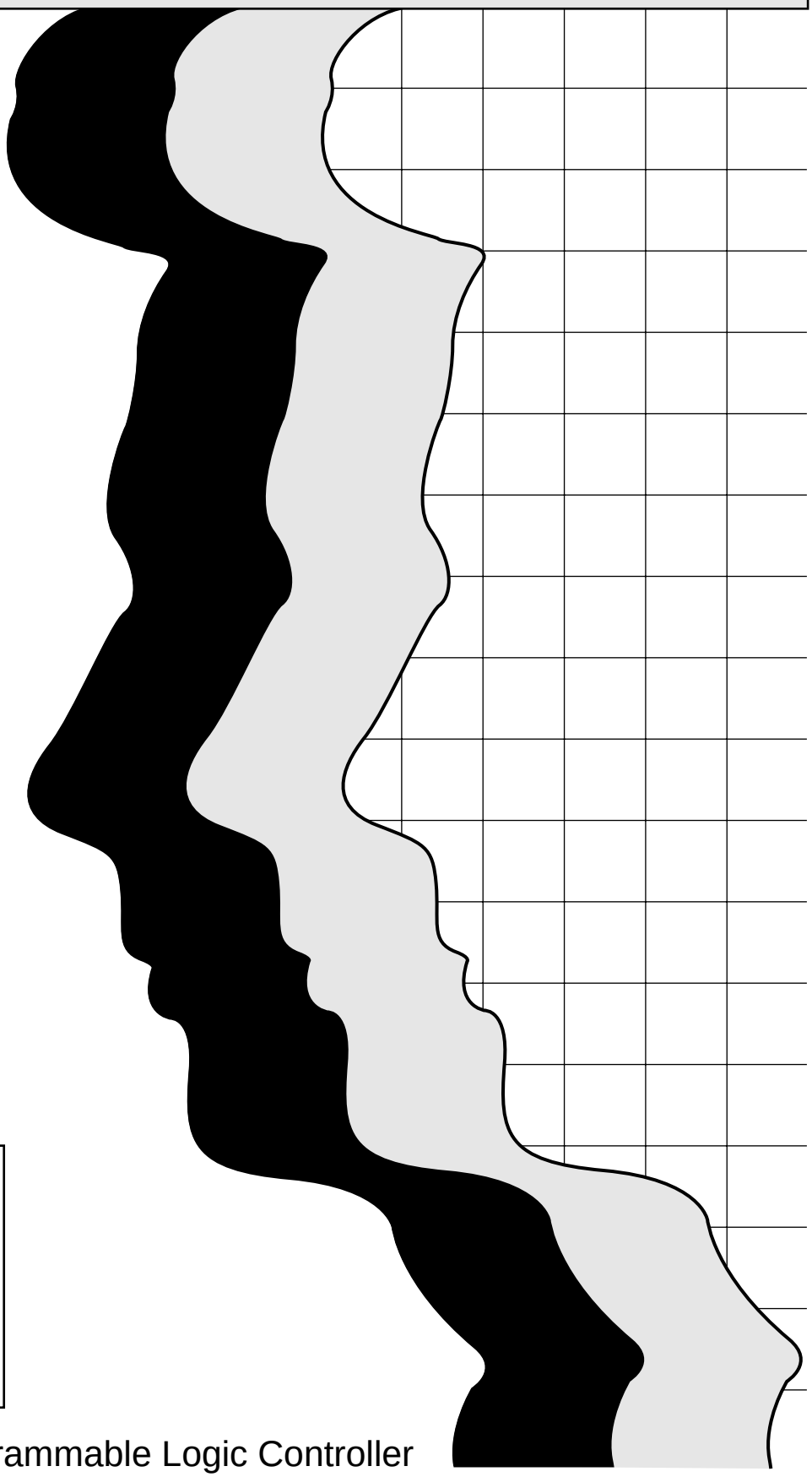
MITSUBISHI

AD51H-BASIC Package Type SW1IVD-AD51HP-E
(For QD51(-R24),A1SD51S,AD51H-S3)

Operating Manual



MELSEC

Mitsubishi Programmable Logic Controller

● SAFETY PRECAUTIONS ●

(Read these precautions before using.)

When using Mitsubishi equipment, thoroughly read this manual and the associated manuals introduced in this manual.

Also pay careful attention to safety and handle the module properly. These precautions apply only to Mitsubishi equipment. Refer to the CPU module user's manual for a description of the PC system safety precautions.

These ● SAFETY PRECAUTIONS ● classify the safety precautions into two categories: "DANGER" and "CAUTION".

⚠DANGER	**Procedures which may lead to a dangerous condition and cause death or serious injury if not carried out properly.**
⚠CAUTION	**Procedures which may lead to a dangerous condition and cause superficial to medium injury, or physical damage only, if not carried out properly.**

Depending on circumstances, procedures indicated by ⚠ CAUTION may also be linked to serious results.

In any case, it is important to follow the directions for usage.

Store this manual in a safe place so that you can take it out and read it whenever necessary. Always forward it to the end user.

[PRECAUTIONS WHEN DESIGNING]

⚠ DANGER

- **Be sure to build an interlock circuit outside the PLC system in order to the whole system will operate safely during online operation, i.e., when the PLC data or status is changed/ controlled from peripheral devices.**
  In addition, determine in advance the system countermeasures to be taken when a communication error occurs due to cable disconnection or other accidents during online operation from peripheral devices to the PLC CPU.

[PRECAUTIONS WHEN DESIGNING]

⚠CAUTION

- **Be sure to read this manual thoroughly to fully understand and ensure the safety in advance, when connecting peripheral devices to the running CPU module to perform online operation (especially forced output and operation status change).**
  Otherwise, machine damage or accidents may be caused by faulty operation.

Revisions

* The manual number is noted at the lower left of the back cover.

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Japanese Manual Version IB-68674-F

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Introduction

Thank you for purchasing the Mitsubishi MELSEC-A Series General Purpose Programmable Controller. Before using your new PC, please read this manual thoroughly to gain an understanding of its functions so you can use it properly.
Please forward a copy of this manual to the end user.

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About this manual

The following are manuals related to this product.
Request for the manuals as needed according to the chart below.

Related Manuals

Manual Name	Manual No. (Type code)
Programming Manual type AD51H-BASIC (Command) This programming manual explains the "AD51H-BASIC" programming language (used for commands, functions,etc.) for use with an AD51H, AD51H-S3 and A1SD51S intelligent communications module. (Sold separately)	IB-66567 (13JF43)
Programming Manual type AD51H-BASIC (Program edit, Compile) This programming manual describes the system and debugging commands, and compiling method, used with the AD51H, AD51H-S3 and A1SD51S communication module. (Sold separately)	IB-66568 (13JF44)
Operation Manual SW0IVD-ROMA ROM Function Software Package This Operation Manual explains the functions and operating method for the SW0IVD-ROMA ROM Function Software Package The ROMA is a software package for ROM writing the intellect extension HEX format data created by the application software packages. (Included in the same package)	IB-66671 (13JF34)
User's Manual type AD51H-S3 Intelligent communication module This manual describes the system configuration, performance specifications and functions of the AD51H-S3 type intelligent communication module. (Sold separately)	IB-66401 (13JE16)
User's Manual type A1SD51S Intelligent communication module This manual describes the system configuration, performance specifications and functions of the A1SD51S type intelligent communication module. (Sold separately)	IB-66551 (13JE90)

1 Outline

This manual explains the procedures for operating the SW1IVD-AD51HP-E type AD51H-BASIC Package (hereinafter referred to as "software package"), which is used to create, revise and debug BASIC programs for the AD51H-S3/A1SD51S/QD51(-R24) intelligent communication module (hereinafter referred to as communication module).

The following version of the software package is described in this manual.
For the upgraded functions of the software package, refer to Appendix 1.

- SW1IVD-AD51HP-E Version F

The software package can be used by installing it on the hard disk of the following personal computer.

- IBM PC/AT compatible personal computer

Cautions

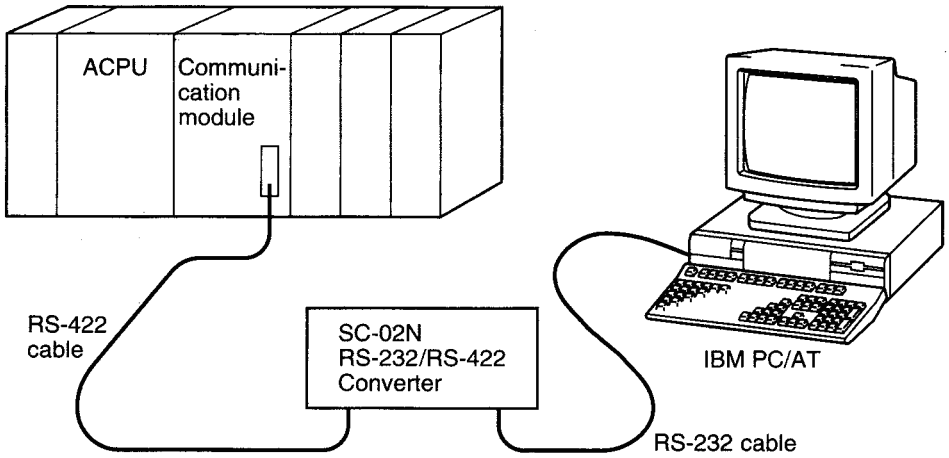
(1) The following operations cannot be executed on the A1SD51S/QD51(-R24) intelligent communication module
- Access to memory card
- ROM conversion of execution program

(2) In the case of ROM conversion, a separate SW□IVD-ROMA ROM Function Software Package is required.

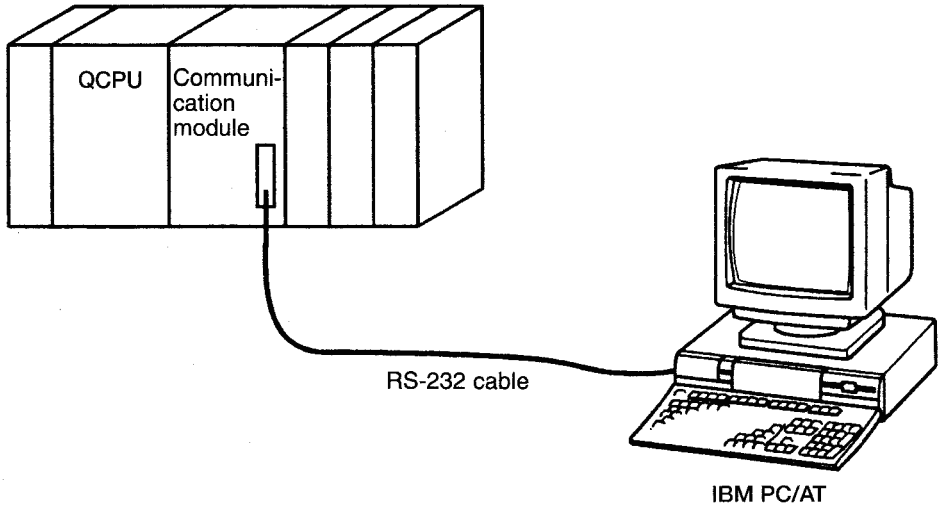
The functions given below can be executed with the software package.

(1) On line programing, execution and debugging of BASIC programs
By connecting the communication module to an IBM PC/AT, it can be used to create, revise, execute and debug programs in BASIC on line.
The program can also be stored on FD, HD or memory card.

· AD51H-S3, A1SD51S



· QD51(-R24)



(2) Operation of files on FD, HD or memory card (Memory card access can be made only with the AD51H-S3)
The following procedures can be operated on BASIC program files stored on FD, HD or memory card.
- Display of names of stored files (directory)
- Deletion of stored files
- Copying and verifying of files between FD, HD or memory card
- Memory card formatting
- Creation of memory card backup files

(3) ROM conversion of BASIC programs for execution (possible only with AD51H-S3)

(4) Setting of PLC CPU date and time

2 System Configuration

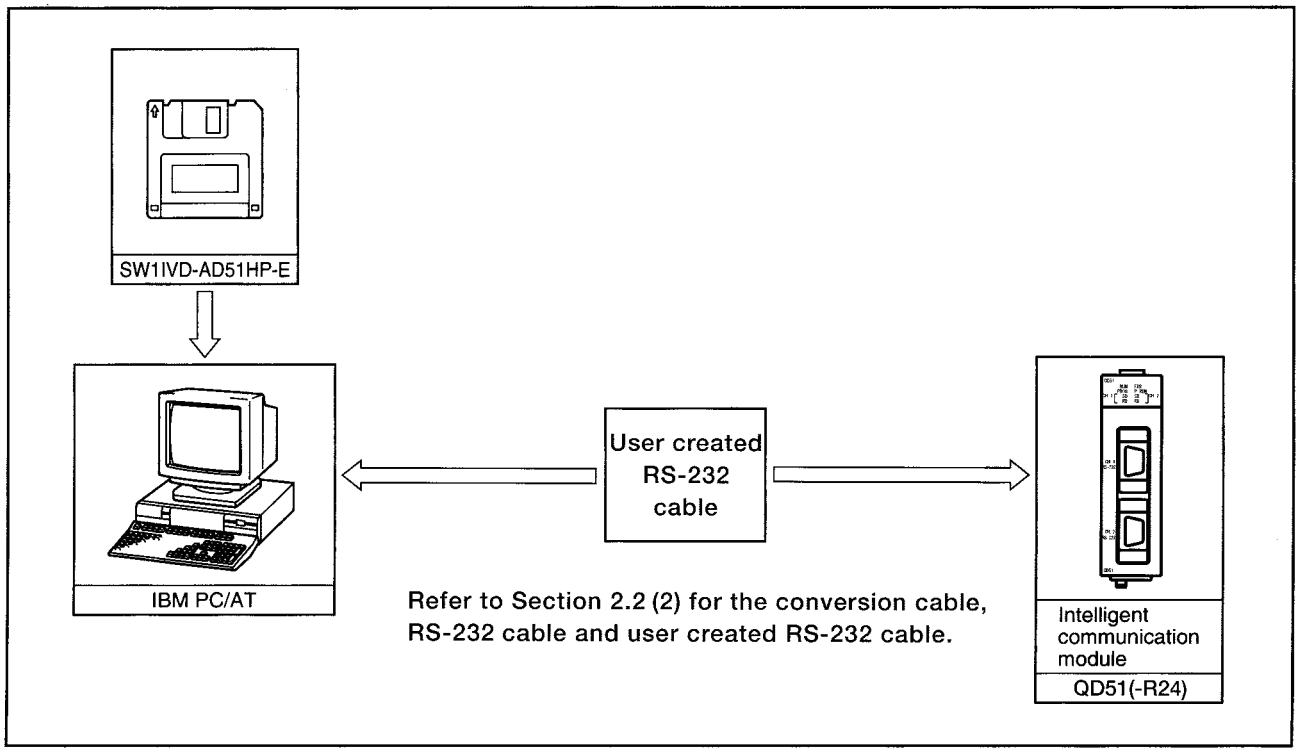
The following is a presentation of the system configuration when the software package is used, precautions regarding the configuration and connection procedures.

2.1 System configuration

This section gives system configurations for use of the software package.

2.1.1 System configuration for use of the QD51(-R24)

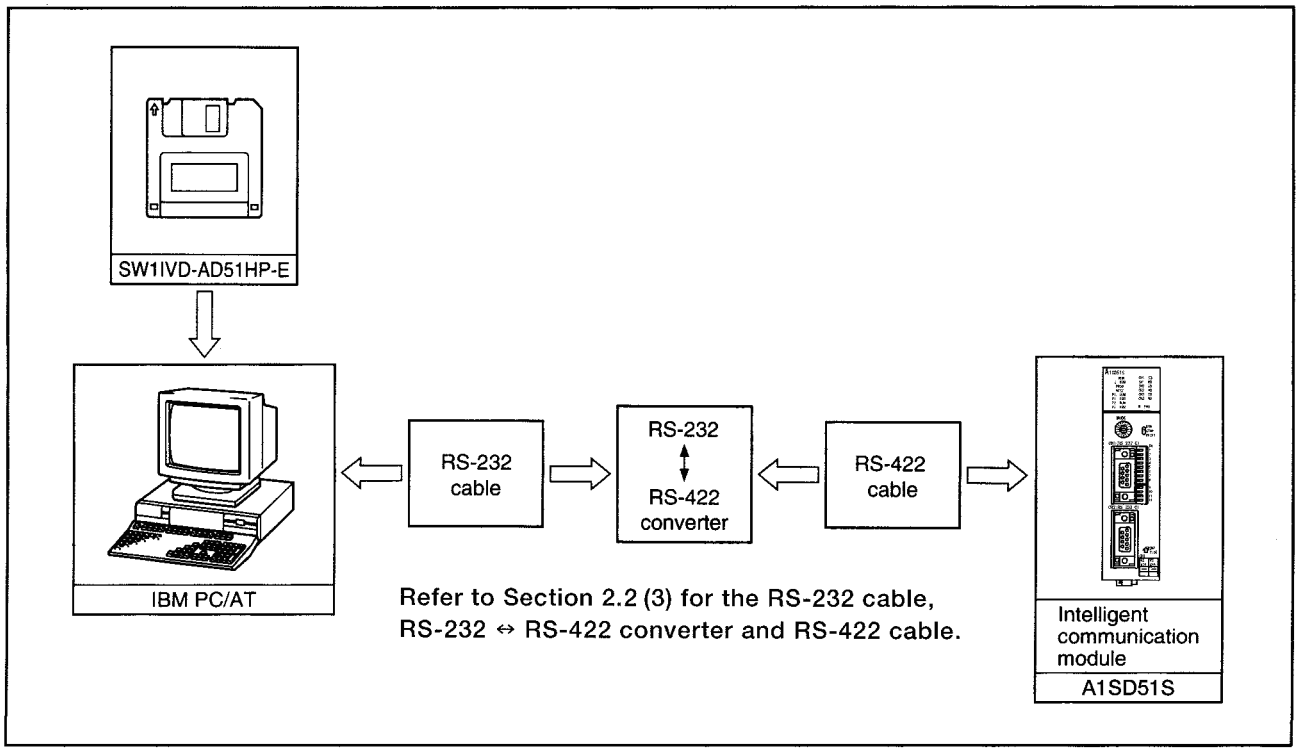
The system configuration for use of the QD51(-R24) is shown below.



Refer to Section 2.2 (2) for the conversion cable, RS-232 cable and user created RS-232 cable.

2.1.2 System configuration for use of the A1SD51S

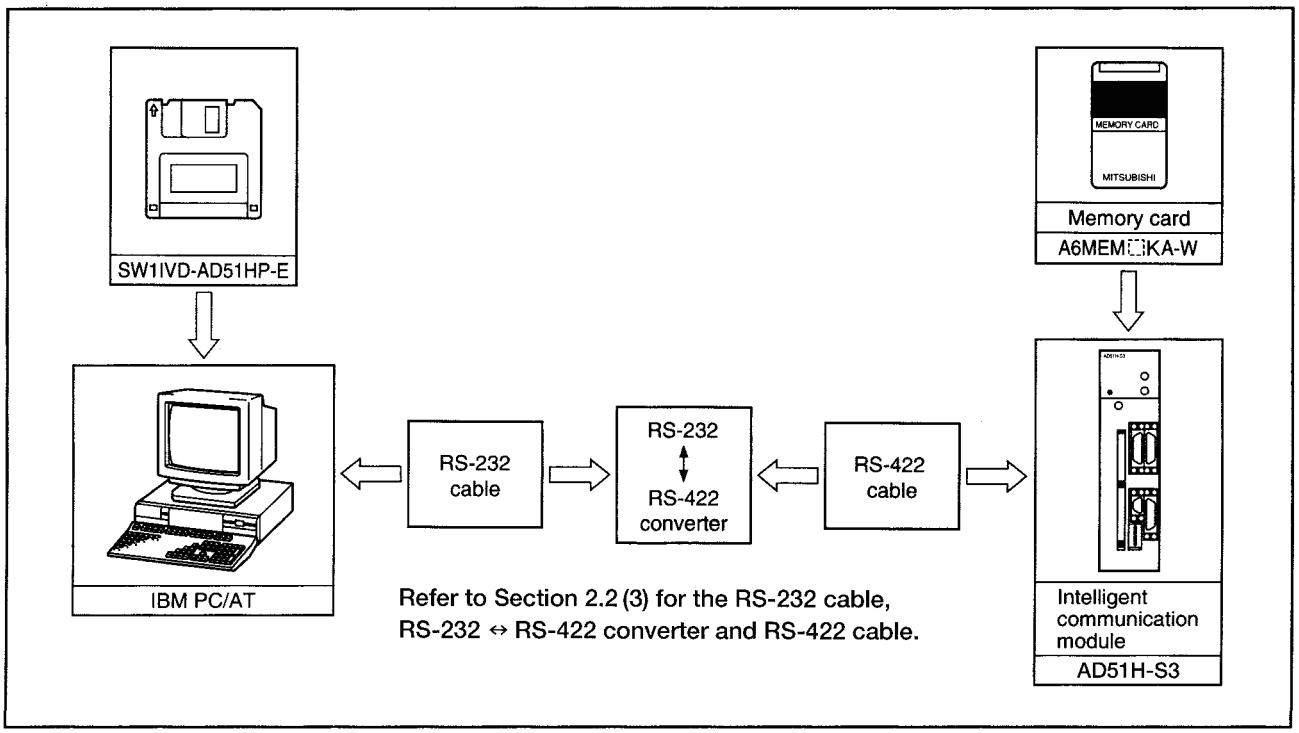
The system configuration for use of the A1SD51S is shown below.



Refer to Section 2.2 (3) for the RS-232 cable, RS-232 ↔ RS-422 converter and RS-422 cable.

2.1.3 System configuration for use of the AD51H-S3

The system configuration for use of the AD51H-S3 is shown below.



2.2 Precautions in system configuration

(1) Operating environment

Item	Description
OS	IBM DOS Version J5.02/V IBM DOS Version J6.1/V MS-DOS Version 5.0/V MS-DOS Version 6.2/V Windows 3.1 (operated using DOS compatibility BOX) Windows®95 (operated using DOS compatibility BOX Full-screen display is not available) Windows®98 (operated using DOS compatibility BOX Full-screen display is not available) Windows®2000 Professional (operated using DOS compatibility BOX) Windows®XP Professional (operated using DOS compatibility BOX) Windows®XP Home Edition (operated using DOS compatibility BOX)
Required memory	DOS: 640k bytes or more (free space 360k bytes or more) Windows: Environment where Windows operates
Free hard disk space	1MB or more
Disk drive	3.5 inch (1.44MB) floppy disk drive
Communication interface	DOS, Windows 3.1 : COM 1 Windows®95, Windows®98, Windows®2000, Windows®XP : COM1 to 9

(2) Precautions for start-up
When using DOS or Windows 3.1, register ANSY.SYS as CONFIG.SYS to display SW1IVD-AD51HP-E.
For Windows®95, Windows®98, Windows®2000, or Windows®XP, no registration is required.

(3) Precautions for connection to an intelligent communication module

(a) For DOS or Windows 3.1
COM1 is used for connection to an intelligent communication module.
Entering the COM No. is not needed when starting SW1IVD-AD51HP-E.

(b) For Windows®95, Windows®98, Windows®2000, or Windows®XP
Any port, from COM1 to COM9, can be used for connection to an intelligent communication module.
At startup of SW1IVD-AD51HP-E, enter a COM No. of the port to be used. (Refer to Section 3.1.3.)

(4) Precautions when using the printer function

(a) For DOS or Windows 3.1
1) The ESC/P or PR-201 printer is applicable.
2) To use the printer function, install a printer driver in CONFIG.SYS.

(b) For Windows®95, Windows®98, Windows®2000, or Windows®XP
1) Windows printers can be used.
2) To use the printer function, configure the printer settings (Install the printer driver.)
3) When an IBM-PC/AT-compatible personal computer has setting of multiple printers, data are output from the printer set as "default printer".
4) If no line feed code is sent from the intelligent communication module, the printer will automatically print out one page eight seconds after transmission of print data from the intelligent communication module.
To disable this automatic printout, press Ctrl + P In this status, "PRINT-TIMER OFF" is displayed on the lower left of the screen
To enable the automatic printout, press Ctrl + P again.

(2) Cable for connection with the QD51(-R24)

The following shows the wiring when using the user-produced cable.

This module side		Cable connection and signal direction	Console side
Signal name	Pin No.	(Connection example for full duplex communication)	Signal name
CD	1		CD
RD(RXD)	2		RD(RXD)
SD(TXD)	3		SD(TXD)
DTR(ER)	4		DTR(ER)
SG	5		SG
DSR(DR)	6		DSR(DR)
RS(RTS)	7		RS(RTS)
CS(CTS)	8		CS(CTS)
—	9		

CAUTION

The console side pin-outs changes depending on the personal computer. When producing the cable, make sure to confirm the Interface specification of the personal computer in advance.

(3) Cable with connection with the A1SD51S/AD51H-S3

The RS-232 ↔ RS-422 converter is required for communications between an IBM PC/AT and the communication module.

An introductory model of the RS-232 ↔ RS-422 converter is presented below.

- SC-02N converter

The procedure for connecting the SC-02N converter to an IBM PC/AT is given below.

Connecting the PC/AT to the SC-02N

The pin assignments for the cable connecting the 9-pin connector on the PC/AT personal computer to the 25-pin connector on the SC-02N converter unit are as follows:

PC/AT 9-PIN (RS-232 port)			SC-02N 25-PIN
DCD	1	◄——►	8
RD	2	◄——►	3
TD	3	◄——►	2
DTR	4	◄——►	20
GND	5	◄——►	7
DSR	6	◄——►	6
RTS	7	◄——►	4
CTS	8	◄——►	5

POINT

- Before handling the RS-422 interface conversion cable/converter, please read its specifications, precautions, etc. carefully in the manual of the corresponding product and handle it correctly.
- When disconnecting or reconnecting the conversion cable/converter that receives 5VDC power from the RS-422 interface, switch power off on the PLC CPU side before starting work.
- When disconnecting or reconnecting the peripheral device or conversion cable that does not receive 5VDC power from the RS-422 interface (whose power is supplied from an external power supply), be sure to use an earth band or touch a grounded metal object, etc. before starting work to discharge static electricity from the cable, human body, etc. After that, handle it in the following procedure.

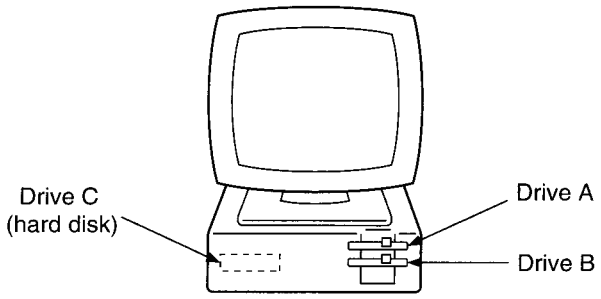
1) Switch power off on the personal computer side.
2) Power off the conversion cable/converter. When it has an FG terminal, ground it.
3) Connect/disconnect the conversion cable/converter between the personal computer and PLC CPU.
4) Power on the conversion cable/converter.
5) Power on the personal computer.
6) Start up the software package.

3 Installation, Start-up and Deletion of Software Package

The procedures for installation, start-up and deletion of the software package are presented below.

3.1 Software package installation

The procedures for installing the software package on IBM PC/AT hard disk are shown.
(When Windows is used, perform installation on DOS compatibility BOX. Start DOS compatibility BOX from [MS-DOS prompt] in the [Start] menu of Windows.)
The following system is assumed in presenting the installation procedures.



IBM PC/AT power supply at ON or RESET

↓

C>◪ ····· DOS command standby status (When Windows is used, start DOS compatibility BOX.)

↓

Insert SW1IVD-AD51HP-E system disk1 in floppy disk drive.

↓

C:\>A:
A:\>INSTHD ····· Input as shown at left. (When system disk has been inserted in drive A)

↓

Enter

↓

Designation of installation destination OS ····· Select the installation destination OS.

Select your OS.
Windows95, 98, 2000, XP : 1
DOS, Windows3.1 : 2

Type 1 when Windows 95, 98, 2000 or XP is used.
Type 2 when DOS or Windows 3.1 is used.

↓

Enter

↓

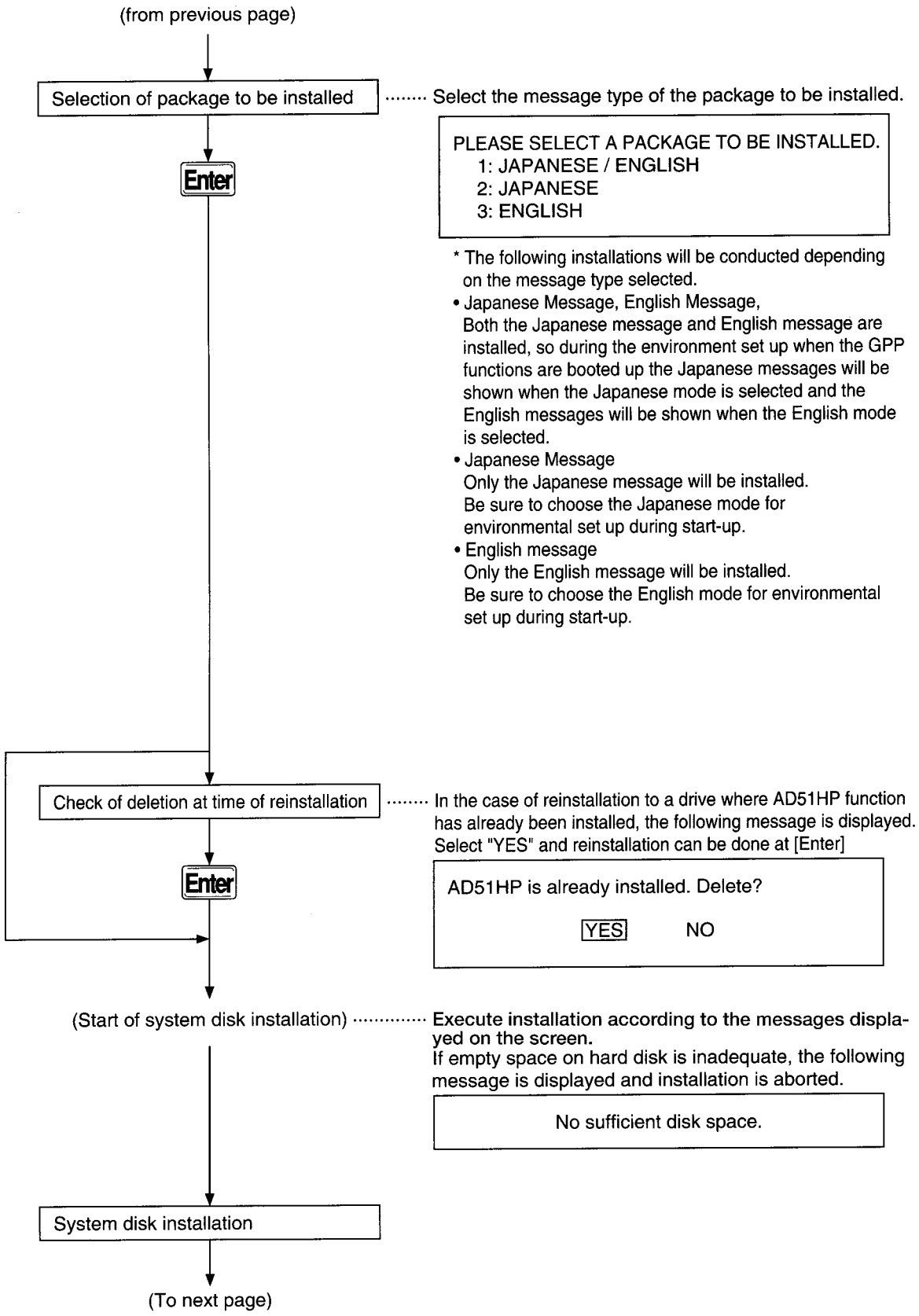
Designation of drive for installation ····· Select the drive to which the package will be installed. (Drives other than hard disk drive, e.g., CD-ROM will be also displayed.)

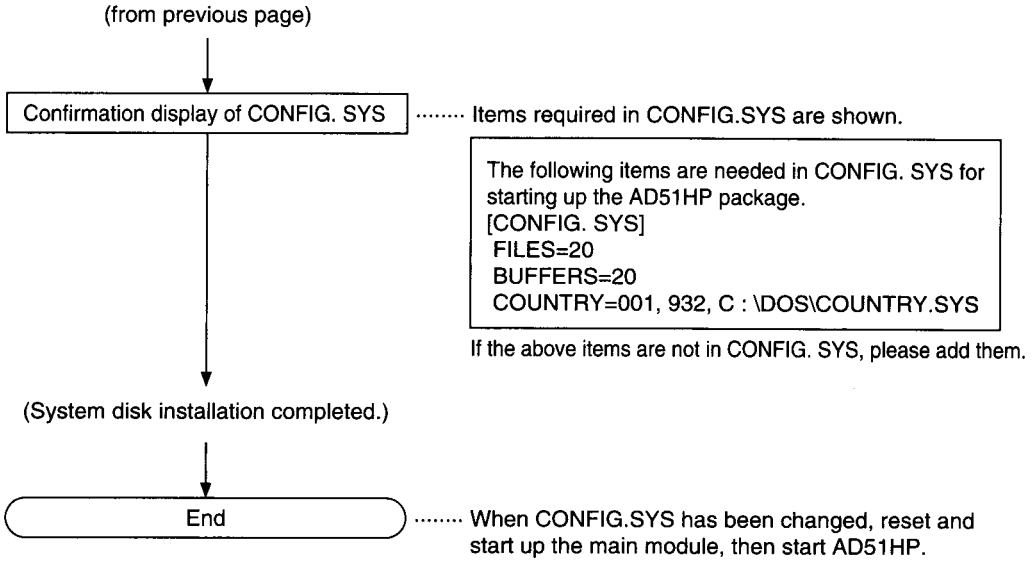
↓

Enter

↓

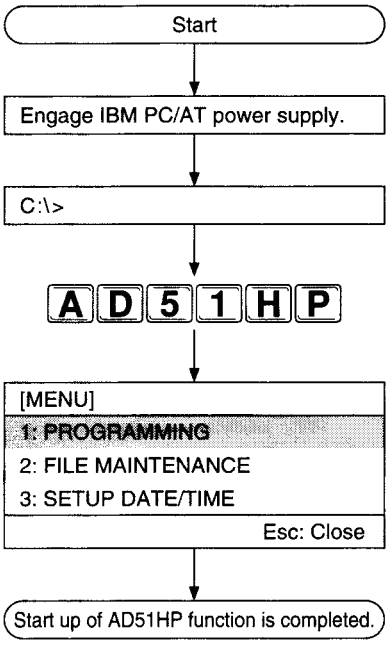
(To next page)


(from previous page)
Selection of package to be installed
Select the message type of the package to be installed.
PLEASE SELECT A PACKAGE TO BE INSTALLED.
1: JAPANESE / ENGLISH
2: JAPANESE
3: ENGLISH
Enter
* The following installations will be conducted depending on the message type selected.
• Japanese Message, English Message,
Both the Japanese message and English message are installed, so during the environment set up when the GPP functions are booted up the Japanese messages will be shown when the Japanese mode is selected and the English messages will be shown when the English mode is selected.
• Japanese Message
Only the Japanese message will be installed.
Be sure to choose the Japanese mode for environmental set up during start-up.
• English message
Only the English message will be installed.
Be sure to choose the English mode for environmental set up during start-up.
Check of deletion at time of reinstallation
In the case of reinstallation to a drive where AD51HP function has already been installed, the following message is displayed.
Select "YES" and reinstallation can be done at [Enter]
AD51HP is already installed. Delete?
YES NO
Enter
(Start of system disk installation)
Execute installation according to the messages displayed on the screen.
If empty space on hard disk is inadequate, the following message is displayed and installation is aborted.
No sufficient disk space.
System disk installation
(To next page)


(from previous page)
Confirmation display of CONFIG. SYS
..... Items required in CONFIG.SYS are shown.
The following items are needed in CONFIG. SYS for starting up the AD51HP package.
[CONFIG. SYS]
FILES=20
BUFFERS=20
COUNTRY=001, 932, C : \DOS\COUNTRY.SYS
If the above items are not in CONFIG. SYS, please add them.
(System disk installation completed.)
End
..... When CONFIG.SYS has been changed, reset and start up the main module, then start AD51HP.

3.2 Software package start-up

Procedure in starting up the software package are given here.



3.3 Precautions when starting up AD51HP functions on Windows

Use DOS compatibility BOX to start up the software package on Windows.

Start DOS compatibility BOX from [MS-DOS prompt] in the [Start] menu of Windows.

(1) Software package start up

When starting up the software package, entar the following charactars on DOS compatibility BOX.

- [A] [D] [5] [1] [H] [P] [Space] [1]
  ~~

  [Enter any of 1 to 9, as the COM number to be used.
  By default, COM1 is selected.]

Remark

- The communication interface of Windows 3.1 is fixed to COM1.
  Hence, the COM number need not be entered.

(2) Operation of software package

(a) Operatious in manipulating the software package after start up are all the same as when the package has been started up on DOS. (No Operation by mouse.)

(b) When printing compiled user data, use the same fonts as when starting on DOS.

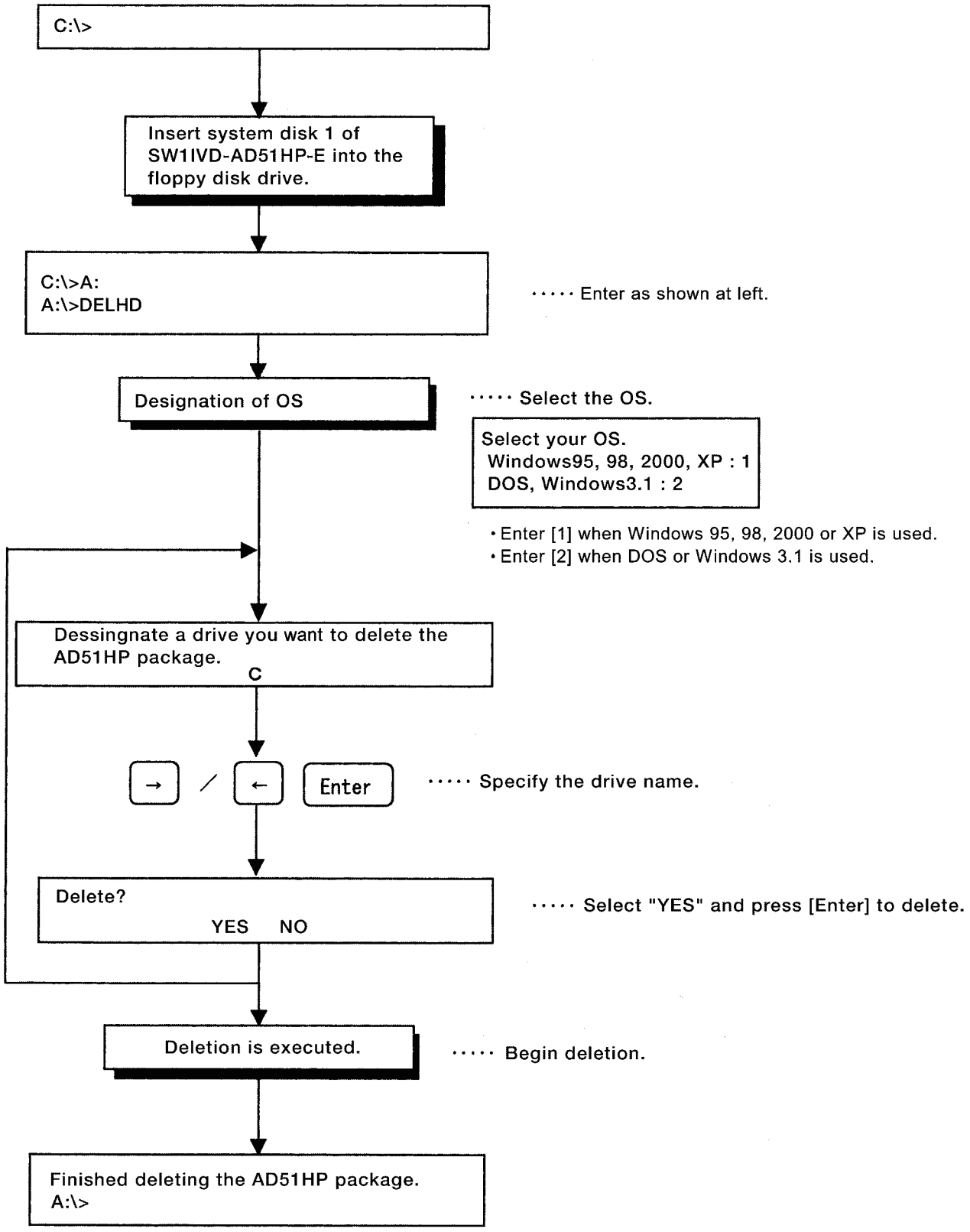
Important

When communicating with the communication module while any Windows application has been started, there may be cases in which an interrupt is generated from the application and normal communication cannot be implemented.

In such cases, complete or stop the Windows application, and then communicate with the communications module.

3.4 Deletion of software package

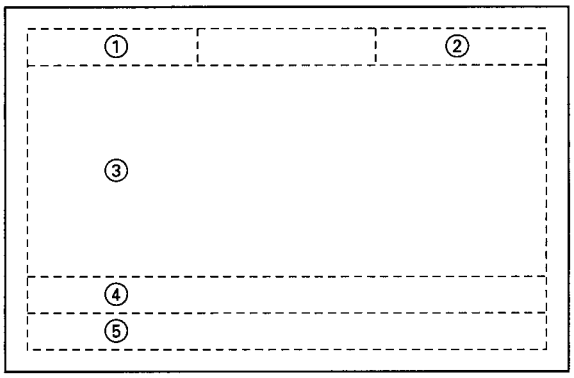
The steps for deleting the software package are shown as follows.



4 General Information Regarding Display and Operation

4.1 Screen construction

On the screen displayed while operating the software package, there is a basic screen and windows which open in the course of operation.
Shown below are the common display areas of the IBM PC/AT screen except for on-line programming functions.



	Item	Contents
①	Title display area	• Displays the currently selected mode.
②	Common function key display area	• By pressing the [F11] key, display of the initial menu screen is indicated. • By pressing the [F12] key, display of the HELP function screen is indicated.
③	General display and operational guidance display area	• Displays input data, read data, and operational guidance, etc., of each mode.
④	Message display area	• Displays guidance for operations and error messages during operation, etc.
⑤	Function key display area	• Displays those keys from [F1] to [F10] to which a function has been assigned and the function.

In the screen construction during on-line programming, the entire screen becomes an edit area.

POINT

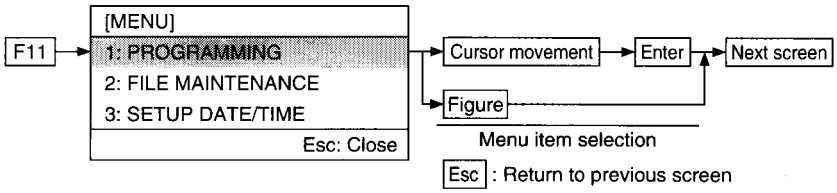
When both vertical scroll bar and horizonatal scroll bar of DOS compatible BOX are displayed, do not use them. Doing so makes the display invisible.

4.2 Windows

Windows are screens which display menu, mode or function as specified by the host and enable selection of function operational items according to objective.

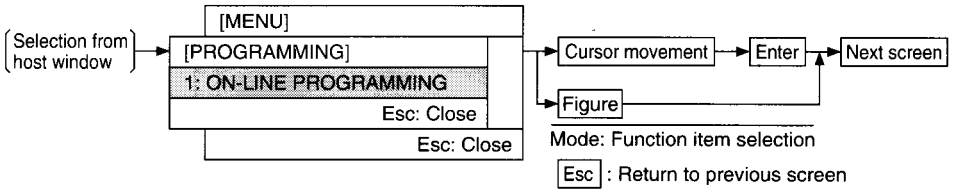
(1) Menu selection window

The menu selection window opens by keying in the [F11] key even during operation.



(2) Mode, function selection window

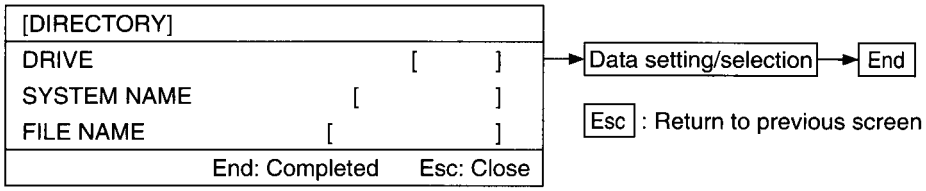
This window also displays selection items with each setting item on a host window, such as the menu selection window.



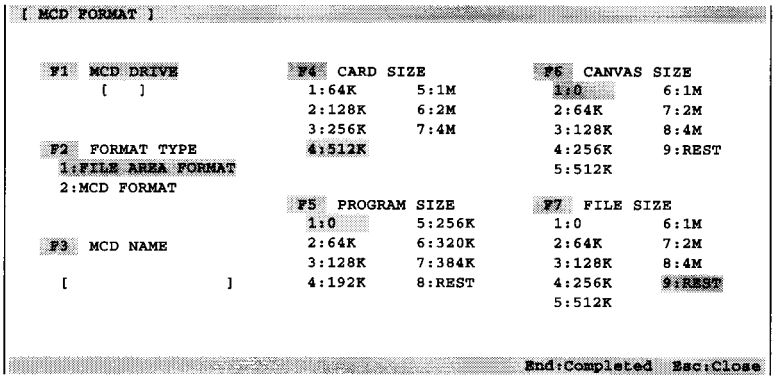
(3) Settings window

This window displays the contents of data settings or selections for each setting item on a host window such as the mode, function selection window.

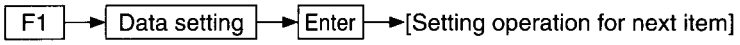
(a) Single item setting window



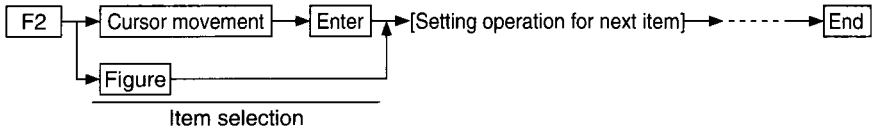
(b) Multiple items setting window



Data input time



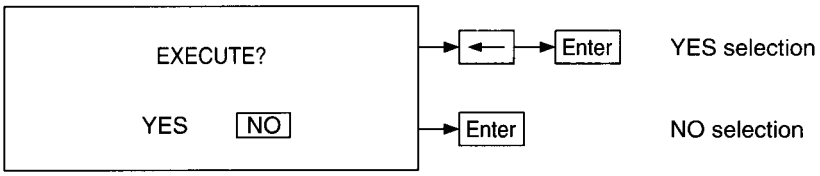
Item selection time



Esc : Return to previous screen

(4) Alternative window

Specify YES or NO in response to the message on display.



The default of YES or NO varies according to each function or message.

4.3 HELP function

The HELP function consists of HELP in troubleshooting when an error message has been displayed during operation; guidance HELP for explaining each function, and a HELP menu. When [F12:HELP] is shown in the upper right of the screen on display, the HELP function can be selected.

(1) HELP in Troubleshooting

Explains corrective action in response to error messages appearing on the screen. To operate, press [Shift] + [F12] while the error message is on display and the HELP in Troubleshooting screen will appear.

(2) Guidance HELP

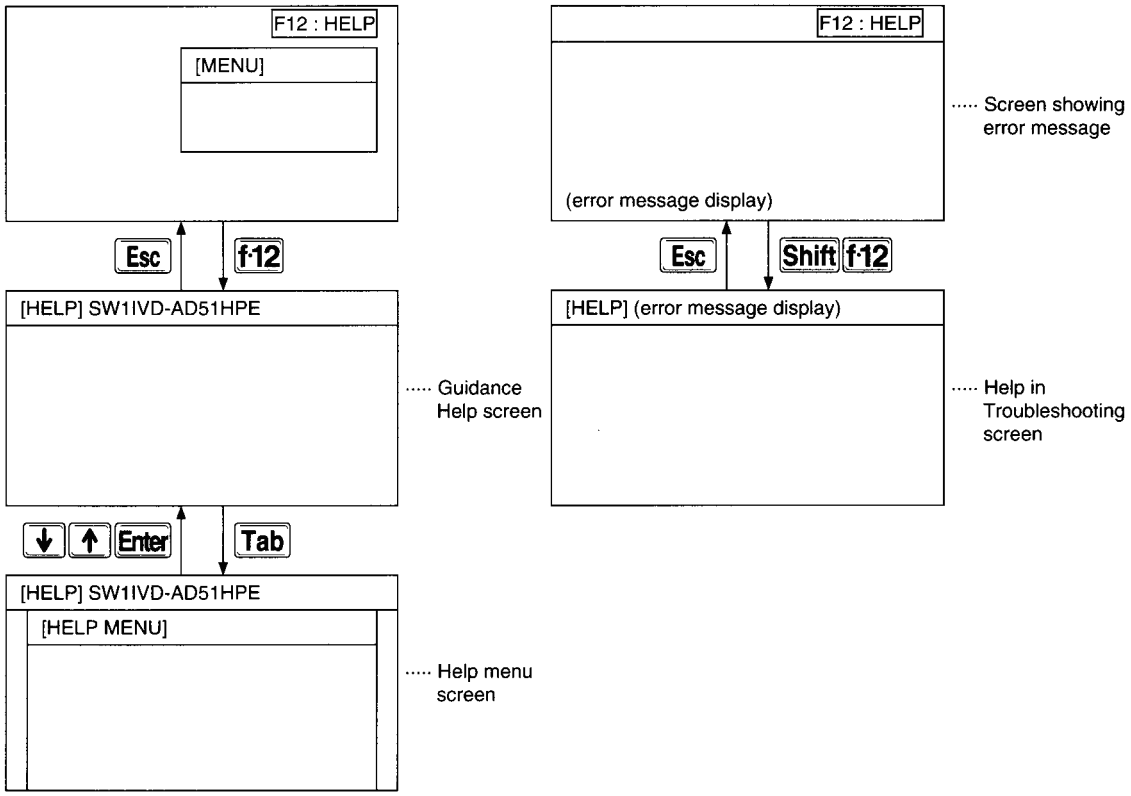
Explains the procedure involved in operation of each function. To operate, press [F12]. The guidance HELP for the mode when [F12] was pressed will appear.

(3) HELP menu

Displays the contents of guidance HELP.

Select each guidance HELP from the contents and display guidance HELP. To operate, press [Tab] while guidance HELP is on display so that the HELP menu appears. Move the cursor and press [Enter] and guidance HELP is displayed.

When each HELP function is completed, key in [Esc].



4.4 Presentation of operating instructions in this manual

From Chapter 6, an explanation is given for each mode.
The explanations are given as the reader proceeds through an actual operation sample. If you are not familiar with how to operate the software package, please actually operate it from the start so you will understand how everything functions.
If you already have experience in operating the software package, we suggest you go over this manual and review the key points, advice and essential portions of operation samples.
Explanations of each mode and function are arranged as shown below.

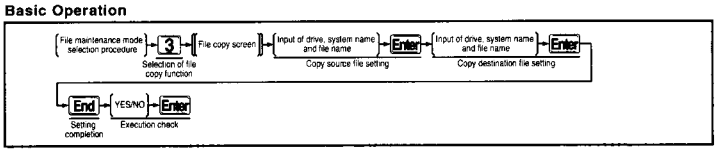
Major title of this page

This is the first screen for performing operations on this page

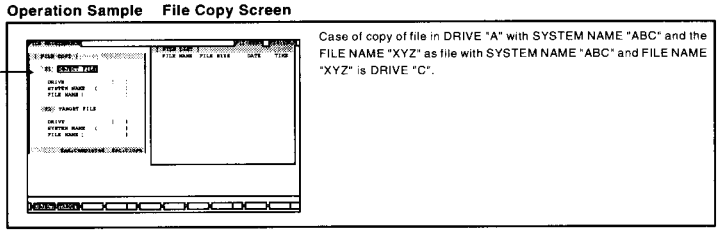
7.5.3 Copy files between specified disks among HD, FD and memory card (MCD) (Copying)

Files are copied from HD, FD and memory card to specified HD, FD or memory card. With A1SD51S, memory card cannot be specified for the drive.

Basic Operation



Operation Sample File Copy Screen



Case of copy of file in DRIVE "A" with SYSTEM NAME "ABC" and the FILE NAME "XYZ" as file with SYSTEM NAME "ABC" and FILE NAME "XYZ" is DRIVE "C".

Explanation

A→Enter→A→B→C→Enter
→X→Y→Z→Enter

1 Specify the DRIVE, SYSTEM NAME and FILE NAME of the OBJECT FILE and press the [Enter] key.

```
[FILE COPY]
F1 OBJECT FILE
DRIVE                    [ A ]
SYSTEM NAME          [ ABC   ]
FILE NAME       [ XYZ        ]
```

⇩

C→Enter→A→B→C→Enter
→X→Y→Z

2 Specify the DRIVE, SYSTEM NAME and FILE NAME of the TARGET FILE.

```
F2 TARGET FILE
DRIVE                    [ C ]
SYSTEM NAME          [ ABC   ]
FILE NAME       [ XYZ        ]
```

⇩

Point

- Concerning file name
  Wild card can be used.
  If the copy destination file name is omitted, it becomes the same as the copy source file name.

7-10

Outline of this page

Key in operating procedure

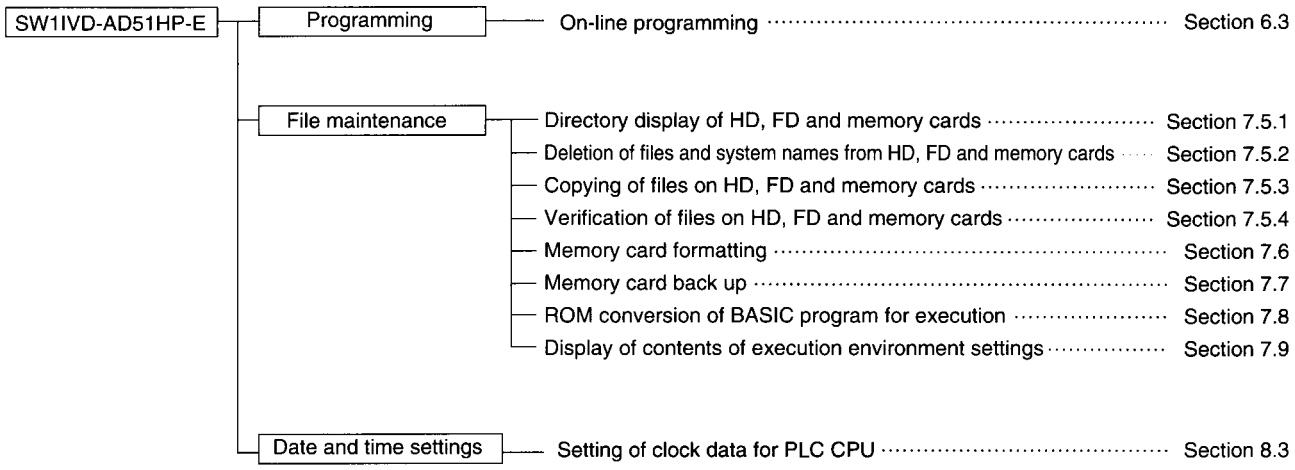
Operation sample
Here the first screen appears for this page
Key in operating are shown to the right of [ ].
The key in operating for calling out this screen for operation

Explanation in the course of key operation

- Key points
  Important
  Items which should always be read
- Advice
  Helpful explanations and related functions worth knowing
- Remarks
  Supplementary explanations, preliminary knowledge

5 List of Functions

The functions which can be executed with the software package are presented below.



REMARK

(1) Format HD and FD with MS-DOS.

(2) When using a printer, assemble a printer driver with CONFIG.SYS.

6 Programming Mode Operation

An explanation is given of the procedures for editing and correcting BASIC programs with the software package.

6.1 Programming mode functions

Function	Contents
Online programming	(1) BASIC programs can be edited by communicating with the BASIC interpreter of the communications module. (2) All commands and functions of AD51H-BASIC can be executed. (3) Multi-task debugging can be done with debugger. (4) IBM PC/AT can also be used as a terminal of the communications module.

REMARK

The following printer function is available for SW1IVD-AD51HP-E.
This section explains which printers can be used for online programming.

(1) Applicable printers vary depending on the OS.

(a) For Windows®95, Windows®98, Windows®2000, or Windows®XP, any Windows printer can be used.

(b) For DOS or Windows 3.1, the ESC/P or PR-201 printer is used.

(2) When using a Windows printer, pay attention to the following:

(a) The printer setting must be done on Windows. (Installation of the printer driver)

(b) Data are output to the printer that is set as "default printer" in the printer setting of Windows.

(c) If no line feed code is sent from the intelligent communication module, the printer will automatically print out one page eight seconds after transmission of print data from the intelligent communication module.
To disable this automatic printout, press Ctrl + P.
In this status, "PRINT-TIMER OFF" is displayed on the lower left of the screen.
To enable the automatic printout, press Ctrl + P again.

6.2 Key functions in programming mode

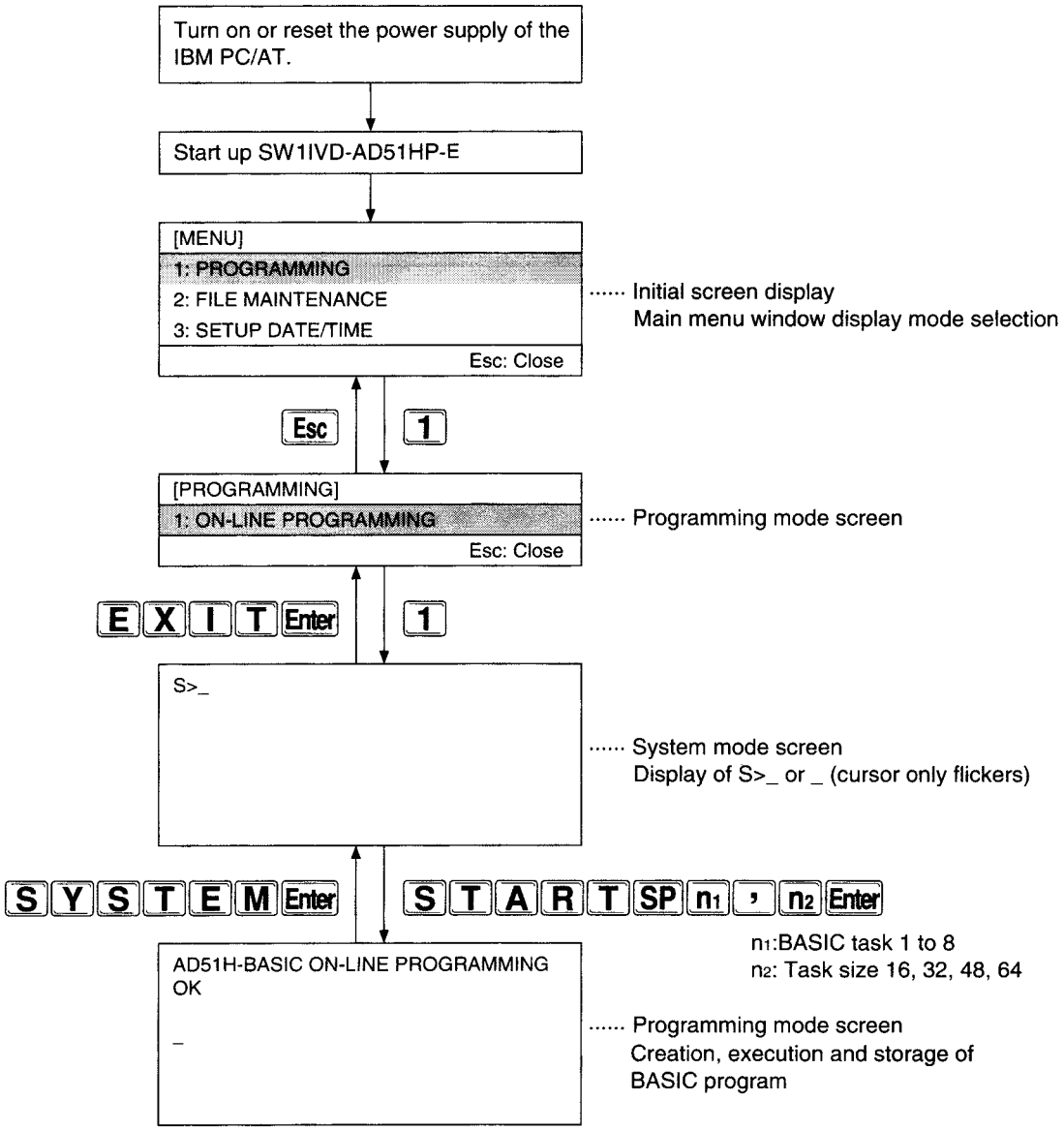
The following is an explanation of the applications of special keys used when creating or correcting a BASIC program.

Key name	Application
Enter	Inputs carriage, return code (ODH). Completes input of one line.
␣	Inputs empty space equivalent to one character.
Back Space	Erases one character to the left of the cursor position.
Delete	Moves one character at the right of the cursor to the left by one character increment.
Insert	Inserts empty space for one character at the cursor position. Moves character to the right of the cursor character by one character increment.
Tab	Moves the horizontal tab.
Home	Erases the screen and moves the cursor to the top left corner.
f·1 to f·10	Inputs the character string defined in each function key.
↑ ← → ↓	Moves the cursor in the arrow direction by one character increment.
Ctrl + B	Moves the cursor to the left with each item.
Ctrl + C	Aborts execution or input and restores system to command standby status.
Ctrl + D	Returns system to programming mode screen.
Ctrl + E	Erases all characters from the cursor position to end of the line.
Ctrl + G	Activates buzzer (beep sound).
Ctrl + H	Acts the same as the Back Space and Delete keys.
Ctrl + I	Acts the same as the Tab key.
Ctrl + J	Inserts line feed code.
Ctrl + K	Moves cursor to upper left corner.
Ctrl + L	Acts the same as the Home key.
Ctrl + M	Acts the same as the Enter key.
Ctrl + N	Moves the cursor to the right with each item.
Ctrl + R	Acts the same as the Insert key.

6.3 Online programming

By connecting the communications module to a IBM PC/AT and communicating with the BASIC interpreter, BASIC programs are written, revised and executed.
Set the mode switch of the communications module to "4: Programming Mode."

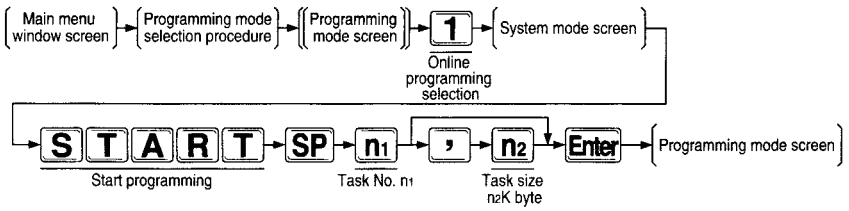
6.3.1 Online programming procedures



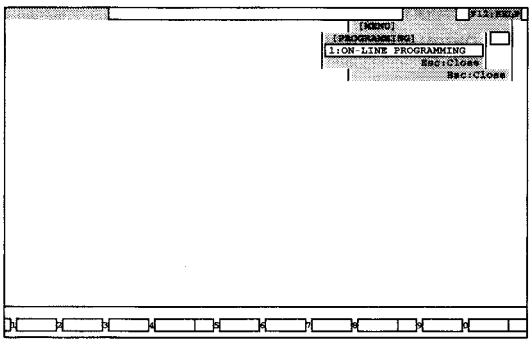
6.3.2 Programming online

By connecting the communications module to a IBM PC/AT, BASIC programs can be written and edited.

Basic Operation



Operation Sample Programming Mode Screen



Case in which after ON-LINE PROGRAMMING has been selected, the area size in the task No. 2 area is set anew at 48K bytes and programming is started.

Explanation

1

```
S>_
```

⇩

S T A R T
SP 2 , 4 8 Enter

```
AD51H-BASIC ON-LINE PROGRAMMING
OK
■
```

1 At the programming mode screen, select "1: ON-LINE PROGRAMMING."

System mode screen is displayed.

2 With the "START" command, set the task No. 2 area size at 48K bytes and establish conditions for programming in BASIC.

The comment shown at left appears on the screen and BASIC programs can be edited.

n_1: BASIC task 1 to 8

n_2: Task size 16, 32, 48, 64 Kbytes

If the task size has already been set, there is no need to specify the task size.

If the task size is to be changed, use the TKILL command to complete interpreter action at the target task No. area before entering the START command.

Points

- In the case of on-line programming, connect the communications module to a IBM PC/AT.
  For connection method, refer to Chapter 2.

- BASIC programs can be edited only in the command standby status. When a BASIC program is in execution status, the command standby status is restored by pressing the [Break] key or the [Ctrl] + [C] keys.

- Specifying any of the following drive numbers in BASIC of on-line programming makes access to the corresponding personal computer side drive.
  Drive No. 2: Under '\AD51H\USR' directory of drive A
  Drive No. 3: Under '\AD51H\USR' directory of drive C
  Drive No. 3: Under '\AD51H\USR' directory of drive D

- Cancellation of on-line programming function
  At command standby status, press "SYSTEM" command or the [Ctrl] + [D] keys.
  When SYSTEM command has been input:
  Execution of BASIC program stops.
  All opened files and communication lines are closed.
  When [Ctrl] + [D] keys are pressed:
  Execution of BASIC program stops.
  Opened files and communication lines are set to remain open. To execute the BASIC program again, enter the "CONT" command so that the program, currently stopped, can be executed.

Commands usable with system mode (system commands)

Classification	System command	Function	Applicability		
			AD51H-S3	A1SD51S	QD51(-R24)
Memory card control	CCOPY	Copies memory card contents as is to another memory card. (Creation of back-up memory card)	O	x	x
	CFORMAT	Formats memory card (physical format).			
	CFORMAT?	Displays format data of memory card.			
	FFORMAT	Formats file area of memory card (logic format).			
	CRECOVER	Restores portions of the memory card file area which could not be used so they can be used.			
Execute program data control	MLOAD *	Reads out contents of the specified BASIC task No. area in memory card to the target task No. area in main memory.	O	O	O
	MSAVE	Writes contents of specified task No. area in main memory to target BASIC task No. area in memory card. (Multi-task setting takes place automatically.)			
Multi-task setting control	SET	Changes multi-task settings/setting contents.	O	O	O
	SET?	Displays contents of multi-task settings.			
Mode control	START *	Switches communications module from multi-task debug mode to edit mode. (For editing and debugging each program)	O	O	O
	GO	Switches communications module from multi-task debug mode to run mode or multi-task debug mode.			
Interpreter operation control	TKILL *	Terminates operation of interpreter at specified task No. area.	O	O	O
Other	EXIT	Displays main menu screen on console.	O	O	O
	HELP	Displays list of system commands, function outlines, and command input forms.			
Memory access control	MREAD	Displays buffer memory, common memory, and extension register (ED) values.	O	O	O
	MWRITE	Writes values to buffer memory, common memory, and extension register (ED).			
	B@	Displays general input (X), general output (Y), and bit information of extension relay (EM).			
	B@	Writes bit information to general input (X), general output (Y), and extension relay (EM).			
	W@	Displays word data of extension register (ED).			
	W@	Writes word data to extension register (ED).			

Commands with the asterisk mark * cannot be sed with the compiler format.
Refer to type AD51H-BASIC Programming Manual (Debug and Compile) for details of command.

7 Operation of File Maintenance Mode

An explanation is given of file maintenance for HD, FD and memory card.

7.1 Functions of file maintenance mode

The functions available in file maintenance mode are as follows.

Function	Contents	Accessible device			Reference section
			AD51H-S3	A1SD51S QD51(-R24)	
Display of directories on HD, FD and memory card	Displays lists of system names and file names stored on HD, FD and memory card.	HD, FD	O	O	7.5.1
		MCD		x	
Deletion of files on HD, FD and memory card	Deletes system names and file names stored on HD, FD and memory card.	HD, FD	O	O	7.5.2
		MCD		x	
Copy of files on HD, FD and memory card	Copy of HD/FD ↔ HD/FD	HD/FD ↔ HD/FD	O	O	7.5.3
	Copy of HD/FD ↔ memory card	HD/FD ↔ MCD		x	
	Copy of memory card ↔ memory card	MCD ↔ MCD			
Verification of files on HD, FD and memory card	Verification of HD/FD ↔ HD/FD	HD/FD ↔ HD/FD	O	O	7.5.4
	Verification between HD/FD ↔ memory card	HD/FD ï MCD		x	
	Verification of memory card ↔ memory card	MCD ï MCD			
Memory card formatting	Memory card formatting	MCD	O	x	7.6
File backup	Compiles backup file in memory card → HD/FD	MCD → HD/FD	O	O	7.7
	Reentry of backup file HD/FD →memory card (restore)	HD/FD î MCD			
	Verification of memory card ↔ HD/FD	MCD ↔ HD/FD			
	Compiles backup file for memory card → memory card	MCD Ä MCD		x	
	Verification of memory card ↔ memory card	MCD ï MCD			
ROM conversion	Compiles BASIC data backup file for memory card → HD/FD	MCD → HD/FD	O	x	7.8
	Verification of memory card ↔ HD/FD	MCD ↔ HD/FD			
	Transfer of HD/FD → ROM writer	HD/FD → ROM writer	Δ *1		
	Verification of HD/FD ↔ ROM writer	HD/FD ↔ ROM writer			
	File conversio	HD, FD	O		
Display of setting contents	Displays execute environment settings in HD, FD and memory card	HD, FD	O	O	7.9
		MCD		x	

* 1 Takes place at SW ⬚ IVD-ROMA

7.2 General information on files

(1) Drive specification

[A] to [Z] ..... Drive for FD or HD in IBM PC/AT

[0], [1] ..... Drive for AD51H-S3 memory card

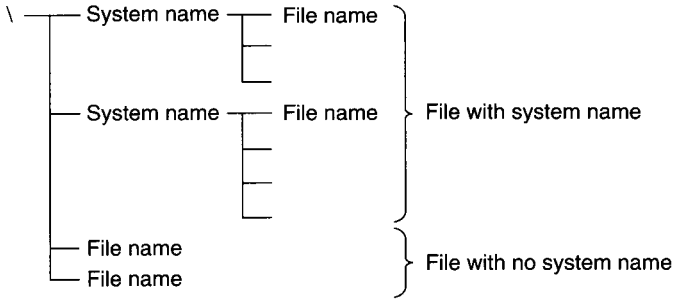
[0] denotes module "MEMORY CARD [1]", [1] denotes module "MEMORY CARD [2]".

Cannot be specified with A1SD51S.

(2) System name

[Configuration]

System name....No more than 8 characters



[Applicable character]

0 to 9, A to Z, $, &, #, %, ', (,), -, @, _, ^, {, }, ~, `, !

(3) File name

[Configuration] ... [System name], [Identifier]

System name... No more than 8 characters

Identifier.....No more than 3 characters

[Applicable characters]

0 to 9, A to Z, $, &, #, %, ', (,), -, @, _, ^, {, }, ~, `, !

However, the period is used to distinguish system name and identifier.

(4) Entry methods for drive, system name and file name

[DRIVE] → [Enter] ..... The DRIVE is specified and the cursor moves to the system name input area.

[SYSTEM NAME] → [Enter]..... The SYSTEM NAME is specified and the cursor moves to the file name input area.

[FILE NAME] → [Enter] ..... FILE NAME is specified.

[DIRECTORY]	
DRIVE	[ ]
SYSTEM NAME	[ ]
FILE NAME	[ ]
End: Completed	Esc: Close

(5) Backup file identifier

Shown below are the identifiers of files which can be created with the backup function.

Backup file	Identifier
Memory card	CBU
Execute area	RBU
File conversion	IHX

(6) Method of file name specification by wild card

When specifying file names, the wild card (specification by "*") can be used to specify names of saved files and similar file names as a batch.

(Example)

. ..... Specifies all files.

*.BAS..... Specifies files with "BAS" identifier.

ABC.BAS

BCD.BAS

CDE.BAS

ABC. * ..... Specifies all files with "ABC" system name.

ABC.BAS

ABC.DAT

A*.* ..... Specifies all files with system names that begin with the letter "A".

ABC.BAS

ADE.DAT

However, if a character is specified after the wild card, it has no meaning.

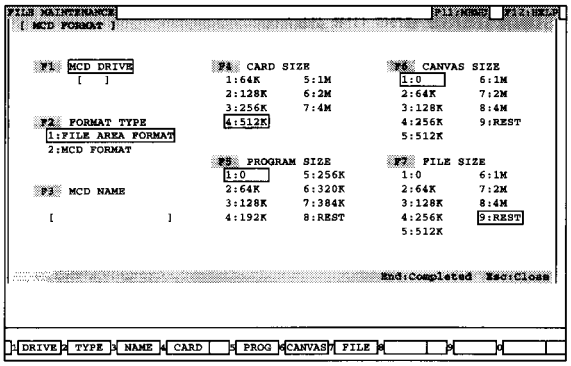
(Example)

"*A. *D" is the same as " *. * "

(7) Method of using function keys

When a function key is pressed, the cursor moves to the function number specified and data can be set.

(Example)



When card size is selected, input standby status is established by pressing the [F4] key.

Point

- **Upper and lower case letters**
  File name and system name are both entered in upper case letters.

7.3 General operation in file maintenance mode

Shown below are general operations of keys in file maintenance mode.

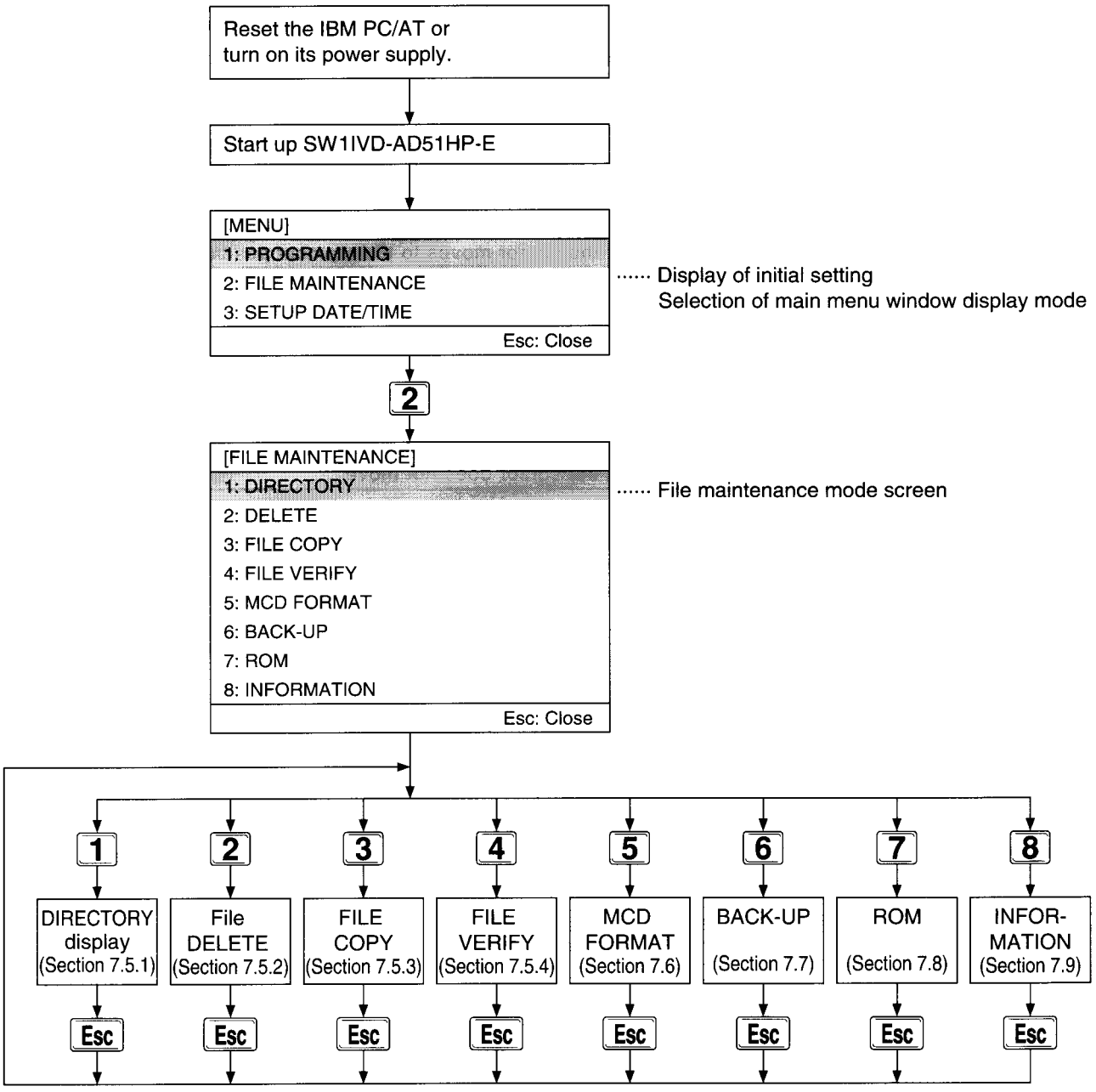
Key name	Contents
Enter	Cursor moves by each item or by each input area *. At the very last item or input area, the cursor returns to initial position.
↑ / ↓	Cursor moves up and down among items. If there is only one item, the cursor does not move. If the [↑] key is pressed when the cursor is at the topmost position, the cursor moves to the bottom most position. If the [↓] key is pressed when the cursor is at the bottom most position, the cursor moves to the topmost position.
→ / ←	Cursor moves left or right by one character increment within input area. If the input area has space for only one character, the cursor does not move. If the [→] key is pressed when the cursor is at the rightmost position, the cursor does not move. If the [←] key is pressed when the cursor is at the leftmost position, the cursor does not move.

* Input areas

This refers to drive input area, system name input area and file name input area.

7.4 File maintenance operation procedures

Procedures for selecting functions in file maintenance mode are as follows.

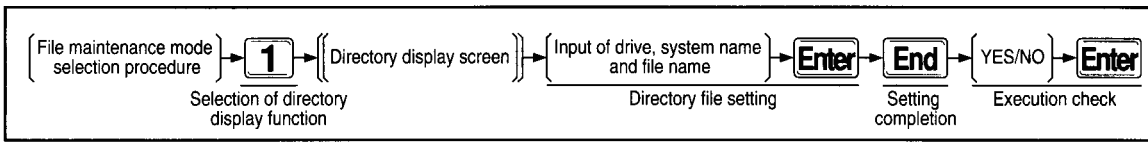


7.5 Selection of file maintenance function

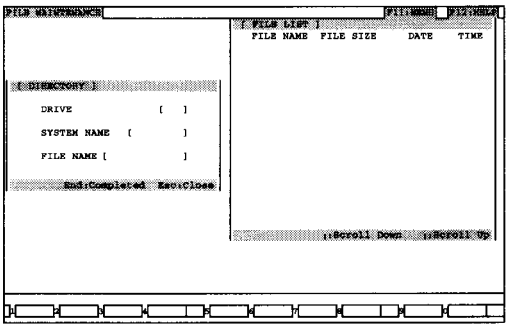
7.5.1 Display names of files saved in HD, FD and memory card (MCD) (directory)

Names of files in HD, FD and memory card are displayed as a list.
With A1SD51S, memory card cannot be specified for the drive.

Basic Operation

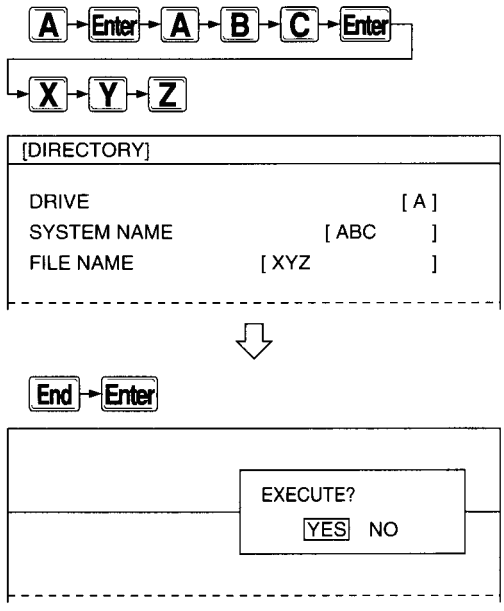


Operation Sample Directory Display Screen



Case of directory display of file in DRIVE "A" with SYSTEM NAME "ABC" and FILE NAME "XYZ".

Explanation



1 Specify the DRIVE, SYSTEM NAME and FILE NAME wanted in directory display.

2 When the [End] key is pressed, an alternative window is shown.
With "YES" selection, "Executing" is shown in the message area, and directory display is executed.
When the display changes to "Completed," the directory display terminates and the "Disk capacity in [xxxx] bytes for number of usable files [xx]" is shown.
With "NO" selection, specification can be made again from the drive.

Point

- Concerning file name
  Wild card can be used.

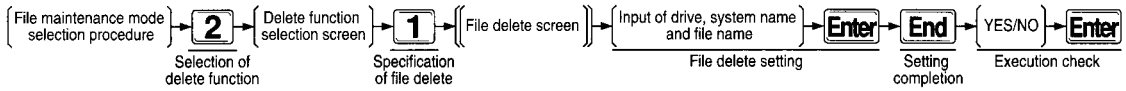
7.5.2 Delete files in HD, FD and memory card (MCD) (Deletion)

(1) File deletion

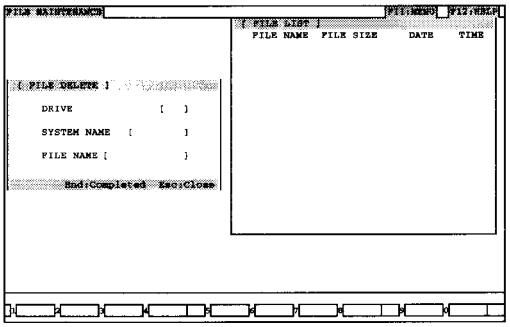
Unnecessary files in HD, FD and memory card are deleted.

With A1SD51S, memory card cannot be specified for the drive.

Basic Operation

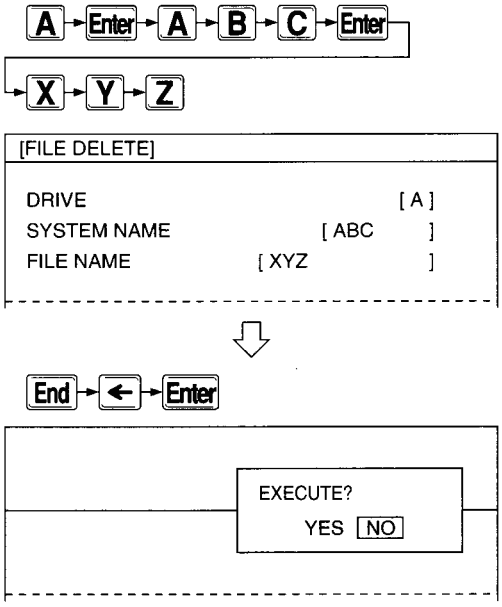


Operation Sample File Delete Screen



Case of deletion of file inDRIVE "A" with SYSTEM NAME "ABC" and FILE NAME "XYZ".

Explanation



1 Specify the DRIVE, SYSTEM NAME and FILE NAME of the file to be deleted.

2 When the [End] key is pressed, an alternative window is shown.

With "YES" selection, "Executing" is shown in the message area, and file delete is executed.

When the display changes to "Completed," file deletion is completed.

With "NO" selection, specification can be made again from the drive.

Advice

- Total file deletion
  In specifying file names, if the [Enter] key alone is pressed, the file name is omitted and "*.*" appears in the specified area. All files in the specified system name are deleted.
  When system name and file name are both omitted, all files with no system name are deleted.

Point

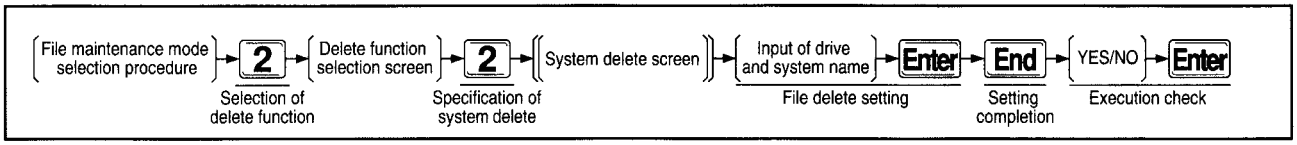
- Concerning file name
  Wild card can be used.

(2) System deletion

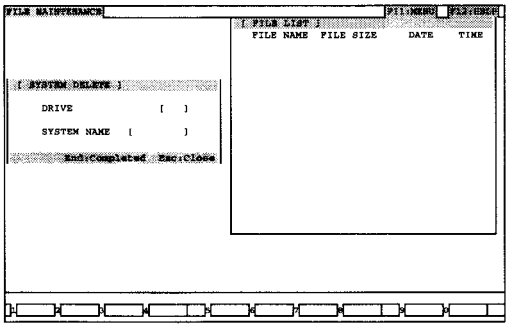
Unnecessary system names in HD, FD and memory card are deleted.

With A1SD51S, memory card cannot be specified for the drive.

Basic Operation

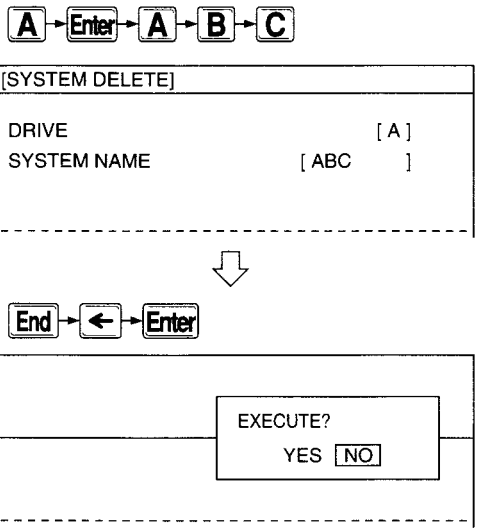


Operation Sample System Delete Screen



Case of deletion of SYSTEM NAME "ABC" in DRIVE "A".

Explanation



1 Specify the DRIVE and SYSTEM NAME of the system to be deleted.

2 When the [End] key is pressed, an alternative window is shown.

With "YES" selection, "Executing" is shown in the message area, and system name delete is executed.

When the display changes to "Completed," system deletion is completed.

With "NO" selection, specification can be made again from the drive.

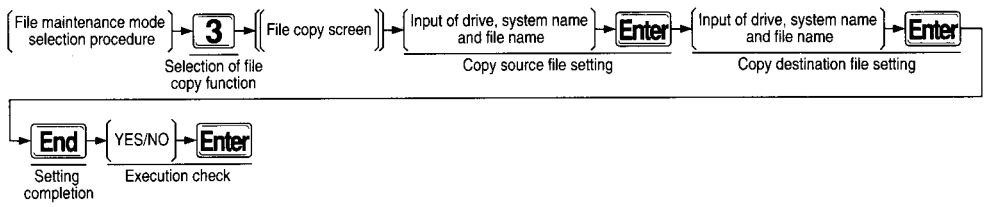
Point

- Concerning file
  There must not be any files in the specified system name.

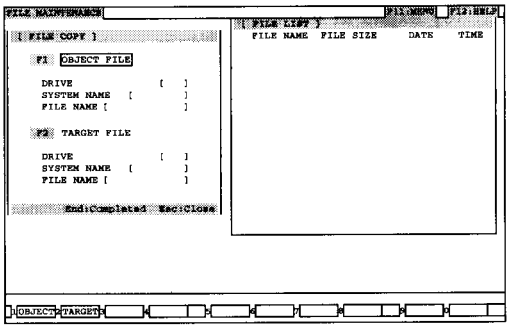
7.5.3 Copy files between specified disks among HD, FD and memory card (MCD) (Copying)

Files are copied from HD, FD and memory card to specified HD, FD or memory card. With A1SD51S, memory card cannot be specified for the drive.

Basic Operation

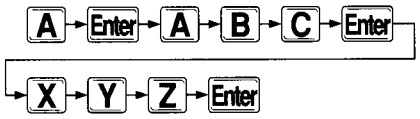


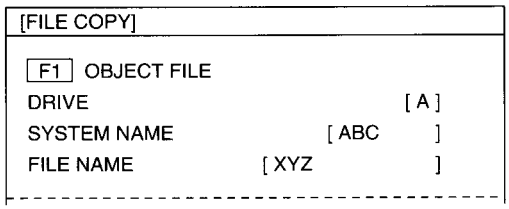
Operation Sample File Copy Screen



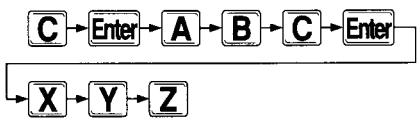
Case of copy of file in DRIVE "A" with SYSTEM NAME "ABC" and the FILE NAME "XYZ" as file with SYSTEM NAME "ABC" and FILE NAME "XYZ" is DRIVE "C".

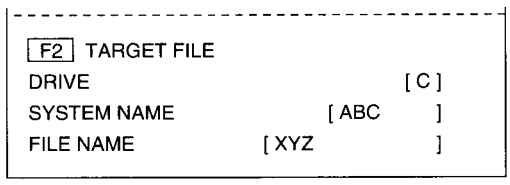
Explanation



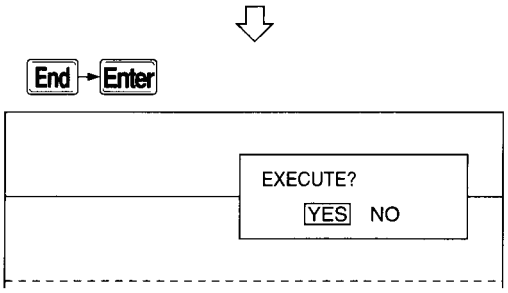


1 Specify the DRIVE, SYSTEM NAME and FILE NAME of the OBJECT FILE and press the [Enter] key.





2 Specify the DRIVE, SYSTEM NAME and FILE NAME of the TARGET FILE.



3 When the [End] key is pressed, an alternative window is shown.
With "YES" selection, the "Read [xxx] Sector" or the "Write [xxx] Sector" is shown in the message area, and file copy is executed. When the display changes to "Completed," file copy is completed.
With "NO" selection, specification can be made again from the copy source drive.

Advice

- Total file copy
  When the copy source file name is omitted, all files are copied.
  In the case of the same system name (including times when neither is set) in the same drive, however, settings cannot be made.
  - When copy source system name is specified:
    All files in the specified system name are copied.
  - When copy source system name is not specified:
    All files without system name are copied.
- Overwrite
  In setting the copy destination file name, if the same file name already exists at the copy destination, "Same File Name Already At Destination" appears in the message area. If "YES" is selected from an alternate window, copy takes place via overwrite.
  In the case of copy between MCD, however, copy takes place via overwrite without execution of overwrite check.
  If "NO" is selected, specification can be made again from the copy source drive.

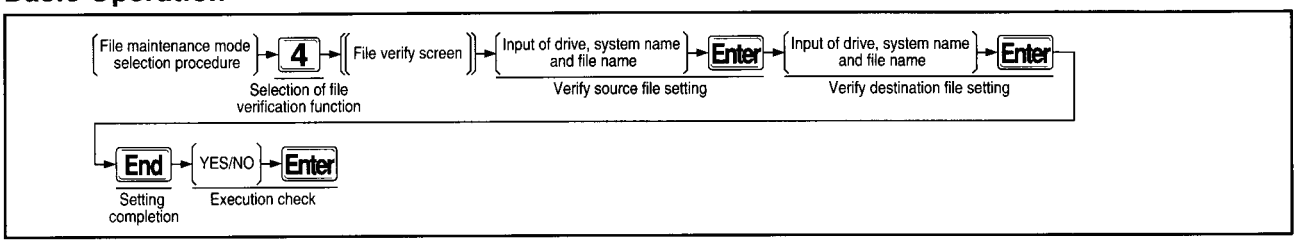
Point

- Concerning file name
  Wild card can be used.
  If the copy destination file name is omitted, it becomes the same as the copy source file name.

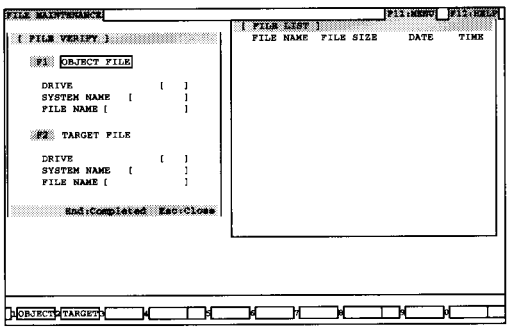
7.5.4 Verify files between specified disks among HD, FD and memory card (MCD) (Verification)

Verification takes place between specified files in HD, FD and memory card.
With A1SD51S, memory card cannot be specified for the drive.

Basic Operation

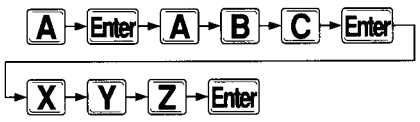


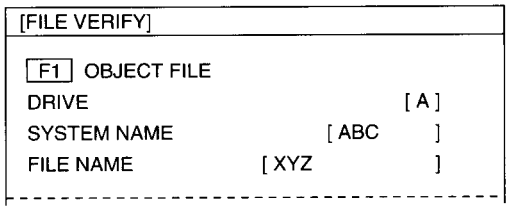
Operation Sample File Verify Screen



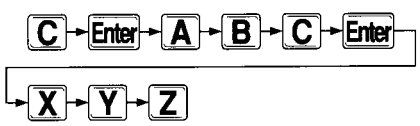
Case of verification of file in DRIVE "A" with the SYSTEM NAME "ABC" and the FILE NAME "XYZ" with the file with SYSTEM NAME "ABC" and the FILE NAME "XYZ" in DRIVE "C".

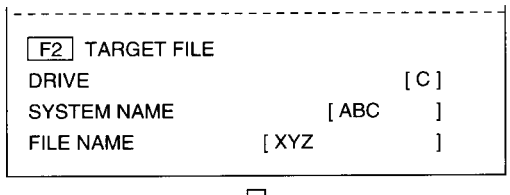
Explanation



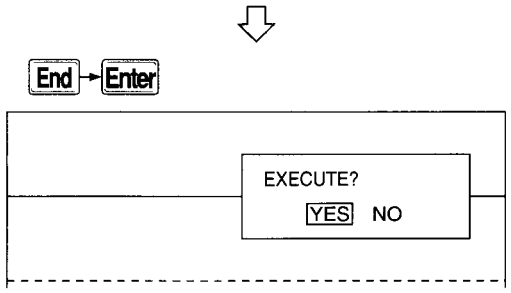


1 Specify the DRIVE, SYSTEM NAME and FILE NAME of the OBJECT FILE and press the [Enter] key.





2 Specify the DRIVE, SYSTEM NAME and FILE NAME of the TARGET FILE.



3 When the [End] key is pressed, an alternative window is shown.
With "YES" selection, the "Verify Source Read [xxx] Sector" or the "Verify Destination Read [xxx] Sector" is shown in the message area, and file verify is executed.
When the display changes to "Completed," file verify is completed.
With "NO" selection, specification can be made again from the verify source drive.
If verification is unmatched, "Verification Error Generated" is displayed in the message area, and specification can be made again from the verify source drive.

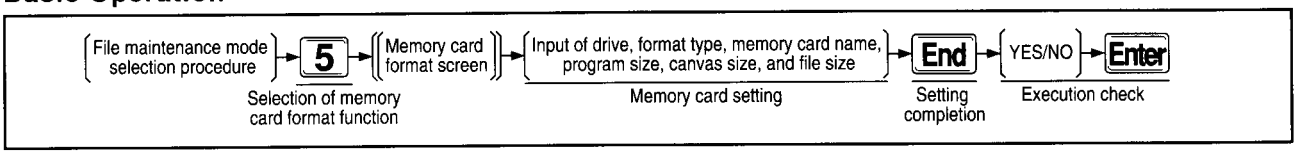
Point

- Concerning file name
  Wild card can not be used.
  Drive, system name and file name cannot be set as the same at the verify source and verify destination.
  File name cannot be omitted.

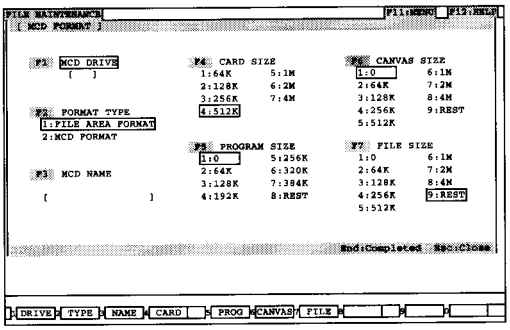
7.6 Memory card (MCD) formatting

The memory card used with AD51H-S3 is initialized.
A1SD51S cannot be used.

Basic Operation

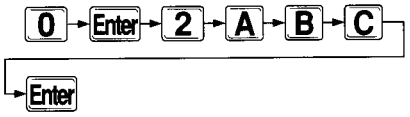


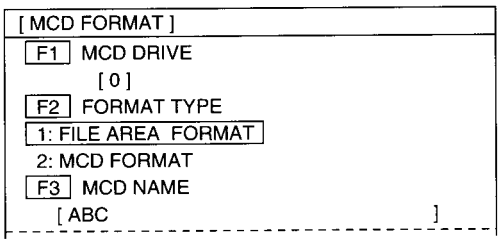
Operation Sample Memory Card Format Screen

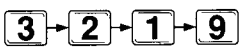


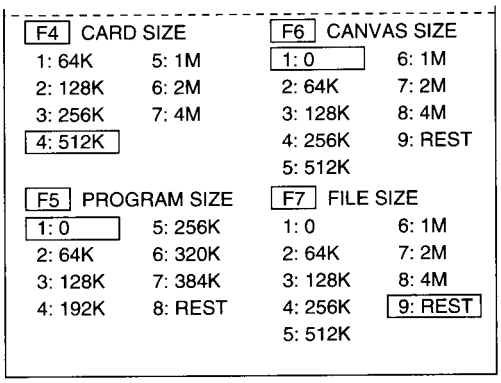
Case of formatting entire area of memory card.

Explanation







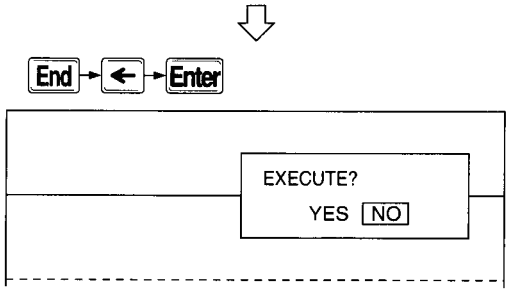


1 Specify memory card to be formatted as follows:

MCD DRIVE: 0
FORMAT TYPE: MCD FORMAT
MCD NAME: ABC

2 Next, specify each size.

CARD SIZE: 256K
PROGRAM SIZE: 64K
CANVAS SIZE: 0
FILE SIZE: REST (remaining)

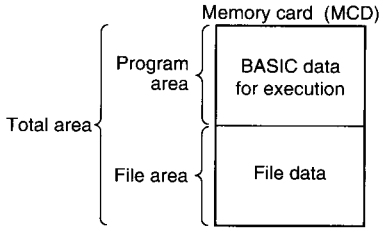


3 When the [End] key is pressed, an alternative window is shown.
With "YES" selection, "Executing" is shown in the message area, and memory card formatting is executed.
When the display changes to "Completed," memory card formatting is completed.
With "NO" selection, specification can be made again from the MCD drive.

Advice

- **Concerning key operation**
  Cursor movement among items can be executed with the up and down arrow keys.
  Cursor movement by each item can be executed with the function key or [Enter] key.

- **Concerning memory card**
  The following is shown regarding memory card area.



Points

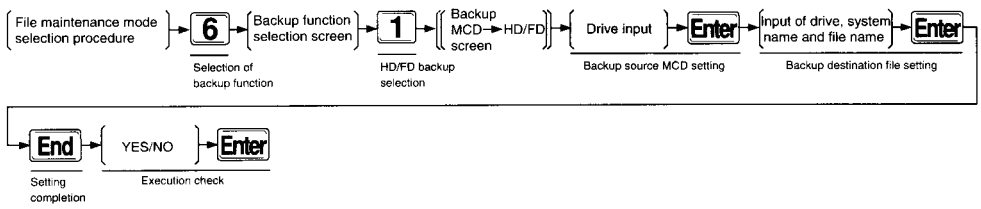
- **MCD name specification**
  Specify the MCD name within 16 characters.
- **Canvas size**
  Canvas size cannot be used with AD51H-S3/A1SD51S.
- **FD format**
  Execute FD formatting with MS-DOS.
- **Protect**
  During execution of MCD formatting, set the "M-PROTECT" in the module and the memory card write protect at OFF.
- **Format type**
  1: File area format
  Only the file area is formatted. Execution environment is left remaining.
  Items from MCD name to file size need not be specified.
  2: MCD format
  Total MCD area is formatted.
- **When changing memory card size**
  Set the format type to "2: MCD format," move the cursor to the item being changed, and after setting is completed, execute formatting.

7.7 File backup

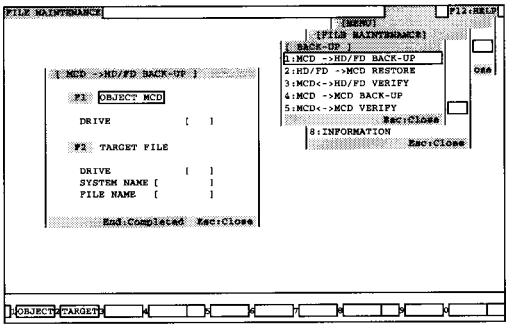
7.7.1 File in memory card (MCD)/EEP-ROM is stored in HD/FD (Backup file creation)

All file data in memory card/EEP-ROM is stored in HD or FD.

Basic Operation



Operation Sample Backup•MCD → HD/FD Screen



Case of backup of files in the memory card in DRIVE "1" to FD in DRIVE "A" with SYSTEM NAME "ABC" and FILE NAME "XYZ."

Explanation

1 Enter

[MCD → HD/FD BACK-UP]

F1 OBJECT MCD
DRIVE [1]

⇩

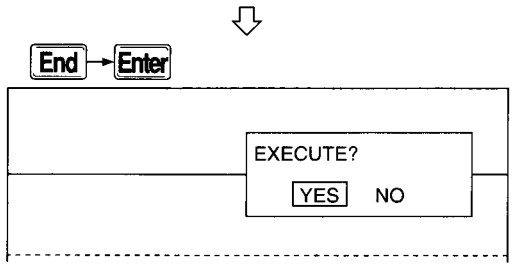
A Enter A B C Enter
X Y Z

F2 TARGET FILE
DRIVE [A]
SYSTEM NAME [ABC]
FILE NAME [XYZ]

⇩

1 Specify the DRIVE containing the OBJECT MCD memory card.

2 Specify the DRIVE containing the TARGET FILE FD, the SYSTEM NAME and the FILE NAME.



3 When the [End] key is pressed, an alternative window is shown.
With "YES" selection, in the case of HD "Executing [xxx] Sector" is shown in the message area, and in the case of floppy disk, "Executing [xxx] Sector FD No. [n]" is shown, and creation of the backup file proceeds.
All of the file area and execution environment is subject to backup.
When the display changes to "Completed," creation of a backup file is completed.
With "NO" selection, specification can be made again from the backup source.

Advice

- **Concerning overwrite**
  If the same file name exists at the backup destination, "Same File Name at Destination" is displayed in the message area. If "YES" is selected from an alternate window, backup is executed by overwriting.
  If "NO" is selected, "Aborted" is shown in the message area, and specification can be made again from the backup source drive.

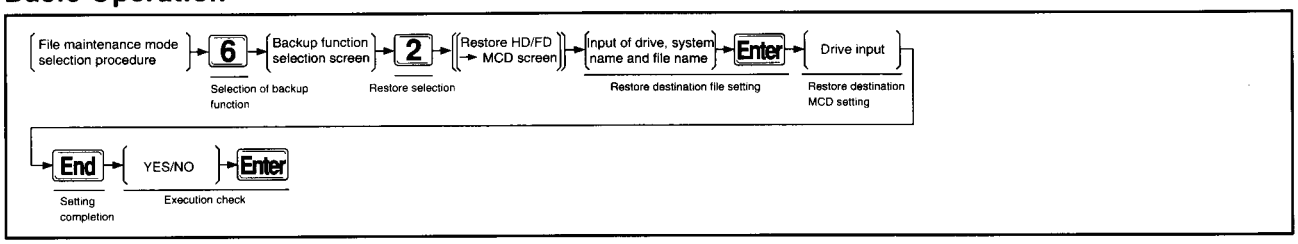
Points

- **When there is no empty area on FD**
  "Replace FD" is shown in the message area.
  After replacing the FD, if "YES" is selected from an alternate window, backup is executed.
  If "NO" is selected, "Aborted" is shown in the message area, and specification can be made again from the backup source.
- **File name**
  The file name cannot be omitted.
  The identifier is specified as "CBU."
  Wild card cannot be used.

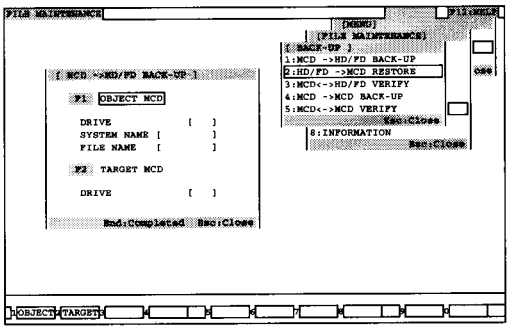
7.7.2 Backup file on HD/FD is restored on memory card (MCD)/EEP-ROM (Restore)

Backup file stored on HD or FD is read to memory card/EEP-ROM.

Basic Operation

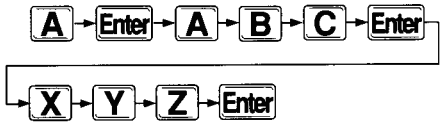


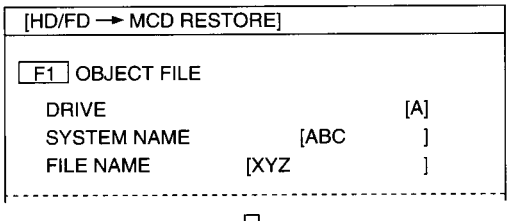
Operation Sample Restors•HD/FD → MCD Screen



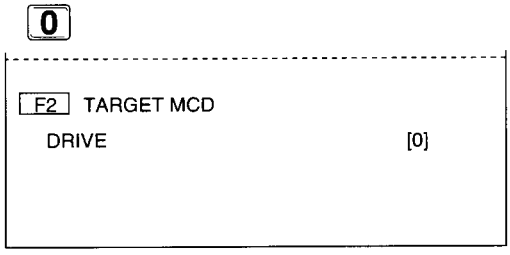
In MCD restore, case of read out of file on floppy disk with SYSTEM NAME "ABC" and FILE NAME "XYZ" in DRIVE "A" to memory card in DRIVE "0".

Explanation

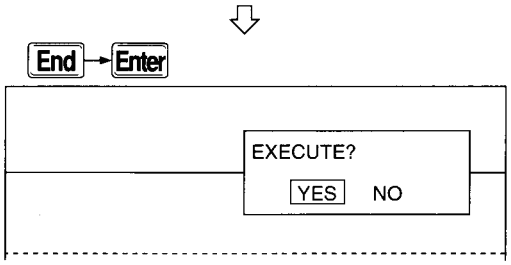




1 Specify the OBJECT FILE DRIVE, SYSTEM NAME and FILE NAME.



2 Specify the DRIVE containing the TARGET MCD.



3 When the [End] key is pressed, an alternative window is shown.
With "YES" selection, in the case of HD "Execution [xxx] Sector" is shown in the message area, and in the case of floppy disk, "Executing [xxx] Sector FD No. [n]" is shown, and restoration of the backup file proceeds.
When the display changes to "Completed," restoration of the backup file is completed.
With "NO" selection, input again from the restore source drive.

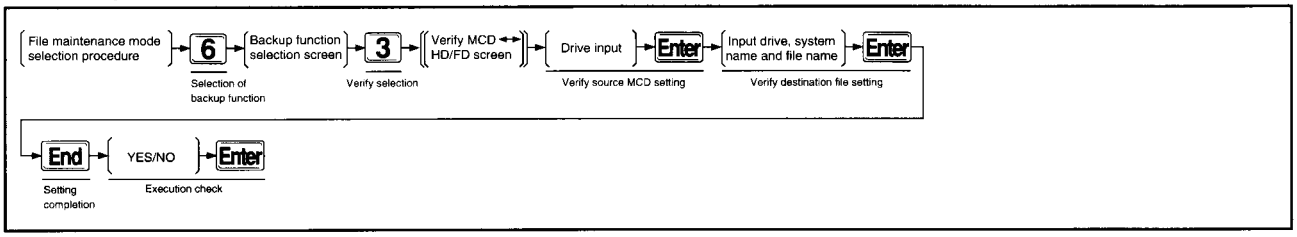
Points

- **When restoring backup file on two floppy disks**
  When the first FD is completed, "Replace With Second FD" is shown in the message area.
  After replacing the FD, if "YES" is selected from an alternate window, restore is executed.
  If "NO" is selected, "Aborted" is shown in the message area, and specification can be made again from the restore source drive.
- **File name**
  The file name cannot be omitted.
  The identifier cannot be input.
  Wild card cannot be used.

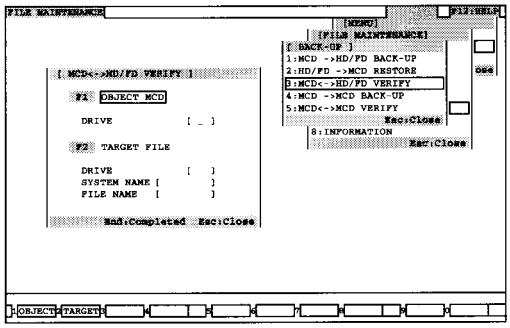
7.7.3 File on HD/FD is verified with memory card (MCD)/EEP-ROM

Backup file stored on HD or FD is verified with data on memory card/EEP-ROM.

Basic Operation



Operation Sample Verify•MCD ↔ HD/FD Screen



Case of verification of all data in the memory card in DRIVE "1" with the file in DRIVE "C" having SYSTEM NAME "ABC" and FILE NAME "XYZ".

Explanation

1 Enter

[MCD ↔ HD/FD VERIFY]

F1 OBJECT MCD

DRIVE [-]

1 Specify the DRIVE containing the OBJECT MCD

C Enter A B C Enter

X Y Z

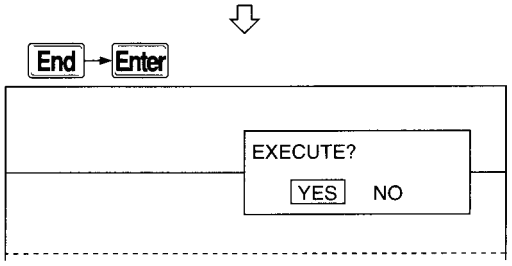
F2 TARGET FILE

DRIVE [C]

SYSTEM NAME [ABC]

FILE NAME [XYZ]

2 Specify the DRIVE containing the TARGET destination FD, the SYSTEM NAME and FILE NAME.



3 When the [End] key is pressed, an alternative window is shown.

With "YES" selection, in the case of HD "Verification [xxx] Sector" is shown in the message area, and in the case of FD, "Verification [xxx] Sector FD No. [n]" is shown, and verification of the backup file proceeds.

When the display changes to "Completed," verification of the backup file is completed.

With "NO" selection, input is made from the verify source drive.

If the verification is unmatched, "Verification Error Generated" is shown in the message area, and input can be made again from the verify source drive.

Points

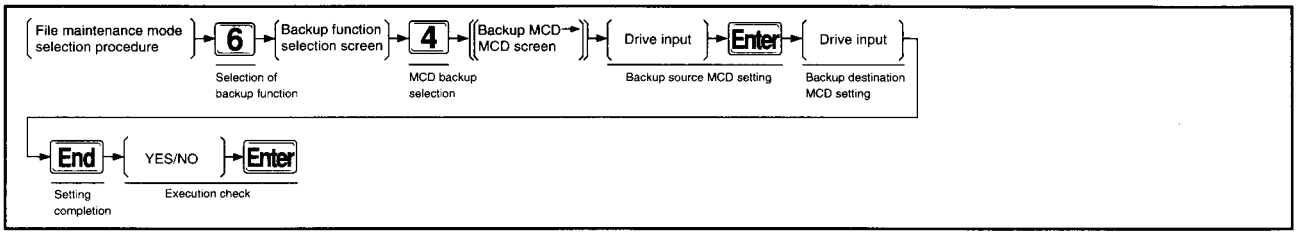
- **When verifying two floppy disks**
  When the first FD is completed, "Replace With Second FD" is shown in the message area.
  After replacing the FD, if "YES" is selected from an alternate window, verify is executed.
  If "NO" is selected, "Aborted" is shown in the message area, and specification can be made again from the verify source drive.

- **File name**
  The file name cannot be omitted.
  The identifier cannot be input.
  Wild card cannot be used.

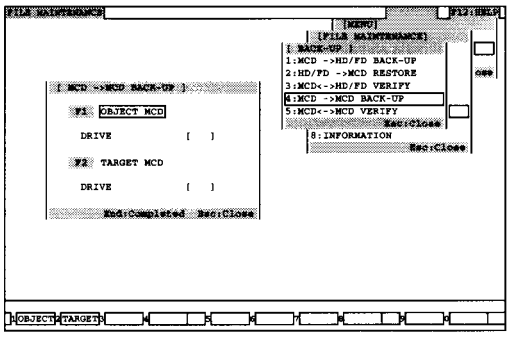
7.7.4 File in memory card (MCD) is stored on separate memory card

All data in MCD is stored on a separate MCD.
A1SD51S cannot be used.

Basic Operation



Operation Sample Backup•MCD → MCD Screen



Case of backup of all files in the memory card in DRIVE "0" to a separate memory card in DRIVE "1".

Explanation

0 → Enter

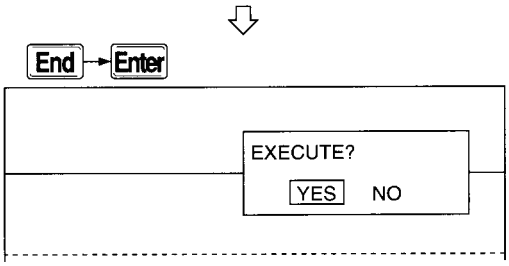
```
[MCD → MCD BACK-UP ]

F1 OBJECT MCD
  DRIVE                    [0]
```

1 Specify the DRIVE containing the OBJECT MCD.

1

```
F2 TARGET MCD
  DRIVE                    [1]
```

2 Enter the DRIVE containing the TARGET MCD.

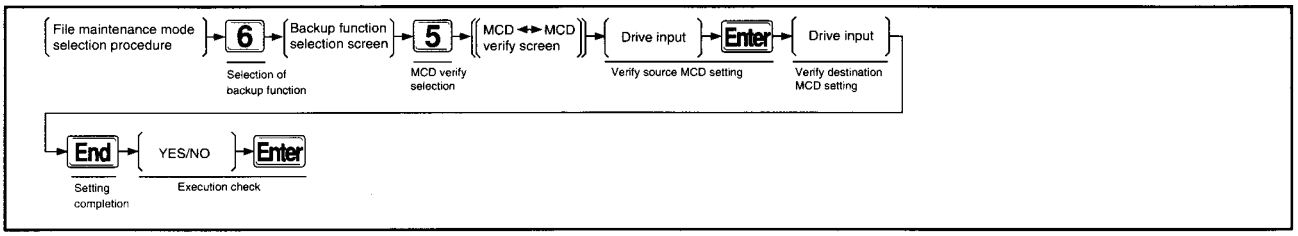


3 When the [End] key is pressed, an alternative window is shown.
With "YES" selection, "Executing" is shown in the message area, and creation of memory card backup file is executed.
When the display changes to "Completed," creation of memory card backup file is completed.
With "NO" selection, specification can be made again from the backup source MCD drive.

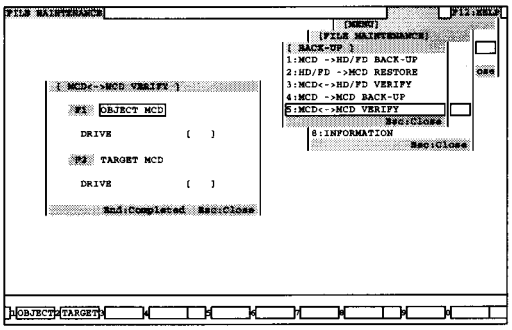
7.7.5 Verification of files between memory cards (MCD)

All data in the backup source memory card is verified against all data registered in an alternate memory card by backup.
A1SD51S cannot be used.

Basic Operation



Operation Sample MCD ↔ MCD•Verify Screen

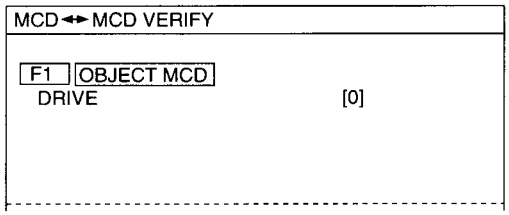


Case of verification of all data in the memory card in DRIVE "0" with the memory card in DRIVE "1".

Explanation

0 → Enter

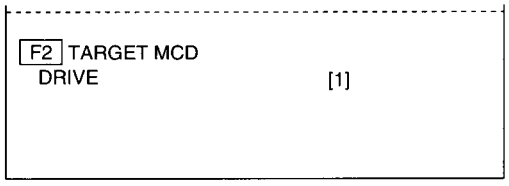
1 Specify the DRIVE containing the OBJECT MCD.



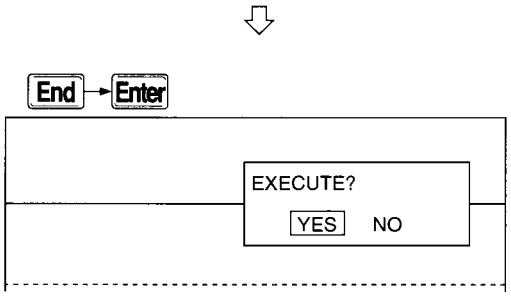
⇩

1

2 Specify the DRIVE containing the TARGET MCD.



⇩



3 When the [End] key is pressed, an alternative window is shown.

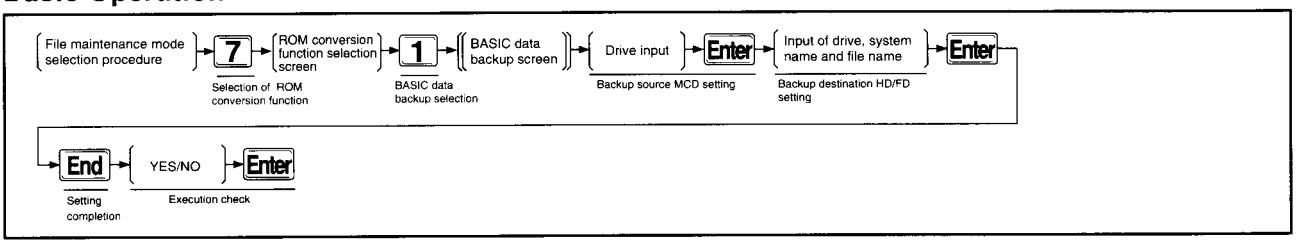
With "YES" selection, "Verification" is shown in the message area, and file verification between memory cards is executed.
When the display changes to "Completed," file verification between memory cards is completed.
With "NO" selection, specification can be made again from the verify source drive.
If the verification is unmatched, "Verification Error Generated" is shown in the message area, and specification can be made again from the verify source drive.

7.8 File ROM conversion

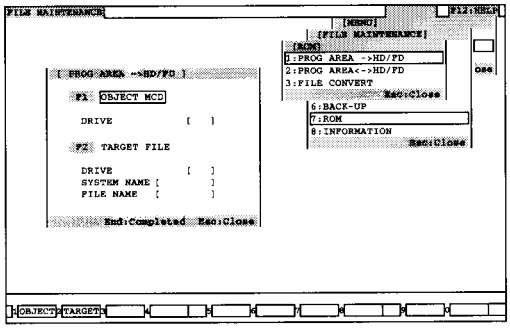
7.8.1 A backup file of BASIC data for execution in memory card (MCD) is created on HD/FD

BASIC data in the execution environment of memory card is subject to backup in HD or FD.
A1SD51S cannot be used.

Basic Operation



Operation Sample BASIC Data Backup Screen



Case of back-up of BASIC data for execution in the memory card in DRIVE "0" to HD with SYSTEM NAME "ABC" and FILE NAME "XYZ" in DRIVE "C".

Explanation

0 → Enter

```
[PROG AREA → HD/FD]

F1 OBJECT MCD
DRIVE                    [0]
```

1 Specify the DRIVE containing the OBJECT MCD.

⇩

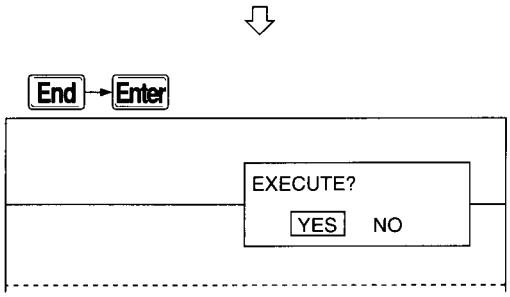
C → Enter → A → B → C → Enter

X → Y → Z

```
F2 TARGET FILE
DRIVE                    [C]
SYSTEM NAME        [ABC      ]
FILE NAME          [XYZ      ]
```

2 Specify the DRIVE, system name and file name of the TARGET FILE.

⇩



3 When the [End] key is pressed, an alternative window is shown.
With "YES" selection, "Executing [xxx] Sector" is shown and backup is executed.
When the display changes to "Completed," backup is completed.
With "NO" selection, specification can be made from the backup source drive.

Advice

- **Concerning overwrite**
  If the same file name exists at the backup destination, "Same File Name at Destination" is displayed in the message area. If "YES" is selected from an alternate window, backup is executed by overwriting.
  If "NO" is selected, "Aborted" is shown and specification can be made again from the backup source drive.

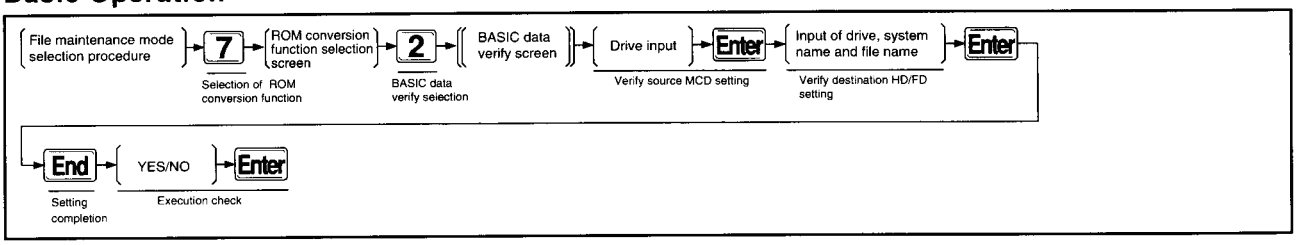
Points

- **When there is no empty area on FD**
  "Replace FD" is shown in the message area.
  After replacing the FD, if "YES" is selected from an alternate window, backup is executed.
  If "NO" is selected, "Aborted" is shown in the message area, and specification can be made again from the backup source.
- **File name**
  The file name cannot be omitted.
  The identifier is specified as "RBU."
  Wild card cannot be used.
- **Protect**
  Turn the "M-PROTECT" in the module and the write protect of memory card to OFF.

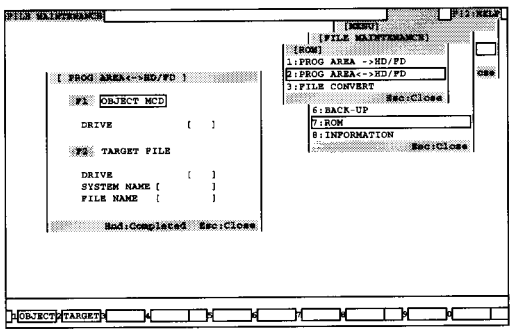
7.8.2 BASIC data for execution in memory card (MCD) is verified against backup file in HD/FD

BASIC data for execution backed up on HD or FD is verified against BASIC data for execution in memory card.
A1SD51S cannot be used.

Basic Operation



Operation Sample BASIC Data Verify Screen



Case of verification of BASIC data for execution in memory card in DRIVE "0" against BACK-UP file with SYSTEM NAME "ABC" and FILE NAME "XYZ" in DRIVE "C".

Explanation

0 → Enter

[PROG AREA ◄► HD/FD]

F1 OBJECT MCD
DRIVE [0]

⇩

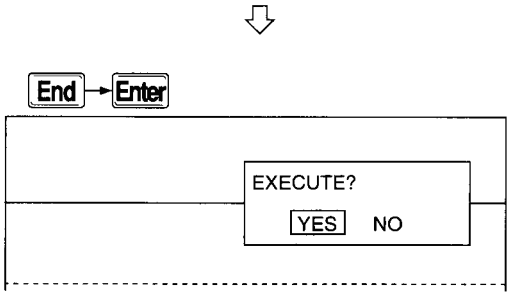
C → Enter → A → B → C → Enter
X → Y → Z

F2 TARGET FILE
DRIVE [C]
SYSTEM NAME [ABC]
FILE NAME [XYZ]

⇩

1 Specify the DRIVE containing OBJECT MCD.

2 Specify the TARGET source DRIVE, SYSTEM NAME and FILE NAME.



3 When the [End] key is pressed, an alternative window is shown.
With "YES" selection, "Executing [xxx] Sector" is shown in the message area, and verification is executed.
When the display changes to "Completed," verification is completed.
With "NO" selection, specification can be made again from the verify source drive.
If the verification is unmatched, "Verification Error Generated" is shown in the message area, and specification can be made again from the verify source drive.

Point

- **File name**
  The file name cannot be omitted.
  The identifier cannot be input.
  Wild card cannot be used.

7.8.3 ROM conversion of backup file in HD/FD

In the case of ROM conversion, use SW ⬚ IVD-ROMA.
Refer to SW ⬚ IVD-ROMA ROM Function Software Package Operation Manual for details of ROM operation.

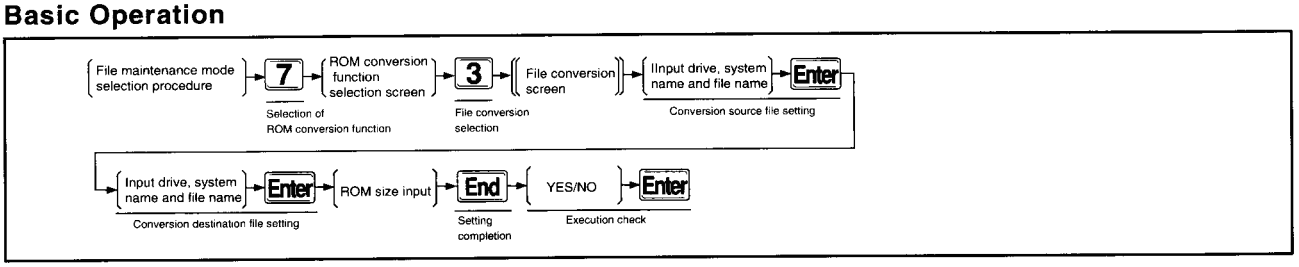
7.8.4 Verification of files between HD/FD

In the case of verification, use SW ☐IVD-ROMA.
Refer to SW ☐IVD-ROMA ROM Function Software Package Operation Manual for details of verification operation.

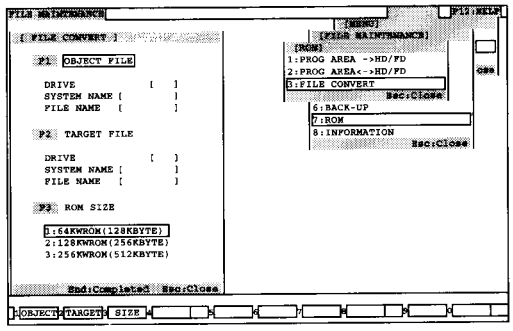
7.8.5 Conversion of backup file holding BASIC data for execution and storage in HD/FD

With a general-purpose ROM writer, BASIC data for execution is converted for transfer to ROM and stored in HD/FD. In the case of ROM conversion as presented in section 7.8.3, always carry out this process.
A1SD51S cannot be used.

Basic Operation

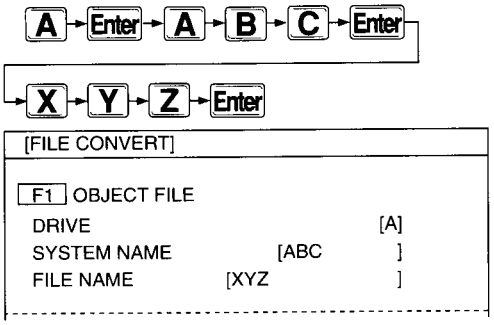


Operation Sample File Conversion Screen



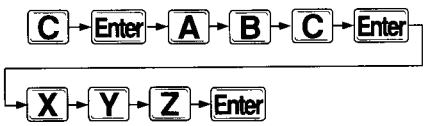
Case of file conversion from backup file with "128KWROM (256KBYTE) ROM size, SYSTEM NAME "ABC" and FILE NAME "XYZ" in DRIVE "A" to file with "128KWROM (256KBYTE) ROM SIZE, SYSTEM NAME "ABC" and FILE NAME "XYZ" in DRIVE "C".

Explanation



[FILE CONVERT]

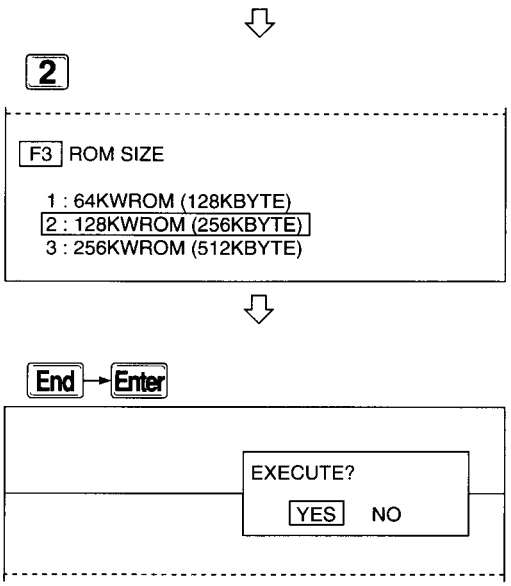
F1 OBJECT FILE
DRIVE [A]
SYSTEM NAME [ABC]
FILE NAME [XYZ]



F2 TARGET FILE
DRIVE [C]
SYSTEM NAME [ABC]
FILE NAME [XYZ]

1 Specify the OBJECT DRIVE, SYSTEM NAME and FILE NAME, then press the [Enter] key.

2 Specify the TARGET conversion destination DRIVE, the SYSTEM NAME and FILE NAME.



3 Specify the ROM size of conversion destination.

After conversion of the conversion destination to ROM,if the file cannot be loaded, "Inadequate ROM memory capacity" is shown in the message area.
Set so that the ROM size becomes equal to or greater than the file after conversion.

4 When the [End] key is pressed, an alternative window is shown.

With "YES" selection, in the case of HD "Executing [xxx] Sector" is shown in the message area, and in the case of FD, "Executing [xxx] Sector FD No. [n]" is shown, and file conversion is executed. When the display changes to "Completed," file conversion is completed.
With "NO" selection, specification can be made again from the conversion source file.

Advice

- **Area permitting file conversion**
  File conversions can be made in the following areas.
  HD → FD
  HD → HD
  FD → HD

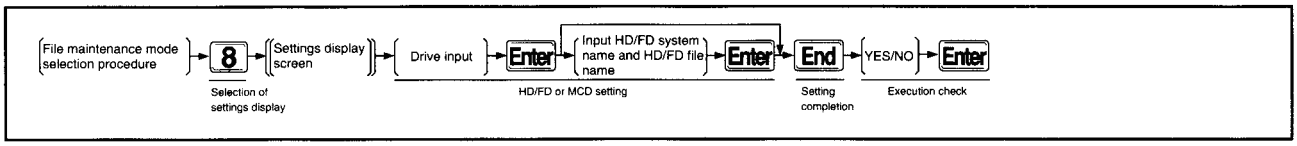
Point

- **File name**
  The file name cannot be omitted.
  The identifier is specified as "IHX."
  Wild card cannot be used.

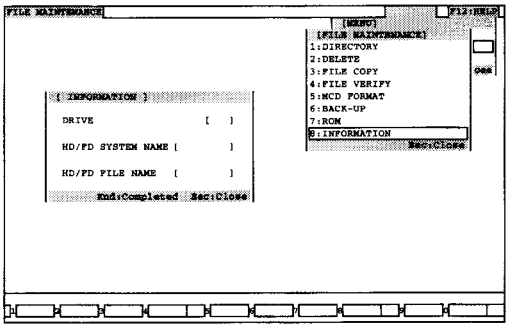
7.9 Display of settings in memory card (MCD)/EEP-ROM and of program startup information

The execution environment settings of memory card/ EEP-ROM or of HD or FD where memory card/EEP-ROM has been backed up are displayed.

Basic Operation

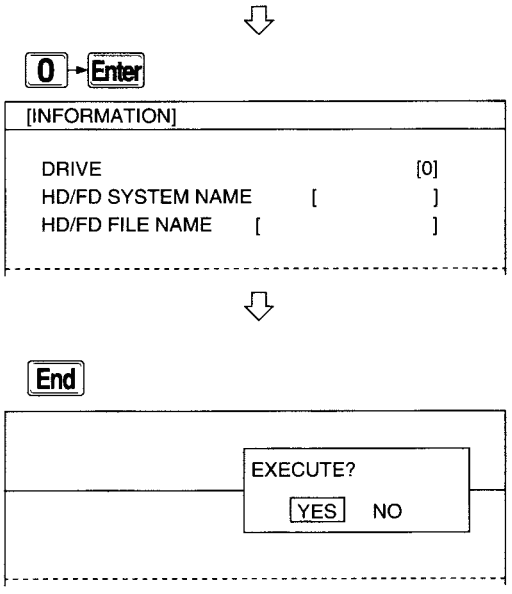


Operation Sample Settings Display Screen



Display of settings of the memory card in DRIVE "0".

Explanation

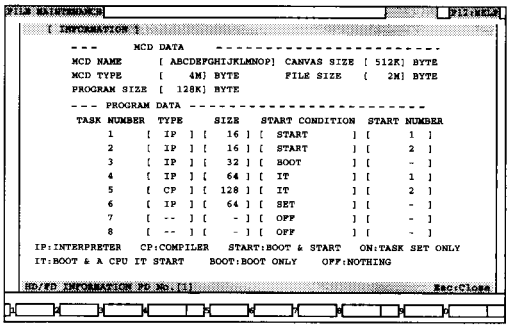


1 Specify the DRIVE containing the memory card, then press the [Enter] key.

2 When the [End] key is pressed, an alternative window is shown.

With "YES" selection, "Executing" is shown in the message area, and the execution environment settings are executed.
When the display changes to "Completed," execution environment settings are completed and the screen changes to a screen which shows memory card format status and the startup sequence and status of each BASIC program.
With "NO" selection, specification can be made again from the drive.

3 With "YES" selection, the screen changes to settings display as shown below.



Advice

- **When selecting HD/FD**
  For backup file on FD, specify drive "A"; for backup file on HD, specify drive "C" or "D". Next, enter the system name and file name of the backup file.
  However, BASIC data backup files for execution and converted backup files (000.RBU, 000.IHX) cannot be specified.

Point

- **File name**
  The file name cannot be omitted.
  The identifier cannot be entered.
  Wild card cannot be used.

8 Operation of Date and Time Setting Mode

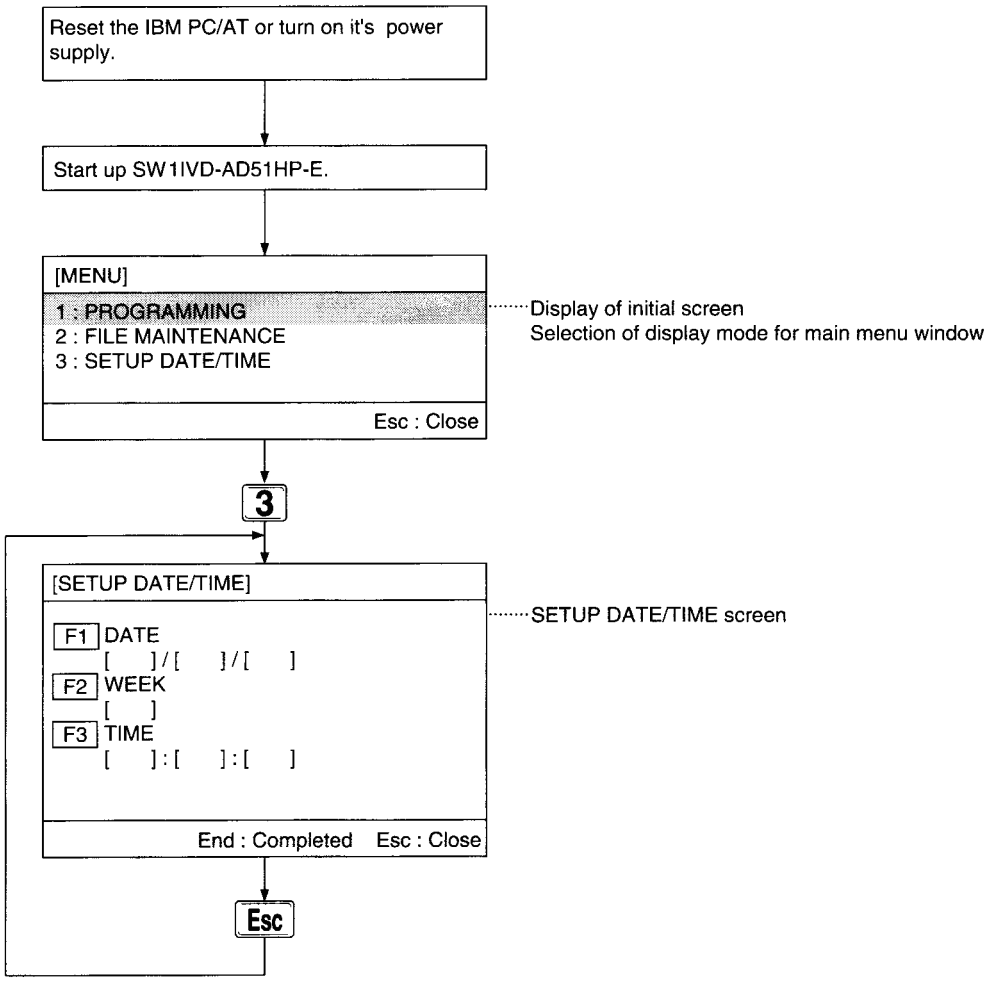
The date and time are set in the PLC CPU.

8.1 Date and Time Setting Mode Function

The date and time setting mode functions to set the PLC CPU clock function via the communications module.

8.2 Date and Time Setting Mode Operating Procedures

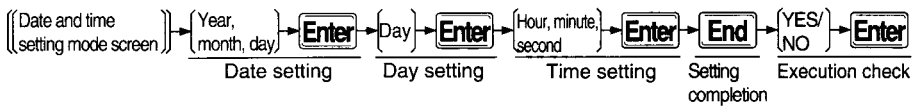
The procedures in operating the date and time setting mode are presented below.



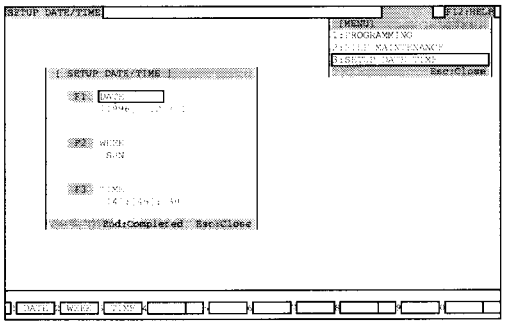
8.3 Setting of PLC CPU clock data

Date and time are set in the PLC CPU via the communications module.

Basic Operation

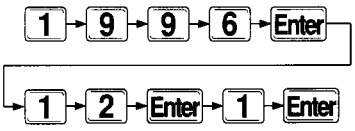


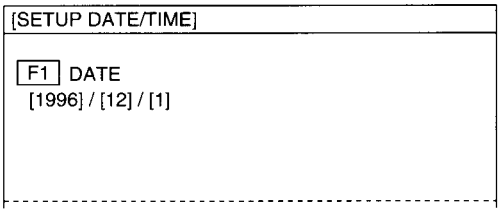
Operation Sample Date and Time Setting Screen

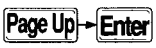


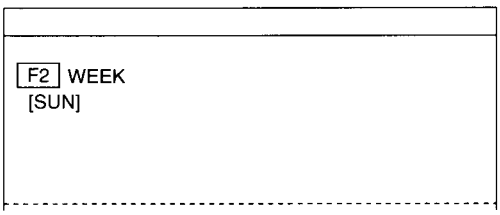
Example of setting 14:45:30 p.m., Sun, December 1, 1996

Explanation







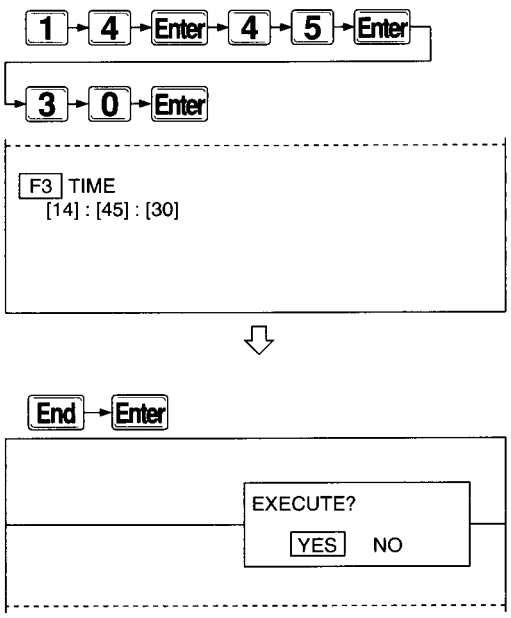


1 Enter the day, month and year with numerical keys. Numbers shift to the left as you make entries.

[input year] → [Enter] → [input month] → [Enter] →
[input day] → [Enter]
Settings can range from 1990 to 2089.
If a date not on the calendar is entered, an error message is displayed.
Please reset.

2 Set the day with the [PageUp] or [PageDown] key, then press [Enter].

[example]
When "[MON]" is shown on the screen:
Press the [PageUp] key and "[SUN]" is shown.
Press the [PageDown] key and "[TUE]" is shown.



3 Enter the hour, minute and second with numerical keys. Numbers shift to the left as you make entries.

[input hour] → [Enter] → [input minute] → [Enter]
[input second] → [Enter]
Settings can display any of 24 hours.
If a number not in the clock is entered, an error message is displayed.
Please reset.

4 When the [End] key is pressed, an alternative window is shown.

With "YES" selection, "Executing" is shown in the message area, and date and time settings are executed.
When the display changes to "Completed," date and time settings are completed.
With "NO" selection, specification can be made again from the date.

9 List of Error Messages

The display modes, contents and processing methods of error messages displayed in the message display area while operating a IBM PC/AT are presented below.

Error Message	Mode	Contents (Error Cause)	Corrective Action(S)
COMMUNICATIONS ERROR (AD51H)	Common	Parity error, frame error, time out and overflow.	Check all cables and cable connections.
		A cable or converter is incorrectly connected.	Reconnect the cables or converter correctly. • Are the connectors connected? • Are the connections made to correct devices? • Are the power supplies for the connecting devices ON?
FD ERROR, CHANGE FD NO.n	File maintenance	The FD is incorrectly inserted.	Insert the FD correctly.
READ-OUT ERROR (HD/FD)	Common	Data cannot be read normally from an HD or FD.	Use a different HD or FD. Check the HD or FD.
WRITE-IN ERROR (HD/FD)	Common	Not enough capacity in the HD or FD.	Either (a) use a different HD or FD, or (b) delete an unnecessary file.
READ-OUT ERROR (MCD)	Common	Data cannot be read normally from a memory card.	Use a different memory card. Check the memory card.
WRITE-IN ERROR (MCD)	ROM	Writing to the memory card failed.	Install the memory card correctly.
WRITE-IN ERROR (MCD)	Common	Not enough capacity in the memory card. Too little available space in the memory card to which data was written.	Either (a) use a different memory card, or (b) delete an unnecessary file.
WRITE PROTECT (MCD)	Common	The memory card to which data was written is write-protected.	Cancel teh write-protect on the memory card.
ROM WRITE ERROR	ROM	Data written to the ROM was not stored.	Install the ROM correctly.
WRITE-IN ERROR (ROM)	ROM	Not enough capacity in the ROM.	Either (a) use a different ROM, or (b) delete an unnecessary file.
ERROR (XXX)	Common	The error that cannot be ascertained occurred in the AD51H.	Reset the AD51H.
ONLINE PROGRAMMING CANNOT BE SELECTED	Programming	A serial printer is connected to the RS-232.	Connect the AD51H via a conversion cable.
SYSTEM MISSING	File maintenance	There is no set system name in the designated drive.	Set a correct system name.
FILE MISSING	Common	There is no setting file name in a designated drive.	Set a correct file name.
CANNOT BOOT WITH THIS HARDWARE. RESET.	Common	The system was started up in other than a PC/AT.	Start up the system in correct hardware.
DELETE ERROR	File maintenance	A file or system (directory) deletion failed.	Designate the path name on MS-DOS, and delete a file or a system (directory).
VERIFICATION ERROR	File maintenance	Verification error	Check the contents of an HD, FD, or memory card.
MEMORY ADDRESS ERROR	File maintenance	The set address is inaccurate.	Input the correct address.
MEMORY SIZE SETTING ERROR	File maintenance	Range check error The set range is inaccurate.	Input data in the correct range.

Error Message	Mode	Contents (Error Cause)	Corrective Action(S)
SETTING ERROR	Common	The input data is inaccurate.	Input correct data.
OPERATOR ERROR	Common	An invalid key was pressed.	Press a valid key.
NOT READY DRIVE NO.n	Common	There is no FD in the designated drive.	Insert an FD.
		The FD in the designated drive is not formatted.	Format the FD.
		There is no memory card in the designated drive.	Insert a memory card.
		The memory card in the designated drive is not formatted.	Format the memory card.
DATE SETTING ERROR	Date and time setting	A PLC CPU without a clock function is used.	Use a different PLC CPU with a clock function.
INVALID DATE	Date and time setting	The input date is inaccurate.	Input a year from 1990 to 2080. Input a month from 1 to 12. Input a day from 1 to 31.
INVALID TIME	Date and time setting	The input time is inaccurate.	Input an hour from 0 to 23. Input a minute from 0 to 59. Input a second from 0 to 59.
INVALID DATE/TIME	Date and time setting	The input time and date are inaccurate.	Input the correct time and date.
BACK-UP FILE NOT READY	File maintenance	The HD or FD does not have a backup file.	Designate the HD or FD of which backup file is registered.
FILE OPEN ERROR	Common	A designated file connot be opened.	Check the HD or FD.
FILE AREA FORMAT ERROR	File maintenance	A file area is not formatted.	Format the file area using the MCD format function.
FILE NAME ERROR	Common	More than eight characters were used for the sub-system name, more than three characters were used for the extension, or more than one period was input.	Set the file name correctly.
FORMAT ERROR	File maintenance	Formatting error.	Use a different memory card. Check the memory card.
PROTOCOL ERROR (XX)	Common	During communications with the AD51H, an error that cannot be ascertained occurred.	Reset the AD51H.
COMMUNICATIONS ERROR (PECKER)	Common	Parity error, frame error, time out, and overflow.	Check the cable and RS-232C cable connections.
WRITE PROTECT (FD)	Common	The FD to which an access was made is write-protected.	Cancel the write-protect of the FD.
NO "XXXXX.EXE"	Programming File maintenance	No system file is installed to the HD.	Install the SW1IX-AD51HP-E system files again.

Appendix

Appendix 1 List of compatibilities and differences between the upgraded and previous software package versions

(1) SW1IVD-AD51HP-E

Item	Software version					
	F	E	D	C	B	A
Compatibility with Windows 95 and Windows 98	○	○	○	×	×	×
Compatibility with Windows XP and Windows 2000	○	×	×	×	×	×
Compatibility with ESC/P and PR-201 printers	△*1	○	○	○	○	○
Compatibility with Windows printers	△*2	×	×	×	×	×
Connection through COM1 to COM9 (When connected to an intelligent function module)	△*2	×	×	×	×	×
Automatic printout when no line feed code is received	△*2	×	×	×	×	×

*1 Compatible with DOS/V and Windows 3.1 only.

*2 Compatible with Windows 95, 98, 2000 and XP only.

○: Compatible
△: Compatible (Available OS are restricted.)
×: Incompatible

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AD51H-BASIC Package Type SW1IVD-AD51HP-E
(For QD51(-R24),A1SD51S,AD51H-S3)

Operating Manual

MODEL	SW1SRNIVD51HP-O-E
MODEL CODE	13J910
IB(NA)-66698-D(0610)MEE	

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