using the logical display station 2, press the Jump key together with the Alt key. The screen for logical display station 2 replaces logical display station 1. If the Multi-Display' terminal mode is more than 2 display stations. The session can be changed by a display list window.
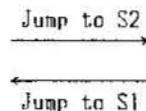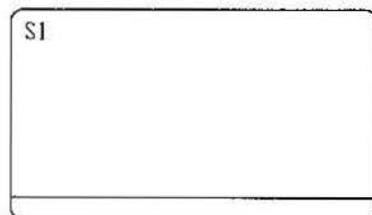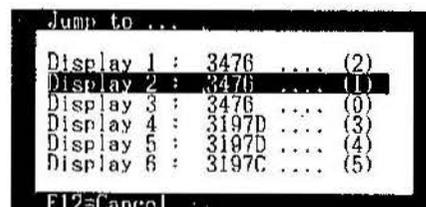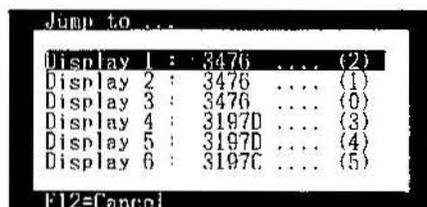
Split Screen Operation

On the split screen, one half is active at a time. The active screen always has the cursor. The user can use the active screen for communications while data on the non-active screen can be referenced.

The user can do the following using the split screen:

A. Changing the active screen

As mentioned previously, the active screen displays the cursor. If the user wants to change the active screen from the upper half screen (display station n) to the lower half screen (display station m) or from the lower half screen to the upper half screen, press the Jump key. The user can toggle back by pressing the Jump key again.
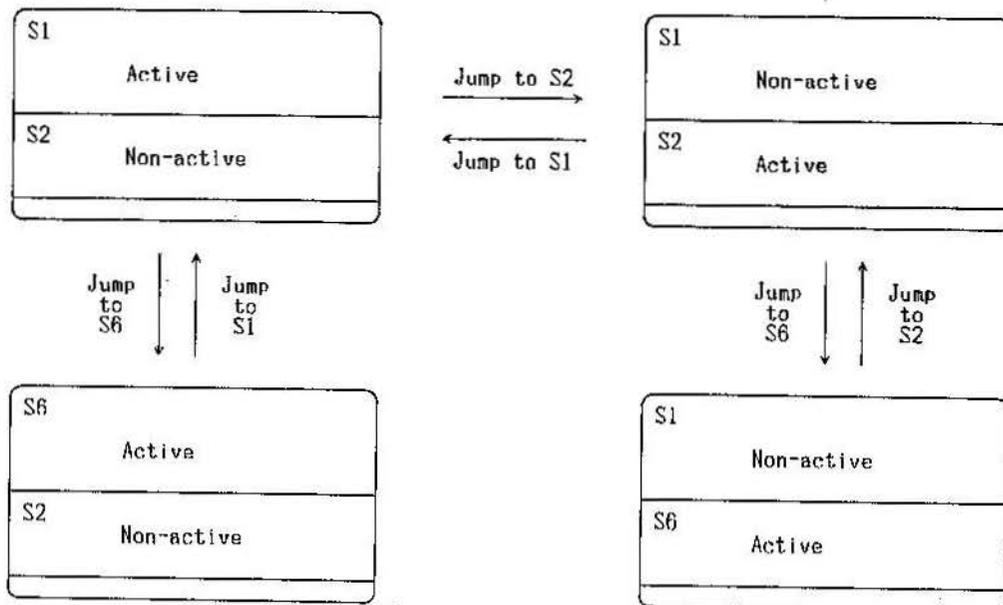

B. Scrolling the lower half screen (small screen)

When the cursor is in the upper half screen, scrolling of the lower half screen (small screen) is enabled.

C. Changing the screen format

When the operator wants to change the current screen format from the normal screen to the split screen, or from the split screen to the normal screen, press the Zoom (▫↔▫) key (Split Hot Key).
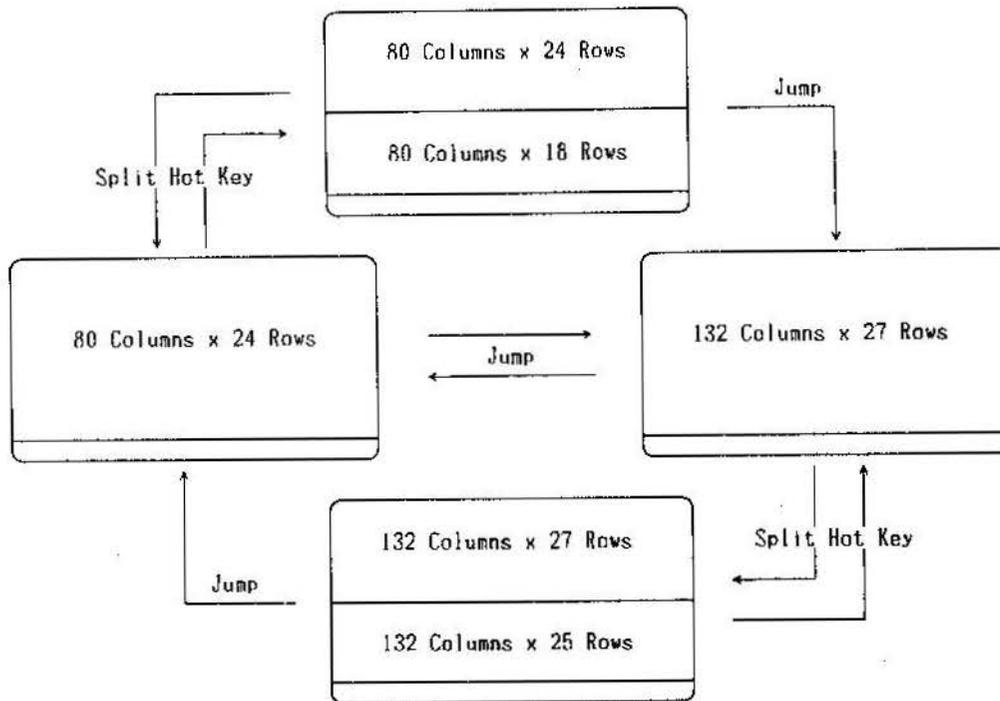
4.2 Operator Messages

The operating-status line is located at the bottom of the screen in an area known as the status line. The operational status of your display station can be seen by the operating-status line symbols.

The symbols available for the operating status line vary depending on the modes: communication, setup, and record/play. The following sections describe the symbols location and the meanings.

Symbols in Communication Mode

The following are symbols that are displayed on the operating status line during communication with the host system.
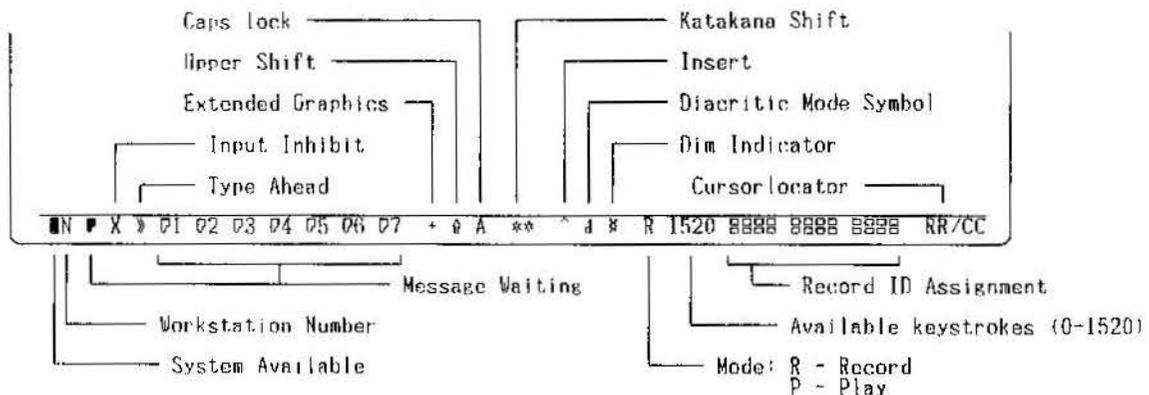
Symbol Name	Symbol	Meaning
System Available	▮	The host system connected to your display station is operating and available.
Workstation Number	N	Indicates which logical screen is currently active with a number.
Message Waiting	▮	The symbol (▼) indicates that the host system has one or more messages for logical display station and the display screen for the logical display station is active.
	▯x	The symbol (▯x) indicates that the host system has one or more messages for logical display station "x" and the display screen for the logical display station "x" is inactive.
Input Inhibit	X	This symbol appears when: • The host system is processing your input. • The host system is very busy. • The host system detects an error condition. When the input inhibited indicator is turned on, alarm will sound when most keys are pressed. The alarm indicates that the system is not accepting your keystrokes.
Type Ahead	⟩	You can continue keying in even if the keyboard becomes locked. This will be supported on AS/400 Release 2 or later.
Extended Graphics	⁺	Extended keyboard layout has been selected. This Will be supported on AS/400 Release 2 or later.
Upper Shift	⇧	The keyboard is in upshift or locked in upshift.
Caps Lock	A	The keyboard is in Caps Locked. The alphabetic characters are entered in uppercase.
Insert Mode	^	Indicates when the Ins (Insert) key is pressed.
Diacritic Mode	⎍	Indicates that your display station is in Diacritic Mode. Diacritic Mode is a function of the host system program and not the display station. To find out how to use Diacritic Mode, see your system coordinator or the system program manual.
Dim Indicator	⩎	Indicates that "Auto dim" has been selected and there has been no activity for 2, 5, 10, 15, or 20 minutes. (The screen is blank, except for the operating-status line.)
Record Mode	R	Indicates that your display station is in Record mode. While "R" is displayed, the current acceptable number of keystrokes are indicated next to "R".
Play Mode	PLAY	Indicates that your display station is in Play mode.
Available Storage	1520	Indicates number of keystrokes available in record mode.
Record ID Assignment	▯	Indicates record data assignment for the 24 F keys. The solid box indicates that the F key has data recorded. The blank box indicates that the F key has no data recorded.
Cursor Locator	RR/CC	Indicates the row and column where the cursor is currently positioned.

4.3 Record/Play Mode

The Record/Play functions allow you to store and retrieve and display data with a single key entry. The Record/Play functions eliminate repetitive operations. Instead of keying in the same data, the display station can store the data and recall it anytime by pressing a single key. The data remains in storage even if you turn off the display station.

4.3.1 Record Mode Operation Assigning Keystroke Sequences to Function keys

As described in the explanation of the Record key, you can assign recorded keystrokes to any of the 24 Function (F) keys. The maximum number of keystrokes that can be recorded is 1520. The exercise for the Record/Play operation (after the "Play Mode Operation" section) will help you become familiar with the record mode operation.

1. Press the Recrd (Record) key. The text 'R1520' appears on the operating status line. The number to the right of the 'R' shows the remaining number of keystrokes that can be recorded.

NOTE: *Pressing F1-F24 displays F1-F24 on the status message. If F1-F24 appears in reverses character and sounds the alarm, the corresponding F key has already been assigned to recorded keystrokes.*

2. Press any one of the 24 F keys to which you want to assign a word or message. The F key number 'Fxx' appears in place of the operating status line.

   If the alarm sounds and the number increases when the F key is pressed, there is something already recorded for that F key. If you do not want to destroy the recorded key sequence, press the Record key to exit from record mode.

   You must exit, then re-enter record mode before pressing a new F key or the key sequence assigned to the previously selected F key will be destroyed.

   To delete the entire keystroke sequence assigned to a particular F key, press the appropriate F key, and then press the Delete key.

3. Type the keystroke sequences you want to save. As you type, notice that the number following the 'R' on the operating status line decreases. Type carefully, as even mistakes get saved!

NOTE: *If you want to temporarily stop recording the keystroke sequence, press the Pause key; after you press the Pause key again, you can continue recording the keystroke sequence.*

4. Press the Record key if you do not want to record any more keystroke sequences. The keystroke sequence is saved even if the display station power switch is set to off, and can be played back by pressing the Play key and the appropriate F key.

5. There are a total of 1520 keystrokes that can be assigned to the 24 F keys.

NOTES:

(1) Each make/break key (such as Shift, Alt or Pause key) recorded in keystroke sequence counts as two keystrokes.

(2) While in record mode, if you attempt to record AID keystroke sequences (F, Enter, Clear, Attn, SysRq) that cause an input inhibit condition, the keystroke sequences will be recorded.

However, when the keystroke sequence is played back, only the keystroke sequence (including the ID key) just before the first AID key was pressed will be played back. An input inhibit condition will occur and the remaining keystroke sequences will be ignored by host system.

(3) The following keystrokes cannot be as signed to any F key:

- ◆ Play
- ◆ Setup
- ◆ Record

(4) The following three functional keys are applicable in record mode.

- ◆ Pause key:

    When you want to insert some words or sentences in a playback operation, press this key at the place where you want to insert them. Then a ' ⅄ ' is displayed after F key number until the Pause key is pressed again. The pause action will be recorded as well as other keystroke sequences. To continue the record operation, press the Pause key again.

- ◆ Quit key:

    If you change your mind before recording some words or sentences, press this key to exit from record mode.

    NOTE: *If you press the Quit key after pressing the target F key and recording some keystrokes, the entire keystrokes you previously recorded and the keystrokes you newly entered will be deleted.*

- ◆ Delete key:

    When you want to delete the currently recorded keystrokes, press this key after pressing the target F key.

WARNING:

1. All recorded keystroke sequences are accessible anytime the display station is powered-on.

2. Before exiting from record mode, do not turn the power switch to off. Otherwise, the data recorded may be lost.

3. For security reasons, do not record your password or other sensitive data.

4.3.2 Play Mode Operation Playing Back Keystroke Sequences Assigned to Function keys

As described in the explanation of the Play key, the display station can play back keystroke sequences that were assigned to a particular Function (F) key. The exercise of the Record/Play operation after this section will help you become familiar with the play mode operation.

1. Position the cursor at the location where you want the keystroke sequence to begin.

2. Press the Play key. A 'Play' and the F key assignment indicator appear on the operating status line.

3. Press the same F key you used to record the keystroke sequence. The keystroke sequence will be automatically played back starting at the location of the cursor. When the playback completes, the 'Play' disappears from the operating status line.

NOTE: In play mode, the following two functions are operational.

◆ Pause:

When you activate pause function during a record mode operation, the status-line appears 'R1420 F12' for example. The function is automatically executed (playback action stops). At the pause you can key in any words or sentences and press the Play key to continue the playback sequence. During the Play mode, if you encounter the pause, 'Play ⅍' will appear on the status line. Press the Play key again to continue the play operation.

◆ Quit:

During the playback operation, you can cancel the playback sequence anytime by pressing the Quit key.

4.3.3 Record/Play Exercise

1. Make sure that the display station is in communication mode.

2. Press the Recrd key. The screen should look like this:

```
┌─────────────────────────────────────────────────────────────────┐
│ ▪                                    R 1520 ▦▦▦▦ ▦▦▦▦ ▦▦▦▦        │
└─────────────────────────────────────────────────────────────────┘
    └─── System Available                    └── Record ID Assignment
                                           └──── Available keystrokes (0-1520)
```
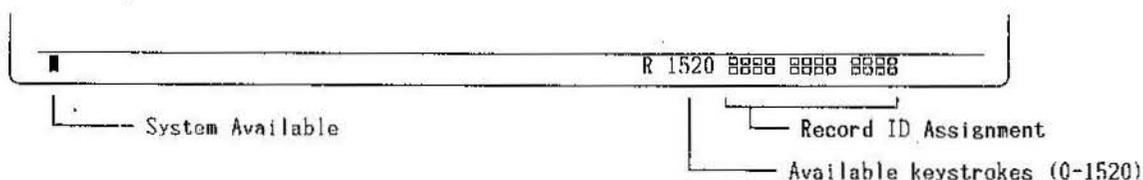
3. Press the F1 key where you want to record data. The following indicators will appear in the operating status area.

```
┌─────────────────────────────────────────────────────────────────┐
│ ▪                                          R 1520 F1             │
└─────────────────────────────────────────────────────────────────┘
                                              └──── F key pressed
```

4. Move the cursor to the home position (first line position 1) and type in 'MODEL / ' and then press the Space Bar once.

```
┌─────────────────────────────────────────────────────
│
│   MODEL / _
│
```

5. Press the Pause key to temporarily stop recording keystrokes; 'R xxxx F1 ⅄' will appear on the operating status line. Key in '5476-C ' and press the Space Bar ('5476-C ' is not recorded).

```
┌─────────────────────────────────────────────────────┐
│                                                      │
│   MODEL / 5476-C _                                   │
│                                                      │
 :                                                    :
 :                                                    :
│ ■ ─────────────────────────────────── R xxxx F1   ⅄ │
└─────────────────────────────────────────────────────
```

6. Press the Pause key again.

7. Type in 'TERMINAL'. Now the screen looks like:

```
┌─────────────────────────────────────────────────────
│
│   MODEL / 5476-C TERMINAL_
│
```

8. Verify that the terminal name is typed correctly. Press the Recrd key again. This validates the recorded data and exits the record mode.

   If the keystroke sequence is not typed correctly, press the Recrd key and start over from the step 1.

9. Press the New Line key to move the cursor to the next line.

10. Press the Play key to enter play mode. The 'PLAY' and the Record ID Assignment indicator will be displayed.

    The Record ID assignment is indicated as a solid box which means data was recorded in that key.

```
│                                                      │
│                                                      │
│ ■ ─────────────────────────────── PLAY ▉888 8888 8888
└─────────────────────────────────────────────────────
```

11. Press the F1 key and 'MODEL / 'appears at the cursor position, the cursor moves to the next input position, and 'PLAY ⅄' appears in the operating status line.

```
┌─────────────────────────────────────────────────────┐
│   MODEL / 5476-C TERMINAL                            │
│   MODEL / _                                          │
 :                                                    :
 :                                                    :
│ ■ ─────────────────────────────────── PLAY      ⅄   │
└─────────────────────────────────────────────────────┘
```

12. Type in '5477-C, 5477-D ' and press the Space Bar once.

```
MODEL / 547G-C TERMINAL
MODEL / 5477-C , 5477-D _
```

13. Press the Play key again. The remaining recorded words will be played back at the cursor position.

```
MODEL / 5476-C TERMINAL
MODEL / 5477-C , 5477-D TERMINAL_
```

14. **The task is complete. You can continue entering data from the cursor location.**

Appendix A. Keyboard and Key Functions

This appendix describes the key functions of the 122-key (typewriter) keyboard and the Enhanced keyboard.

Keyboard Layouts

Figures A-1 and A-2 show the two types of U.S. English 122-key and Enhanced keyboards that can be attached to your Terminal.
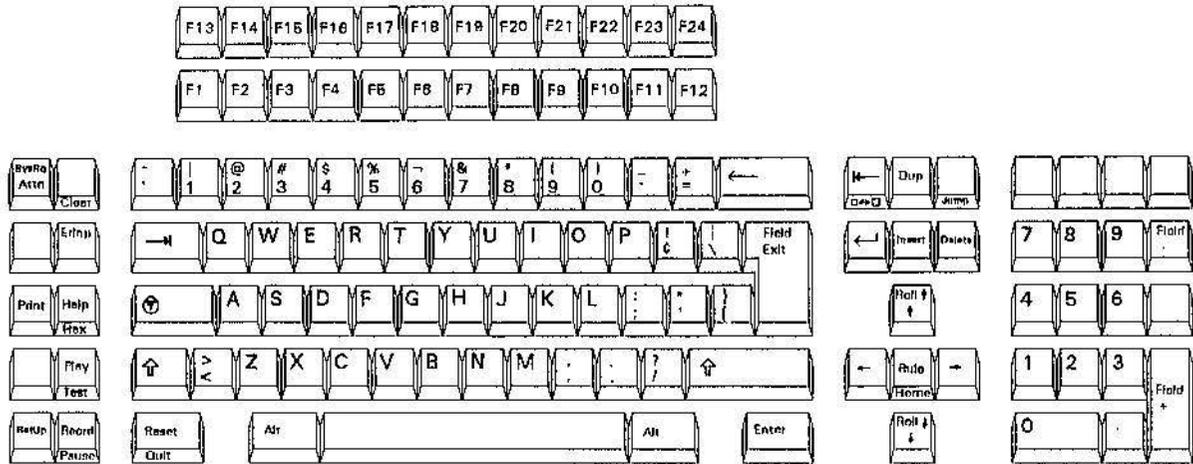

Figure A-1.   122-key Keyboard Layout (U.S. English)
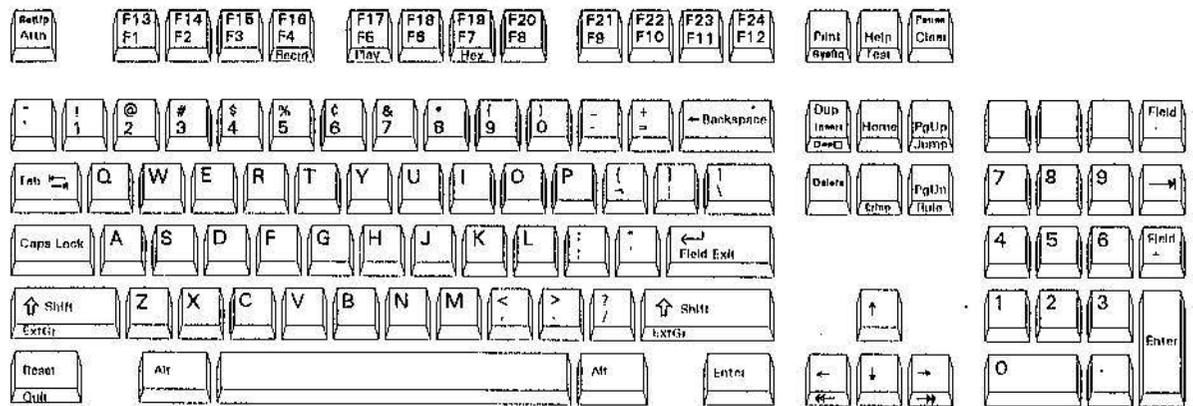
Figure A-2.   Enhanced Keyboard Layout (U.S. English)

Keyboard Functions

This section describes the key functions and their locations of the keyboards.

```
┌─── How to select the upper and alternate position of key labels ──────────┐
│                                                                            │
│   ┌─────────┐                                                              │
│   │ |       │──── Press and hold the ⇧ key before pressing the key.        │
│   │         │                                                              │
│   │ 1       │──── Press the key.                                           │
│   │ ─────── │                                                              │
│   └─────────┘                                                              │
│                                                                            │
│   ┌─────────┐                                                              │
│   │ Reset   │──── Press the key.                                           │
│   │         │                                                              │
│   │ ─────── │                                                              │
│   │ Quit    │──── Press and hold the Alt key before pressing the key.      │
│   └─────────┘                                                              │
│                                                                            │
└────────────────────────────────────────────────────────────────────────────┘
```
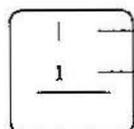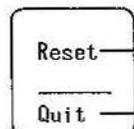
Keyboard control keys

122-key keyboard	Enhanced keyboard	Description
Alternate Shift ┌──────┐ │ Alt │ │ ──── │ └──────┘	┌──────┐ │ Alt │ │ ──── │ └──────┘	Some keys have names printed on the front of the keys. To activate this function, the key must be pressed while pressing and holding the Alt key.
Caps Lock	┌───────────┐ │ Caps Lock │ │ ───────── │ └───────────┘	When this key is pressed, the display station enters Caps Lock mode.
Upper Shift ┌──────┐ │ ⇧ │ │ ──── │ └──────┘	┌──────────┐ │ ⇧ Shift │ │ ──────── │ │ ExtGr │ └──────────┘	When this key is pressed and held down: • The alphabetic characters (A through Z) are entered as uppercase letters. • The symbols on the top of the numeric keys and the punctuation marks on the upper half of the other keys are entered. The symbol ⇧ appears in the operating status line when you press the upper shift (⇧) key.
Shift Lock ┌──────┐ │ ⊛ │ │ ──── │ └──────┘		When this key is pressed: • The keyboard locks in upper shift. To return the keyboard to lower shift, press an upper shift (⇧) key.
Extended Graphics	┌──────────┐ │ ⇧ Shift │ │ ──────── │ │ ExtGr │ └──────────┘	Press the ExtGr key, while pressing and holding the Alt key. This enables the display station to enter Extended Graphic mode.
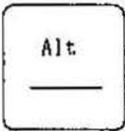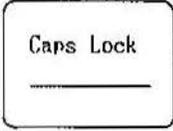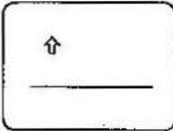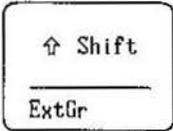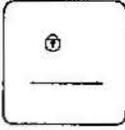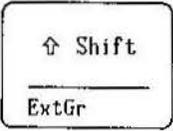
Cursor Control keys

| 122-key keyboard	Enhanced keyboard	Description
Field Backspace	Tab	This key moves the cursor back to the first position of an input field. If the cursor is in an input field, but not at the first position, press the Field Backspace (⊢) key to move the cursor to the first character position.
Character Backspace	← Backspace	This key moves the cursor back to the previous position in which data can be entered. If the cursor is in the first position of an input field, it moves back to the last position of the preceding input field.
Cursor Roll ↑ ↑ Roll ↓ ↓ ← →	↑ ↓ ← →	Moves the cursor in the direction of the arrow without affecting the existing data. The cursor up and down keys are used to move the cursor one position at a time in the direction of the arrow. These keys move the cursor vertically on the screen. When either key is held down and the cursor moves off the screen edge, it reappears in the same column, on the opposite side of the screen. These keys are repeat-action keys.
Cursor Home Rule Home	Home	Press the Cursor Home (⬉) key. This causes the cursor to move to the first input position of the screen. The cursor moves to row 1, column 1 of the screen if the screen is unformatted or has no input fields.
Double-speed Cursor ← →		Pressing these keys while holding down the Alt key will move the cursor two positions at a time in the direction of the arrow. These keys are repeat-action keys. Note: This function is also supported on the 122-key keyboard by holding down the Shift key and pressing the cursor left or right keys.
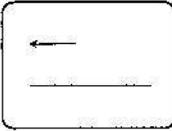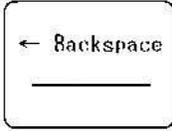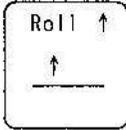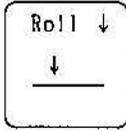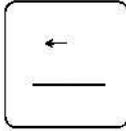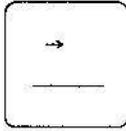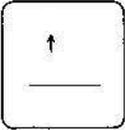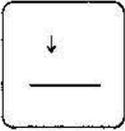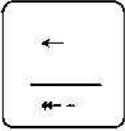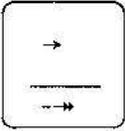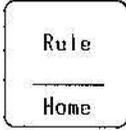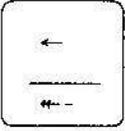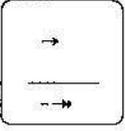
122-key keyboard	Enhanced keyboard	Description
New Line ←	Field Exit ←	This key moves the cursor to the first input position on the next line. This key is a repeat-action key.
Field Advance →|	Tab ←→|	This key moves the cursor from the current position to the first input position of the next input field. This key is a repeat-action key.
Field Exit	Field Exit ←	The Field Exit function causes the cursor to exit an input field, and null characters are inserted from the current location to the end of the field.
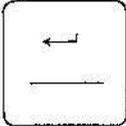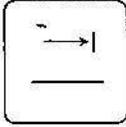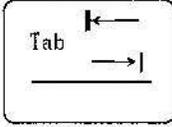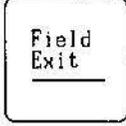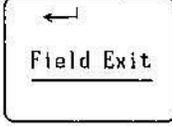
Screen Control keys

122-key keyboard	Enhanced keyboard	Description
Clear	Pause Clear	Press the Clear key. This blanks the current screen except for the cursor, the separator line, and the operating status line.
Delete Character Delete	Delete	Pressing the Delete Character key deletes data from an input field. This key is a repeat-action key.
Duplicate Dup	Dup Insert	Press the Dup key. In a field programmed to allow duplication, the symbol * is placed at the cursor position. This causes the program to duplicate the data in the same field as in the previous record.
Erase Input ErInp	ErInp	Press the ErInp key. This erases the contents of all input fields on the screen and moves the cursor to the beginning of the first input field.
Insert Mode Insert	Dup Insert	This key places the keyboard in insert mode. The Insert symbol ^ appears in the operating status line. When a new character is inserted at the cursor location, characters at and to the right of the cursor will shift one position to the right.
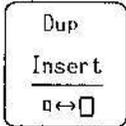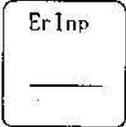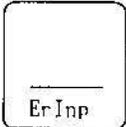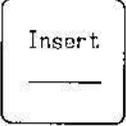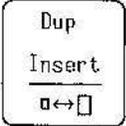
122-key keyboard	Enhanced keyboard	Description
Page	PgUp / Jump PgDn / Rule	The page up and page down functions are used to move data up or down on the display screen. Pressing the PgUp key replaces the current data on the screen with the previous page. Pressing the PgDn key replaces the current data on the screen with the next page.
Roll Roll ↑ / ↑ Roll ↓ / ↓		Use the Roll function to move data on the display screen up or down. Pressing the Roll up key causes the next page to replace the current data. Pressing the Roll down key causes the previous page to replace the current data.

Local Function keys

122-key keyboard	Enhanced keyboard	Description
Hex Help / Hex	F19 / F7 / Hex	Use the Hex function to enter the hexadecimal value for a character. The function must be repeated for each hexadecimal value entered. Note: For valid hexadecimal characters, use 4-9 and A-F for the first character and 0-9, and A-F for the second character. Do not use "FF".
Pause Recrd / Pause	Pause / Clear	Press the Pause key. This stops the playback operation to insert additional data. See " 4.3 Record/Play Mode ".
Play Play / Test	F17 / F5 / Play	Press the Play key. To play back recorded data assigned to the Function keys. See " 4.3 Record/Play Mode ".
Record Recrd / Pause	F16 / F4 / Recrd	Press the Recrd key. This records data sequences to be assigned to the Function keys. See " 4.3 Record/Play Mode ".

122-key keyboard	Enhanced keyboard	Description
Print Print	Print —— SysRq	Press this key to send a request to the host to print the displayed screen. When the Print key is set to Local (see page 3-5), the screen is outlined with outline functions shown on the bottom line (see 3-7). Press Enter to print the outlined section of the screen on your local printer.
Quit Reset —— Quit	Reset —— Quit	In Printer Setup mode, press Quit key. This stops the printing operation and cancels the printing of the remainder of the file. This key is also used to end a recording and playback sequence.
Rule Rule —— Home	PgDn —— Rule ·	Press the Rule key, makes the rule line (a cross, horizontal, or vertical straight line) appear or disappear on the screen. The rule line style can be chosen in online setup mode.
Setup SetUp	SetUp —— Attn	When you press the SetUp key while in communication mode, the display station enters Setup mode. This key is also used for entering printer setup mode, and browsing display information and printer information from online setup mode. When you press the SetUp key again, the display station returns to communication mode.
Zoom ◄— —— □↔□	Dup Insert —— □↔□	The Zoom function allows you to change the screen format from the split screen to the non-split screen (full screen) or from the non-split screen to the split screen in multi-display terminal mode.
Jump Jump	· PgUp —— Jump	The Jump function allows you to change the active screens. You can mow from one split screen to the other (when the screen format is split) in multi-display terminal mode.
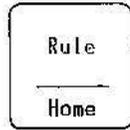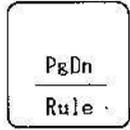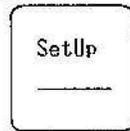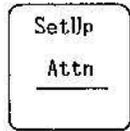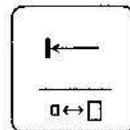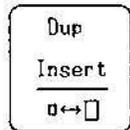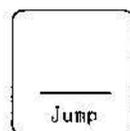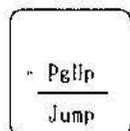
Host Function keys

122-key keyboard	Enhanced keyboard	Description
Attention SysRq —— Attn	Setup —— Attn	This key is used to temporarily stop the present display station activity and select a new activity.
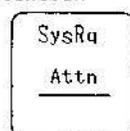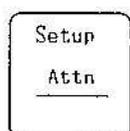
122-key keyboard	Enhanced keyboard	Description
Enter Enter	Enter	When the System Available symbol ▮ appears on the operating status line, press the Enter key. This transmits data you have keyed in on the screen to the application program. This key does not change the keyboard shift status, but it does cancel insert mode.
Field - Field -	Field -	The Field - function can vary depending on the system. On most systems, the Field - function operates the same as the Field + and Field Exit functions, except that it is allowed only in signed-numeric and numeric-only fields.
Field + Field +	Field +	The Field + function causes the cursor to exit an input field, and null characters are inserted from the current cursor location to the end of the field.
Help Help Hex	Help Test	The Help function provides (1) an explanation of current error conditions or (2) help from the system. The system must be programmed to support the Help function.
System Request SysRq Attn	Print SysRq	This function can vary depending on the host system. To use this function, press the SysRq key, then press the Enter key. To cancel this function, press the Reset key, then press the Enter key.
Reset Reset Quit	Reset Quit	The Reset key: • Causes the display station to leave insert mode and removes the symbol ^ . • Ends the help and system request functions. • Cancels a hex key. • Clears operator errors. • Cancels a diacritical-mark key and character key input, leaving a stand-alone accent at the cursor position.
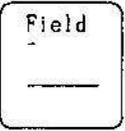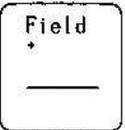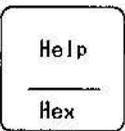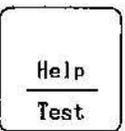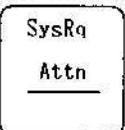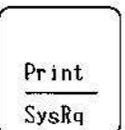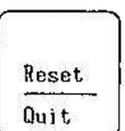
Appendix B. Error Codes

The error codes, their meanings, and the recovery procedures are described as follows:

0000 **No Help Text Available**
You pressed the Help key. Either no error code was displayed, or the error was issued by a program that does not support the Help key.
Action: Press the Reset key.
Continue entering information, or refer to the meaning of the previously displayed error code and take the action described.

0001 **Keying too Fast**
The host or controller could not keep up with the rate at which you were pressing keys, and the last keys pressed were not recognized.
Action: Press the Reset key.
Continue entering information.

0002 **Received Invalid Code**
The host or controller received an invalid key code.
Action: Press the Reset key.
Try to continue entering data.

0003 **Key Not Valid Key**
You pressed an invalid key after pressing and holding the Alt key.
Action: Press the Reset key.

0004 **Protected Field**
You attempted to enter data into a field that does not allow keyboard input.
Action: Press the Reset key.

0005 **Protected Field**
You attempted to enter data when the cursor was not an input field. Data cannot be entered in a protected area of the display.
Action: Press the Reset key.
Move the cursor to a valid input field.

0006 **Invalid Entry**
After pressing the SysRq/Attn key, and before pressing the Enter key or the Reset key, you pressed an invalid key.
Action: Press the Reset key.

0007 **Must Enter Field**
There is at least one mandatory enter field on the screen that you must enter data into before the screen can be changed or moved. (The cursor goes to the first character position of the first mandatory entry field requiring data.)
Action: Press the Reset key.
Enter the required data.

0008 **Alphabetic Only Field**
You tried to enter non-alphabetic data into an alphabetic field. Valid characters are A through Z, blank, comma, period, and hyphen.
Action: Press the Reset key.

0009 Numeric Only Field
You tried to enter non-numeric data into a numeric only field. Valid characters are 0 through 9, blank, comma, period, and minus.
Action: Press the Reset key.

0010 Signed Numeric Only Field
You tried to enter data into a field that will accept only signed numeric data. Valid characters are 0 through 9.
Action: Press the Reset key.
Continue by using valid characters.

0011 Sign Position Only
You attempted to enter data into the last position of a signed numeric field.
Action: Press the Reset key.
Make sure that the data is correct, and exit the field by using the Field -, Field +, or Field Exit key.

0012 Field Full
Either there is no more room in the field or the cursor is in the last position of the field. Do not use the Insert key to change data or to enter the last character into this field.
Action: Press the Reset key.
Correct the field, if necessary, and continue.

0013 Insert Mode On
You attempted to leave a field after you pressed the Insert key.
Action: Press the Reset key.

0014 Must Fill Field
You pressed a key function that moves the cursor out of this field. However, the requirements of this mandatory-fill field have not been met. (Mandatory-fill fields must be completely or left blank.)
Action: Press the Reset key.
Enter data to fill the entire field, or move the cursor to the start of the field and use the Field -, Field +, or Field Exit key to blank out all of the field.

0015 Does Not Compare
You entered data into a self-check field. The number and the check digit you just entered do not correspond.
Action: Press the Reset key.
Check that you have correctly entered the number and check digit. If you have entered them correctly, check that the number is valid for a self-check field.

0016 Not Signed Numeric Field
You pressed the Field - key, but the field you were in is not a signed numeric field or, for some systems, a numeric-only field.
Action: Press the Reset key.
Continue to enter data or press the Field Exit key to blank out all of the field.

0017 Field Not Full
You have pressed the Field -, Field +, or Field Exit key. However, the requirements for this mandatory-fill field have not been met. A mandatory-fill field must be filled completely or you must exit form the first position of the field.
Action: Press the Reset key.
Enter data to the end of the field, or move the cursor to the start of the field and use the Field -, Field +, or Field Exit key to blank out all of the field.

0018   Non-Data Key Required
You used a data key instead of a non-data key.
Action: Press the Reset key.
Use a non-data key such as the Field Exit key or a cursor movement key, to leave this field.

0019   Dup Key Not Allowed
You pressed the Dup key, which is not permitted in this field.
Action: Press the Reset key.
Continue, but without using the Dup key in this field.

0020   Right-Adjusted or Signed-Numeric Field
You pressed a key that is not allowed in this field.
This is either a right-adjusted or a signed-numeric field. You must exit the field before pressing any of the following: Function (F1-F24) keys, Back-space key, Enter key, Roll keys, Help key, Print key, and the Home key (when the cursor is in the home position).
Action: Press the Reset key.
The cursor is in the same position as when you pressed the invalid key.
Continue by pressing the Field +, Field -, or Field Exit key.

0021   Must Enter Field
The cursor is positioned in a mandatory-enter field. A mandatory-enter field must have data entered in it before you can exit the field by pressing the Field +, Field -, or Field Exit key.
Action: Press the Reset key.
Enter the required data.

0022   System Error
A host error has occurred. The status of the present field is not known. This error can occur during an insert or delete operation.
Action: Press the Reset key.
Check the display to determine if the insert or delete function was done properly. If not done properly, correct the field.

0023   Non-Hexadecimal Key
You pressed the Hex key, but the first key pressed was not an A through F key or a 4 through 9 key; or the second key pressed was not an A through F key or 0 through 9 key. This error also occurs when a hexadecimal code is used in a numeric-only, signed numeric, alpha-only, or feature I/O field.
Action: Press the Reset key.
Continue by using the correct keys.

0024   Non-Numeric Value
You tried to enter a non-numeric value in a numeric-only field.
Action: Press the Reset key and continue.

0026   Not Number Key
You pressed the Field - key to exit a numeric only field, but the last position of the field was not a number 0 through 9.
Action: Press the Reset key.
Correct the last position of the field, or exit the field by using the Field + or Field Exit key.

0027   Key Not Assigned
You pressed a key that is not used by this display station.
Action: Press the Reset key.
Continue by using valid keys.

0029   **Not Diacritic Key**

The second key pressed during a diacritic key function did not produce a valid combination.

Action: Press the Reset key.

Enter a valid combination.

0040   **Data Set Not Ready**

The 'data set ready' line is inactive and it should be active.

Action: Recovery from this error must be made at the Control Unit.

0042   **Receive Clock Failed**

The receive clock signal failed during a receive operation.

Action: Recovery from this error must be made at the Control Unit.

0043   **Data Set Ready**

The 'data set ready' line is active and it should be inactive.

Action: Recovery from this error must be made at the Control Unit.

0044   **Not Receiving Data**

The 30-second communication time-out has expired with no valid data received.

Action: Recovery from this error must be made at the Control Unit.

0050   **Clear and Request to Send Not Together**

Either the 'clear to send' line was inactive while the 'request to send' line was active,
or the 'clear to send' line was active while the 'request to send' line was inactive.

Action: Recovery from this error must be made at the Control Unit.

0051   **Transmit Clock Failed**

The transmit clock signal failed during a transmit operation.

Action: Recovery from this error must be made at the Control Unit.

0052   **Controller Error**

The controller has detected an internal error.

Action: Recovery from this error must be made at the Control Unit.

0054   **Controller Received Invalid Command**

The controller received an invalid command from the host.

Action: Recovery from this error must be made at the Control Unit.

0097   **Unavailable Verification Tests**

An attempt was made to run online verification tests not supported by the host program.

Action: Press the Reset key.

Countine to use the display station without performing the verification tests.

0099   **System Not Available**

An error occurred before, during, or after sign-on.

Action: Press the Reset key.

If the error persists, contact the system coordinator.

Appendix C. CMOS Memory error of Battery failure

The message "CMOS MEMORY ERROR OR BATTERY FAILURE" on the screen means that the CMOS memory which holds the setup parameters has been corrupted for some reason:

* Noise (garbage) was received over the twinax connection.

* A electrical transient was received by the terminal.

* The battery in the unit is bad or failing and cannot hold the CMOS parameters.

To correct this problem go into Off-line setup: power off, power on with space bar depressed. As described in section 2, check/re-enter all parameters. Use F3 to Save and Exit. When all parameters are correct, press F3 to exit to On-line mode. Note: If exit fails to go to On-line, verify under Customize Workstation that the number of display sessions is set correctly (not zero) and try again.

When this message appears during normal operation, noise over the twinax connection or electrical transients is the probable cause. For possible cable problems check for loose connections, cable runs next to radios, heaters, or florescent fixtures. For electrical transients check that the power cable is firmly inserted at both ends. Consider plugging the terminal into a different outlet or moving it to another location. If "brownouts" of "blackouts" have occurred, that could be the cause of the problem.

If this message appears, every time the terminal is powered on and the parameters must be reset, the battery or other electronic circuitry within the Logic Unit may need to be replaced - call technical support.

Appendix D. Using the Calculator -- 5486,5487,5488 only

When you press the F1 key while pressing and holding the Alt key, the 548X enters calculator mode. You can exit calculator mode at any time by pressing the F1 key while pressing and holding the Alt key

In calculator mode, when you press the Help key, the Calculator Help Panel appears on the screen.

Legend:

+	Addition		Decimal
-	Subtraction	( )	Left/Right parentheses
x	Multiplication	M	Reference symbol of number in memory
/	Division	@	Reference symbol of answer
%	Percentage		

Order of Operations :

highest priority --	%	Percentage
	+ -	Prefix (Plus, Minus)
	x /	Multiply, Divide
lowest priority --	+ -	Add, Subtract

Using Import Function

You can also use number on the screen for calculations. Pressing the F8(Imprt) key while you are in calculator mode allows you to enter the import state.
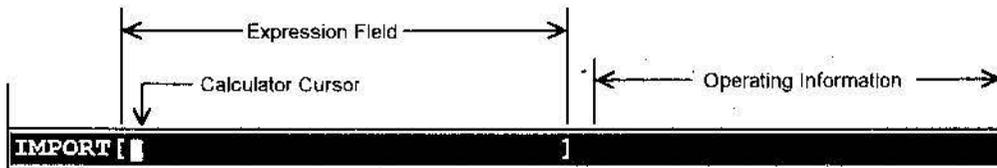
You can exit the import state at any time by pressing the Imprt key. When you press the F1 key while pressing and holding an Alt key, you can exit calculator mode.

Using Export Function

You can copy the answers onto the screen if supported by the host system. Pressing the F9(Exprt) key while you are in calculator mode allows you to enter the Export state.

You can exit the Export state at any time by pressing the Exprt key. When you press the F1 key while pressing and holding an Alt key, you can exit calculator mode.

Calculator Error Code

2000	Divide error: Division by zero
2002	Number overflow error
2004	Expression syntax error
2006	The string cannot be imported.
2008	Expression memory read error
2010	Calculator internal error
2100	Invalid key was pressed while in the calculator mode
2102	Expression field is full

Appendix E.   Configuring the 547x/548x as a Protocol Converter

In addition to being a powerful display station, this 547x/548x base logic unit can also configured as a stand-alone printer protocol converter that controls a PC laser or impact printer for use as a system printer. To use this base logic unit for printer protocol converter functions only, follow the simple instructions below:

1. Before you start setting up this unit, you should know the system address and system printer type of the printer to be configured. These information can be obtained from the person in charge of your AS/400 or S/3X hardware.

2. To be able to setup this base logic unit, you will temporarily need a PC 101 enhanced keyboard that is AT or XT compatible or 122-key keyboard to serve as your input device, and also a PC VGA monitor (Mono or Color) to work as your display.

3. **Make sure all the devices to be connected together are powered off.** Connect your cables, parallel printer, keyboard and video display devices according to the instructions given in page 1 of your user guide.

4. After everything is properly connected, power up the unit while simultaneously holding down the **SPACE BAR**. This brings you to the main offline setup menu.

5. Use the down arrow key to select the **CUSTOMIZE WORKSTATION** option to configure your operation mode. The cursor should be blinking at a number opposite the **NUMBER OF DISPLAY SESSIONS**. Select 0 for this since you are planning to use this only as a printer protocol converter.
   Upon selecting 0 for display sessions, all of the other configuration options regarding display emulation will blank out from your current screen.

6. The cursor should now move to blinking at a number opposite the **NUMBER OF PRINTER SESSIONS**. Select 1 for this option to make the printer session available.

7. Upon selecting 1 for the printer session, the cursor will move down to the lower portion of the screen for you to select the system address and printer emulation for the printer. Use the arrow keys to select the correct address for your printer (any one number from 0 to 6). And then move over to the right to select one from the available printer emulations of 5256, 5224, 4214, 5219 or 3812. Then, press **F3** to save and go back to the main setup menu.

8. At the main menu, use the down arrow key to select **PRINTER CONFIGURATION**. When the next screen comes up, use the arrow keys to select the type of PC printer you are using.

9. On the same **PRINTER CONFIGURATION** screen, you can press **F10** to go into more advanced printer support features such as Hexadecimal Transparency Mode, EBCDIC to ASCII Conversion and Hexadecimal Printer Control Codes. Refer to pages 2-7 to 2-10 of your user guide for more details about these printer support features.

10. Press **F3** to save all your selections and inputs on the **PRINTER CONFIGURATION** and go back to the main setup menu. Then, press **F3** again from the main setup menu to save all your configuration data and exit from the setup mode completely.

11. Test the printer to verify that it goes online and prints correctly as configured. If it is not working correctly, check your hardware connections and configuration values by going over steps 3 to 10 to make sure they are correct.

12. When it is working properly, power off the whole unit. Disconnect the monitor and the keyboard from the base logic unit. Power the unit back on without a keyboard or monitor connected. This unit is now working as a standalone printer protocol converter. The keyboard and the monitor will be needed again if the configuration or setup values are to be modified.

Appendix F. Mouse Operation for Advanced Functions

Prerequisites for this functions are : OS/400 Version 2 Release 3 with WSC #6050, #2661, #9146, #9148 or later, or 5494 Remote Control Unit Release 2.0 or later.

The advanced functions include the following :
* Copy and Paste
* Hotspots
* Reset Operator Error
* Automatic Cursor Positions

If these functions do not work, it might be because the host system does not support them. Contact your system administrator for help.

Copy and Paste

You may use this function to copy and paste characters within the same display session or between two seperate display sessions. You can choose either linear mode or block mode.

◎With linear mode, you can copy and paste the sequential character strings marked by a starting and ending position.

linear mode   To copy sequential character strings, do the following.

1. Press and hold an shift key; then click and hold the primary mouse button. (The starting point of the sequential character string is defined.)

2. Drag the mouse pointer to the desired position while pressing and holding the shift key; then release the button. (The ending point of the sequential character string is defined.)

To paste the character string, press a shift key; then click the secondary mouse button.

◎With block mode, you can copy and paste a rectangular area.

block mode   To copy using the mark a block method, do the following.

1. Press and hold a shift key; then double-click and hold the primary mouse button. (The starting point of the block is defined.)
2. Drag the mouse pointer to the desired position while pressing and holding the shift key; then release the button. (The ending point of the block is defined.)

To paste the block, press a shift key; then click the
secondary mouse button.

In both modes, the same data can be pasted an unlimited number of times until
another copy is performed or the display is turned off.

The starting position of the paste is either the current cursor position or the mouse
pointer position. Selection can be done in the "Offline Setup" panel.

Hotspots

If you want to perform the operation assigned to the menu item on an AS/400
menus (or similarly constructed menus), move the mouse pointer next to
the menu item; then click the primary mouse button.

If you want to perform the operations assigned to F1-F24, and the "+" or
"-" characters, move the mouse pointer on top of them; then click the
primary mouse button.

Reset Operator Error

You may reset an operator error by pointing at the error line and clicking the
primary mouse button.

Automatic Cursor Position

To move the text cursor to the mouse pointer position, click the
primary mouse button at the desired position.