



## **Peripherals Installation**

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# **Chapter 1 Plotter Operating Environment**

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This chapter explains the plotter operating environment and applicable models.

## 1.1 Overview

The CR-5000 plotting environment consists of three elements. They are the "pre-processor" responsible for creating drawings as required by each application, the "post-processor" responsible for converting data formats for each plotter, and the plotter.

The pre-processor mainly reads design data and creates intermediate data in the format which the post-processor receives. The plotting function of System Designer and that of Board Producer are preprocessors.

The post-processor converts data into plotter languages such as HP-GL and PostScript format and then transfers it to the plotter or outputs it to a file.

The plotting environment setup tool creates the "post program," which transfers the data to the plotter or outputs it to a file after converting intermediate data into a plotter language format. The "post program" is created in \$ZLOCALROOT/zsys/bin under the name of post?.sh (.bat) and is started by each application.

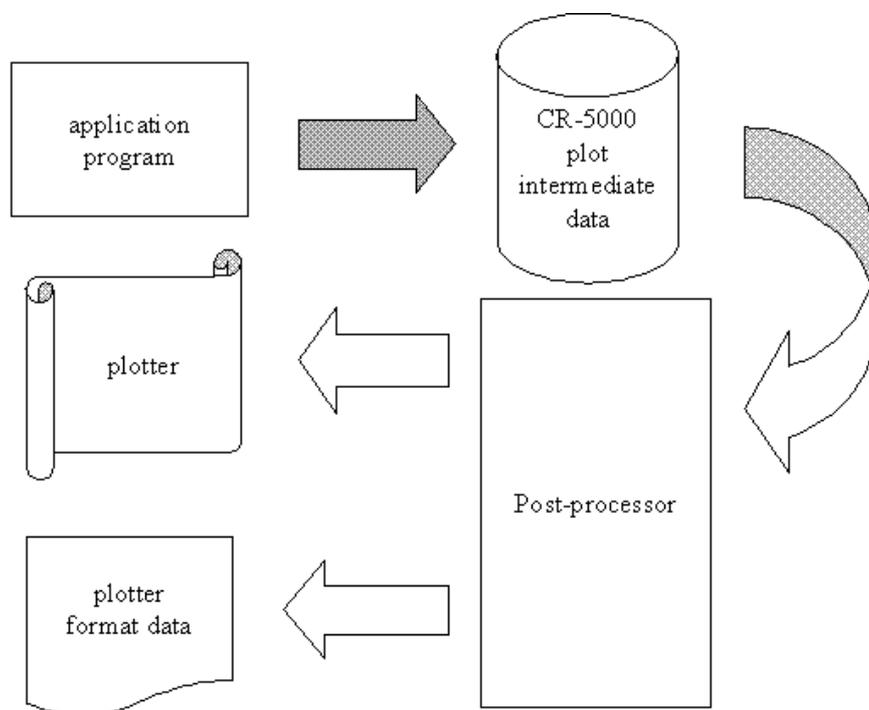


Figure 1.1 Flow of CR-5000 Plotter Operations

### 1.1.1 Connecting Methods Supported

How to connect a plotter is determined by the combination of the interface provided on the plotter and the interface provided on the workstation.

The current CR-5000 interfaces are as follows :

- RS232C, Xon/Xoff control
- Parallel
- Ethernet
- Network server

### 1.1.2 Plotting Network Environment

Plots can be produced not only on a plotter directly connected to the node responsible for drawing but also on a plotter connected via Ethernet (B) or on a plotter connected to a different node (A).

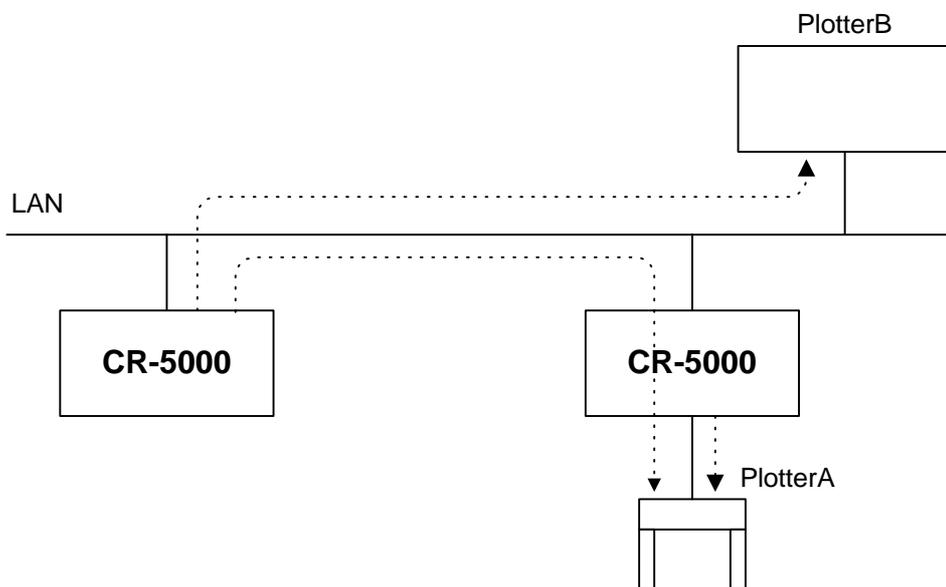


Figure 1.2 Network Environment for Plotter Drawing

### 1.1.3 Plotting Using CR-3000

Plots can also be produced on a plotter model supported by PWS and CR-3000 but not supported by CR-5000. Plots can be produced by sending CR-3000 intermediate format output from CR-5000 via PWS and CR-3000 plotter post.

When the System Designer prints sheets sequentially or the library viewer performs batch printing, intermediate data is output as auto-layout data and the corresponding post program is executed. Some of CR-3000 posts do not support auto-layout data.

The table below lists eleven CR-3000 posts, five of which support auto-layout data.

Table 1.1 Auto-layout Data Compatibility

	Post type	Supports/does not support
(1)	post_c907	Does not support
(2)	post_c925	Does not support
(3)	post_cep	Supports
(4)	post_clbp	Does not support
(5)	post_dadv	Supports
(6)	post_dpen	Does not support
(7)	post_drst	Supports
(8)	post_hpgl	Does not support
(9)	post_hpgl2	Supports
(10)	post_ps	Does not support
(11)	post_vcgl	Supports

## 1.2 Models Supported

Models supported by CR-5000 and their connecting methods are explained below.

### 1.2.1 Electrostatic Plotters

Table 1.2 List of Compatible Electrostatic Plotters

Manufacturer	Model	Connecting Method	Format
Oce (ex-Calcomp)	68436 (58436) 67436 (57436)	LAN(network server used)	HCBS
	X2020i	LAN(transfer program "nsplot" used)	HCBS
Seiko	4020 2050 2150	LAN(transfer program "dscanf" used)	DSCAN

\*A(model name) indicates a quasi-supported model whose specifications are recognized to be compatible.

### 1.2.2 Pen Plotters

Table 1.3 List of Compatible Pen Plotters

Manufacturer	Model	Connecting Method	Format
HP	7595C 7596C	RS232C(XonXoff) Network server	HP-GL

### 1.2.3 Inkjet Plotters

Table 1.4 List of Compatible Inkjet Plotters

Manufacturer	Model	Connecting Method	Format
HP	C2858B C2859B C3195A  C3196A C4708A C4709A	Parallel RS232C LAN(Spool registration using HP program needed) Network server	HP-GL/2

### 1.2.4 Printers

Table 1.5 List of Compatible Printers

Manufacturer	Model	Connecting Method	Format
CANON	LBP series	Parallel RS232C Network server (Spool registration needed in advance.)	LIPS II

## 1.2.5 Outputting Data to the Windows Printer

The Windows-standard GDI (Graphics Device Interface) is used for output.

Some printers and drivers may not output data correctly.

We have confirmed normal output with the printers in the table below.

Table 1.6 Confirmed Printers

Manufacturer	Model	Remark
EPSON	LP-8400	
	MJ-9100	
CANON	LBP-310	
	LBP-430	
	LBP-406	
SII	IP-4000	Using DSCAN C2 driver
	LP-2160	Using DSCAN C2 driver
HP	DesignJet 1050C	
RICOH	NX-500	



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## **Chapter 2   Setting Up the Plotting Environment**

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This chapter explains how to set up the plotting environment.

To set the plotting environment, use the plotting environment setup tool.

Although there are UNIX-version and Windows-version plotting environment setup tools, in this chapter Windows-version screenshots are used except for menus dedicated to the UNIX-version.

## 2.1 Before Starting the Plotting Environment SetupTool

Before you start the plotting environment setup tool, set the following :

- Set plotter parameters.
- Connecting RS-232-C or Parallel :
  - Confirm the device file.
- Connecting LAN :
  - Register the plotter IP address and the host name with "/etc/hosts".
  - Register the service name and the port number with "/etc/services".
- Using the CR-3000 post :
  - Set up the CR-3000 post to be used
  - Register the same user.  
Register a CR-5000 user name also on a machine installed with PWS and CR-3000 in the environment allowing the user to execute CR-3000.
  - Setting the hosts.equiv file  
Add the machine installed with CR-5000 to "/etc/ho-sts.equiv" for CR-3000.
  - Set up environment variables.  
Set \$CRHOME and \$CRLOCAL to the shell starting the tool.
- Register the spool.  
Register the spool in advance, if necessary.
- Confirm environment variables.  
If environment variables have not been set, load "/usr/zuken/etc/sys.cshrc" or "/usr/zuken/etc/sys.profile."

Example:C shell

```
source /usr/zuken/etc/sys.cshrc
```

Example:B shell

```
./usr/zuken/etc/sys.profile
```

The settings differ depending on plotters. For details, see "Chapter 4 Setting Up Connections and Equipment."

## 2.2 Starting and Ending the Tool

### 2.2.1 Starting the Tool

Starting the plotting environment setup tool for UNIX- and Windows-versions is different.

- Starting the UNIX-version
  - Start the tool from the UNIX command line.
  - (1) Start the X window.
    - The tool cannot be started from a non-window environment.
  - (2) Become superuser.
    - Only superuser can use the plotting environment setup tool.

---

**Tips:** However, general users are only allowed to execute [Sample Plot] and [Test Plot].

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- (3) Start the plotting environment setup tool.
  - Enter the following from the UNIX command line.

**\$ZLOCALROOT/zsys/bin/pltcnf.sh** [Return]

- Starting the Windows-version
  - Click [Programs] - [CR-5000 PCB Layout System] - [Utilities] - [Plotter setup] from the start button.

This starts the plotting environment setup tool shown below.



Figure 2.1 Plotting Environment Setup Tool

- Create configuration.  
To add a new setting, select this and click [Next >>]. The process proceeds to "Inputting a Label Name" (2.3.1).
- Modify configuration.  
To change the existing environment, select this and click [Next >>]. The process proceeds to [Select configuration]. (For details, see "2.6 Changing the Plotting Environment.")

## 2.2.2 Ending the Tool

To end the plotting environment setup tool, click [File] - [Quit] on the menu bar.

## 2.2.3 Plotting Environment Setup Tool Main Dialog Box

The plotting environment setup tool main dialog box is configured as below.

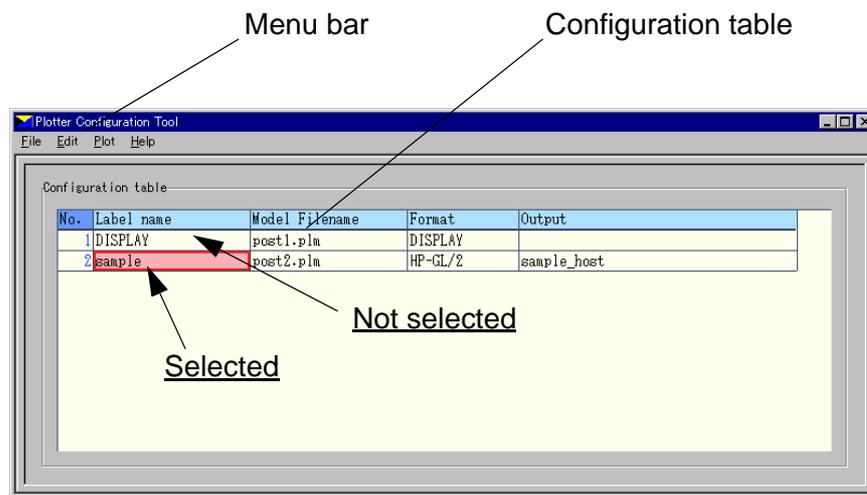


Figure 2.2 Plotting Environment Setup Tool Main Dialog Box

### **Configuration table**

The currently set posts are listed.

The list displays the following four items.

- Label name
- Model filename
- Format
- Output destination

To change or delete a configuration, select [Label name] for the configuration from the configuration table list by clicking. (The selected cell is displayed in red.) You can select only one label name a time.

## 2.3 Adding a Plotting Configuration

To add a plotting configuration, click [Edit] - [Add] on the menu bar or click [Next >>] after selecting [Create configuration.] when starting the tool.

This displays the Input label name screen as shown below.

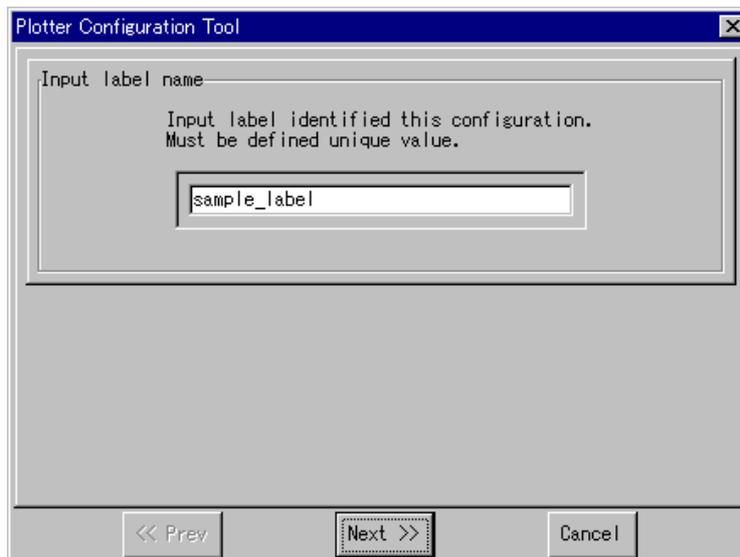


Figure 2.3 Input Label Name Screen

The wizard utility is provided for setting. Follow the directions for the wizard.

### 2.3.1 Inputting a Label Name

Name the plotting environment to be set to identify it.

Specifying : Enter an arbitrary character string.

Specification range: Although input character strings are not checked, do not use prohibited characters defined as prohibited characters in file names on BD/BP. For prohibited characters, see Appendix A in the "EDA Vertical Integration Solution CR-5000 User's Guide," or "Prohibited Characters" in the "Design File Manager" online help. (The prohibited characters in file names on BD/BP apply also when you set plot environment for System Designer.)

Note that you cannot use reserved words:

"X-Window," "CR5000," "CR3000," "HP-GL" and "LIPS."

Omitting : You cannot omit the label name.

Example : In the example below, "sample\_label" is set as the label name.



Figure 2.4 Input Label Name Screen

When [Next >>] is clicked, the process proceeds to "Setting a Model File" (2.3.2).

### 2.3.2 Setting a Model File

Select a model file suitable for the plotter and printer used for plotting. You can change settings for each item using the dialog box displayed by clicking [Set Detail]. (For details, see "2.5 Detailed Settings for Model File.")

---

**Note:** Select a reference model file before setting details. Selecting a file displays the data in the file. When the color, pen and palette tables are selected, sample file data corresponding to format is displayed. The minimum pen width is 0 and the auto-layout data split setting is OFF by default.

---

Specifying : You cannot directly enter data in the [Reference Model File] text field using the keyboard. Select a file from the file selector after clicking the file select button.

In the initial status, the file selector displays files with the ".plm" extension in "\$ZLOCALROOT/zsys/etc."

Example : In the example below, "HPGL2standardA1.plm" is set as the model file.

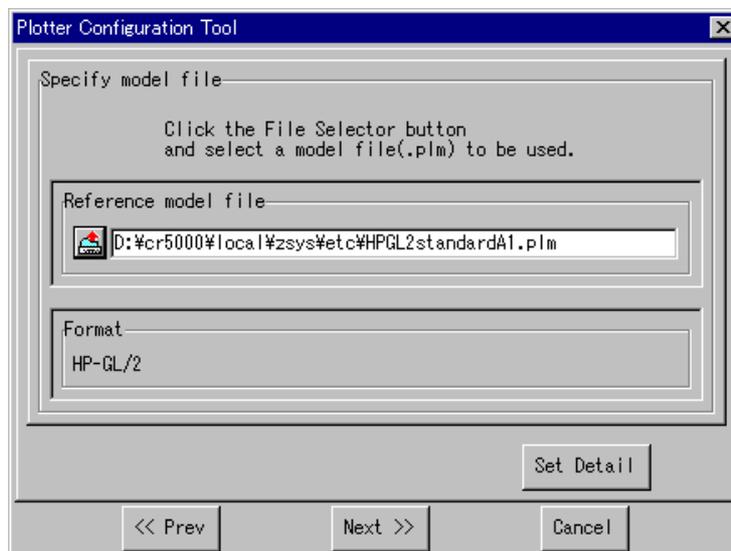


Figure 2.5 Specify Model File Screen

Most model filenames contain their output formats. Correspondence between model files and formats is shown below.

Format		Model filename
HPGL	HP-GL format (HP-GL)	HPGL7595.plm HPGL7596.plm HPGLstandardA0.plm HPGLstandardA1.plm Penstandard.plm XEROX4024_HPGL.plm
HPGL2	HP-GL/2 format (HP-GL/2)	HPGL2C2858.plm HPGL2C2858merge.plm HPGL2C2859.plm HPGL2C2859merge.plm HPGL2mergeA1.plm HPGL2standardA1.plm HPGL2standardA0.plm
CCP	Calcomp electrostatic format (CCP electrostatic)	CCP68424.plm CCP68436.plm CCPstandardA1.plm CCPx2020.plm Elestandard.plm
C907	Calcomp 907 format (907HCBS)	C907standardA1.plm
DSCAN	DSCAN electrostatic format (DSCAN)	DSCAN2050.plm DSCAN2150.plm DSCAN4020.plm
LIPS	CANONLIPS format (LIPS)	LIPSCanonLBP.plm
PostScript	PostScript format (PostScript)	PostScriptA3.plm PostScriptTxtA3.plm
DISPLAY	Display (DISPLAY)	DISPLAY.plm

ZUKEN releases only model files that we formally support. If you use other plotters, select semi-supported or equivalent files.

When [Next >>] is clicked, the process proceeds to "Checking Settings" (2.3.17) if the format is DISPLAY.  
If another format is used, the process proceeds to "Outputting" (2.3.3) on the Windows-version and to "Remote Host" (2.3.4) on the UNIX-version.

### 2.3.3 Outputting

Select an output command. (This setting is only for the Windows-version. If you use the UNIX-version, skip to "2.3.4 Remote Host.")

Specifying : Select one of the two following commands.

- Use 'lpr' command  
The LPR command directly outputs data to a network printer or plotter or to a spooler set on another computer.
- Use 'rsh' command  
The "RSH" command outputs data by executing the system shell script installed into another network computer or the lp command.

Specification range: When the format is "DSCAN," "C907HCBS" or "CCP," [Use 'lpr' command] is shaded and unavailable.

Example : In the example below, [Use 'lpr' command] is selected.



Figure 2.6 Outputting

When [Next >>] is clicked, the process proceeds to "Remote Host" (2.3.4).

### 2.3.4 Remote Host

Specify a host name for the computer where the network printer, plotter or spooler operates. Specify a user's name if a log-in user name is necessary.

**Specifying** : Enter a host name for the computer. Specify a log-in user's name as needed.

**Specification range:** If you are using the UNIX-version plotting environment setup tool on your node, you can omit this setting. If you are using LAN for connection, specify the node that performs spooling. If you are using a network server, specify the node name.

**Example** : In the example below, "sample\_host" and "sample\_pass" are set as host and log-in user's names, respectively.

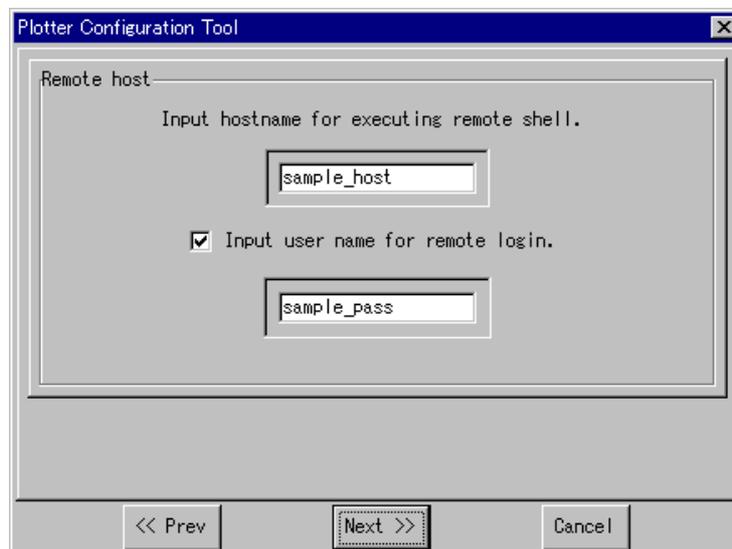


Figure 2.7 Remote Host

When [Next >>] is clicked, the process proceeds to "Spooler Name" (2.3.5) if "output method" [Use 'lpr' command] is selected on the Windows-version; the process proceeds to "Selecting the Output System" (2.3.6) if "output method" [Use 'rsh' command] is selected on the Windows-version; on the UNIX-version, the process proceeds to "Intermediate Data Format" (2.3.7).

## 2.3.5 Spooler Name

Set a spooler name for the network printer, plotter or UNIX host. If the "LP" command options are available, set an option as needed.

- Specifying : Enter a spooler name.  
Enter an "LP" command option as needed. Option examples are as follows:
- For LIPS format: "-othru"
  - When the spooler is set on CR-3000: "-oplot"
  - To suspend printing header information: "-onb"
- Omitting : You cannot omit the spooler name for the Windows-version plotting environment setup tool. On the other hand, you can omit this setting on the UNIX-version if you are not using the spooler. For both, you do not have to set options.
- Example : In the example below, "sample\_spool" and "-othru" are set as spooler name and as option, respectively.

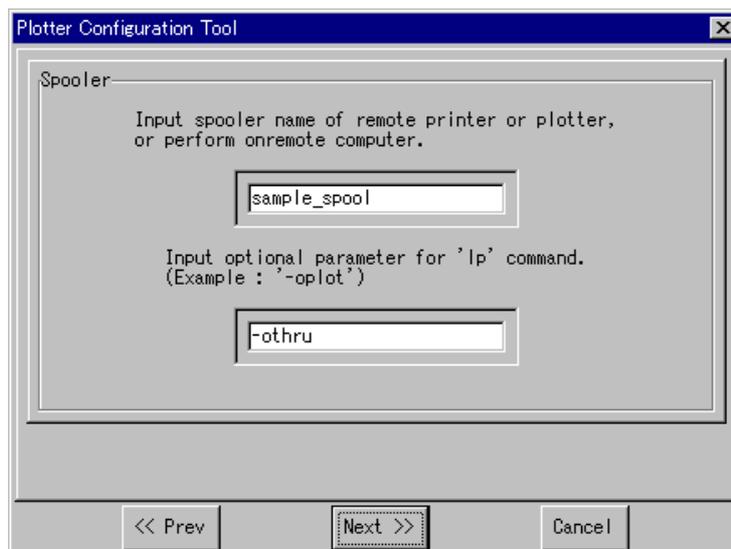


Figure 2.8 Spooler Name

When [Next >>] is clicked,  
On the Windows-version, the process proceeds to "Checking Settings" (2.3.17).  
On the UNIX-version, the process proceeds to "Printer Model Filename" (2.3.8) if you have selected your node for "remote host" (note that the process proceeds to "Remote Printer Name" (2.3.16) if "network server" is selected in "Connecting" (2.3.11).); the process proceeds to "Checking Settings" (2.3.17) if you have selected another node.

### 2.3.6 Selecting the Output System

Select a system set on the UNIX host to perform plotting using the "RSH" command. (This setting should be made when [Use 'rsh' command] in [Output device] is selected on the Windows-version plotting environment setup tool.)

Specifying : Select one of the following three ways.

- (1) CR-5000 System Designer or Board Designer
- (2) PWS or SWS
- (3) To output with the lp command

Example : In the example below, [CR-5000 System Designer or Board Designer] is selected.

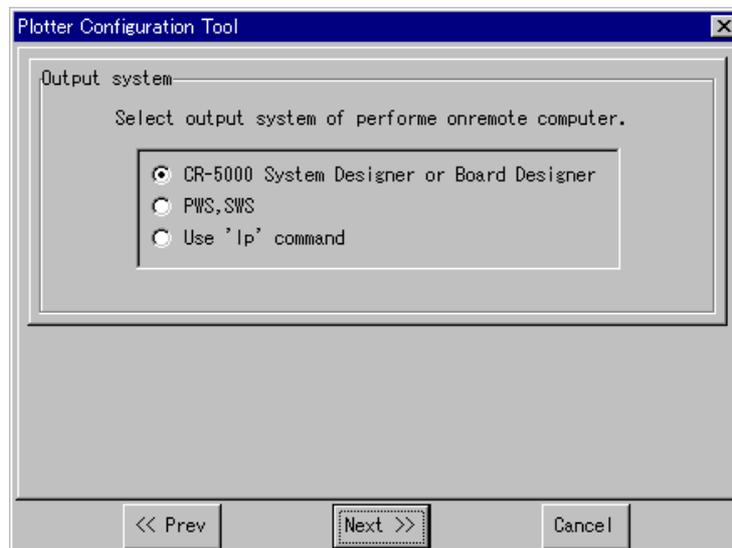


Figure 2.9 Output System Selection

When [Next >>] is clicked,  
the process proceeds to "Selecting a Shell (for CR-5000 post)" (2.3.9) if you  
have selected (1) above;  
the process proceeds to "Selecting a Shell (for PWS or SWS post)" (2.3.10)  
if you have selected (2) above;  
the process proceeds to "Spooler Name" (2.3.5) if you have selected (3)  
above.

## 2.3.7 Intermediate Data Format

Select intermediate data for the output environment.

Specifying : Select [CR3000] to use the CR-3000 post for plotting and [CR5000] in other cases.

Note : Be sure to select [CR3000] when using the CR-3000 post.

Example : In the example below, [CR5000] is selected.

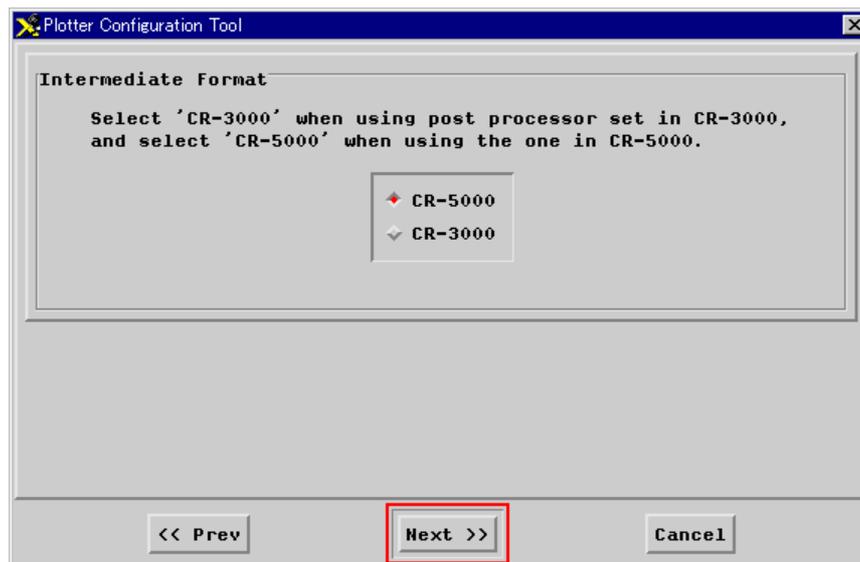


Figure 2.10 Intermediate Data Format

When [Next >>] is clicked,  
 the process proceeds to "Connecting" (2.3.11) if you have selected [CR-5000];  
 the process proceeds to "Selecting a Shell (for PWS or SWS post)" (2.3.10) if you have selected [CR-3000].

### 2.3.8 Printer Model Filename

To register the spooler in your node, specify a printer model filename. (This setting can be made only when the user's node is specified as [Remote host].)

Specifying : To register the spooler to your node, set a printer model file. If spooling is performed on another node, this setting is ignored.

Omitting : When this is omitted, the system presumes that spooler settings have already been made.

Example : In the example below, "PLTMODEL" is set as printer model filename.

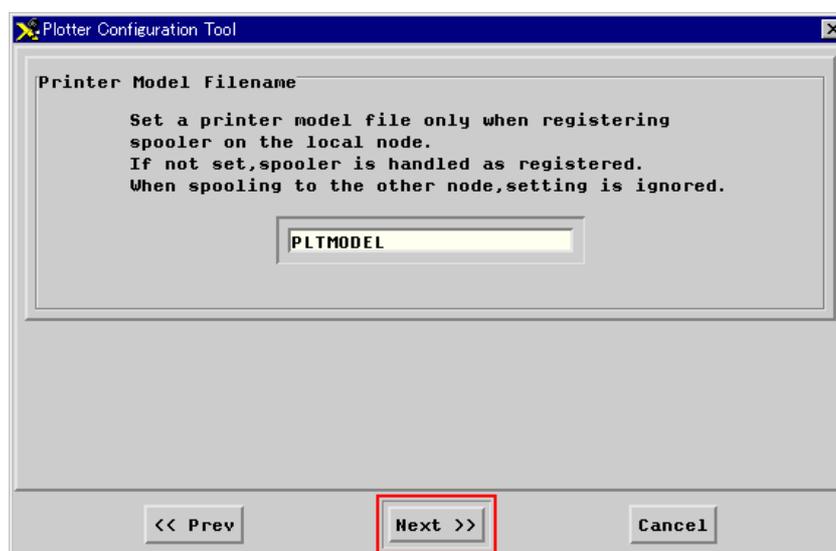


Figure 2.11 Printer Model Filename

When [Next >>] is clicked, the process proceeds to "Checking Settings" (2.3.17).

### 2.3.9 Selecting a Shell (for CR-5000 post)

Enter a shell name to be executed when outputting data with the UNIX host.

Specifying : Enter a shell name executed on the UNIX host. Do not omit it.

Example : In the example below, post "post1.sh" set on the CR-5000 is specified.

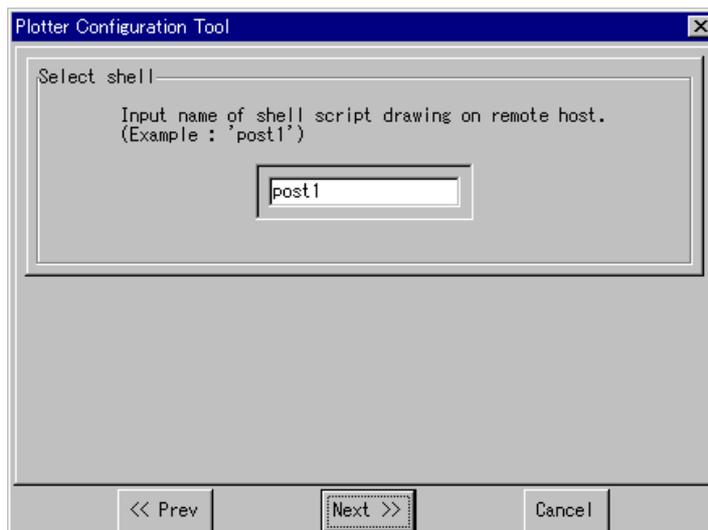


Figure 2.12 Shell Selection (for CR-5000 post)

When [Next >>] is clicked, the process proceeds to "Checking Settings" (2.3.17).

### 2.3.10 Selecting a Shell (for PWS or SWS post)

Enter a PWS or SWS shell name to be executed for outputting data with the UNIX host.

Specifying : Select one of the five following PWS shells or one of the three following SWS shells. You cannot select SWS shells on the Windows-version.

Specification range: PWS shell

- post1
- post2
- post3
- post4
- post5

SWS shell

- plot1
- plot2
- plot3

Example : In the example below, [PWS- post1] is selected.

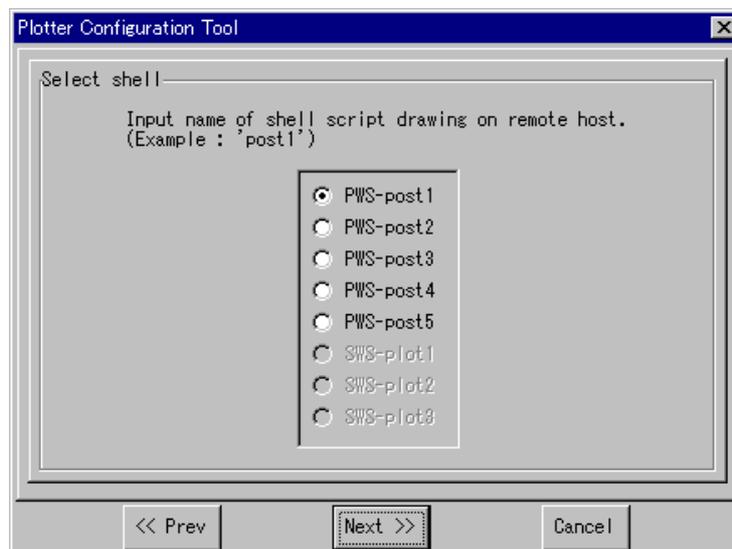


Figure 2.13 Shell Selection (for PWS or SWS post)

When [Next >>] is clicked on the Windows-version, the process proceeds to "Checking Settings" (2.3.17).  
 When [Next >>] is clicked on the UNIX-version, the process proceeds to "Checking Environment Variables" (2.3.12).

## 2.3.11 Connecting

Select how the plotter is to be connected.

Specifying : Select one of the following four connections.

- (1) To connect the plotter to a parallel port
- (2) To connect the plotter to RS232C (XonXoff)
- (3) To use the network server
- (4) To connect the plotter to an Ethernet

Example : In the example below, the plotter is connected to a parallel port

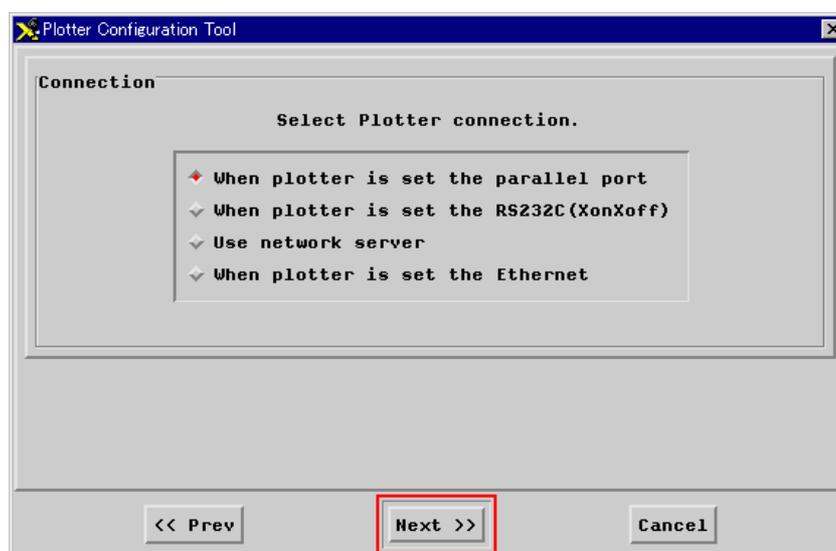


Figure 2.14 Connecting

When [Next >>] is clicked, and the process proceeds to "Device Filename" (2.3.14) if you have selected (1) above;  
the process proceeds to "Baud Rate" (2.3.15) if you have selected (2) above;  
the process proceeds to "Spooler Name" (2.3.5) if you have selected (3) or (4) above.

### 2.3.12 Checking Environment Variables

After selecting [PWS, SWS] for [Output System] on the UNIX-version, check the settings for environment variable "CRLOCAL" with [Environment Variable].

**Specifying** : The field displays the environment variable "CRLOCAL" for the environment where the plotting environment setup tool is started. Enter a new environment variable as needed.

**Note** : This setting changes only the set path, not the environment variable.

**Example** : In the example below, "/cr5000/crlocal" is set as environment variable "CRLOCAL."

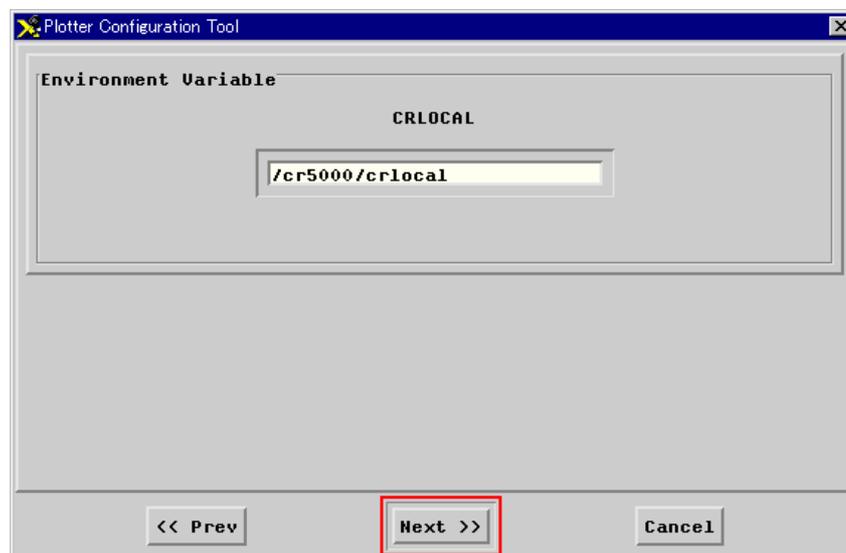


Figure 2.15 Checking Environment Variable

When [Next >>] is clicked, the process proceeds to "Checking Settings" (2.3.17) if you have selected "PWS shell" in "Select Shell (for PWS or SWS post)"; the process proceeds to "Option" (2.3.13) if you have selected "SWS shell."

### 2.3.13 Option

Before using the SWS shell for output, set [Option].

Specifying : Specify an SWS post option.

To skip this setting, click [Next >>].

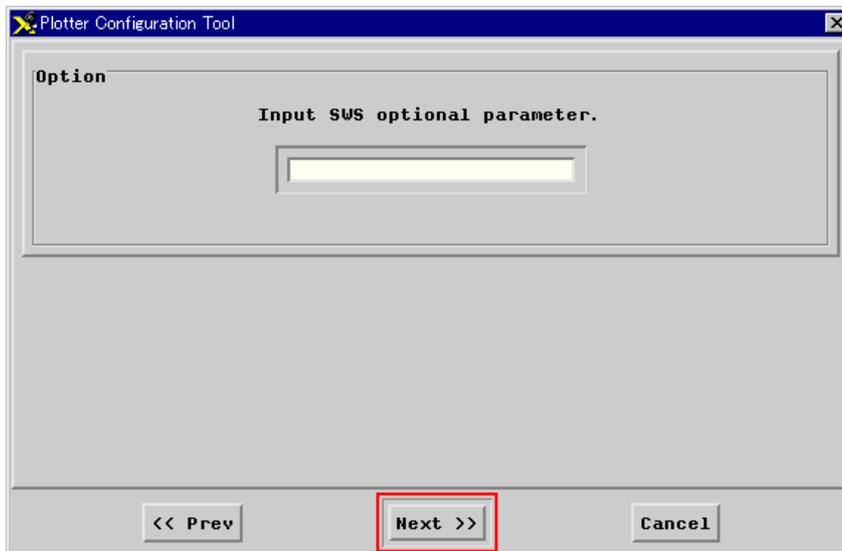


Figure 2.16 Option

When [Next >>] is clicked, the process proceeds to "Checking Settings" (2.3.17).

### 2.3.14 Device Filename

After selecting "Parallel" or "RS232C" in "Connecting," specify a device filename.

Specifying : Enter a device filename. Do not omit it.

Example : In the example below, "/dev/sample\_lp" is set as device filename.

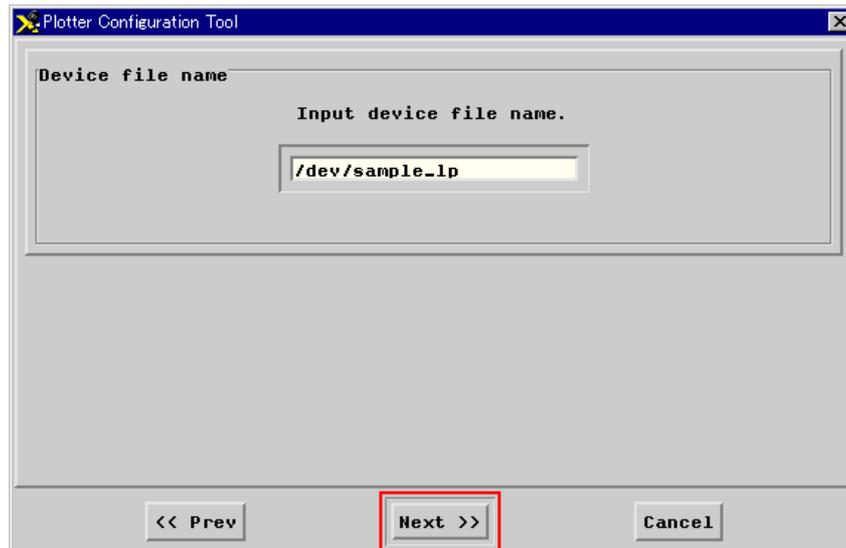


Figure 2.17 Device Filename

When [Next >>] is clicked, the process proceeds to "Spooler Name" (2.3.5).

### 2.3.15 Baud Rate

Specify a baud rate.

Specification range: Select one of the following three baud rates.

- 9600
- 19200
- 38400

Example : In the example below, "9600" is set as the baud rate.

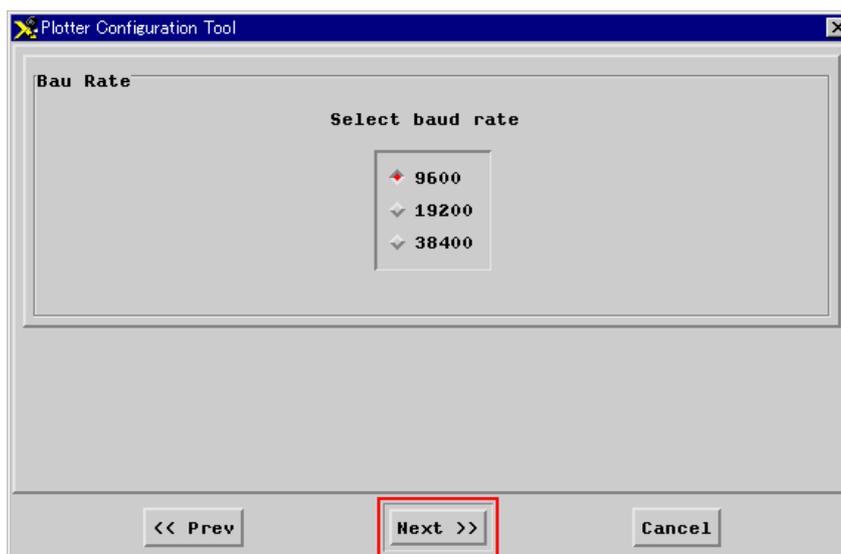


Figure 2.18 Baud Rate

When [Next >>] is clicked, the process proceeds to "Device Filename" (2.3.14).

### 2.3.16 Remote Printer Name

After selecting "Network server" in "Connecting," specify a remote printer name.

Specifying : Enter a remote printer name.

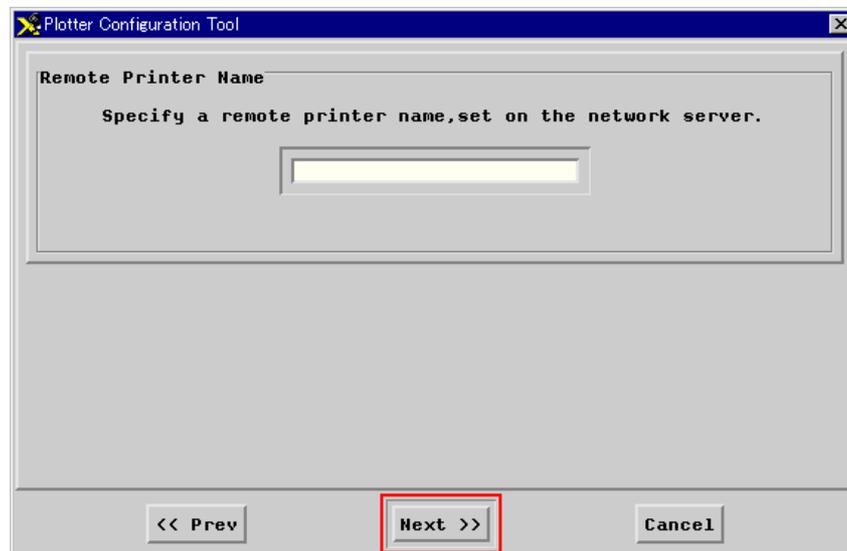


Figure 2.19 Remote Printer Name

When [Next >>] is clicked, the process proceeds to "Checking Settings" (2.3.17).

### 2.3.17 Checking Settings

Check the settings you have made.

Settings for pen, palette and color tables are not displayed. To check these settings, return to the corresponding setup screen by clicking [

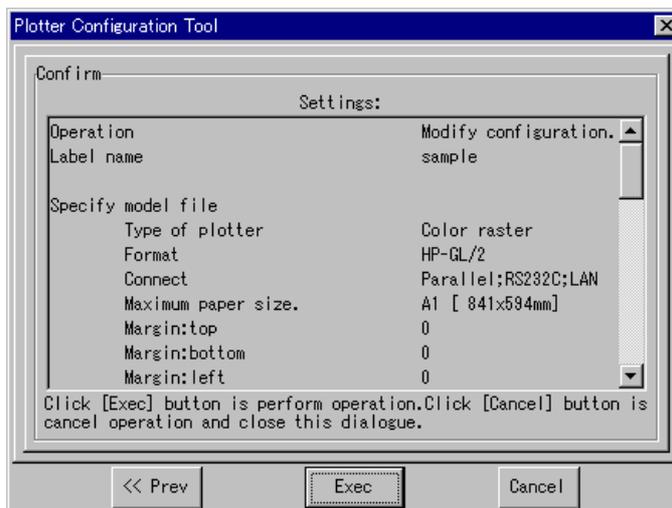


Figure 2.20 Checking Settings

After checking settings, click [Exec] to save these settings.

Clicking [Exec] adds post settings and creates or updates the following files. (The post program is created in \$ZLOCALROOT/zsys/bin and other setup files are created in \$ZLOCALROOT/zsys/etc.)

- Plotting environment setup file "plotEnv.ple"
- Pen table file "postX.plp" (if the format requires)
- Palette table file "postX.plt" (if the format requires)
- Color table file "postX.plc"
- Post program file "postX.bat (for Windows-version), postX.sh (for UNIX-version)"

Pen and palette tables are created for one of three formats. (They may not be created under certain settings.)

- HP-GL/2
- PostScript

- DSCAN

The Windows printer setup files are as follows:

- Pen table file "GDIpen.plp"
- Palette table file "GDIpalette.plt"
- Color table file "GDIcolor.plc"

You cannot change the names of the above files. They are updated every time settings are made. (You do not have to set these files because the initial values are set.)

## 2.4 Setting Examples for Each Type of Connection

Settings for "Connecting" (2.3.11) function differently and may be valid or invalid depending on combinations. The typical eight patterns are listed in the table below.

- (1) When the plotter is directly connected to Ethernet
- (2) When the plotter is connected to Ethernet and the spooler for the user's node is used
- (3) When the plotter is connected to Ethernet and the spooler for another node is used
- (4) When the plotter is connected to RS232C or parallel port on the user's node
- (5) When the plotter is connected to RS232C or parallel port on the user's node and the spooler is used
- (6) When the plotter is connected to RS232C or parallel port on another node
- (7) When the plotter is connected to RS232C or parallel port on another node and the spooler is used
- (8) When the network server is used

Method	Host name	Device file	Option	Spooler	Printer model file
(1)	User's node (Can be omitted)		As needed	Not to be set	Not to be set
(2)	User's node (Can be omitted)		As needed	Required	Required for new settings
(3)	Node where the spooler is registered		Invalid	Required	Not to be set
(4)	User's node (Can be omitted)	Required	Invalid	Not to be set	Not to be set
(5)	User's node (Can be omitted)	Required	Invalid	Required	Required for new settings
(6)	Node with the connected plotter	Required	Invalid	Not to be set	Not to be set
(7)	Node with the connected plotter	Required	Invalid	Required	Not to be set
(8)	Network server node			Required	Network server remote printer name

**Note: If another node is set, you cannot set a printer model file.**

## 2.5 Detailed Settings for Model File

You can make detailed settings such as model file data and color by clicking [Set Detail] in "2.3.2 Setting a Model File."

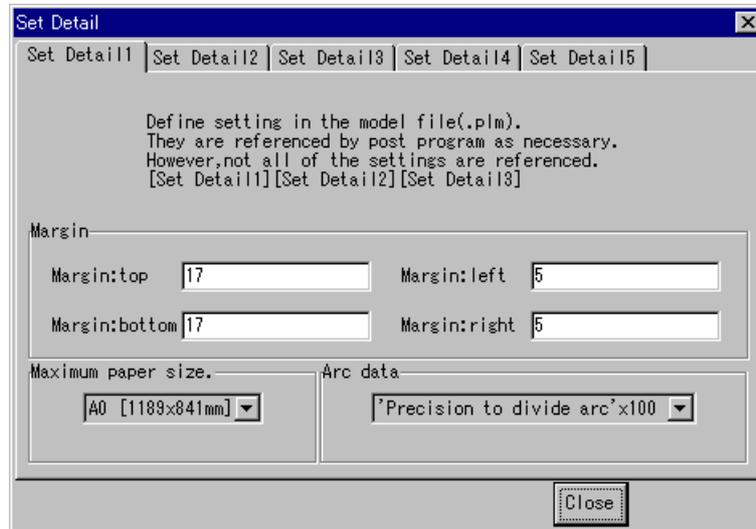


Figure 2.21 Example of Detailed Settings for Model File (when [Set Detail 1] is selected)

The table below lists settable items in the [Set Detail] dialog box.

Tag	Settable items
Set Detail 1	Margin, maximum paper size and arc data permission
Set Detail 2	Plotting origin position, auto-cut function permission, overwriting permission, auto-layout function permission, arc-in-polygon permission, rectangle data permission, the maximum number of polygon vertexes and 180° rotation settings for output
Set Detail 3	Font plotting and the maximum number of pens and palettes
Set Detail 4	Color, pen and palette tables
Set Detail 5	The minimum pen width and auto-layout data split setting

You do not have to make these detailed settings. Set them as needed. All settings specified in this dialog box may not be referred to. The pen and palette

tables can not be created under certain settings.

The table below lists the items that post programs for each format refer to.

Format	Reference item
DISPLAY	None
HP-GL	Margin, arc data permission and plotting origin position
HP-GL/2	Arc data permission and overlap function permission
PostScript	Margin, arc data permission and font plotting
LIPS	Arc data permission and overlap function permission
DSCAN	Arc data permission and plotter type (cannot be set)
907HCBS	Maximum paper size, the maximum number of pens and plotter type (cannot be set)
CCP electrostatic	Arc data permission, auto-cut function permission and the maximum number of palettes

The "minimum pen width" and "auto-layout data split setting" are saved to the plotting environment setup file "plotEnv.ple" and are referred to by all formats, except DISPLAY, as needed.

## 2.5.1 Detailed Settings 1

This section explains settable items in [Set Detail 1].

### **Margin**

Set invalid plot areas (four areas: top, bottom, left and right) in positive integers.  
The unit is in millimeters.

### **Maximum paper size**

Select one of the five types.

- A0 [1189 × 841mm]
- A1 [841 × 594mm]
- A2 [594 × 420mm]
- A3 [420 × 297mm]
- A4 [297 × 210mm]

### **Arc data**

If arc data can be received, select [Receive Arc data OK]. Otherwise, select one of the following five splitting accuracies for arcs.

(The program internal accuracy is multiplied by "???.")

- Precision to divide arc × 100
- Precision to divide arc × 10
- Precision to divide arc × 1
- Precision to divide arc × 0.1
- Precision to divide arc × 0.01

### Example of Detailed Settings 1

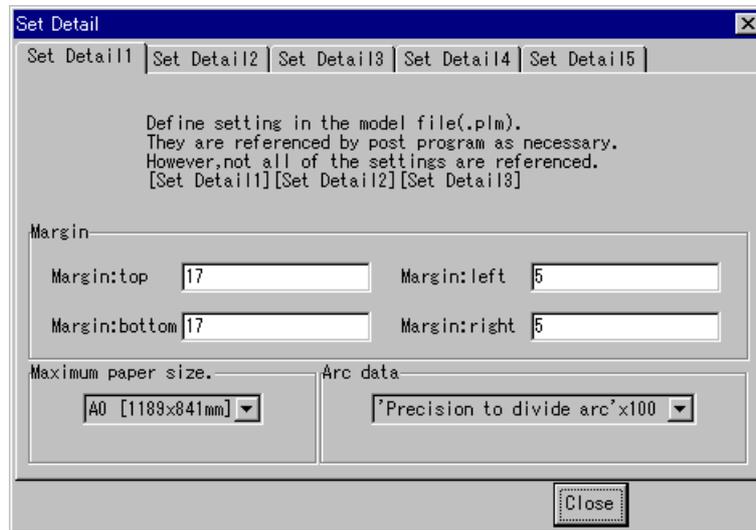


Figure 2.22 Example of Detailed Settings 1

- Margin  
In the above example, the following invalid plot areas are set.  
Top: 17mm, bottom: 17mm, left: 5mm, right: 5mm
- Maximum paper size  
In the above example, [A0 [1189 × 841mm]] is selected.
- Arc data  
In the above example, [Precision to divide arc × 100] is selected.  
(i.e. Arc data cannot be received and a low splitting accuracy of 100 is selected.)

## 2.5.2 Detailed Settings 2

This section explains settable items in [Set Detail 2].

### **Drawing origin position**

To set the plotter origin to the center, select [Center]. To set the it to the lower left, select [Low Left]. To set it to the upper left, select [Up Left].

### **Auto-cut**

If the plotter has the auto-cut function, select [OK]. Otherwise, select [NO].

### **Merge**

If the plotter has the overlap function, select [OK]. Otherwise, select [NO].

---

**Note:** Overlapping colors in HP-GL/2 data are merged if [OK] is selected. If [NO] is selected, data is overwritten without merging.

---

### **Auto-layout function**

If the plotter has the auto-layout function, select [OK]. Otherwise, select [NO].

### **Include Arc in Polygon**

If an arc can be written in filled area, select [OK]. Otherwise, select [NO].

### **Rectangle data**

If rectangle data can be received, select [OK]. Otherwise, select [NO].

### **Maximum points of polygon**

Set a positive integer for the maximum number of polygon vertexes that can be output.

### **Rotate 180 degrees for output**

To set outputting data after rotating it 180° (or reversing it) in the initial value, select [ON]. Otherwise, select [OFF].

## Example of Detailed Settings 2



Figure 2.23 Example of Detailed Settings 2

- Drawing origin position  
In the above example, the drawing origin is set to [Low Left].
- Auto-cut  
In the above example, [OK] is selected.  
(The plotter has the auto-cut function.)
- Merge  
In the above example, [OK] is selected.  
(The plotter has the overlap function.)
- Auto-layout function  
In the above example, [OK] is selected.  
(The plotter has the auto-layout function.)
- Include Arc in Polygon  
In the above example, [OK] is selected.  
(Filled areas can contain arcs.)
- Rectangle data  
In the above example, [OK] is selected.  
(Rectangle data can be received.)

- Maximum points of polygon  
In the above example, the maximum number of polygon vertexes that can be output is set to "1024."
- Rotate 180 degrees for output  
In the above example, [OFF] is selected.  
(Data is not rotated 180° (or reversed) before being output.)

## 2.5.3 Detailed Settings 3

This section explains settable items in [Set Detail 3].

### Plot use font

To plot characters using fonts, select [ON]. Otherwise, select [OFF]. If [ON] is selected, you should set one-byte font and two-byte font names.

---

Restriction: Font plotting can be performed only with the PostScript format.

---

### Maximum pen number

Specify an integer from 1 to 1024 for the maximum number of plotter pens.

### Maximum palette number

Specify an integer from 1 to 1024 for the maximum number of plotter palettes.

### Example of Detailed Settings 3

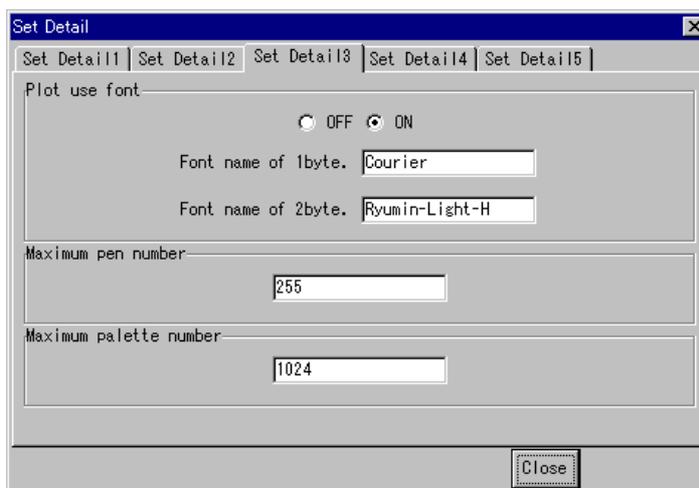


Figure 2.24 Example of Detailed Settings 3

- Plot use font  
In the above example, [ON] is selected. "Courier" is set as the one-byte font name and "Ryumin-Light-H" is set as the two-byte font name.
- Maximum pen number  
In the above example, "255" is set as the maximum number of pens.
- Maximum palette number  
In the above example, "1024" is set as the maximum number of palettes.

## 2.5.4 Detailed Settings 4

With [Set Detail 4], you can determine color settings.

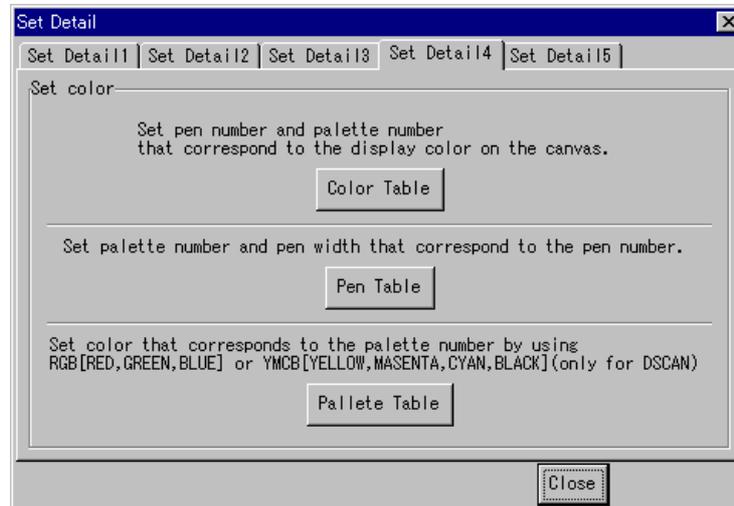


Figure 2.25 Detailed Settings 4

Clicking [Color Table], [Pen Table] or [Palette Table] displays the respective setup dialog box.

### 2.5.4.1 Color Table

Clicking [Color Table] displays the [Set Color Table] dialog box. Set correspondence between colors on the screen and pen and palette numbers in the dialog box.

The Board Designer, Board Producer, library viewer, CDB shape viewer, Document Designer, BD viewer and other applications refer to this setting.

#### **Reference color table file (.plc)**

Select a reference color table file (.plc) with the file selector. You cannot directly enter data in the field using the keyboard.

---

(Example) If you are using the CCP electrostatic, refer to sample "CHCBSsampleCol.plc." If you are using DSCAN, refer to sample "DSCANsampleCol.plc." If you are using HP-GL/2, refer to sample "HPGL2sampleCOL.plc." If you are using LIPS, refer to "LIPSSamleCol.plc." If you are using HP-GL, refer to "HPGLsampleCol.plc." In other cases, refer to "sampleCol.plc." Then change data as needed.

---

#### **Color table**

To change the pen or palette number, directly enter a value after clicking the cell. Set a value that will not exceed the maximum number of pins or palettes for the pen and palette numbers.

**Setting example for the color table**

In the example below, Pen Number 12 and Palette Number 34 are set to the display color "white."

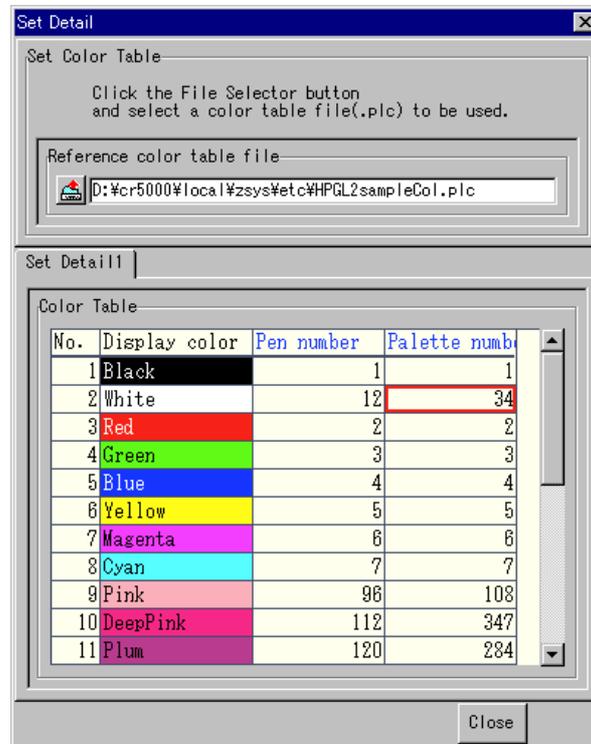


Figure 2.26 Color Table Setting Example

### 2.5.4.2 Pen Table

Clicking [Pen Table] displays the [Set Pen Table] dialog box. Set correspondence between palette number, pen width and pens.

#### **Reference pen table file (.plp)**

Select a reference pen table file (.plp) with the file selector. You cannot directly enter data in the field using the keyboard.

---

(Example) To set Windows printer, HP-GL/2 or PostScript, select sample "HPGL2defaultPen.plp." To set DSCAN, select "DSCANdefaultPen.plp." The Windows printer settings are saved in "GDlpen.plp" and overwritten every time the settings are changed.

---

#### **Pen table**

To change the palette number or pen width, directly enter a value after clicking the cell. Although the pen number can be from 1 to 1024, the setting is not referred to if the number is larger than the maximum number of pens. Specify a positive integer from 1 to 1024 for palette number. Note that the palette number should not exceed the maximum number of palettes. Specify a positive integer larger than 0 for pen width.

---

**Note: Pen Number 0 means a white pen at plotting. Do not change this setting. Set Pen Number 0 to "white" when you create a new table.**

---

**Setting example for the pen table**

In the example below, Palette Number 12 and Pen Width 0.34 are set to Pen Number "1."

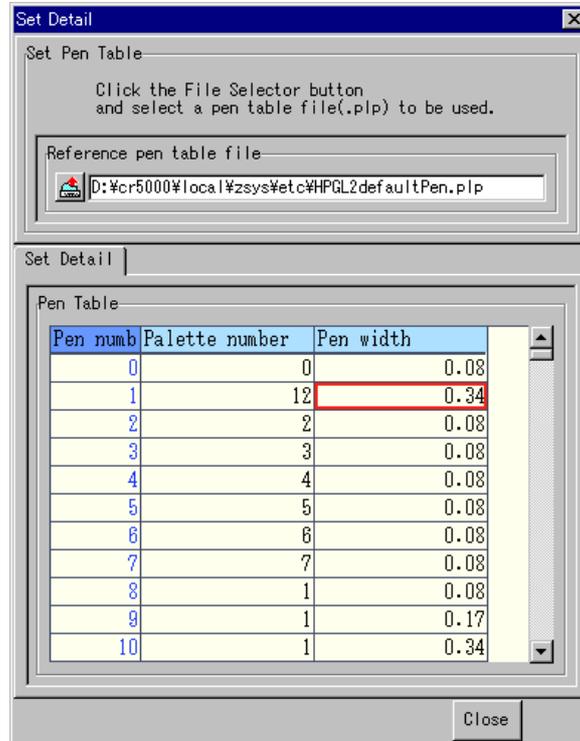


Figure 2.27 Pen Table Setting Example

### 2.5.4.3 Palette Table

Clicking [Palette Table] displays the [Set Palette Table] dialog box. The palette type is YMCB for the DSCAN format and RGB for HP-GL/2, PostScript and Windows printer. Set colors corresponding to palette numbers in this dialog box.

#### **Reference palette table file (.plt)**

Select a reference pen table file (.plt) with the file selector. You cannot directly enter data in the field using the keyboard.

---

(Example) To set Windows printer, HP-GL/2 or PostScript, select sample "HPGL2defaultPal.plt." To set DSCAN, select sample "DSCANdefaultPal.plt." The Windows printer settings are saved in "GDlpalette.plt" and overwritten every time the settings are changed.

---

#### **Palette table**

Although the palette number cannot exceed 1 and 1024, the setting is not referred to if the number is larger than the maximum number of palettes. To change color settings, enter an integer between 0 and 255 after clicking the cell.

---

**Note:** **Palette Number 0 means a white palette for plotting. Do not change this setting. Set Palette Number 0 to "white" when you create a new table.**

---

**Setting example for the palette table**

In the example below, 11, 22 and 33 are set to red, green and blue respectively for Palette Number "3."

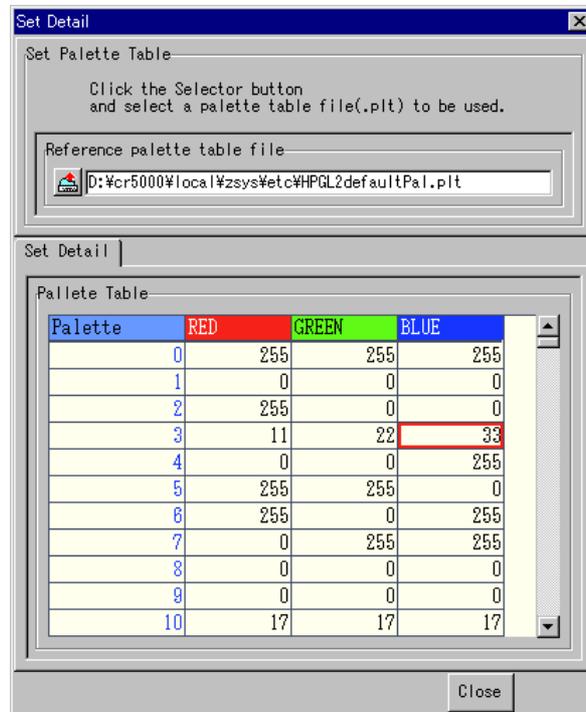


Figure 2.28 Palette Table Setting Example

## 2.5.5 Detailed Settings 5

This section explains settable items in [Set Detail 5].

### **Minimum pen width**

Determine this setting to plot a line narrower than the specified pen width without width.

For lines plotted without width, specify a real number larger than 0 for the minimum pen width (unit: mm). Note that the minimum pen width function does not function if 0 is set.

---

**Note:** If scaling is performed during plotting, line widths are also scaled.

---

### **Auto-layout data split setting**

Specify whether to split auto-layout data on output using the post (On or OFF).

When the System Designer prints sheets sequentially or the library viewer batch prints data, auto-layout internal data is input to the post program. (Multiple pieces of data are put into one unit.)

If this setting is [OFF], one file is output. If this setting is [ON], files for each sheet are output. The output filenames are made up of the specified filename plus a number, in order starting with 2. (A number is not added to the first filename.)

---

Remark: You do not have to pay attention to this setting if you print data directly or with CAD or plotting tool.

---

---

**Note:** To specify a filename when printing sheets sequentially with the System Designer or batch printing with the library viewer, select [OFF] and plot sheet by sheet.

---

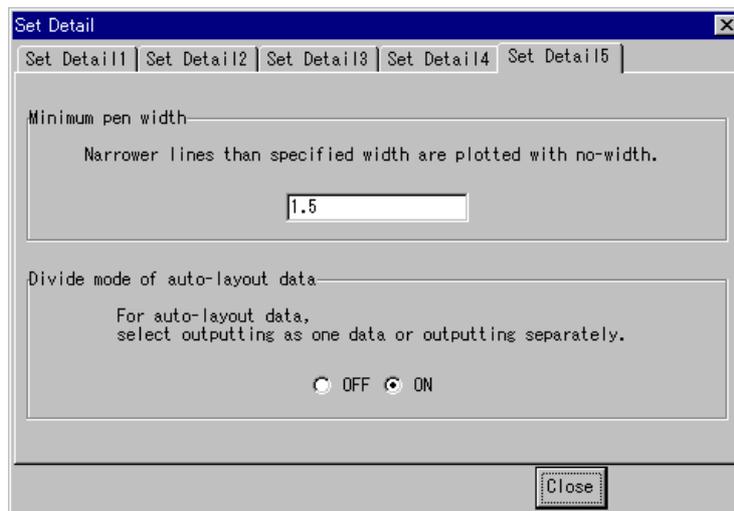
**Example of Detailed Settings 5**

Figure 2.29 Example of Detailed Settings 5

- Minimum pen width  
In the above example, a line narrower than 1.5mm is plotted without width.
- Auto-layout data split setting  
In the above example, [ON] is selected.

## 2.6 Changing the Plotting Environment

You can change the existing plotting environment.

The wizard utility is provided to help you change the environment. Change settings as needed.

There are three ways to change the environment.

- Click [Edit] - [Modify] on the menu bar after selecting a label name to change in [Configuration Table].
- After clicking [Edit] - [Modify] on the menu bar, select a label to change with the [Select configuration] dialog box.

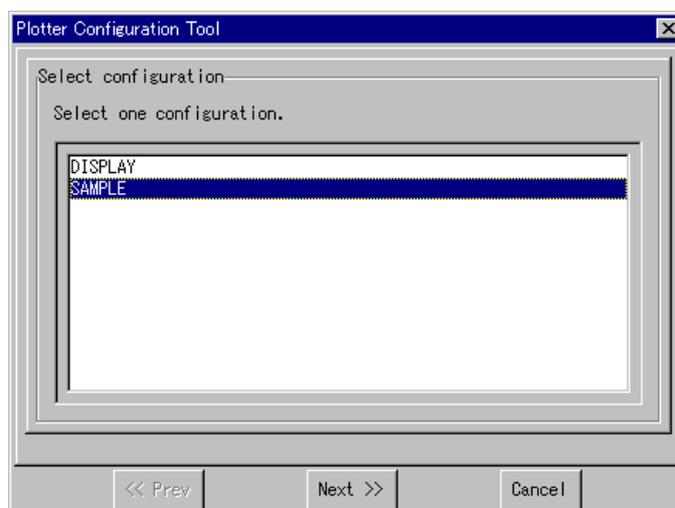


Figure 2.30 Configuration Selection

- Select [Modify configuration] in the [Plotter Configuration] dialog box displayed when the plotting environment setup tool is started. Then click [Next >>] to display the [Select configuration] dialog box shown above.

If one of the previous operations is performed, the [Input label name] dialog box is displayed.

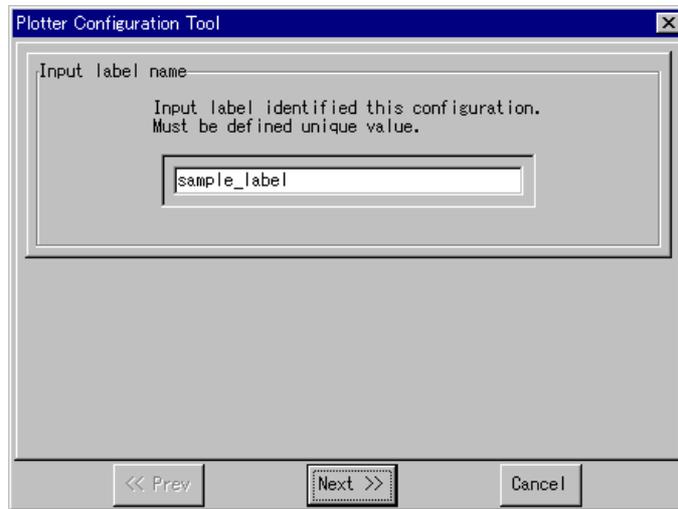


Figure 2.31 Input Label Name Dialog Box

The wizard utility is provided for subsequent settings. Follow the directions for the wizard. For details, see "2.3.1 Inputting a Label Name" and onward.

## 2.7 Deleting the Plotting Configuration

You can delete the existing plotting configuration.

To delete the existing configuration, follow the directions below.

- After selecting a label name to delete in [Configuration Table], click [Edit] - [Delete] on the menu bar.

Note that you cannot delete multiple label names a time.

- 
- Note:**
- If only one plotting configuration is set, you cannot delete it.
  - If you do not have permission from the plotting environment setup file (plotEnv.ple), you cannot delete configurations.
-

## 2.8 Other Settings for the Plotting environment

### 2.8.1 Setting the Windows Printer Environment

- 
- Note:**
- This setting is only for the Windows-version. You do not have to set the Windows printer. Set as needed.
  - The Windows printer settings are for the "gdidrv.exe" program, which is started on plotting. This is not for printer setup on Windows.
- 

To set the Windows printer for plotting, follow the directions below.

- (1) Click [Edit] - [Create configuration of printer set on Windows] on the menu bar. This displays the [Rotate 180 degrees for output] dialog box.
- (2) Specify whether to rotate the data 180° for printing.  
To rotate the normal direction and print direction 180°, select [ON].  
Otherwise, select [OFF].
- (3) You can change individual settings using the dialog box displayed by clicking [Set Detail].

Because these settings are not obligatory, set as needed.

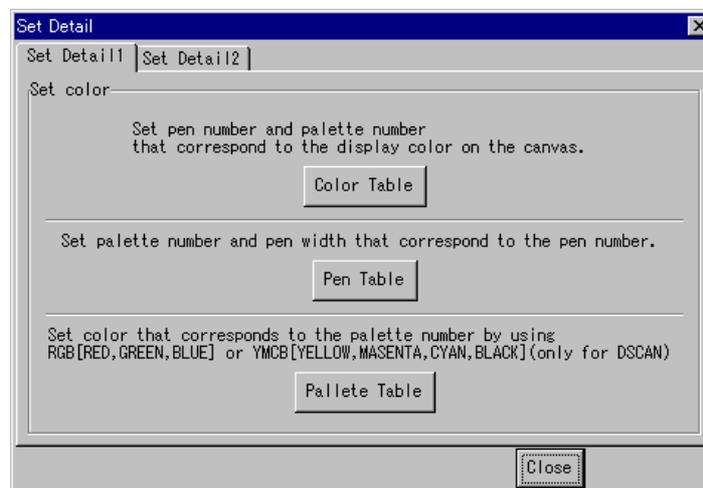


Figure 2.32 Detailed Settings

For details, see 2.5.4 and 2.5.5 in "2.5 Detailed Settings for Model File."

- (4) When [Next >>] is clicked in the [Rotate 180 degrees for output] dialog box, the process proceeds to "Checking Settings" (2.3.17).

## 2.8.2 Setting Dimension Line Plotting

---

**Note:** You do not have to set the "dimension line plotting setting," if you are using only the System Designer.

---

To specify the scaling method for dimension line plotting, follow the directions below.

- (1) Click [Edit] - [Set dimension parameter] on the menu bar. This displays the [Dimension Parameter] dialog box.

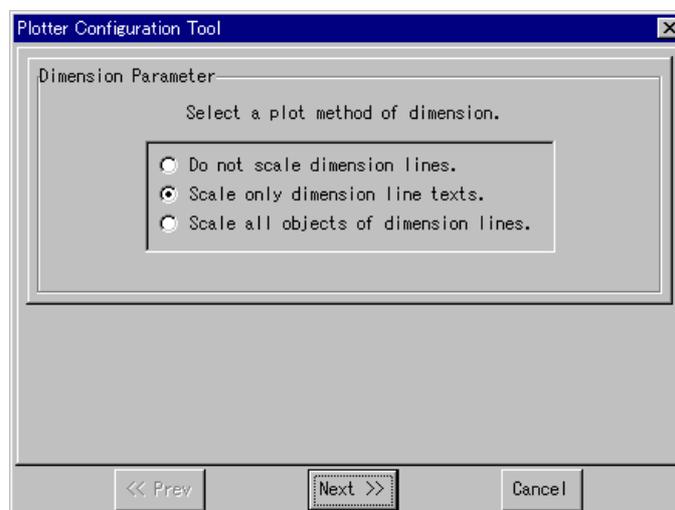


Figure 2.33 Dimension Line Parameter

- (2) Specify a scaling method for dimension lines from among the following three methods.
  - [Do not scale dimension lines.]  
The dimension lines are not scaled.
  - [Scale only dimension line texts.]  
The dimension line texts are scaled.
  - [Scale all objects of dimension lines]  
All dimension lines are scaled.

[Do not scale dimension lines.] is selected by default.

- (3) When [Next >>] is clicked, the process proceeds to "Checking Settings" (2.3.17).

### 2.8.2.1 Notes on Dimension Line Plotting

There are two methods to plot dimension lines.

	Plotting method	Scaling method	Dimension line data	Settings for dimension line parameter environment variable "ZPLOT_DIM_SCALE"		
				Set 0	Set 1	Set 2
(1)	The post starts the xxxdrv.exe plotting file that uses CR-5000 intermediate data	Manual-scaling	Character	×	m	m
			Data	×	×	m
		Auto-scaling	Character	×	m	m
			Data	×	×	m
(2)	"X - Window," "LIPS" and "HPGL" plotting that do not use CR-5000 intermediate data	Manual-scaling	Character	m		
			Data	m		
		Auto-scaling	Character	m		
			Data	m		

m : Scales                      × : Does not scale

For (1), the environment variable "ZPLOT\_DIM\_SCALE" set for dimension line plotting has priority if the variable is set.

For (2), all dimension lines are scaled regardless of the dimension line parameter and environment variable ZPLOT\_DIM\_SCALE settings. Note that the dimension line plotting specifications for Rev.6.0 are different from those for Rev.5.0 and the previous versions.

## 2.9 Test Plotting

The plotting environment setup tool allows you to immediately test the set environment. This function can be performed by general users.

In test plotting, a rectangle is plotted on an appropriate size of paper by referring to the set model file. This rectangle is smaller than the invalid plot area by 5mm on each side.

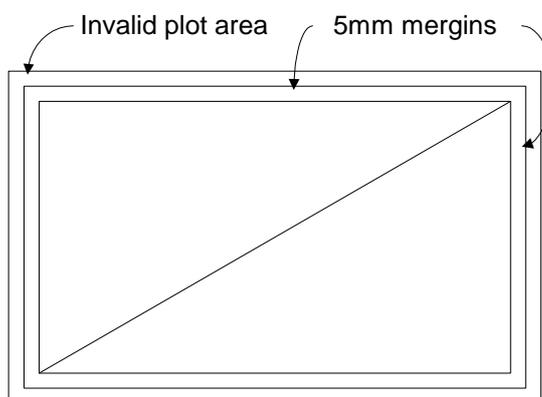


Figure 2.34 Test Plotting

Follow the directions below to perform test plotting.

- (1) Select an environment label name to test from [Configuration Table].
- (2) Click [Plot] - [Test Plot] on the menu bar.
- (3) Click [Exec] in the confirmation dialog box.

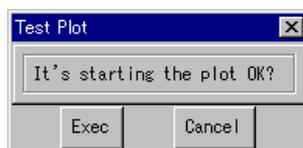


Figure 2.35 Confirmation Dialog Box

## 2.10 Sample Plotting

You can plot pen and plot samples on the specified post. This function can be performed by general users.

- UNIX-version

Pen and palette samples can be plotted on a specified paper-size only with the electrostatic plotter.

- Windows-version

You can plot samples the same way as with the UNIX-version. Six intermediate data files (shown below) for sample output are provided to allow the user to check Windows printer output. Use them as needed.

- \$ZLOCALROOT/zsys/etc/paletteA0.pld
- \$ZLOCALROOT/zsys/etc/paletteA1.pld
- \$ZLOCALROOT/zsys/etc/paletteA2.pld
- \$ZLOCALROOT/zsys/etc/paletteA3.pld
- \$ZLOCALROOT/zsys/etc/paletteA4.pld
- \$ZLOCALROOT/zsys/etc/paletteLIPS.pld

The number of pens and palettes for sample plotting are listed below. (On the Windows-version, 256 data files are initially provided for pens and 1024 for palettes. For the LIPS format, the files are 3 for pens and 68 for palettes.)

Format	Pen	Palette
Calcomp electrostatic	1024	1024
DSCAN	256	1024
HP-GL/2	256	1024
LBP	3	68

For sample plotting, follow the directions below.

- (1) Select an environment label name for sample plotting from [Configuration Table].
- (2) Click [Plot] - [Sample Plot] on the menu bar.

- (3) After selecting a paper size (A0 to A4) in the Paper Size Selection dialog box, click [Exec].

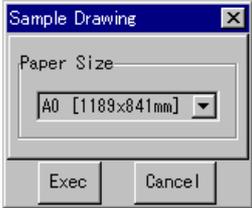
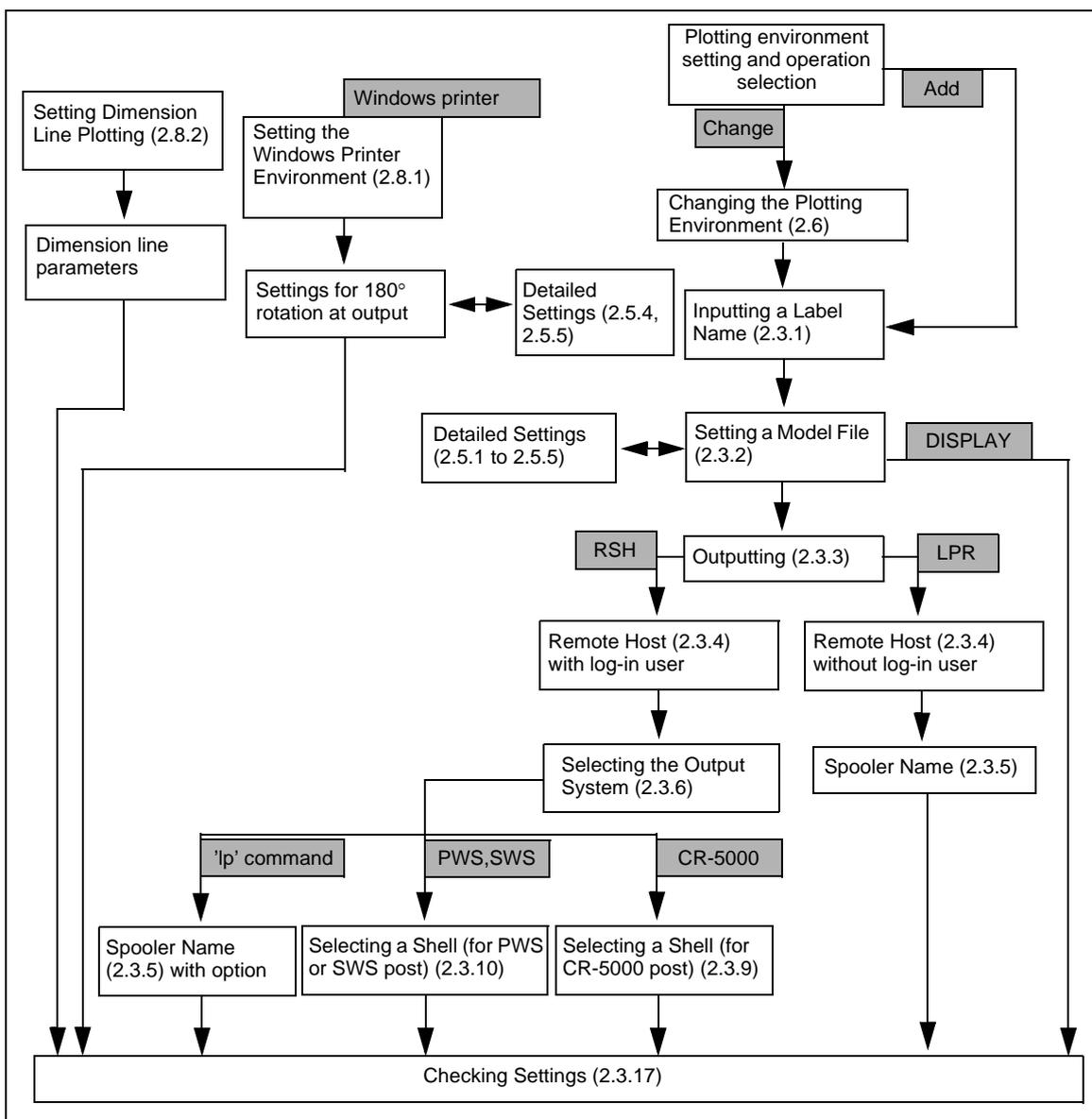


Figure 2.36 Paper Size Selection Dialog Box

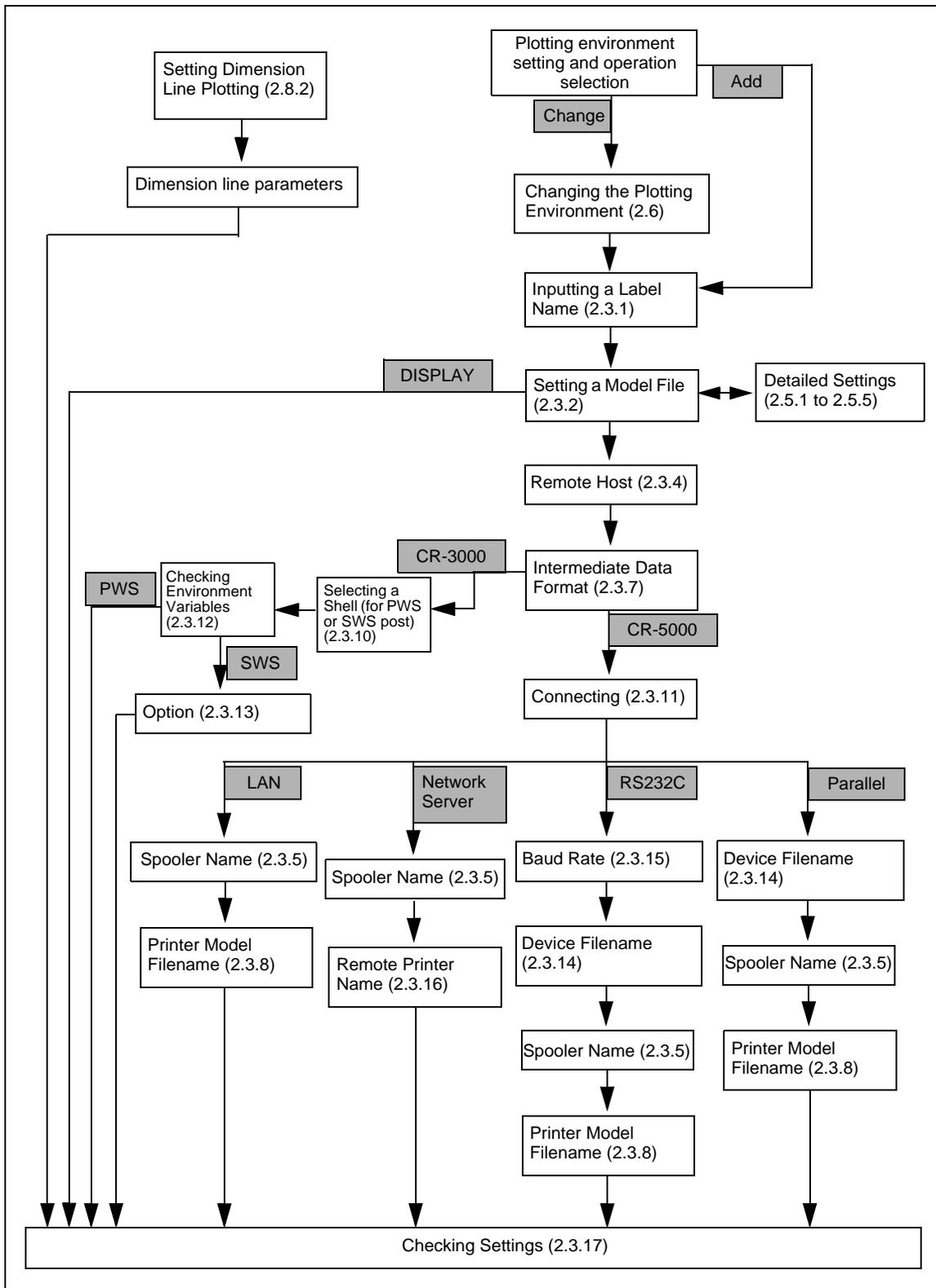
## 2.11 Setting Flowchart with the Plotting Environment Setup Tool

This section explains the procedures to set up the plotting environment using the plotting environment setup tool for Windows and UNIX-versions.

### 2.11.1 Setup Flowchart for the Windows-version



### 2.11.2 Setup Flowchart for the UNIX-version



## 2.12 Referring to the Plotting Environment

---

**Note:** Only the UNIX-version has the "plotting environment reference" function. The Windows-version does not have this function.

---

The plotting environment tool sets the plotting environment and creates "post programs." You cannot get information on the plotter and other items with this program. Therefore, the "zfenv.exe" program is supplied on the UNIX version to see the plotting environment.

With this program, you can see the two following types of information.

- Post name currently set
- Information on the set plotter

Follow the directions below to see information.

- (1) Referring to the post name currently set  
Enter the following from the UNIX command line.

```
zfenv.exe [Return]
```

This displays the following information.

```
% zfenv.sh
 1. Program started by "3F-Printer": "lipsdrv.exe"      [1]
 2. Program started by "InkJetPlotter": "hpgl2drv.exe"
    Remote output to hpgl2 of a02                      [2]
 3. Program started by "MonochroPlotter": CR3000      [3]
Refer to detailed information? [the information is not referred to by
default.]
```

According to the above display,

- [1] The post program with the set label "3F-Printer" started the format conversion program "lipsdrv.exe."

[2] The post program with the set label "InkJetPlotter" started the format conversion program "hpgl2drv.exe" and converted data is remotely output to the hpgl2 spool of a02.

[3] The post program with the set label "MonochroPlotter" outputs data using the CR-3000 post.

(2) Referring to information on the set plotter

You can also refer to information on the plotter currently connected to the set post. In the example below, 2 is entered to specify "InkJetPlotter."

```
Refer to detailed information?
[the information is not referred to by default.] 2
Details about "InkJetPlotter"
  Plotter type           : colorRaster
  Plotter format         : HP-GL/2
  Maximum paper size    : A0
  Maximum number of pens : 255
  Maximum number of palettes : 1024
  Auto-layout function   : ok
Refer to detailed information?
[the information is not referred to by default.]
```

According to the above display, you can see that

- the plotter is color raster type
- the received format is HP-GL/2
- the maximum paper size is A0
- the number of defined pens is 255
- the number of defined palettes is 1024
- the plotter has an auto-layout function

To close the display, press the [Return] key.

---

## Chapter 3 Registering the Printer Spooler

---

If you select a printer as the output destination (LIPS format), you need to register the spooler in advance. You can register the spooler using a tool provided by the OS.

For HP-UX, use "sam". For Solaris, use "admintool". For information about using the tool, see the UNIX manual.

## 3.1 Outputting Header Information

You need to select a printer model file when registering spool. Select the appropriate printer model file by referring to the printer manual, for example.

The set-up spooler usually outputs header information at the beginning of output (user name, request ID, file title, etc.). You can disable this output using the following methods :

- (1) Designate using the plotting environment setup tool.  
Designate "-onb" using "Option".
- (2) Customize the printer model file.  
The model file provided in UNIX contains a section where the default option of the spool program is described. By resetting this value, you can inhibit output of the information.

```
#Initialize option variable to default values
.....
banner="yes"
↓↓↓
#banner="yes"
banner=""
```

When using this method, you do not need to designate "-onb" for "Option" in the plotting environment setup tool.

**Note:** If a printer spooler is used in the plotting environment setup tool, designate "-othru" as the option. (Designate "-oplot" if you have set up the spooler with CR-3000.) When designating this option along with the above option, designate both as "-onb -othru". (See the section "2.3 Adding a Plotting Configuration.")

---

## **Chapter 4   Setting Up Connections and Equipment**

---

This chapter explains settings needed for each plotter.

## 4.1 68000 Series (Oce; ex-SCalcomp)

You need only to support connection of a communication server for this plotter.

### 4.1.1 Connection Interface

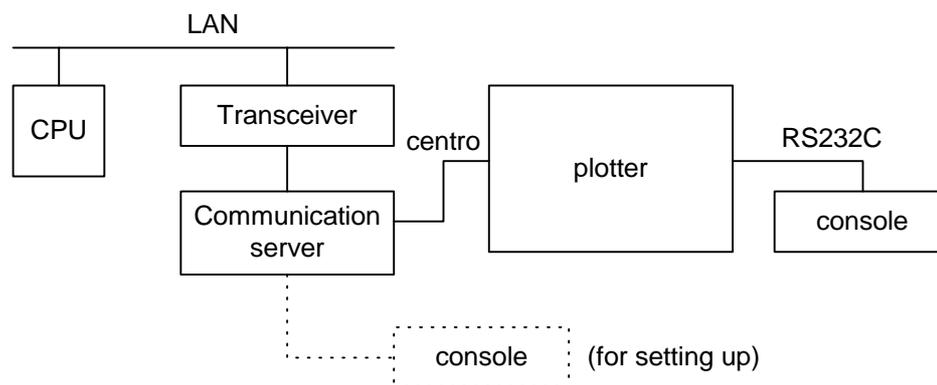
Ethernet

Specification : IEEE802.3

Communication server

\* You will need a transceiver and an AUI cable.

### 4.1.2 Connection Configuration



#### \*Cable requirements

- Between transceiver and communication server :  
(AUI cable)
- Between communication server and plotter :  
(Centronics cable)
- Between plotter and console :  
(RS-232-C cable that comes with the console)
- Between console and 980 controller (during setup) :  
(9- and 25-pin RS-232-C cable supplied by manufacturer)

### 4.1.3 Setting Up Devices

#### Communication Server

- Connect the Centronics output port on the communication server with the Centronics port on the plotter.
- Connect the console to RS-232-C port 0.  
(This is for setting up. Set the console baud rate to 9600.)

#### Plotter

Connect each cable to the corresponding connector on the back.

- 8502 ... Centronics cable
- 8503 ... Console cable

### 4.1.4 Setting Up Equipment

#### Setting Up the Plotter

- Connect the console to the plotter and set the console baud rate to 9600.
- Turn on the power to the plotter and wait until the "prism ready" message is displayed on the console.
- Key in "ctrl + P". The "\$" prompt will be displayed.
- Using the "disp com" command, display current parameters.

```
mode      = centro
csum      = n
frame [bit,parity,stopbit] =8,n,1
tacode    = $0
clocking  = async
ync       = $2
eob       = $3
```

- If the parameters are different from the above settings, modify each setting using the "com" command.

- Save the set parameters.

```
$save 1 com  
$system = def
```

### Setting Up the Communication Server

See the section 4.5 NS-2032 and NS-2034(SEIKO).

### Setting Up the Host Computer

- (1) Register the communication server IP address and the host name in "/etc/hosts".

/etc/hosts

```
192.1.1.1    a01    loghost  
192.1.1.100 ns01   ns2032
```

- (2) Use the "transfer remote spooler" for plotter data.  
When setting "Connection" in the drawing environment setup tool, select "NetWorkServer".

## 4.2 X2020 Series (Oce; ex-Calcomp)

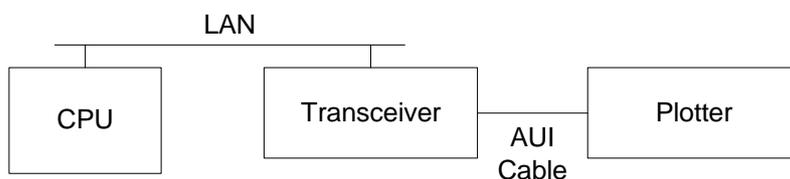
### 4.2.1 Connection Interface

Ethernet

Specification: IEEE802.3

\* You will need a transceiver and an AUI cable.

### 4.2.2 Connection Configuration



### 4.2.3 Setting Up Equipment

**Programs you will need :**

`$ZLOCALROOT/calcomp/bin/xplot15` (Data transfer)

`$ZLOCALROOT/calcomp/bin/nsplot` (Spool filter)

`$ZLOCALROOT/calcomp/unix/default.sdf` (xplot15 settings file)

`$ZLOCALROOT/calcomp/unix/nsplot.cfg` (nsplot settings file)

\*Use "`$ZLOCALROOT/calcomp`" by symbolically linking it to `"/calcomp"`.

### Setting Up the Host Computer

- (1) Register the plotter IP address and the host name in "/etc/hosts".  
The host name is fixed to "nsplt\_out\_1".

```
192.1.1.1    a01
192.1.1.2    a02
.....
192.1.1.50   nsplot_out_1 x2020
```

- (2) Register the service name and the port number with "/etc/services".  
The service name is fixed to "x2015".

```
x2015      2015/tcp
```

- (3) Other settings must be specified in the drawing environment setup tool.  
When setting "Connection", select "LAN".

### Setting Up the Plotter

- (1) IP address and service port number  
The person responsible for plotter installation should set the IP address and the service port number during installation. These settings cannot be modified from the plotter operation panel.
- (2) Auto-layout settings  
Auto-layout plotting using the X2020 is executed by enabling the "multi-job layout" function from the front panel. The plotter automatically lays out plotting data by sheets, recognizing the drawing size.  
Drawing and auto-cutting take place either when the plotting condition is satisfied or when "forced plot" is pressed on the front panel.  
You can set three drawing conditions. Plotting using received data does not take place until one of the three conditions is satisfied.

#### \*Plotting conditions

Number of jobs : Maximum number of plots to be laid out.

Zero for infinite (up to the limit of the raster memory).

Plotting length : Plotting length in the direction of the paper roll length.

Designated in meters. Zero for infinite.

Timeout : The interval between the end of transferring previous data and the beginning of transferring the next data. Designated in minutes. Zero for infinite.

### Setting Procedure

- a. Press **\*** + **offline** keys to display the offline menu shown below.

```

** Offline Menu 1/3 **
Multi-job Layout
Setup
Error File

```

- b. While "Multi-job Layout" is flashing, press the **Enter** key.  
c. When the display changes to the following screen, press the **Reset\*** key to enable "Multi-job Layout".

```

** Layout 1/2 **
Multi-job Layout Enable

```

- d. Using the **cursor V** key, switch to the following "Layout 2/2" menu and set output conditions.

```

** Layout 2/2 **
Number of Jobs          10sheets
Drawing Length          0m
Timeout                 5 Min.

```

Select an item using the **cursor V** and enter a number using the numeric key pad.

- e. You can return to the initial "offline Menu" by pressing the **Enter** key.  
f. You can return to online by pressing **\*** + **offline** key.

Auto-layout setting is now complete. Settings will be retained even after the power is turned off.

### **Forced Plot**

Even if plotting conditions are not met, you can output plots if you reset to offline by pressing **\*** + **offline** keys and then the **foreced plot** key.

### **Note on the paper conservation function**

In the case of a plot that involves pre-rasterization processing, the next plot cannot be placed in the horizontal direction.

For this reason, the paper conservation function does not work if you execute pre-rasterization processing on a high-density plot.

## 4.3 EP-2050,EP-2150,EP-4020(SEIKO)

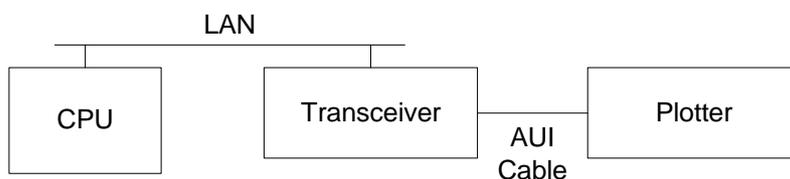
### 4.3.1 Connection Interface

Ethernet

Specification: IEEE802.3, TCP/IP

\* You will need a transceiver and an AUI cable.

### 4.3.2 Connection Configuration



### 4.3.3 Setting Up Equipment

#### Programs you will need :

`$ZLOCALROOT/zsys/bin/dscanf` (Data transfer)

`$ZLOCALROOT/zsys/etc/DSCANdefaultCom.ple` (Plotting parameters)

`$ZLOCALROOT/zsys/etc/DSCANdefaultPal.plt` (Palette parameters)

`$ZLOCALROOT/zsys/etc/DSCANdefaultPen.plp` (Pen parameters)

`$ZLOCALROOT/dscan/dscan_table` (Network settings)

\* Use "`$ZLOCALROOT/dscan`" by making a symbolic link it to "`/usr/lib/dscan`".

### Setting up the host computer

- (1) Register the plotter IP address and the host name in "/etc/hosts".

```
192.9.200.1    a01
192.9.200.2    a02
.....
192.9.200.52  dscan01  <--
```

- (2) Register the port number in "/etc/services".

```
ftp          21/tcp
telnet       23/tcp
.....
dsplot1     40000  <--
```

- (3) Confirm (or reset) "/usr/lib/dscan/dscan\_table".

```
# D-SCAN TABLE FILE ()
#          COPYRIGHT SEIKO INSTRUMENTS INC.
#
#          dscan_table    1988.12.24
#
ASYNC TABLE
#          TERMINAL
async      /dev/ttyb
#
ETHERNET TABLE
#          NODE          PORT
ethernet   dscan01       dsplot1
ethernet2  dscan02       dsplot2
ethernet3  dscan03       dsplot3
#
DISK OUTPUT
#          DATA          MESSAGE
disk       stdout         stderr
```

The "DSCAN format plotter post "dscanf" refers to this table.

- (4) Set up the plotter.  
 Register "ISA (IP address)" and "SPORT (port number)" in "COM\_ PARAM" items from the front panel.  
 Register "ISA" using hexadecimal numbers.  
 ISA = C009C834 ( =  $\frac{192}{C0} \cdot \frac{9}{09} \cdot \frac{200}{C8} \cdot \frac{52}{34}$  )  
 SPORT = 4000

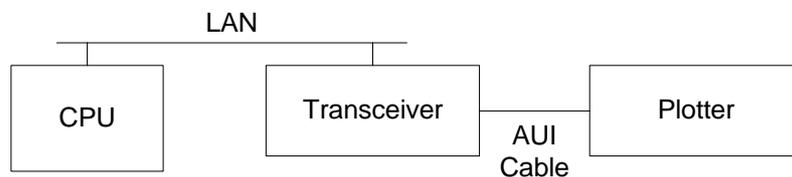
## 4.4 C2858B,C2859B(HP)

### 4.4.1 Connection Interface

Ethernet

Specification : IEEE802.3, TCP/IP

### 4.4.2 Connection Configuration



### 4.4.3 Setting Up Equipment

#### Setting up the host computer

Stop LP spooler.

```
lpshut
```

Following the manual, update the file from the media, execute "/opt/hpnp/bin/jetadmin" and register Spooler from the CONFIGURATION menu.

Although contents of the menu differ depending on the version of JetAdmin, the example of Rev.D.02.1 is described below.

```
# /opt/hpnp/bin/jetadmin

*****
*           MAIN MENU           *
* HP JetAdmin Utility for UNIX (Rev.D.02.10) *
*****

1) Configuration (super-user only):
   - configure printer, add printer to spooler

2) Diagnostics:
   - diagnose printing problems

3) Administration (super-user only):
   - manage HP printer, JetDirect

4) Administration (super-user only):
   - manage JetAdmin

5) Printer Status:
   - show printer status, location, and contact

           ?) Help           q) Quit

Please enter a selection (q - quit) : 1
```

```
BOOTP/TFTP:
  1) Create printer configuration in BOOTP/TFTP database
  2) Remove printer configuration from BOOTP/TFTP

Spooler:
  3) Add printer to local spooler
  4) Delete printer from local spooler
  5) Modify existing spooler queue(s)
           ?) Help           q) Quit

Please enter selection: 3
```

Specify a node name for the plotter.

```
Enter the network printer name / IP name (q - quit) : zuken
```

Set Job Monitor to OFF.

Configurable Parameters:	Current Settings
-----	-----
1) Lp destination (queue) name :	[zuken1]
2) Status Log	[(No Log)]
3) Queue Class	[(Not assigned)]
4) Job Monitor	[ON]
5) Default Queue	[NO]
6) Additional printer configuration...	
Please an item for change or select "0" (q-quit): <u>4</u>	

Select the setting for added parameter and specify a printer model file to be used.

Select an item for change, or '0' to configure (q - quit) : <u>6</u>
--

Configurable Parameters:	Current Settings
-----	-----
1) Model Script:	[net dsnj]
2) Default Printing Language	[AUTO]
3) Job Recovery	[OFF]
4) True End-of-Job	[N/A]
5) Banner Page	[OFF]
6) Post Script Level	[N/A]
Select an item for change, or q when done : <u>1</u>	

Below is a list of suggested printer model scripts for HP-UX :	
Model Script	Printer
-----	-----
net_lj5x	HP LaserJet 5S iprinters*
.	
.	
dumbplot	HP DesignJet Series plotters
net_dsnj	HP DesignJet Series plotters with PostScript
-----	-----
** If you are configuring Shared Print, type "sp"	
Enter model script name (q-quit) : <u>dumbplot</u>	

Select an item for change, or q when done : q

Finish the setting of added parameter.

Select an item for change, or '0' to configure (q - quit) : 0

### **Setting up the plotter**

Insert the LAN interface in the plotter, select the "I/O setting" item from the front panel, and then select "Modular" to set the following parameter values:

NET WORK CFG = YES

IP BYTE1 to 4 ...Enter the IP address.

## 4.5 NS-2032 and NS-2034(SEIKO)

### 4.5.1 Function

These communication servers offer lpr (BSD spool) server capabilities so you can output data via the network to a plotter connected to the RS-232-C/Centronics port on the server.

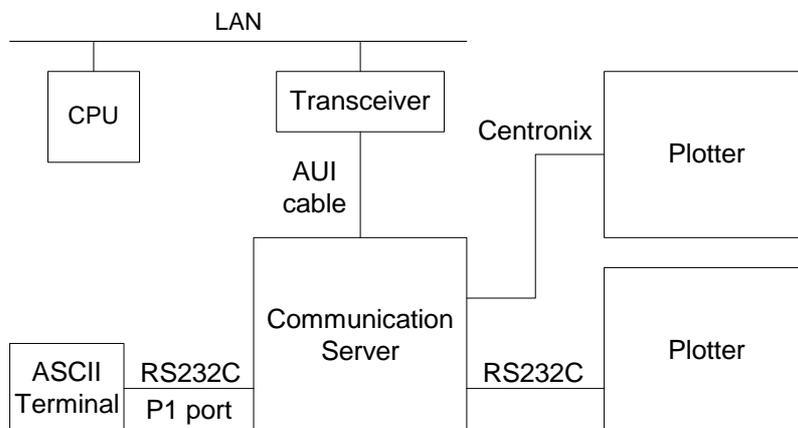
These communication servers also support telnet so you can log in a workstation via the network from an ASCII terminal connected to the RS-232-C port.

### 4.5.2 I/F

- NS-2032
  - Ethernet (15-pin AUI port) :1 port
  - Centronics Output port :1 port
  - Input port :1 port
  - RS232C :6 ports
  
- NS-2034
  - Ethernet (15-pin AUI port) :1 port
  - Centronics Output ports :2 ports
  - Input ports :2 ports
  - RS232C :4 ports

\*To one of these RS-232-C ports (P1), an ASCII terminal is connected to use the port to set up the communication server.

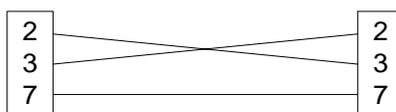
### 4.5.3 Connection Mode



### 4.5.4 Setting Up Equipment

#### Necessary equipment

- ASCII terminal (vt100 equivalent)  
8 bits, No parity, One stop bit,  
9600 baud
- RS-232-C cable (Null modem, PN.500-412-015)



#### Connecting the ASCII terminal

Various settings for the communication server are set from the ASCII terminal connected to "tty1" (RS-232-C P1 port).

Connect the ASCII terminal set up in the previous section to the communication server.

### Copying system floppy disks

Both of the communication servers come with two floppy disks titled "diagnostics" and "system".

Usually, the server is used with the "system" floppy disk inserted.

However, do not write data directly to the original disk. Instead, make a copy and store the original in a safe place. Also, after you finish setting up the system using the copy, make a "system" backup copy containing the new settings.

Be ready with two blank 3.5-inch double-density (2DD) floppy disks.

### Formatting the floppy disks

Put the "diagnostics" floppy disk in the device and turn on the power. When the message shown below is displayed, enter "1" and press the [CR] key.

```
>>>>> DIAGNOSTIC PROGRAM <<<<<<
```

TYPE No.		interface		
		serial	Centronics	GPIB
1	NS-2032	6	IN:1,OUT:1	0
2	NS-2042	6	0	1
3	NS-2046	2	IN:1,OUT:1	1

Input TYPE : \_

When the menu and the "DIAF>" prompt shown below are displayed next, enter test command "10" and press the [CR] key.

```
(test command)
 0 automatic mode
 1 timer test
 .
 .
10 FD format
11 FD diskcopy
41 Centronics I/O test
(TOP) top menu
DIAF> _
```

When the message shown below is displayed, remove the "diagnostics" disk from the device, insert a blank floppy disk, and then press the "y" and [CR] keys. When the blank disk is formatted, the message "FD format ok" will be displayed.

```
DIAG>10[CR]
  FD format

please insert new fld and [Y/N] : Y[CR]

>>>>> FD format ok <<<<<<
```

### Copying the floppy disks

Copy the "system" floppy disk. This utility copies all files in the disk. You cannot copy file by file.

Before you start copying, make certain that the "system" disk is writeprotected to prevent writing to the "system" disk by mistake.

Enter test command "11" and then press the [CR] key.

When the message shown below is displayed, remove the "diagnostics" floppy disk from the device, insert the "system" disk into the device, and then press the "y" and [CR] keys.

```
DIAG> 11[CR]
  FD diskcopy

please insert source(read) fld and [Y/N] : Y[CR]
```

When you enter "y", reading begins. When reading is completed, the message shown below is displayed. Insert the destination disk into the device and press "Y" and [CR].

```
...reading start

please insert destination(write) fld and [Y/N] : Y[CR]
```

When writing is completed, the message shown below is displayed.

Replace with the "system" floppy disk and press "y" and [CR]. Subsequently,

reading and writing will repeat a few times. When disk copying is completed, the message "FD diskcopy ok" is displayed.

```
...writing start  
  
please insert source(read) fld and [Y/N] : Y[CR]  
.  
.  
.  
>>>>>> FD diskcopy ok <<<<<<<  
DIAG>
```

Copying of the "system" floppy disk is now complete.

### Starting up communication servers

Put the "system" disk copy made in the previous section in the device and either power-cycle the device or press the reset switch on the front\* panel.

When the device starts, the prompt "(1)ecs2>" is displayed on the ASCII terminal. From this state, various setup items should then be set.

### Setting up the network environment

Settings related to connecting to the network are written in a file as global information in the system floppy disk.

You can edit these settings using the "edit" command in "setup" mode.

When you enter "setup" at the prompt "(1)ecs2>" and press the [CR] key, the message "passwd:" is displayed. Press the [CR] key one more time. The prompt "setup:1>" will then be displayed and you will be in the setup mode.

In this state, enter "edit filename" and [CR] to edit various settings files. You can display a list of "edit" commands using either "help" or "?".

For more information about the setup mode, see the communication server manual.

When you have finished making settings, you can exit the setup mode using the "exit" [CR] command.

**hostnamefile** : Communication server host name

The default host name "ecs2" is already set. Change the name to a new host name using "edit".

```

setup:1> edit hostname

ecs2      ..... Display the first line.
c[CR]     ..... Modify the current line.
> cr50[CR] ..... Enter the host name (cr50).
cr50
e[CR]     ..... Writing is complete.

setup:1>
    
```

**hosts file** : IP address and host name table

Register the communication server and the IP address and host name of the node that will be communicating with the server.

```

setup:1> edit hosts[CR]

#
n[CR]           ..... Display the next line.
# INET host table
n[CR]
#             internet-address hostname
n[CR]
#
n[CR]
127.0.0.1      eps2
c[CR]           ..... Modify the current line.
>192.1.150    cr50    ns2032[CR] ..... Set your own node.
192.1.150     cr50    ns2032
a[CR]           ..... Add a line.
>192.1.1.1    a01     cr50001[CR] ..... Set another node.
192.1.1.1     a01     cr50001
n[CR]
[EOF]         ..... End of file
e[CR]         ..... Writing is complete.

setup:1>
    
```

**ttys file** : RS232C port communication functions

Set the communication functions for RS-232-C ports. These functions are registered in order from the P1 port using the name "tty1".

Each port is set as a telnet terminal by default, such as "ttyl cmd".

You should therefore delete the "cmd" description for the port which you will be using for plotter output.

However, do not delete the "cmd" description from "tty1", since a terminal will be connected to that port to use it as the setup port.

```

tty1 cmd
tty2          Plotter output port
tty3          Plotter output port
tty4 cmd

```

**Setting printer server functions**

"When you enter the "prsetup" command at the prompt "(1)esc2>", you will be in the printer server setup mode.

Edit the settings file using the "edit" command.

**prcap file** : Device filename and its parameters for each printer (plotter) entry

Register the spool entry name, connection port, and parameters.

```

#
# prcap file
#
post1:lp=cento1 :
post2:lp=tty2:sh:br#19200:flow=xon :
post3:lp=tty3:sh:br#9600:flow=xon :

```

**hosts.equiv file** : Access permission from each node

Register the name of the node(s) that will communicate with the printer server (data output).

a01 a02
------------

### **Backup copy of the "system" floppy disk**

When settings have been completed, copy the "system" disk containing new settings, just as you made a copy of the "system" disk in the previous section, and save the copy as a backup.

### **Standard booting up and turning off communication servers**

Put the "system" copy disk containing various settings into the floppy disk drive and turn on the power. When the floppy disk drive access light flashes and then goes off, booting is complete. Not having an ASCII terminal connected is not a problem for standard usage.

When turning off the communication server, make certain that the access light is off on the floppy disk drive and then turn off the power.

There is no particular procedure to follow when turning off the server.

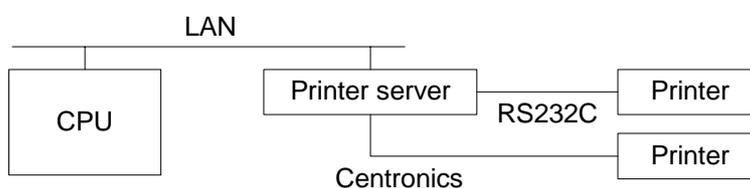
However, note that turning off the power while the floppy disk is being accessed might damage the "system" file.

## 4.6 Network Server KP-501 (Komatsu)

### 4.6.1 Connection Interfaces

Ethernet 10 Base T	: 1 port
10 Base 2	: 1 port
RS232C	: 1 port
Centronics	: 2 ports

### 4.6.2 Configuration of Connections



### 4.6.3 Device Settings

Setting the KP-501 IP address

- (1) Connect the network cable to the KP-501.
- (2) Input the following commands from a workstation :

```

%
% su
# arp -s KP-501SV node-name KP-501-MAC-address temp
# ping KP-501SV node-name
#
  
```

The KP-501 MAC address is indicated on the bottom of the device.

- (3) Turn the power for the KP-501 back on.
- (4) Use telnet whenever IP address changes, subnet mask setup, router setup, serial port setup, etc., are necessary. The telnet password is LANA.



---

## Chapter 5 Restrictions

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- If you use the System Designer and Board Designer for different versions in an environment, start the plotting environment setup tool from the Rev.6.0-version system. Note that you cannot start the plotting environment setup tool from the Rev.5.0-version system.
  
- Restrictions on plotting in PostScript format
  - (1) When character strings are set to be plotted with font, dimension line character strings are developed and character strings cannot be plotted with font. When outline is specified for character strings, plotting with font is also not possible.
  - (2) If clipping is specified during character string plotting using font, all character strings overlapping the clipping area are plotted. Therefore, figures may be different from that plotted without font.
  - (3) Font plotting may change size or location.
  
- Intermediate data for Windows-version sample plotting  
When intermediate data for sample is used for plotting under certain conditions such as plotter specifications, part of the data may be lost.
  
- Plotting in the hatching mode  
When plotting in the hatching mode, the hatch pitch is also scaled on Rev.4.0 or later.
  
- Color table setting is only referenced by Board Designer.



---

## Appendix A Printing Property Dialog Box

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With printing data from a tool with canvas, set correspondence between 24 colors on the screen and pens/palettes for the plotter and printer.

These settings can be made for each output device (plotter label) and can be added or deleted.

The following six applications use the Printing Property dialog box.

- Board Designer
- Board Producer
- Gerber Data Import Tool
- Library viewer
- CDB Figure Viewer
- Document Designer
- BD viewer

---

### Palette set

A pen and palette number is set to each of 24 display colors. The settings for 24 colors are regarded as one set and called a "palette set."

---

Tips: On Windows-version, another 128 user defined colors can be used, adding the 24 system colors.

---

## A.1 Printing Property Dialog Box Operations

### A.1.1 Selecting a Palette Set

Clicking the [Palette Set name] option list displays specified palette sets. Select one from the list.



Figure A.1 Palette Set [NEW\_PALETTE] Is Selected

### A.1.2 Setting the Palette Set

The palette has an "initial setting." To add new settings, click the cell for the pen or palette number corresponding to the color to be changed and enter a new number. (The pen and palette numbers should be larger than 1.)

1	<input type="checkbox"/>	White	1	1
2	<input checked="" type="checkbox"/>	Red	12	22
3	<input checked="" type="checkbox"/>	Green	3	3

Figure A.2 Pen Number 12 and Palette Number 22 Are Set to the Display Color "Red"

When you specify a value out of range, the following message is displayed.



Figure A.3 Message

### A.1.3 Saving the Palette Set

Save the specified palette set.

There are two ways to save it.

- Overwriting

Click [OK] in the dialog box.

The data is overwritten under the name displayed in [Palette Set name] and the dialog box is closed. However, note that the data is saved in another file when [Palette Set name] is [Default].

- Saving data in another file

Click [Save As] in the dialog box.

After the dialog box for setting a new palette set name is displayed, enter a new name and click [OK]. If you specify an existing name, a message confirming overwriting is displayed. Click [OK] to overwrite the file.

### A.1.4 Deleting a Palette Set

Delete a palette set.

After selecting a palette set to delete from the [Palette Set name] option list, click [Delete].

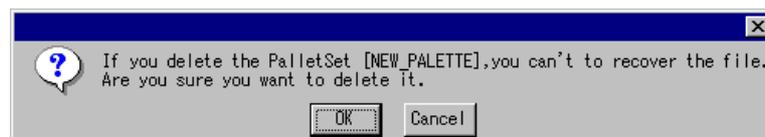


Figure A.4 Dialog Box Confirming Deletion

Clicking [OK] in the confirmation dialog box will delete the palette set.

## A.2 Palette Set Setup File

For palette set settings, create the following palette set setup file by referring to environment variable "HOME."

```
$HOME/cr5000/ue/plotter.rsc
```

If the file exists, it is updated as needed. If the file does not exist, it is created.

### Format for the palette set setup file "plotter.rsc"

The data in the setup file is shown below.

- "MatchingTable"

In this item, correspondence between output devices and palette sets is written. (Output devices are on the left and palette set names are on the right.) If a palette set indicated by double quotations (") is saved, "initial setting" is employed.

Example: In the example below, Palette set "NEW\_PALETTE\_4" is set to "CR-5000" file output.

```
MatchingTable 2 {  
  "CR5000"           "NEW_PALETTE_4"  
  "CR3000"           ""  
  "LIPS"             ""  
  "HP-GL "           ""  
  "X-Window"         ""  
  "DISPLAY"          "NEW_PALETTE_5"  
  "SII LP-2160 (D-SCAN)" ""  
  "SII LP-2160 (D-SCAN C2)" ""  
  "HP750C"           ""  
  "BJC-400J"         ""  
}
```

- "Index"

In this item, the specified palette set names and palette set index numbers are saved. Starting with 1, an index number is set during palette set setting. Correspondence between index numbers and palette sets are not changed if they are deleted. Index numbers unspecified due to deletion are used for new settings.

Example: In the example below, Index Numbers 1 and 2 are deleted and new palette sets are added (Index Numbers 1 and 2 are allocated to the added palette sets "NEW\_PALETTE\_1" and "NEW\_PALETTE\_5," respectively.)

```
Index 2 {  
    3 "NEW_PALETTE_3"  
    4 "NEW_PALETTE_4"  
    1 "NEW_PALETTE_1"  
    2 "NEW_PALETTE_5"  
}
```

- Palette set "Pen\_Pal\_No X" (X is index number)

In this item, pen and palette numbers corresponding to the color numbers from 1 to 24 for the saved palette sets are written. (From the left, the color number, pen number and palette number.) This item is saved for each specified palette set.

---

Tips: On Windows version, pen and palette numbers associated to the user-defined color numbers from 25 to 152 are written in the [Expansion\_Pe\_Pal\_No X] (X means an index).

---

Example: In the example below, 5 is set to all pen numbers.

```
Pen_Pal_No3 3 {  
  1 5 1  
  2 5 1  
  3 5 2  
  4 5 3  
  5 5 4  
  6 5 5  
  7 5 6  
  8 5 7  
  9 5 8  
 10 5 9  
 11 5 10  
 12 5 11  
 13 5 12  
 14 5 13  
 15 5 14  
 16 5 15  
 17 5 16  
 18 5 17  
 19 5 18  
 20 5 19  
 21 5 20  
 22 5 21  
 23 5 22  
 24 5 23  
}
```

Example: In the example below, 5 is set to all the pen numbers from 25 to 152 in Windows version.

```
Expansion_Pen_Pal_No3 3 {  
  25 5 1  
  26 5 1  
  27 5 2  
  28 5 3  
  (omit)  
 151 5 345  
 152 5 2  
}
```

## A.3 "Initial Settings"

When you select "post" (set with the plotting environment setup tool and a printer set on Windows) for output device, the data set in the color table file (postX.plc or GDIColor.plc) is used as "initial settings." To change "initial settings," see "(cross-reference) Color Table" (2.5.4.1) for the "plotting environment setup tool."

