NT11S
Support Tool
Operation Manual

Produced August 1995

Safety Precautions:

Read these safety precautions carefully and make sure you understand them before using the programmable terminal so that you can use it safely and correctly.

Safety Conventions and Their Meanings

This operation manual uses the following conventions and symbols to indicate cautions and warnings in order to ensure safe use of the PT. The cautions and warnings shown here contain important information related to safety. The instructions in these cautions and warnings must be observed.
The conventions used and their meanings are presented below.

⚠ **WARNING**	Indicates unsafe practices which, if not avoided, could result in death or serious injury.

Example Symbols

The triangle indicates a hazard (caution or warning).
Details are provided by the contents of the triangle and the accompanying text.
The symbol to the left indicates a general hazard.

Note If a directory that already exists is specified, the support tool system will be copied to that directory with no request for confirmation. Make sure that no necessary files will be overwritten.

OMRON Product References

All OMRON products are capitalized in this manual. The word "Unit" is also capitalized when it refers to an OMRON product, regardless of whether or not it appears in the proper name of the product.

The abbreviation "Ch," which appears in some displays and on some OMRON products, often means "word" and is abbreviated "Wd" in documentation in this sense.

The abbreviation "PC" means Programmable Controller and is not used as an abbreviation for anything else.

[Numeral settings]

Each support tool screen displays options for functions to be set. The example to the left shows such an option, "Numeral setting".

Visual Aids

The following headings appear in the left column of the manual to help you locate different types of information.

Note Indicates information of particular interest for efficient and convenient operation of the product.

1, 2, 3... 1. Indicates lists of one sort or another, such as procedures, checklists, etc.

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About this Manual:

This manual describes the basic functions and operation procedures of the NT-series NT11S Support Tool and includes the sections described below.

Please read this manual carefully and be sure you understand the information provided before attempting to install and operate the NT-series NT11S Support Tool.

WARNING Failure to read and understand the information provided in this manual may result in personal injury or death, damage to the product, or product failure. Please read each section in its entirety and be sure you understand the information provided in the section and related sections before attempting any of the procedures or operations given.

SECTION 1 Setting Up the Support Tool

This section describes how to install the support tool at a personal computer.

SECTION 2 Basic Operations of the Support Tool

This section describes the basic operations that apply to the support tool as a whole, such as those for start-up, exit, and settings.

SECTION 3 Support Tool Operations

This section describes how to use the basic screens of the support tool, setting options, and the functions of the function keys.

SECTION 4 Creating Screen Data

This section describes how to create the screen data to be displayed by the programmable terminal (PT).

SECTION 5 Creating a Marks

This section describes how to create special characters and symbols (marks).

SECTION 6 Screen Data Operations

This section describes operations including those for copying and deleting created screen data.

SECTION 7 File Data Operations

This section describes operations that are performed on files, including those for copying and deleting created files.

SECTION 8 Printing Data

This section describes how to print various types of support tool data, such as screen data and the conditions of use of memory tables.

SECTION 9 Data Transfer

This section describes how to transfer screen data created using the support tool to the PT, and how to receive data from the PT.

Appendix This section describes the specifications of the connecting cables, error messages, etc.

Organization of the Manual, and How to Use It:

In order to put a PT to use, screen data has to be created for it on the basis of various types of information.

When creating screen data, the user must be aware of the meanings of the settings, the restrictions that apply to them, and the differences in operation among different communication methods. Refer to the manuals listed below for this information.

[For operating the support tool]

- NT11S Support Tool Operation Manual (V030-E1-1)
  . . . . . This manual

The support tool displays details of operations and procedures on the screen in the form of "help messages". Normally, operations can be performed by following these messages.

However, if you become unsure how to proceed during the course of an operation, or want to check the capabilities of the support tool, refer to this manual.

This manual only describes the operations pertinent to the support tool itself. It does not give detailed explanations of the meanings or effects of the items to be set. For this information, refer to the manuals below.

[For information on PT functions, operations, and restrictions]

- NT11S Programmable Terminal Operation Manual (V029-E1-1)

This manual contains full descriptions of PT functions, operations, and restrictions. They are organized in a manner that allows screen data to be created by following the User's Manual for the PT.

[For information on the functions and operations of the PC]

- Operation manual for each PC

When you need information about the operations, functions, etc., of the PC, refer to the operation manual for the PC, advanced function unit, or communication unit being used.

Functions of the Support Tool:

Things that can be done using the support tool

The support tool has the following functions.

Creation of screen data ..... SECTION 4 Creating Screen Data

Creates screen data to be displayed by an NT11S.

Besides creating characters and graphics, etc., as screen data, it is also possible to allocate words for individual elements by using the direct connection function.

Management of screen data ..... SECTION 3 Support Tool Operations

Operations relating to screen data, such as the setting of screen attributes, and copying and deletion in screen units, are possible.

File management ..... SECTION 3 Support Tool Operations

Screen data can be managed in file units.

Data transfer to the PT ..... SECTION 9 Data Transfer

The PT can be connected to the support tool for transfer of screen data files, the system OS, and other data.

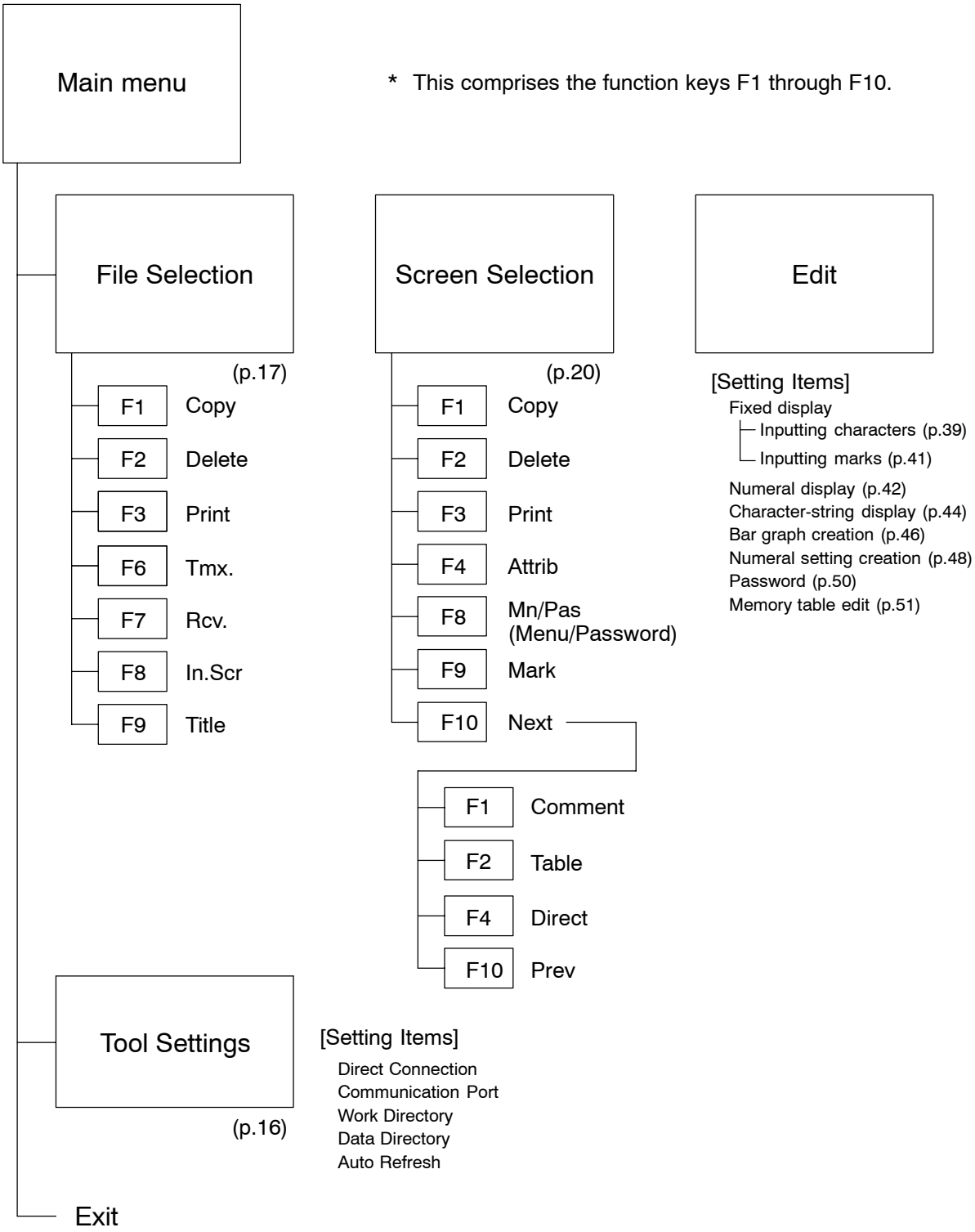
Printing data ..... SECTION 8 Printing Data

Screen data, etc., can be printed out at a printer.

Environmental settings ..... SECTION 3 Support Tool Operations

The parameters of the working environment, such as the PT model and data memory capacity, can be set.

Menu Tree


Main menu
* This comprises the function keys F1 through F10.
File Selection
(p.17)
F1 Copy
F2 Delete
F3 Print
F6 Tmx.
F7 Rcv.
F8 In.Scr
F9 Title
Screen Selection
(p.20)
F1 Copy
F2 Delete
F3 Print
F4 Attrib
F8 Mn/Pas (Menu/Password)
F9 Mark
F10 Next
F1 Comment
F2 Table
F4 Direct
F10 Prev
Edit
[Setting Items]
Fixed display
Inputting characters (p.39)
Inputting marks (p.41)
Numeral display (p.42)
Character-string display (p.44)
Bar graph creation (p.46)
Numeral setting creation (p.48)
Password (p.50)
Memory table edit (p.51)
Tool Settings
(p.16)
[Setting Items]
Direct Connection
Communication Port
Work Directory
Data Directory
Auto Refresh
Exit

SECTION 1
Setting Up the Support Tool

When using the support tool for the first time, the support tool system has to be installed in the personal computer you are using.

This section describes the environment in which the support tool can be used and the method for installing it in a personal computer.

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1-1 Preparing Equipment

The following equipment and materials must be prepared in order to use the support tool.

1-1-1 Equipment to be Prepared

Software

- NT11S Support Tool (Type NT11S-ZA3AT-EV1)

This software comes in the form of a 3.5 inch floppy disk.

- DOS

IBM PC DOS, Ver. 5.0 or later version is required.

Hardware

- IBM PC/AT Personal computer

At least 640 Kbytes of main memory is required.

Use an IBM personal computer or 100% compatible.

- At least one floppy disk drive (2HD format type)

There must be one 3.5 inch drive.

- Display

VGA compatible display

[Common Items]

- Printer

EPSON ESC/P printer (24 pin)

- Hard disk drive

A hard disk is essential. The available memory required for the support tool files and data area is 2 Mbytes.

Equipment Relating to Transfer of Screen Data

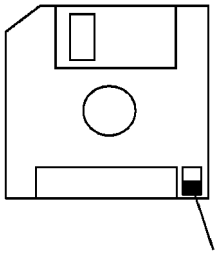
- RS-232C connecting cable

For the cable specifications, see Section 9 Data Transfer, and the Appendix.

1-1-2 Before Starting Preparations

Be sure to make a back-up disk for the support tool system disk and keep the original somewhere safe.

When making the back-up, ensure that the original disk is write-protected, as shown below:



Write-protection tag

1-2 IBM PC/AT Preparations

To enable the support tool to be run on your IBM PC/AT, install the system in its hard disk by using the support tool installation program.

1-2-1 Installation Method

Explained here is the method for installing the system in a hard disk that already has a history of use.

Check that the following conditions are satisfied.

- IBM PC DOS (Version 5.0 or later) is installed.
- [FORMAT.EXE] and [DISKCOPY.EXE] are loaded.

  If these files are loaded in a subdirectory, set an environment variable PATH.

For the purposes of this explanation, the drive configuration is assumed to be as follows:

Drive A: 3.5 inch floppy disk

Drive B: 3.5 inch floppy disk

Drive C: Hard disk

If the drives of the system you are using differ from those in this example, rename the drive names in the example to achieve correspondence with your system (remember that there must be at least one 3.5 inch floppy disk drive).

Procedure

1. Start up an IBM PC/AT personal computer with a hard disk.
2. Prepare a new floppy disk and use it to create a back up disk for the support tool system disk in the following way.

   Set the new disk in the B drive.

   Enter “FORMAT B: ↵ ”. The new disk will be formatted.

   On completion of formatting, set the support tool system disk in the A drive.

   Enter “DISKCOPY A: B: ↵ ”. The back up disk will be created.

   ▶ If the disks in drive A and drive B are of different types, use the command “DISKCOPY A: A: ↵ ” and create the back up disk in the same drive.

   Now take the original disk out of the A drive and store it, and transfer the back up disk to the A drive.
3. Use the command “A: ↵ ” to set the current drive to “A”.
4. Enter “INSTALL C: \NTE ↵ ”.

The underlined part (\NTE) is the directory in the hard disk to which the support tool is copied; if it does not exist already it is created automatically. It is possible to specify another directory name.

Note that when the support tool is installed, the system transfer tool is also automatically installed.

Note If a directory that already exists is specified, the support tool system will be copied to that directory with no request for confirmation. Make sure that no necessary files will be overwritten.

5. When the message indicating completion is displayed, the installation work is finished.

SECTION 2
Basic Operations of the Support Tool

This section explains the basic operations that apply to the support tool as a whole, such as those for starting up and exiting the support tool, and operations using the keyboard.

When using the support tool, “help messages” which explain the operating procedures are displayed on the screen. After becoming familiar with the basic operations by reading this section, you will therefore be able to use the support tool by following the help messages.

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2-2-5 Inputting Special Characters 12

2-1 Starting Up and Exiting the Support Tool

This section describes the procedure for starting up the support tool once it has been installed in a personal computer.

2-1-1 Start-Up Procedure

The method for start-up differs a little according to the hard disk drive and directory in which the support tool is installed.

Procedure

1. Switch on the power supply to the personal computer to start up DOS.

   Check that the current drive is the drive for the hard disk in which the support tool is installed.

   If it is not, enter "C: ↵ " to change the current drive. For the underlined part (C:), specify the drive name of the drive in which the support tool is installed.

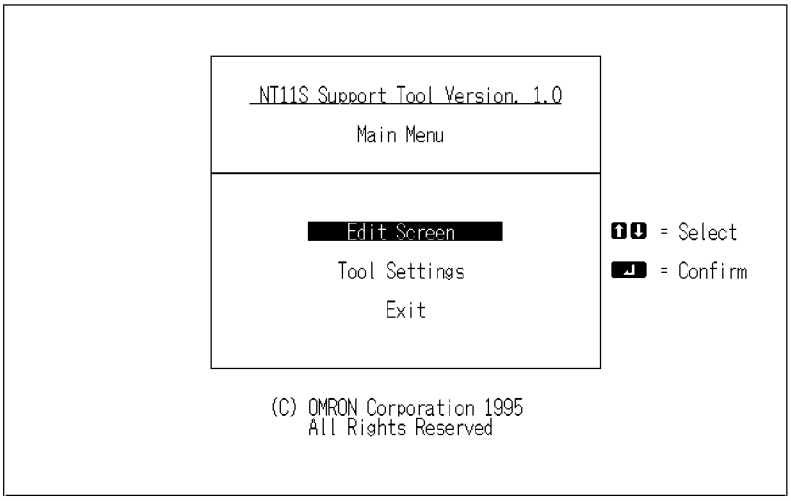
2. Use the command "CD \NTE ↵ " to change the current directory to the directory that contains the support tool. For the underlined part (\NTE), specify the name of the directory into which the support tool was copied.

3. Input "NTE ↵ ".

   The support tool will start up.

- "Main Menu" screen of the support tool

  When the support tool starts up the "Main Menu" screen shown below will be displayed.



2-1-2 Exit Procedure

When the “Main Menu” screen is displayed, move the cursor to “Exit” using the [↑] [↓] keys and press enter key (⏎).

The support tool will be exited and the DOS prompt will be displayed.

After the prompt has appeared, switch the power off.

2-2 Basic Operating Procedures

The support tool is a software package that allows the creation of screen data for a PT, and communication with a PT, using simple operations. The user can perform these operations simply by following the help displays that appear on the screen.

Support tool operations can be performed by using the keyboard.

This section explains basic operations such as the selection of menu options and operation of the mouse.

2-2-1 Cursors

The following types of cursor are displayed on the screen in different circumstances.

- Bar cursor (▬▬)

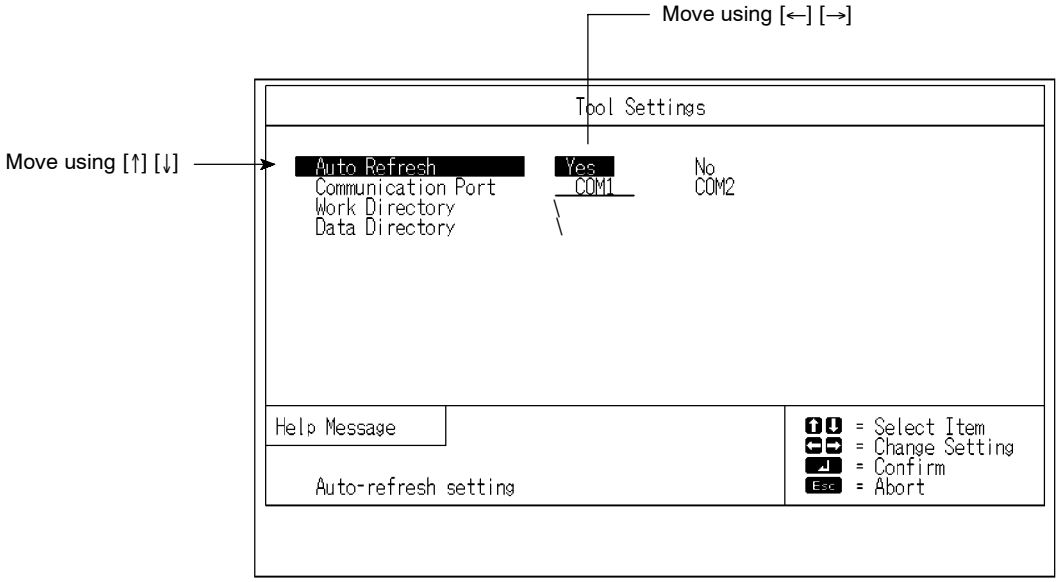
  Used to select options, file names, etc.

  This cursor is moved by using the [↑][↓][←][→] keys or the mouse.

2-2-2 Selecting Options

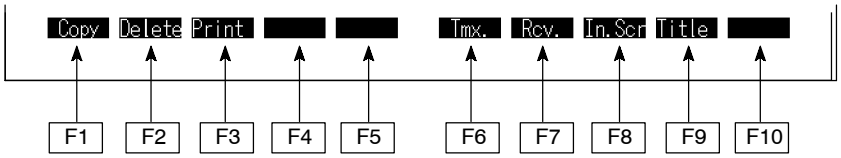
When performing operations using the support tool it will be necessary to select menu options, choices, file names, etc.

Such selections are made by locating the bar cursor on the item to be selected by using the arrow keys ([↑][↓][←][→] keys) and pressing the ↵ key.



2-2-3 Using the Function Keys

The currently available functions and currently selectable options are displayed at the bottom of the screen. The items displayed correspond to the function keys on the keyboard. To execute one of the displayed options, press the function key on the keyboard that corresponds to it.



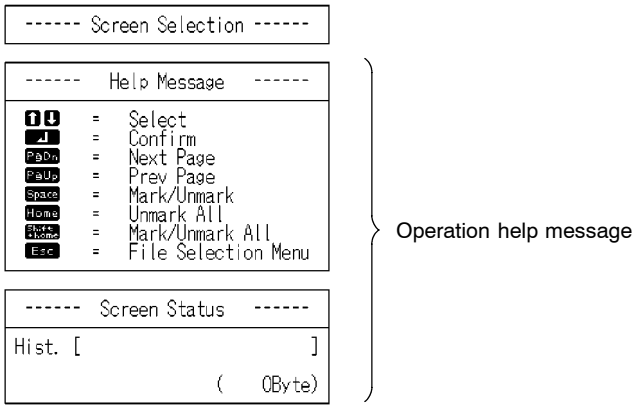
2-2-4 Using Help Messages

The support tool is provided with “help messages” for each screen: they display the key operations that can currently be used, or prompt parameter input or selections.

Operate the support tool by following the help messages. There are two types of help message, distinguished on the basis of the screen and function, as indicated below.

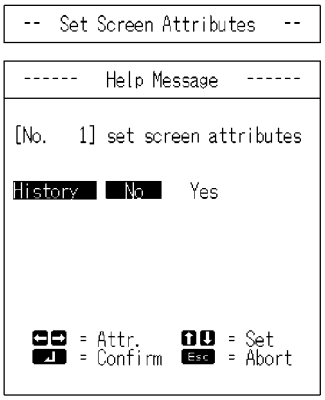
- Help messages that display the operating procedure

Usually, as shown in the screen below, the operation keys that can be used with the current screen, and their details, are displayed in the help message area.



- Help messages for parameter input

In cases such as when a function has been selected with a function key, settings and parameters can be specified in the help message area.



2-2-5 Inputting Special Characters

Special characters with character codes “7F” upward, which are not on the keyboard, are input by using the following method.

These special characters can all be input at any location where character input with the support tool is possible.

Procedure

1. Input the character code in decimal format while holding down the [Alt] key.
2. Release the [Alt] key.
3. When the [Alt] key is released, the input character is displayed on the screen.

(For the character codes, see Appendix C of this manual.)

SECTION 3
Support Tool Operations

The support tool has the following 5 screens: the “Main Menu” screen, the “Tool Settings” screen, the “File Selection” screen, the “Screen Selection” screen, and the “Edit” screen. This section describes the four screens other than the “Edit” screen.

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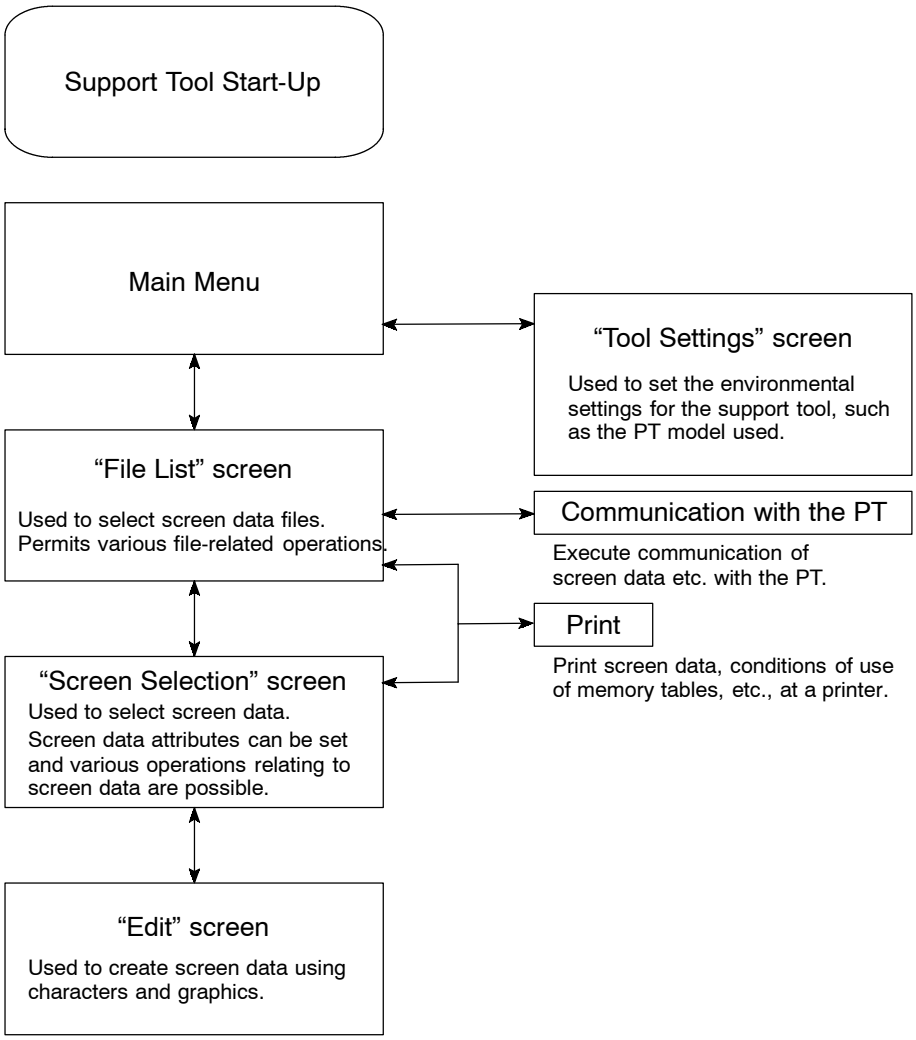
3-3 “Tool Settings” Screen 16
3-4 “File Selection” Screen 17
3-5 “Screen Selection” Screen 20
3-5-1 Setting Direct Connection Information 26

3-1 Using the Support Tool

The support tool is a software package for creating screen data and transferring it to an NT11S.

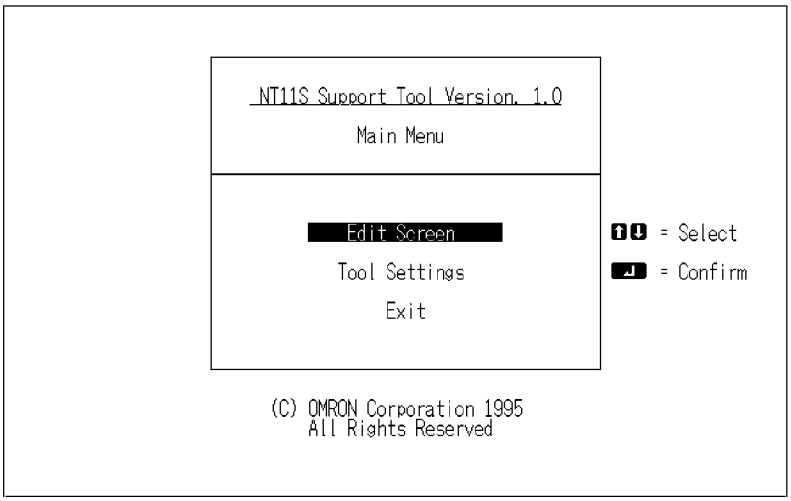
The support tool has five basic screens and on these five screens it is possible to create data, and to select various functions and execute them.

The relationships between the screens are shown below.



3-2 Main Menu

When the support tool is started up, the “Main Menu” screen is displayed first.



The items in the main menu have the following functions.

- Edit Screen: Select this item to create or edit screen data. The “File Selection” screen will be displayed and operations relating to screen data and files will be possible.
- Tool Settings: Used to set the environmental conditions for using the support tool, such as whether or not the auto refresh function is used, the communication port, work directory, data directory, etc. Provided there are no changes, these settings only have to be set once.
- Exit : Used to exit the support tool. To exit, select this item, wait for the DOS prompt to be displayed and then switch the power off.

3-3 "Tool Settings" Screen

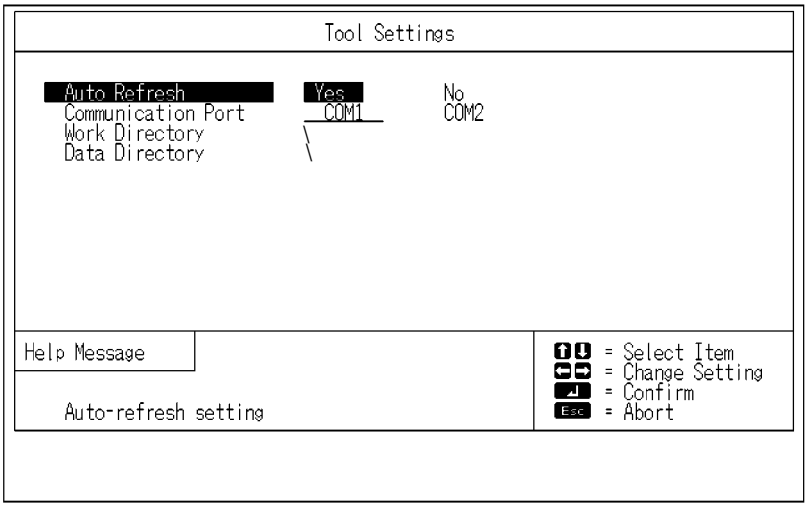
This screen is used to set the environmental settings required to use the support tool, such as communication port and the directory in which data is saved.

When using the support tool for the first time, be sure to set the tool settings. After this first setting, it will not be necessary to set the tool settings again unless there is some change.

Settings

When "Tool Settings" is selected from the main menu, the "Tool Settings" screen is displayed.

<"Tool Settings" screen>



- Auto Refresh: Specify whether or not the displayed support tool screen is automatically redisplayed.
- Communication Port: Specify the port on the computer to be used to communicate with the PT. If possible, do not specify the same port as the one used for the mouse.
- Work Directory: The support tool temporarily creates work files for data creation and communication, etc. This setting specifies the directory in which work files can be created.
- Data Directory: Specify the directory in which created screen data files are saved here.

Quitting tool setting

- Press Enter key twice: the support tool will be set in accordance with the details displayed on the screen and the display will return to the main menu.
- Press the [Esc] key to return to the main menu without making any settings.

3-4 "File Selection" Screen

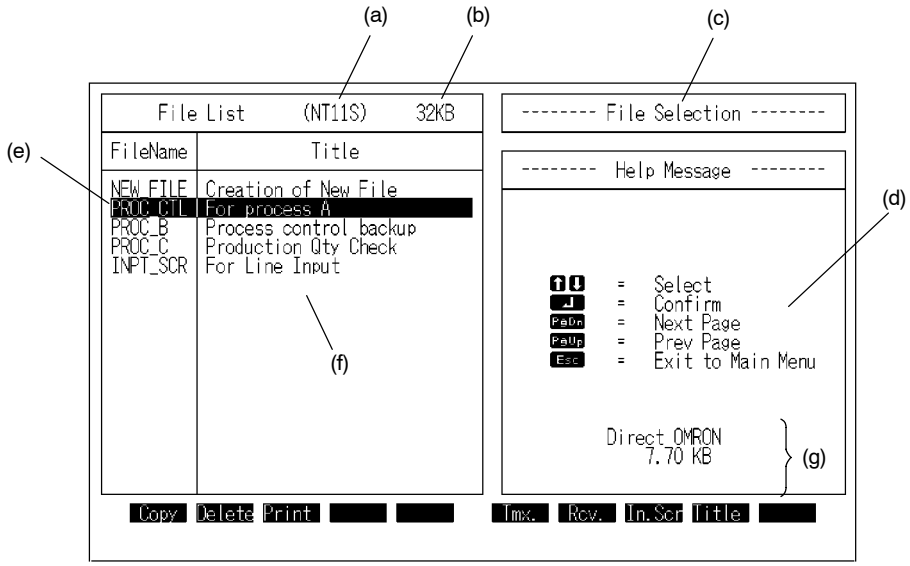
When the "Edit Screen" option is selected from the main menu, the "File Selection" screen is displayed.

In support tool terminology, an assemblage of screen data is called a "file".

Settings

On the "File Selection" screen, besides creating and selecting files, it is also possible to perform functions such as data communication with the PT.

<"File Selection" screen>



(a) PT model name: This is the PT model and direct connection version number set in the "Tool Settings".

(b) PT memory size

(c) Name of task currently being executed

(d) Help message area: Displays a guide to operation and allows parameter input.

(e) File name: The file names are indicated in this column. If the bar cursor is located on a file name and the ↵ key pressed, the "Screen Selection" screen will be displayed. To create a new file, select "NEW_FILE".

(f) Title: This is a comment that indicates the contents of a file. It is input when the file is saved.

(g) File information: The PT model, direct connection version, direct connection and file size for the file at the bar cursor location are displayed here.

The support tool allows the creation of up to 250 files. If the required file is not displayed on the screen, screens earlier and later in the sequence can be displayed by using the [Page Down] and [Page Up] keys.

Reference

- To use more than 250 files, create another directory. The data directory can be changed by using the "Tool Settings" option.
- All the files in the specified data directory are displayed.

It is possible to read files set using other models but you are advised to check the details of the file information displayed when the file is specified before reading it.

Returning to the main menu

To return to the main menu, press the [Esc] key.

Functions of the Function Keys

[Copy] [F1] . . . Copy file

Used to copy the contents of a file to another file.

(1) Press the [F1] (copy) key.

(2) Select the file to be copied.

(3) Input the file name and title of the copy destination and press the ↵ key.

▶ If [F1] (drive) is now selected, the file can be copied to the directory of another drive.

[Delete] [F2] . . . Delete file

Used to delete unnecessary files.

(1) Locate the bar cursor at the file to be deleted and press the [F2] key.

(2) Check the file name and then press the ↵ key: the file will be deleted.

[Print] [F3] . . . Print data

Used to print out files, information relating to screen data, character-strings, the conditions of use of numeral tables, etc.

See Section 6 "Printing Data".

[Tmx.] [F6] . . . Send data to the PT

Establishes a connection with the PT, sends created data to it in file units and writes it to the image data memory. The types of data that can be sent are screen data, character-string memory table and numeral table data, system memory data, mark data, and direct information.

See Section 9 "Data Transfer".

[Rcv.] [F7] . . . Receive data from the PT

Used to receive data registered in the PT in file units. The types of data that can be received are screen data, character-string memory table and numeral table data, system memory data, mark data, image data, library data, and direct information.

See Section 7 "Data Communication".

[In.Scr] [F8] . . . Set Initial screen number

Used to set the screen number that is displayed when the PT is started up.

The following items can be set:

- Initial screen: Number of the screen data displayed when the PT is started up.

On completion of setting, press the ↵ key.

[Title] [F9] . . . Change file title

Used to change the titles of files for which titles have been set.

(1) Locate the bar cursor at the file whose title is to be changed and press the [F9] (Title) key.

(2) Enter the new title and press the ↵ key.

3-5 "Screen Selection" Screen

The "Screen Selection" screen is displayed when a file to be edited is selected from the "Select File" screen, or when NEW_FILE is selected.

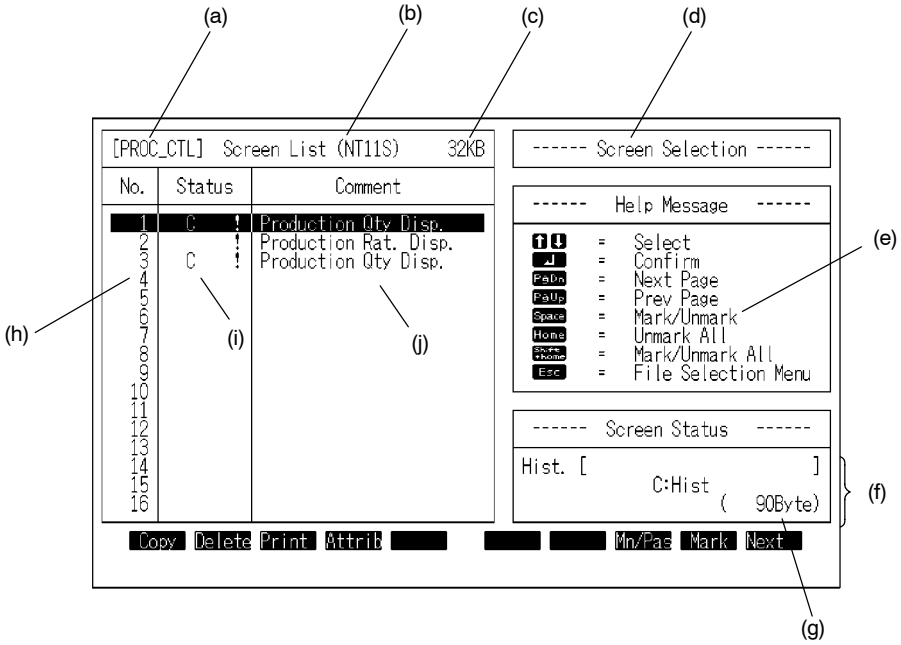
Functions of the "Screen Selection" Screen

Settings

Besides specifying the screen number for which screen data is to be created, various other operations and settings relating to screen data are possible on this screen, for example the setting of attributes for screen data and reading of data from other files in screen units.

Select the required screen and press the ↵ key to enable editing of the screen.

<"Screen Selection" Screen>



(a) Selected file name

(b) PT model name: The PT model name version set for the file is displayed here.

(c) PT memory size

(d) Name of task currently being executed

(e) Help message area: Displays a guide to operation and allows parameter input.

(f) Screen status details: Detailed information on screen data is displayed here.

(g) Screen data size

(h) Screen number:

The support tool manages screen data under screen numbers from 1 to 250. Screen data can be created under any screen number.

The previous and next pages can be displayed by using the [Page Up] and [Page Down] keys.

(i) Screen status, attribute:

In the "Status" column, the presence/absence of screen data and the set attribute are displayed in symbolic form.

More detailed information relating to these indications is displayed in the "Screen Status" area at the bottom right of the screen.

Symbol	"Screen Status" Information	Meaning
(Blank)	(No data)	No data has been created for this number.
!	(Data exists)	There is data for this number.
C	C: Hist	Display history attribute
H	H: Pass	Password input screen attribute
I	I: Menu	Menu screen parent screen

(j) Comment:

This is a comment assigned to the screen data. It is set when the screen data is saved.

The comment can be changed by pressing [F10] (Next), then [F1] (comment change).

<Screen Numbers and Their Applicability>

Some screens are earmarked for special applications, as shown below.

Screen No.	Application	User Editing	Remarks
0	Screen display OFF	×	Specified in order to switch the screen display off.
1 to 250	User screens	○	Can be used without restriction
251 to 255	Reserve screens for expansion functions	×	

○: Possible △: Partly possible ×: Not possible

<Using the Marking Function>

When, for example, deleting screen data, a number of screens can be handled together by using the marking function. All marked (*) screen data is taken as the object of the executed operation, regardless of the location of the bar cursor.

[Space] key: Marks the selected screen data. If the data is already marked, the mark is deleted.

[Home] key: Deletes all marks.

[Shift] + [Home]: Deletes the marks of all marked screen data and marks all unmarked screen data.

Reference

To perform an operation all screens except a specified screen (or screens), use the following procedure:

Example: Deleting all screen numbers except screens 1 to 3.

1. Clear all marks by pressing the [Home] key.

2. Mark screens 1 through 3 by pressing the [Space] key.

3. Press [Shift] + [Home].

All screen numbers except 1 through 3 will be marked.

4. Delete the screen data by pressing [F2] (delete).

<Saving and Quitting Screen Data Files>

Pressing the [Esc] key while the "Screen Selection" screen is displayed quits screen creation. There are two types of quitting: quitting after saving the file, and quitting without saving the file.

↵ key: Press after inputting the file name and comment to save the file and return to the "File Selection" screen.

[Space] key: Used to return to the "File Selection" screen without saving the file.

[Esc] key: Used to abort quitting and continue screen selection.

Functions of the Function Keys

[Copy] [F1] . . . Copy screen data

Used to copy screen data to another screen number.

(1) Locate the bar cursor at the screen data to be copied, and press the [F1] (Copy) key.

(2) Input the copy destination screen number and comment and press the ↵ key.

▶ It is also possible to batch copy all marked screen numbers.

[Delete] [F2] . . . Delete screen data

Used to delete unnecessary screen data.

(1) Locate the bar cursor at the screen data to be deleted and press the [F2] (Delete) key.

(2) Press the ↵ key.

▶ It is also possible to batch copy all marked screen numbers.

[Print] [F3] . . . Print data

Used to print out screen images and the numbers of lamps and touch switches at a printer.

See Section 6 "Printing Data".

[Attrib] [F4] . . . Set attribute

Used to set screen attributes. Setting is accomplished by making selections in the Help Message area. The following attributes can be set.

- History: No, Yes

For details on each attribute, refer to the Operation Manual for the PT.

[Mn/Pas] [F8] . . . Password screen, menu screen setting

Used to set screens for which a four digit password has been set to ensure security.

Also used to set screens that are allocated to numeral keys to allow screen switching using numeral keys.

<Setting password screens>

(1) Locate the bar cursor at the screen to be made a password screen by using the [↑]/[↓] keys, then press the [F8] (Mn/Pas) key.

(2) Select "Password".

(3) Locate the bar cursor at the screen to be switched by the password with the [↑]/[↓] keys. Press the [Space] key, then the ↵ key.

(4) Input the password (four digit numerical value) and press the ↵ key.

(5) Input a screen comment and press the ↵ key.

<Setting menu screens>

(1) Locate the bar cursor at the screen to be made a menu screen by using the [↑]/[↓] keys, then press the [F8] (Mn/Pas) key.

(2) Select "Menu".

(3) Select a numeral key (from 1 to 4) using the [←]/[→] keys.

(4) Locate the cursor at the screen to be allocated to the numeral key using the [↑]/[↓] keys.

Press the [Space] key, then the ↵ key.

(5) Input a screen comment and press the ↵ key.

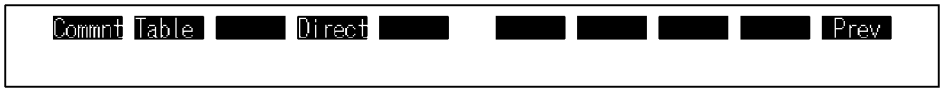
[Mark] [F9] . . . Mark creation

Used to create and modify marks.

See Section 5 "Creating a Mark, Images, and Library Data".

[Next] [F10] . . Display next function keys

Pressing this key changes the function key display to the next set of function keys.



For an explanation of the function of each function key, see the following.

[Commnt] [F1] . . . Change comment

Used to change the comments assigned to screen data.

(1) Locate the bar cursor at the screen number whose comment is to be changed and press the [F1] (Commnt) key.

(2) Input the new comment and press the ↵ key.

[Table] [F2] . . . Edit table

Used to write data to, and change the data in, character-string memory tables and numeral memory tables.

(1) Press the [F2] (Table) key.

(2) Select the character-string memory table or numeral memory table and press the ⏎ key.

(3) Edit the contents of the memory table.

- Move the bar cursor with the arrow keys, make the selection by pressing the ⏎ key, and change the data.
- Previous and next screens can be displayed by using the [Page Up] and [Page Down] keys.

  The bar cursor can be moved to a specified number by pressing the [Tab] key and inputting the number.

▶ Pressing the [F1] (Ref) key will display a list of the screens that refer to the memory table with the specified number. When editing a character-string memory table, marks can be input using [F3] (Mark) and images using [F4] (Image).

(4) To quit editing, press the [Esc] key.

[Direct] [F4] . . . Set direct connection information

Data area allocations for direct connection can be made using batch settings.

See "Setting Direct Connection Information" (p.26).

[Prev] [F10] . . Display previous function keys

Pressing this key changes the key display to the original set of function keys.

3-5-1 Setting Direct Connection Information

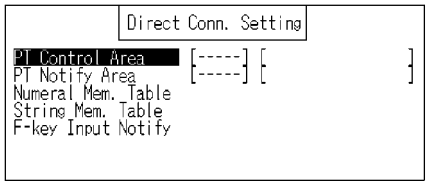
The "Direct" menu option on the "Screen Selection" screen allows batch setting of the following functions:

- PT status control area allocation
- PT status notify area allocation
- Numeral memory table allocation and initial value setting
- Character-string table allocation and initial value setting
- Setting the notification bit for notification that a function key has been pressed

Note Be sure to allocate the data area referenced in the PC to the PT status control area and PT status notify area.

Procedure

1. Press the [F4] (Direct) key on the "Screen Selection" screen.



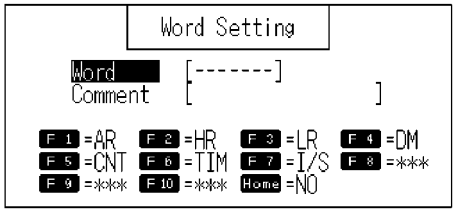
2. Locate the bar cursor at the function to be set and press the ↵ key.

The function setting window will be displayed: carry out allocations to the data area in the PC and function setting in this window. For details of the settings, refer to the descriptions of the individual functions.

3. On completion of setting, press the [Esc] key.

PT Status Control Area, PT Status Notify Area

Allocate data areas at the PC for the PT status control area, which controls the PT from the PC, and the PT status notify area, which notifies the PC of information from the PT.



For details of the settings, see "Setting Words and Bits" (p.38).

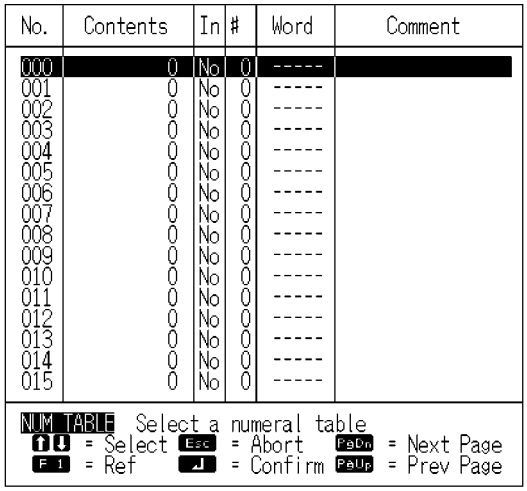
Note It is not possible to set timers (TIM) or counters (CNT).

Numeral Memory Table Settings, Character-String Memory Table Settings

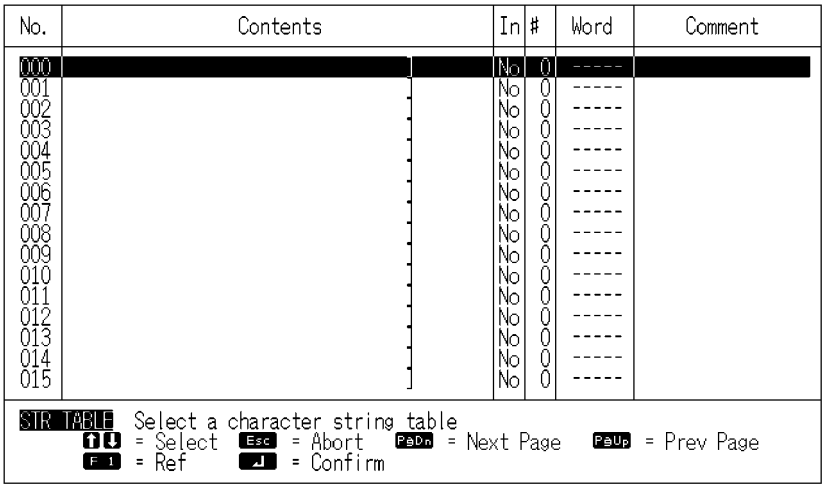
Set the initial values and word allocations for numeral tables and character-string memory tables.

Pressing the [F1] (Ref) key displays the screen number used by the memory table at the current bar cursor location.

<Numeral table setting>



<Character-string memory table setting>

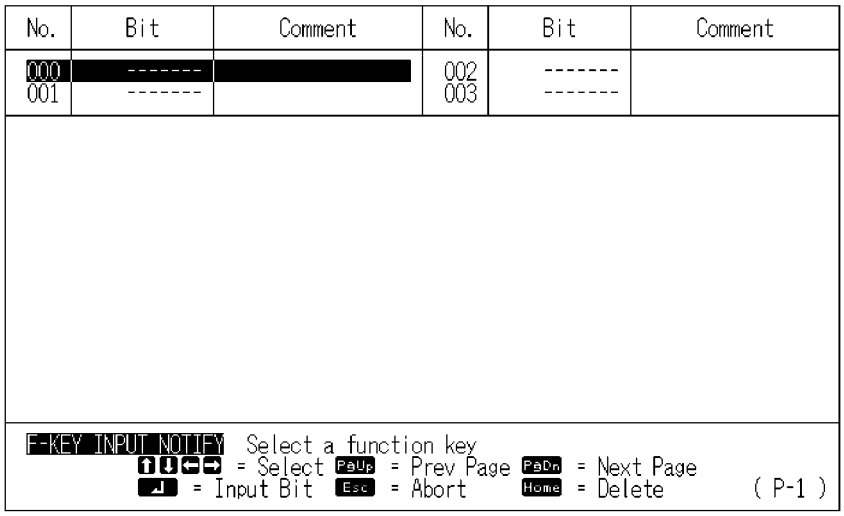


For details of the settings, see "Setting Numeral Memory Tables" (p.36), and "Setting Character-String Memory Tables" (p.37).

Function Key Notify Bit Setting

Host bits are allocated to the function keys.

By switching a function key on and off, the corresponding bit is turned on and off.



- No. — Function key number (000 : F1, 001 : F2, 002 : F3, 003 : F4)
- Bit — Bit used for notification to the host
- Comment — Comment that indicates the function of the function key

WARNING

Do not use the PT extended I/O input function for applications where there is any danger to human life or possibility of serious damage, or for an emergency stop switch function.

SECTION 4
Creating Screen Data

Screen data has to be created for display by the PT. Screen data can be created by selecting the editing functions of the “Edit” screen.

This chapter explains the creation procedure, with emphasis on key operations.

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4-1 Initial Editing Screen and Basic Operations

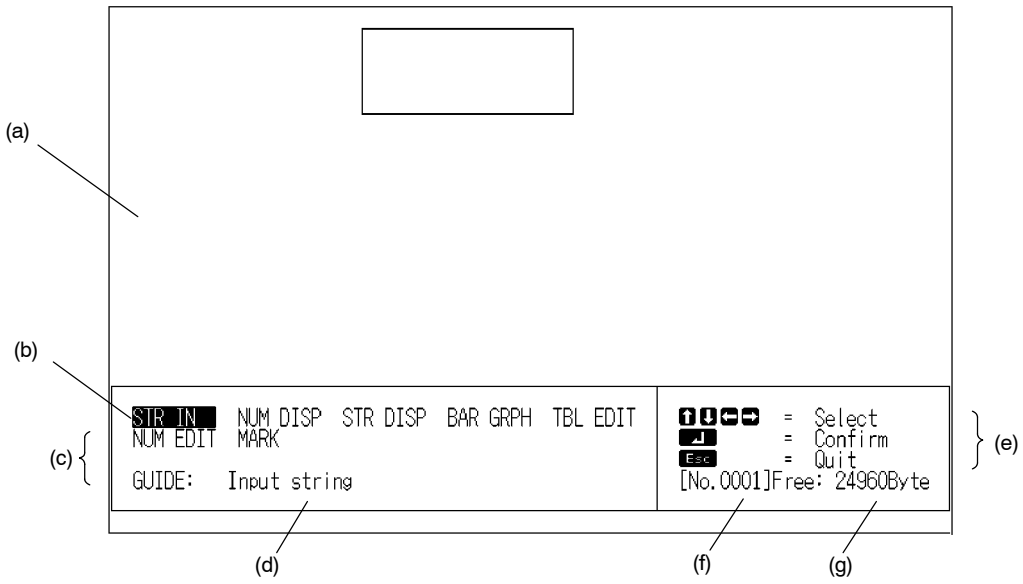
On the “Edit” screen, characters can be created.

4-1-1 Displaying the “Edit” Screen

The “Edit” screen is displayed when a screen number is selected on the “Screen Selection” screen.

The initial editing screen displays the editing menu, from which the functions for creating screen data can be selected.

<Initial editing screen>



(a) “Edit” screen: This is a data creation screen with the same number of dots as the PT screen.

(b) Menu box: The editing menu and help messages are displayed here.

(c) Editing menu: The editing function to be executed is selected from this menu.

(d) Help message display: Displays an explanation of the function.

(e) Key operation guide: The keys and functions that can currently be used are displayed here. Functions can be executed by pressing the relevant key.

(f) Screen number: This is the screen number of the screen data currently being edited.

(g) Free capacity: This is the free capacity for file storage.

Saving Screen Data and Quitting

Pressing the [Esc] key while the initial editing screen is displayed quits screen data creation. There are two types of quitting: quitting after saving the data and quitting without saving data.

- ↵ key: After comment input, saves the data and returns the display to the "Screen Selection" screen.
- [Space] key: Returns the display to the "Screen Selection" screen without saving data.
- [Esc] key: Aborts quitting and allows editing to continue.

Screen Data Display Sequence

Elements are displayed in the following sequence on the PT screen.

Note Take the display sequence into consideration when creating screen data.

(1) Fixed data (characters/marks)

(2) Character-strings

(3) Numeric values

(4) Numeric value input fields

4-1-2 Basic Operations on the "Edit" Screen

Basic Operations

• Moving the cursor

There are various cursors, including a cross-hair cursor (intersecting vertical and horizontal lines) and a box used for specifying the position of character displays. These cursors can be moved with the arrow keys ([↑][↓][←][→]). Pressing one of the arrow keys while holding down the [Shift] key gives larger motion increments (of 16 dots).

To fix a position, either press the ⏎ key.

• Character input

Insert/overwrite: The [Insert] key is used to select whether the insert or overwrite mode is effective for character input.

Character deletion: An input character can be deleted by pressing the [Back Space] key or the [Delete] key.

Mark input: Pressing the [F1] (Mark) key on the character input screen displays the mark list window. Select the mark to be input with the cursor and press the ⏎ key.

• Numeric value/character-string input

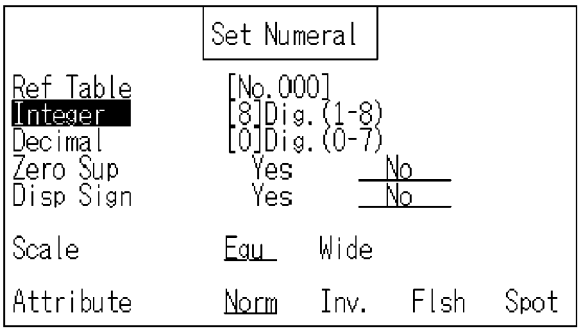
Numeric value/character-string clearance:

To clear an input numeric value or character-string during numeric value/character-string input, press the [Home] key.

Operations Inside Windows

During operation, windows for parameter input and settings are sometimes displayed. Use the displayed keys in order to perform operations in these windows.

<Operation example: numeral display setting>



4-2 Common Setting Operations

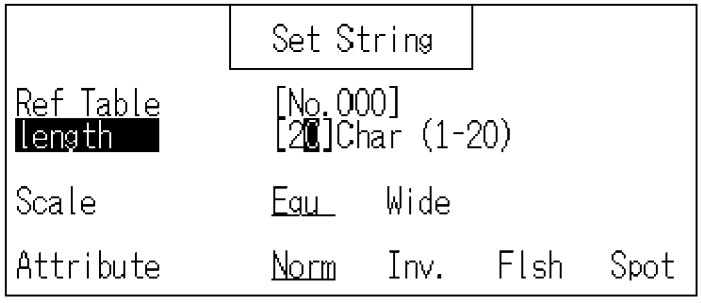
Some setting operations are used frequently with all editing functions, such as numeral display setting and word setting. These are explained here by summarizing the representative setting operations.

Refer to this section if you are unsure how to perform a setting operation during screen creation.

4-2-1 Setting Character/Character-String Displays

<Character input>

<Character-string display>



- Scale

  Characters can be displayed at magnifications from 1x (Equ) to Wide.

Equ Wide

- Attribute

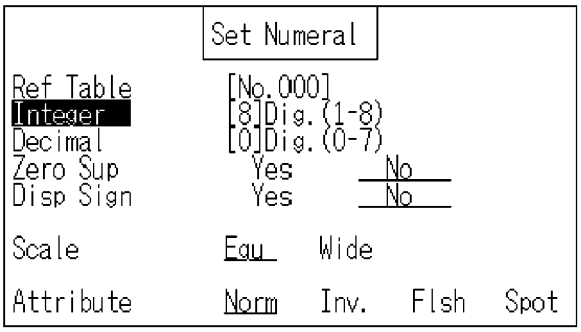
  Characters can be displayed with any of the following attributes: “Norm” (normal), “Inv.” (inverted), “Flsh” (flashing), or “Spot”.

Special Characters

Characters not on the keyboard can be input via character codes. A list of character codes is provided at the end of the manual (Appendix C). To input a character code, press the [Alt] key followed by the decimal code.

4-2-2 Setting Numeral Displays

These settings set the display size and display status for numerals.



- Disp Type: Specify whether the displayed numeric value will be decimal or hexadecimal format.
- Integer: Specify the number of digits in the integral part of the numeric value here (1 to 8).
- Decimal: Specify the number of digits in the decimal fraction here (0 to 7).
- Zero Sup: When “No” is specified here, if the numeric value does not have the available number of digits, “0” will be displayed for the digits preceding the digits comprising the numeric value.
- Disp Sign: When “Yes” is specified here, a minus sign will be displayed for negative numeric values (numeric values whose first digit in hexadecimal notation is “F”).
- Scale: Numeric values can be displayed at the x1 (Equ) or wide size.
- Attribute: Numeric values can be displayed with any of the following attributes: “Norm” (normal), “Inv.” (inverted), “Flsh” (flashing), or “Spot”.

Reference

The display of numeric values changes in the following way in accordance with the specifications made for “Integer”, “Decimal”, “Zero Sup”, and “Disp Sign”.

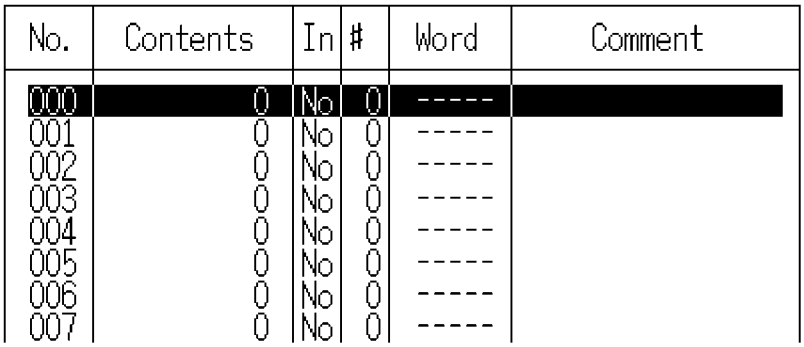
Integer	Decimal	Zero Sup	Disp Sign	Contents of the numeral memory table	Screen display
3	0	No	No	12	012
3	0	No	No	–12	012
3	0	Yes	No	12	12
3	0	Yes	No	–12	12
3	0	Yes	Yes	12	12
3	0	Yes	Yes	–12	–12
3	1	No	No	1	000.1
3	1	No	No	–12	001.2
2	1	No	Yes	1	00.1
2	1	No	Yes	–12	–01.2
2	1	Yes	Yes	1	0.1
2	1	Yes	Yes	–12	–1.2

* In the numeral memory table, those characters suffixed by a “–” symbol are actually suffixed by an “F” in decimal notation.

For example, “–12” is represented as “F0000012”.

4-2-3 Setting Numeral Memory Tables

This section describes how to set the initial values, and data area referenced in the PC, for numeral memory tables.



No.	Contents	In	#	Word	Comment
000	0	No	0	-----	
001	0	No	0	-----	
002	0	No	0	-----	
003	0	No	0	-----	
004	0	No	0	-----	
005	0	No	0	-----	
006	0	No	0	-----	
007	0	No	0	-----	

- No.: Numeral memory table number
- Init Val: Initial value
- In: Execution/non-execution of numeral memory table initialization in accordance with initial values set using the support tool when the PT is started up.
- #: Number of words used at the PC for reference by the numeral memory table.
- Word: First word (lower word) in the data area at the PC referenced by the numeral memory table.
- Comment: Comment indicating word contents, etc., input when the word is set.

<Setting method>

Procedure

1. Locate the bar cursor at the number of the numeral memory table to be set and press the ⏎ key.
2. Input the initial value for the numeral table and press the ⏎ key.

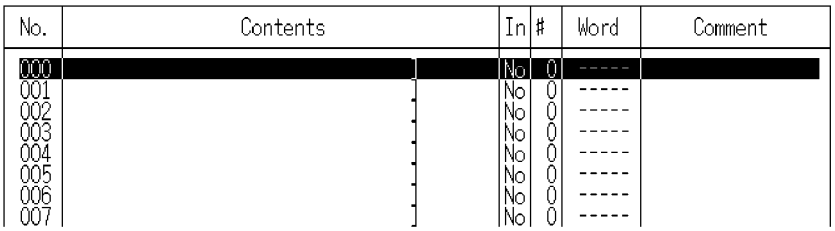
▶ The input value can be deleted by pressing the [Home] key.

3. Carry out word setting.

   For details of the setting procedure, see “Setting Words and Bits” (p.38).

4-2-4 Setting Character-String Memory Tables

This section describes how to set the initial values, and data area referenced in the PC, for character-string memory tables.



No.	Contents	In	#	Word	Comment
000		No	0	-----	
001		No	0	-----	
002		No	0	-----	
003		No	0	-----	
004		No	0	-----	
005		No	0	-----	
006		No	0	-----	
007		No	0	-----	

- No.: Character-string memory table number
- Initial Data: Initial value
- In: Execution/non-execution of character-string table initialization in accordance with initial values set using the support tool when the PT is started up.
- #: Number of words used at the PC for reference by the character-string memory table.
- Word: First word (lower word) in the data area at the PC referenced by the character-string memory table.
- Comment: Comment indicating word contents, etc., input when the word is set.

<Setting Method>

Procedure

1. Locate the bar cursor at the number of the character-string memory table to be set and press the ⏎ key.
2. Input the initial value for the character-string memory table and press the ⏎ key.

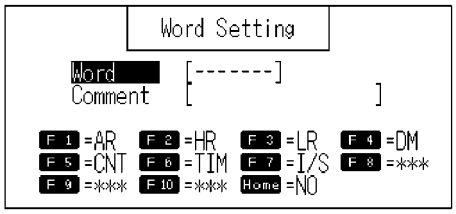
▶ Pressing the [F1] (Mark) key enables mark input.

3. Carry out word setting.

   For details of the setting procedure, see “Setting Words and Bits” (p.38).

4-2-5 Setting Words and Bits

The words and bits referenced in the PC have to be set.



- Word/Bit:

  In the case of numeral memory tables and character-string memory tables, specify the lower word number of the referenced words. Word names and bit names are input using the function keys and numbers are input using the numeric keys.

- Init: Specify whether or not the memory table will be initialized in accordance with the initial values set with the support tool when the PT starts uphere.

- St. Word: Specify the number of words used at the PC side (for character display, specify a value from 1 to 10; in other cases, specify 1 or 2).

Note

- When specifying a DM area for a bit, append the bit number (00 to 15) at the end of the DM number.
- Timers (TIM) and counters (CNT) cannot be set in bits or the words of character-strings.

4-3 Creating Fixed Displays

This section describes how to create fixed characters in screen data.

The following characters can be created.

Characters (fixed display), marks (display)

4-3-1 Inputting Characters

Characters to be displayed have to be input. For details on the display of character-strings and numeric values, setting numeral tables, and setting words and bits, see 4-2 “Common Setting Operations” (p.33).

Procedure

1. Select “STR IN” on the initial editing screen.

2. Input the characters to be displayed at the keyboard and press the ↵ key.

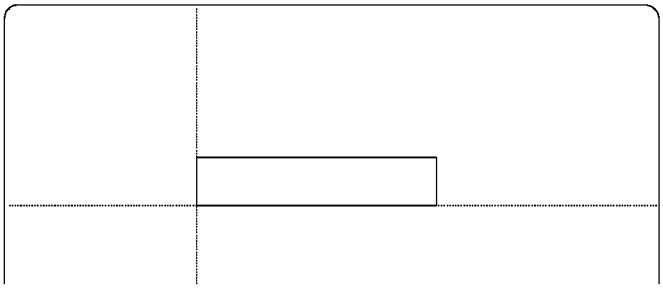
▶ Pressing the [F1] (Mark) key enables mark input.

3. Set the display settings and press the ↵ key.

4. A box indicating the size of the character data is displayed.

Move this box to the required display position and press the ↵ key. The characters will be displayed.

▶ Use the ↑ ↓ keys to move up or down one line at a time and the ← → keys to move one character (8 dots) at a time.



5. Press the [Esc] key to quit character input.

Deleting Displayed Characters

This is the procedure for deleting displayed characters. Deletion is executed in character-string units.

Procedure

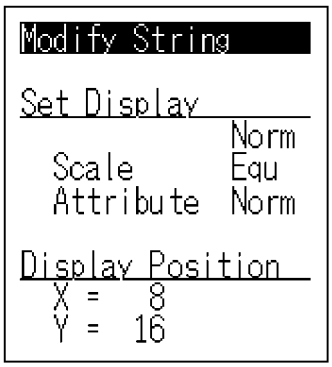
1. Select “STR IN” on the initial editing screen.
2. Press the [F1] (Delete) key.
3. Locate the cross-hair cursor at a position inside the character-string to be deleted and press the ↵ key. The selected character-string will be enclosed by a dotted line.
4. Check the message, then press ↵ key to delete the character-string.

Modifying Displayed Characters

This is the procedure for modifying displayed characters, their character size, attributes, or position. Modification is executed in character-string units.

Procedure

1. Select “STR IN” on the initial editing screen.
2. Select “Modify”, then press ↵ key.
3. Locate the cross-hair cursor at a position inside the character-string to be modified and press the ↵ key.
4. Select the required item in the window and modify the character-string.



- Modify String: Select to change characters.
- Set Display: Select to change the character font, scale, or display attribute.
- Display Position: Select to move the character box in order to change the display position.

5. Press the [Esc] key to quit modification.

4-3-2 Inputting Marks

Created marks are input during screen editing. Marks can be handled in the same way as characters and magnification scales can be specified for them.

Displaying Marks

Select the mark that you want to display from the mark selection screen.

Marks can be displayed in the following way.

(1) Specification during character input

Press the [F1] (Mark) key after inputting characters or a label to display the mark selection screen.

Select the mark to be displayed from this screen and specify the display position.

The mark will be displayed in its actual form in the character input field. It will be displayed on the editing screen with its bottom left extremity take as the origin.

4-4 Setting Numeral Displays

This section describes how to display the contents of numeral tables on the screen.

A maximum of 8 numeral displays can be set for display on one screen.

4-4-1 Setting Numeral Displays

This is the procedure for setting numeral displays. For details on the display of character-strings and numeric values, setting numeral tables, and setting words and bits, see 4-2 “Common Setting Operations” (p.33).

Procedure

1. Select “NUM DISP” on the initial editing screen.

2. In the window, select the field for registering the numeral display and press the ↵ key.

▶ To delete an entry that has already been set, locate the cursor at that number and press the [F1] (Delete) key.

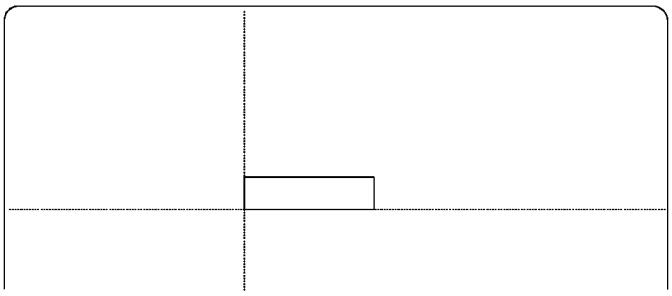
3. Select the number of the numeral memory table to be set and press the ↵ key. See “Setting Numeral Memory Tables” (p.36).

4. Set the word to be referred to and press the ↵ key. For details on the setting procedure, see “Setting Words and Bits” (p.38).

5. Set the display settings for the numerals and press the ↵ key.

6. A box that indicates the size of the numeral display will be displayed.

Move this box to the required display position and press the ↵ key.



If required, more numeral displays can be set by repeating steps 3. through 6.

To quit numeral display, press the [Esc] key twice.

4-4-2 Modifying Numeral Displays

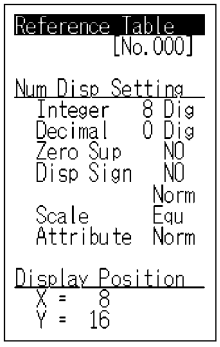
The contents and position of numeral displays created on the screen can be modified.

Procedure

1. Select “NUM DISP” on the initial editing screen.

2. In the window, select the entry corresponding to the numeral display to be modified and press the ↵ key.

3. Select the required item in the window and execute the modification.



- Num Disp Setting: Select to change settings such as the referenced memory table, the scale, and the attribute.
- Display Position: Select to change the display position.

4. Press the [Esc] key to quit modification.

4-5 Setting Character-String Displays

This section describes how to display the contents of character-string memory tables on the screen.

A maximum of 8 character-string displays can be set for display on one screen.

4-5-1 Setting Character-String Displays

This is the procedure for setting character-string displays. For details on the display of character-strings and numeric values, setting numeral tables, and setting words and bits, see 4-2 “Common Setting Operations” (p.33).

Procedure

1. Select “STR DISP” on the initial editing screen.

The character-string setting initial screen will be displayed.

2. Select the field in which the character-string is to be registered in the window and press the ↵ key.

▶ To delete an existing character-string from the field in which it is registered, locate the cursor at that number and press the [F1] (Delete) key.

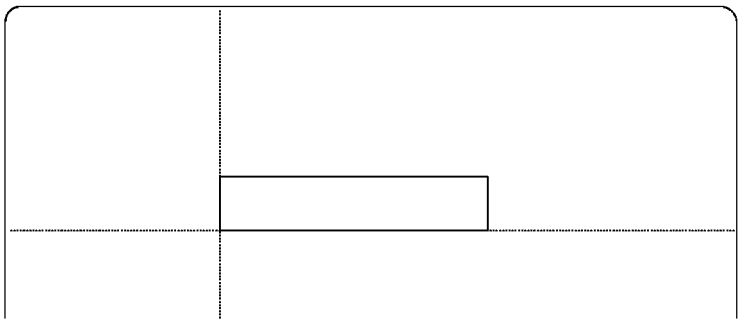
3. Select the number of the character-string memory table to be set and press the ↵ key. See “Setting Character-String Memory Tables” (p.37).

4. Set the word to be referred to and press the ↵ key. For details on the setting procedure, see “Setting Words and Bits” (p.38).

5. Set the display settings for the character-string and press the ↵ key.

6. A box that indicates the size of the character-string display will be displayed.

Move this box to the required display position and press the ↵ key.



If required, more character-string displays can be set by repeating steps 3. through 6.

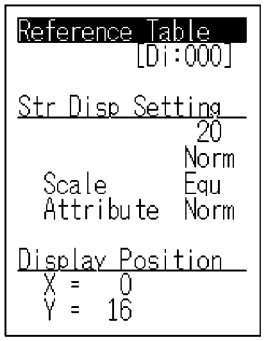
To quit character-string display, press the [Esc] key twice; the display will return to the menu.

4-5-2 Modifying Character-String Displays

The contents and position of character-string displays created on the screen can be modified.

Procedure

1. Select “STR DISP” on the initial editing screen.
2. In the window, select the entry corresponding to the character-string display to be modified and press the ↵ key.
3. Select the required item in the window and execute the modification.



- Str Disp Setting: Select to change settings such as the referenced memory table, the scale, and the attribute.
- Display Position: Select to change the display position.

4. Press the [Esc] key to quit modification.

4-6 Creating Bar Graphs

This section describes how to create bar graphs whose display corresponds to the numeric values in numeral tables.

- Bar graph: Numeral table contents are displayed in the form of a bar graph.

4-6-1 Setting Bar Graphs

A maximum of 4 bar graphs can be set for display on one screen.

For details on the display of character-strings and numeric values, setting numeral tables, and setting words and bits, see 4-2 “Common Setting Operations” (p.33).

Procedure

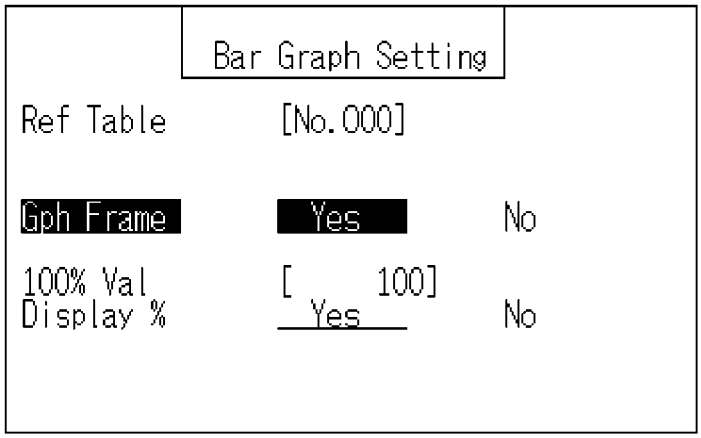
1. Select “BAR GRPH” from the initial editing screen.

   The bar graph setting initial screen will be displayed.

2. Select the field in which the bar graph is to be registered and press the ↵ key.

▶ To delete an existing bar graph from the field in which it is registered, locate the cursor at that field and press the [F1] (Delete) key.

3. Locate the cursor at the start point for the bar graph frame and press the ↵ key.
4. Locate the cursor at the end point for the bar graph and press the ↵ key.
5. Select the number of the numeral memory table to be set and press the ↵ key. See “Setting Numeral Memory Tables” (p.36).
6. Set the word to be referred to and press the ↵ key. For details on the setting procedure, see “Setting Words and Bits” (p.38).
7. Set the display settings for the bar graph and press the ↵ key.



- 100% Val: Specify the reference methods for 100%, 0%, and –100% values. If “Num Table” is specified, specify the numeral table number.

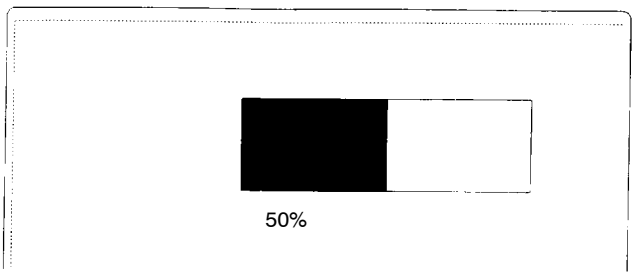
  Pressing the [F1] key enables the memory table to be selected from a displayed list.

- Display %: Specify whether or not a percentage value is displayed on the screen.

8. A box that indicates the size of the percentage display will be displayed.

Move this box to the required display position and press the ↵ key.

The specified percentage display and bar graph will be displayed.



9. The screen for setting the start point of a bar graph frame will be displayed.

If you want to create another bar graph, set its start point.

To quit bar graph setting, press the [Esc] key twice.

4-7 Creating Numeral Settings

This section describes how to create “numeral setting” screens that enable you to change numeric values at the PT. Up to 8 numeral settings can be made on one “numeral setting” screen. The values can be input using touch switches (“ten keys”).

4-7-1 Creating Numeral Setting Input Fields

This is the procedure for creating input fields for numeral settings. For details on the display of numeric values, setting numeral tables, and setting words and bits, see 4-2 “Common Setting Operations” (p.33).

Procedure

1. Select “NUM EDIT” from the initial editing screen.

The numeral setting initial screen will be displayed.

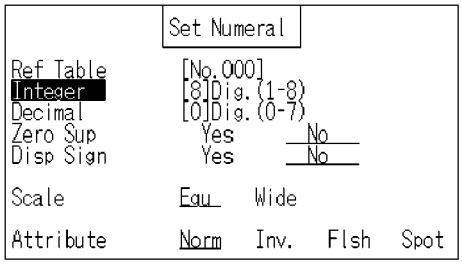
2. Select the field in which the numeral setting area is to be registered and press the ↵ key.

▶ To delete an existing numeral setting from the field in which it is registered, locate the cursor at that field and press the [F1] (Delete) key.

3. Select the number of the numeral memory table to be set and press the ↵ key. See “Setting Numeral Memory Tables” (p.36).

4. Set the word to be referred to and press the ↵ key. For details on the setting procedure, see “Setting Words and Bits” (p.38).

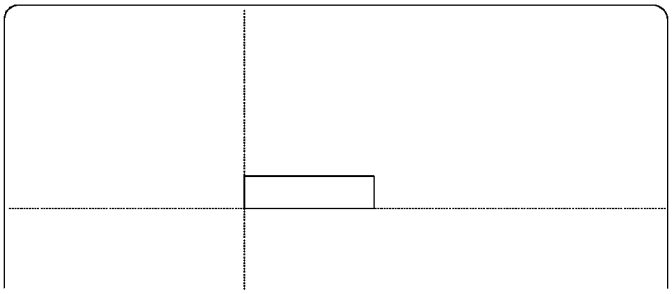
5. Set the conditions for numeral display and press the ↵ key.



- Disp Type: Specify whether the displayed numeric value will be decimal or hexadecimal format.
- Integer: Specify the number of digits in the integral part of the numeric value here (1 to 8).
- Decimal: Specify the number of digits in the decimal fraction here (0 to 7).
- Zero Sup: When “No” is specified here, if the numeric value does not have the available number of digits, “0” will be displayed for the digits preceding the digits comprising the numeric value.
- Disp Sign: When “Yes” is specified here, a minus sign will be displayed for negative numeric values (numeric values whose first digit in hexadecimal notation is “F”).
- Scale: Numeric values can be displayed at the x1 (Equ) or wide size.
- Attribute: Numeric values can be displayed with any of the following attributes: “Norm” (normal), “Inv.” (inverted), “Flsh” (flashing), or “Spot”.

6. A box that indicates the size of the numeral setting input field will be displayed.

Move this box to the required display position and press the ↵ key.



If required, more numeral settings can be set by repeating steps 3. through 6.

To quit numeral display, press the [Esc] key twice.

Reference

If “Yes” is set for “Brkn Line Frame Disp” in the environmental settings (tool settings for the “Edit” screen), the display range for the numerals can be continually monitored on the screen.

4-8 Setting the Password Display Position

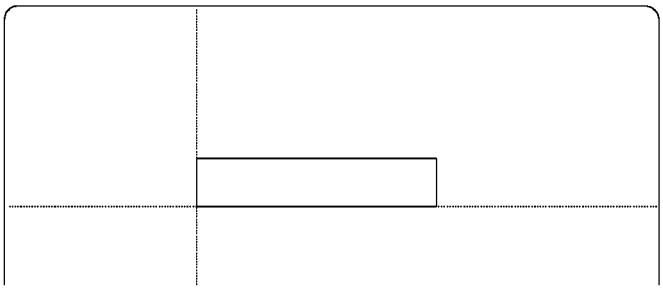
This is the function for setting the position at which the password is displayed.

It can only be set for screens set as password screens using the “Screen Selection” screen.

Procedure

1. Select “PASSWORD” on the initial editing screen.
2. Select “Create”
3. A box indicating the size of the password display is displayed. Move this box to the required display position and press the ↵ key.

▶ The box can be moved in one-line increments by using the [↑]/[↓] keys and in one-character (8-dot) increments by using the [←]/[→] keys.



Changing the Display Position

This is the procedure for changing the password display position.

Procedure

1. Select “PASSWORD” on the initial editing screen.
2. Select “Modify”.
3. Move the box to the new position and press the ↵ key.

   Pressing the [Esc] key will allow you to change the display position again.
4. Press the [Space] key to quit modification.

4-9 Editing Memory Tables

It is possible to check the initial values in numeral tables and character-string memory tables, and to change these values.

For details of the procedure, see 4-2 “Common Setting Operations” (p.33).

Procedure

1. Select “TBL EDIT” from the initial editing menu.
2. Select “Numeral” or “String”.
3. Select the memory table to be changed and press the ↵ key.
4. Change the word setting and press the ↵ key.

   If not changing the word setting, just press the ↵ key.
5. Other memory tables can be edited by repeating steps 2 to 4.

   To quit memory table editing, press the [Esc] key twice.

SECTION 5
Creating Marks

It is possible to create customized characters and symbols called “marks” and display them on the screen.

Marks can be treated in the same way as wide font characters: they can be displayed at various scales of enlargement and attributes can be set for them.

5-1 Marks 54
5-1-1 Mark Creation Procedure 54
5-1-2 Mark Creation Screen 54
5-1-3 Mark Creation Functions 55

5-1 Marks

This section describes how to create customized characters and symbols and display them on the screen.

Up to 64 marks of the 8 x 16 dot size can be created.

5-1-1 Mark Creation Procedure

The procedure for creating marks is as follows.

Procedure

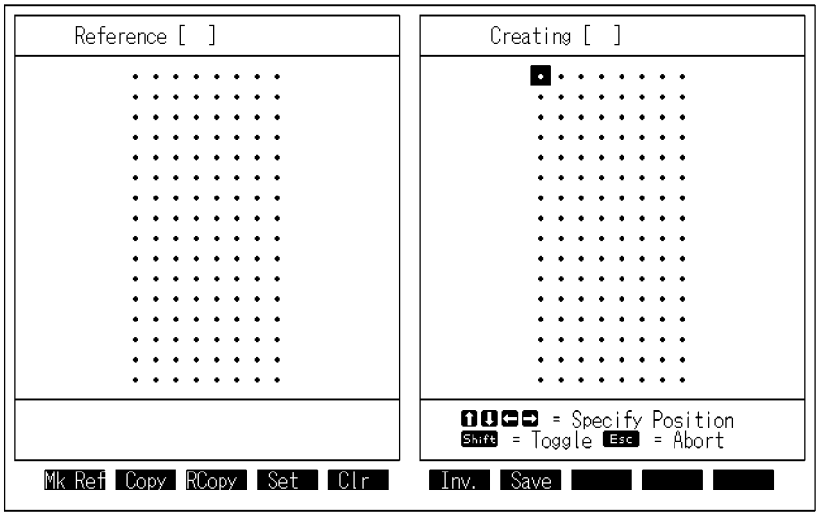
1. Press the [F9] (Mark) key on the “Screen Selection” screen.
2. Create the mark graphic in the creation area.
3. Press the [F7] key to register the created mark.
4. Press the [Esc] key to quit mark creation.

5-1-2 Mark Creation Screen

Marks are created on the mark creation screen.

Up to 64 marks of the 8 x 16 dot size can be registered.

<Mark creation screen>



- Reference: Area used to display other marks for reference during mark creation.
- Creating: Area used for creating marks with dot data.

5-1-3 Mark Creation Functions

Dot Operations

- Dot display/deletion

When the [Shift] key is pressed, a dot is displayed at the cursor position.

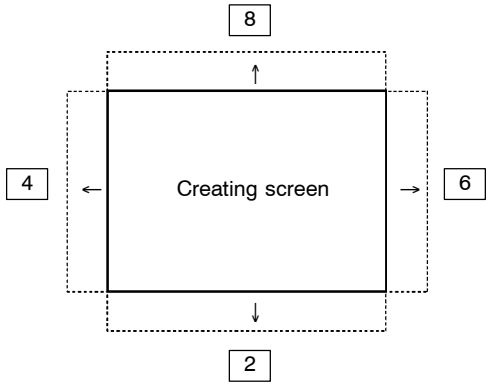
If the [Shift] key is pressed while the cursor is located over a displayed dot, the dot will be deleted.

- Continuous display or deletion of dots

To display or delete a continuous line of dots, move the cursor by pressing one of the arrow keys while holding down the [Shift] key.

- Moving the screen

The mark displayed on the screen can be moved by pressing numeral keys:



Functions of the Function Keys

[Mk Ref] [F2] . . . Mark reference

Used to display an existing mark in the reference area.

(1) Press the [F2] (Mk Ref) key.

(2) Locate the cursor on the mark in the mark list window that is to be displayed.

(3) Press the ↵ key: the character will be displayed.

[Copy] [F3] . . . Area copy

Used to copy the dots in a specified area into the creating area.

(1) Press the [F3] (Copy) key.

(2) Specify the start point and end point of the area to be copied.

(3) Move the area to the copy destination and press the ↵ key: the dots will be copied.

[RCopy] [F4] . . . Copy from the reference area

Used to copy the dots in a specified area of the reference area to the creating area.

(1) Press the [F4] (RCopy) key.

(2) Specify the start point and end point of the area within the reference area that is to be copied. Specify diagonally opposite points to specify a rectangular area.

(3) Move the area to the copy destination within the creating area and press the ↵ key: the dots will be copied.

[Set] [F5] . . . Set dots in a specified area

Used to set (display) all the dots within a specified area.

(1) Press the [F5] (Set) key.

(2) Specify the start point and end point of the area in which the dots are to be set.

Specify diagonally opposite points to specify a rectangular area.

(3) Press the ↵ key: the dots inside the specified area will be set.

[Clear] [F6] . . . Reset dots in a specified area

Used to reset (clear) all the dots within a specified area.

(1) Press the [F6] (Clear) key.

(2) Specify the start point and end point of the area in which the dots are to be cleared.

Specify diagonally opposite points to specify a rectangular area.

(3) Press the ↵ key: the dots inside the specified area will be cleared.

[Inv.] [F7] . . . Invert dots

Used to invert the display of all the dots within a specified area: displayed dots are cleared and cleared dots are displayed.

(1) Press the [F7] (Inv.) key.

(2) Specify the start point and end point of the area in which the dots are to be cleared.

Specify diagonally opposite points to specify a rectangular area.

(3) Press the ↵ key: the dots inside the specified area will be inverted.

[Save] [F8] . . . Register a mark

Used to register a mark that has been created.

Displaying Marks

Marks can be displayed in either of the two following ways.

(1) Specification during character input

If the [F3] (Mark) key is pressed when inputting characters or a mark can be selected from the mark selection screen.

It is possible to use marks in combination with characters.

Mark data is displayed as data in the character input field. On the “Edit” screen, the actual mark is displayed, taking the left bottom extremity of the mark as the origin.

SECTION 6
Screen Data Operations

This section describes operations including those for copying and deleting created screen data.

6-1 Copying Screen Data 60
6-2 Deleting Screen Data 62
6-3 Changing Screen Comments 64
6-4 Setting Screen Attributes 65

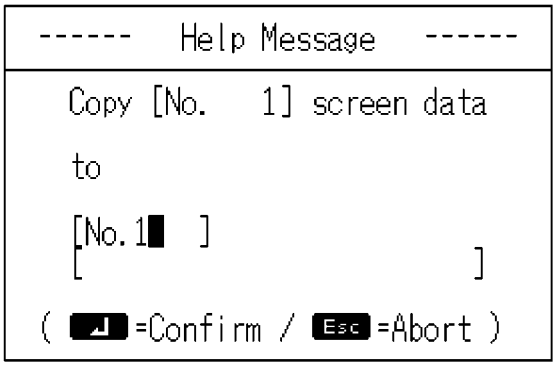
6-1 Copying Screen Data

The data of a specified screen can be copied to another screen.

- To copy screen data, first specify the copy source screen number and then specify the copy destination screen number.

(1) Display the “Screen Selection” screen.

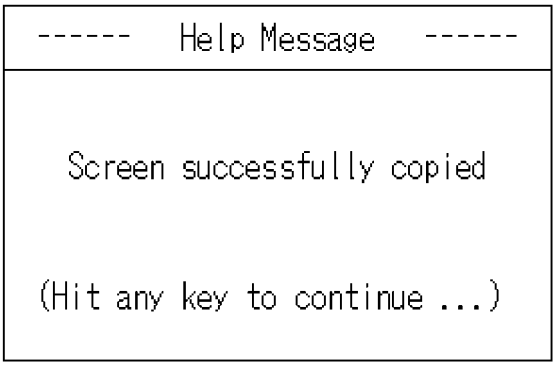
(2) Locate the bar cursor on the copy source screen number and press [F1] (Copy).



(3) Input the screen No. (1 to 250) of the copy destination and press the ↵ key.

(4) Input a comment no longer than 24 characters long, then press the ↵ key. (Note)

- When the copy operation is completed, the message shown below will be displayed.
- Press any key to return to the “Screen Selection” screen.



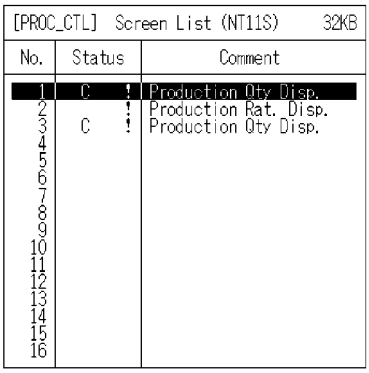
Note

1. If there is any screen data registered for the copy destination screen, the enquiry “Screen to be copied exists. Overwrite?” will be displayed. If you choose to overwrite, the existing data will be deleted.
2. If it is OK to delete the data, press the ↵ key.
3. To abort, press [Esc] key to return to the “Screen Selection” screen.

6-2 Deleting Screen Data

- This is the procedure for deleting specified screen data.
- It is possible to delete multiple screens at the same time.

(1) Display the “Screen Selection” screen.

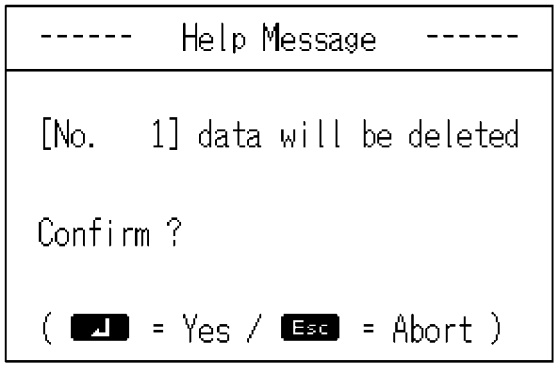


To Delete One Screen only

- Locate the cursor at the screen number of the screen to be deleted and press [F2] (Delete).

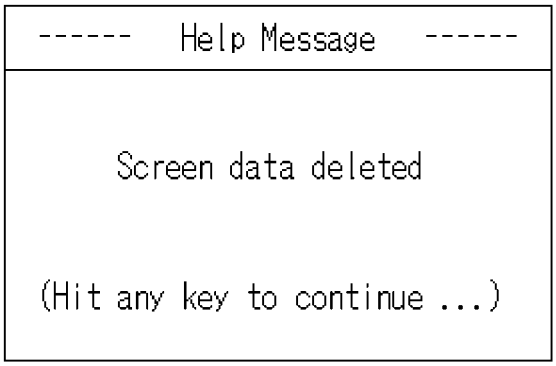
To Delete more than One Screen

- Mark (*) the screen numbers of the screens to be deleted by using the [Space] key.
- Press [F2] (Delete).



- A dialog box requesting confirmation that the screen(s) is to be deleted will be displayed.
- The figure above shows the box displayed when the marking function is used to delete more than one screen.

(2) After checking, press the ↵ key.

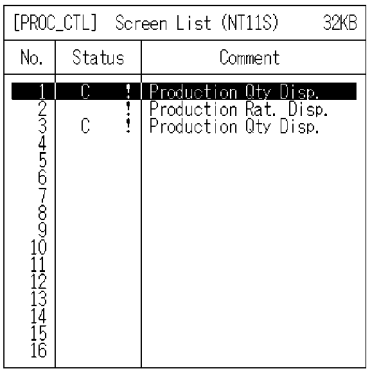


- To abort, press [Esc] key to return to step (2).
- When the deletion operation is completed, the message shown above will be displayed.
- Press any key to return to the “Screen Selection” screen.

6-3 Changing Screen Comments

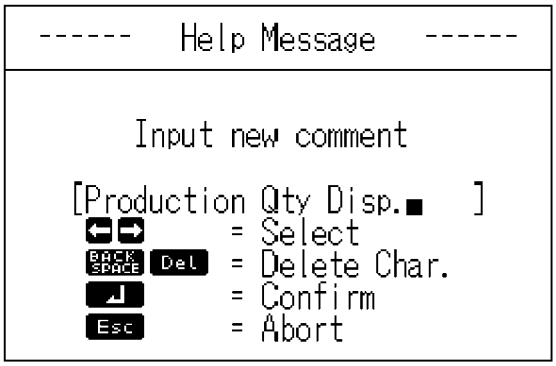
This is the procedure for changing the comment of a specified screen.

(1) Display the “Screen Selection” screen.



(2) Locate the bar cursor on the screen number of the screen whose comment is to be changed, then press the [F10] and [F1] (comment change) key.

- The comment of the selected screen is displayed in the Help Message area.



(3) Input the new comment and press the ↵ key.

6-4 Setting Screen Attributes

It is possible to set whether a display history record is kept or not, either for one screen only, or for multiple screens.

Screen Specification

Procedure

1. Display the “Screen Selection” screen.

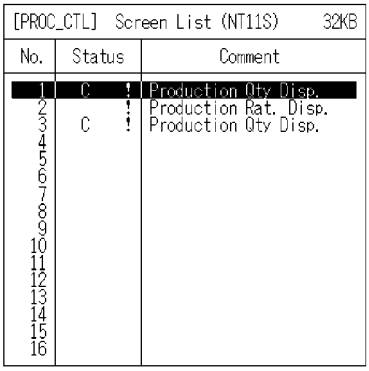
- To make the setting for one screen only:

  Locate the bar cursor on the screen number of the screen for which the setting is to be made and press [F4] (Attrib).

- To make settings for multiple screens at the same time:

  Mark (*) the screen numbers of the screens for which the setting is to be made using the [Space] key.

  Press [F4] (Attrib).



Note

If a large number of screens (e.g. more than a hundred) are set at one time after repeated screen editing, the execution time (the time taken to set attributes for all the screens) will be very long.

To avoid this problem, first briefly return to the “File Selection” screen, then display the “Screen Selection” screen and execute the attribute setting operation.

Attribute Setting

History attribute

- Set whether or not a display history is to be recorded for the specified screen.
- If “Yes” is selected, each time the specified screen is displayed during PT operation, the information that it has been displayed is recorded in the PT.
- The data in the record can be printed out by using the PT’s printing function (see page 76).

2. Setting whether or not a display history is recorded

Setting the History Title

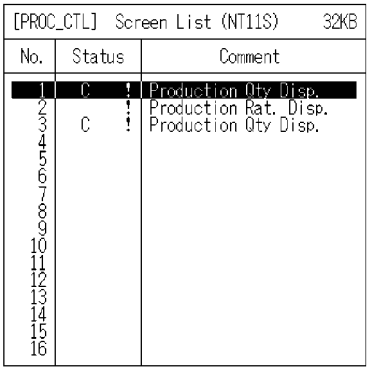
- If Yes has been set for History, go on to set the history title.
- If multiple screens are selected, the same history title will be set for all screens.

The screen below shows the display when settings are made for multiple screens at the same time.

3. Input the history title.

Up to 24 characters can be input for the history title.

4. After inputting the entire history title, press the ↵ key to return to the “Screen Selection” screen.



SECTION 7
File Data Operations

This section describes operations that are performed on files, including those for copying and deleting created files.

7-1 Copying Files 68
7-2 Deleting Files 73
7-3 Changing File Titles 74

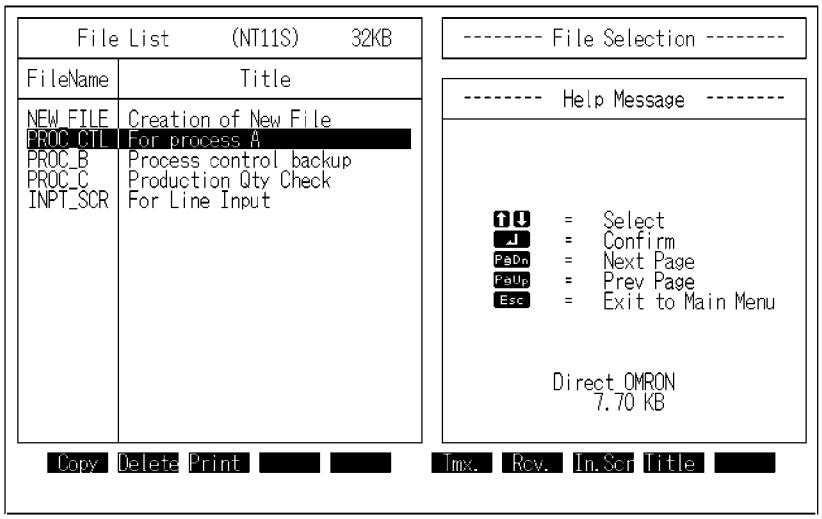
7-1 Copying Files

This is the procedure for copying the data of a specified file to another file.

It is possible to copy even from drives and directories not set in the “data directory” setting.

Copying a File within the Same Data Directory

[“File Selection” screen]



(1) Press [F1] (copy) while the “File Selection” screen is displayed.

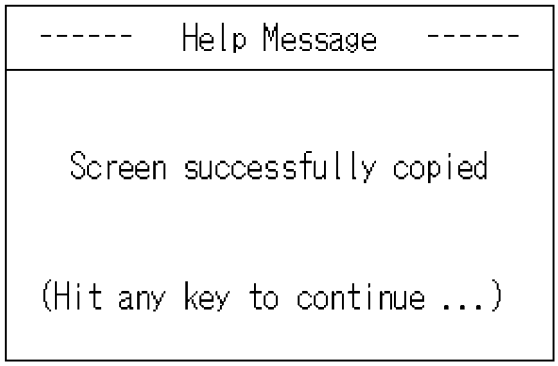
A list of the data in the floppy disk will be displayed.

(2) Locate the bar cursor on the copy source file and press the ↵ key.

(3) Input a copy destination file name no longer than 8 characters, then press the ↵ key.

(4) Input a title (comment) no longer than 28 characters, then press the ↵ key. (Note)

- To abort, press the [ESC] key.
- When the copy operation is completed, the message shown below will be displayed.
- Press any key to return to the “Screen Selection” screen.

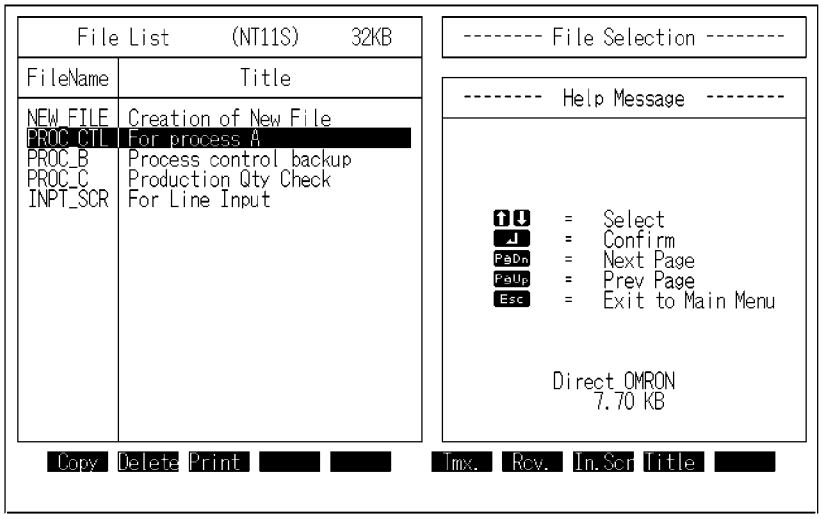


Note If a file with the same file name as that specified as the copy destination file already exists, the message “Screen to be copied exists. Overwrite?” will be displayed. In this case, press [Esc] key to return to step (3), then input another file name.

Copying Files between Different Data Directories

When copying a file, the directory that contains the copy source file can be specified.

["File Selection" screen]



(1) Press [F1] (Copy) while the "File Selection" screen is displayed.

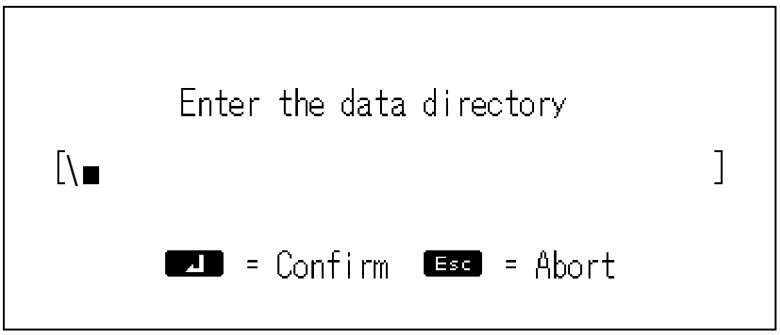
(2) Initially, a directory of the files contained in the data directory set in the tool settings will be displayed.

Press [F1], which corresponds to "drive" in the function menu at the bottom of the screen.

The message "Enter the data directory" will be displayed.

(3) Input the names of the drive and directory that contain the copy source file.

A list of the files in the input drive/directory will be displayed.



(4) The message “Select the file to copy” will be displayed in the Help Message area. Locate the bar cursor on the file to be copied and press the ↵ key.

To abort, press the [ESC] key; the “File Selection” screen will be displayed.

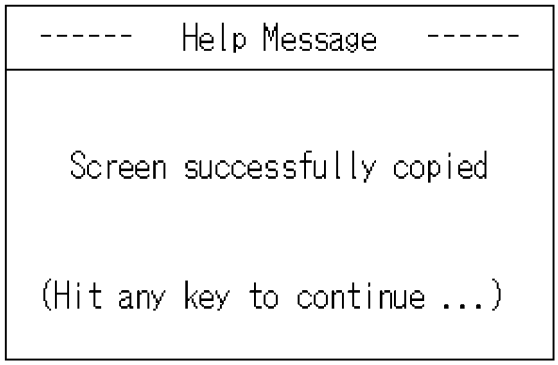
(5) Input a copy destination file name no longer than 8 characters, then press the ↵ key.

Input a title no longer than 28 characters, then press the ↵ key. (Note)

To abort, press the [ESC] key.

When the copy operation is completed, the message shown to the left will be displayed.

Press any key to return to the “Screen Selection” screen.

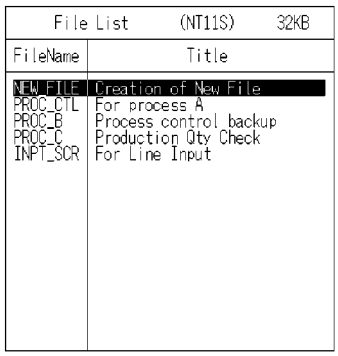


Note If a file with the same file name as the specified file already exists in the copy destination disk, the message “[file name] already exists. Overwrite?” will be displayed. If you choose to overwrite, the existing data will be deleted.

If it is OK to delete the data, press the ↵ key. To abort, press any key other than the ↵ key to return to the screen in step (5). Then input another file name.

7-2 Deleting Files

This is the procedure for deleting the data (screen data and mark data) of a specified file.



(1) Display the “File Selection” screen.

(2) Locate the bar cursor on the file to be deleted and press [F2] (Delete).

A message requesting confirmation that you want to delete the file will be displayed.

(3) After confirming, press the ↵ key.

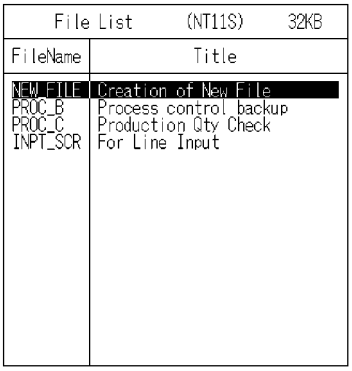
If [Esc] key is pressed, the display will return to the “File Selection” screen.

- When the deletion operation is completed, the message shown below will be displayed.
- Press any key to return to the “Screen Selection” screen.

7-3 Changing File Titles

This is the procedure for changing the title of an existing file.

(1) Display the “File Selection” screen.



(2) Locate the bar cursor on the file whose title is to be changed and press [F9] (Title).

The title of the selected file will be displayed in the Help Message area.

(3) Input the new title and press the ↵ key.

SECTION 8
Printing Data

Various types of data can be printed in file units or in screen data units.

8-1 Things that can be Done Using the Data Printing Function 76
8-2 Printing Screen Display Images 77
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8-1 Things that can be Done Using the Data Printing Function

Various data relating to the support tool, such as screen data and the conditions of use of memory tables, can be printed out at a printer and checked.

Printing can be initiated in one of two ways: by selecting “Print” on the “File Selection” screen or by selecting “Print” on the “Screen Selection” screen. The data that can be printed differs according to the method used.

- When “Print” is selected on the “File Selection” screen

(1) Print out of screen images

(2) Creation of PT printing format

- When “Print” is selected on the “Screen Selection” screen

The following information can be specified, in single screen units.

(1) Screen images

(2) Detailed information

Before attempting printing, make sure that the printer is connected and that there is paper in the printer.

8-2 Printing Screen Display Images

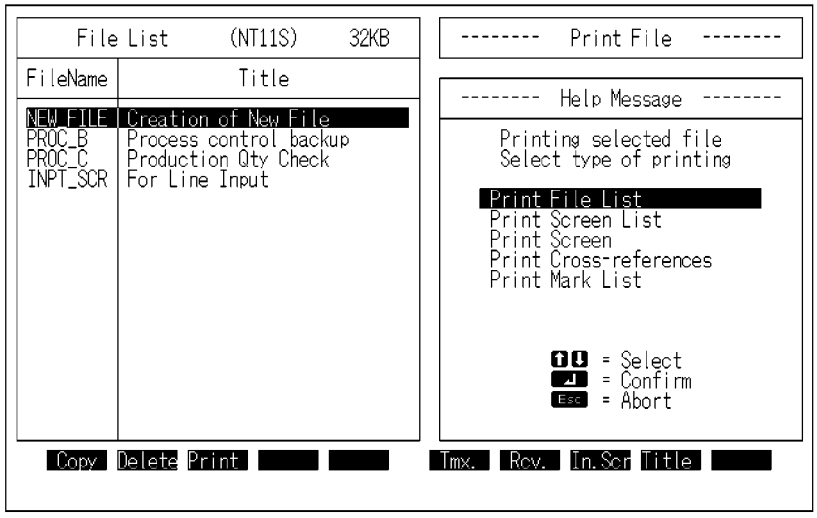
Printing from the "File Selection" Screen

Use the following method to specify printing from the "File Selection" screen.

Procedure

1. Locate the bar cursor on the file to be printed.
2. Press the [F3] (Print) key.
3. Locate the bar cursor on the data to be printed.

   Further specifications may have to be made, after selecting "Print Screen Image" depending on the type of data selected here.



- Print File List: Select to print the set memory, memory used, etc., for all files.
- Print Screen List: Select to print the screen numbers, comments, and screen attributes.
- Print Screen: Select to print images or other data in the screen in a file.

  Set the following settings:

  - Printing/non-printing of screen images
  - Printing/non-printing of detailed information
- Print Cross-reference: Select to print the conditions of use of all memory tables, or used screens.

  Select one of the following:

  - All
    Print out the conditions of use of all memory tables.
  - Used Screen
    Print out the screen numbers used for the used memory tables only.
- Print Mark List: Select to print a list of marks.

4. Check the printer and press the ↵ key.

The data will be printed.

Press the [Esc] key to stop printing.

▶ If "Print Screen" and "Screen Image" is selected, the screen image is displayed while it is being printed.

Printing from the "Screen Selection" Screen

Use the following method to specify printing from the "Screen Selection" screen.

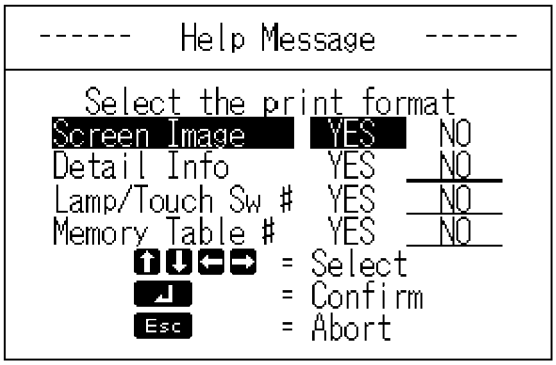
Procedure **1.** Locate the bar cursor on the screen number whose data is to be printed.

If the screen data of more than one screen is to be printed, "mark" each of the relevant screen numbers.

▶ For details on using the mark function, see 3-5 "Screen Selection" Screen (p.20).

2. Press the [F3] (Print) key.

Specify the printing format.



- Screen Image: Specify whether or not the screen image is to be printed as it is.
- Detail Info: Specify whether or not to print detailed information relating to the screen.

3. Check the printer and press the ↵ key.

The data will be printed.

During printing, the message "Printing" will be displayed.

If YES for Screen Image is selected, the screen image is displayed while it is being printed.

Press the [Esc] key to stop printing.

<Restrictions on data printing>

- If there is no data for an item, nothing will be printed.
- Up to 62 lines can be printed on one page.
- Up to 32 character data can be printed.

4. After confirming, press the ↵ key.

Printing will start.

To abort, press [Esc] key to return to the “Screen Selection” screen.

During printing, the message “Printing” will be displayed.

If “Screen Image” is selected, the screen image is displayed while it is being printed.

When the printing operation is completed, the message shown above will be displayed.

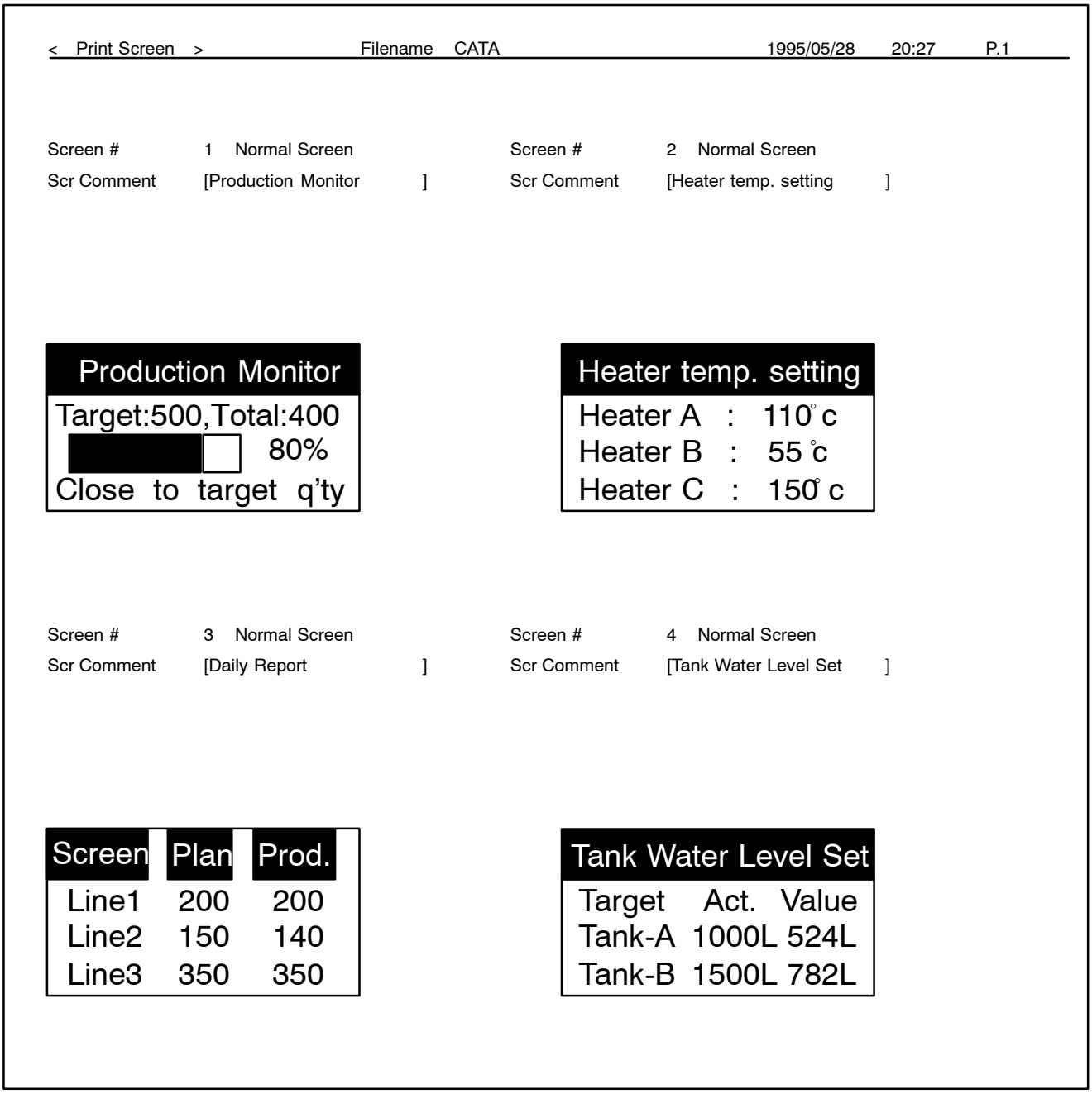
Press any key to return to the “Screen Selection” screen.

Note Before printing, make sure that the printer is ready to print. If printing is started when the power to the printer is ON but the printer SEL switch is OFF, the message “Printer error!” will be displayed. In this case, press any key to return to the “Screen Selection” screen, then repeat the operation from step (1).

In Detail Info, when printing data such as character strings including marks, the printout may differ somewhat from the screen display.

Example Printout

In this example, multiple screens are printed from the “Screen Selection” screen with YES set for Screen Image and NO set for Detail Info.



Note When multiple screens are printed, data for four screens is printed on one page.

Example of printing from the “Screen Selection” screen with NO set for Screen Image and YES set for Detail Info.

< Print Detail INfo > Filename CATA 1995/05/28 20:29 P.1

Screen # 9 Normal Screen
Scr Comment [ ]

[Numeral Display]

Coor	Ref	M Tbl Word	Comment	Stor	SigFig	DecPl	Sign	0suppres	Font	Enlg	Attr	Disp
40, 63	Dir	000 -----		2	8	0	NO	NO	Norm	Equ	Norm	Dec

[String Display]

Coor	Ref	M Tbl Word	Comment	Stor	Char	Font	Enlg	Attr
40, 31	Dir	000 -----		10	4	Norm	Equ	Norm
16, 47	Dir	001 -----		10	6	Norm	Wide	Inv.

Note

Items for which there is no data are not printed.

The number of lines per page is 66 but only 62 can be used. The data from the 63rd and subsequent lines is printed on the next page.

If character data comprises more than 16 two-byte characters or 32 one-byte characters, only 16 or 32 characters, respectively, are printed.

Example when Print Cross-references is selected from the “File Selection” screen

< Print Cross-references > Filename CATA 1995/05/28 20:29 P.1

[String Table]

#	Text	# Screen Used
0	test	9
1	NT11S	9

[Numeral Table]

#	Cont	# Screen Used
0	80	9
1	99999999	13
2	0	12
6	110	2

Note

The number of lines per page is 66 but only 62 can be used. The data from the 63rd and subsequent lines is printed on the next page.

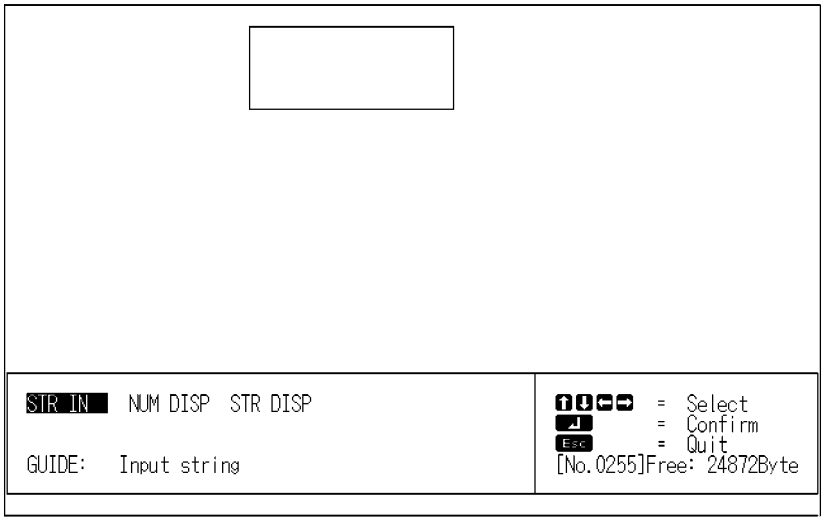
Items for which there is no data are not printed.

8-3 Creating a PT Printing Format

This is the procedure for creating a format for PT printing functions (daily report printing, history printing).

Procedure

1. Select [F3] (print) on the “File Selection” screen.
2. Locate the bar cursor on NT Host’s Print Format Edit and press the ↵ key.



3. Use the same method as used for character input (section 4-3-1), and character display (section 4-5-1) to create the format.

SECTION 9
Data Transfer

It is possible to write the system program for the PT to the PT's system program area, and to send screen data created with the support tool to the PT and write it into the screen data memory board.

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9-3-1 Data Reception 89
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9-1 Preparation and Procedure for Data Communication with the PT

Transfer the system program for the PT to the PT's system program area.

Screen data created with the support tool, marks and memory table information, etc., can be transferred to the PT data memory. It is also possible to receive various types of data from the PT data memory and save them.

Connection to the PT

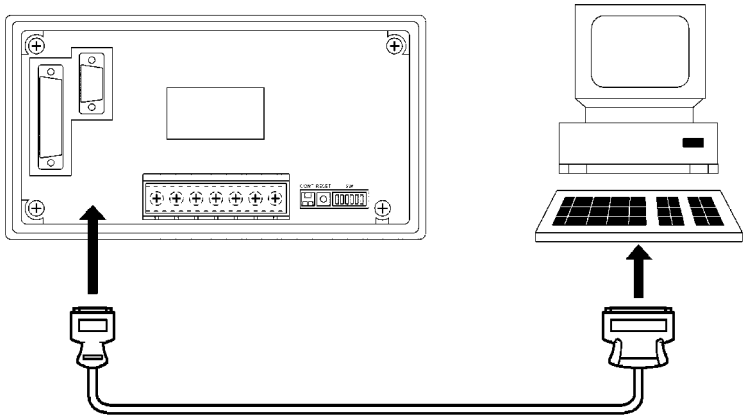
Connect the PT and personal computer with an RS-232C connecting cable.

Connect this cable to the tool interface at the PT side and to the RS-232C interface at the personal computer side. Note that this connection with the PT is established only for data communication; it is not usually necessary to make this connection.

- Connection method

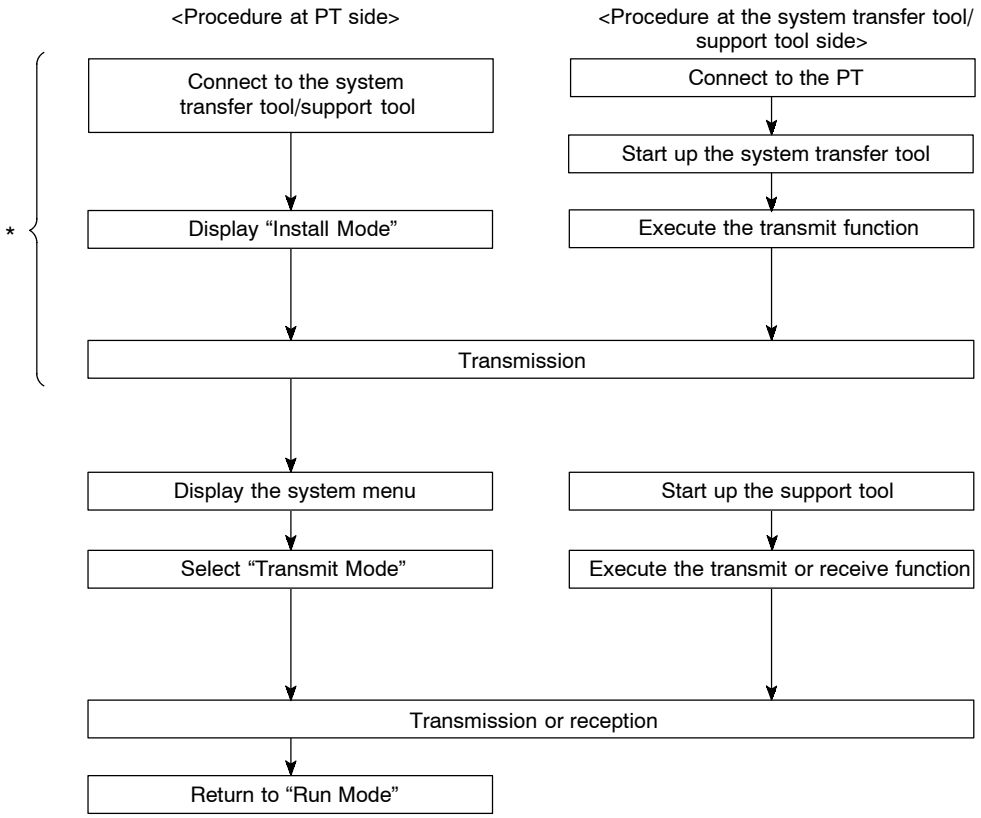
Make the connection with the RS-232C cable in the manner shown below.

Connection to an NT11S



Procedure for Data Communication

Use the following procedure to make preparations at the PT and system transfer tool/support tool sides and execute data communication.



***** The system program is transferred once only as an initial operation.

Reference For details on the operations at the PT side, refer to the user's manual for the PT.

9-2 Transmitting Data

This is the procedure for transmitting data such as image data or memory table data to the PT, and writing it into the flash memory of the PT.

Select a file from the “File Selection” screen and transmit it to the PT.

Transmission in File Units

Procedure

1. Set the PT to the “Transmit Mode”.
2. Locate the bar cursor on the file to be sent on the “File Selection” screen.
3. Press the [F6] (Tmx.) key.
4. A message will be displayed for the purpose of confirmation.

   Check the message and press the ↵ key.

   ▶ Press the [Esc] key to abort data transmission.
5. Select whether verification is to be executed or not.
6. Data transmission will start.

   On completion of the transmission, the message “Data successfully transmitted.” will be displayed.

Reference

When data transmission has been aborted part way through, initialize the image data memory: do this by using the DIP switch on the PT.

For details, refer to the user’s manual for the PT.

Also initialize the image data memory by this means if data transmission is stopped due to trouble.

9-3 Receiving Data

This is the procedure for receiving screen data, memory table data, from the PT and storing this data as support tool files.

9-3-1 Data Reception

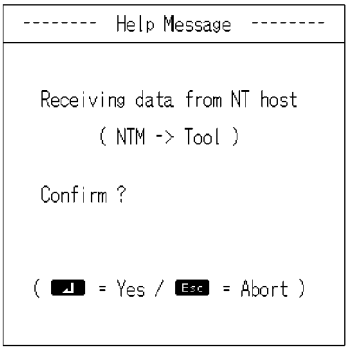
Use the following procedure to receive all the data in the data memory and write it to a file.

Procedure

1. Set the PT to the “Transmit Mode”.
2. Display the “File Selection” screen.

   It does not matter where the bar cursor is.
3. Press the [F7] (Rcv.) key.

   A message will be displayed for the purpose of confirmation.



   Check the message and press the ↵ key.
4. Input the file name of the file to which the received data is to be written.
5. Press the ↵ key.

   File reception will start.

▶ If a file that already exists is specified, a message asking whether or not the file is to be overwritten will be displayed.

▶ Press the ↵ key to start reception. To abort reception, press the [Esc] key.

On completion of reception, the message “Data successfully transmitted” will be displayed.

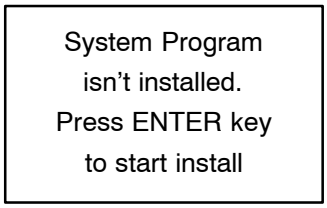
9-4 System Transfer

Using the system transfer tool, transmit the system program to the PT.

The transmitted system program is written into the system program area of the PT.

Reference

If the following screen is displayed when the NT11S power is switched ON, system program transfer has to be executed.



System program transfer is executed by using NTINST.EXE.

9-4-1 Starting Up and Exiting the System Transfer Tool

This section describes the procedure for starting up the system transfer tool once it has been installed in a personal computer.

Start-Up Procedure

The method for start-up differs a little according to the hard disk drive and directory in which the system transfer tool is installed.

Procedure

1. Switch on the power supply to the personal computer to start up DOS.

   Check that the current drive is the drive for the hard disk in which the system transfer tool is installed.

   If it is not, enter "C: ↵ " to change the current drive. For the underlined part (C:), specify the drive name of the drive in which the system transfer tool is installed.

2. Use the command "CD \NTE ↵ " to change the current directory to the directory that contains the system transfer tool. For the underlined part (\NTE), specify the name of the directory into which the system transfer tool was copied.

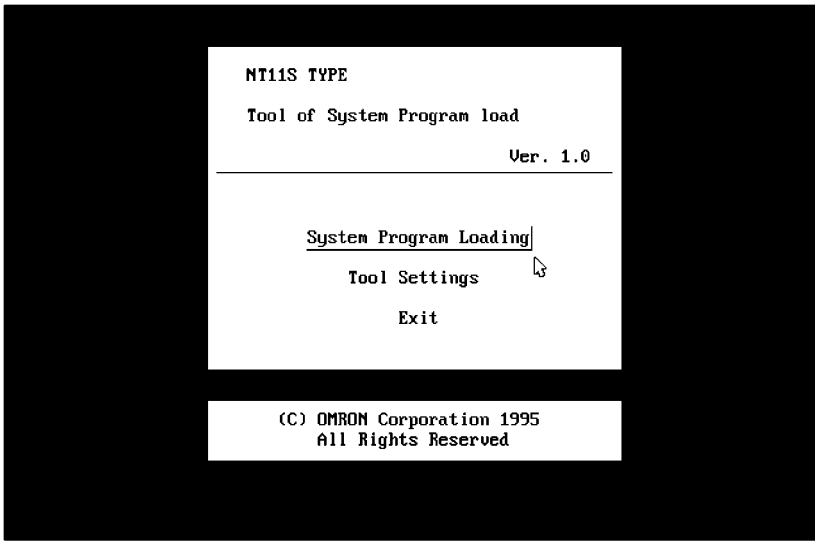
3. Input "NTINST ↵ ".

   The system transfer tool will start up.

- "Main Menu" screen of the system transfer tool

  When the system transfer tool starts up the "Main Menu" screen shown below will be displayed.

  <Screen image 1>



Exit Procedure

When the "Main Menu" screen is displayed, move the cursor to "Exit" using the [↑] [↓] keys and press enter key (↵).

The system transfer tool will be exited and the DOS prompt will be displayed.

After the prompt has appeared, switch the power off.

9-4-2 Basic Operating Procedures

The system transfer tool is a software package that allows transmission of the system program to the PT, using simple operations. The user can perform these operations simply by following the help displays that appear on the screen.

System transfer tool operations can be performed by using the keyboard and the mouse.

This section explains basic operations such as the selection of menu options and operation of the mouse.

Cursors

The following types of cursor are displayed on the screen in different circumstances.

- Bar cursor (▬)

  Used to select options, file names, etc.

  This cursor is moved by using the [↑][↓][←][→] keys or the mouse.

- Mouse cursor ( )

  This cursor follows the motion of the mouse. When performing operations using the mouse, locate this cursor on the required item and click the left mouse button.

- Cup cursor ( )

  This cursor is displayed while the system transfer tool is carrying out processing. When the processing is finished it changes into the mouse cursor.

- Enquiry cursor ( )

  This cursor is displayed while the system transfer tool is waiting for the input of a reply, such as YES/NO. When this cursor is displayed, press the ↵ key (for YES) or the [Esc] key (for NO).

  When using the mouse, press either the left button (for YES) or the right button (for NO). It is also possible to click on icons with the pointed part of the enquiry cursor (at its top left corner) (p.94).

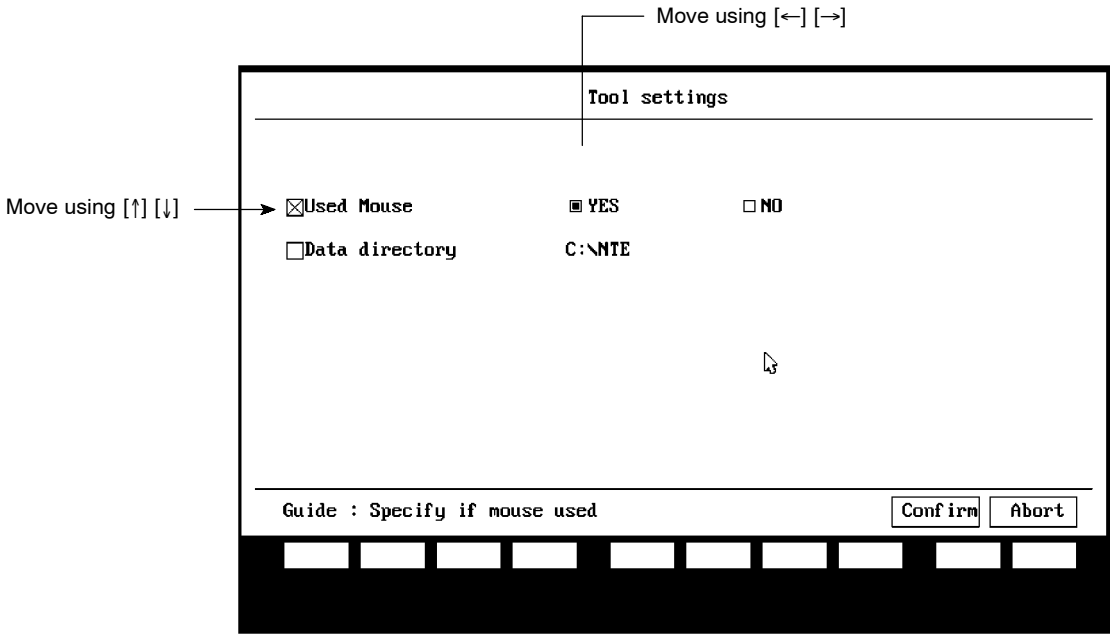
- Key input prompt cursor ( )

  This cursor is displayed when input is required. When it is displayed, carry out input from the keyboard or by using the mouse.

Selecting Options

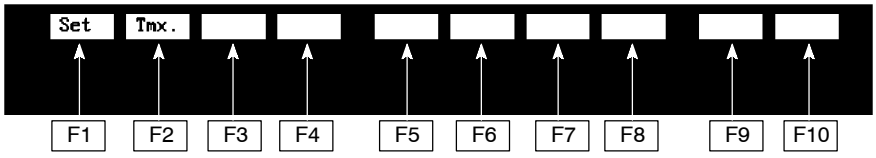
When performing operations using the system transfer tool it will be necessary to select menu options, choices, file names, etc.

Such selections are made by locating the bar cursor on the item to be selected by using the arrow keys ([↑][↓][←][→] keys) and pressing the ↵ key.



Using the Function Keys

The currently available functions and currently selectable options are displayed at the bottom of the screen. The items displayed correspond to the function keys on the keyboard. To execute one of the displayed options, press the function key on the keyboard that corresponds to it.



Using the Mouse

It is possible to perform all the system transfer tool operations by using a mouse.

The left button of the mouse has the same function as the ↵ key on the keyboard and right button the same function as the [Esc] key.

Selection or specification of items using the mouse is achieved by clicking one of its buttons. "Clicking" means pressing the button and releasing it immediately.

Reference

Whether the mouse is used or not is specified with the "Mouse Use" option of the "Tool Settings" menu. If "No" is specified, the mouse cursor ceases to be displayed.

- Selection

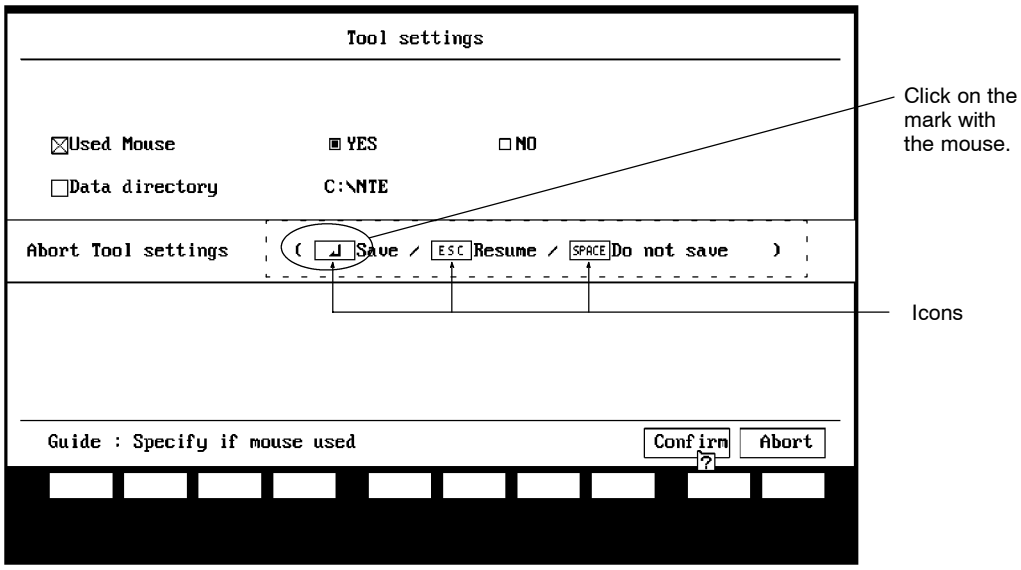
Select items by moving the cursor to them and clicking on them.

For example, to select a system program, locate the mouse cursor at the intended system program and click the left mouse button. When the bar cursor has moved, click on the file name again with the left button. This will select the system program.

- Icon operations

The key marks displayed in the help message and elsewhere are icons that can be actuated with the mouse. Clicking on an icon with the left mouse button will execute the function represented by that icon.

For example, clicking on the [SPACE] mark displayed on the screen with the left mouse button will have the same effect as pressing the ↵ key.

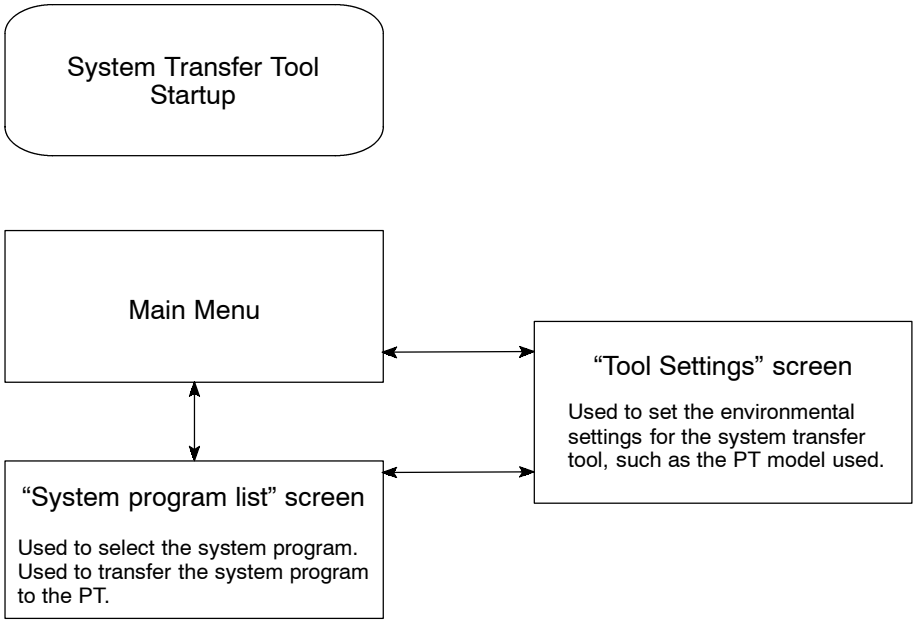


9-4-3 Using the System Transfer Tool

The system transfer tool is a software package for transferring the system program to the NT11S.

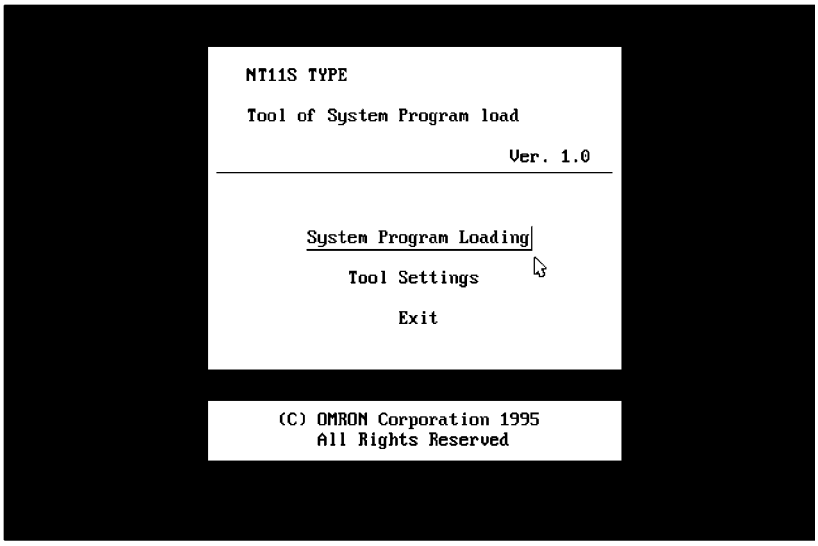
The system transfer tool has two screens: the “System program list” screen and the “Tool Settings” screen.

The relationships between the screens are shown below.



9-4-4 Main Menu

When the system transfer tool is started up, the “Main Menu” screen is displayed first.



The items in the main menu have the following functions.

- System Program Loading: Select this item to execute system program transfer. The “System program list” screen will be displayed, allowing transfer of the system program.
- Tool Settings: Used to set the environmental conditions for using the system transfer tool. Provided there are no changes, these settings only have to be set once.
- Exit : Used to exit the system transfer tool. To exit, select this item, wait for the DOS prompt to be displayed and then switch the power off.

9-4-5 “Tool Settings” Screen

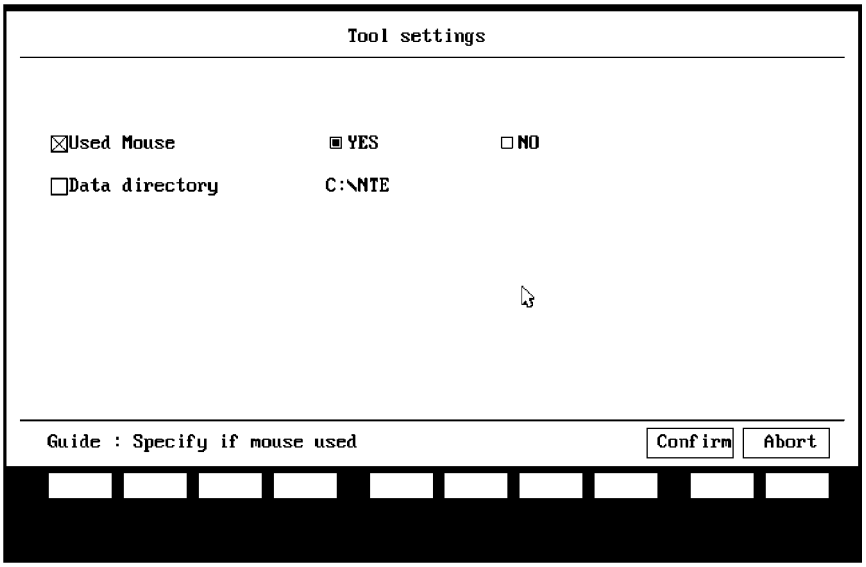
This screen is used to set the environmental settings required to use the system transfer tool.

When using the system transfer tool for the first time, this screen is displayed first. Be sure to set the tool settings in accordance with the model you are using. After this first setting, it will not be necessary to set the tool settings again unless there is some change.

Settings

When “Tool Settings” is selected from the main menu, the “Tool Settings” screen is displayed.

<“Tool Settings” screen>



- Mouse Use: Specify whether or not a mouse is used with the system transfer tool.
  If “Not used” is selected, the mouse cursor is not displayed.
- Data Directory: Specify the directory in which created system program files are saved here.

Quitting tool setting

- Press the ↵ key twice: the system transfer tool will be set in accordance with the details displayed on the screen and the display will return to the main menu.
- Press the [Esc] key to return to the main menu without making any settings.

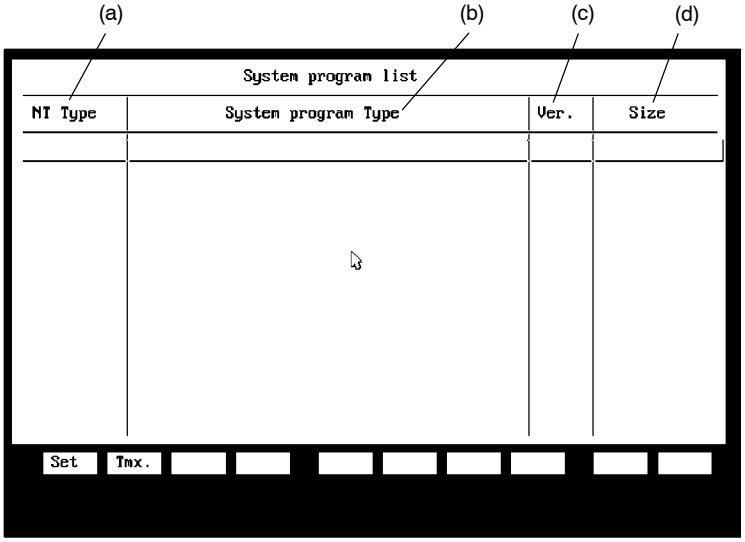
9-4-6 “System program list” Screen

When the “System Program Loading” option is selected from the main menu, the “System program list” screen is displayed.

Settings

Besides displaying a system program list, the “System program list” screen allows transfer of the system program to the PT.

<“System program list” screen>



(a) NT type: The PT model set in the “Tool settings” is displayed here.

(b) System program Type: The type of system program is displayed here.

(c) Ver.: The system program version is displayed here.

(d) Size: The file size of the system program is displayed here.

Returning to the main menu

To return to the main menu, press the [Esc] key.

Functions of the Function Keys

[Set] [F1] . . . Tool settings

Displays the “Tool Settings” screen.

It is possible to switch immediately to the “Tool Settings” screen to change the system transfer tool environment.

For details of the setting operation, see “Tool Settings” Screen (p.97).

[Tmx.] [F2] . . . Send the system program to the PT

Establishes a connection with the PT and sends the system program.

Transmitting Data

Select a system program from the “System program list” screen and transmit it to the PT.

Procedure

1. Set the PT to the “Install Mode”.
2. Locate the bar cursor on the system program to be sent on the “System program list” screen.
3. Press the [F2] (Tmx.) key.
4. A message will be displayed for the purpose of confirmation.

   Check the message and press the ↵ key.

   ▶ Press the [Esc] key to abort data transmission.
5. Data transmission will start.

   On completion of the transmission, the message “Data successfully transmitted.” will be displayed.

APPENDIX A

Connecting Cable Specifications

Tool Interface Connector Specifications

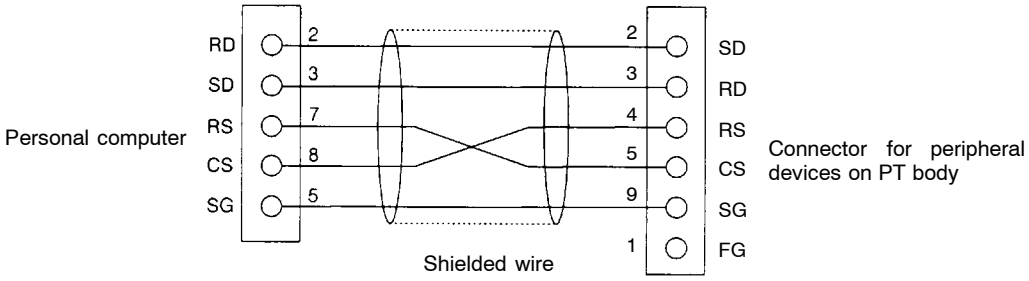
The following specifications apply to the connection between the PT and the support tool (personal computer).

Pin No.	Signal Name	Meaning
1	FG	Frame ground
2	SD	Send data
3	RD	Receive data
4	RS	Request to send
5	CS	Clear to send
9	SG	Signal ground

Assembly of Connecting Cables

Wiring should be carried out in one of the following ways, depending on the type of RS-232C connector.

9-pin Connector



Use the following recommended products when making the connecting cable.

Name	Model	Remarks
Connector	XM2D-0901	9-pin Made by OMRON (Personal computer)
	XM2A-0901	9-pin Made by OMRON (NT11S)
Connector hood	XM2S-0911	9-pin Made by OMRON (Two)
Cable	AWG28 × 5P IFVV-SB	Multi-core shielded cable Made by Fujikura, Ltd.
	CO-MA-VV-SB5P × 28AWG	Multi-core shielded cable Made by Hitachi, Ltd.

APPENDIX B

Error Messages

The error messages that may be displayed while using the support tool, and the action to take in response to them, are shown below.

Error Message	Corrective Action
Floppy disk is write protected	Try again after releasing the disk's write-protection.
Disk not ready	Either there is no disk set in the specified drive, or the disk is not set correctly. Set the disk correctly and try again.
Write failed (Confirm)	Check the connection between the support tool and PT and the settings, then try again.
Seek error occurs (Confirm)	The disk may be damaged. Check the disk.
Destination file not found (Confirm)	Check the file name and directory name, then try again.
Not find sector (Confirm)	The disk has not been formatted, or it may be damaged. Check the condition of the disk.
Disk error ocuurs (Confirm)	The disk has not been formatted, or it may be damaged. Check the condition of the disk.
CRC error occurrs in data (Confirm)	Part of the data has been destroyed. If there is backup data, use this data.
Unable to overwrite (Confirm)	A "Read-only file" attribute has been set for the file. Either cancel the read-only file attribute or save the data under another file name.
The number of file is maximum (Confirm)	The number of files in the data directory has exceeded the maximum number that can be handled by the support tool (254). Either delete unneeded files or save the file in another directory.

APPENDIX C
Special Characters

English Character Codes

Example

Hex code is represented by 30, decimal code by 48, and character by 0.

30	0
48	

Code 20 and 32 in the table represents a space, as indicated by "SP".

Hex Digits 1st → 2nd ↓	2-		3-		4-		5-		6-		7-		8-		9-	
-0	20	SP	30	0	40	@	50	P	60	`	70	p	80	Ç	90	É
	32		48		64		80		96		112		128		144	
-1	21	!	31	1	41	A	51	Q	61	a	71	q	81	ü	91	æ
	33		49		65		81		97		113		129		145	
-2	22	"	32	2	42	B	52	R	62	b	72	r	82	é	92	Æ
	34		50		66		82		98		114		130		146	
-3	23	#	33	3	43	C	53	S	63	c	73	s	83	â	93	ô
	35		51		67		83		99		115		131		147	
-4	24	$	34	4	44	D	54	T	64	d	74	t	84	ä	94	ö
	36		52		68		84		100		116		132		148	
-5	25	%	35	5	45	E	55	U	65	e	75	u	85	à	95	ò
	37		53		69		85		101		117		133		149	
-6	26	&	36	6	46	F	56	V	66	f	76	v	86	å	96	û
	38		54		70		86		102		118		134		150	
-7	27	'	37	7	47	G	57	W	67	g	77	w	87	ç	97	ù
	39		55		71		87		103		119		135		151	
-8	28	(	38	8	48	H	58	X	68	h	78	x	88	ê	98	ÿ
	40		56		72		88		104		120		136		152	
-9	29	)	39	9	49	I	59	Y	69	i	79	y	89	ë	99	Ö
	41		57		73		89		105		121		137		153	
-A	2A	*	3A	:	4A	J	5A	Z	6A	j	7A	z	8A	è	9A	Ü
	42		58		74		90		106		122		138		154	
-B	2B	+	3B	;	4B	K	5B	[	6B	k	7B	{	8B	ï	9B	¢
	43		59		75		91		107		123		139		155	
-C	2C	,	3C	<	4C	L	5C	\	6C	l	7C	|	8C	î	9C	£
	44		60		76		92		108		124		140		156	
-D	2D	-	3D	=	4D	M	5D	]	6D	m	7D	}	8D	ì	9D	¥
	45		61		77		93		109		125		141		157	
-E	2E	.	3E	>	4E	N	5E	^	6E	n	7E	~	8E	Ä	9E	Pt
	46		62		78		94		110		126		142		158	
-F	2F	/	3F	?	4F	O	5F	_	6F	o	7F	⌂	8F	Å	9F	ƒ
	47		63		79		95		111		127		143		159	

Hex Digits 1st → 2nd ↓	A-		B-		C-		D-		E-		F-	
-0	A0	á	B0	⋮	C0	└	D0	╨	E0	α	F0	≡
	160		176		192		208		224		240	
-1	A1	í	B1		C1	┴	D1	╤	E1	β	F1	±
	161		177		193		209		225		241	
-2	A2	ó	B2	▒	C2	┬	D2	┬	E2	Γ	F2	≥
	162		178		194		210		226		242	
-3	A3	ú	B3	┤	C3	─	D3	╙	E3	π	F3	≤
	163		179		195		211		227		243	
-4	A4	ñ	B4	┤	C4	─	D4	╘	E4	Σ	F4	⌠
	164		180		196		212		228		244	
-5	A5	Ñ	B5	╡	C5	┼	D5	╒	E5	σ	F5	⌡
	165		181		197		213		229		245	
-6	A6	ª	B6	╢	C6	╞	D6	╓	E6	µ	F6	÷
	166		182		198		214		230		246	
-7	A7	º	B7	╖	C7	╟	D7	╫	E7	τ	F7	≈
	167		183		199		215		231		247	
-8	A8	¿	B8	╕	C8	╚	D8	┼	E8	Φ	F8	°
	168		184		200		216		232		248	
-9	A9	⌐	B9	╣	C9	╔	D9	┘	E9	Θ	F9	·
	169		185		201		217		233		249	
-A	AA	¬	BA	║	CA	╩	DA	┌	EA	Ω	FA	•
	170		186		202		218		234		250	
-B	AB	½	BB	╗	CB	╦	DB	■	EB	δ	FB	√
	171		187		203		219		235		251	
-C	AC	¼	BC	╝	CC	╠	DC	▬	EC	∞	FC	n
	172		188		204		220		236		252	
-D	AD	¡	BD	╜	CD	═	DD	▌	ED	ø	FD	2
	173		189		205		221		237		253	
-E	AE	«	BE	╛	CE	╬	DE	▐	EE	ε	FE	*
	174		190		206		222		238		254	
-F	AF	»	BF	┐	CF	╧	DF	▀	EF	∩	FF	*
	175		191		207		223		239		255	

* Used as the prefix for mark data codes (2 bytes).

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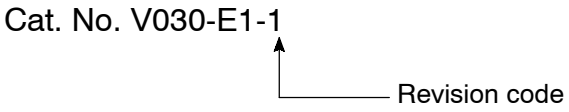
Revision History

A manual revision code appears as a suffix to the catalog number on the front cover of the manual.



The following table outlines the changes made to the manual during each revision. Page numbers refer to the previous version.

Revision code	Date	Revised content
1	August 1995	Original production