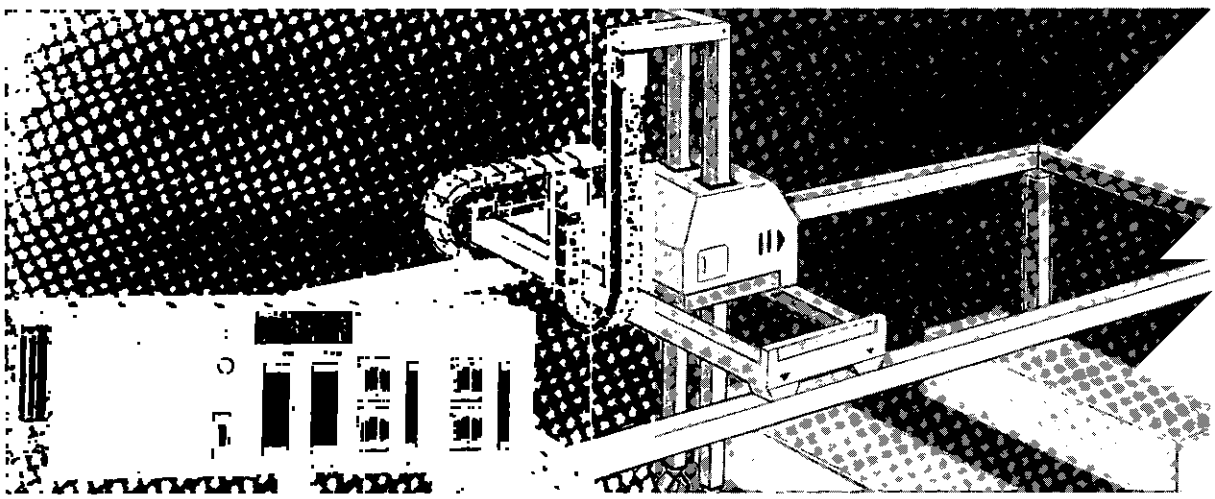
PROGIC-8

MULTIAXES MOTION CONTROLLER

PROGRAMMING SYSTEM OPERATION MANUAL



YASKAWA

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1. INSTALLATION

2. MENU USAGE

3. SYSTEM OPERATION

INSTALLATION

CONTENT

1. BEFORE USING PROGIC-8 PROGRAMMING SYSTEM

1.1 WHAT IS PROGIC-8 PROGRAMMING SYSTEM?

PROGIC-8 Programming System is a specialized programming system for the PROGIC-8 multiaxes motion controller.

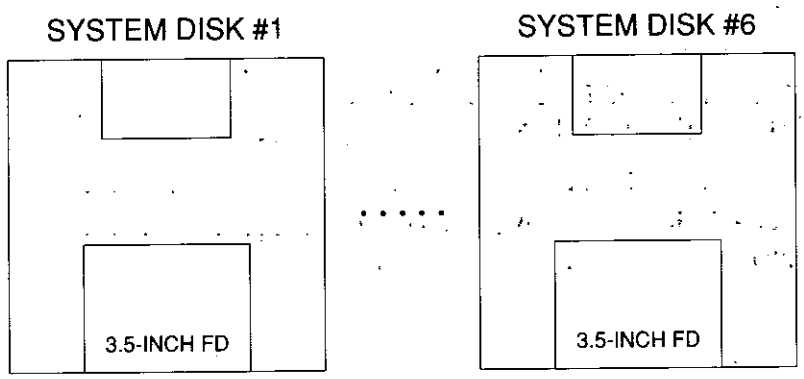
1.2 REQUIREMENTS

The following items are required to install the system.

- ◆ IBM PC and its compatible machine.
  Memory : 640K bytes or greater
  Floppy disk drive : 3.5-inch
  Hard disk : 20M bytes or greater
- ◆ PC-DOS version 3.1 or later

1.3 SYSTEM SOFTWARE

System software is provided with six 3.5" floppy disks. The system software must be transferred to the hard disk after it is installed there.



1.4 FORMATTING FLOPPY DISKS

Programs and data prepared by the Programming System are stored on the hard disk. However, they must be stored to floppy disks as well, for back-up. The floppy disks must be formatted by PC-DOS in advance.

How to format floppy disks

• Verify that the PC-DOS formatting file (FORMAT.EXE) is on the hard disk.

C : \> DIR < RETURN > ⏎

```
Volume in drive C has no label
Directory of C : \
COMMAND · COM      24931    90 – 07 – 12    0 : 00
CONFIG · SYS         128    90 – 11 – 18    1 : 36
FORMAT · EXT      104847    90 – 07 – 12    0 : 00
.
.
```

• Prepare a floppy disk.

C : \> FORMAT A : < RETURN > ⏎

Type as above. A message appears. Insert a blank floppy disk in drive A, and depress any key. They specify the type of the floppy disk either 2DD or 2HD.

• Formatting is started. After it is completed, another message is displayed.

2. INSTALLATION

2.1 BEFORE INSTALLATION

The installation program contained in the system disk automatically installs Programming System.

◆ Installing PC-DOS

Check whether PC-DOS has already been installed in the hard disk of the personal computer. If not, install PC-DOS (version 3.1 or later).

2.2 STARTING UP THE INSTALLATION PROGRAM

In the explanation below, it is assumed that the personal computer has one hard disk drive and one floppy disk drive, and that Programming System is to be installed from drive A (floppy disk drive) to drive C (hard disk).

Installation procedure :

① Start up PC-DOS.
② Insert system disk #1 into drive A.
③ The PC-DOS prompt "C>" appears on the display. Type "A :" and depress [↵] to move to drive A.
④ Type in "INSTAL" and depress the return key [↵] to start up the installation program.

Notes : Installation can be performed without using the installation program by the following procedure.

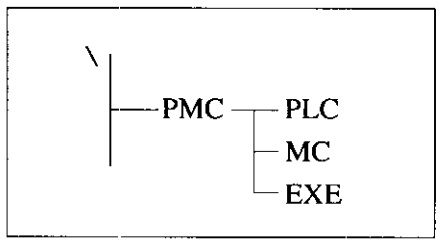
C :\> MD\PMC [↵]
C :\> MD\PMC\PLC [↵]
C :\> MD\PMC\MC [↵]
C :\> MD\PMC\EXE [↵]

Insert the system disk into drive A here, then enter as follows.
COPY A :\PMC\EXE*.* C :\PMC\EXE [↵]
Repeat the above procedure six times to complete installation from the six system disks
For information about PC-DOS commands, refer to PC-DOS manuals.

2.3 COMPLETING INSTALLATION

◆ Configuration of Directories

When installation has been completed, there are the following directories on the hard disk. The PLC subdirectory stores data for the Programmable Controller, whereas the MC directory saves data for the Motion Controller. The EXE subdirectory is used by Programming System and contains system execution files and other necessary files.



◆ CONFIG.SYS

To start up Programming System, the environment file (CONFIG.SYS) must be modified as follows.

```
BUFFERS = 20
FILES = 40
DEVICE = C : $ PRNUSR · SYS
```

Programming System requires 500K bytes of memory on the personal computer.

Note : To rewrite the environment file, use the PC-DOS line edit (EDLIN) or any other edit available on the market.

3. STARTING UP

3.1 STARTING UP PROGRAMMING SYSTEM

Let's start the Programming System. First, you must move to subdirectory \PMC\EXE.

CD \PMC\EXE [↵]

Then, execute the system file.

YPSU [↵]

Programming System has been started up. You can use a batch file prepared beforehand to skip the above procedure. Use any editing device available on the market to create the batch file.

YPS · BAT

```
CD \PMC\EXE
YPSU
CD \
```

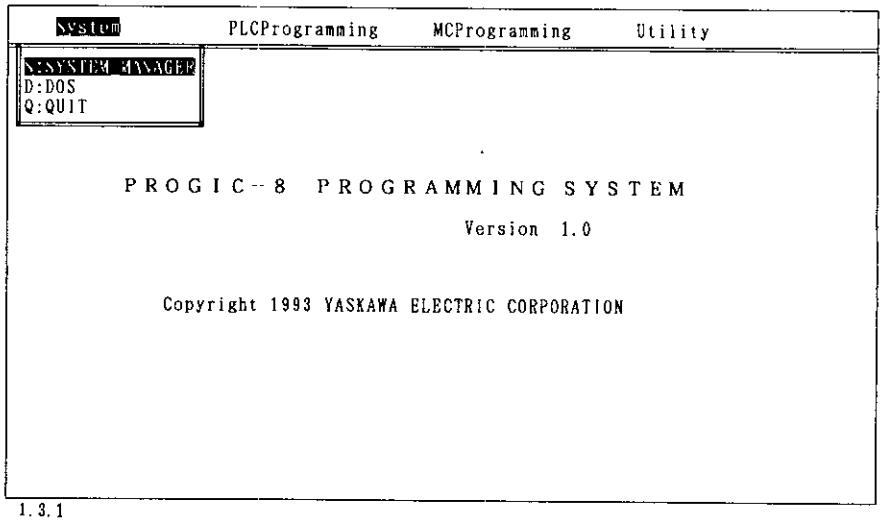
To start up Programming System by the batch file, enter as follows instead of "CD \PMC\EXE."

YS [↵]

The installation program "INSTAL" is equipped with a batch file. To start up Programming System, enter YPS [↵] from the root directory (in A : \> status) of A drive (hard disk).

3.2 MAIN MENU

The main menu appears after Programming System is started up.



1.3.1

◆ Cursor keys

Use [→], [←], [↓] or [↑] to select menus. Move the cursor horizontally to select main menu ; vertically to choose scroll-down menus.

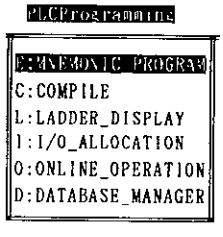
◆ Return key

Depress [↵] to execute the selected function.

◆ Escape key

Use [ESC] to cancel a selected function or to return to a preceding display or menu.

◆ Scroll-down menus



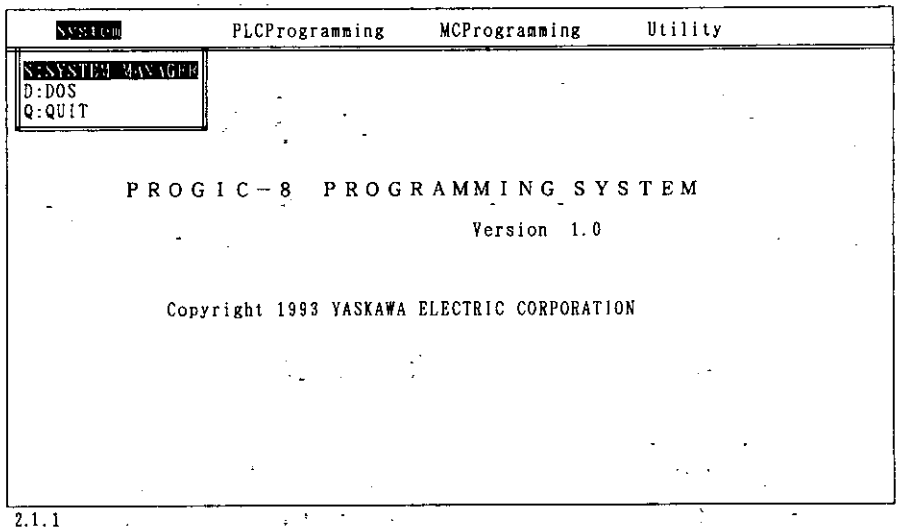
To select and execute a scroll-down menu, move the cursor using cursor keys and depress [↵], or simply enter the alphabetical letter at the head of the menu. After a scroll-down menu is selected, menus of the next level may appear.

MENU USAGE

CONTENT

1. OUTLINE

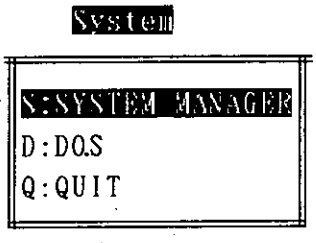
1.1 TYPES OF MENUS



2.1.1

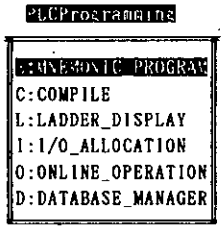
There are four types of main menus : the System, PLC programming, MC programming, and Utility. There are offline functions that can be executed by Programming System by itself and online functions that are executed using the controller connected.

① System menus

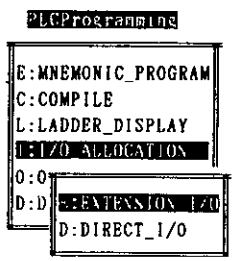


SYSTEM MANAGER (offline)	Specifies a personal computer drive number, database subdirectory. Communication parameters on the personal computer are displayed.
DOS (offline)	Switches DOS display where DOS commands can be executed while holding Programming System as it is. To return to Programming System, enter "EXIT."
QUIT (offline)	Terminates Programming System and returns to DOS.

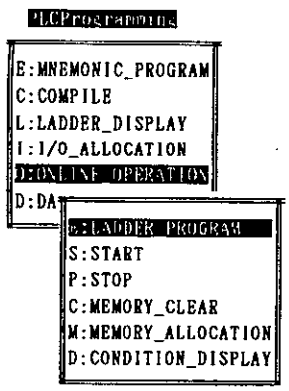
② PLC programming menus



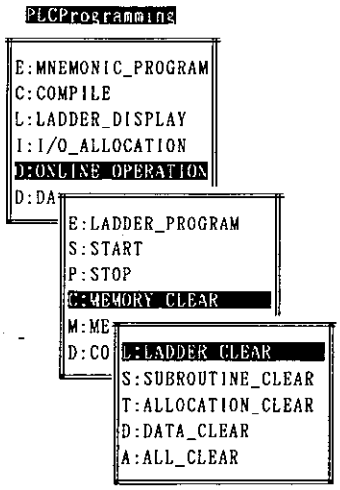
MNEMONIC PROGRAM (offline)	Creates and edits mnemonic programs.
COMPILE (offline)	Converts mnemonic programs into ladder programs or vice versa.
LADDER DISPLAY (offline)	Displays a ladder program.
I/O ALLOCATION (offline)	Direct I/O assignment and extended I/O assignment are available.
ONLINE OPERATION (online)	PLC start-stop, memory clear, ladder program editing, memory assignment, and status display are available.
DATABASE MANAGER (offline/offline)	Stores files and data prepared by PLC programming to specified locations and calls them from there.



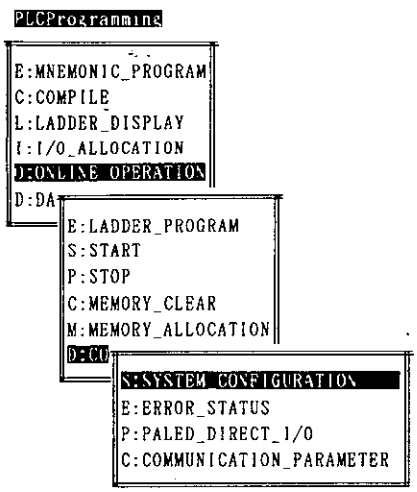
EXTENSION I/O (offline)	Sets up assignment of I/O modules other than those built in the PROGIC-8.
Direct I/O (offline)	Sets up direct assignment between the MC module and external I/O.



LADDER PROGRAM (online)	Monitoring, simulated operation, and editing of ladder programs are possible.
START (online)	Starts the PLC unit.
STOP (online)	Stops the PLC unit.
MEMORY CLEAR (online)	Clears ladder and subroutine program memory, register contents, I/O assignment, and data contents.
MEMORY ALLOCATION (online)	Divides memory on the PLC unit into the ladder and subroutine areas.
CONDITION DISPLAY (online)	Displays system memory capacity, coil number, register number, and communication port parameters.

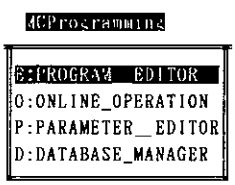


LADDER CLEAR (online)	Clears ladder program memory contents.
SUBROUTINE CLEAR (online)	Clears subroutine program memory contents.
ALLOCATION CLEAR (online)	Clears I/O assignment.
DATA CLEAR (online)	Clears retention registers and other data contents.
ALL CLEAR (online)	Clears the entire memory of the PLC unit.

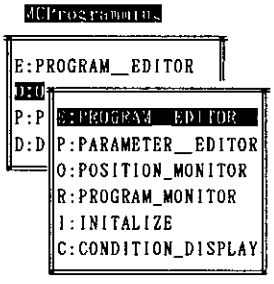


SYSTEM CONFIGURATION (online)	Displays system revision number, maximum I/O number, applicable machine name, and applicable machine revision number.
ERROR STATUS (online)	If an error occurs, displays the error status.
PALED DIRECT I/O (online)	Displays duplication of direct I/O and basic I/O used by the ladder.
COMMUNICATION PARAMETER (online)	Displays settings of communication ports.

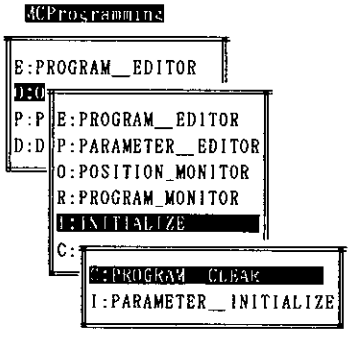
③ MC programming menus



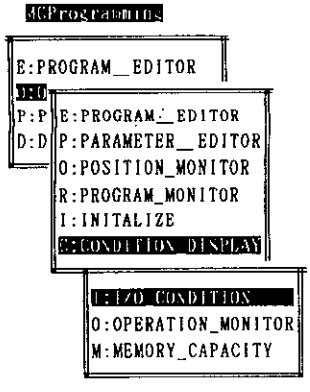
PROGRAM EDITOR (online)	Creates and edits motion programs for the MC unit.
ONLINE OPERATION (online)	Motion program editing, parameter editing, position monitor, program monitor, initialization and status display are available.
PARAMETER EDITOR (online)	Sets up offline servo parameters for two MC units.
DATABASE MANAGER (online/offline)	Stores files and data prepared by MC programming to specified locations and calls them from there.



PROGRAM EDITOR (online)	Provides the teach function that creates a motion program for the MC unit on a block-by-block basis while actually moving the machine.
PARAMETER EDITOR (online)	Sets up online servo parameters for two MC units.
POSITION MONITOR (online)	Displays current position of eight axes on a normal or expanded scale.
PROGRAM MONITOR (online)	Displays the motion program being executed.
INITIALIZE (online)	Clears MC unit program area and initializes parameters.
CONDITION DISPLAY (online)	Displays MC unit memory information and MC control information.



PROGRAM CLEAR (online)	Clears MC program memory contents.
PARAMETER INITIALIZE (online)	Resets parameters to the preset factory settings.



I/O CONDITION (online)	Displays I/O status of individual MC units and four individual axes.
OPERATION MONITOR (online)	Displays status information of individual MC units.
MEMORY CAPACITY (online)	Displays program memory status (total capacity, used capacity, and remaining capacity) of individual MC units.

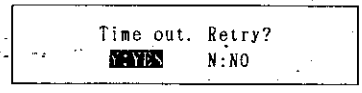
④ Utility menu

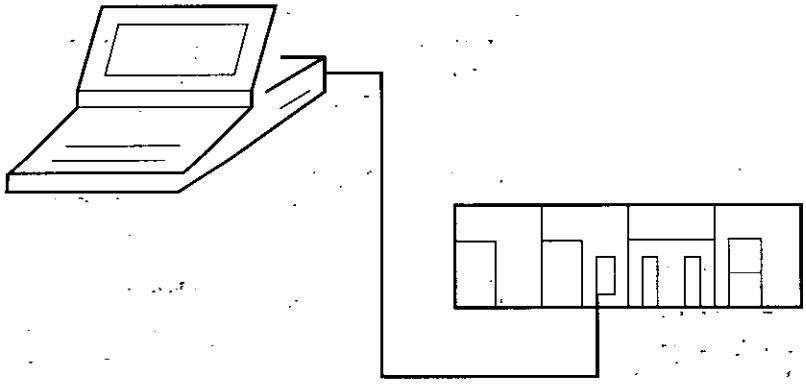
PRINT (offline)	Prints circuit block, I/O assignment, motion list, and mnemonic programs.

1. OUTLINE

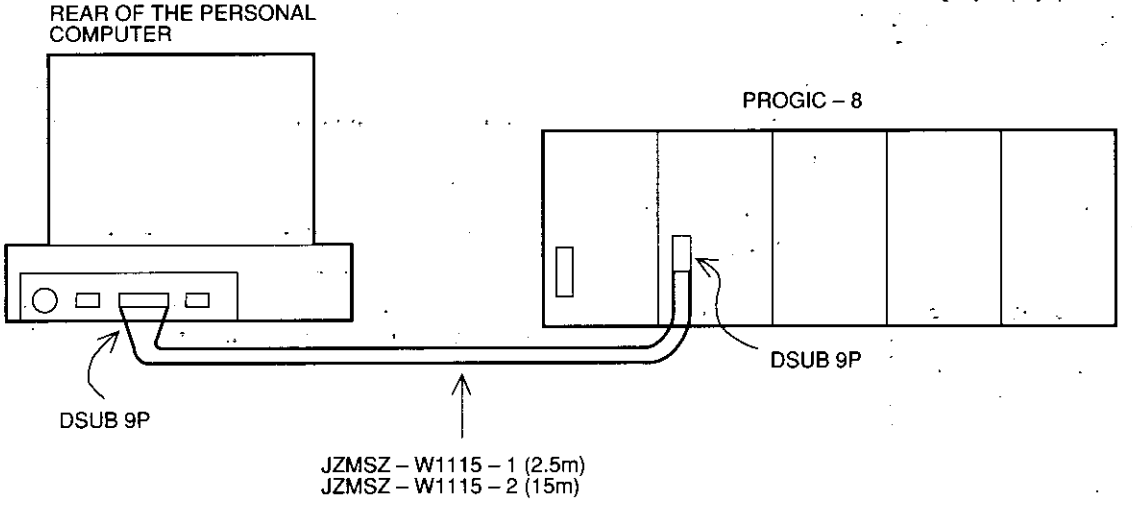
1.2 CONNECTING PERSONAL COMPUTER AND PROGIC-8

To use online functions, the PROGIC-8 must be connected to the personal computer. Connect the RS-232C port of the personal computer and that on the PROGIC-8 by the special cable.
If a communication error occurs with the PLC unit during online operation, retry is prompted in the window shown below. Select Y for YES to retry. Select N for NO to stop operation.





CONNECTIONS

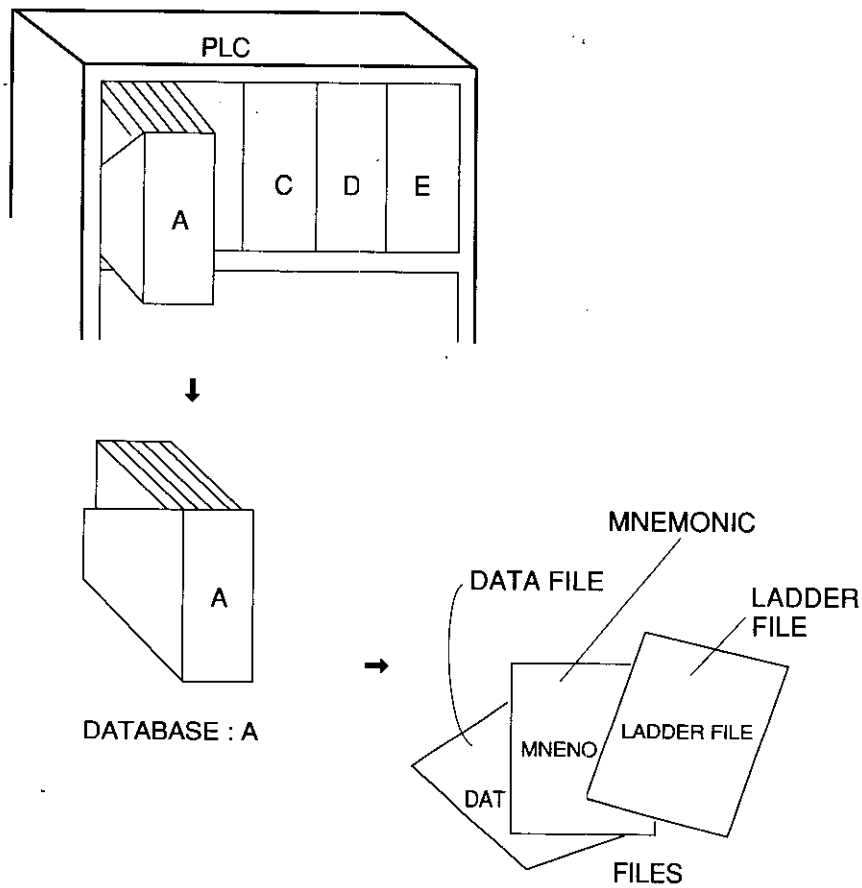


Whenever connecting or removing cables, turn OFF the PROGIC-8 power switch.

1.3 WHAT IS THE DATABASE?

A database is a location for storage of created files classified into groups. There are PLC databases and MC databases. Which database is to be used must be specified before using the PLC programming, MC programming, or utility function.

Imagine that subdirectories reserved as system environment (see Par. 2.2.2.1) are filing shelves. Then the database would be a file box on a shelf. There are many files in a file box. Selecting a database corresponds to taking out a file box from the filing shelves.



All files in a database (file box) can be loaded or saved completely, or some files can be selected and handled individually out of the database (file box).

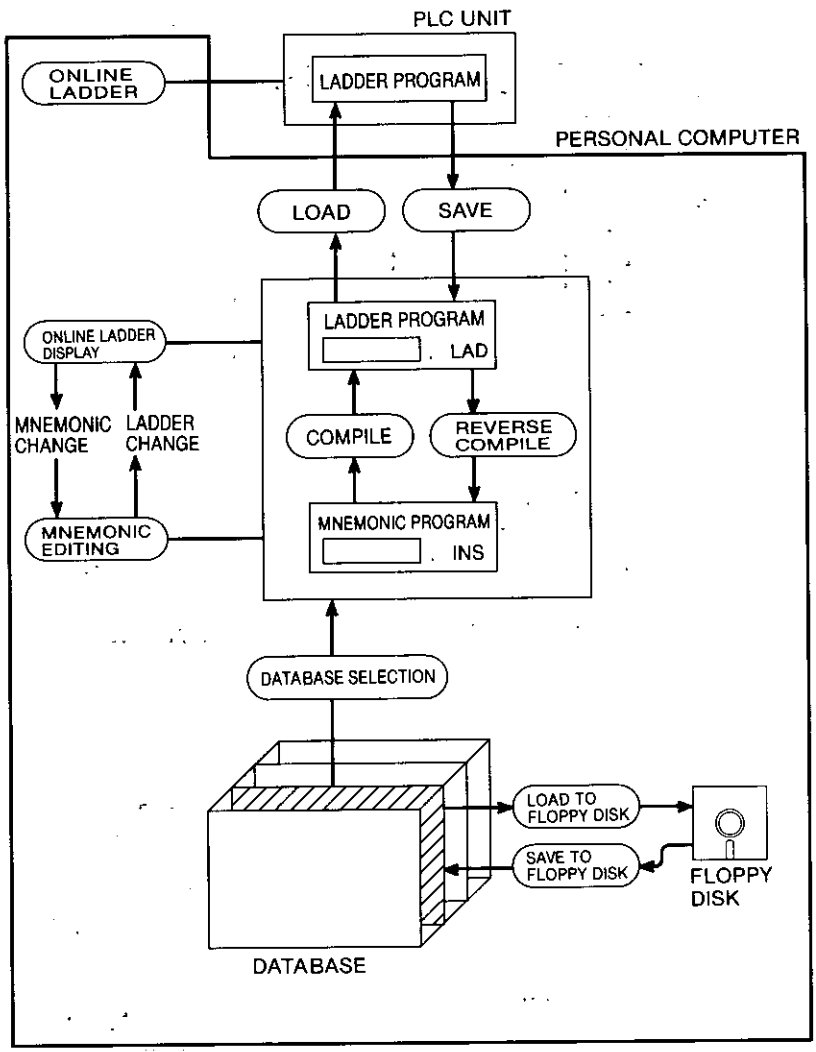
Files having the same time as the selected database (file box) are handled, and other files are used as backup files.

To store created or saved files on a floppy disk, the copy function is available. Either the entire database or selected files can be copied, in the same way as they are loaded or saved.

1. OUTLINE

1.4 OPERATION AND PROGRAM

PLC programming using PROGIC-8 Programming System is classified into offline operations and online operations. Offline operations include creation of mnemonic programs and compilation*1 of mnemonic and ladder programs. Online operation includes online ladder display and editing for debugging created programs on an actual machine.

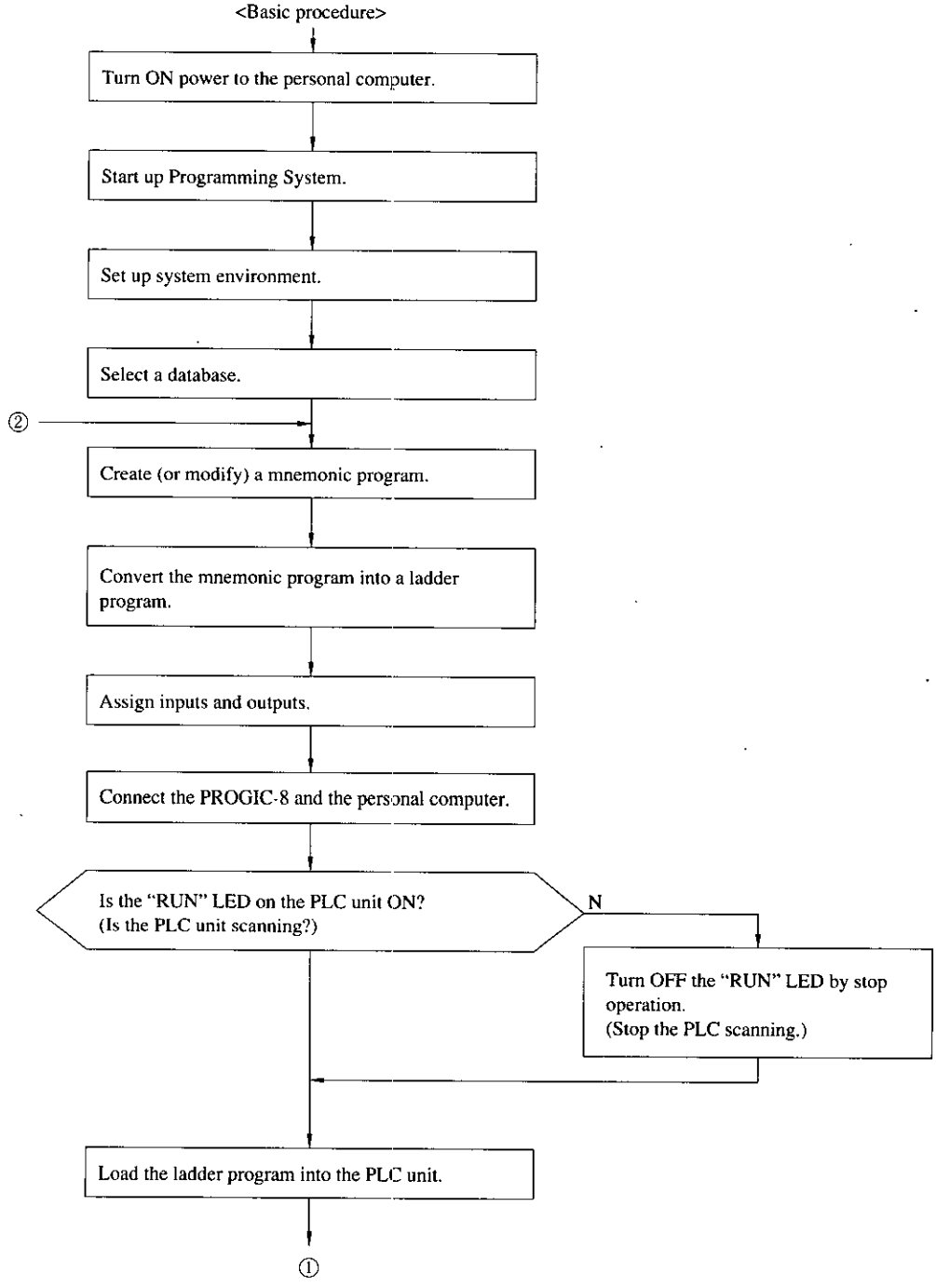


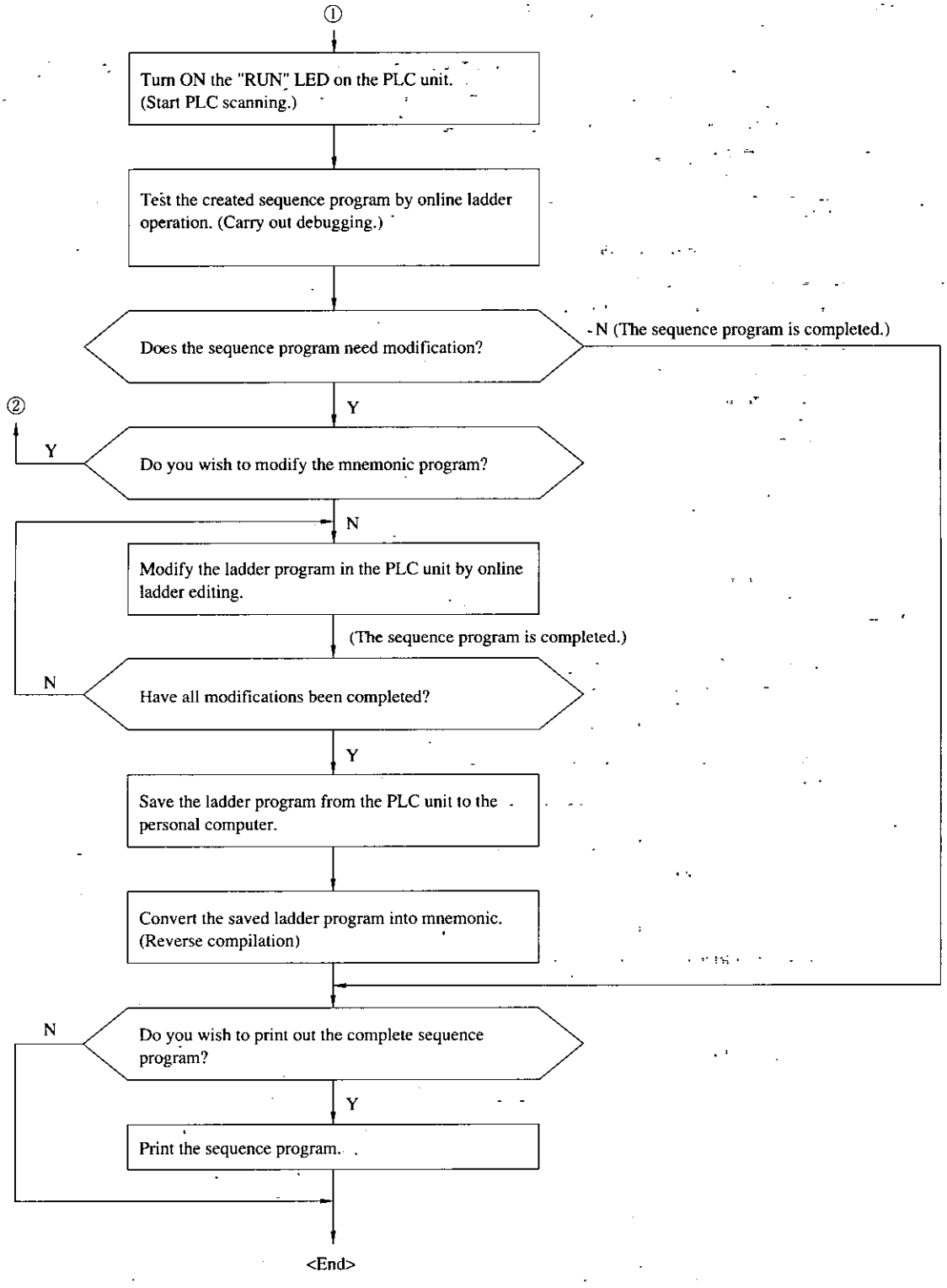
*1 : Technically, compilation means converting a mnemonic program into a ladder program, whereas reverse compilation means converting a ladder program into a mnemonic program.

1.5 PROGRAMMING PROCEDURE

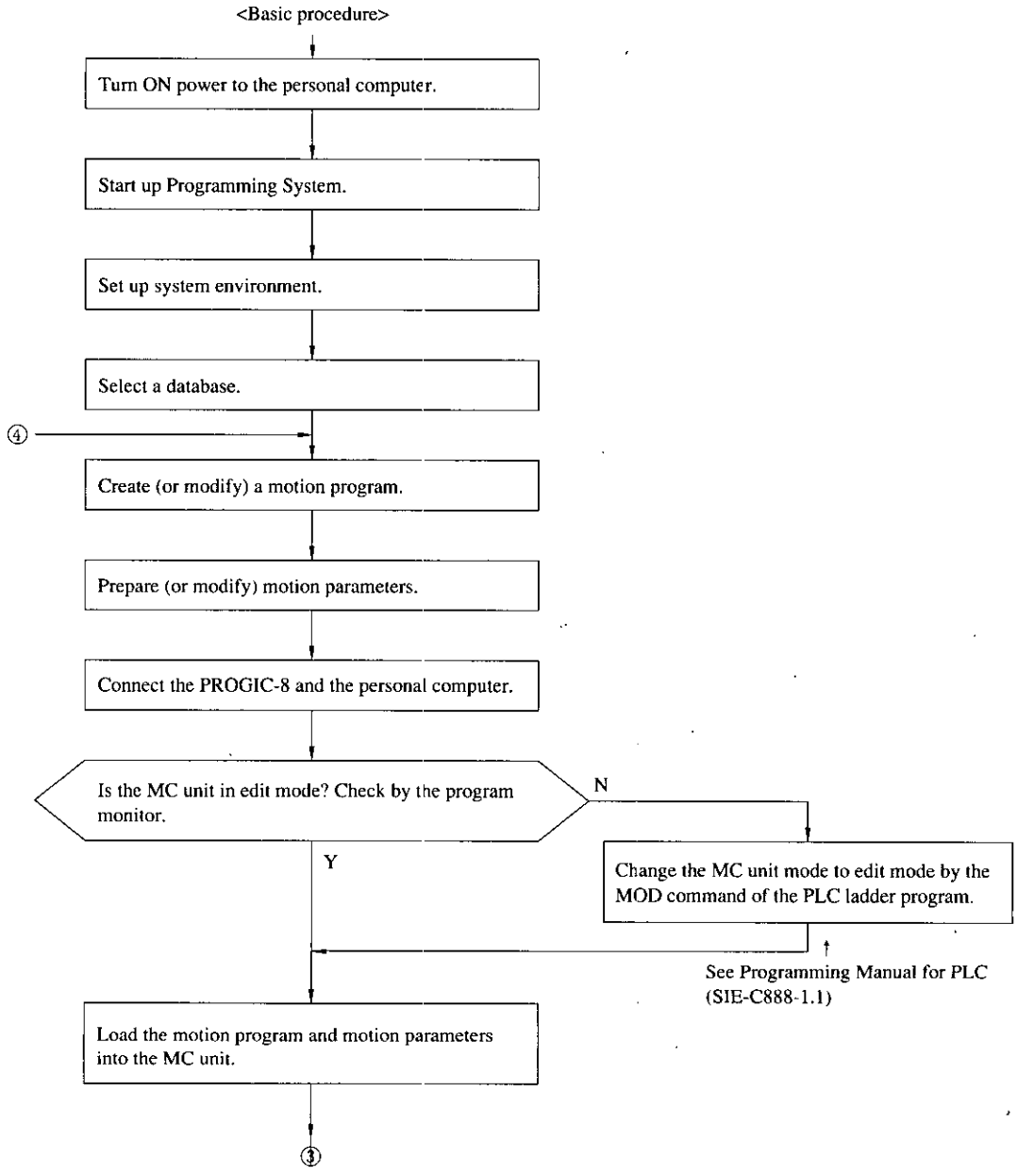
To start up the PROGIC-8, necessary programs and parameters must be created by Programming System and loaded (written-in the PROGIC-8). The figure shows the procedures from creating PLC and MC programs to loading them in the PROGIC-8 to debugging.

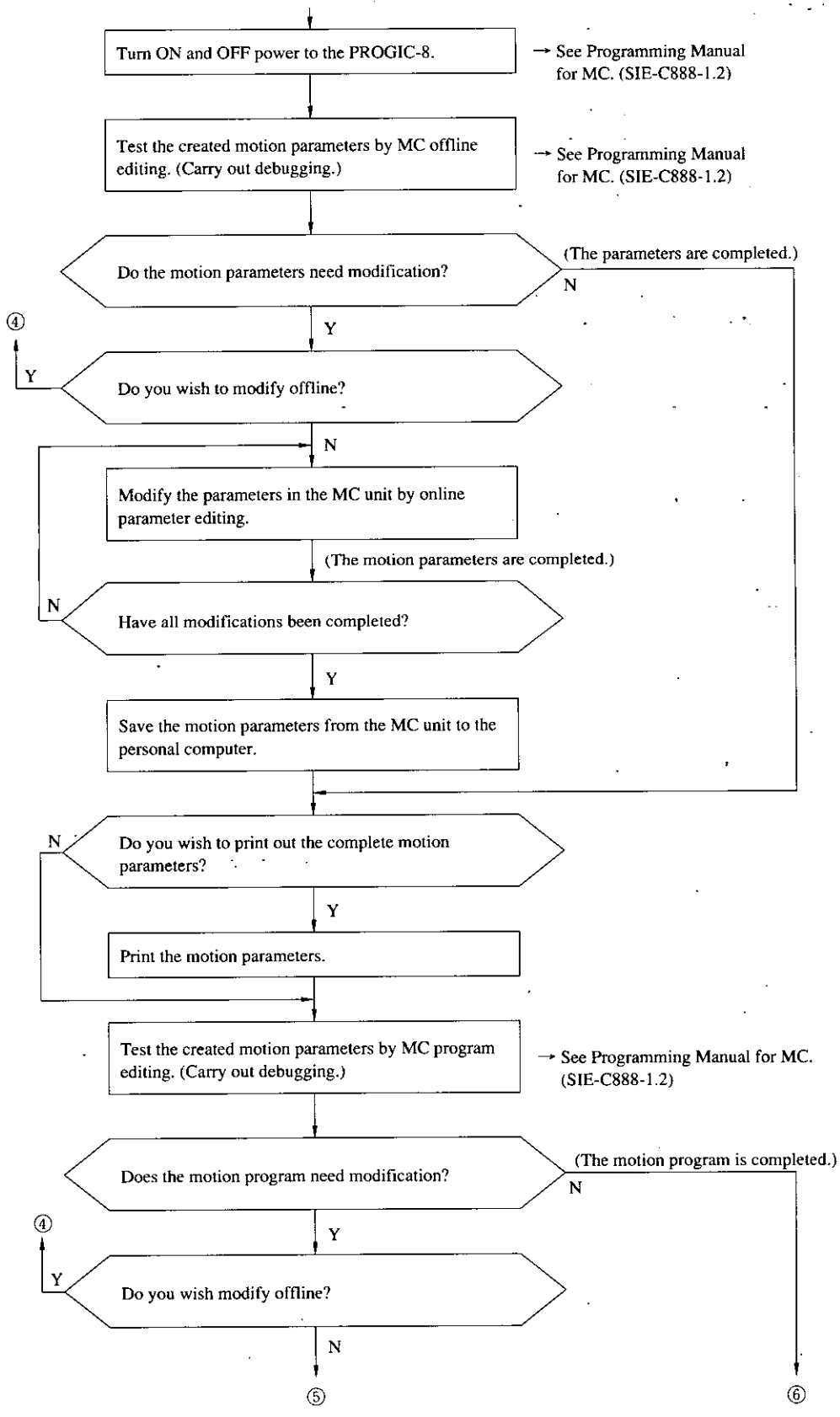
(1) Procedure for PLC

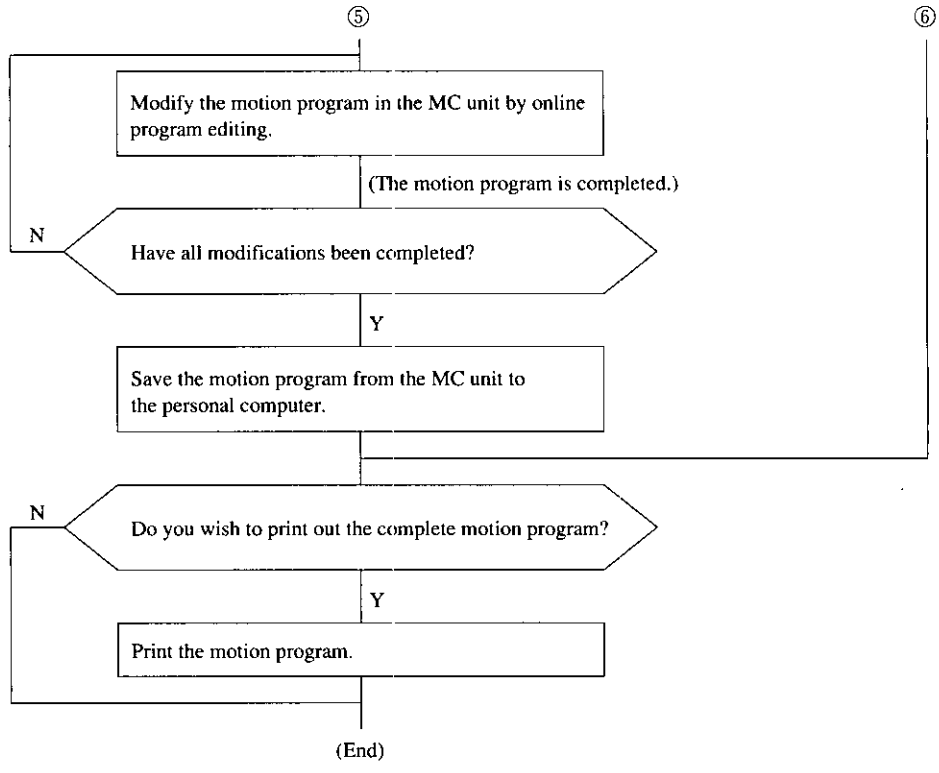



①
Turn ON the "RUN" LED on the PLC unit.
(Start PLC scanning.)
Test the created sequence program by online ladder operation. (Carry out debugging.)
Does the sequence program need modification?
N (The sequence program is completed.)
Y
②
Y
Do you wish to modify the mnemonic program?
N
Modify the ladder program in the PLC unit by online ladder editing.
(The sequence program is completed.)
N
Have all modifications been completed?
Y
Save the ladder program from the PLC unit to the personal computer.
Convert the saved ladder program into mnemonic. (Reverse compilation)
N
Do you wish to print out the complete sequence program?
Y
Print the sequence program.
<End>

(2) Procedure for MC




Turn ON and OFF power to the PROGIC-8.
→ See Programming Manual for MC. (SIE-C888-1.2)
Test the created motion parameters by MC offline editing. (Carry out debugging.)
→ See Programming Manual for MC. (SIE-C888-1.2)
Do the motion parameters need modification?
(The parameters are completed.)
N
Y
④
Y
Do you wish to modify offline?
N
Modify the parameters in the MC unit by online parameter editing.
(The motion parameters are completed.)
N
Have all modifications been completed?
Y
Save the motion parameters from the MC unit to the personal computer.
N
Do you wish to print out the complete motion parameters?
Y
Print the motion parameters.
Test the created motion parameters by MC program editing. (Carry out debugging.)
→ See Programming Manual for MC. (SIE-C888-1.2)
Does the motion program need modification?
(The motion program is completed.)
N
Y
④
Y
Do you wish modify offline?
N
⑤
⑥


⑤
⑥
Modify the motion program in the MC unit by online program editing.
(The motion program is completed.)
N
Have all modifications been completed?
Y
Save the motion program from the MC unit to the personal computer.
N
Do you wish to print out the complete motion program?
Y
Print the motion program.
(End)

2. HOW TO USE SYSTEM MENUS

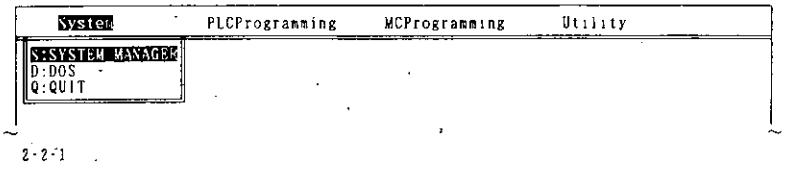
2.1 SYSTEM ENVIRONMENT

System environment must be prepared before using Programming System. Select the subdirectories where PLC and MC databases are to be stored. Also specify a floppy disk drive.

(1) Setting up subdirectories on the hard disk

① Select "System".

② Select "SYSTEM MANAGER". Depress [↵].



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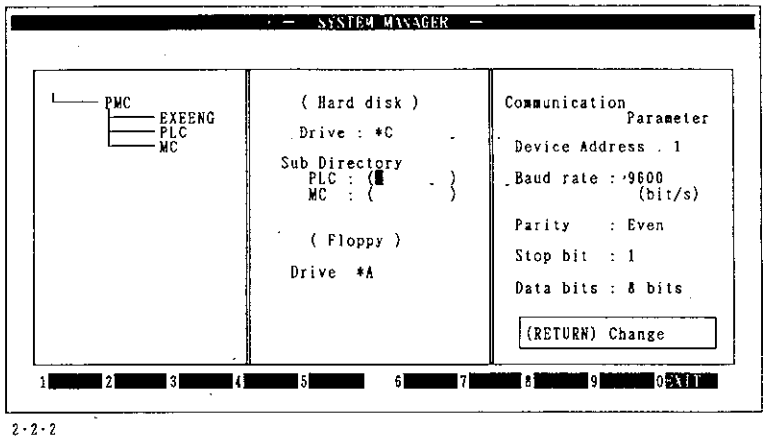

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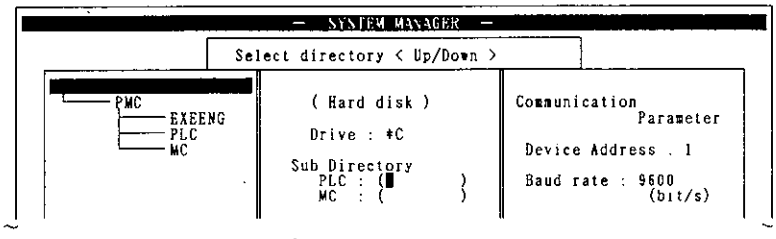
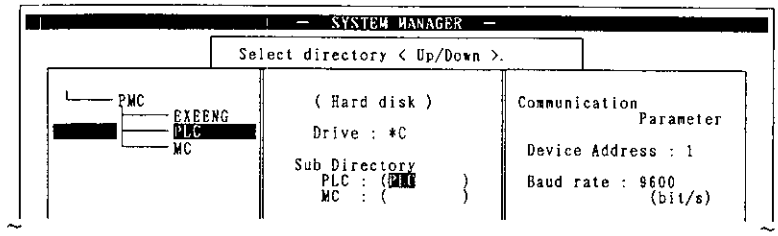
③ Depress [↵].



2-2-3

The cursor is displayed in the tree.

④ Move the cursor to the PLC subdirectories.
Depress [↵].



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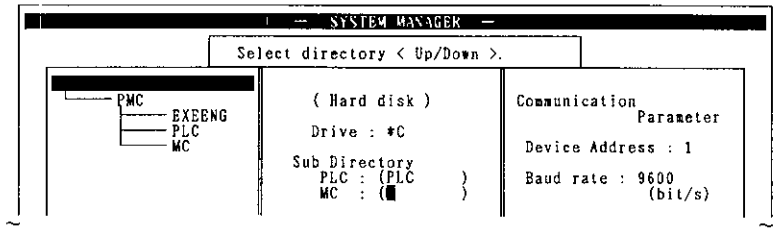
PLC subdirectories are set to PLC.

⑤ Depress [↵].

⑥ Depress [↵].



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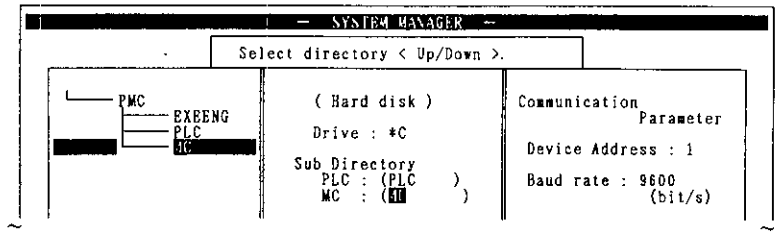
⑦ Move the cursor to the MC subdirectories.
Depress [↵].



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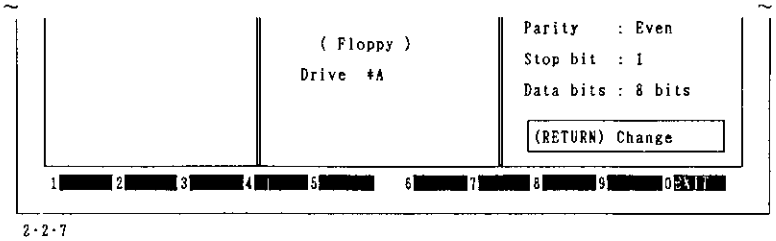
MC subdirectories are set to MC.

⑧ Depress [↵].



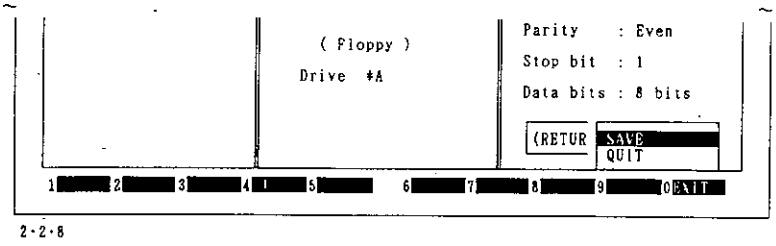
2·2·7

2. HOW TO USE SYSTEM MENUS

(2) Terminating system environment

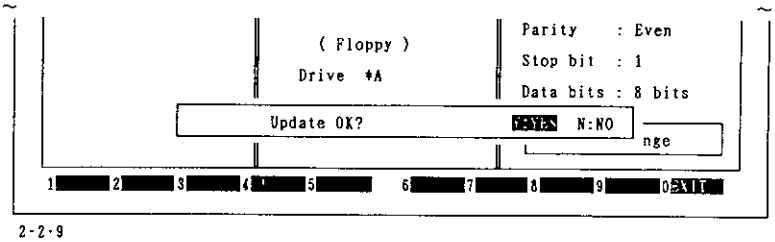
⑨ Depress f10 [EXIT].

⑩ Select "SAVE".
Depress ↵.



2-2-8

⑪ Select "YES".
Depress ↵.



2-2-9

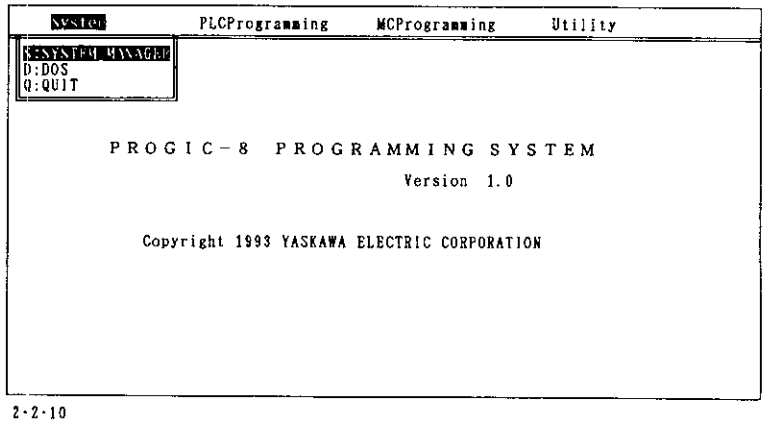
Notes : System environment needs to be set up only at initialization.
The settings of system environment premises that subdirectories are already built in the hard disk and floppy disk.
It is recommended to save data as in subdirectories even on a floppy disk.

2.2 TERMINATING SYSTEM

Terminates the system.

① Select "System".

② Select "QUIT".
Depress [↵].



2-2-10

3. HOW TO USE PLC PROGRAMMING MENUS

3.1 DATABASE MANAGEMENT 1

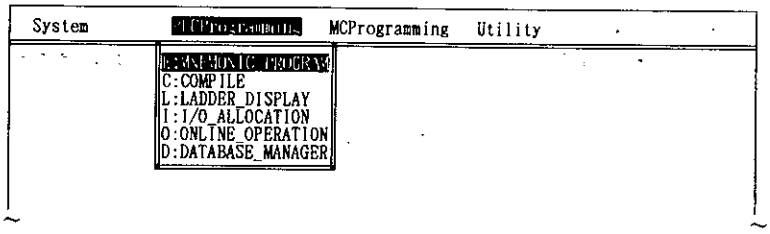
In order to use the PLC programming menus, databases must be prepared and selected in advance. All menus are executed using the database.

(1) Creating a database

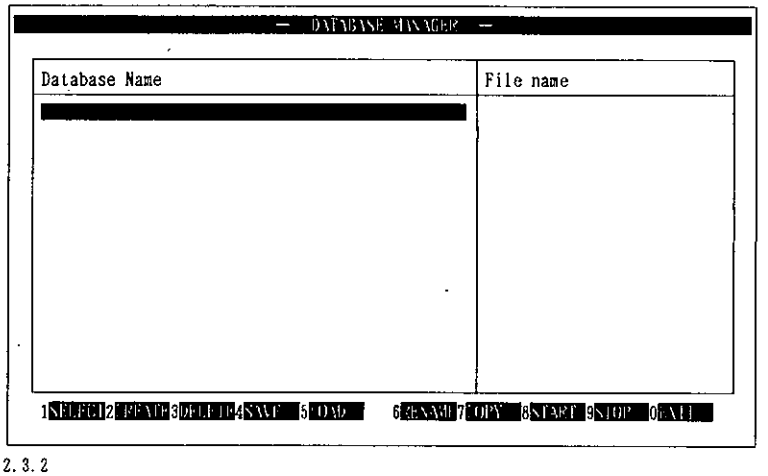
① Select "PLC Programming".

② Select "DATABASE MANAGER".

③ Depress [↵].

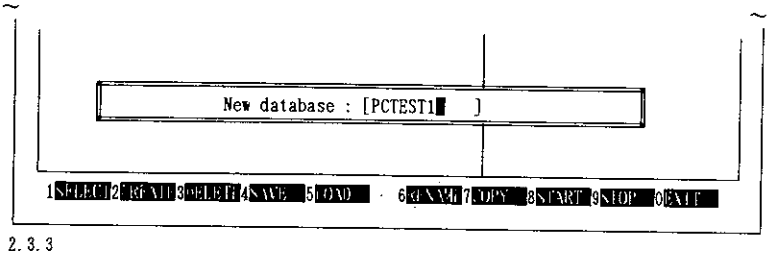


2.3.1



2.3.2

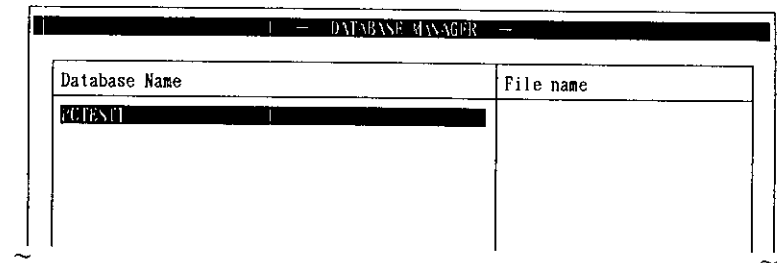
④ Depress [f2] [CREATE].
Enter a database name.



2.3.3

Up to eight half size characters can be entered.

⑤ Depress [↵].

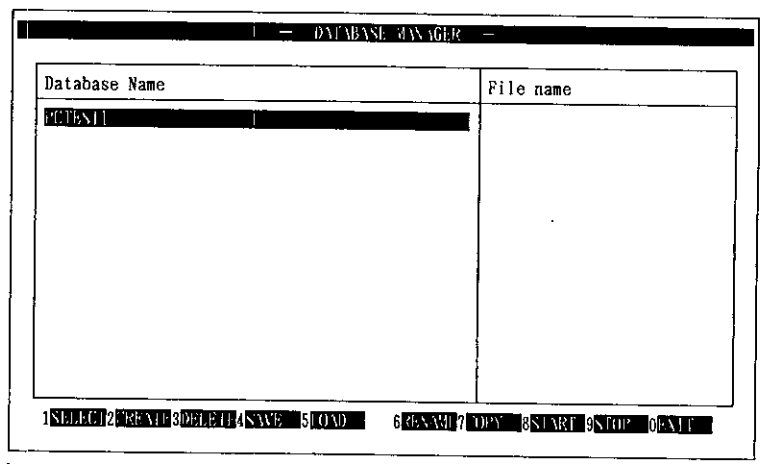


2.3.4

(2) Selecting a database

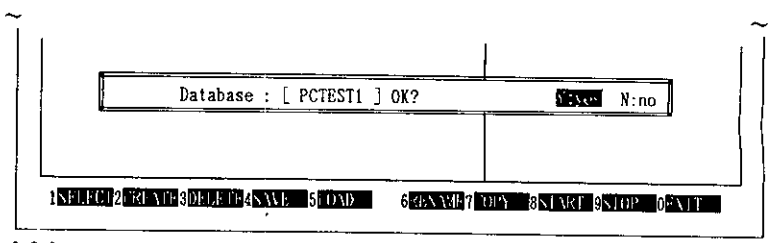
① Select "Database Name".

② Depress [f1] [SELECT].



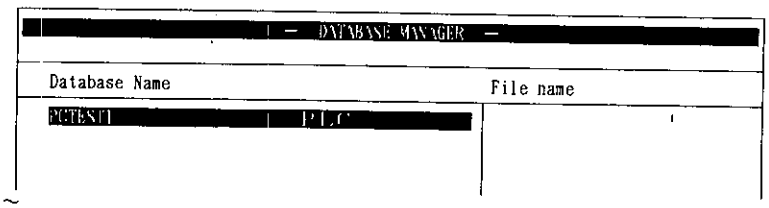
2.3.5

③ Select "YES".
Depress [↵].



2.3.6

④ Depress [f10] [EXIT].
The preceding menu display appears.



2.3.7

Note : If a menu such as mnemonic program is started without selecting a database, an error message appears.

3. HOW TO USE PLC PROGRAMMING MENUS

3.2 MNEMONIC PROGRAM

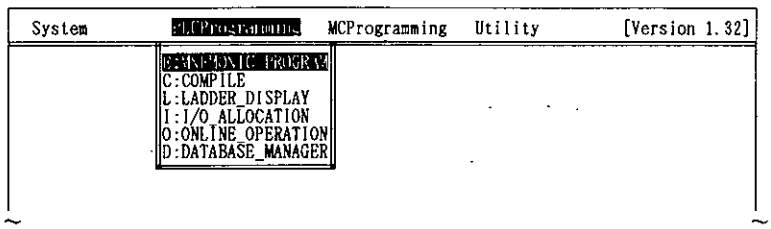
This section explains how to edit mnemonic programs. Direct entry and submenu-select entry are available.

At every element entry, a check is made for syntax error. If an error is found, error display is output and a beep sounds.

(1) Creating a mnemonic program

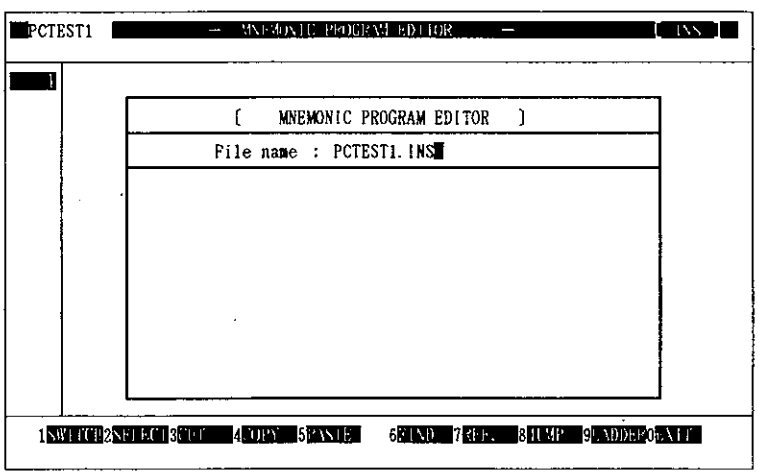
① Select "PLC Programming".

② Select "MNEMONIC PROGRAM".
Depress [↵].



2.3.8

③ Enter a file name.
Depress [↵].



2.3.9

Up to eight half-size characters can be entered. To modify an existing program, select the file from the file list.

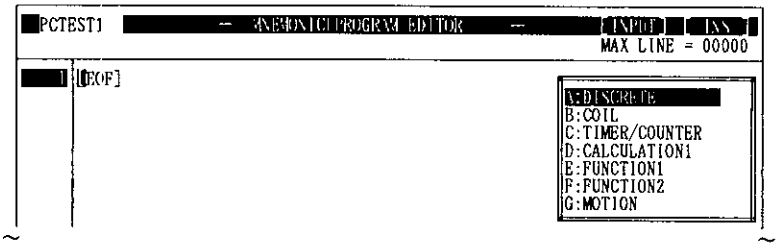
④ Enter the mnemonic.
Depress [↵].
Example : STN return
Kye
Enter the reference.
Depress [↵].

2.3.10

⑤ Select the optional program by this procedure.

"N0489" can be entered as "N" "4" "8" "9" [↵] , with the leading zero omitted.

Notes : If a group (discrete data group) of contacts such as coils is to be used by the BLK command or the like, specify the contacts in units of 16, such as 1, 17, 33, and so on. If an inappropriate number is specified, a lower number that satisfies the requirement is automatically entered. Commands can be entered in a mnemonic program by submenus. The submenus are displayed by depressing [f1] [SWITCH] , then [f9] [INPUT].

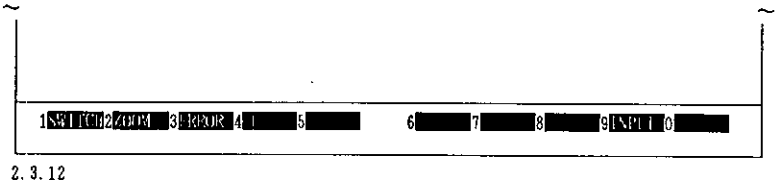


2.3.11

(2) Creating a subroutine program

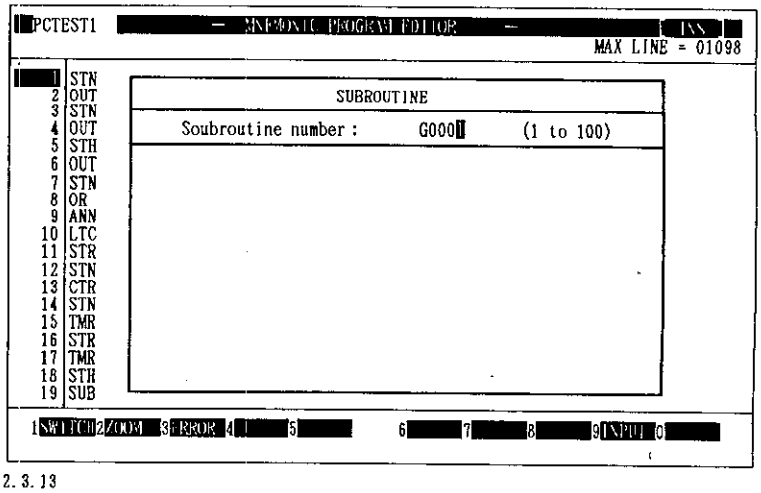
Up to 100 subroutines can be created for a mnemonic program, which can be called up a desired number of times. Subroutines can be edited similar to mnemonic programs. To modify an existing subroutine program, select the file from the file list.

① Depress [f1] [SWITCH].



2.3.12

② Depress [f2] [ZOOM].
Enter subroutine numbers, then depress [↵].

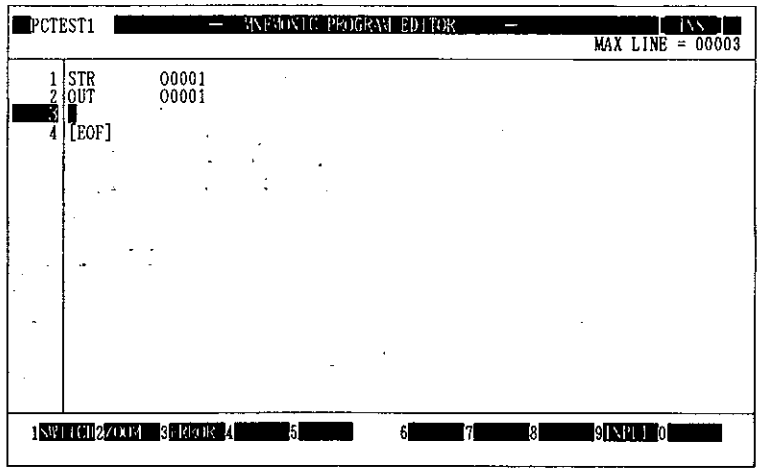


2.3.13

To modify an existing subroutine program, select the file from the file list. (See Par. 3.3.4)

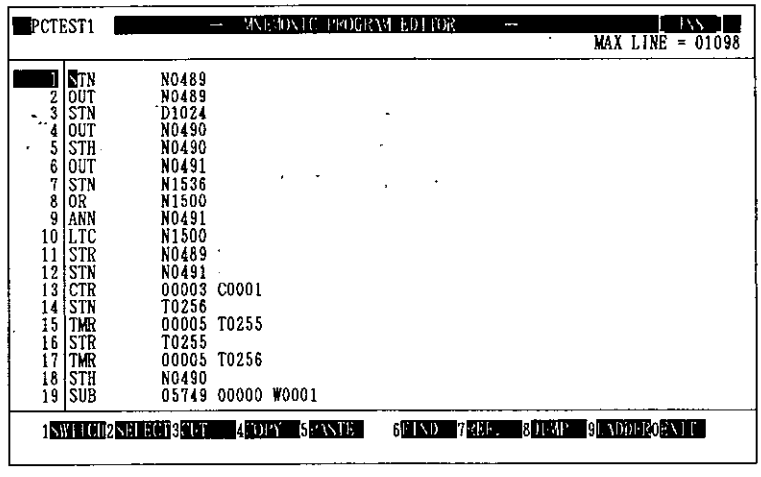
3. HOW TO USE PLC PROGRAMMING MENUS

③ Create the optional program.



2.3.14

④ Depress f2 [RETURN] to return to the main program.



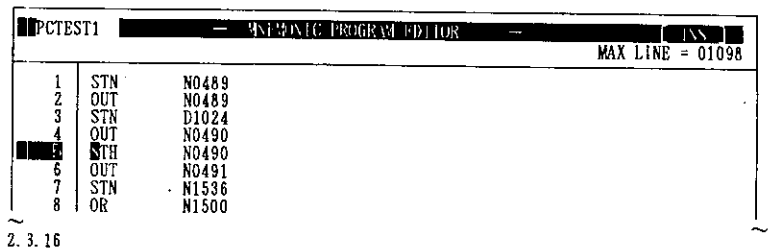
2.3.15

Notes : To execute a subroutine program, the main program must have the "GSB" command.
Example : GSB G0001
To create a new subroutine, select any subroutine from the file list, modify the number to a new one, then depress [↵] .

(3) Changing a mnemonic program

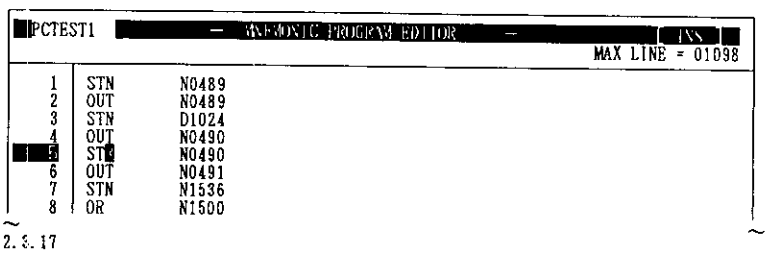
[Insert] mode

① Move the cursor to the line to be inserted.



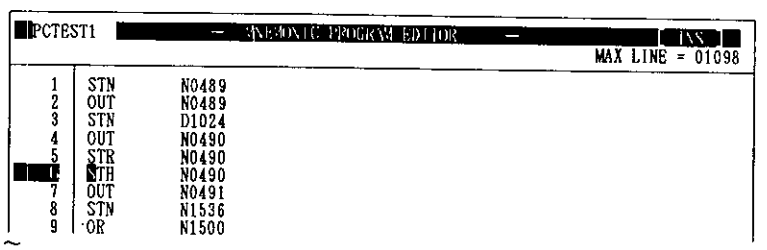
2. 3. 16

② Add the mnemonic.



2. 3. 17

③ Depress [↵].

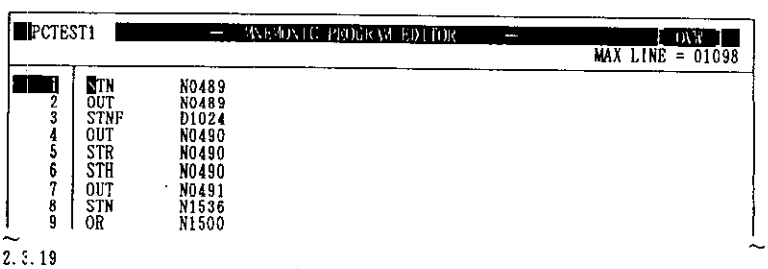


2. 3. 18

· The above display is an example inserting the 5th step.

[Overwrite] mode

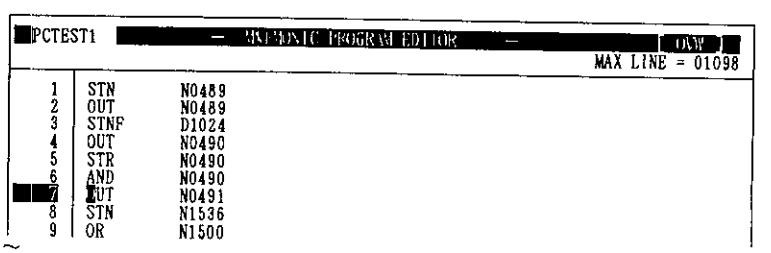
④ Depress [INS] to change to the overwrite mode.



2. 3. 19

On the upper right of the display changes from [INS] to [OVW].

⑤ Move the cursor to the line to be overwritten.
Change the mnemonic.
Depress [↵].



2. 3 20

The above display is an example changing from "STH" to "AND" on the 6th step.

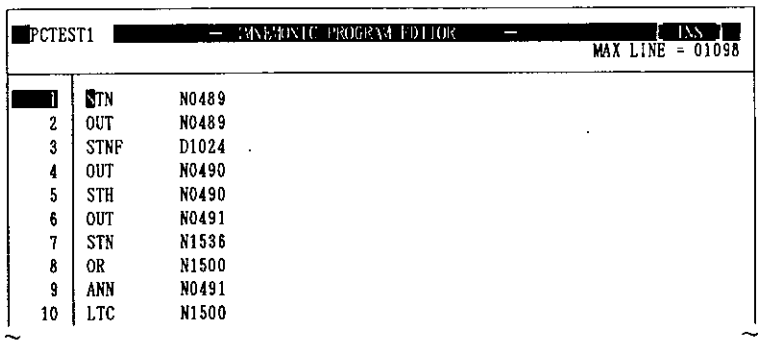
3. HOW TO USE PLC PROGRAMMING MENUS

(4) Deleting a mnemonic program

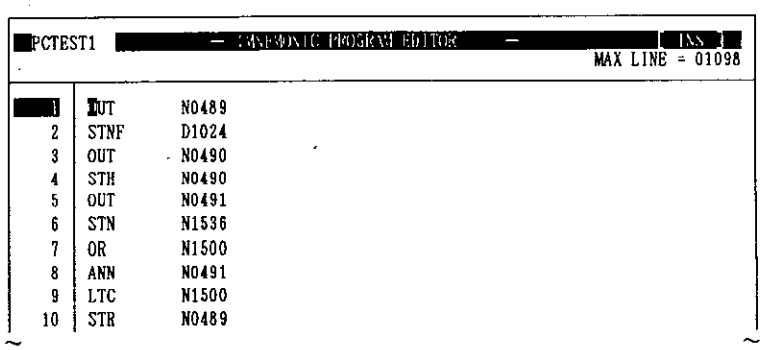
① Move the cursor to the line to be deleted.

[Deleting 1-line]

② Depress [f3] [CUT].



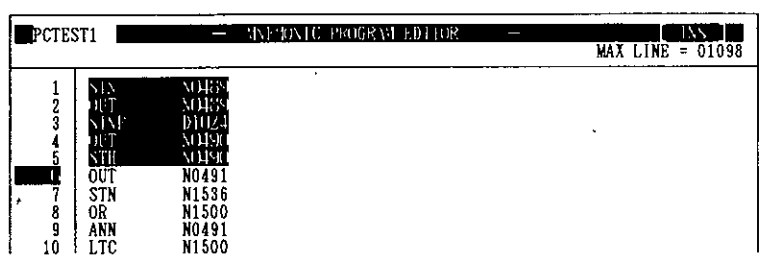
2. 3. 20A



2. 3. 20B

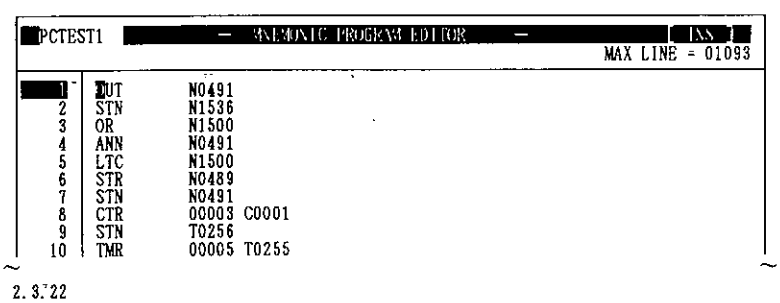
[Deleting specified block]

③ Depress [f2] [SELECT].
Set the deleting block.



2. 3. 21

④ Depress [f3] [CUT].

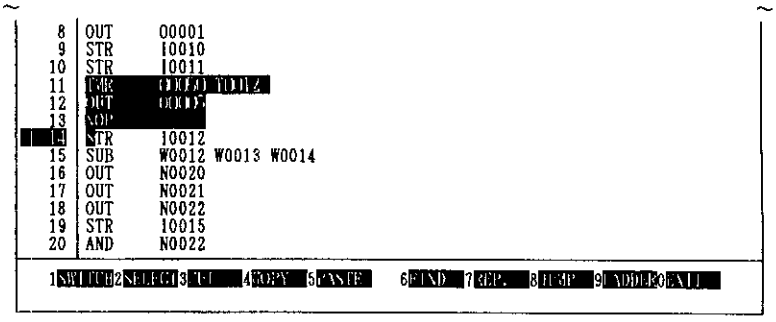


2. 3. 22

To restore the block deleted by [f3] [CUT], depress [f5] [PASTE]. To specify a wide area, use [ROLL UP] and [ROLL DOWN] or the jump key.

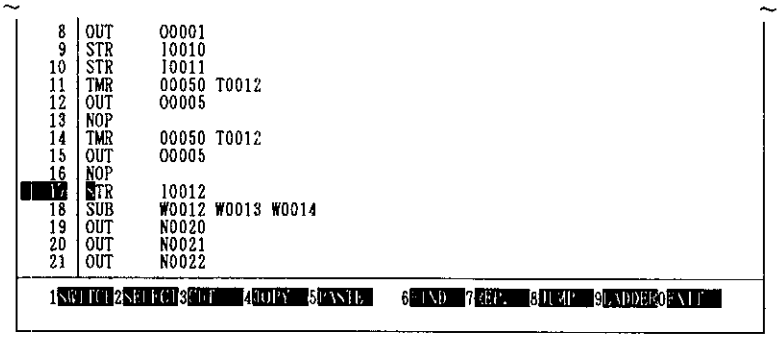
(5) Copying a mnemonic program

① Move the cursor to the line to be copied.
Depress [f2] [SELECT] and [f4] [COPY] to set the block to be copied.



2.3.23

② Move the cursor to the line to be copied.
Depress [f5] [PASTE].

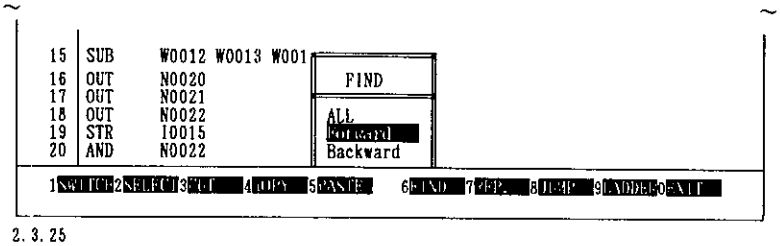


2.3.24

(6) Searching a mnemonic program

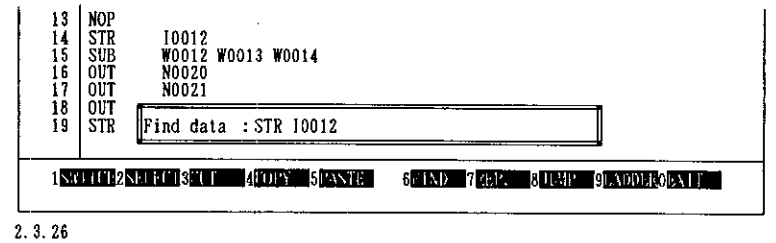
① Depress [f6] [FIND].

② Select the direction for search.
Depress [↵].



2.3.25

③ Enter the data found.
Depress [↵].

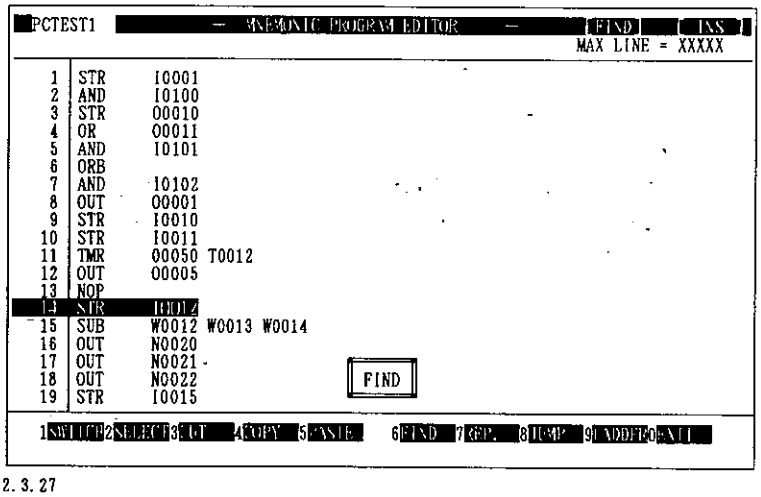


2.3.26

Retrieval menus

1. All : Search entire program; from the beginning to the end regardless of the cursor location.
2. Forward : Search from the cursor location to the end of the program.
3. Backward : Search from the cursor location to the beginning of the program.

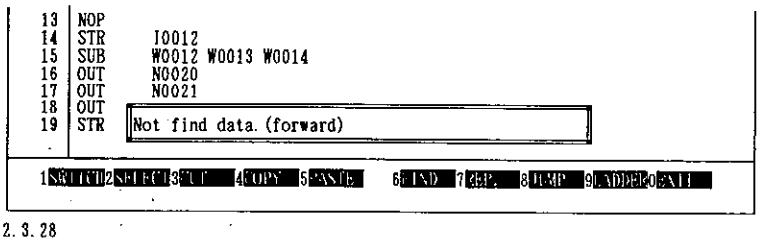
④ To continue retrieval, depress f6 [FIND].



2.3.27

To stop retrieval, depress ESC.

⑤ The message appears if the data searched for were not found.



2.3.28

After the message is displayed, depress f6 [FIND] or ↵ to move the cursor to the place where it was when the retrieval was started.

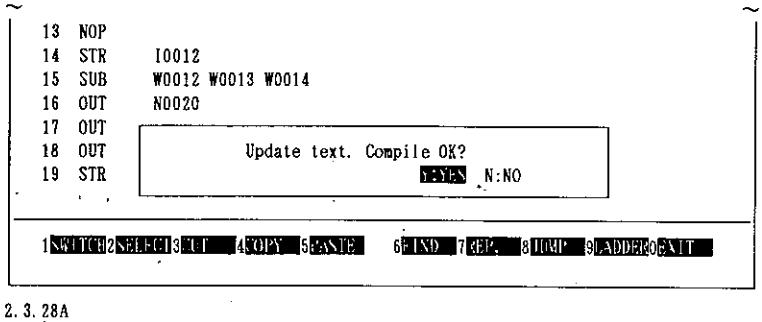
> Note : User can select whether or not to space between an instruction and a reference.

(7) Switching to a ladder display

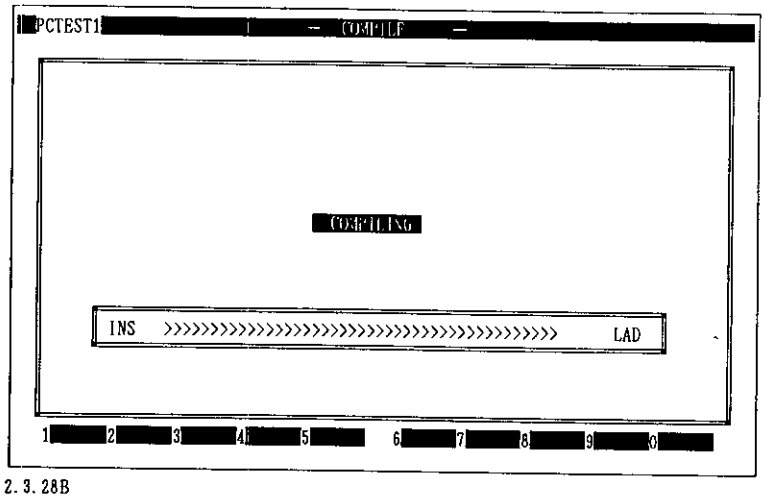
The mnemonic program editing display can be changed to the ladder display. Editing is impossible on the ladder display. To edit the program, return to the mnemonic program editing display.

① Depress f9 [LADDER].

② Select "YES". Depress ↵.

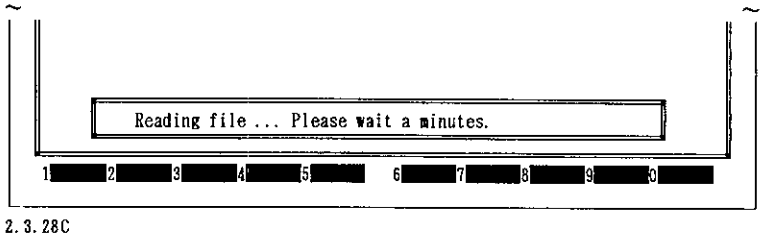


2.3.28A



2.3.28B

The program is compiled temporarily.



2.3.28C

The display changes to the ladder corresponding to the cursor location on the mnemonic editing display.
The display begins with the 1st block of the ladder circuit containing the mnemonic code.

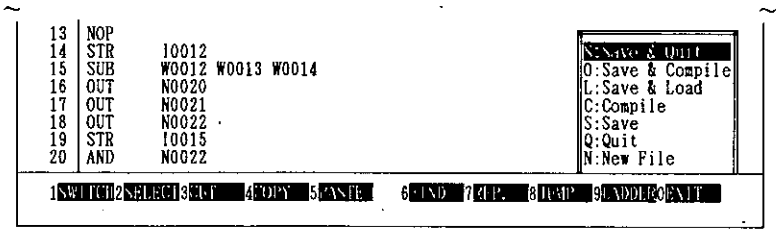
Notes : The [f9] [LADDER] key takes effect only when the file name is similar to that of the selected database; such as "database-name.INS."

3. HOW TO USE PLC PROGRAMMING MENUS

(8) Terminating a mnemonic program

Save the created mnemonic program and terminate the editing.

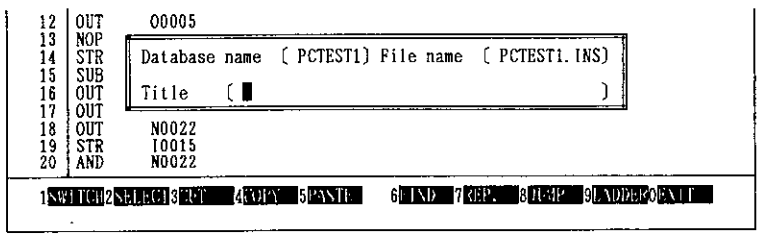
① Depress [f10] [EXIT].
② Select "Save & Quit".
Depress [↵].



2.3.29

To discard the edited program, select the forced termination.

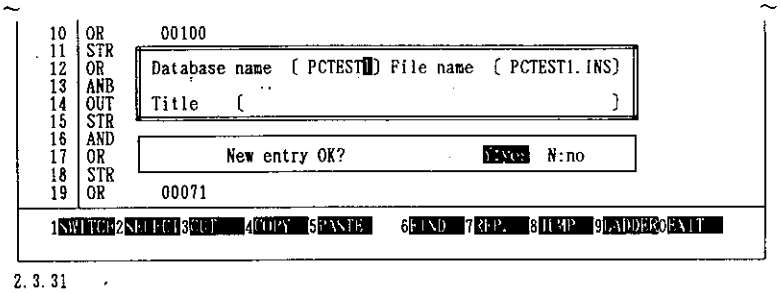
③ Move the cursor to the title area and enter the title.
Depress [↵].



2.3.30

Up to 40 half-size characters or 20 full-size characters can be entered.

④ Select "YES".
Depress [↵].



2.3.31

The above display is an example after creating a new program.

Termination menus

1. Save & Quit	: Save the file and return to the main menu.
2. Save & Compile	: Save and compile the file and return to the main menu.
3. Save & Load	: Save and compile the file, load it in the PLC unit, and return to the main menu.
4. Compile	: Compile the file and continue editing.
5. Save	: Save the file and continue editing.
6. Quit	: Discard the file and return to the main menu.
7. New File	: Read another file.

Notes : "Save & Compile," "Save & Load," and "Compile" are displayed only when the file name is similar to that of the selected database; such as "database- name.INS."

3. HOW TO USE PLC PROGRAMMING MENUS

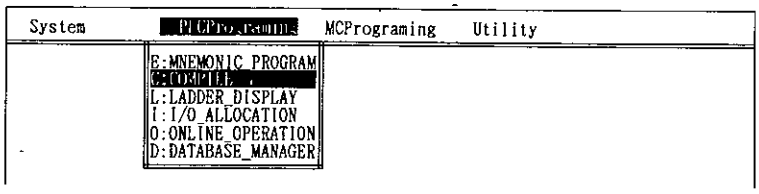
3.3 COMPILATION

This menu converts a mnemonic program into a ladder program and vice versa. If a syntax error is found, a compilation error is displayed. Compilation can be carried out only when the file name is similar to that of the selected database ; such as "database-name.INS."

(1) Converting a mnemonic program into a ladder program

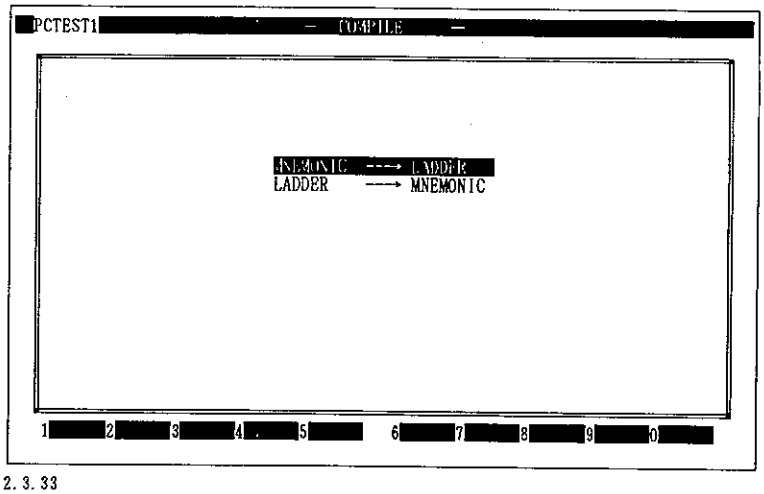
① Select "PLC Programming".

② Select "COMPILE".
Depress [↵].



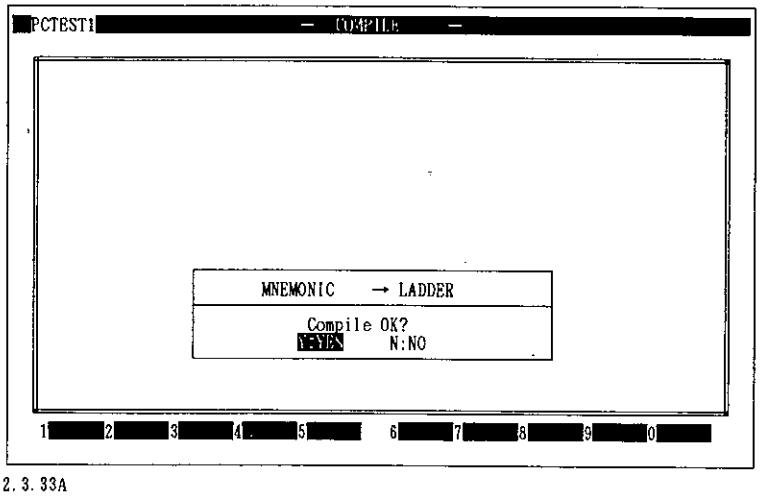
2.3.32

③ Select "MNEMONIC → LADDER".
Depress [↵].

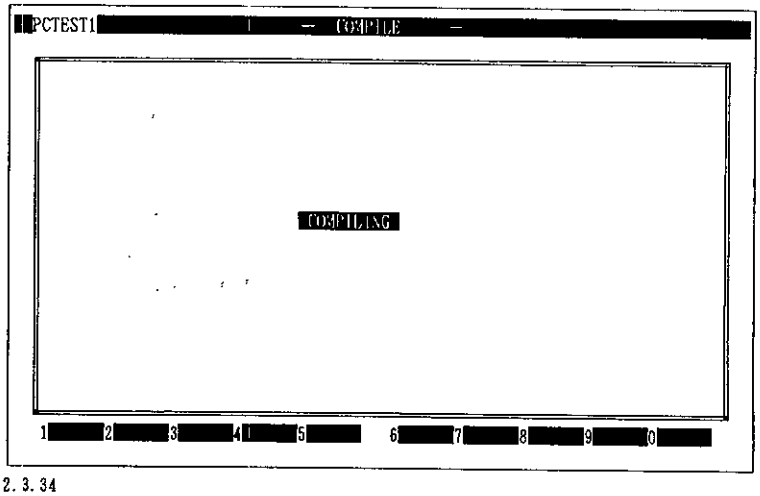


2.3.33

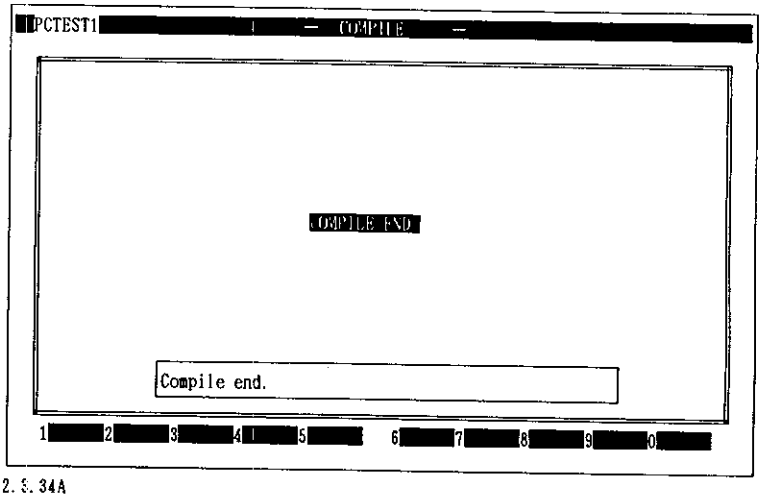
④ Select "YES".
Depress [↵].



2.3.33A



2.3.34



2.3.34A

⑤ Depress [↵].
The preceding menu display appears.

3. HOW TO USE PLC PROGRAMMING MENUS

3.4 LADDER DISPLAY

This menu provides offline display of a ladder program created by compilation. Available functions are jump to a specified stop or block, retrieval of ladder elements, and tracing coil output conditions. Numbers on the left end of the ladder correspond to the mnemonic program step number or block number.

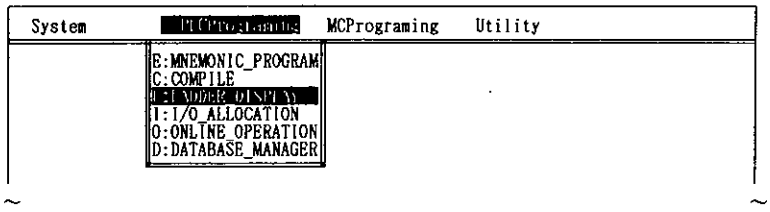
Step number : mnemonic program line number

Block number : A block is a circuit from the ladder program contact input to the output coil.

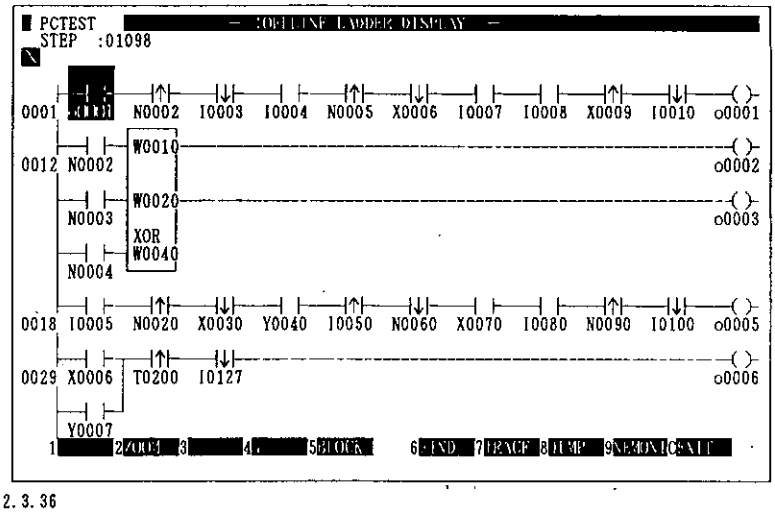
(1) Scrolling a display

① Select "PLC Programming".

② Select "LADDER DISPLAY". Depress [↵].

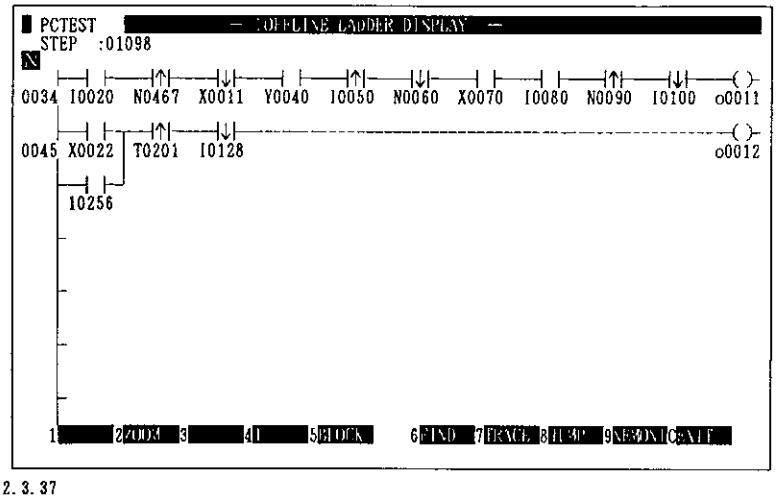


2.3.35



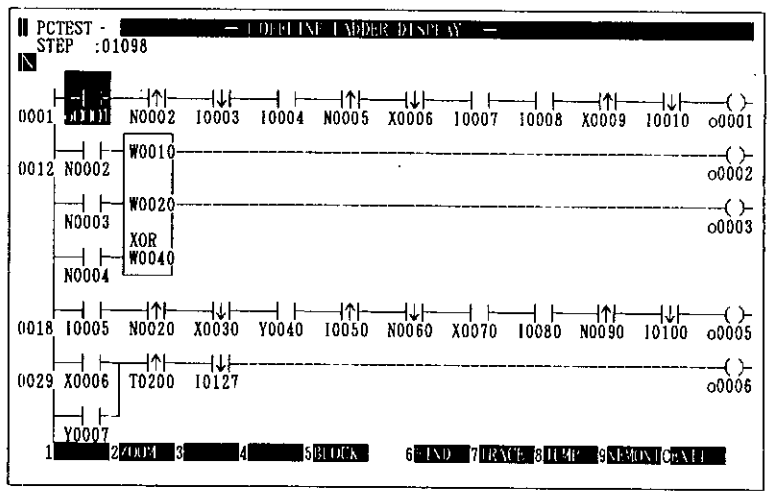
2.3.36

③ To scroll the next display, depress [ROLL UP].



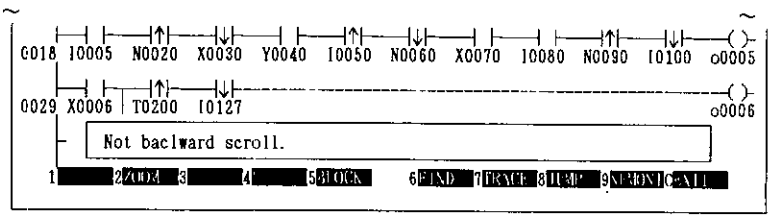
2.3.37

④ To scroll the preceding display, depress ROLL DOWN .



2.3.38

⑤ The message appears at the beginning or end of the display where no further scrolling is possible.



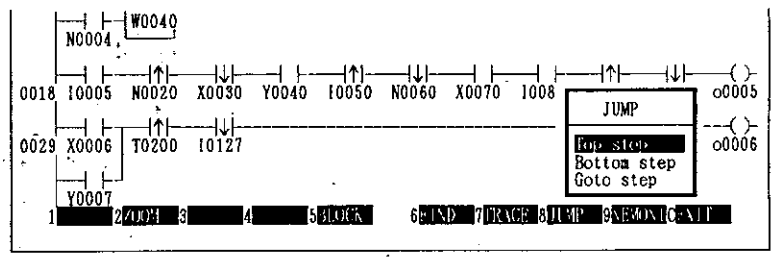
2.3.38A

3. HOW TO USE PLC PROGRAMMING MENUS

(2) Jumping displays

You can jump to the beginning or the end of the program. You can also jump to a specified step or block, depending on whether step or block numbers are displayed on the left end of the ladder program.

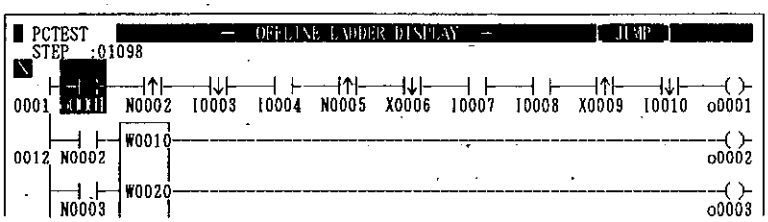
① Depress [f8] [JUMP].



2.3.39

[Jumping to the top step]

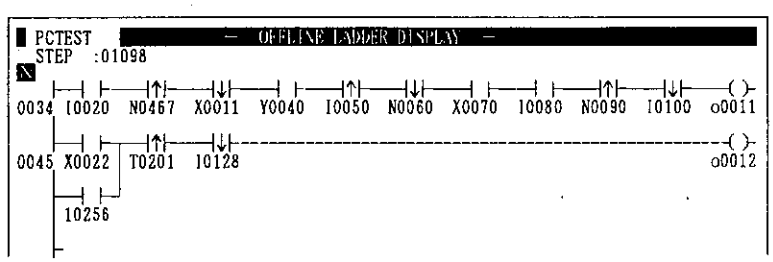
② Select "Top step".
Depress [↵].



2.3.40

[Jumping to the bottom step]

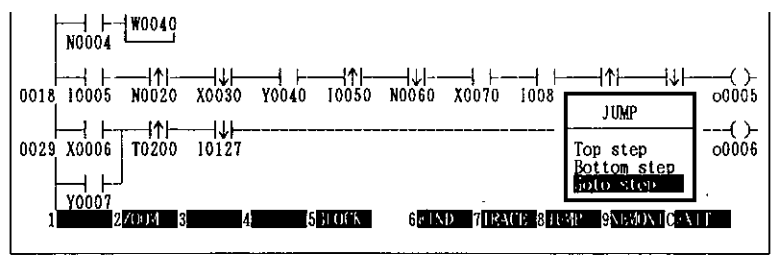
③ Select "Bottom step".
Depress [↵].



2.3.41

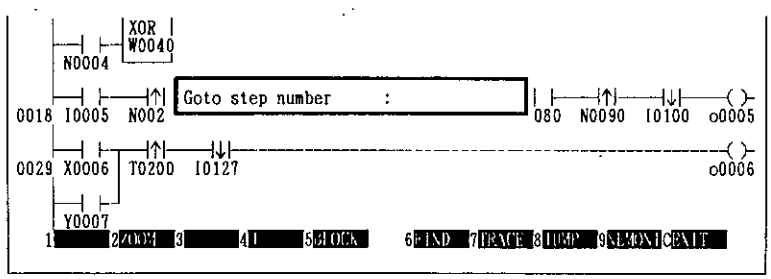
[Jumping to the optional step]

④ Select "Goto step".
Depress [↵].



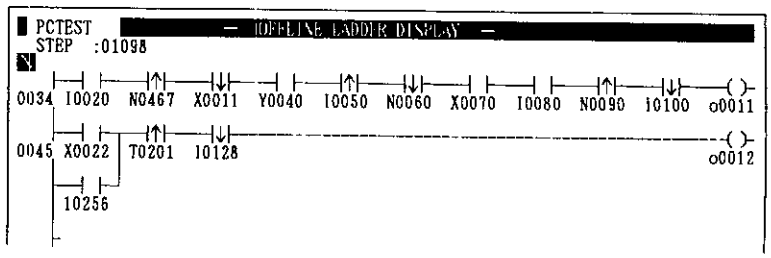
2.3.42

⑤ Enter the step number.



2.3.43

⑥ Depress [↵].

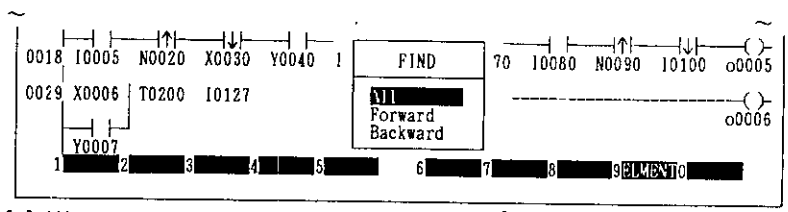


2.3.44

If the specified step number is in the middle of a line, the cursor jumps to the beginning of that line

(3) Searching for a ladder element

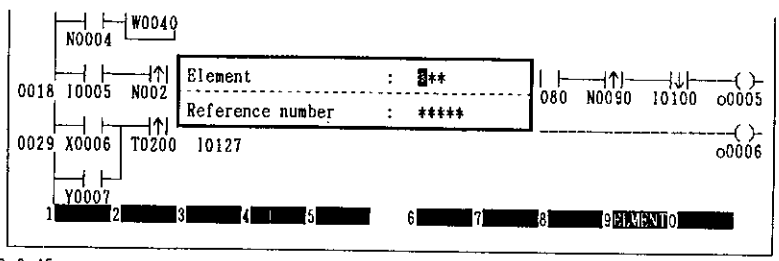
① Depress [f6] [FIND].



2.3.44A

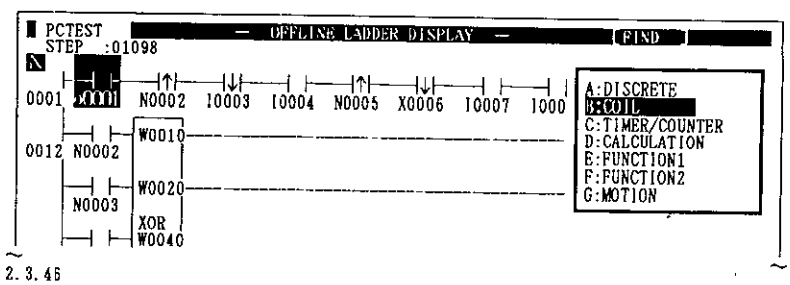
② Select the searching data.
Depress [↵].

③ Depress [f9] [ELMENT].



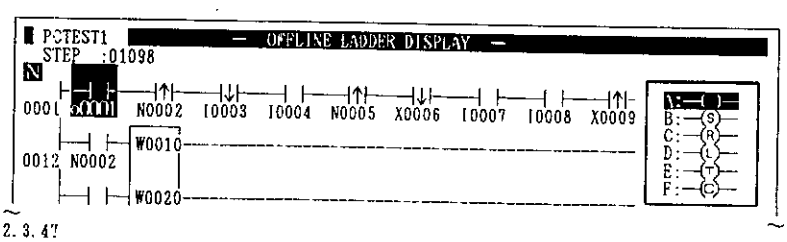
2.3.45

④ Select a type from the subwindow menu.
Depress [↵].
Example B : COIL



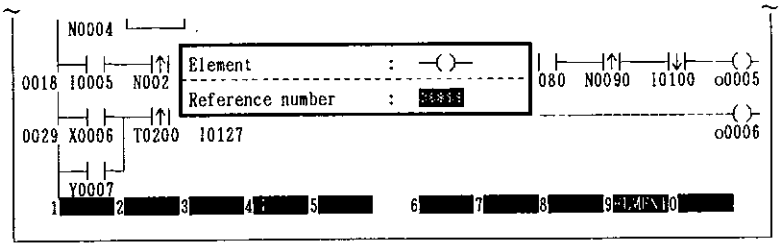
2.3.46

⑤ Select an element.
Depress [↵].
Example A : –( )–



2.3.47

3. HOW TO USE PLC PROGRAMMING MENUS

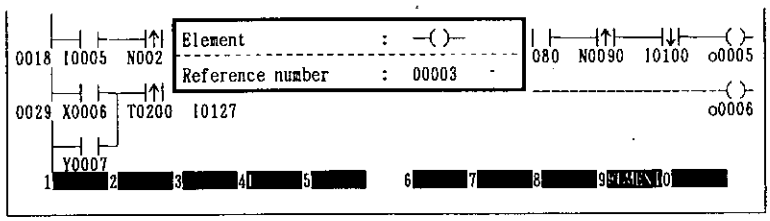


2.3.48

If no element is to be found, depress [↓] and set up a reference number.

⑥ Enter the reference number.

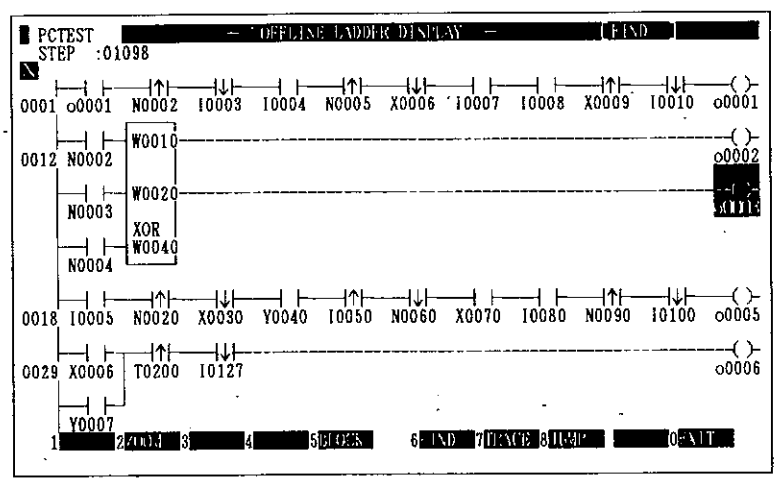
⑦ Depress [↵].



2.3.49

⑧ To continue retrieval, depress [f6] [FIND].

⑨ To start reverse retrieval, depress [SHIFT] and [f6] [FIND] simultaneously.

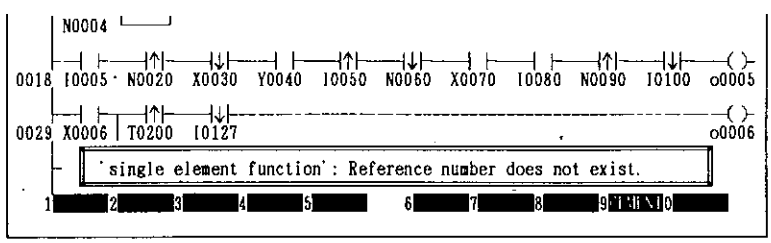


2.3.50

The searching data appears on the upper right of the display.

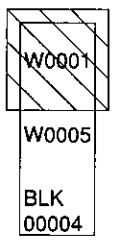
⑩ The message appears at the display where no further searching is possible.

⑪ To quit searching, depress [ESC].



2.3.51

Note :
During retrieval by the reference number only, areas out of the display may even be searched. This is because some commands use more than one reference number.



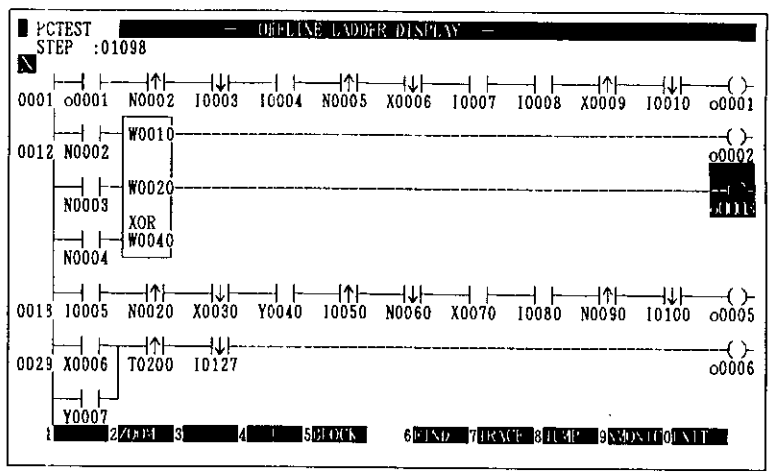
Example : Searching for W0002 searches the hatched area.

(4) Displaying block numbers

Numbers on the left end of the ladder program can be switched to block numbers. A single ladder circuit from a contact input to an output coil is a single circuit block.

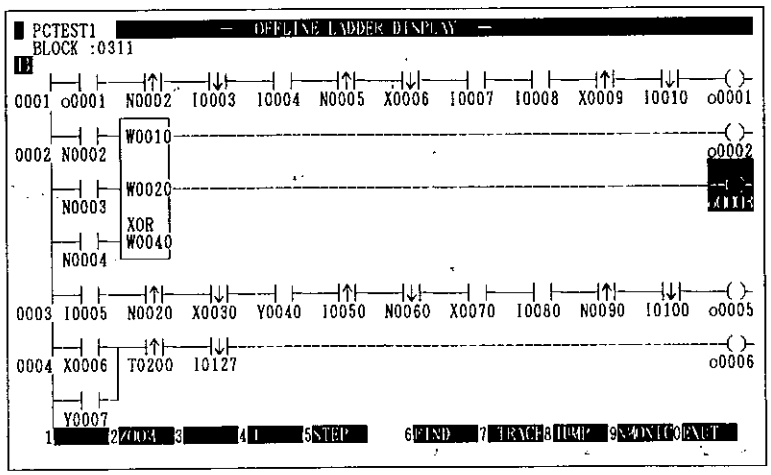
① Display an arbitrary ladder.

② Depress [f5] [Block].



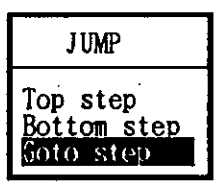
2.3.52

③ To return to the step display, depress [f5] [STEP].



2. 3. 53

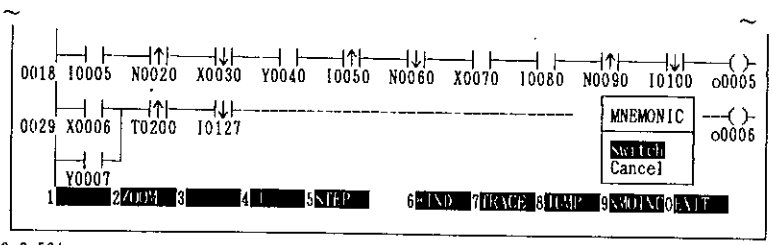
Note : When block numbers are displayed, you can jump to the first, the last, or a specified block.



(5) Switching to a mnemonic program

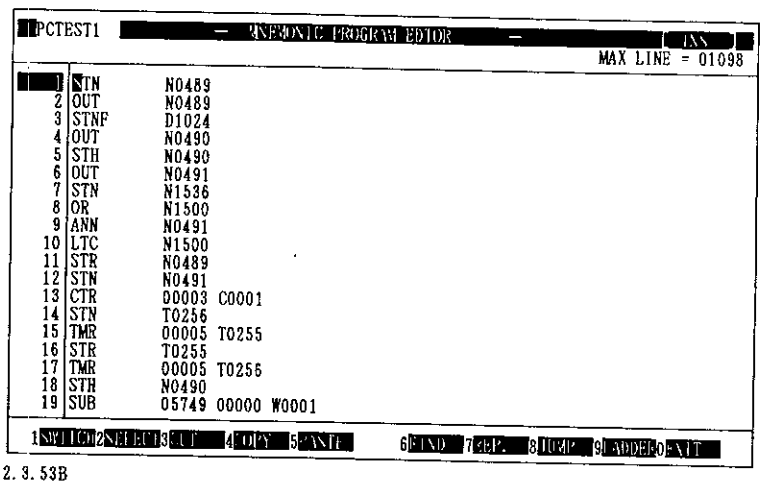
The ladder display can be switched to the mnemonic program editing display by the following procedure.

① Depress [f9] [NMOINC].



2.3.53A

② Select "Switch".
Depress [↵].



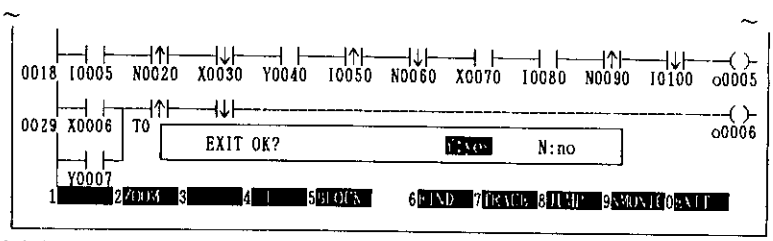
2.3.53B

Display begins with the mnemonic line corresponding to the beginning of the ladder circuit including the cursor.

(6) Quiting ladder display

① Depress [f10] [EXIT].

② Select "YES".
Depress [↵].



2.3.53C

3. HOW TO USE PLC PROGRAMMING MENUS

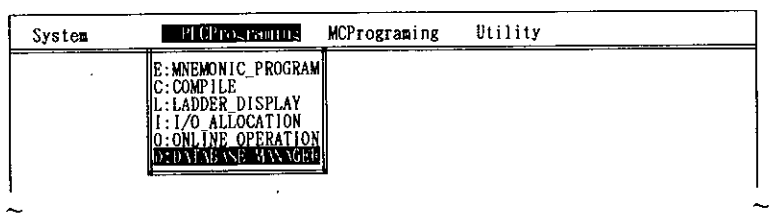
3.5 DATABASE MANAGEMENT 2

Created programs must be loaded to the PROGIC-8. To load programs, all files can be transferred in a batch, or only necessary files can be transferred selectively.

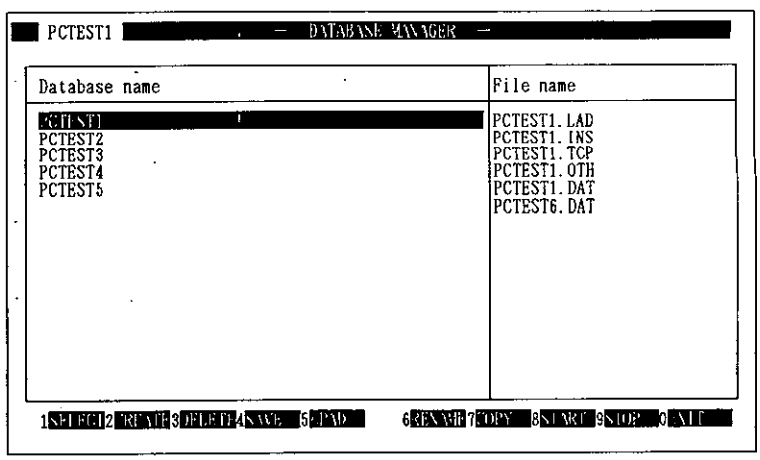
(1) Loading to PLC unit (in a batch)

① Select "PLC Programming".

② Select "DATABASE MANAGER".
Depress [↵].



2.3.54

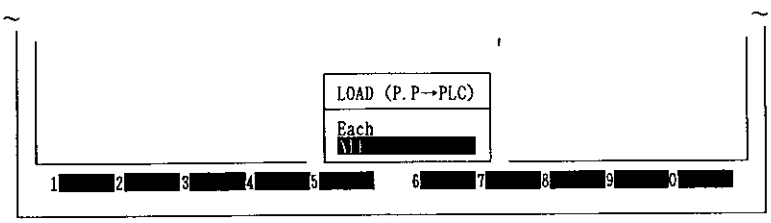


2.3.55

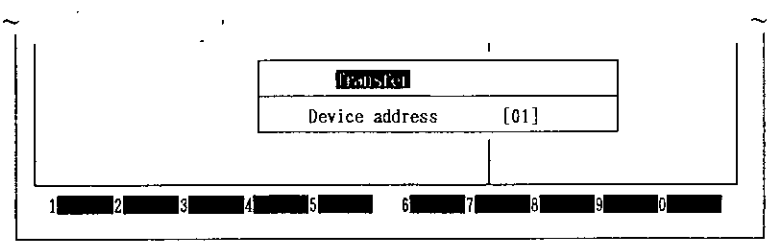
③ Depress [f5] [LOAD].

④ Select "All".
Depress [↵].

⑤ Select "Transfer".
Depress [↵].

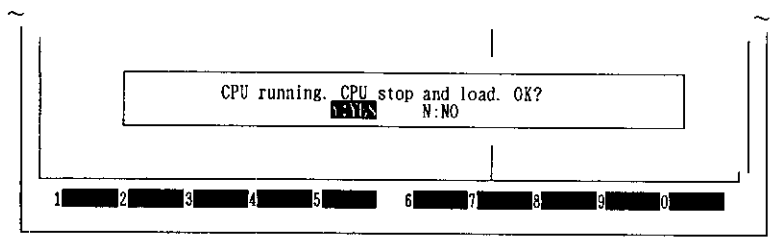


2.3.56



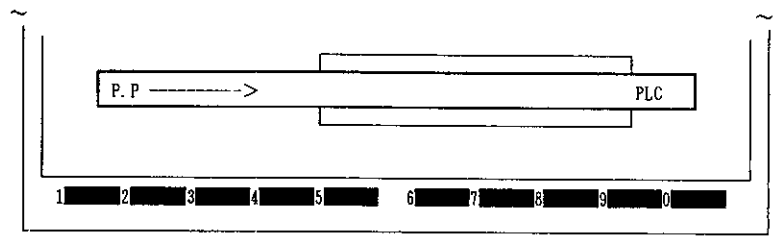
2.3.57

⑥ Select "YES".
Depress [↵].

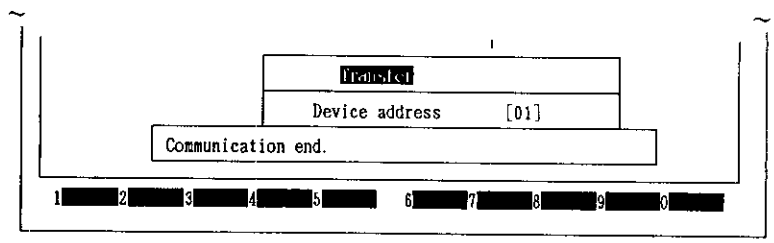


2.3.58

⑦ Depress [↵].

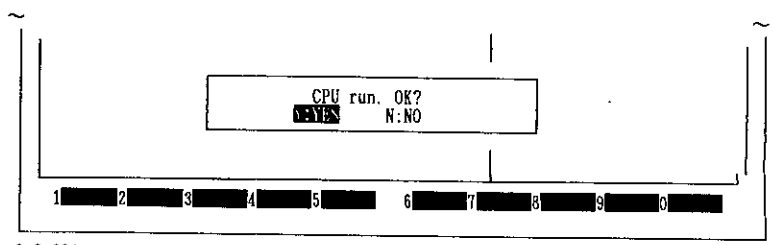


2.3.59



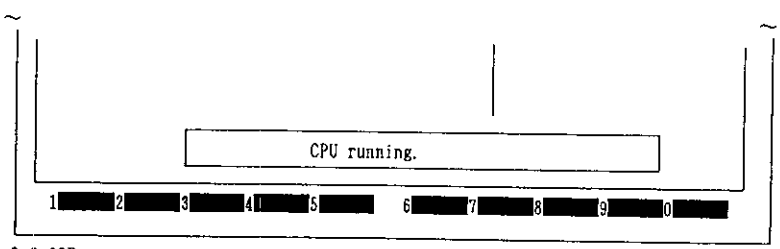
2.3.60

⑧ Select "YES".
Depress [↵].



2.3.60A

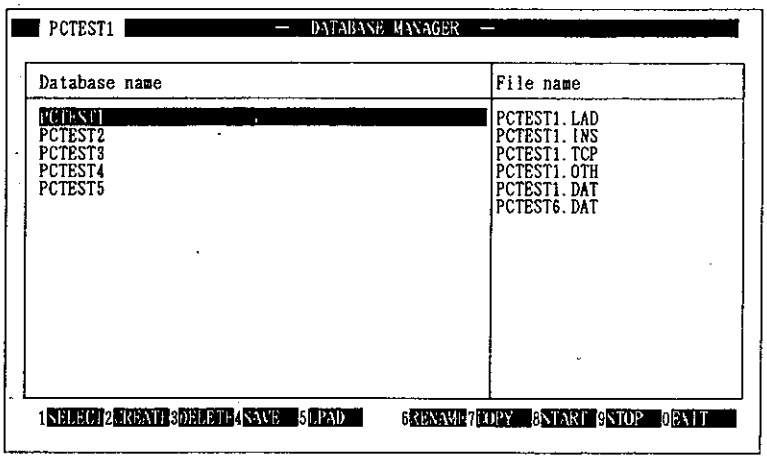
⑨ Depress [↵].



2.3.60B

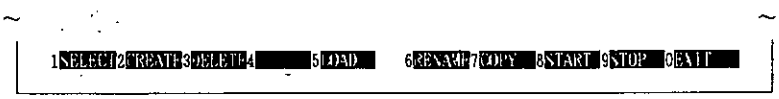
3. HOW TO USE PLC PROGRAMMING MENUS

⑩ Depress f10 [EXIT].
The preceding menu display appears.



2.3.60C

Note :
Loading to the PLC unit is impossible while it is operating. Depress F9 [STOP] to stop the PLC unit, then start loading.



2.3.61

3.6 ONLINE OPERATION 1

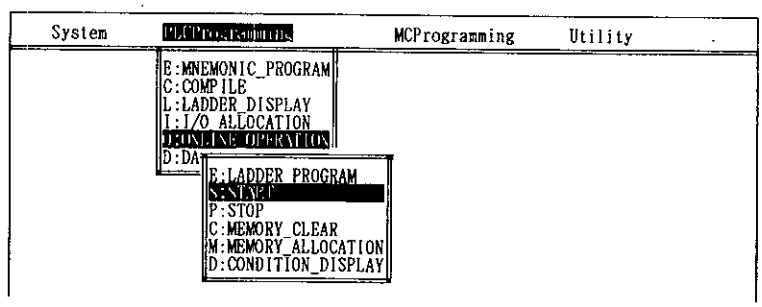
This menu starts and stops the PLC unit and clears the memory. Stopping the PLC unit means stopping ladder solving and service to the I/O signals. Status of the PLC unit can be changed only by online operation menus. To use this menu, connect the personal computer to the PROGIC-8.

(1) Starting a PLC unit

① Select "PLC Programming".

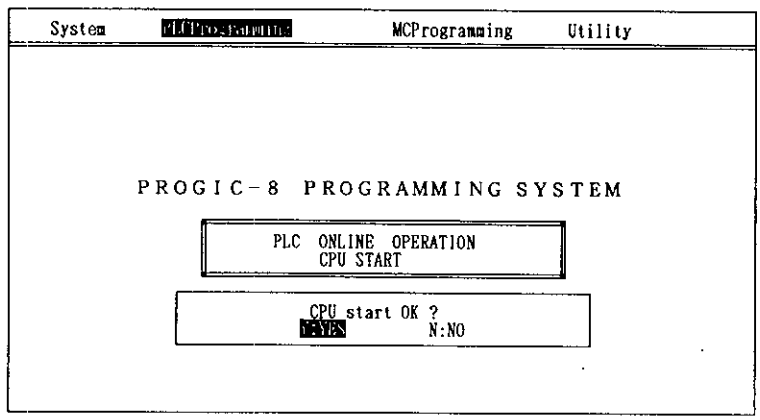
② Select "ONLINE OPERATION".
Depress [↵].

③ Select "START".
Depress [↵].



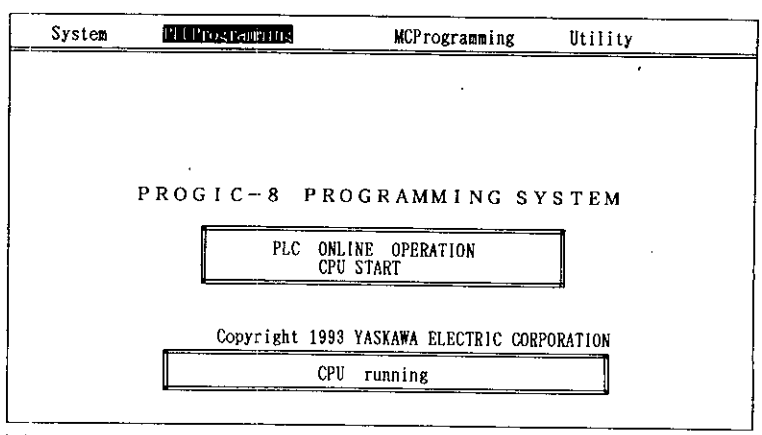
2.3.62

④ Select "YES".
Depress [↵].



2.3.63

⑤ Depress [↵].
The preceding menu display appears.

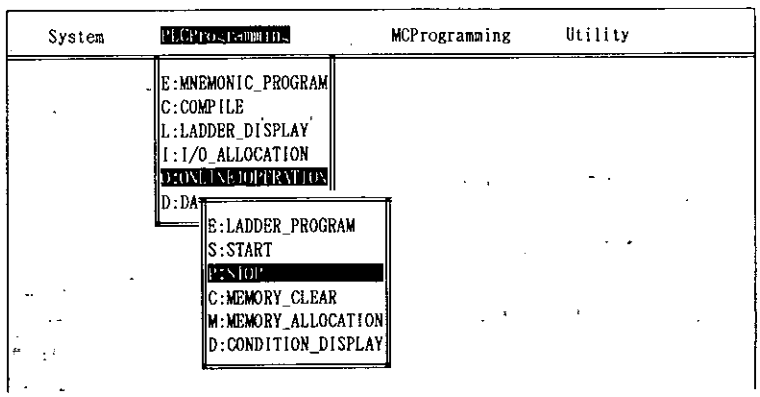


2.3.63A

3. HOW TO USE PLC PROGRAMMING MENUS

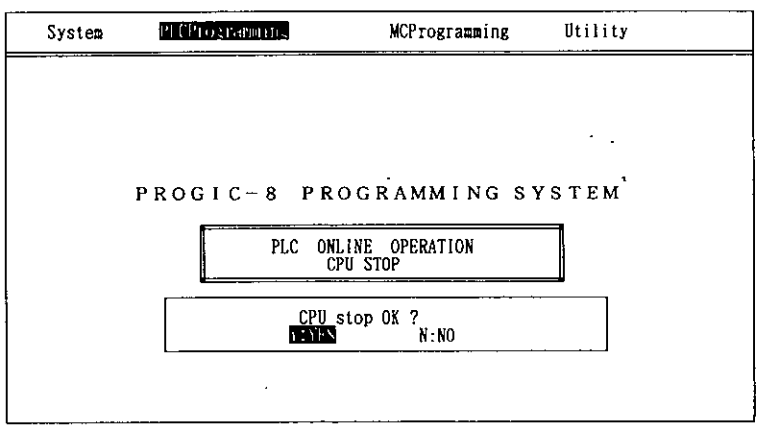
(2) Stopping a PLC unit

① Select "STOP".
Depress [↵].



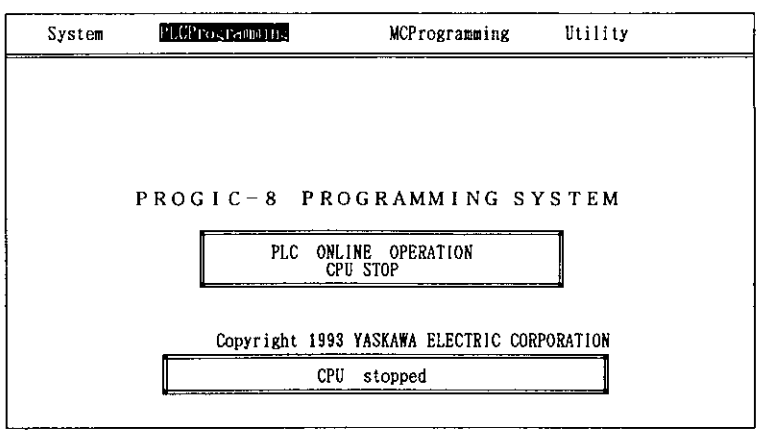
2.3.64

② Select "YES".
Depress [↵].



2.3.65

③ Depress [↵].
The preceding menu display appears.

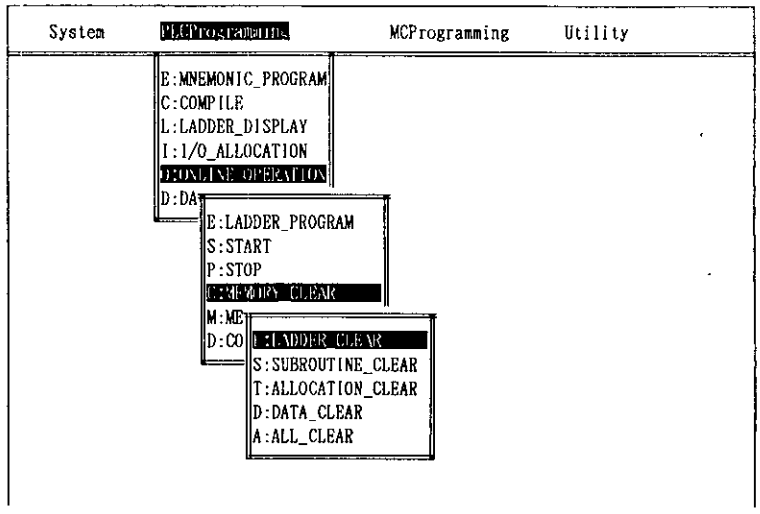


2.3.65A

(3) Clearing PLC memory

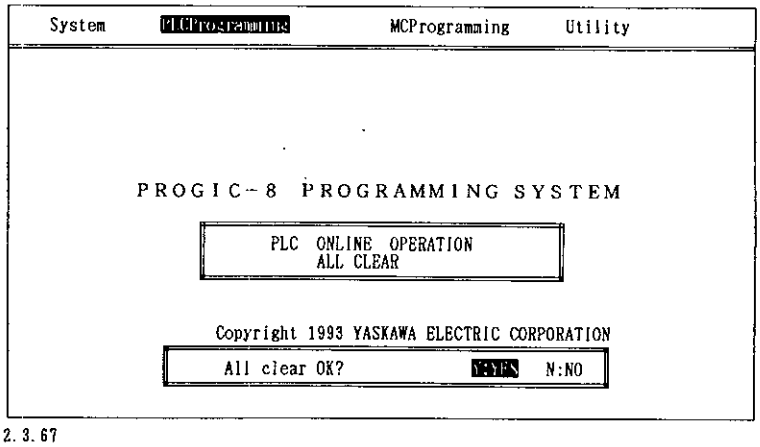
① Select "MEMORY CLEAR".
Depress [↵].

② Select "ALL CLEAR".
Depress [↵].



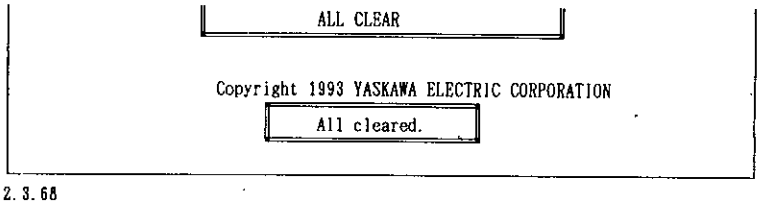
2.3.66

③ Select "YES".
Depress [↵].



2.3.67

④ Depress [↵].
The preceding menu display appears.



2.3.68

Memory clear menus

1. LADDER CLEAR	: Clear ladder programs only.
2. SUBROUTINE CLEAR	: Clear subroutine programs only.
3. ALLOCATION CLEAR	: Clear I/O assignment only.
4. DATA CLEAR	: Turn OFF all discrete statuses, and clear all register contents to zero.
5. ALL CLEAR	: Perform above 1 to 4 above, and resets memory to the initial status.

3. HOW TO USE PLC PROGRAMMING MENUS

3.7 ONLINE OPERATION 2

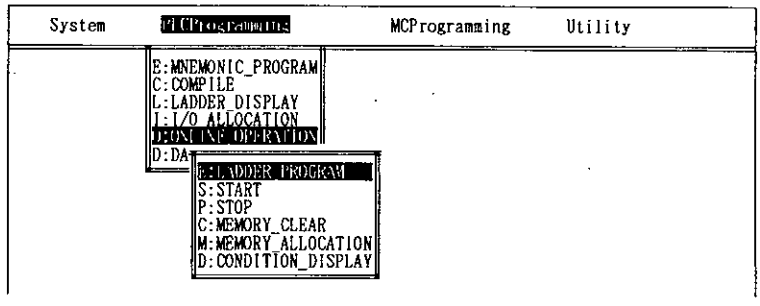
This menu supports online ladder display, power flow spot display, and data contents display and modification. Power flow spot display shows the status of conductivity of contacts for each element.

(1) Displaying a ladder program

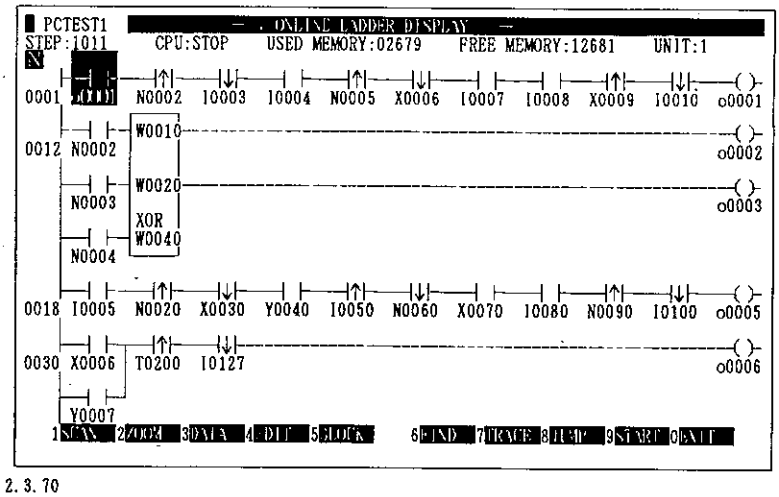
① Select "PLC Programming".

② Select "ONLINE OPERATION". Depress [↵].

③ Select "LADDER PROGRAM". Depress [↵].



2.3.69

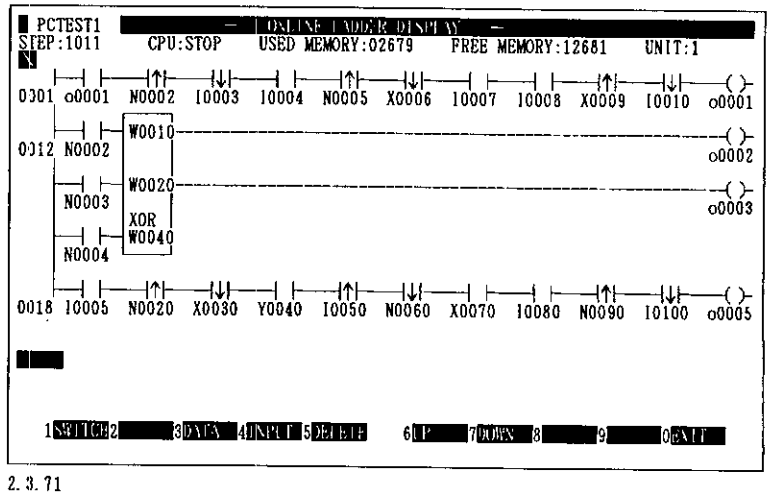


2.3.70

(2) Displaying data contents

① Depress [f3] [DATA].

② Move the cursor to the reference area.

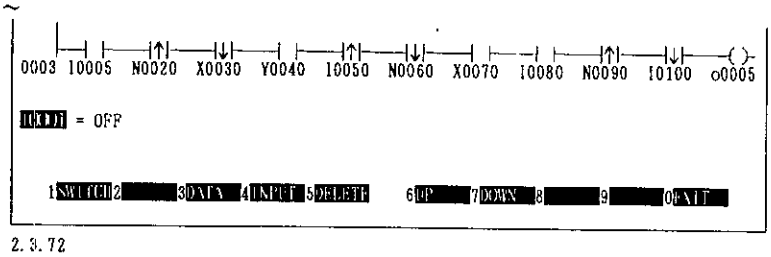


2.3.71

[Relay status display]

③ Move the cursor to the optional position. Depress [f4] [INPUT].

④ Enter the numbers.
Example : I0001
Depress [↵].

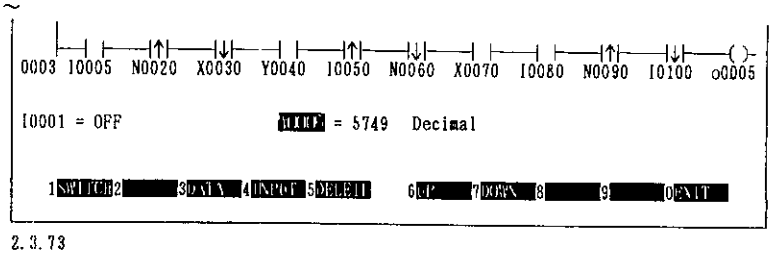


2.3.72

[Register contents display]

⑤ Move the cursor to the optional position. Depress [f4] [INPUT].

⑥ Enter the numbers.
Example : W0005
Depress [↵].



2.3.73

Switching displays

Depress [f1] [SWITCH], then depress any of the following keys as necessary.

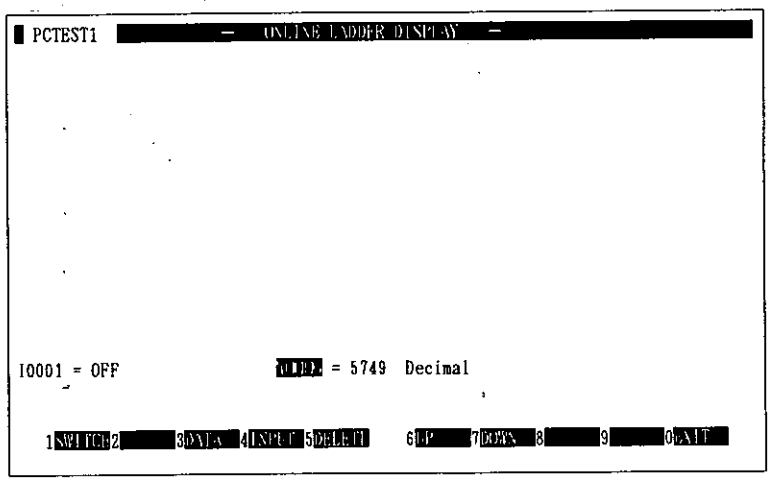
[f6] [BIN]	: Display binary indications
[f7] [DEL]	: Display decimal indications.
[f8] [SGNDEC]	: Display signed decimal indications.
[f9] [HEX]	: Display hexadecimal indications.
[f0] [ASCII]	: Display ASCII code indications.

3. HOW TO USE PLC PROGRAMMING MENUS

(3) Displaying expanded data contents

[Expansion display]

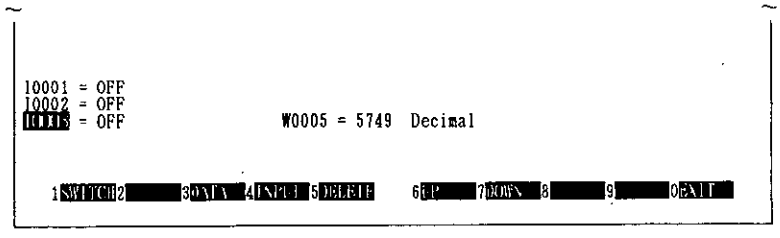
① Depress [f3] [DATA].



2.3.74

[Continuous display (increase)]

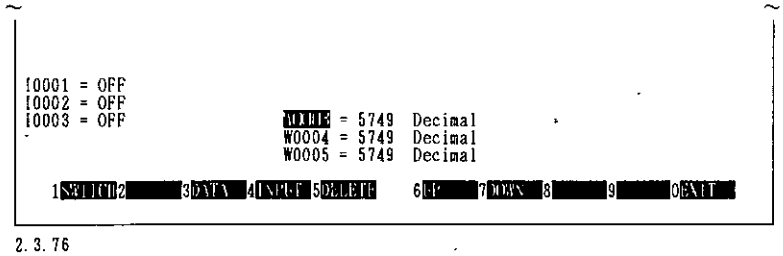
② Depress [f6] [UP].



2.3.75

[Continuous display (decrease)]

③ Depress [f7] [DOWN].



2.3.76

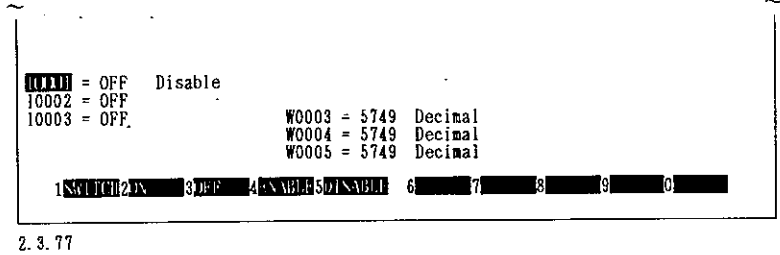
(4) Changing data contents

[Relay forced ON/OFF]

① Move the cursor to the relay.

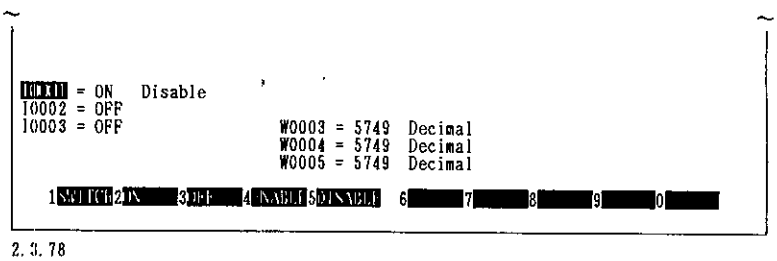
② Depress [f1] [SWITCH].

③ Depress [f5] [DISABLE].



2.3.77

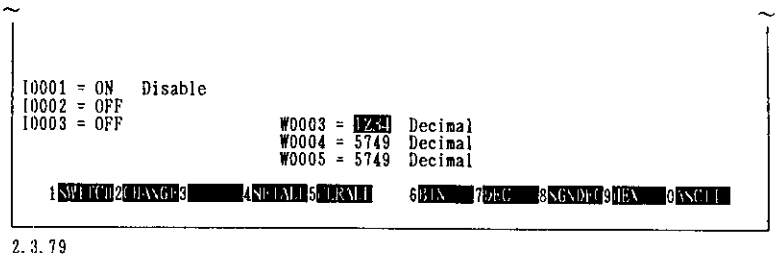
④ Depress [f2] [ON].



2.3.78

[Changing registered contents]

⑤ Move the cursor to the register.
Depress [f2] [CHANGE].



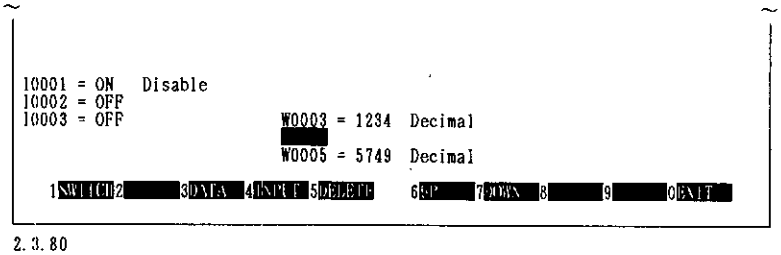
2.3.79

⑥ Enter a new data.
Depress [↵].

(5) Deleting data from the display

[Deleting 1-data]

① Move the cursor.
Depress [↵].



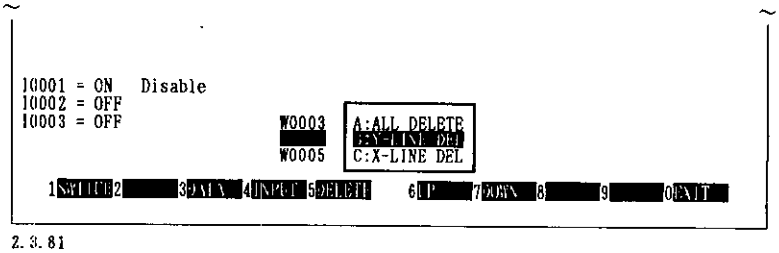
2.3.80

[Deleting multi-data]

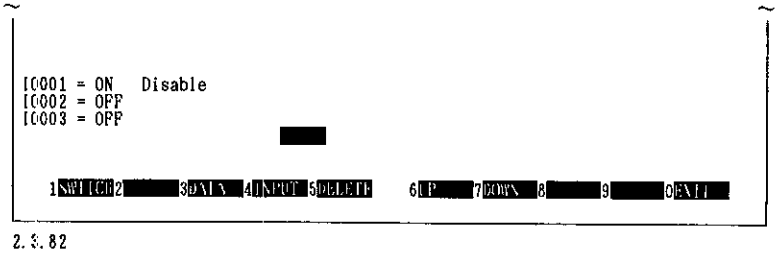
② Move the cursor.
Depress [f1] [SWITCH].

③ Depress [f5] [DELETE].

④ Select "Y-LINE DEL".
Depress [↵].



2.3.81



2.3.82

3. HOW TO USE PLC PROGRAMMING MENUS

3.8 ONLINE OPERATION 3

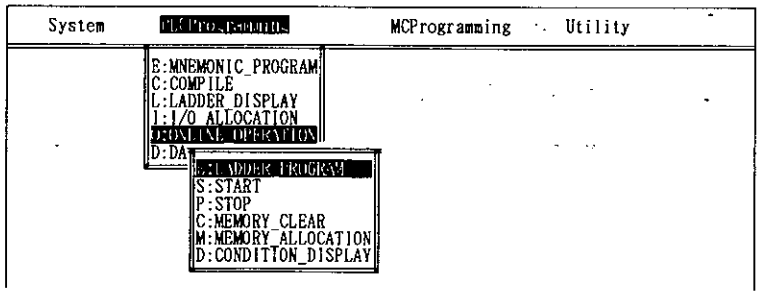
This menu supports online ladder editing and copying, deleting, and pasting circuit blocks.

(2) Editing ladder

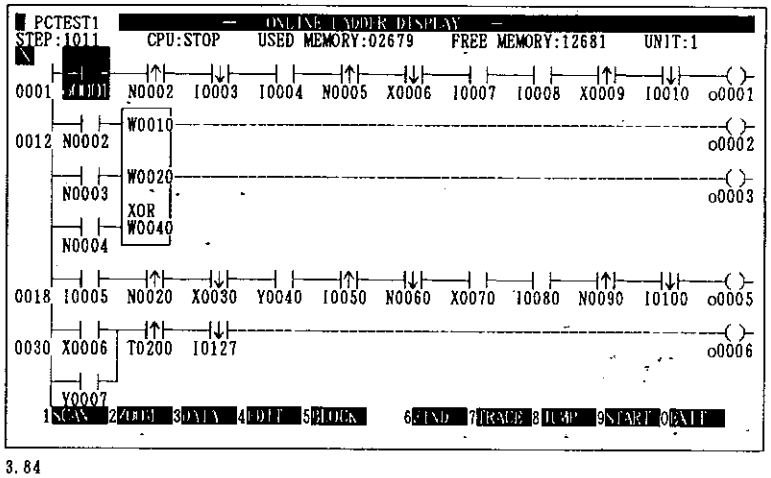
① Select "PLC Programming".

② Select "ONLINE OPERATION". Depress [↵].

③ Select "LADDER PROGRAM". Depress [↵].

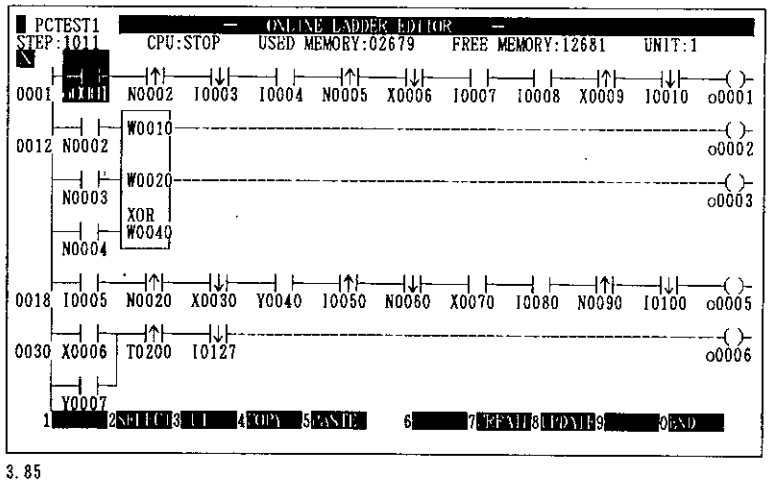


2.3.83



2.3.84

④ Depress [f4] [EDIT].



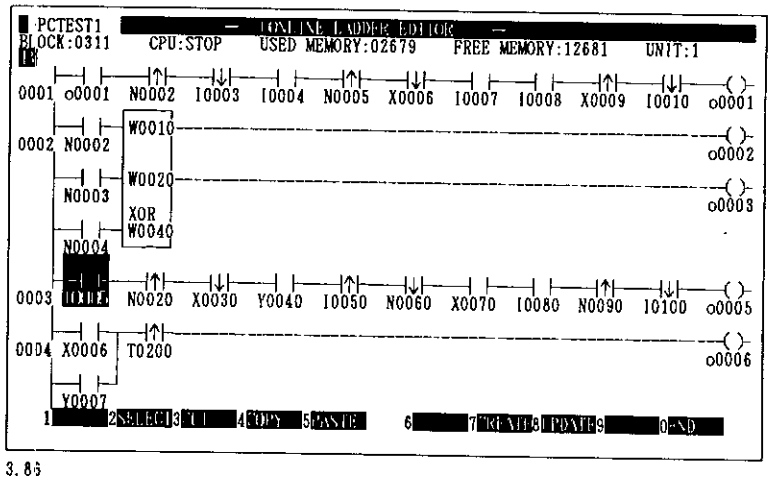
2.3.85

(2) Editing an element

[Entering an element]

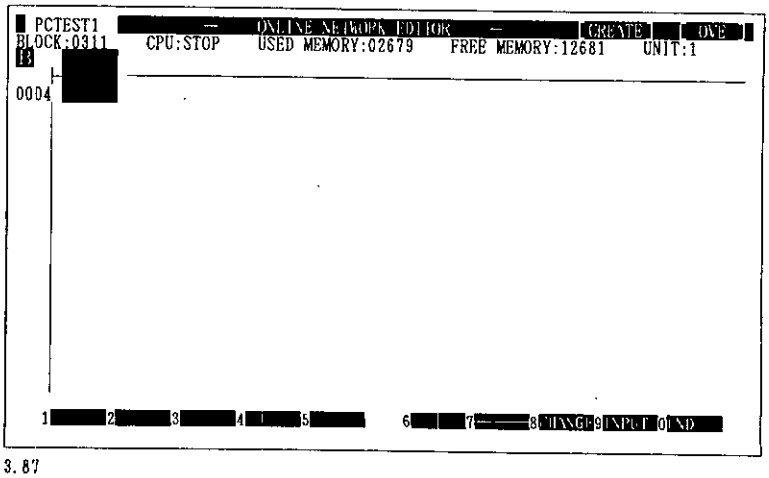
① Move the cursor.

② Depress [f7] [CREATE].



2.3.86

③ Depress [f9] [INPUT].

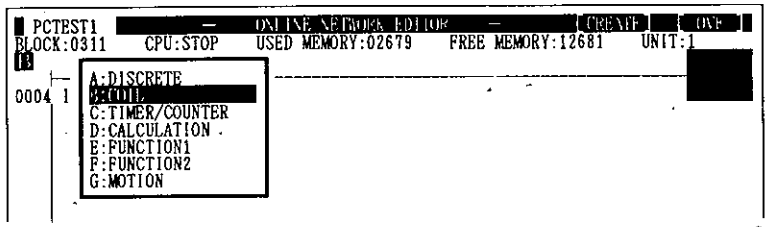


2.3.87

To add a circuit block, depress [f7] [CREATE]. To modify a circuit block, depress [f8] [UPDATE].
A horizontal line is displayed on the first line of a new circuit block. This is a dummy element.

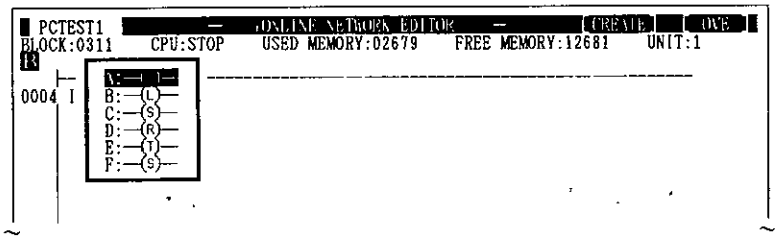
3. HOW TO USE PLC PROGRAMMING MENUS

④ Select a type to be entered. :
Depress [↵] .

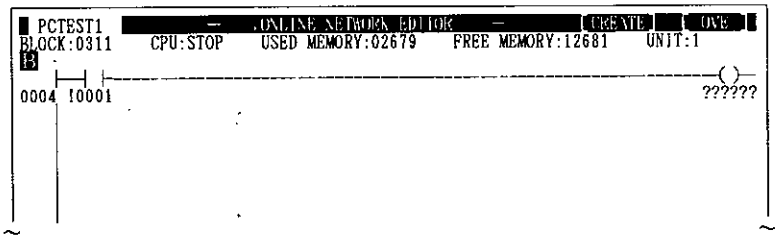


2.3.88

⑤ Select an element to be entered.
Depress [↵] .

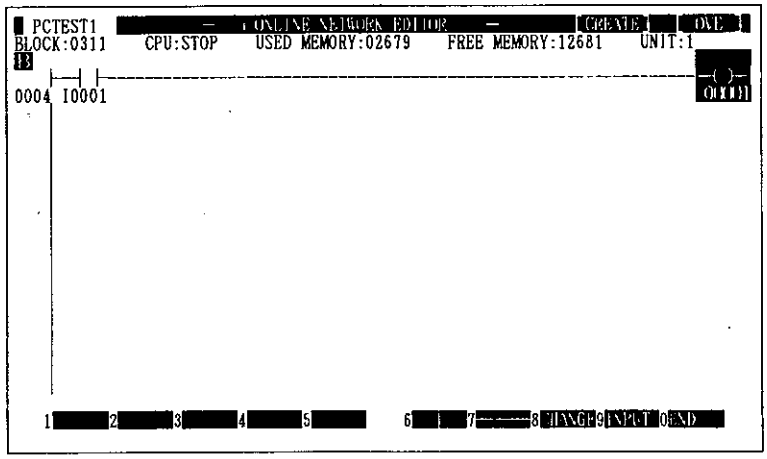


2.3.89



2.3.90

⑥ Enter the reference number.
Depress [↵] .

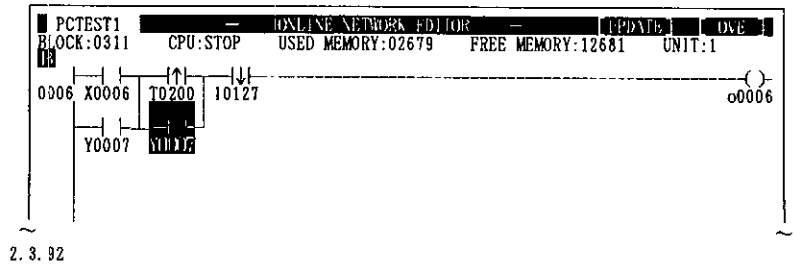


2.3.91

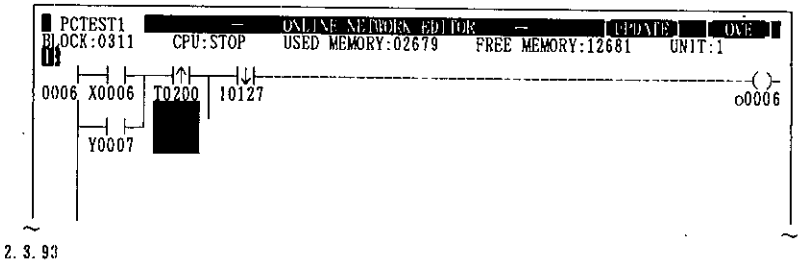
Only coils can be entered in the 11th column.
Functional elements such as double and triple elements can be entered on the 2nd column in the first line.

[Deleting an element]

① Move the cursor to the element to be deleted.

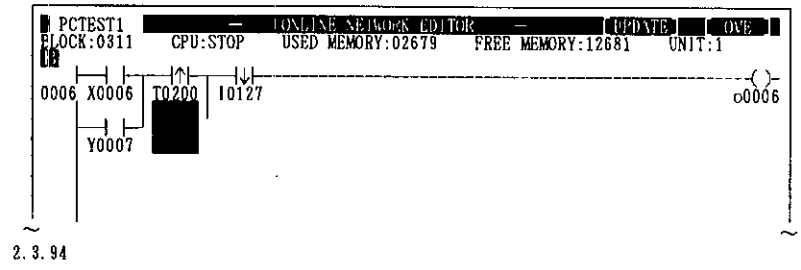


② Depress DEL .

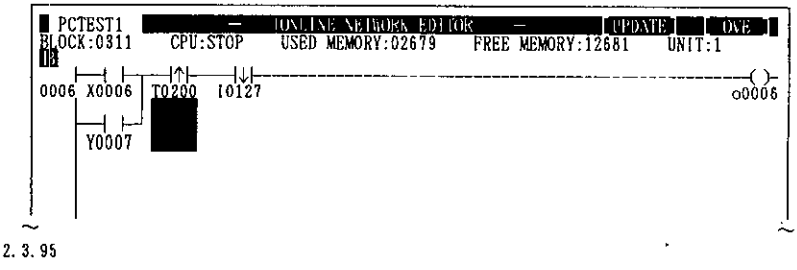


[Entering and deleting vertical shortcircuit]

① Move the cursor.



② Depress f6 .

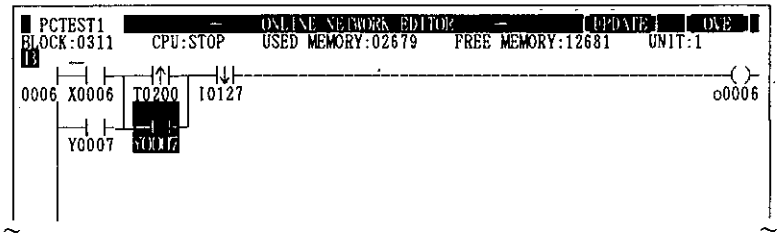


The f6 key functions that the vertical line insertion is performed if there is not an existing one, or the vertical line deletion is performed if there is.

3. HOW TO USE PLC PROGRAMMING MENUS

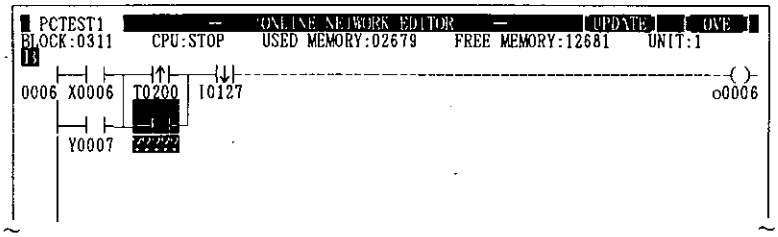
[Changing a reference number]

① Move the cursor.



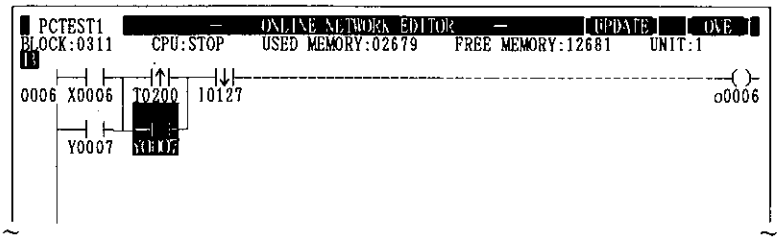
2.3.96

② Depress [f8] [CHANGE].



2.3.97

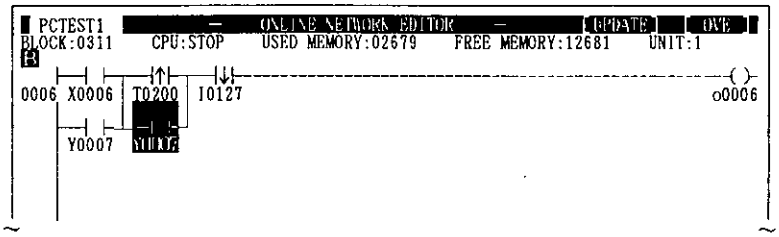
③ Enter the reference number.
Depress [↵] .



2.3.98

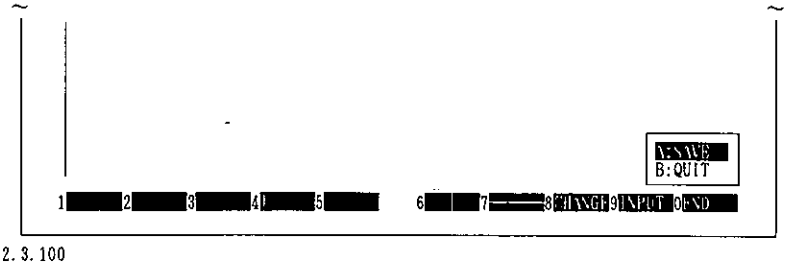
[Entering the created or modified circuit block]

① Create or modify a circuit block.



2.3.99

② Depress [f10] [END].



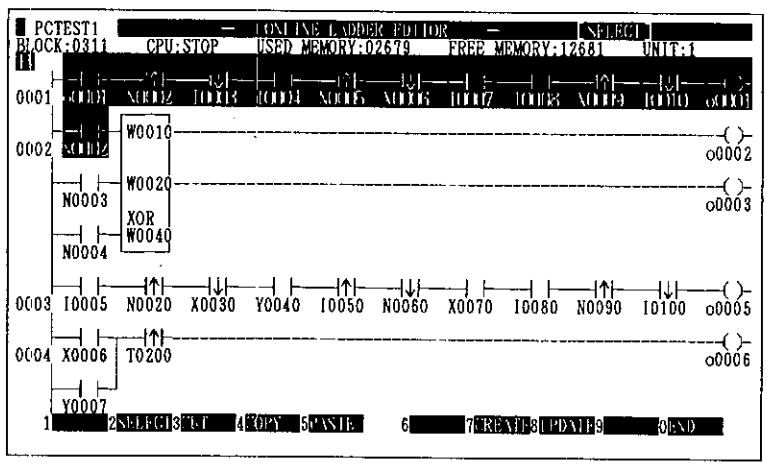
③ Select "SAVE".
Depress [↵] .

2.3.100

(2) Editing a circuit block unit

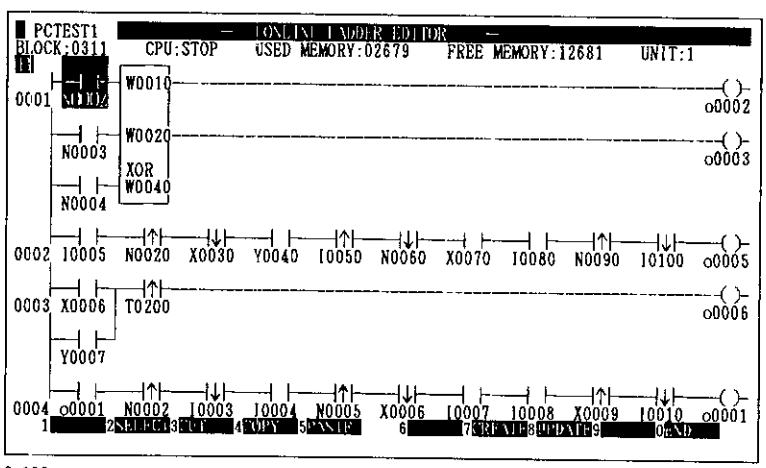
[Deleting the specified block]

① Depress [f2] [SELECT], then [↑] or [↓].



2.3.101

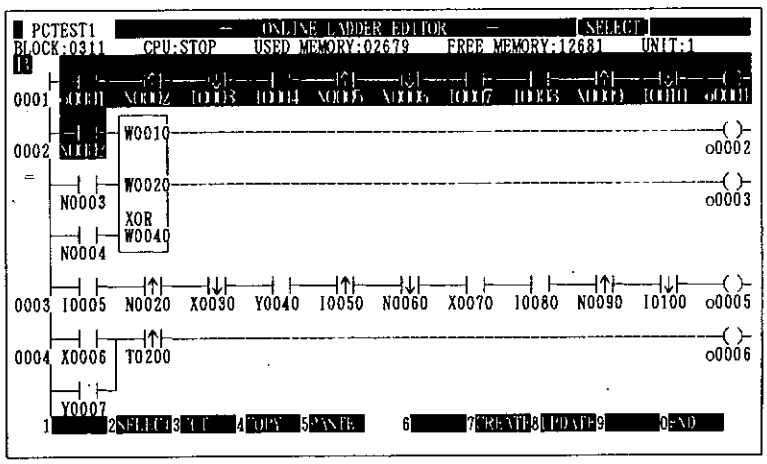
② Depress [f3] [CUT].



2.3.102

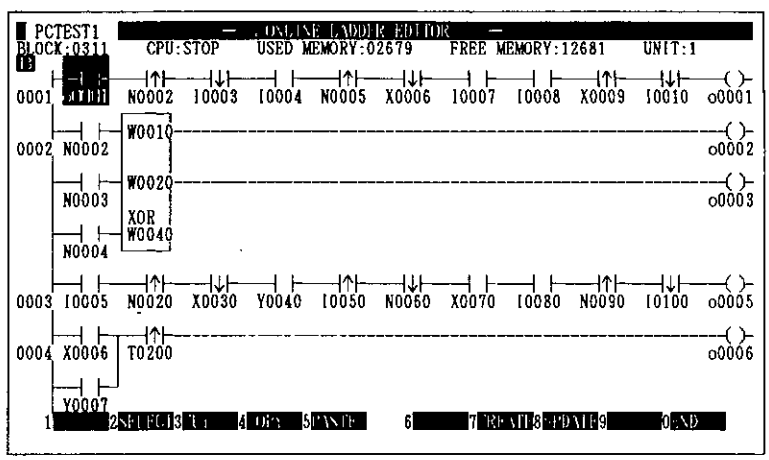
[Copying the specified block]

① Depress f2 [SELECT], then ↑ or ↓.



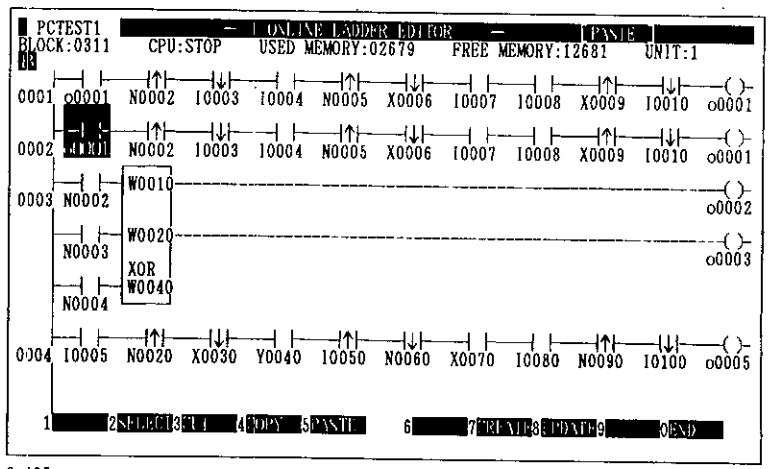
2.3.103

② Depress f4 [COPY].



2.3.104

③ Depress f5 [PASTE].

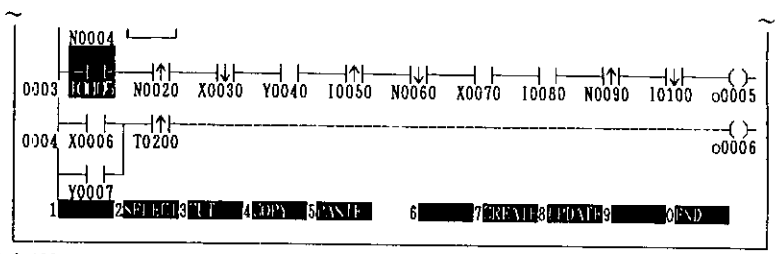


2. 3. 105

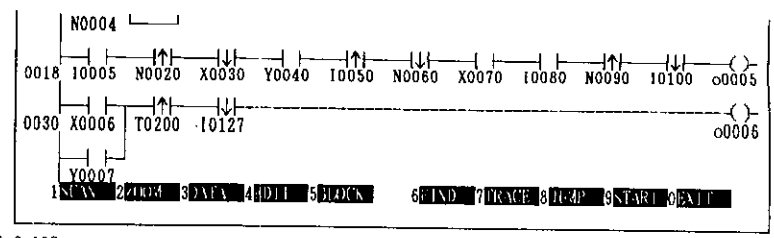
The circuit block is pasted in front of the circuit block at the cursor position. Pasted circuit block data are stored until a new area is copied or deleted or ladder editing is terminated.

[Terminating ladder editing]

① Depress f10 [END].



2. 3. 106



2. 3. 107

The display changes to the online ladder.

3. HOW TO USE PLC PROGRAMMING MENUS

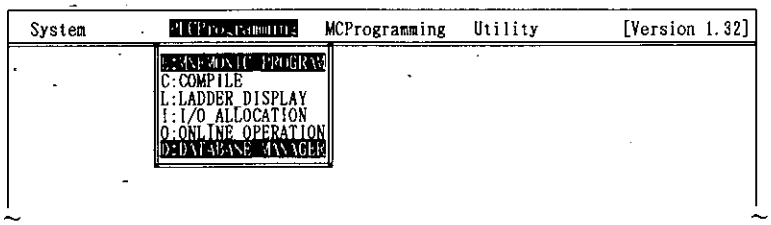
3.9 DATABASE MANAGEMENT 3

This menu saves memory contents of the PROGIC-8 to databases. All memory contents can be saved in a batch or only necessary memory contents can be saved selectively.

(1) Saving to databases (in a batch)

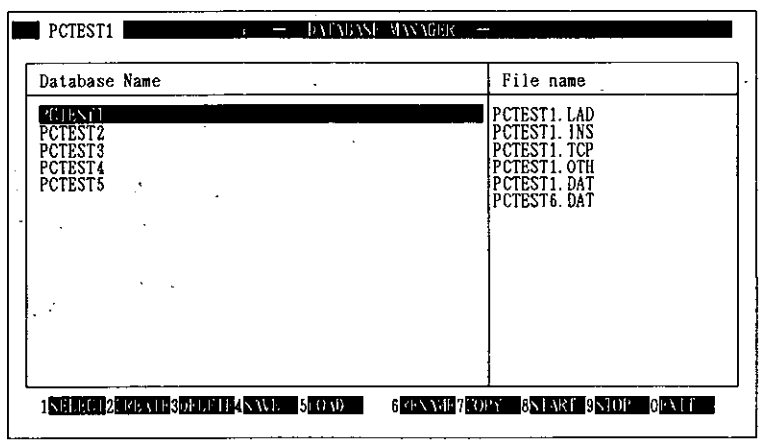
① Select "PLC Programming".

② Select "DATABASE MANAGER".
Depress [↵].



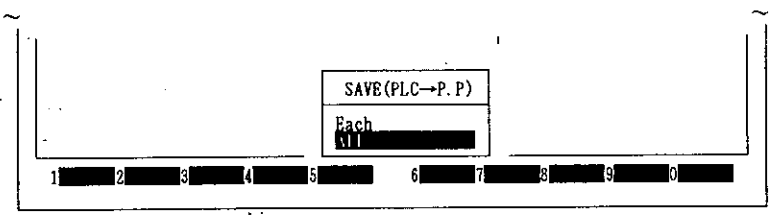
2.3.108

③ Depress [f4] [SAVE].



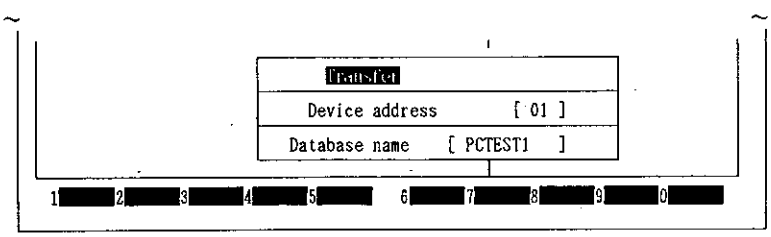
2.3.109

④ Select "All".
Depress [↵].



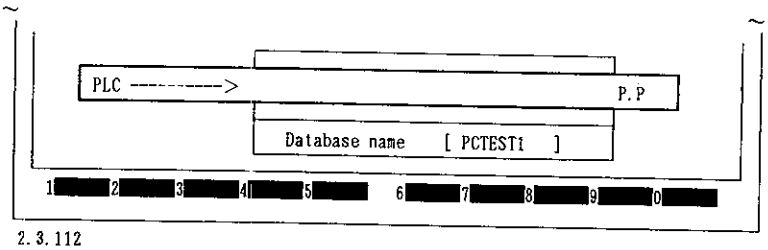
2.3.110

⑤ Select "Transfer".
Depress [↵].



2.3.111

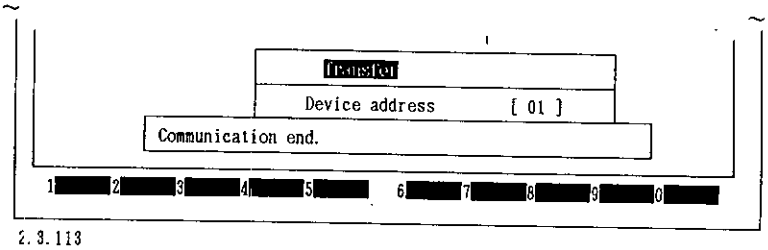
⑥ Depress [↵].



2.3.112

⑦ After completing the transfer, depress [↵].

⑧ Depress [f10] [EXIT]. The preceding menu display appears.



2.3.113

3. HOW TO USE PLC PROGRAMMING MENUS

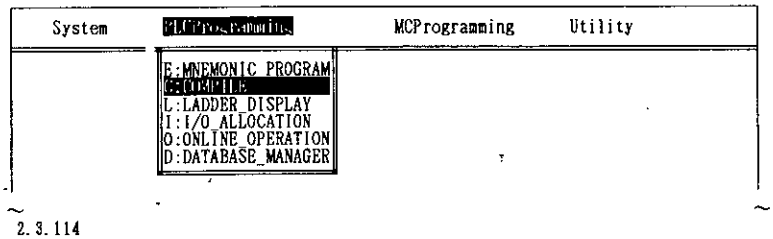
3.10 REVERSE COMPILATION

This menu converts a ladder program into a mnemonic program. Reverse compilation can be carried out only when the file name is similar to that of the selected database ; such as "database-name.LAD."

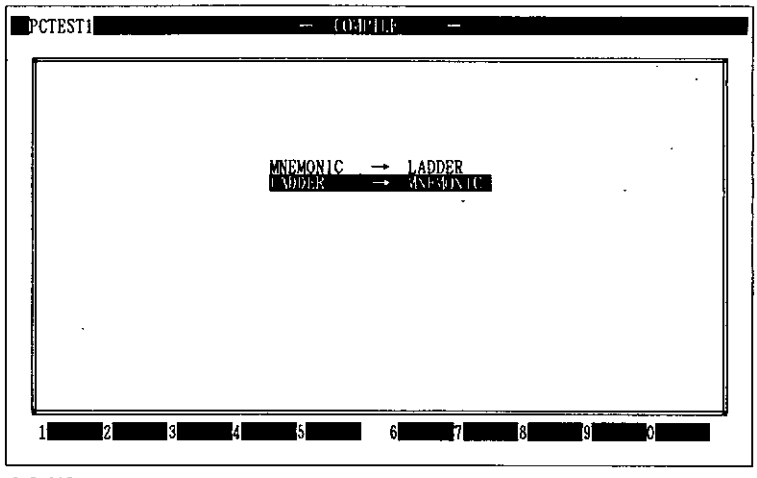
(1) Converting a ladder program into a mnemonic program

① Select "PLC Programming".

② Select "COMPILE".
Depress [↵].



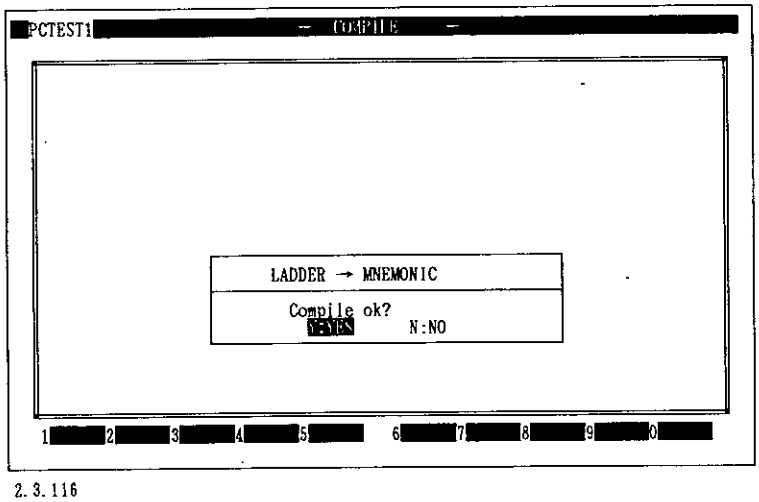
2.3.114



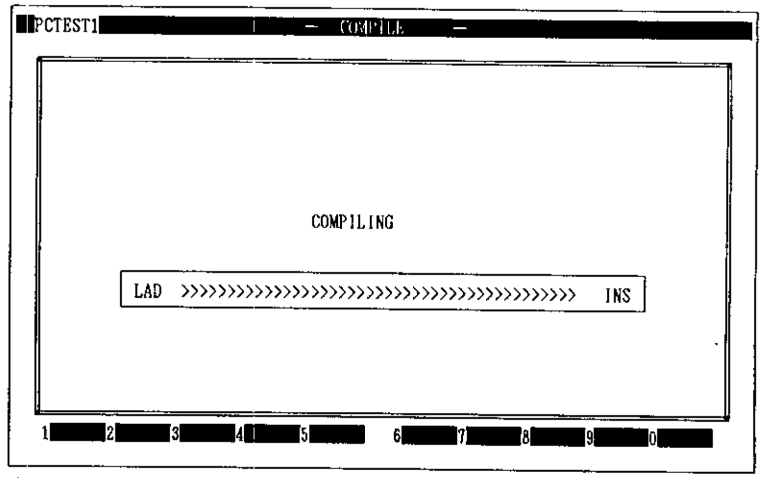
2.3.115

③ Select "LADDER → MNEMONIC".
Depress [↵].

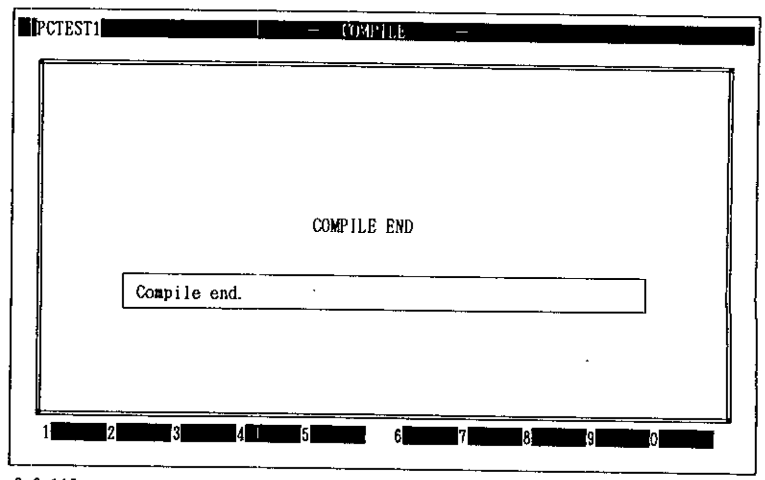
④ Select "YES".
Depress [↵].



2.3.116



2.3.117



2.3.118

⑤ Depress [↵].
The preceding menu display appears.

4. HOW TO USE MC PROGRAMMING MENUS

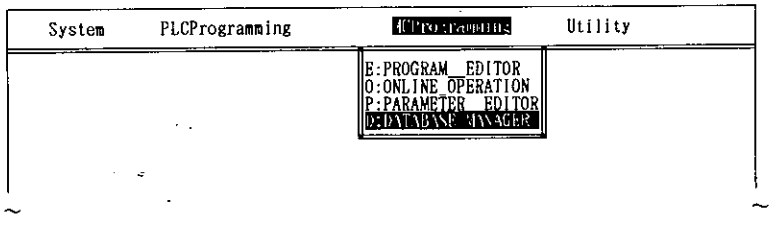
4.1 DATABASE MANAGEMENT 1

In order to use the MC programming menus, databases must be prepared and selected in advance. All menus are executed using the database.

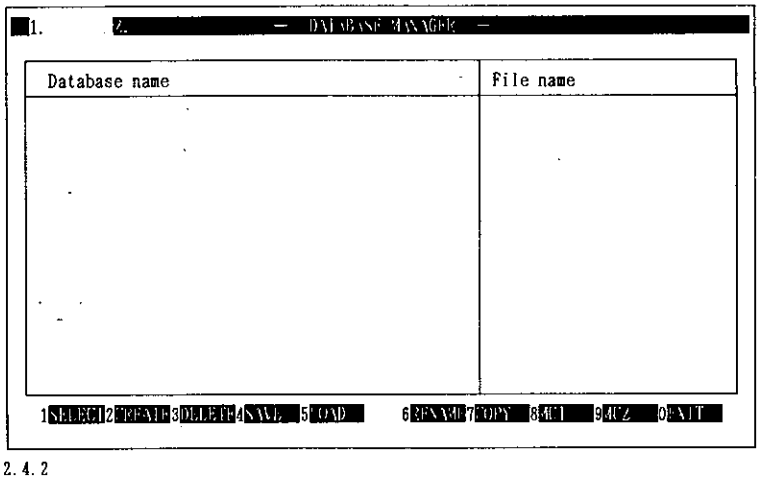
(1) Creating databases

① Select "MC Programming".

② Select "DATABASE MANAGER". Depress [↵].

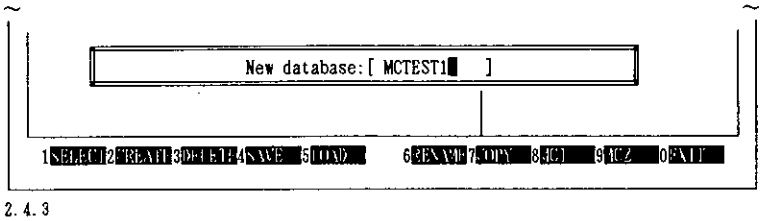


2.4.1



2.4.2

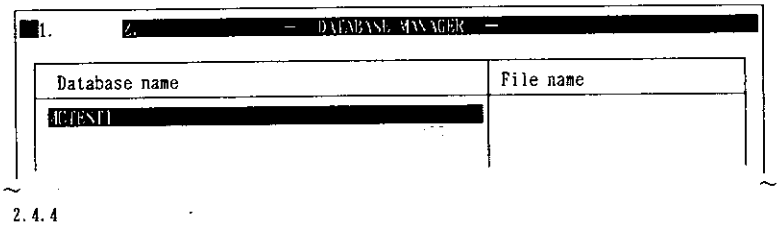
③ Depress [f2] [CREATE]. Enter the database name.



2.4.3

Up to eight half-size characters can be entered.

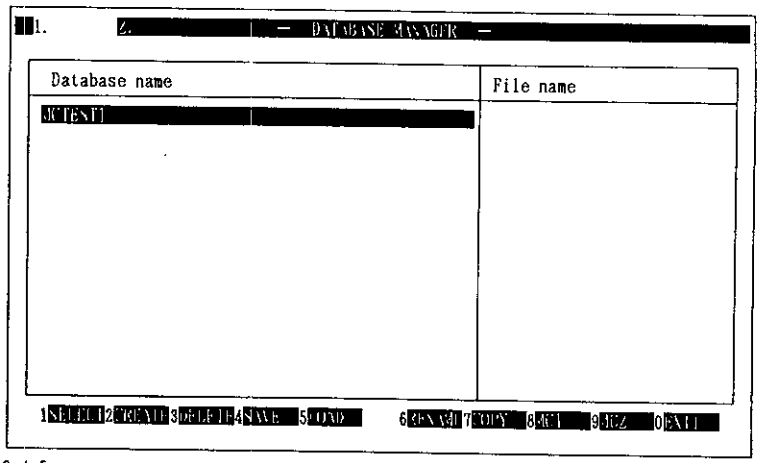
④ Depress [↵].



2.4.4

(2) Selecting databases

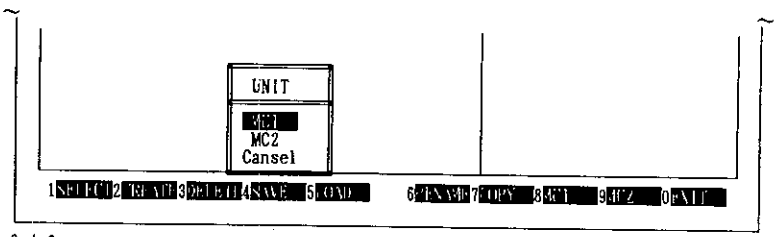
① Select "Database name".



2.4.5

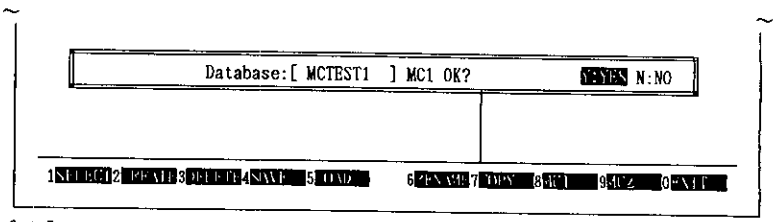
② Depress [f1] [SELECT].

③ Select "UNIT".
Depress [↵].

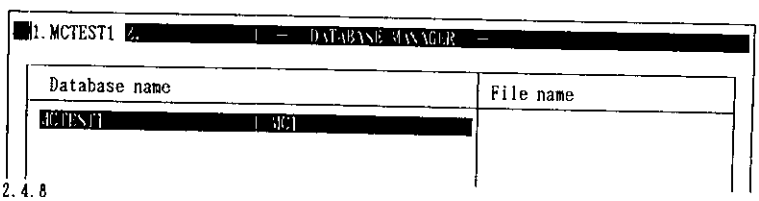


2.4.6

④ Select "YES".
Depress [↵].



2.4.7



2.4.8

Notes :
Contents of a database specified for MC1 can be uploaded to MC unit 1 only, and downloaded data from MC unit 1 are stored in databases specified for MC1. There is similar correspondence between MC unit2 and the databases specified for MC2.
If a menu is started without selecting a database, an error message appears.

4. HOW TO USE MC PROGRAMMING MENUS

4.2 MC PROGRAM

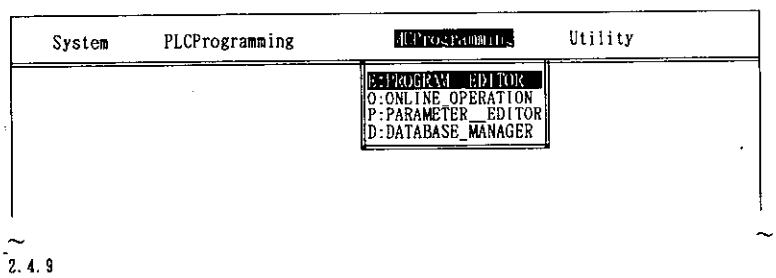
This section explains how to edit motion programs. Motion programs are numbered with O-numbers. One program consists of more than one block, each of which represents a single motion. Up to 99 programs can be created, provided that the total capacity of the programs is 60000 characters or less. Use Nxxx for labeling jump destinations if necessary.

```
001    ;
N001   MOV  X100.0  Y200.0 ;
       MVS  X150.0  Z100.0  F100.0 ;
       END ;
002    ;
       MOV  X100.0  Y200.0 ;
       END ;
```

(1) Creating a MC Program

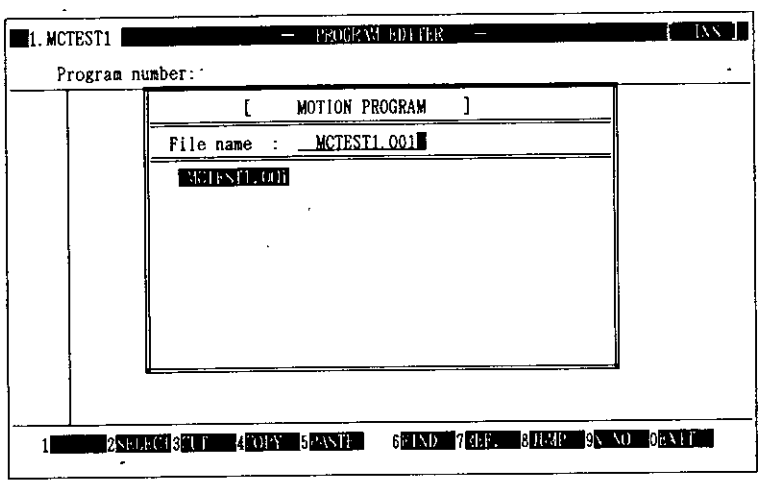
① Select "MC Programming".

② Select "PROGRAM EDITOR".
Depress [↵].



2.4.9

③ Enter the file name.
Depress [↵].



2.4.10

Up to eight half-size characters can be entered. To modify an existing program, select the file from the file list.

④ Enter the comment.
Depress [↵] .
(Example :
"MCTEST" [↵])

2. 4. 11

Up to 32 half-size characters can be entered.

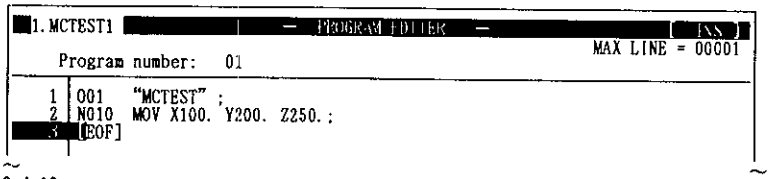
[Entering N number]

⑤ Depress [↵] .
Enter an N number.

2. 4. 12

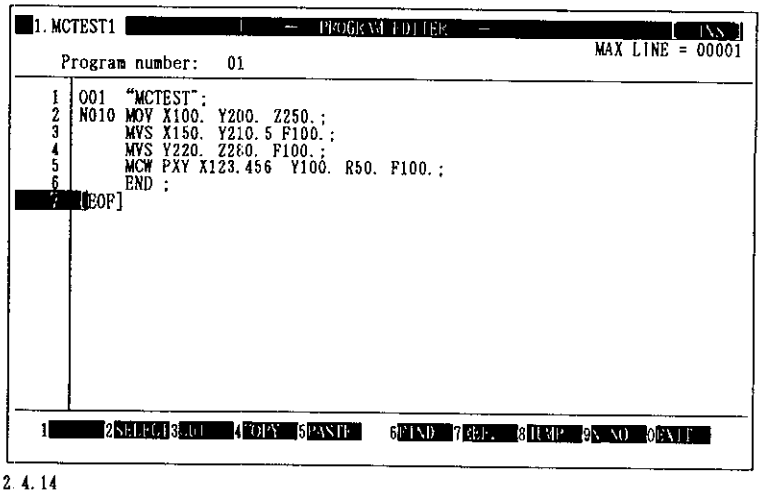
[Entering motion program]

⑥ Enter a motion program.
Depress [↵] .



2. 4. 13

⑦ Enter the optional program
by this procedure.

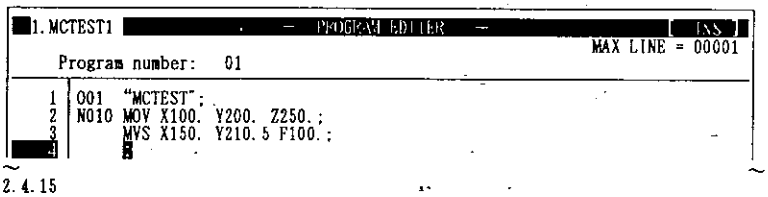


2. 4. 14

(2) Changing a motion program

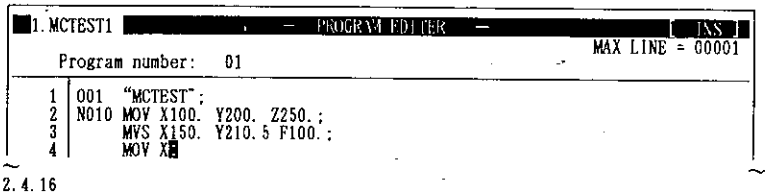
[Insert] mode

① Move the cursor to the line to be inserted.
Depress [↵].



2.4.15

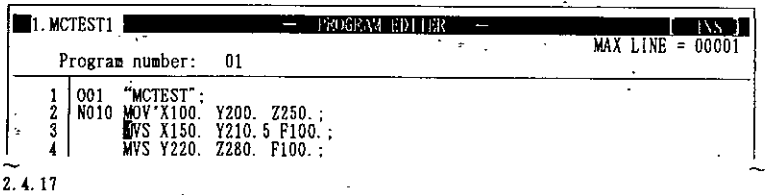
② Add the motion program.
Depress [↵].



2.4.16

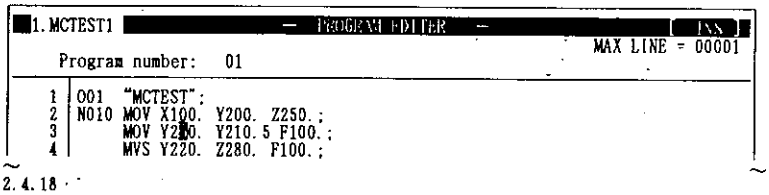
[Overwrite] mode

③ Depress [INS] to change to the overwrite mode.



2.4.17

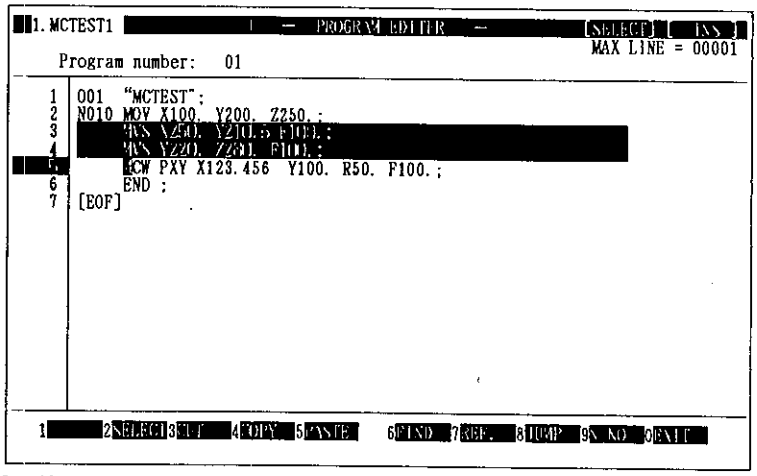
④ Move the cursor to the line to be overwritten.
Change the motion.
Depress [↵].



2.4.18

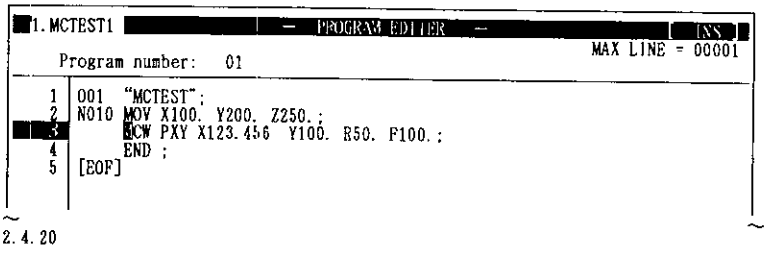
(3) Deleting a motion program

① Move the cursor to the line to be deleted.
Depress [f2] [SELECT] to set the deleting block.



2.4.19

② Depress [f3] [CUT].

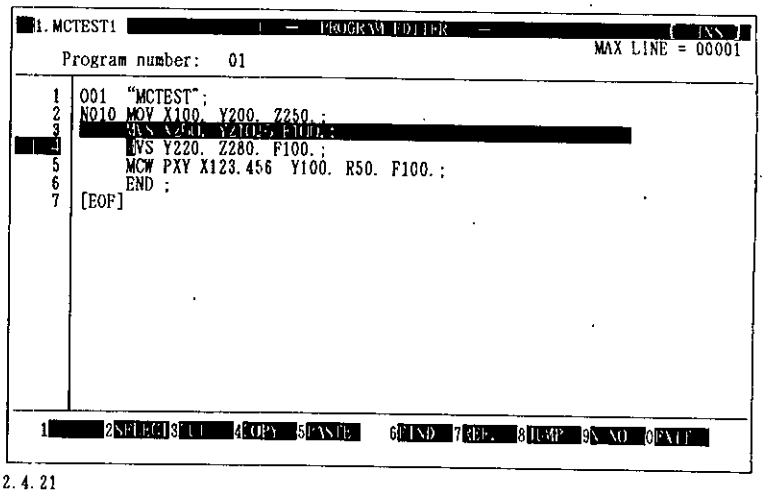


2.4.20

To recover the deleted program, depress [f5] [PASTE].
To delete a single line, depress [f3] [CUT].

(4) Copying a motion program

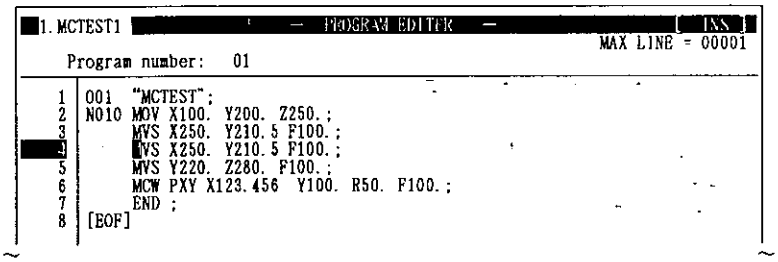
① Move the cursor to the line to be copied.
Depress [f2] [SELECT] to set the copying block and [f4] [COPY].



2.4.21

4. HOW TO USE MC PROGRAMMING MENUS

② Move the cursor to the line to be copied.
Depress [f5] [PASTE].

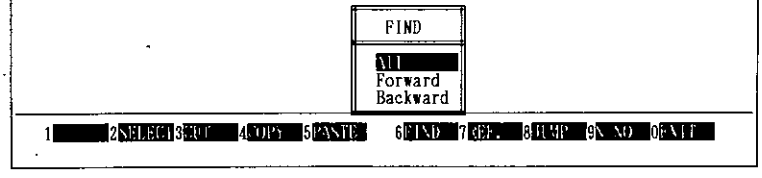


2.4.22

(5) Searching for a motion program

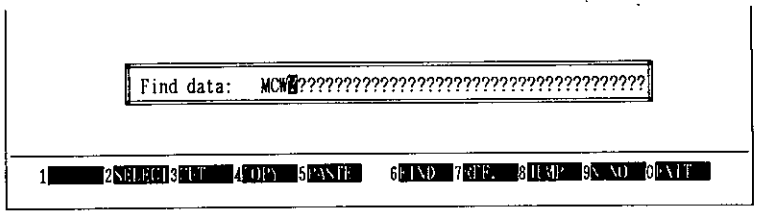
① Depress [f6] [FIND].

② Select the direction for search.
Depress [↵].



2.4.23

③ Enter the searching data.
Depress [↵].

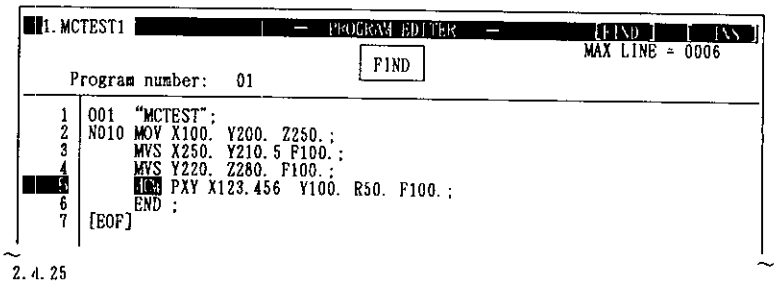


2.4.24

Retrieval menus

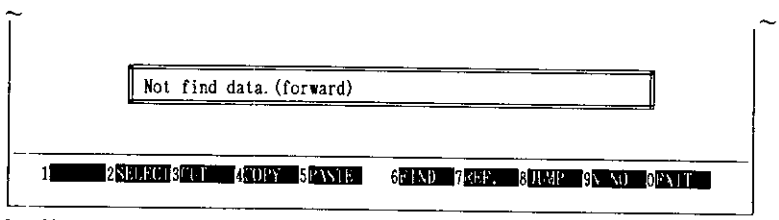
1. All : Search entire program; from the beginning to the end regardless of the cursor location.
2. Forward : Search from the cursor location to the end of the program.
3. Reverse : Search from the cursor location back to the beginning of the program.

④ To continue retrieval, depress [f6] [FIND].



2.4.25

⑤ The message appears if the data searched for were not found.



2.4.26

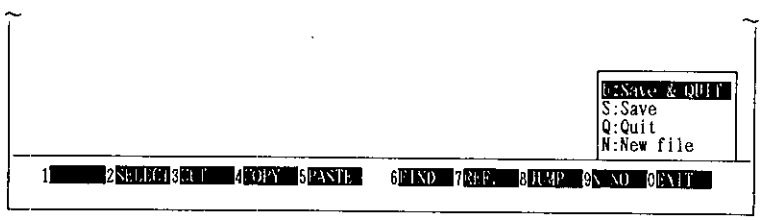
After the message is displayed, depress [f6] [FIND] or [↵] to move the cursor to the place where it was when the retrieval was started.
To terminate retrieval (leaving the cursor at the current position,) depress [ESC].

(6) Terminating motion program editing

Save the created motion program, then terminate the edition.

① Depress [f10] [EXIT].

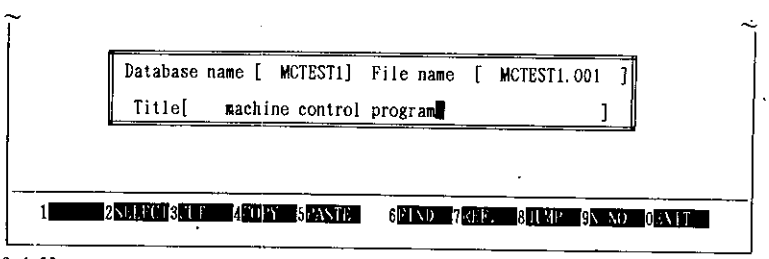
② Select "Save & Quit". Depress [↵].



2.4.27

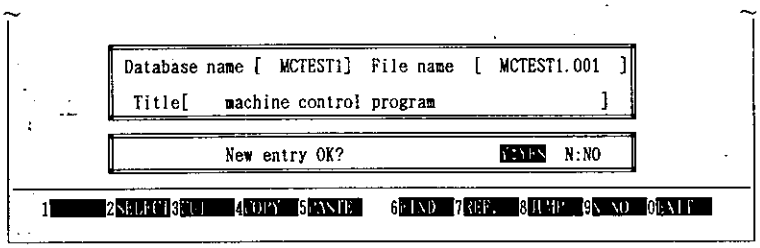
To disgard the edited program, select "QUIT".

③ Move the cursor to the title area and enter the title. Depress [↵].



2.4.28

④ Select "YES".
Depress [↵].



2.4.29

Termination menus

1. Save & Quit : Save the file and return to the main menu.
2. Save : Save the file and continue editing.
3. Quit : Discard the file and return to the main menu.
4. New file : Read another file.

Note : To save and terminate after creating a new program, add the program number as the extender (such as "O01") after the file name.

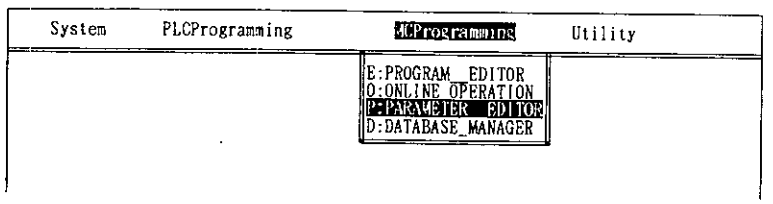
4.3 PARAMETER EDITING

This menu changes settings in a parameter table for motion programs. There are parameter tables for common axes and for individual motor axes from 1 to 4.

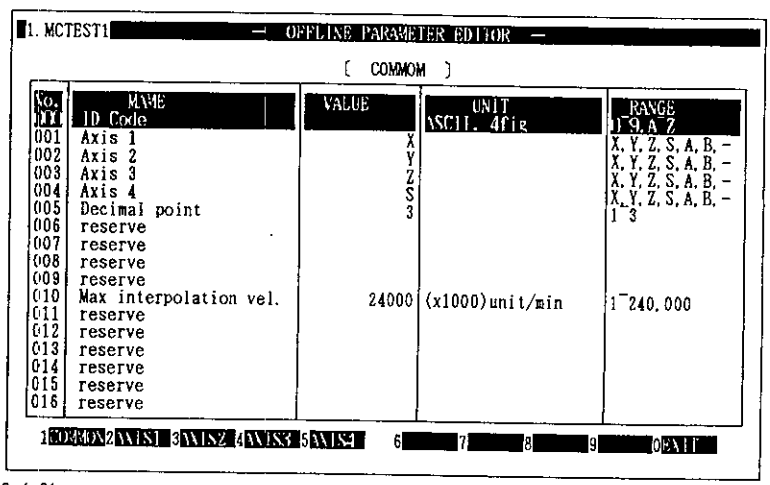
(1) Changing parameters

① Select "MC Programming".

② Select "PARAMETER EDITOR". Depress [↵].



2.4.30



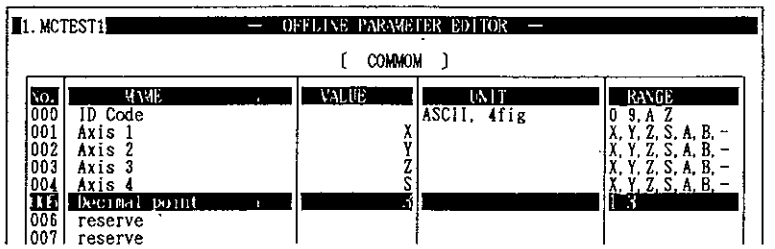
2.4.31

[Modify]

① Move the cursor to the line to be changed. Depress [↵].

② Enter the setting value Depress [↵].

③ Change the parameter by this procedure.



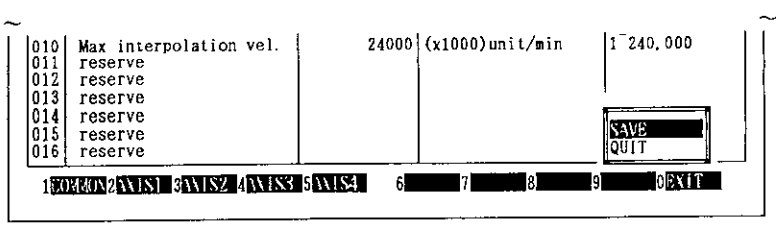
2.4.32

Notes : To change parameters for individual axes, depress [f2] [AXIS 1], [f3] [AXIS 2], [f4] [AXIS 3], and [f5] [AXIS 4].
To change common parameters for the axes, depress [f1] [COMMON].

(2) Terminating parameter editing

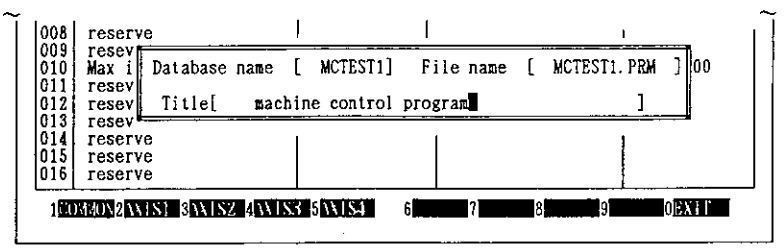
① Depress [f10] [EXIT].

② Select "SAVE". Depress [↵].



2.4.33

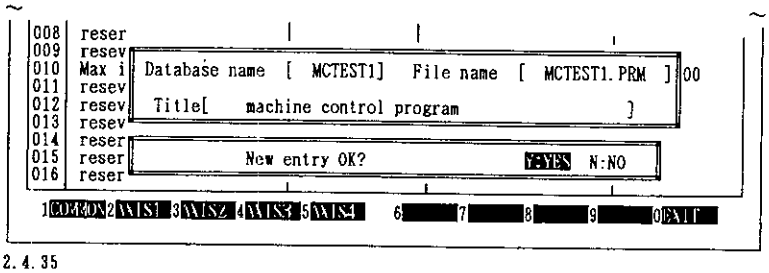
③ Move the cursor to the title area and enter the title. Depress [↵].



2.4.34

Up to 40 half-size characters can be entered.

④ Select "YES".
Depress [↵].



2.4.35

Note : If "Save & Quit" is selected, the parameters are stored in a file having the same name as the database name with extender "PRM" added.

4. HOW TO USE MC PROGRAMMING MENUS

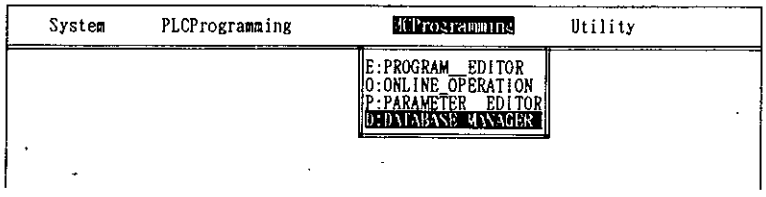
4.4 DATABASE MANAGEMENT 2

Created programs must be loaded to the PROGIC-8. To load programs, all files can be transferred in a batch, or only necessary files can be transferred selectively.

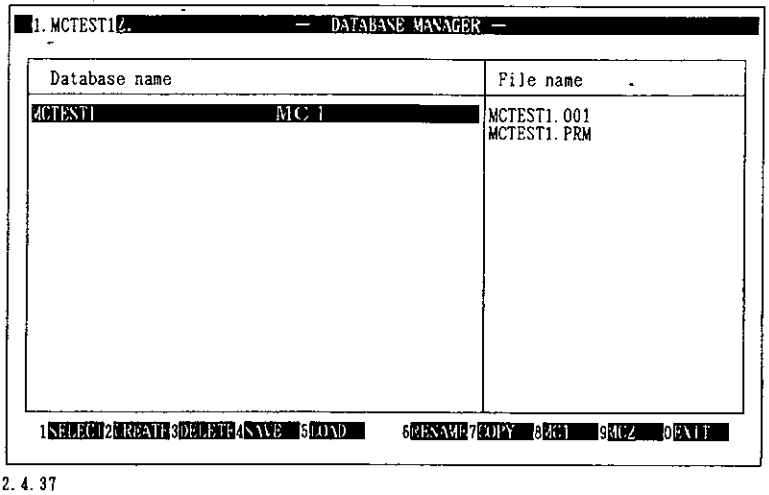
(1) Loading to MC unit (in a batch)

① Select "MC Programming".

② Select "DATABASE MANAGER". Depress [↵].



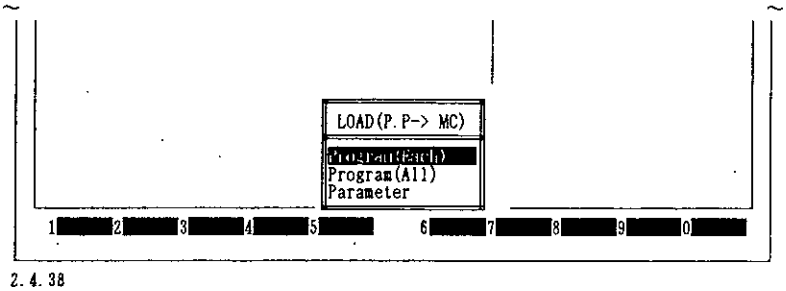
2.4.36



2.4.37

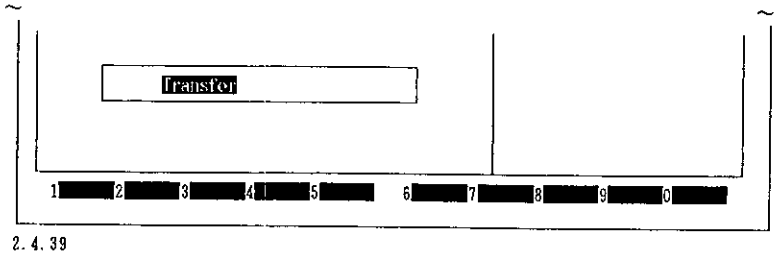
③ Depress [f5] [LOAD].

④ Select "Program (A11)". Depress [↵].



2.4.38

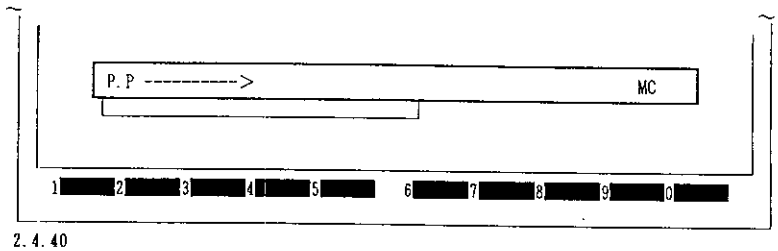
⑤ Select "Transfer".
Depress [↵].



2. 4. 39

⑥ After completing the transfer,
Depress [↵].

⑦ Depress [f10] [EXIT].
The preceding menu display appears.



2. 4. 40

Note : If transmission of data of 60K bytes or greater is attempted, an error occurs. A program over 60K bytes cannot be loaded.
Because individual programs are loaded separately, programs that have been sent before the error occurs are loaded successfully.

4. HOW TO USE MC PROGRAMMING MENUS

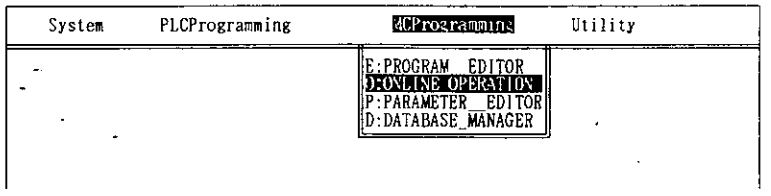
4.5 ONLINE PROGRAM EDITING

During online editing, position data can be taught using actual positions of motor axes. Current positions and status of MC unit coils, relays, and external inputs and outputs can be displayed. To use this menu, connect the personal computer to the PROGIC-8.

(1) Editing a program

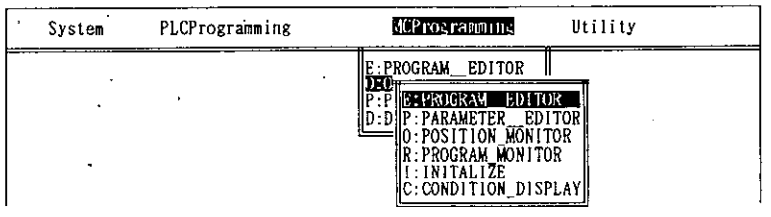
① Select "MC Programming".

② Select "ONLINE OPERATION".
Depress [↵].



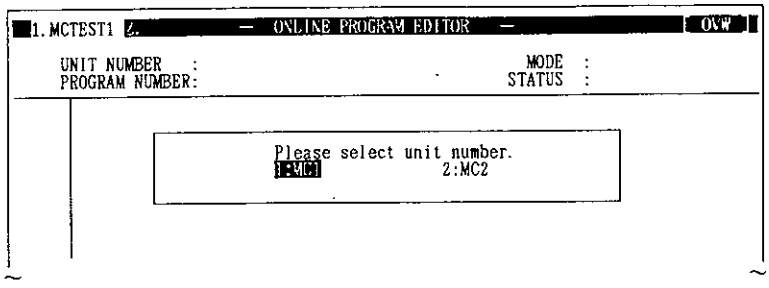
2.4.41

③ Select "PROGRAM EDITOR".
Depress [↵].



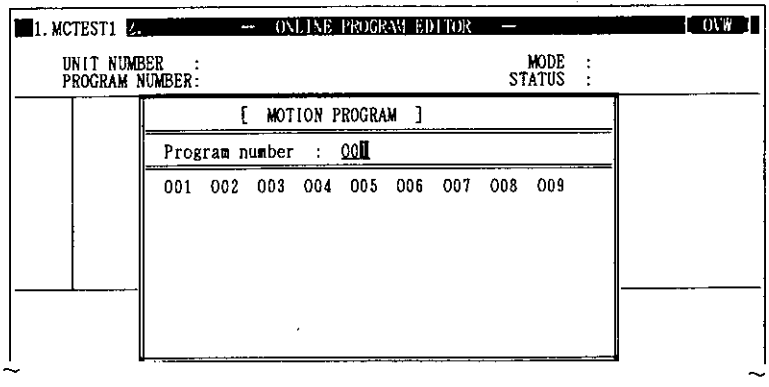
2.4.42

④ Select "UNIT NUMBER".
Depress [↵].



2.4.43

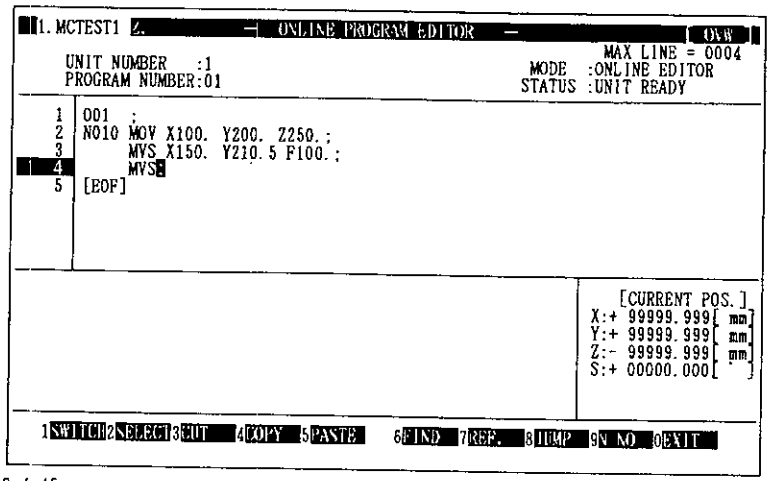
⑤ Enter the file number.
Depress [↵].



2.4.44

To edit an existing program, select the file from the file list.

⑥ Enter the N number if necessary, then enter a command.



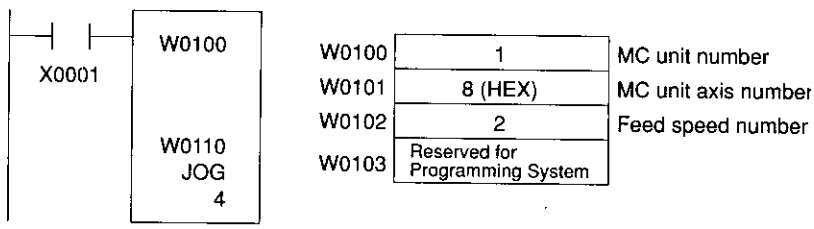
2.4.45

Use f9 [N-NO] to modify a series of N numbers.

(2) Performing jogging

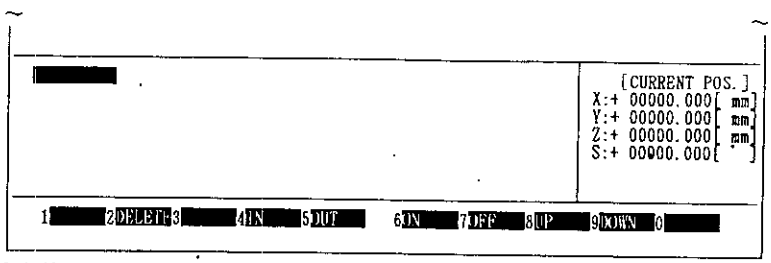
Perform jogging by turning the MC relay ON and OFF. The PLC sequence program must be prepared so that it is started by the MC relay.

Example : Turn axis 4 of MC unit 1 in the forward rotation direction by jogging.



① Depress HOME.

The cursor moves to the I/O area.



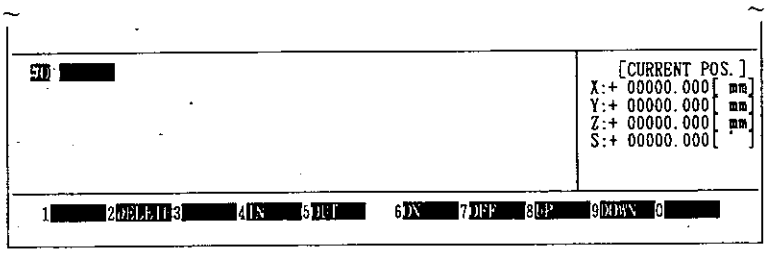
2.4.46

Use HOME to move the cursor between the reference area and the program area.

4. HOW TO USE MC PROGRAMMING MENUS

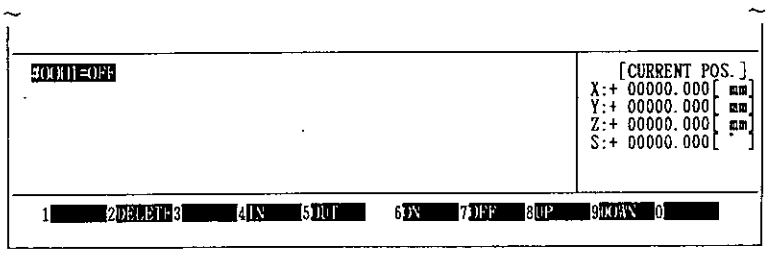
[OUT status change]

② Move the cursor to the optional position.
Depress [f5] [OUT].



2.4.47

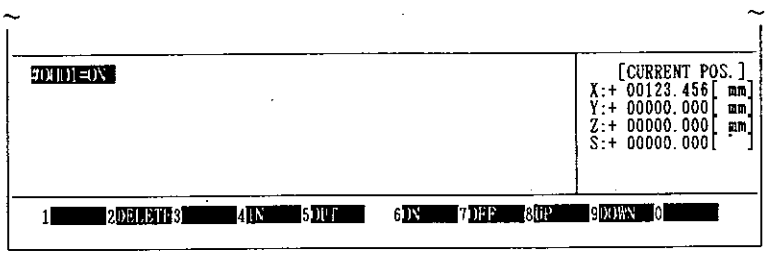
③ Enter the number.
Depress [↵].



2.4.48

[Starting jogging]

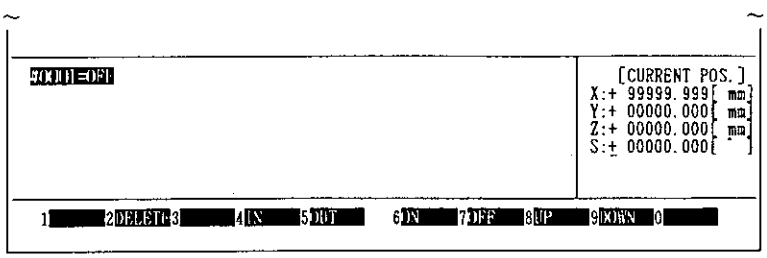
④ Depress [f6] [ON].



2.4.49

[Stopping jogging]

③ Depress [f7] [OFF].

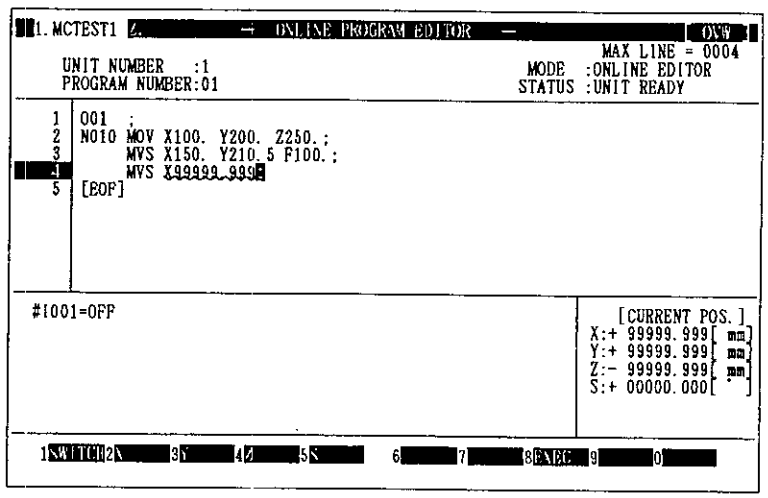


2.4.50

Note : IN Status can be displayed but cannot be modified.

(3) Teaching the current position

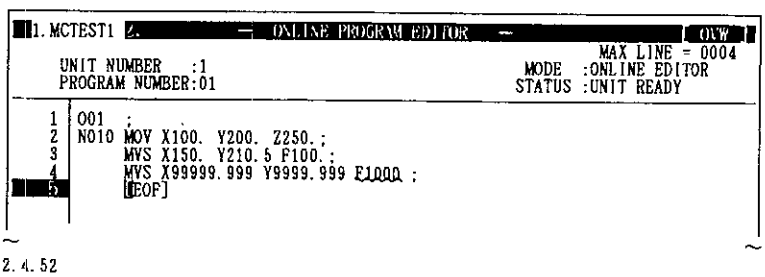
① Depress f1 [SWITCH] and f2 [X].



2.4.51

The current value is set on the program by depressing f2 [X].

② Enter the moving speed.
Depress ↵.



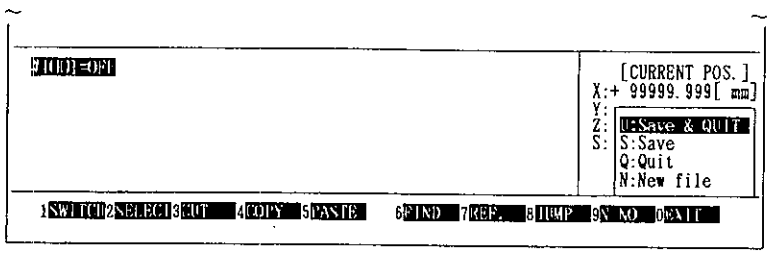
2.4.52

(4) Terminating online program editing

After storing the created motion program, terminate editing.

① Depress f10 [EXIT].

② Select "Save & Quit".
Depress ↵.

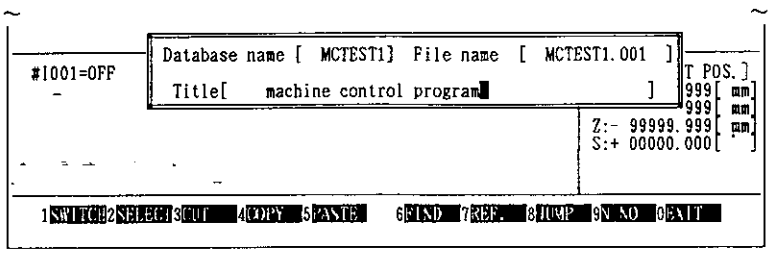


2.4.53

To discard the edited program, select "QUIT".

4. HOW TO USE MC PROGRAMMING MENUS

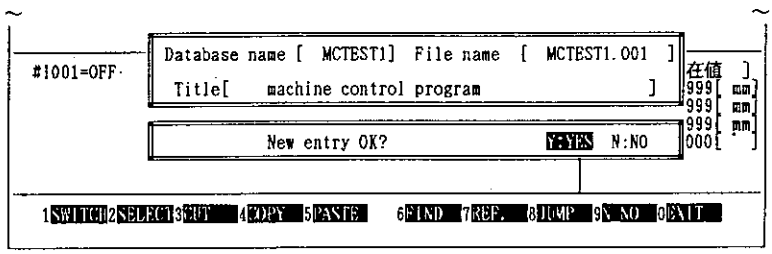
③ Move the cursor to the title area and enter the title. Depress [↵].



2.4.54

Up to 40 half-size characters can be entered.

④ Select "YES". Depress [↵].



2.4.55

Notes : Each time [↵] is depressed, the program is written to the MC unit block - by - block. Even though "QUIT" is selected, the program is written to the MC unit. To perform jogging, the sequence (ladder) program must be prepared in advance.

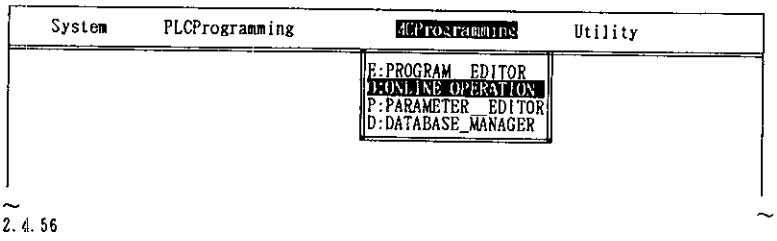
4.6 POSITION MONITOR

This menu displays the current position of the motor axes connected to MC units 1 and 2. Display of both units or only one unit can be selected. Monitor speed is improved when display of only one unit is selected.

(1) Displaying position data of both units

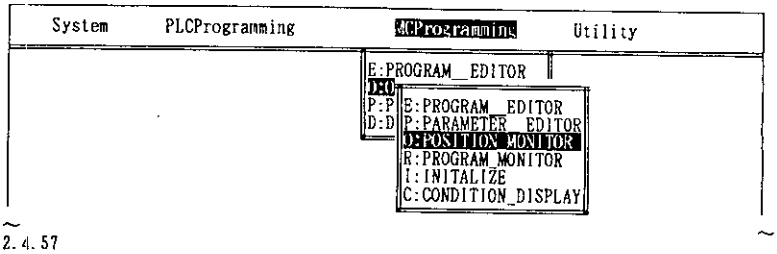
① Select "MC Programming".

② Select "ONLINE OPERATION". Depress [↵].

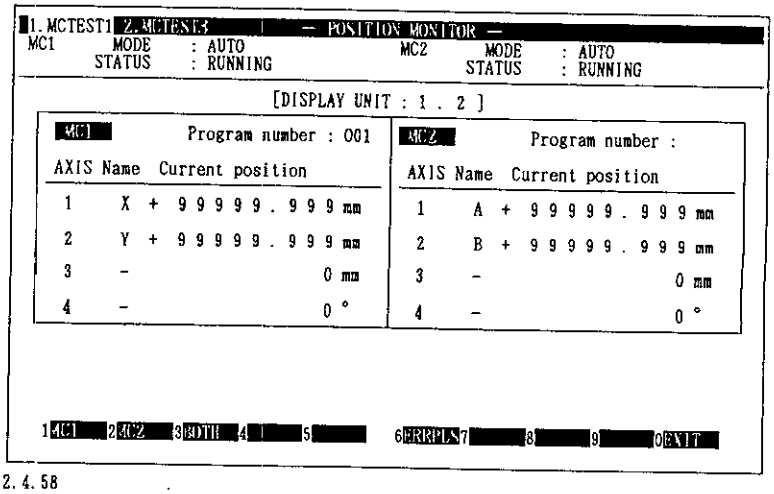


2.4.56

③ Select "POSITION MONITOR". Depress [↵].



2.4.57

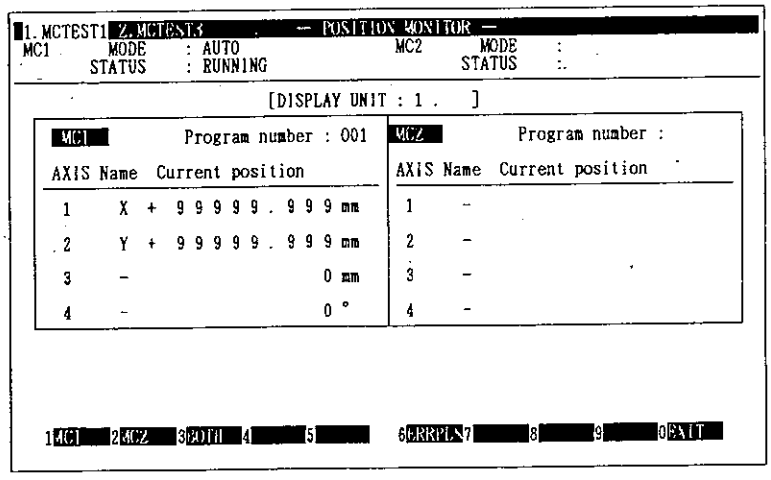


2.4.58

If both MC1 and MC2 units are used, their data can be displayed at the same time.

(2) Displaying position data of only one unit

④ Depress f1 [MC1].



2.4.59

Display response of current position is quicker when data of only one unit are displayed.

(3) Terminating a position monitor

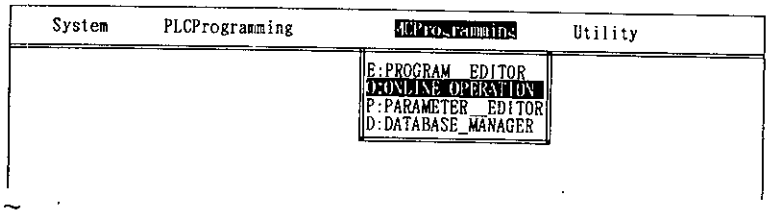
⑤ Depress f10 [EXIT].
The preceding menu display appears.

4.7 PROGRAM MONITOR

This menu monitors execution of motion program being executed on MC units 1 and 2. The block being executed is displayed in highlight. Current positions and status of MC unit coils, relays, and external inputs and outputs can be displayed. To use this menu, connect the personal computer to the PROGIC-8.

(1) Monitoring a program

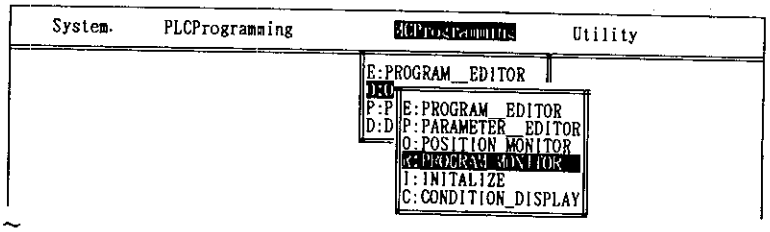
① Select "MC Programming".



2.4.60

② Select "ONLINE OPERATION". Depress [↵].

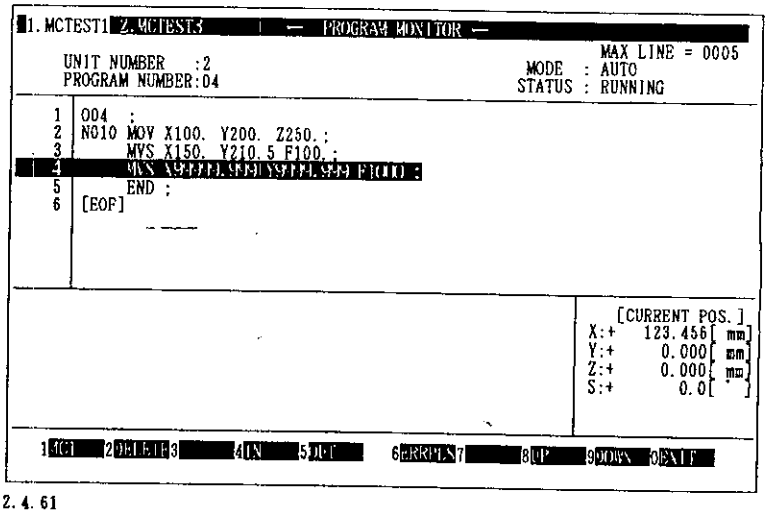
③ Select "PROGRAM MONITOR". Depress [↵].



2.4.60A

[Monitoring MC1]

④ Depress [f1] [MC1].



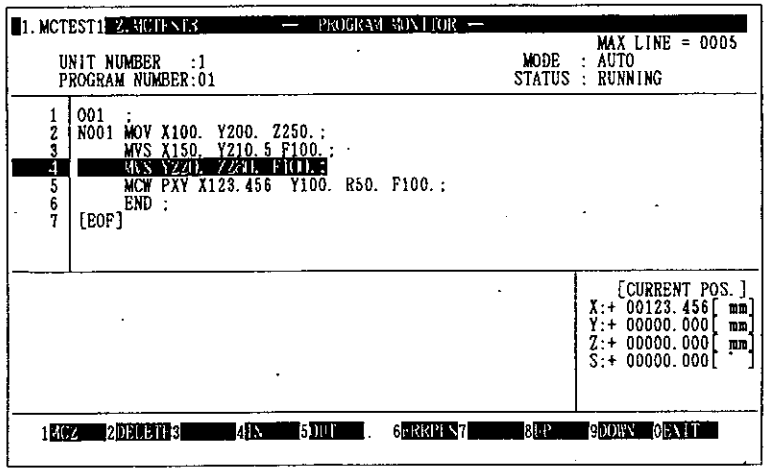
2.4.61

The block being executed on MC unit 1 is displayed in highlight. If MC1 is not used, MC2 is monitored.

4. HOW TO USE MC PROGRAMMING MENUS

[Monitoring MC2]

⑤ Depress [f1] [MC2].



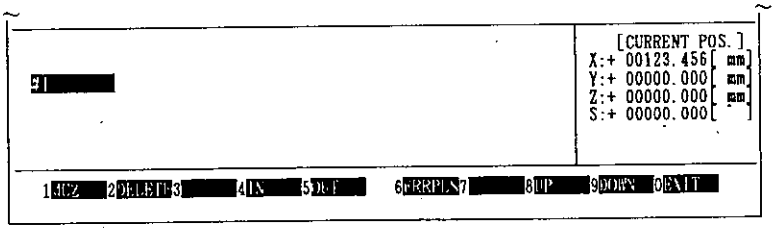
2.4.62

(2) Monitoring I/O status

Status of up to 28 (7 lines by 4 columns) inputs and outputs can be displayed in the I/O area.

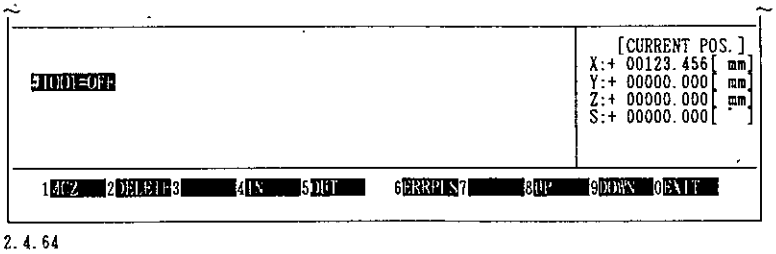
[IN display]

① Move the cursor to the optional position.
Depress [f4] [IN].



2.4.63

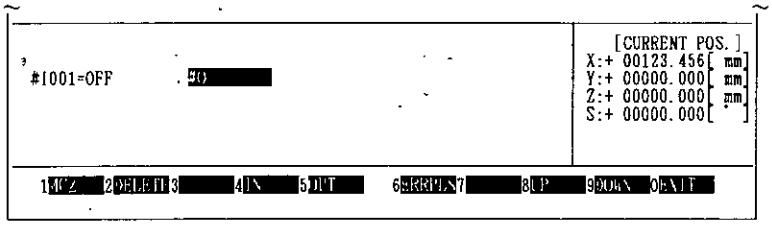
② Enter the numbers.
Depress [↵].



2.4.64

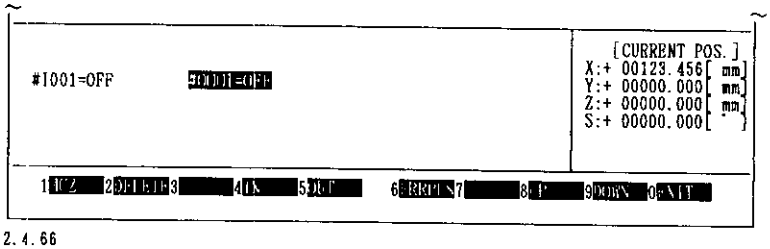
[OUT display]

③ Move the cursor to the optional position.
Depress [f5] [OUT].



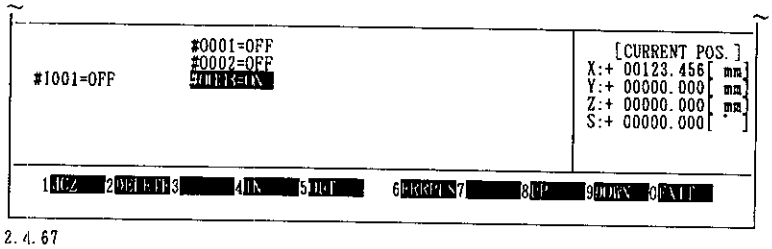
2.4.65

④ Enter the numbers.
Depress [↵].



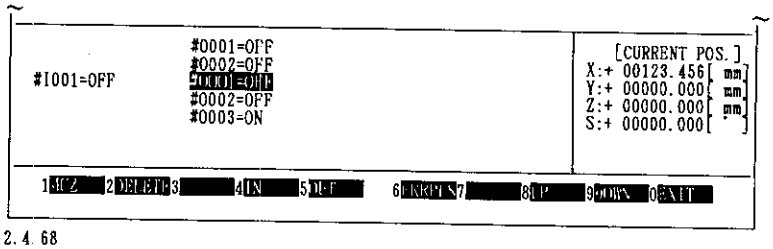
2.4.66

[Continuous display (increase)]
⑤ Depress [f8] [UP] two times.



2.4.67

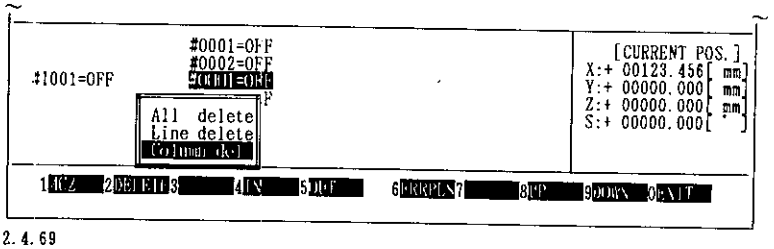
[Continuous display (decrease)]
⑥ Depress [f9] [DOWN] two times.



2.4.68

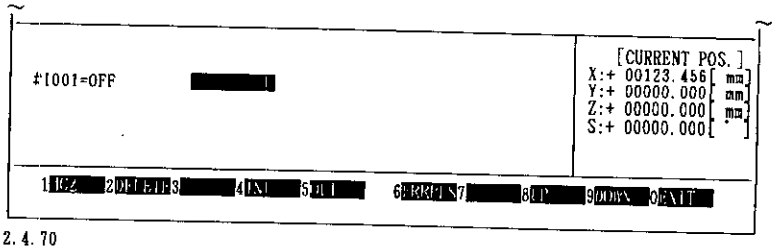
[Delete]
⑦ Move the cursor.
Depress [f2] [DELETE].

⑧ Select "Column del".
Depress [↵].



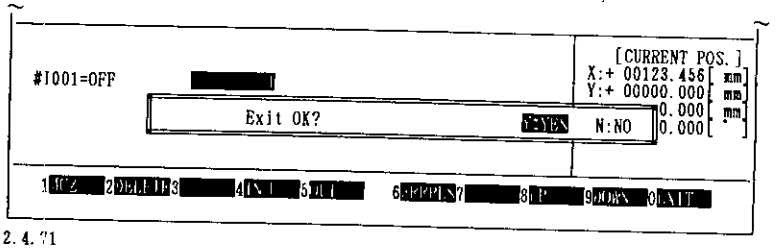
2.4.69

⑨ Depress [f10] [EXIT].



2.4.70

⑩ Select "YES".
Depress [↵].
The preceding menu display appears



2.4.71

5. HOW TO USE UTILITY MENUS

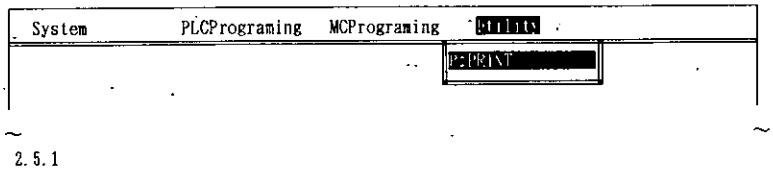
5.1 PRINTING

Ladder circuits, I/O assignment, motion programs, and mnemonic programs can be printed out.

(1) Printing a motion program

① Select "Utility".

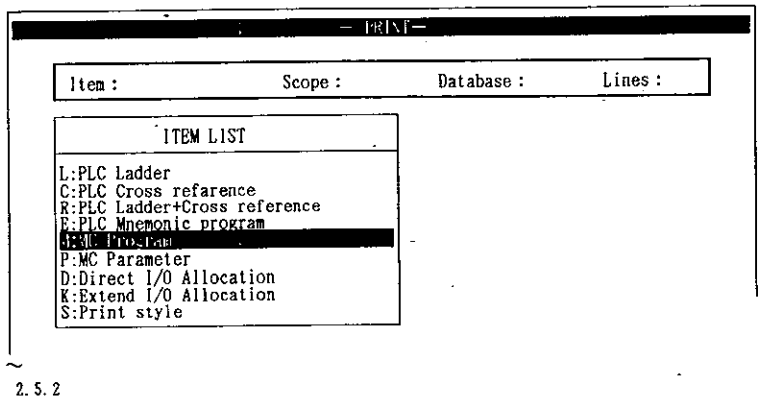
② Select "PRINT".
Depress [↵].



2.5.1

[Type]

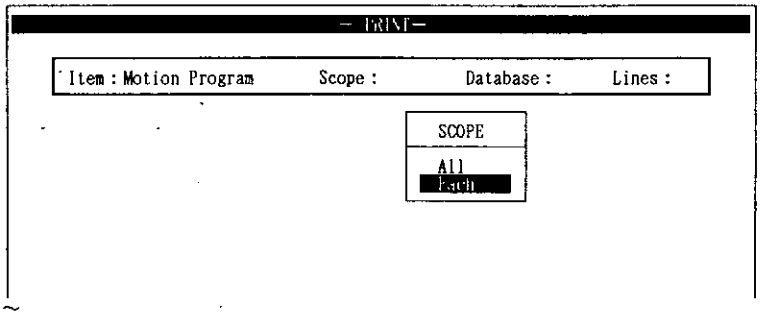
③ Select "MC Program".
Depress [↵].



2.5.2

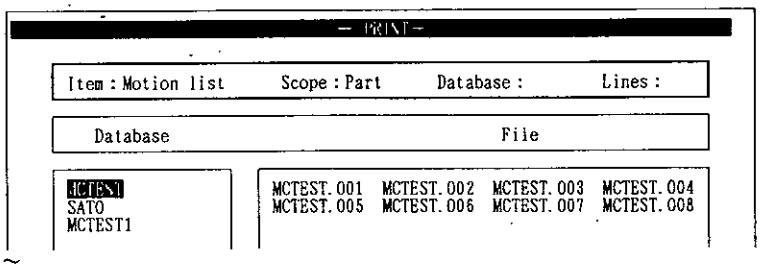
[Printing range]

④ Select "Each".
Depress [↵].



2.5.3

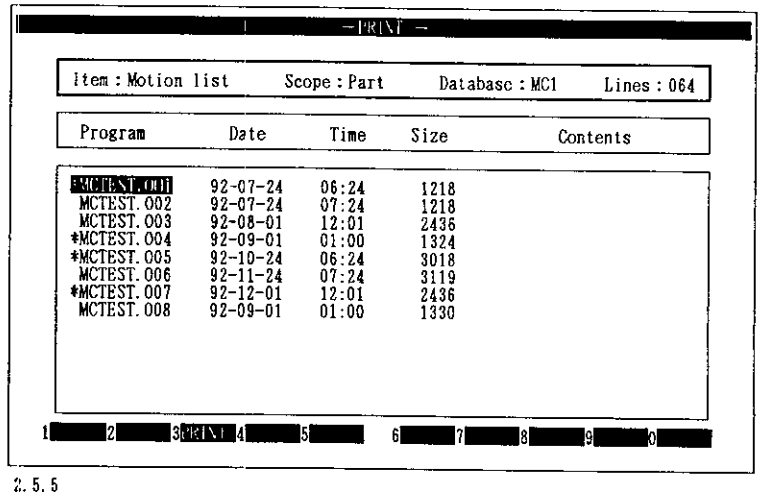
⑤ Select "Database".
Depress [↵].



2.5.4

⑥ Select "File".
Depress [↵].
Multiple selection is available.

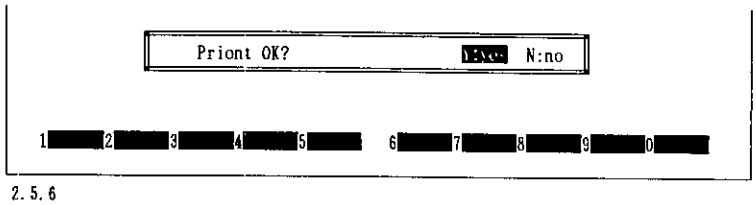
⑦ Depress [f3] [PRINT].



2. 5. 5

⑧ Select "YES".
Depress [↵].

⑨ Depress [f10] [EXIT].
The preceding menu display appears.



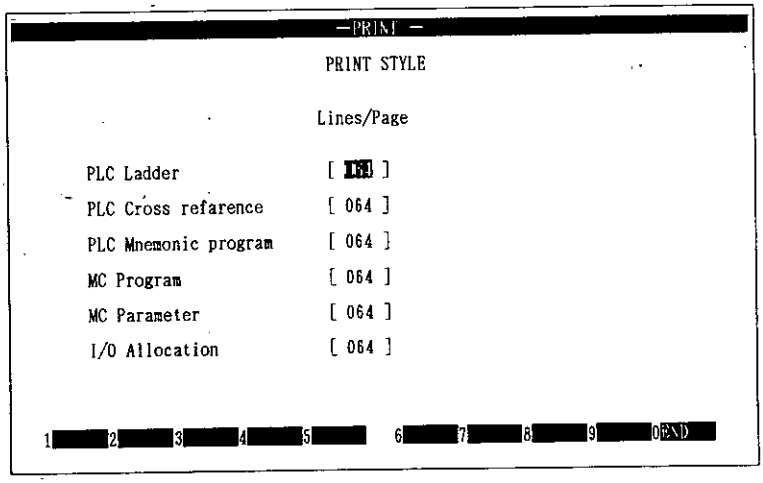
2. 5. 6

Notes : Page and header information are automatically added to the list.
Header information : Date of printing,
database name,
file name,
title, date of creation,
and other necessary information (such as program number)
If "All" is selected for the range of printing, all the programs and parameters in the database are printed out.

5. HOW TO USE UTILITY MENUS

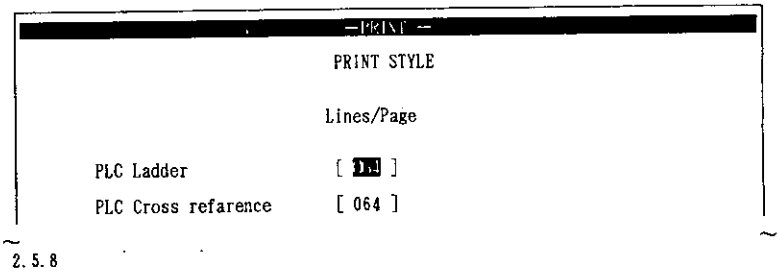
(2) Changing print style

① Move the cursor.



2.5.7

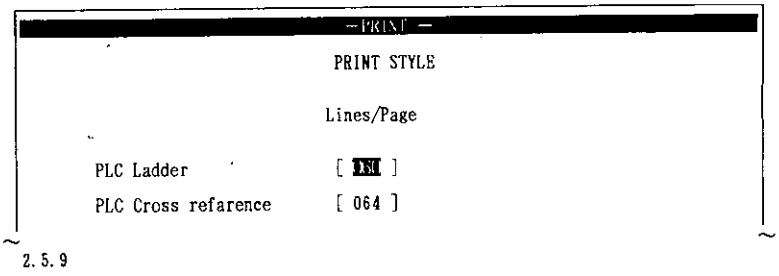
② Depress [↵].



2.5.8

③ Enter the setting value.
Depress [↵].

④ Depress [f10] [SET].



2.5.9

SYSTEM OPERATION

CONTENT

CONTENT (Cont'd)

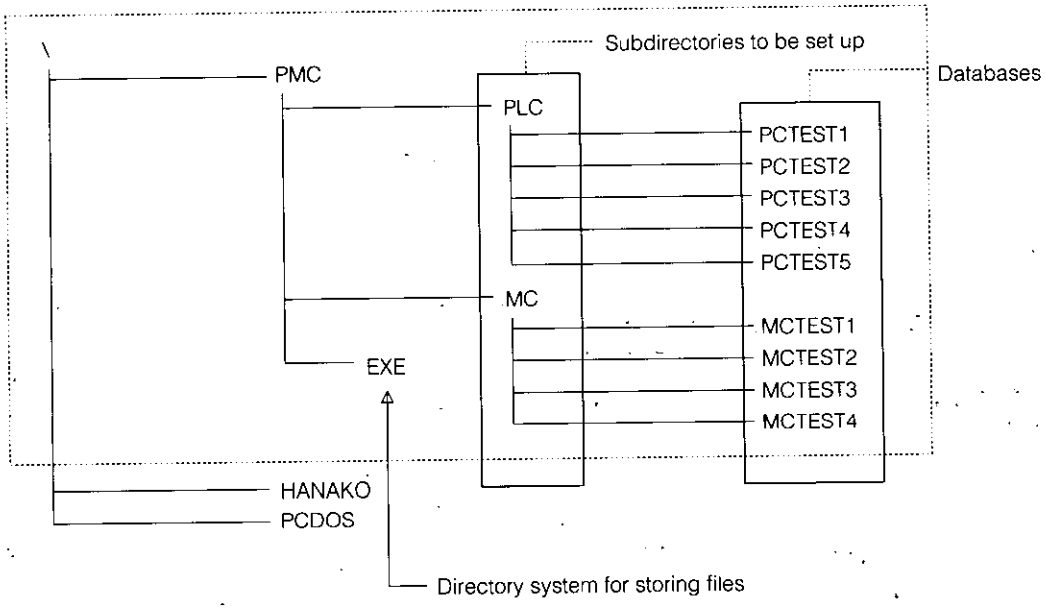
CONTENT (Cont'd)

1. SYSTEM

1.1 SYSTEM ENVIRONMENT

(1) Display hard disk drive prompt, and set subdirectories where databases are to be contained.
System files on the hard disk are enclosed by the dotted line in the figure below.

(2) Redisplay the floppy disk drive prompt.



2. DATABASE MANAGEMENT (Database Selection and Loader)

2.1 FUNCTION KEYS USED FOR (PLC AND MC) DATABASE MANAGEMENT

For PLC

[Usual key assignment]

[f1] [SELECT] : Select database.
[f2] [CREATE] : Create database.
[f3] [DELETE] : Delete database.
[f4] [SAVE] : Read PLC internal memory and call data to database.
[f5] [LOAD] : Write database file contents to PLC internal memory.
[f6] [RENAME] : Change database name.
[f7] [COPY] : Copy database.
[f8] [START] : Start PLC.
[f9] [STOP] : Stop PLC.
[f10] [EXIT] : Terminate database management.

For MC

[Usual key assignment]

[f1] [SELECT] : Select database for individual units.
[f2] [CREATE] : Create database.
[f3] [DELETE] : Delete database and program (of individual units).
[f4] [SAVE] : Read MC internal memory and call data to database.
[f5] [LOAD] : Write database file contents to MC internal memory.
[f6] [RENAME] : Change database name.
[f7] [COPY] : Copy database.
[f8] [MC1] : Switch to database for MC1.
[f9] [MC2] : Switch to database for MC2.
[f10] [EXIT] : Terminate database management.

2.2 INDIVIDUAL LOADING AND SAVING AND BATCH LOADING AND SAVING

Individual loading and saving : Select a file in the database to be loaded or PLC or MC internal memory to be saved, and execute loading and saving.

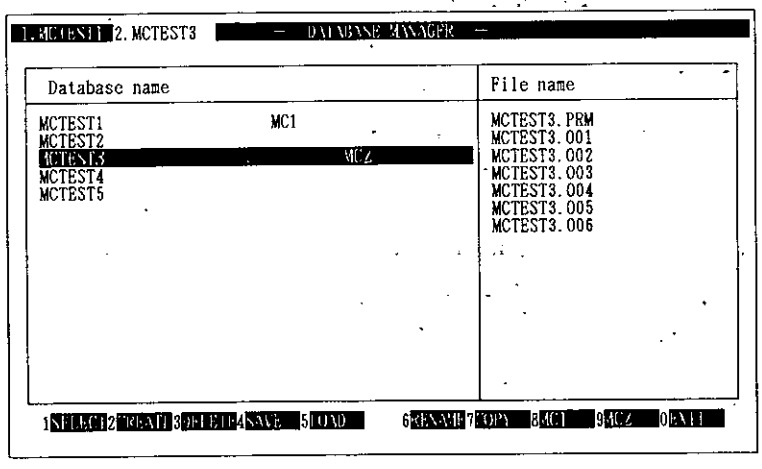
Batch loading and saving : All the files in the database are loaded or all the memory contents in the PLC or MC unit are saved, provided that only programs are loaded by batch MC loading. To load MC parameters, select the "parameter" menu.

* Perform copying. Files are copied from the floppy disk to databases or vice versa.

2. DATABASE MANAGEMENT (Database Selection and Loader)

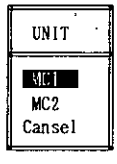
2.3 MC DATABASE SELECT

Register MC units in databases.



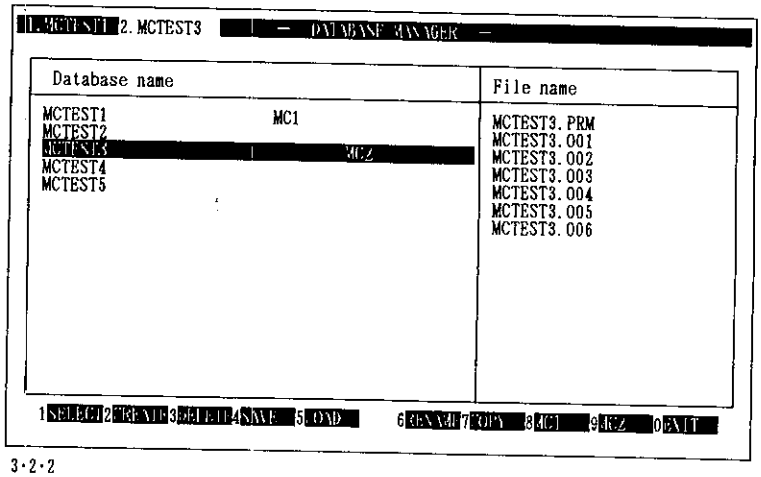
3-2-1

(1) Select "MC1" or "MC2" in the window shown below and register the corresponding MC unit in a database. Both MC units can be registered for a single database.



(2) Depress [f8] [MC1] or [f9] [MC2] to switch the working database for MC1 or MC2.

2.4 DELETING OR RENAMING A DATABASE

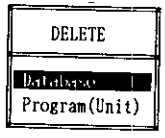


3·2·2

[Delete]

(1) Move the cursor to the database to be deleted. Depress f3 [DELETE].
As the database is deleted, the file contents are also deleted.

(2) Select "Database" in the window shown below.



[Rename]

(1) Move the cursor to the database to be renamed. Depress f6 [RENAME].

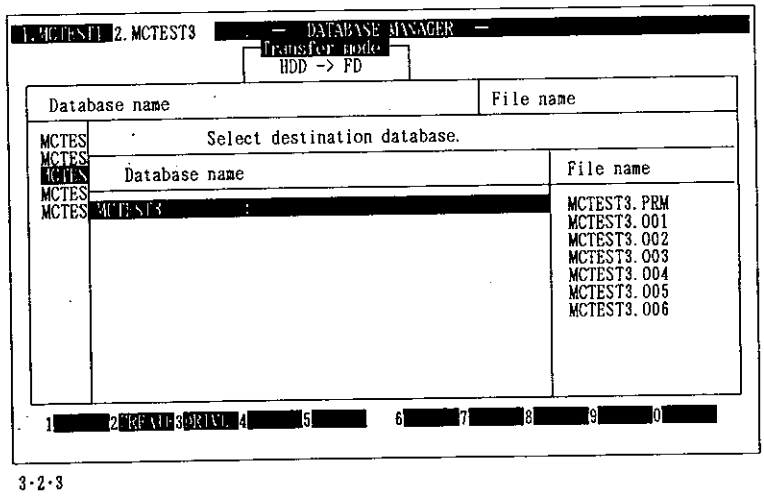
(2) Enter a new database name.

(3) File names in the database can also be changed.

* Select whether to rename files.
* Only the files having the file names similar to the unchanged database name can be renamed.
* To rename file names that are not the database name, enter the file display and rename the individual files.

2. DATABASE MANAGEMENT (Database Selection and Loader)

2.5 COPYING DATABASE



3·2·3

There are the following modes of transmission in copying databases.

Modes of transmission

COPY MODE SELECT	
HDD -> HDD	Copying from a hard disk to a hard disk
HDD -> FD	Copying from a hard disk to a floppy disk
FD -> HDD	Copying from a floppy disk to a hard disk
FD -> FD	Copying from a floppy disk to a floppy disk

In the following example, a database is copied from the hard disk to a floppy disk.

(1) Move the cursor to the database to be copied. Depress f7 [COPY].

(2) Select the mode of transmission.

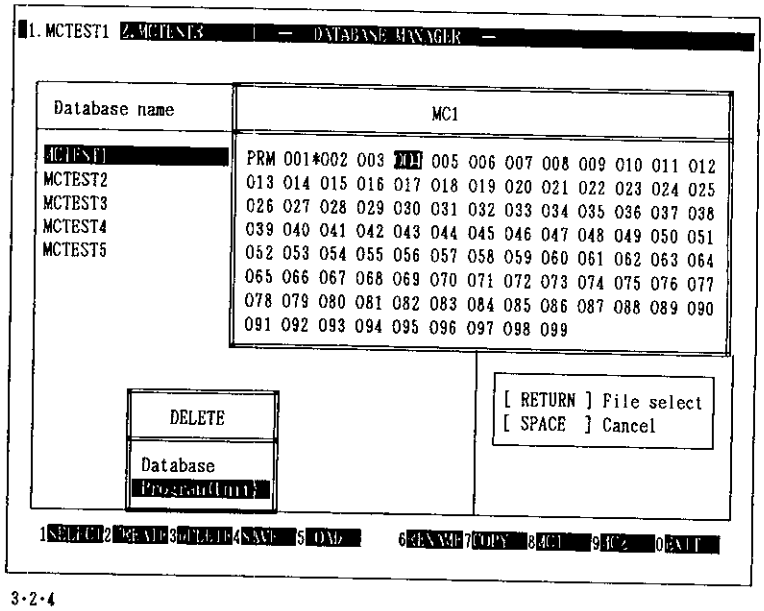
(3) To change the floppy disk drive, depress f3 [DRIVE].

(4) Select the receiving database. To create a new database for receiving, depress f2 [CREATE].

(5) Select whether to rename the files after the receiving database name.

* Select whether to rename files.
* Only the files having file names similar to the unchanged database are renamed. Other files are copied with the names unchanged.
* Copied files are renamed after the receiving database.

2.6 DELETING PROGRAMS IN MC UNITS



3·2·4

(1) Depress [f3] [DELETE] and select programs and units.

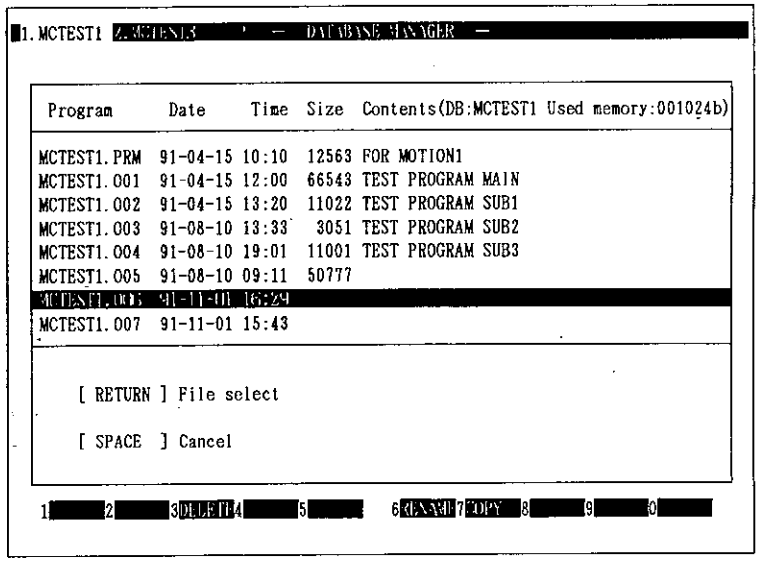
(2) Move the cursor to the file to be deleted and depress [↵]. Selected files are marked with an asterisk. To cancel selection, depress [SPACE].

(3) After selecting files, depress [f10] [EXEC].

2. DATABASE MANAGEMENT (Database Selection and Loader)

2.7 DATABASE FILE DETAIL DISPLAY

Move the cursor to the target database and depress [↵] to display the details of files contained in that database.



3-2-5

2.8 DELETING OR RENAMING DATABASE FILES

[Delete]

(1) Depress [f3] [DELETE].

(2) Move the cursor to the file to be deleted, then depress [↵]. Selected files are marked with an asterisk. To cancel selection, depress [SPACE].

(3) After selecting files, depress [f10] [EXEC].

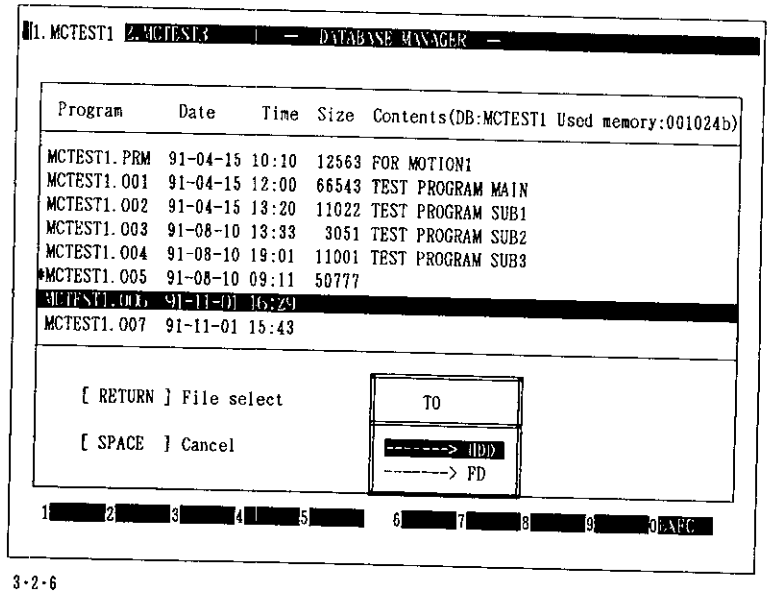
[Rename]

(1) Move the cursor to the database to be renamed, then depress [↵].

(2) Depress [f6] [RENAME] and enter a new database name.

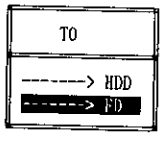
* File names can be modified at will regardless of whether or not the file name is similar to the database name.

2.9 COPYING DATABASE FILES



3-2-6

Database files can be copied to the following destinations.



Copying from a hard disk to a hard disk
Copying from a hard disk to a floppy disk

In the following example, a database is copied from the hard disk to a floppy disk.

(1) Depress f7 [COPY] to select a file.

(2) After selecting a file, depress f10 [EXEC], then select the destination. Selected files are marked with an asterisk.

(3) To change the floppy disk drive, depress f3 [DRIVE].

(4) Select the receiving database. To create a new database for receiving, depress f2 [CREATE].

(5) Select whether to rename the files after the receiving database name.

* Select whether to rename files.
* Only the files having the file names similar to the unchanged database are renamed. Other files are copied with the names unchanged.
* Copied files are renamed after the receiving database.

2. DATABASE MANAGEMENT (Database Selection and Loader)

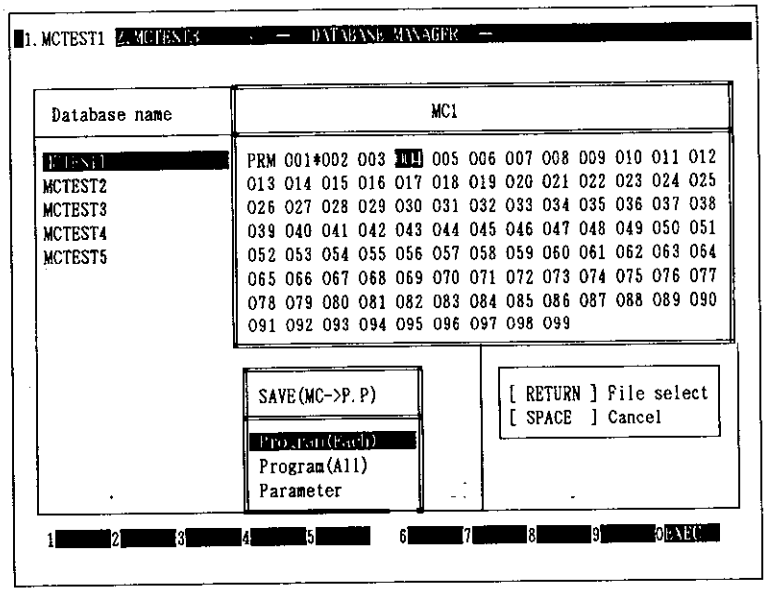
2.10 DISPLAYING FILE CAPACITY

On the upper right of the display, capacities of loadable files in the database are displayed.

For MC : total capacity of loadable motion programs (in bytes)

For PLC : Total capacity of ladder objects (in words)

2.11 SELECTIVE SAVING FROM MC TO DATABASE



3-2-7

(1) Depress f4 [SAVE]. Select "Program (Each)" in the window.

(2) After selecting files, depress f10 [EXEC]. Selected files are marked with an asterisk.

(3) "Program (All)" saving is similar to "Program (Each)" except that source file selecting step is automatically skipped for the former.

(4) Before loading or saving, set edit mode for the MC unit.

(5) Files saved in the database will have names "database-name.0xx."

3. PLC OPERATION

3.1 FUNCTION KEYS USED FOR MNEMONIC PROGRAM EDITING

For main program editing

[Usual key assignment]

f1 [SWITCH] : Switch function key labels.
f2 [SELECT] : Select program line area to be deleted, copied, or moved.
f3 [CUT] : Delete program lines.
f4 [COPY] : Copy program lines.
f5 [PASTE] : Insert program lines.
f6 [FIND] : Move the cursor to a specific character string.
f7 [REP.] : Modify the character string.
f8 [JUMP] : Move the cursor to a target program line.
f9 [LADDER] : Switch to offline ladder display.
f10 [EXIT] : Terminate program editing (after either saving or discarding the edited program).

[Switched key assignment]

f1 [SWITCH] : Switch function key labels.
f2 [ZOOM] : Switch to the subroutine editing display.
f3 [ERROR] : Switch to the error list display.
f4 [INPUT] : Switch to subwindow entry mode.

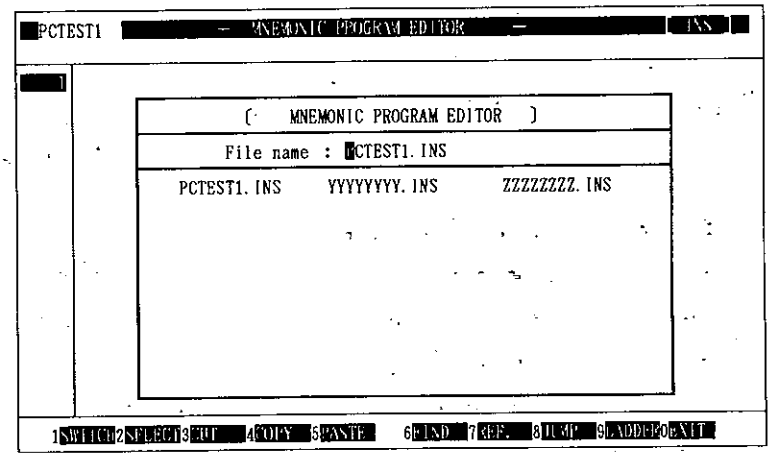
For subroutine editing

[Usual key assignment]

f1 [SWITCH] : Switch function key labels.
f2 [RETURN] : Switch to the mnemonic program editing display.
f3 [ERROR] : Switch to the error list display.
f4 [INPUT] : Switch to subwindow entry mode.

3. PLC OPERATION

3.2 SELECTING MNEMONIC FILES



3.3.1

(1) To select a file from the filename list, use ⬆ , ⬇ , ⬅ , or ➡ for selecting, then depress ↵.

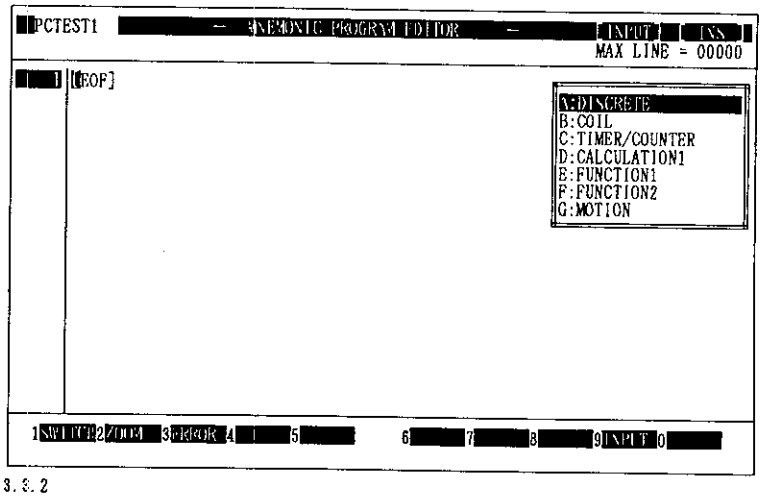
(2) The file name is displayed in the "File name:" key entry field. Depress ↵ again, then the editing display appears again.

(3) To move the cursor from the "File name:" key entry field to the file name list display field, use ⬇. To move the cursor in the opposite direction, use ESC.

(4) The database must be selected beforehand.

(5) Because mnemonic programs can be compiled in files having a file name "database-name. INS ;" other files are usually only for storage.

3.3 MNEMONIC PROGRAM ENTRY IN SUBWINDOWS

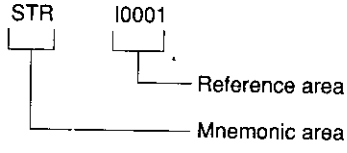


3.3.2

(1) Depress [f1] [SWITCH] to switch the menu. Depress [f9] [INPUT].

(2) Enter the first alphabetic character to select an element.

(3) Enter a reference number. To enter "I0001," leading zeros can be omitted. Simply depress "I" "1" and [↵].



(4) After [↵] is depressed, entry to the next step can be started.

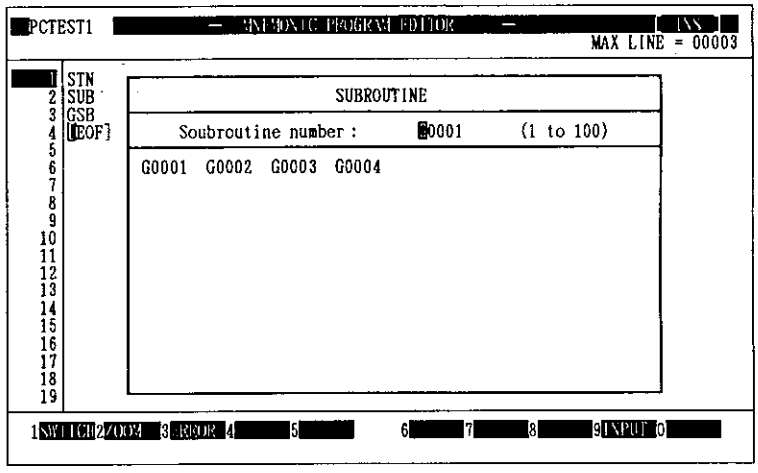
(5) To return from subwindow entry mode to direct entry mode, depress [ESC] until the window disappears.

(6) The [f9] [INPUT] key takes effect only when the cursor is in the mnemonic area.

(7) After mnemonics are entered, subwindow display disappears and the cursor moves to the reference area. After entering reference numbers, depress [↵]. The cursor moves to the mnemonic area and the subwindow appears again.

3. PLC OPERATION

3.4 EDITING SUBROUTINE PROGRAMS



3.3.3

(1) Depress [f1] [SWITCH] on the mnemonic program editing display.

(2) Depress [f2] [ZOOM].

(3) Select a subroutine to be edited from the subroutine list.

(4) The subroutine number is displayed in the corresponding field. The number can be modified by number keys. Depress [↵], then the editing display appears again.

(5) To move the cursor from the subroutine number key entry to the file name list display field, use [↓]. To move the cursor in the opposite direction, use [ESC].

(6) If the specified subroutine is not found, "G0001" is displayed in the subroutine number key entry field.

Note : Entry of a subroutine is similar to main program entry, except that the GSB command cannot be used. (Subroutine nesting is prohibited.)

3.5 MNEMONIC PROGRAM JUMP

(1) Depress [f8] [JUMP].

(2) Depress [ESC] to delete the subwindow.

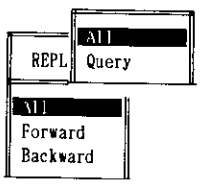
(3) If "Top step" is selected, the beginning of the program is displayed.

(4) If "Bottom step" is selected, the end of the program is displayed.

(5) If "Goto step" is selected, the program is displayed from the specified step.

Note : If "Goto step" is selected and a number greater than the last step number that has been created is specified, the end of the program is displayed.

3.6 REPLACING DATA IN MNEMONIC PROGRAM



(1) Depress [f7] [REP.].

(2) Select "All," "Forward," or "Backward" in the window.

(3) Select "All" or "Query" in the window.

(4) Replacement menus

1. All : Replace through the entire program ; from the beginning to the end regardless of the cursor location.
2. Forward : Replace from the cursor location ahead to the end of the program.
3. Backward : Replace from the cursor location back to the beginning of the program.

(5) Replacement submenus

Query : Ask for approval for each replacement.

All : Do not ask for approval for each replacement.
If this submenu is selected, the following message appears in a window before starting.

```
All replace OK?    Y : YES  N : NO
```

After selecting "Query", another window appears :

```
Old data  : I0128
New data : I0100
```

(6) Enter the text to be replaced, then depress [↵].

(7) Enter a new text, then depress [↵].

(8) Search for the text to be replaced is started from the cursor line in the selected direction.

(9) Replacement can be stopped and canceled by depressing [ESC].

(10) If the target text is found, it is displayed in highlight and the following message appears.

```
Replace OK?    Y : YES  N : NO
```

(11) Depress [↵] or enter [Y] to replace. Depress [N] to leave the text unchanged. Then Search is continued.

(12) If the target text is not found, the following message appears.

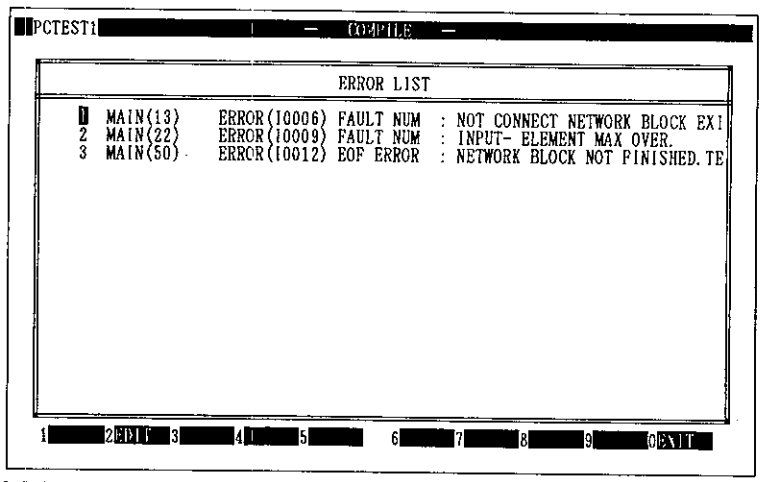
```
Not replace data. (Forward)
```

Depress [↵] to return the cursor to the position where it was when the replacement was started. Depress any other key to terminate replacement leaving the cursor at the current position.

(13) If space is specified in the target or new text, it is disregarded.

3.7 DISPLAYING THE COMPILATION ERROR LIST

ERROR LIST DISPLAY



3. 3. 4

(1) If an error occurs, the error list is displayed.

(2) In the error list, use ↑ or ↓ to move the cursor between error numbers and ← or → to scroll the display horizontally.

(3) Depress f2 [EDIT] to call the mnemonic program editing display. On the display, the program is displayed from the cursor step.

(4) Depress f10 [EXIT] to return to the main menu.

(5) It is impossible to return to this display after calling the edit function

(6) The "EDIT" function is available only at mnemonic-to-ladder compilation.

(7) An error file is created automatically.

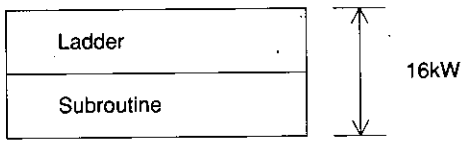
Mnemonic-to-ladder conversion : MNEMONIC.ERR

Ladder-to-mnemonic conversion : LADDER.ERR

3. PLC OPERATION

3.8 MEMORY ASSIGNMENT

Program memory contains ladder objects and subroutine. It is a random access memory consisting of 16K address space of three-byte data width objects. Total program memory space is 16K words, one word consisting of three bytes.



Note : For online memory assignment, the CPU of the PLC unit must be stopped in advance.

3.9 FUNCTION KEYS USED FOR MEMORY ASSIGNMENT

[Usual key assignment]

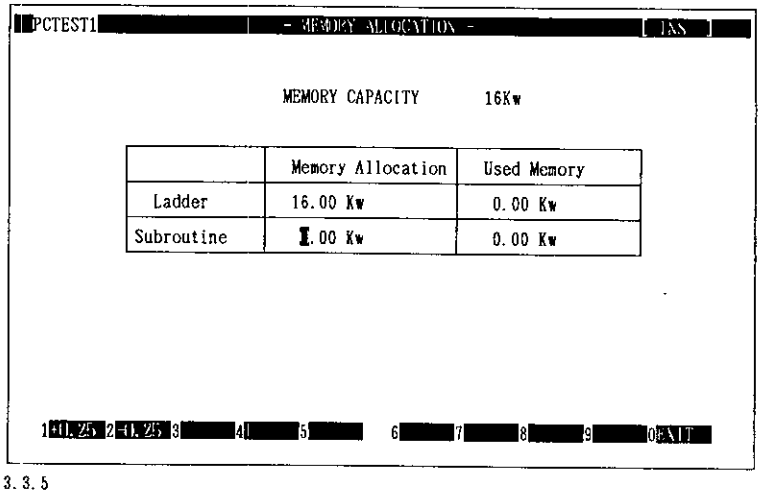
f1 [+0.25] : Set up in increments of +0.25K word

f2 [–0.25] : Set up in increments of –0.25K word

f10 [EXIT] : Return to the main menu.

3.10 MEMORY ASSIGNMENT FOR LADDER AND SUBROUTINE PROGRAMS

Memory assignment



3.3.5

(1) Before starting online ladder program editing, memory allocate space.

(2) Allocate subroutine memory. Ladder memory is automatically set up accordingly.

(3) In offline editing (that takes step from mnemonic program editing to compilation to ladder program display), automatic memory assignment is performed at compilation.

(4) Assign memory for subroutines.

(5) After setting, depress [↵].

(6) Memory allocation for the ladder (main program) automatically changes according to the subroutine memory allocation.
Ladder (main) memory + subroutine memory = 16K words

(7) Use number keys to enter the integral part. Use function keys for the fractional part.

(8) The minimum memory assignment for the main program is 1K word. If memory greater than 15K words is allocated to subroutines, an error occurs and an error message is displayed.

3. PLC OPERATION

3.11 DIRECT I/O ASSIGNMENT

Direct I/O assignment is for direct input and output to and from the MC modules.

Correspondence between external I/O and reference numbers

MC unit 1

Inputs I1 to I40 correspond to reference numbers #I185 to #I224.

Outputs O1 to O24 correspond to reference numbers #O201 to #O224.

MC unit 2

Inputs I41 to I80 correspond to reference numbers #I185 to #I224.

Outputs O25 to O48 correspond to reference numbers #O201 to #O224.

#Ixxx and #Oxxx are the reference numbers used when monitoring and editing MC programs. The reference numbers have the following correspondence with the MC unit coils and relays used in ladder programs.

MC unit 1

Inputs Y1 to Y256 correspond to reference numbers #I1 to #I256.

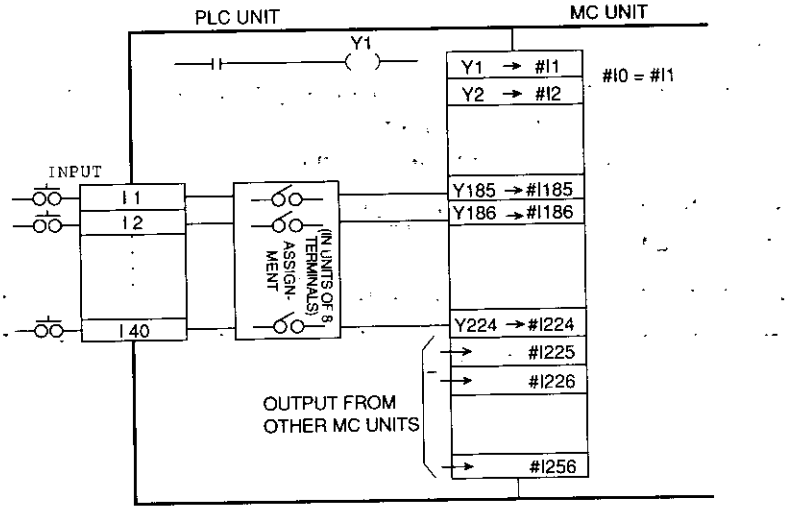
Outputs X1 to X256 correspond to reference numbers #O1 to #O256.

MC unit 2

Inputs Y257 to Y512 correspond to reference numbers #I1 to #I256.

Outputs X257 to X512 correspond to reference numbers #O1 to #O256.

Conceptual diagram of I/O variable assignment



3.12 FUNCTION KEYS USED FOR DIRECT I/O ASSIGNMENT

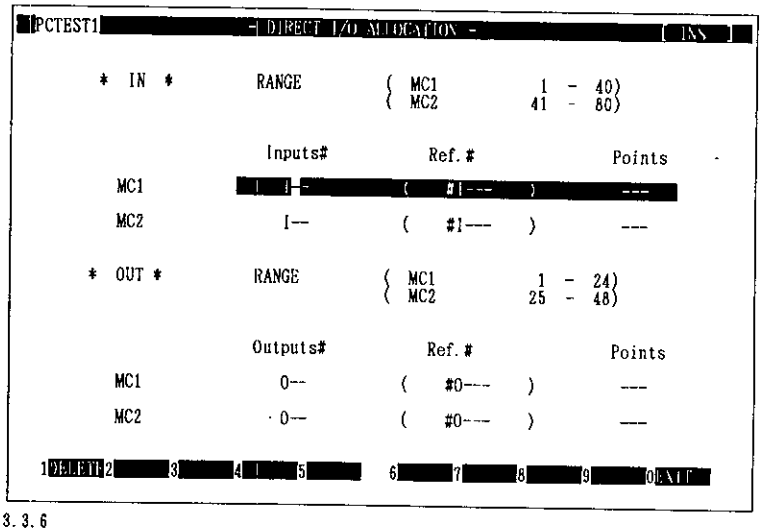
[Usual key assignment]

f1 [DELETE] : Delete lines.

f10 [EXIT] : Terminate assignment (after either saving or discarding the assignment).

3.13 ASSIGNING DIRECT I/O

Reference input display



3.3.6

(1) Before ↵ is depressed, the cursor can be moved at

IN MC 1 ⟷ IN MC 2
↕ ↕
OUT MC 1 ⟷ OUT MC 2

(2) Enter an I/O number and depress ↵. The cursor moves to the column of the number of assigned inputs (or outputs).

(3) Use f1 [DELETE] to cancel assignment in units of a line.

(4) After entering the I/O number, depress ↵. The corresponding reference number is displayed. (The reference number is #Oxxxx or #Ixxxx used in a motion program.)

(5) The I/O number must be a multiple of 8 plus 1, and must not exceed the number of I/O that can be allocated.

(6) If an I/O number which is not 8*N+1 is entered, a lower number that satisfies the requirement is automatically set. (For example, entering 10 results in 9 to be set.)

(7) Specify a multiple of 8 for the number of assigned I/O. If an inappropriate number is entered, one that satisfies the requirement is automatically set up.

3. PLC OPERATION

3.14 PLC STATUS DISPLAY

Status of the system is displayed with the following data items.

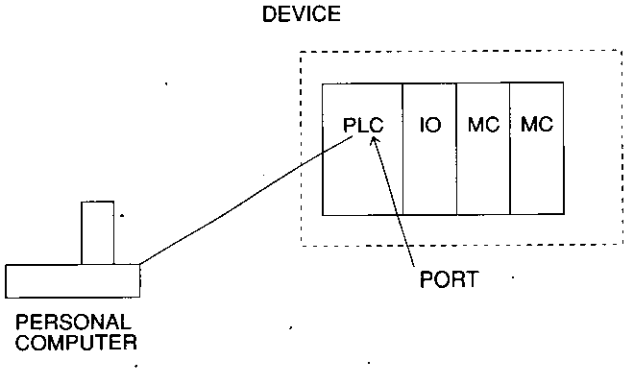
System configuration : Displays used memory and remaining memory, machine names and revisions of the PLC and MC, and maximum number of I/O.

Error status : Displays error codes if a system error occurs.

Duplicated direct I/O : Displays duplication of I/O reference number assigned on the PLC and MC direct I/O numbers.

Communication parameters : The parameters are tied as follows.

Device address	: 1	Communication mode	: RTU
Communication speed	: 9600 baud	Stop bit	: 1
Parity	: Even	Delay timer	: 00



Device address : If more than one PLC unit is connected using a communication module such as a modem, assign addresses to the PLC units to distinguish them from each other.

3.15 FUNCTION KEYS USED FOR PLC STATUS DISPLAY

System configuration, error status, communication parameters

[Usual key assignment]

f10 [EXIT] : Terminate system configuration, error status, or communication parameters.

Duplicated direct I/O

[Usual key assignment]

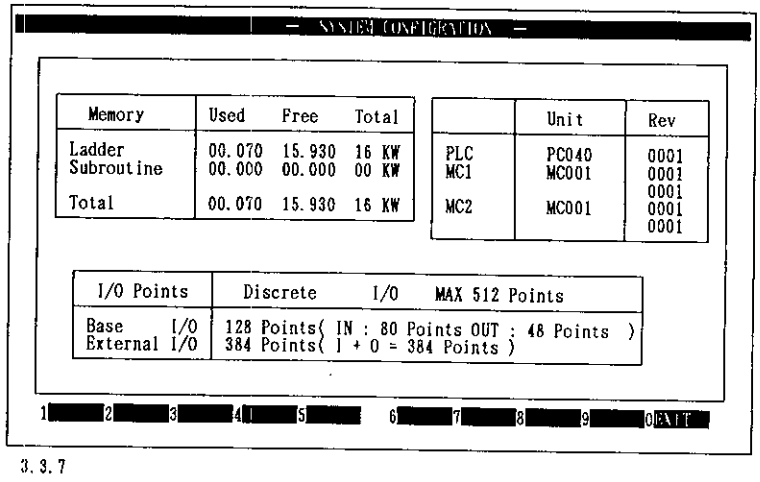
f1 [INPUT] : Switch from the output display to the input display.

f1 [OUTPUT] : Switch from the input display to the output display.

f10 [EXIT] : Terminate duplicated direct I/O.

3.16 SYSTEM CONFIGURATION DISPLAY

Example of system configuration display



3.3.7

(1) Displays used and remaining memory capacities for the ladder and subroutine programs. (Variable)

(2) The number of I/O indicates the maximum number of discrete group I/O of built-in or extended I/O. The breakdown is shown in the parentheses. (Not variable)

(3) Machines names and versions of the PLC and MC being used are displayed. (If no MC is used, "----" appears in the MC column.)

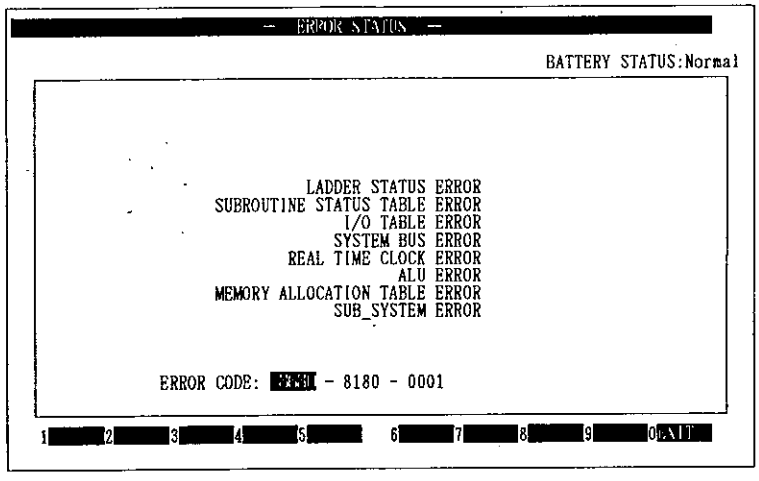
(4) Since the MC unit has two PROMs, the versions of the PROMS are displayed on two lines, with the V33 PROM version on the upper line and the V40 PROM version on the lower line.

(5) To return to the preceding display, depress [ESC] .

3. PLC OPERATION

3.17 PLC ERROR STATUS DISPLAY

Example of error status display



3.3.8

(1) The error status is displayed when a system error occurs.

(2) Type of the error analyzed from the system error code is displayed.

(3) To display error messages corresponding to the individual error codes, position the cursor on the target error code by ⬅ or ➡, then depress ↵.

(4) As the default, the error message corresponding to the leftmost error code is displayed (with the cursor at the forthest left error code.)

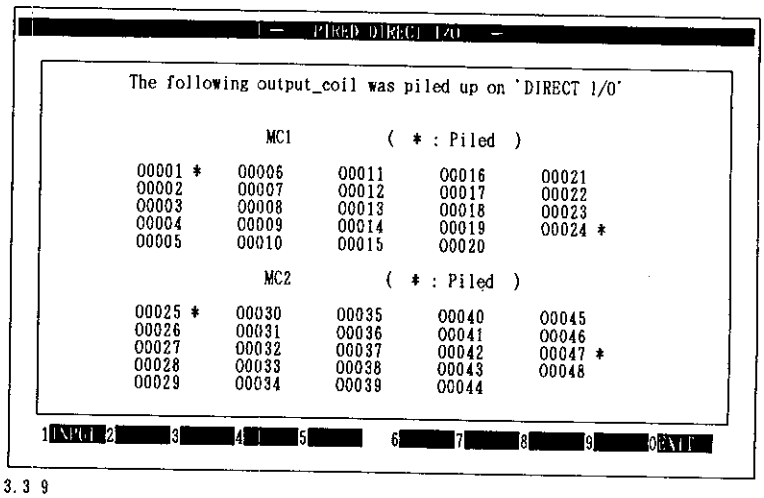
(5) To return to the preceding display, depress ESC.

(6) While the CPU is operating normally, the following message appears on the display.

CPU RUNNING

3.18 DUPLICATED DIRECT I/O DISPLAY

Example of duplicated direct I/O display of outputs



3.3 9

(1) Among output coils O0001 to O0048 and input relays I0001 to I0080, those assigned to direct I/O and used in the ladder are marked with asterisk.

(2) The above display is an example of outputs. Depress [f1] [INPUT] to switch to the input display.

(3) Depress [f10] [EXIT] to return to the menu display.

3. PLC OPERATION

3.19 FUNCTION KEYS USED FOR LADDER DISPLAY (OFFLINE)

For main program editing

[Usual key assignment]

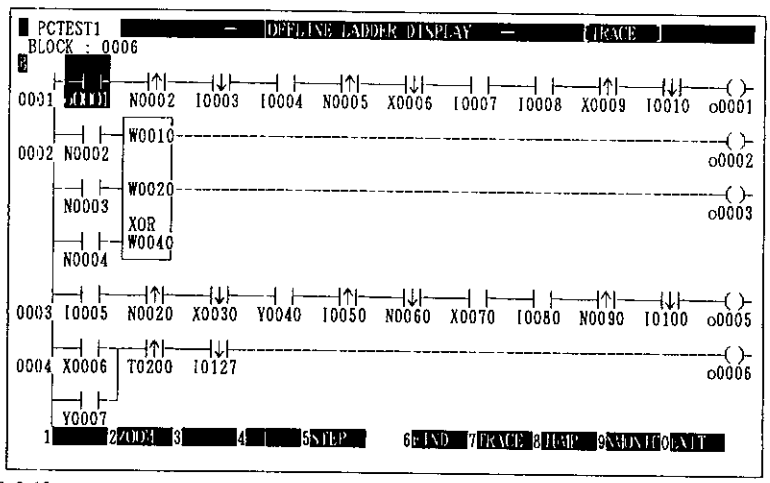
[f2] [ZOOM] : Jump for calling a subroutine.
[f5] [BLOCK] : Switch from mnemonic program line number display to circuit block number display.
[f6] [FIND] : Move the cursor to the specified element.
[f7] [TRACE] : Trace and display the relation of relays and coils.
[f8] [JUMP] : Jump to the block to be displayed.
[f9] [NMONIC] : Switch to the mnemonic editing display.
[f10] [EXIT] : Terminate ladder program display.

For subroutine editing

[Usual key assignment]

[f2] [RETURN] : Return from the subroutine.
[f5] [BLOCK] : Switch from mnemonic program line number display to circuit block number display.
[f6] [FIND] : Move the cursor to the specified element.
[f7] [TRACE] : Trace and display the relation of relays and coils.
[f8] [JUMP] : Jump to the block to be displayed.
[f9] [NMONIC] : Switch to the mnemonic editing display.
[f10] [EXIT] : Terminate ladder program display.

3.20 TRACING CONTACTS (RELAYS AND COILS)

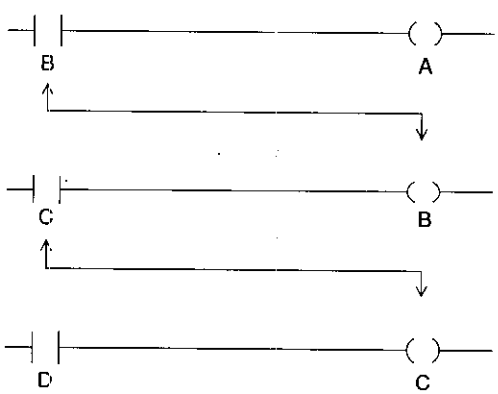


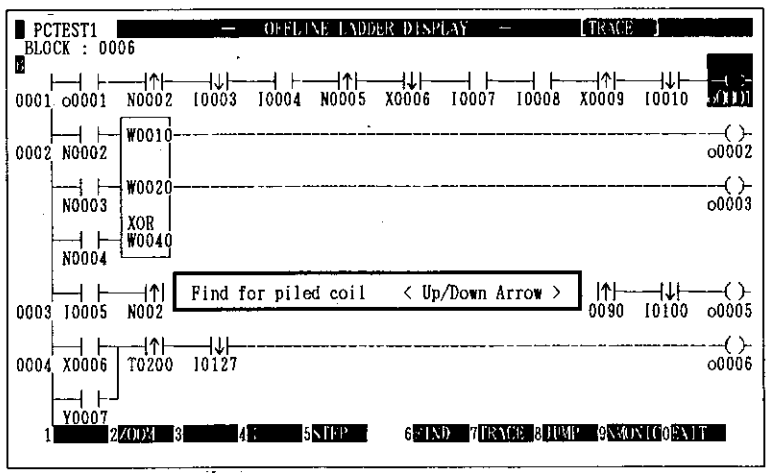
3.3.10

(1) Move the cursor to the target contact, then depress f7 [TRACE].

(2) Depress SHIFT and f7 [TRACE] simultaneously to carry out retracing.

(3) Tracing means searching along the line for the causal circuit that changes the state of a specific contact.





3. 3. 11

(4) Depress f7 [TRACE]. The cursor moves to the coil corresponding to the target contact in the nearest circuit network to circuit No.1.

(5) "Find for piled coil <Up/Down Arrow>" is displayed.

(6) To search for a coil in networks below the network where the cursor is located, depress ⬇. To return, depress ⬆.

(7) To continue tracing, use ⬅, ➡, ⬆, or ⬇ to move the cursor to a contact and depress f7 [TRACE]. Later operation is similar.

(8) Depress ESC to exit trace mode.

(9) Retracing means displaying the networks that have been displayed by f7 [TRACE] in the reverse order. When starting retracing, position the cursor at the beginning element of the network (on the upper left).

3.21 FUNCTION KEYS USED FOR LADDER PROGRAM MONITORING AND SIMULATED OPERATIONS

For main program display
[Usual key assignment]

[f1] [SCAN] : Control scanning.
[f2] [ZOOM] : Call up a subroutine.
[f3] [DATA] : Switch to the data display.
[f4] [EDIT] : Start online ladder editing
[f5] [BLOCK] : Display the number of circuit blocks.
[f5] [STEP] : Display the number of mnemonic steps.
[f6] [FIND] : Move the cursor to the specified element.
[f7] [TRACE] : Trace and display the relation of relays and coils.
[f8] [JUMP] : Jump to the block to be displayed.
[f9] [STOP] : Stop scanning on the PLC unit.
[f9] [START] : Start scanning on the PLC unit.
[f10] [EXIT] : Terminate ladder program display.

For subroutine display
[Usual key assignment]

[f1] [SCAN] : Control scanning.
[f2] [RETURN] : Return from the subroutine.
[f3] [DATA] : Switch to the data display.
[f4] [EDIT] : Start online ladder editing.
[f5] [BLOCK] : Display the number of circuit blocks.
[f5] [STEP] : Display the number of mnemonic steps.
[f6] [FIND] : Move the cursor to the specified element.
[f7] [TRACE] : Trace and display the relation of relays and coils.
[f8] [JUMP] : Jump to the block to be displayed.
[f9] [STOP] : Stop scanning on the PLC unit.
[f9] [START] : Start scanning on the PLC unit.
[f10] [EXIT] : Terminate ladder program display.

[Data portion]

[f1] [SWITCH] : Switch function key labels.
[f3] [DATA] : Switch to the data display.
[f4] [INPUT] : Display reference numbers.
[f5] [DELETE] : Delete data display.
[f6] [UP] : Display continuously (in the reference-number ascending order).
[f7] [DOWN] : Display continuously (in the reference-number descending order).
[f10] [EXIT] : Terminate ladder program display.

[Data portion] (for coil or relay data)

[f1] [SWITCH] : Switch function key labels.
[f2] [ON] : Turn ON data forcibly (in simulation).
[f3] [OFF] : Turn OFF data forcibly (in simulation).
[f4] [ENABLE] : Reflect external I/O.
[f5] [DISABLE] : Disconnect from external I/O (in simulation).

[Data portion] (for register data)

[f1] [SWITCH] : Switch function key labels.
[f2] [CHANGE] : Directly change register contents.
[f4] [SETALL] : Set all bits to "1" in binary representation.
[f5] [CLRALL] : Clear all bits to "0" in binary representation.
[f6] [BIN] : Binary representation
[f7] [DEC] : Decimal representation
[f8] [SGNDEC] : Signed decimal representation
[f9] [HEX] : Hexadecimal representation
[f10] [ASCII] : ASCII code representation

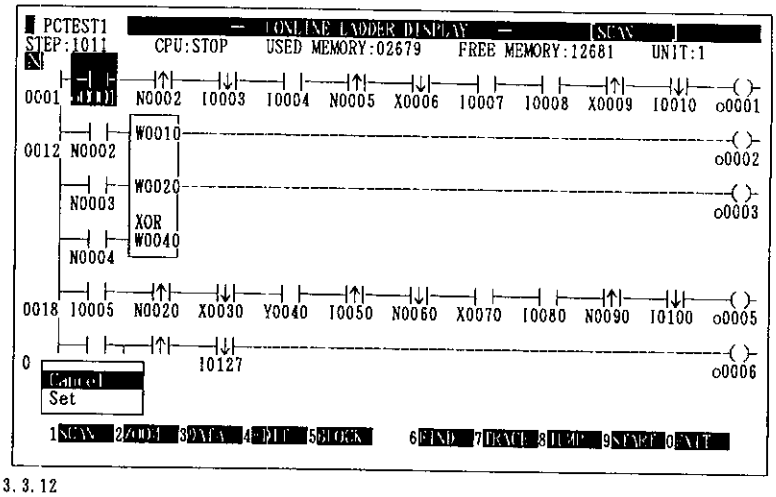
3.22 CONSTANT SWEEPING

Constant sweep regulates scan time to a constant period near the target scan time of the PROGIC-8. Regulating the scan time reduces errors in simple positioning control. Set a target scan time longer than actual scan time, from 10ms to 200ms in units of 10ms. If a value less than actual scan time is specified for the target, the value is disregarded. While the constant sweep function is being used, the following two registers are occupied:

W2047 : Target scan time setting
W2048 : Time required for actual scanning (in units of ms, in increments of 10ms.)

(The above registers are available for free use when the constant sweep function is not used.)

3.23 PLC SCAN TIME SETTING

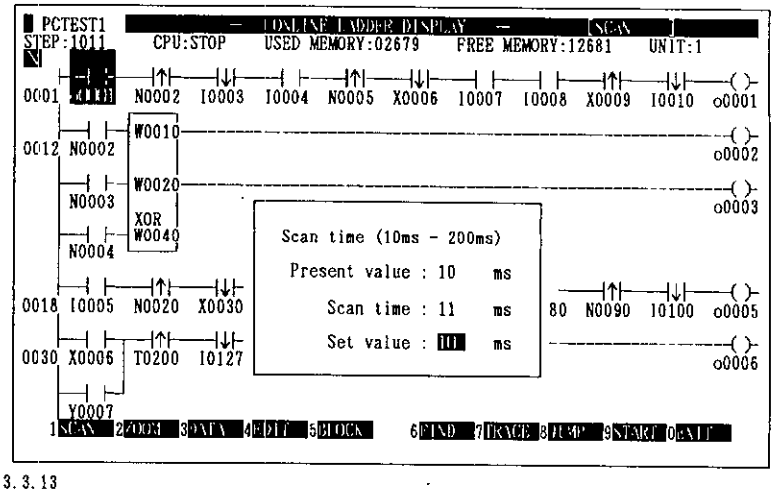


3.3.12

(1) Depress [f1] [SCAN].

(2) Select "Set".
To cancel existing constant sweep settings, select "Cancel".

Select "Set" and enter constant sweep setting value.



3.3.13

(3) To use constant sweeping, set up constant sweep target time in "Set value" and depress [↵] .

(4) To return to the preceding display, depress [ESC] .

(5) On this display, a value that has nothing to do with constant sweeping may appear for the current setting.

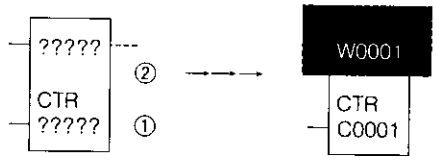
(6) The set target is displayed in the "Present value"

(7) The actual scan time is also displayed in the "Scan time".

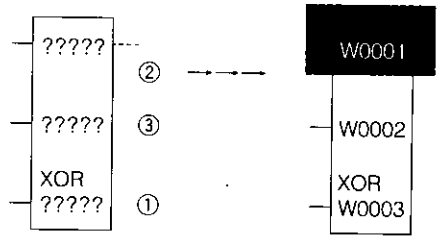
3.24 ENTERING AND MODIFYING DOUBLE AND TRIPLE ELEMENTS BY ONLINE LADDER EDITING

Input example

Double element



Triple element



(1) Similar to entering a single element, depress [f9] [INPUT] to select the element to be edited from the window menu.

To enter a double element:

(2) Enter reference numbers in the order of the numbers (① ②) displayed on the right in the above display, then depress [↵].

(3) Depressing [ESC] returns to the entry of ②, that of ①, or to the preceding display, respectively.

To enter a triple element:

(4) Enter reference numbers in the order of the numbers (①, ② or ③) displayed on the right in the above display, then depress [↵].

(5) Depressing [ESC] returns to the entry of ③, that of ②, ①, or to the preceding display, respectively.

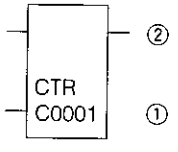
(6) If the cursor is on the left half of the display (columns 1 to 5), the window appears on the right half.

(7) If the cursor is on the right half of the display (columns 6 to 11), the window appears on the left half. Check the type and the range of reference numbers that can be entered.

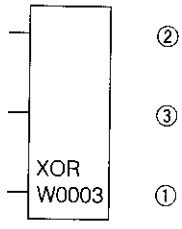
Example of modifying double and triple elements

Modification example

(Double element)



(Triple element)



(1) The display is the same as that for modification of single-element reference numbers. To modify a double-or-triple element reference number, move the cursor to the reference display of the function and depress [f8] [CHANGE] Modify reference numbers in the order of the numbers shown in the above figure. To skip a reference number that needs no modification, depress [↵] to move the cursor to the next position.

4. MC OPERATION

4.1 FUNCTION KEYS USED FOR OFFLINE PROGRAM EDITING

[Usual key assignment]

[f2] [SELECT] : Select the program line area to be deleted, copied, or moved.
[f3] [CUT] : Delete program lines.
[f4] [COPY] : Copy program lines.
[f5] [PASTE] : Insert program lines.
[f6] [FIND] : Move the cursor to a specific character string.
[f7] [REP.] : Modify the character string.
[f8] [JUMP] : Move the cursor to a target program line.
[f9] [N-NO] : Reassign N numbers.
[f10] [EXIT] : Terminate program editing (after either saving or discarding the edited program).

* For the functions of SELECT, CUT, COPY, PASTE, FIND, REP., JUMP, and EXIT, refer to the explanation on mnemonic programs in PLC programming.

4.2 N NUMBERS OF MOTION PROGRAM

(1) N numbers can be duplicated.

(2) N numbers do not need to be placed in the program in the order of the number. For instance,

N020,
N010,
N303, ·····.

(3) Cut and paste handles lines including N numbers.

(4) Successive N numbers can be modified at once. This operation modifies N numbers from the beginning line through the last line containing "EOF," allowing no partial modification. Only the lines having N numbers are modified according to the settings of starting number and step number for successive modification. N numbers in goto statements are also modified.

The number of steps is not changed by the reassignment.

4.3 FUNCTION KEYS USED FOR OFFLINE PARAMETER SETTING

[Usual key assignment]

f1 [COMMON] : Set up axis common parameters.
f2 [AXIS 1] : Set up parameters for axis 1.
f3 [AXIS 2] : Set up parameters for axis 2.
f4 [AXIS 3] : Set up parameters for axis 3.
f5 [AXIS 4] : Set up parameters for axis 4.
f10 [EXIT] : Terminate parameter setting after either saving or discarding the settings.

4.4 FUNCTION KEYS USED FOR ONLINE PARAMETER SETTING

[Usual key assignment]

f1 [COMMON] : Set up axis common parameters.
f2 [AXIS 1] : Set up parameters for axis 1.
f3 [AXIS 2] : Set up parameters for axis 2.
f4 [AXIS 3] : Set up parameters for axis 3.
f5 [AXIS 4] : Set up parameters for axis 4.
f10 [EXIT] : Terminate parameter setting after either saving or discarding the settings.

4.5 FUNCTION KEYS USED FOR ONLINE PROGRAM EDITING

[Usual key assignment]

f1 [SWITCH] : Switch function key labels.
f2 [SELECT] : Select program line area to be deleted, copied, or moved.
f3 [CUT] : Delete program lines.
f4 [COPY] : Copy program lines.
f5 [PASTE] : Insert program lines.
f6 [FIND] : Move the cursor to a specific character string.
f7 [REP.] : Modify the character string.
f8 [JUMP] : Move the cursor to a target program line.
f9 [N-NO] : Select whether to automatically generate N numbers.
f10 [EXIT] : Terminate program editing.

[Switched key assignment (1)]

f1 [SWITCH] : Switch function key labels.
f2 [X] : Teach the X-axis.
f3 [Y] : Teach the Y-axis.
f4 [Z] : Teach the Z-axis.
f5 [S] : Teach the S-axis.
f6 [ERRPLS] : Display error pulses.
f8 [EXEC] : Execute single-block operation (in forward direction).
f9 [HLD ON] : Halt single-block operation.
f9 [HLD OFF] : Restart the halted single-block operation.
f10 [ABORT] : Terminate single-block operation.

[Switched key assignment (2)]

f1 [SWITCH] : Switch function key labels.
f2 [X] : Teach the coordinate (on the X-axis) of the center of a circle.
f3 [Y] : Teach the coordinate (on the Y-axis) of the center of a circle.
f4 [Z] : Teach the coordinate (on the Z-axis) of the center of a circle.
f5 [S] : Teach the coordinate (on the S-axis) of the center of a circle.
f8 [EXEC] : Execute single-block operation (in forward direction).
f9 [HLD ON] : Halt single-block operation.
f9 [HLD OFF] : Restart the halted single-block operation.
f10 [ABORT] : Terminate single-block operation.

I/O Setting

[Usual key assignment]

f2 [DELETE] : Delete more than one reference number.
f4 [IN] : Set up MC unit external inputs.
f5 [OUT] : Set up MC unit external outputs.
f6 [ON] : Turn ON output #Oxxxx forcibly.
f7 [OFF] : Turn OFF output #Oxxxx forcibly.
f8 [UP] : Display continuously (in the reference-number ascending order).
f9 [DOWN] : Display continuously (in the reference-number descending order).

4.6 DELETION OF IN/OUT DISPLAY

(1) Deletion

All : Delete all the reference numbers being displayed on the display.

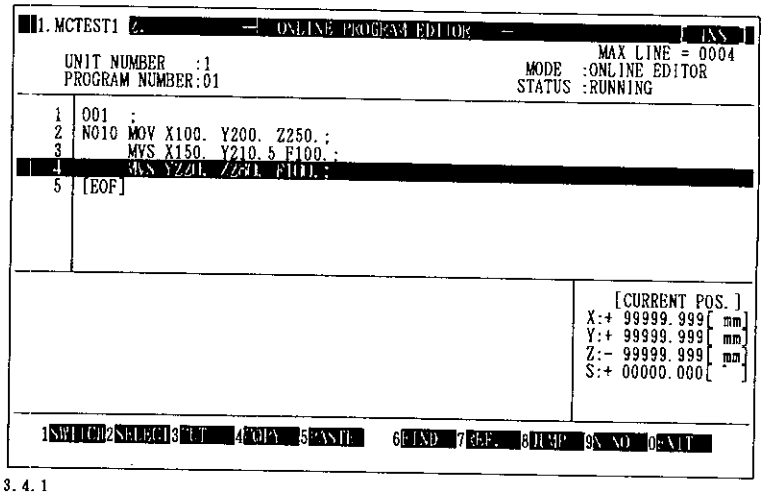
Line delete : Delete horizontal display data starting from the cursor location.

Column del : Delete vertical display data starting from the cursor location.

Note : To delete individual reference numbers, use [DEL].

4.7 SINGLE BLOCK OPERATION

Online program editing basic display



3. 4. 1

(1) The [f8] [EXEC] key executes the program by single-block.

(2) The [f9] [HLD ON] key halts single-block operation of the program.

(3) The [f9] [HLD OFF] key restarts the halted single-block operation.

(4) The [f10] [ABORT] key terminates single block operation.

(5) During single-block operation, the block being executed is displayed in highlight.

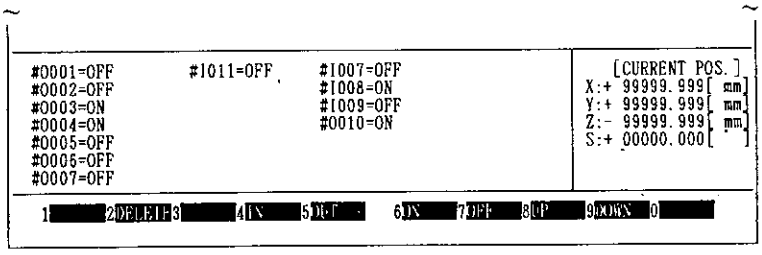
4. MC OPERATION

4.8 ERROR PULSE DISPLAY DURING ONLINE PROGRAM EDITING

(1) Depressing f6 [ERRPLS] changes [CURRENT POS.] on the lower right of the display to [ERROR PULSE].

4.9 CONTINUOUS DISPLAY ON IN/OUT SCREEN (1)

IN/OUT display



3.4.2

(1) Assume that the cursor is initially at "#o010=ON." Depressing f9 [DOWN] three times in a row shows the above display example. The function of f9 [DOWN] is moving the cursor in the reference-number descending direction.

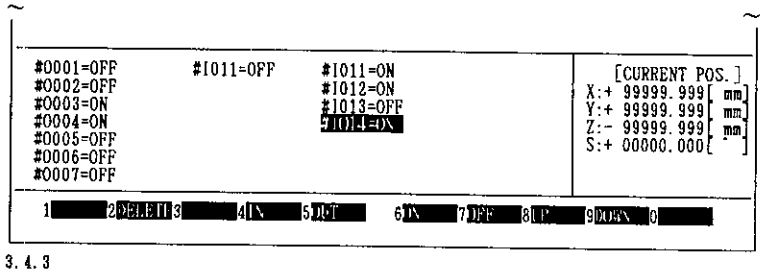
(2) The display remains in the same position, if possible. After f9 [DOWN] is depressed for a number of times, the cursor reaches the top of the display. After that, the bottom line disappears as f9 [DOWN] is depressed.The figure shows an example where the bottom line "#I010=ON" disappears from the display by depressing f9 [DOWN] .

#I009=OFF #I008=ON
#I010=ON → #I009=OFF Bottom line on the display

↑ Display end

4.10 CONTINUOUS DISPLAY ON IN/OUT SCREEN (2)

IN/OUT display



3.4.3

(1) Assume that the cursor is initially at "I011=ON ."depressing [f8] [UP] three times in a row shows the above display example. The function of [f8] [UP] is moving the cursor in the reference-number ascending order.

(2) The display remains in the same position if possible. After [f8] [UP] is depressed for a number of times, the cursor reaches the bottom of the display. After that, the top line disappears as [f8] [UP] is depressed. The figure on the right shows an example where the top line "#I003=ON" disappears from the display by depressing [f8] [UP].

Display end
↓

#I003=OFF →	#I004=ON	Top line on the display
#I004=ON	#I005=OFF	

4. MC OPERATION

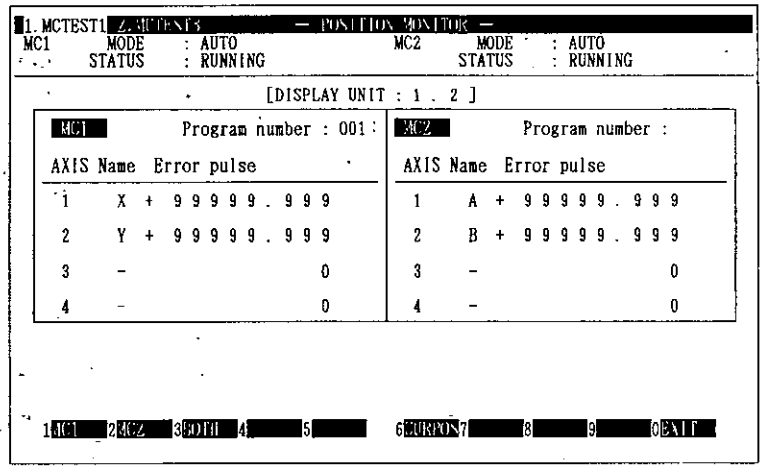
4.11 FUNCTION KEYS USED FOR POSITION MONITOR

[Usual key assignment]

f1 [MC1] : Switch to MC1.
f2 [MC2] : Switch to MC2.
f3 [BOTH] : Display both MC1 and MC2.
f4 [ERRPLS] : Display error pulses.
f10 [EXIT] : Terminate position monitor.

4.12 ERROR PULSE DISPLAY

Simultaneous display of MC1 and MC2



3.4.4

Normal, the current position is displayed on the position monitor display. This can be switched to error pulse display.

(1) Depress f6 [ERRPLS] to switch to error pulse display.

(2) Depress f6 [CURPOS] to switch to current position display.

4.13 FUNCTION KEYS USED FOR PROGRAM MONITOR

[Usual key assignment]

f1 [MC□] : Switch MC1 and MC2. The square stands for 1 or 2.
f2 [DELETE] : Delete more than one reference number.
f4 [IN] : Display MC unit external inputs.
f5 [OUT] : Display MC unit external outputs.
f6 [ERRPLS] : Display error pulses.
f8 [UP] : Display continuously (in the reference-number ascending order).
f9 [DOWN] : Display continuously (in the reference-number descending order).
f10 [EXIT] : Terminate program monitor.

4.14 FUNCTION KEYS USED FOR STATUS DISPLAY

I/O status

[Usual key assignment]

f1 [MC1] : Display the status of MC1.
f2 [MC2] : Display the status of MC2.
f3 [BOTH] : Display the status of MC1 and MC2 simultaneously.
f10 [EXIT] : Terminate I/O status display.

Status information

[Usual key assignment]

f1 [MC1] : Display the status of MC1.
f2 [MC2] : Display the status of MC2.
f3 [BOTH] : Display the status of MC1 and MC2 simultaneously.
f10 [EXIT] : Terminate status information display.

Memory capacity

[Usual key assignment]

f10 [EXIT] : Terminate memory capacity display.

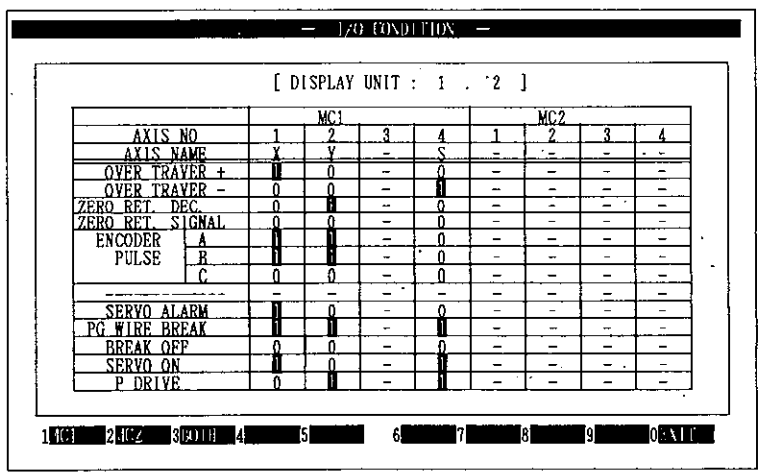
4. MC OPERATION

4.15 MC UNIT STATUS (ONLINE MONITOR)

- I/O CONDITION : Status of inputs and outputs of (four) individual axes of the MC units is displayed in a table of data items.
- OPERATION MONITOR : Status information of the MC units is displayed in a table of data items.
- MEMORY CAPACITY : Status of program memory (total, used, and remaining memory capacities) of the MC units is displayed.

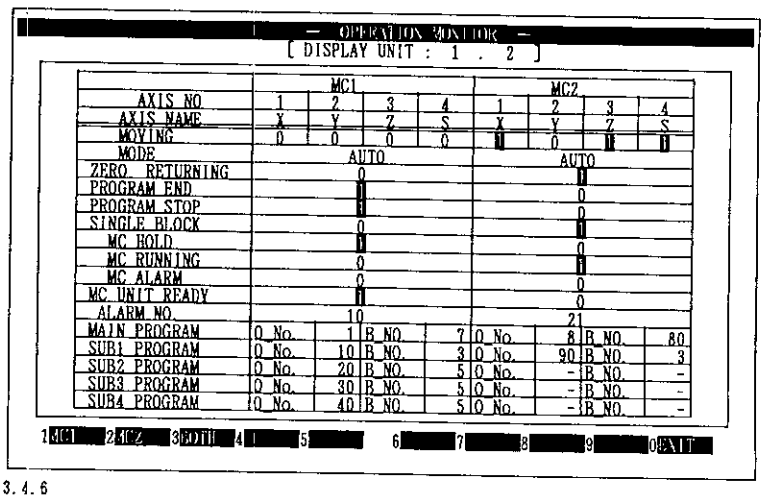
Note : For I/O status and status information display, either MC1 or MC2, or both, can be selected by the function keys.

I/O CONDITION (INPUT : OPEN = ■, CLOSE = 0 OUTPUT : CLOSE = ■, OPEN = 0)



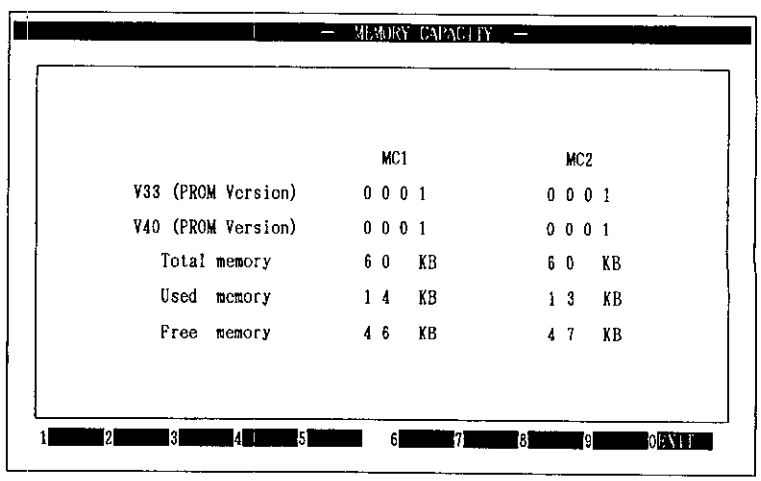
3.4.5

OPERATION MONITOR (ON : 1 OFF : 0)



3.4.6

MEMORY CAPACITY



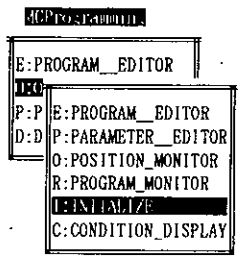
3.4.7

4. MC OPERATION

4.16 INITIALIZING THE MC UNITS

The MC unit can be initialized in two ways ; either by program clear or initializing parameters.

- PROGRAM CLEAR : Clear MC program memory contents.
- PARAMETER INITIALIZE : Reset parameters to the factory setting.



4.17 ONLINE PARAMETER SETTING

Motion parameters can be set up online. Method of setting is similar to offline parameter setting. The following items can be displayed.

- Unit number
- Mode
- Status
- Parameter number
- Parameter name
- Current settings
- Unit
- Setting range

Among the above items, only the current settings can be modified by online parameter setting. File names that can be edited are fixed. Settings are checked with the range of settings ; if an inappropriate value is entered, an error message is output. Modifying parameters online naturally modifies parameters on the MC units directly. To save the file of modified parameters, the database name and the file name must be modified and a title must be added.

5. UTILITY

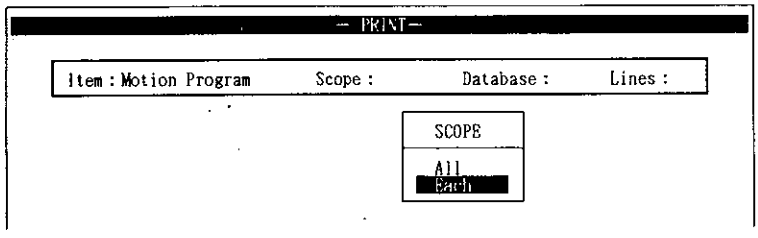
5.1 TYPE AND INFORMATION OF PRINTING

1) Type of printing ····· Circuit block
Cross reference
Circuit block + cross reference
Mnemonic program
Motion program
Motion parameters
Direct I/O assignment
Expanded I/O assignment
Printing style

2) Header information ····· Page, date of printing,
database name, file name,
date of creation, title, etc.
(program number, total number of steps in the program, names of used axes, and so on)

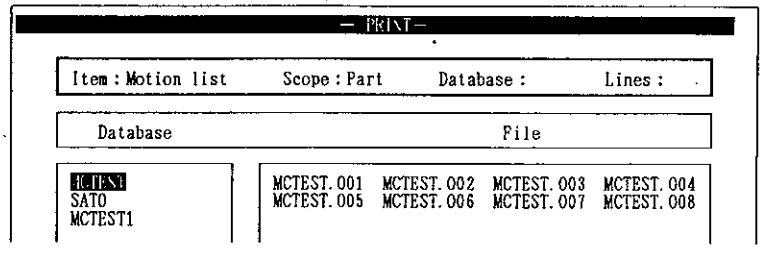
5. UTILITY

5.2 PRINTING MOTION PROGRAMS AS A DATABASE



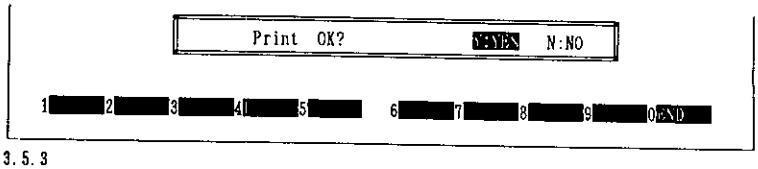
3.5.1

(1) Select the motion program, then select "All". If "Each" is selected, motion programs in the directory specified on the next display are printed in files.



3.5.2

(2) Select the database



3.5.3

(3) Select from the following in the window.

Y : Yes (Start printing.)
N : No (Cancel printing.)
Select "YES" to start printing

Example of printing a motion program

```
                                                              PAGE : 1
Motion program                                  Printout date : 93-09-03

Database name : MCTEST1
File     namw : MCTEST1.001
Create   date : 93-09-03

     Axis1 : X   Axis2 : Y   Axis3 : Z   Axis4 : S

      Program No. : 001
         Max step : 7



  1  001  "TEST PROGRAM ";
  2  N010 ABS;
  3       MVS X0. Y100. Z100. F500. ;
  4       MOV X10;
  5       MOV X10.;
  6       END;
  7       ;
```

6. ALARM MESSAGE LIST

6.1 PLC PROGRAMMING

(1) Mnemonic program

Message list

Message	Cause	Action to be taken
Please select steps.	This message is output if the mnemonic program function is selected and the PF2 (SEL) key is depressed.	If this message is output because of an inadvertent key operation, depress the ESC key to return to the preceding display.
Not find data.	This message is output if the mnemonic program function is selected and a character string was searched for but was not found.	——
Not replace data.	This message is output if the mnemonic program function is selected and replacement of a character string was performed but was not found.	——
"SELECT-RANGE" : Illegal.	This message is output if the mnemonic program function or MC program editing is selected and first line (the line with execution number 0) or the EOF line is specified by the PF2 (ESC) key.	Set up the range properly.
"INPUT-DATA" : Illegal.	This message is output regardless of which what function is selected, if inappropriate characters were entered as data.	Enter correct data.
Input-database does not exist.	This message is output if the mnemonic program function or parameter editing function is selected and no database is found in the directory to save the source file at termination of the function.	Create a database name.
Errorlist does no exist.	This message is output if the mnemonic program function is selected and the PF3 (error) key was depressed but the error list (MNEMONIC.ERROR) was not found in the currently selected database.	——
Text size max over.	This message is output if the mnemonic program function is selected and the text being edited exceeded the maximum possible size.	Re-edit the text so that it will not exceed the maximum text size.
Different level. (errorlist/mnemonic text)	This message is output if the mnemonic program function is selected and the error list was displayed by depressing the PF3 (error) key but the error occurrence number in the list was not found in the text being edited and a tag jump was made.	——

(2) Compilation

Message list (1)

Message	Cause	Action to be taken
ERROR (10001) Const. error : Mnemonic error.	This message is output if the mnemonic program function is selected and a wrong command (mnemonic) is entered during text editing.	Enter a correct mnemonic.
ERROR (10002) Const. error : Reference error.	This message is output if the mnemonic program function is selected and a wrong reference is entered during text editing.	Enter a correct reference.
ERROR (10002) Const. error : Reference mismatch.	This message is output if the mnemonic program function is selected and the entered reference is not suitable for the mnemonic that has been entered during text editing.	Enter a correct reference.
Not select database.	This message is output if the compilation function or parameter editing setting is selected and no database has been selected.	Select a database by the PLC database management function.
Memory allocation error.	This message is output if the compilation function is selected and necessary memory for the work could not be allocated.	Increase memory.
File open error.	This message is output if the compilation function is selected and an error occurred when a file (source, object, or error list file) was opened.	(System error)
File write error.	This message is output if the compilation function is selected and writing to a file failed because the hard disk of the Programming Panel was full.	Create space on the hard disk of the Programming Panel.
File close error.	This message is output if the compilation function is selected and an error occurred when a file (source, object, or error list file) was closed.	(System error)
Compile file does not exist or file open error.	This message is output if the compilation function is selected and no mnemonic source file to be compiled was found in the selected database. Note : The file to be compiled must have the file name similar to the selected database name with extensifier "INS" added.	Create a mnemonic source program by the mnemonic program function or select the database that contains the source file by the PLC database management function.
File read error.	This message is output if the compilation function is selected and an error occurred when a file (source, object, or error list file) was read	(System error)
Invalid mnemonic sorce file.	This message is output if the compilation function is selected and the mnemonic source file to be compiled is not in the correct mnemonic source file format.	Delete the file by the PLC database management function, create a new mnemonic source file by the mnemonic program function, then compile the new file.
SIZE OVER : Network block exceeds $7 \times 10 + 7$ element.	This message is output as an error list if the compilation function is selected and a single-circuit block exceeding the condition ($7 \times 10 + 7$ columns) is programmed.	Correct the program so that $7 \times 10 + 7$ will not be exceeded.
STR OVER : Too many command. (STR/STN/STH/STL)	This message is output as an error list if the compilation function is selected and, although the condition ($7 \times 10 + 7$ columns) for a single circuit block is satisfied, an allowable number in programming was exceeded.	Reduce the stored number and create the program again.

6. ALARM MESSAGE LIST

Message List (2)

Message	Cause	Action to be taken
FAULT NEM : Cannot used this command.	This message is output as an error list at compilation of a function circuit block if a command that cannot be used in a function circuit is programmed.	
FAULT NEM : Cannot connect this command.	This message is output as an error list if the compilation function is selected and the source command (store) to which the command on the line issuing this message is to be connected was not found.	Program the source command (store) to be connected.
FAULT NEM : Cannot network block not found	This message is output as an error list if the compilation function is selected and the block was not found to which the command (ANB or ORB) on the line issuing this message is to be connected was not found.	Program the block to be connected, or delete the connection command (ANB or ORB).
FAULT NEM : Not connect network block exist	This message is output as an error list if the compilation function is selected and there is a block that is not connected in a single network.	Delete the unconnected block, or program a connection command (ANB or ORB).
FAULT NEM : Command failured.	This message is output as an error list at compilation of a function circuit if the maximum number of NOPs available as input elements was exceeded.	Reduce NOPs.
FAULT NEM : Nothing input-element.	This message is output as an error list at compilation of a function circuit block if no input element is programmed.	Program at least one input element.
FAULT NEM : Input-element max over.	This message is output as an error list at compilation of a function circuit block if the maximum number of input elements available for the command was exceeded.	Reduce input elements.
FAULT NEM : Input-element failured.	This message is output as an error list at compilation of a function circuit block if an erroneous input element was found.	Correct the input element.
NOT COMPILE : Nothing compile data.	This message is output as an error list if there are no source steps in the main program of the compiled mnemonic source file.	Create the main programming by the mnemonic function.
EOF ERROR : Network block not finished text end.	This message is output as an error list if the compilation function is selected and EOF was found in the mnemonic source prior to the end circuit.	Complete the circuit program.
LIST STOP : Errorlist output stop. Step over 100 line.	This message is output as an error list if the compilation function is selected and more than 100 compilation errors occurred.	Correct the errors by the mnemonic program function and compile the program again.
MEM OVER : Ladder object memory size exceeds 16KW.	This message is output as an error list if the maximum allowable size (16K words) of a ladder object was exceeded prior to the compilation.	Edit the program so as not to exceed 16K words by the mnemonic program function.

(3) Online ladder

Message list (1)

Message	Cause	Action to be taken
(01H) : Invalid command.	Communication data error	Check the PROGIC-8 Programming System and cables.
(02H) : Invalid page.		
(03H) : Invalid type.		
(04H) : Invalid parameter. (count seq# etc)		
(05H) : Invalid adr/adr range.		
(06H) : Invalid ref #/# range.		
(07H) : Memory protect on.	The memory protect switch is ON.	Turn OFF the memory protect switch.
(08H) : Controler running.	The PLC unit is running.	Stop the PLC unit.
(09H) : Not logged in.	Communication data error	Check the PROGIC-8 Programming System and cables.
(0AH) : Memory full.	Remaining user program memory of the PLC unit is zero.	Clear memory.
(0BH) : Invalid node type.	Communication data error	Check the PROGIC-8 Programming System and cables.
(0DH) : Coil not disabled.	The coil or relay to be forcibly turned ON or OFF is not in the simulation (disabled) status.	Set it in the simulation status.
(10H) : Search failured.	There is no text being searched for after that address.	——
(16H) : UART status error.	Communication port error	Check cables and the PLC unit.
(18H) : I/O allocation error.	Number of extended I/O assignments exceeded the specified limit.	Review the extended I/O assignment.
(19H) : I/O slot full.	Number of extended I/O assignments exceeded the allowable slot number.	Review the expended I/O assignment.
(21H) : Illegal port configuration.	The transmission parameters are inappropriate.	Check the PLC unit.

6. ALARM MESSAGE LIST

Message list (2)

Message	Cause	Action to be taken
(23H) : Running trace back.	Trace-back is being performed.	Stop trace-back.
(24H) : COM fatal error.	Communication data error	Check the PROGIC-8 Programming System and cables.
Nothing ladder object.	There are no ladder data on the PLC unit.	Load ladder data to the PLC unit.
CRC check error.	Communication data error	Check the PROGIC-8 Programming System and cables.
Send error.	Communication data error	Check the PROGIC-8 Programming System and cables.
Nothing subroutine object.	There are no subroutine data on the PLC unit.	Load subroutine data to the PLC unit.
File open error.	The PLC unit ladder data are abnormal.	Clear data on the PLC unit.
File read error.	The PLC unit ladder data are abnormal.	Clear data on the PLC unit.
File close error.	The PLC unit ladder data are abnormal.	Clear data on the PLC unit.
File write error.	PLC unit failure	Check the PROGIC-8 Programming System and cables.
File read error.	The PLC unit ladder program is abnormal.	Clear data on the PLC unit.
File write error.	PLC unit failure	Check the PROGIC-8 Programming System and cables.
Trace max over.	This message is output if the online ladder display function is selected and the upper limit (30) of trace objective data was exceeded.	Do not exceed trace objective data upper limit.
Not find data. (bachward)	This message is output if the online ladder display function is selected and reverse retrieval was carried out but there are no text being searched for above this line.	——
Not find data. (forward)	This message is output if the online ladder display function is selected and reverse retrieval was carried out but there are no text being searched for below this line.	——
Not trace data. (bachward).	This message is output if the online ladder display function is selected and tracing was carried out but there are no data being traced above this line.	——
Not trace data. (forward).	This message is output if the online ladder display function is selected and retracing was carried out but there are no data being retraced below this line.	——
Nothing retrace data.	This message is output if the online ladder display function is selected and retracing was carried out but there are no data being retraced.	——

Message list (3)

Message	Cause	Action to be taken
Communication data destrction.	This message is output if online ladder editing is selected and editing function were executed but the downloaded data was lost.	Re-create the data or perform compilation again.
Trace table max over.	This message is output if online ladder display is selected and tracing was executed but the trace objective data exceeded the maximum trace table value (40).	Restart tracing from the position where the error occurred.
Not disable.	This message is output if online ladder display and data function simulation are selected and connection or ON/OFF switching was attempted although release has not been accomplished.	Perform release processing before performing connection or ON/OFF processing in simulation.
Overlap disable.	This message is output if online ladder display and data function simulation are selected and release was attempted twice in a row.	Proceed to the next step.
Overlap set on.	This message is output if online ladder display and data function simulation are selected and ON switching was attempted twice in a row.	Proceed to the next step.
Overlap set off.	This message is output if online ladder display and data function simulation are selected and OFF switching was attempted twice in a row.	Proceed to the next step.
Nothing element.	This message is output if online ladder display is selected and an element was searched for but the element was not effective as an objective of search.	Enter a correct element and reexecute search.
"SINGLE ELEMENT FUNCTION" : Reference number does not exist.	This message is output if online ladder display is selected and a single element plus the reference number were searched for but the reference number was not effective.	Enter a correct reference number.
"ALL ELEMENT FUNCTION" : Reference number does not exist.	This message is output if online ladder display is selected and a reference number was searched for but the reference number was not effective.	Enter a correct reference number.
"ALL ELEMENT FUNCTION" : Constant Reference number out of range.	This message is output if online ladder display is selected and a single element plus the reference number were searched for but the reference number was not effective.	Enter a correct reference number.
"ALL ELEMENT FUNCTION" : Variable Reference number out of range.	This message is output if online ladder display is selected and a single element plus the reference number were searched for but the specified constant reference number was out of range (from 0 to 9999).	Enter a correct reference number.
Cannot forward scroll.	This message is output if online ladder display is selected and a single element plus the reference number were searched for but the specified non-constant reference number was out of range (from 0 to 9999).	Enter a correct reference number.
Cannot backward scroll.	Do not depress the ROLL UP key again.	This message is output if online ladder display is selected and the ROLL UP key was depressed at the end of the data.
Not find mode.	Do not depress the ROLL DOWN key again.	This message is output if online ladder display is selected and the ROLL DOWN key was depressed at the top of the data.
Not trace mode.	Make necessary preparations before starting reverse search.	This message is output if online ladder display is selected and reverse search was attempted without preparation.

6. ALARM MESSAGE LIST

Message list (4)

Message	Cause	Action to be taken
Not trace mode.	This message is output if online ladder display is selected and retracing was attempted without performing tracing beforehand.	Perform tracing before retracing.
Retrace out of limit.	This message is output if online ladder display is selected and retracing was attempted beyond the trace data where tracing was started.	Do not perform reverse retracing of the line issuing the message.
"REFERENCE NUMBER" : Cannot trace.	This message is output if online ladder display is selected and an ineffective reference number was specified for tracing.	Check the reference number and specify the correct one.
"ELEMENT" : Cannot trace.	A non-contact element was specified for tracing.	Start tracing with the cursor positioned at a contact.
Illegal input reference number.	This message is output if online ladder display is selected and the input reference number is out of the effective range.	Enter a correct reference number.
Illegal position.	This message is output if the "UP" or "DOWN" display key is depressed with the cursor positioned where no reference number was entered.	Move the cursor to the correct position (where data have been entered), then depress the ↑ or ↓ display key.
Illegal data.	This message is output if online ladder display is selected if the reference number stands for a register but an ineffective value was entered for modification.	Enter a correct value.
Illegal data range.	This message is output if online ladder display is selected and the reference number stands for a register but a signed decimal number greater than 9999 was entered for modification.	Enter a correct value.
Communication error (deleting laddar object). Please load again.	This message is output during online ladder editing if a transmission or reception error occurred between the PLC unit while a selected circuit block is being cut. Ineffective value was entered for modification.	Download the ladder object again by the PLC database management loading function.
Not eough laddar object area, cannot insert.	This message is output during online ladder editing if the PLC unit runs short of ladder object area while a selected circuit block is being pasted, created or modified.	Delete ladder objects by ladder editing.
Communication error (inserting lsaddar object). Please load again.	This message is output during online ladder editing if a transmission or reception error occurred between the PLC unit while a selected circuit block is being pasted, created or modified.	Download the ladder object again by the PLC database management loading function.
Cannot updata in the location.	This message is output when there is no net to be modified because the modification key was depressed on the EOL symbol.	Carry out modification where there is a net.
All laddar object cannot delete.	This is included in the specifications in which not all the ladder objects can be deleted.	Leave at least one ladder object.
Not eough memory for execute laddar editor.	This message is output if memory for ladder editing could not be allocated.	Allocate execution file size plus 18K bytes of main memory and execute the program.
Out of selection range.	This message is output because selection buffer capacity is 3000 words and no more selection is possible.	Select within 3000 words.
"GSB" : cannot use.	This message is output if entry of GSB was attempted in a subroutine circuit.	The entry is impossible.

Message list (5)

Message	Cause	Action to be taken
"ELEMENT" : Illegal position.	This message is output when an attempt was made to enter a contact or coil not in the 11th column or a function not in the second column on the first line.	Enter elements in correct positions.
Not link the net.	This message is output if there is a short-circuit wire that is not connected logically.	Connect wires properly.
Net logical error.	Mnemonic representation is impossible because OR operation by a combination of short-circuit wires spans two OR operations.	Redesign the circuit.
No discrete on the net.	Logical error	Enter an element at the cursor location or redesign the circuit.
Cannot use on the function net.	This message is output if an ineffective element is entered.	Delete the element at the cursor location.
Illegal input element of function.	This message is output if a horizontal short-circuit wire is set up for the input element for a function.	Delete the horizontal short-circuit wire at the cursor location.
No input element of function.	It is a logical error if no input element is set up for the function circuit.	Set up input elements.
Need input element.	It is a logical error if the first input element for the function is not set up.	Never fail to set up the first input element of a function
"DISCRETE" : Illegal position.	It is an error if there is a contact after the function command in a function circuit.	Delete the contact at the cursor location.
"VERTICAL LINE" : Illegal position.	There is a vertical short-circuit wire in the function circuit which is a logical error.	Delete the vertical short-circuit wire at the cursor location.
Reference mismatch.	The input value is out of the reference number range.	Enter a correct value.
Illegal operand.	An invalid character was entered for an operand.	Enter a correct character.
More than one "TIM/CON"	The TIM and CON commands cannot be duplicated.	Delete the excessive TIM or CON command.
"SKP" cannot use.	Entry of SKP in a subroutine circuit was attempted.	The SKP command cannot be used in a subroutine circuit.
"OUT" cannot use.	OUT is set up for the GSB command.	Delete OUT.
"TIM/CON" cannot use.	The TIM or CON command was set up in a function circuit.	Delete the TIM or CON command.
"DISCRETE" : Illegal position.	More than one coil is defined and a contact is set up after the vertical short-circuit wire that branches the output.	Delete the contact at the cursor location.

6. ALARM MESSAGE LIST

(4) Offline ladder

Message list (1)

Message	Cause	Action to be taken
File open error.	This message is output if offline ladder display is selected and no ladder source file to be displayed was found in the selected database. Note : The file to be displayed must have a file name similar to the selected database name with expander "LAD" added.	Create a mnemonic source program by the mnemonic program function or select the database that contains the source file by the PLC database management function.
File format error.	This message is output if the header of the ladder file is lost.	Compile the program again.
File format error.	This message is output if the file ID code and the expander do not match.	Check if the file is destroyed. Compile the program again.
File format error.	This message is output if there are no assignment data at the disk address set up in the index.	Compile the program again.
File format error.	This message is output if there are no entry data at the disk address set up in the index.	Compile the program again.
File format error.	This message is output if there are no total sum data at the disk address set up in the index.	Compile the program again.
File format error.	This message is output if there are no object data at the disk address set up in the index.	Compile the program again.
File format error.	This message is output if there are no subroutine object data at the disk address set up in the index.	Compile the program again.
File format error.	This message is output if there is no index in the ladder file.	Compile the program again.
File open error.	This message is output if offline ladder display is selected but there is no file having the "INS" expander in the selected database or there is such a file but the file name does not match the database name.	Create a mnemonic source program by the mnemonic program function or select the database that contains the source file by the PLC database management function. Other wise, rename the file after the database (by the rename function).
File close error.	(System error)	
File format error.	This message is output if the header of the mnemonic file is destroyed or the file has no header.	Create new data by mnemonic program editing.
File format error.	This message is output if the mnemonic data are destroyed or the file has no mnemonic data.	Create new data by mnemonic program editing.
File format error.	This message is output if the header of the mnemonic file is destroyed or the file has no header.	Create new data by mnemonic program editing.
File format error.	This message is output if there is no index data.	Create new data by mnemonic program editing.

Message list (2)

Message	Cause	Action to be taken
File format error.	This message is output if the index data are destroyed.	Create new data by mnemonic program editing.
Not select database.	This message is output if there is no INF file in the PMC directory.	Create an INF file by system environment setting.
Not find data. (backward)	This message is output if the offline ladder display function is selected and reverse retrieval was carried out but there is no text being searched for above this line.	——
Not find data. (forward)	This message is output if the offline ladder display function is selected and forward retrieval was carried out but there is no text being searched for below this line.	——
Not trace data. (backward)	This message is output if the offline ladder display function is selected and tracing was carried out but there are no data being traced above this line.	——
Not trace data. (forward)	This message is output if the offline ladder display function is selected and retracing was carried out but there are no data being retraced below this line.	——
Nothing retrae data.	This message is output if the online ladder display function is selected and retracing was carried out but there are no data being retraced.	——
Subroutine object destrction.	This message is output if offline ladder display is selected and subroutine data is destroyed during zoom processing.	Create new data by mnemonic program editing.
Trae table max over.	This message is output if offline ladder display is selected and tracing was executed but the trace objective data exceeded the maximum trace table value (40).	Restart tracing from the position where the error occurred.
Trace max over.	This message is output if the offline ladder display function is selected and the upper limit (30) of trace objective data was exceeded.	Do not exceed trace objective data upper limit.
Nothing element.	This message is output if offline ladder display is selected and an element was searched for but the element was not effective as an object of search.	Check the input retrieval element and enter a correct element.
"SINGLE ELEMENT FUNCTION" : Reference number does not exist.	This message is output if offline ladder display is selected and a single element plus the reference number were searched for but the reference number was not effective.	Check the input reference number, enter a correct element, and perform retrieval again.
"ALL ELEMENT FUNCTION" : Reference number does not exist.	This message is output if offline ladder display is selected and a reference number out of the effective range was used for retrieval.	Check the input reference number and enter a correct reference number.
"ALL ELEMENT FUNCTION" : Constant Reference number out of range.	This message is output if offline ladder display is selected but the value input for search was not a reference number (constant 0 to 9999).	Check the input reference number and enter a correct reference number.
"ALL ELEMENT FUNCTION" : Variable Reference number out of range.	This message is output if offline ladder display is selected but the value input for search was not a effective reference number (non-constant).	Check the input reference number and enter a correct reference number.
Not forward scroll.	This message is output if offline ladder display is selected and the ROLL UP key was depressed at the end of data.	Do not depress the ROLL UP key any more.

6. ALARM MESSAGE LIST

Message list (3)

Message	Cause	Action to be taken
Not backward scroll.	This message is output if offline ladder display is selected and the ROLL DOWN key was depressed at the top of data.	Do not depress the ROLL DOWN any no more.
Not find mode.	This message is output if offline ladder display is selected and reverse search was attempted without prepartion.	Make necessary preparations before starting reverse search.
Not trace mode.	This message is output if offline ladder display is selected and retracing was attempted without performing tracing beforehand.	Perform tracing before retracing.
Retrace out of limit.	This message is output if offline ladder display is selected and retracing was attempted beyond the trace data where tracing was started.	Do not perform retracing of the line issuing the message.
"REFERENCE NUMBER" : Can not trace.	This message is output if offline ladder display is selected and ineffective reference number was specified for tracing.	Check the reference number and specify the correct one.
"ELEMENT" : Can not trace.	A non-contact element was specified for tracing.	Start tracing with the cursor positioned on a contact.

(5) Others

Message list (1)

Message	Cause	Action to be taken
(01H) : Invalid command.	Communication data error	Check the PROGIC-8 Programming System and cables.
(02H) : Invalid page.		
(03H) : Invalid type.		
(04H) : Invalid parameter. (count seq# etc.)		
(05H) : Invalid adr/adr range.		
(06H) : Invalid ref #/# range.		
(07H) : Memory protect on.	The memory protect switch is ON.	Turn OFF the memory protect switch.
(09H) : Not lgged in.	Communication data error	Check the PROGIC-8 Programming System and cables.
(0AH) : Memory full.	Remaining user program memory of the PLC unit is zero.	Clear memory.
(0BH) : Invalid node type.	Communication data error	Check the PROGIC-8 Programming System and cables.
(16H) : UART status error.	Communication port error	Check cables and the PLC unit.
(18H) : I/O allocation full.	Number of extended I/O assignments exceeded the specified limit.	Review the extended I/O assignment.
(19H) : I/O slot full.	Number of extended I/O assignments exceeded the allowable slot number.	Review the extended I/O assignment.
(21H) : Illegal port configuration.	The transmission parameters are inappropriate.	Check the PLC unit.
(24H) : Com fatal error.	Communication data error	Check the PROGIC-8 Programming System and cables.
Time out.	This message is output if the RS232C cable is not connected properly or the MC power is OFF.	Check whether the cables are connected properly and whether the PLC and MC power supplies are ON.
Cannot create directory.	This message is output if an existing database name is input when creating a new database by the PLC or MC database management function.	Create the database with another name.

6. ALARM MESSAGE LIST

Message list (2)

Message	Cause	Action to be taken
Exe module not found.	This message is output if memory is insufficient to start up functions.	Release unnecessary memory.
Nothing file.	This message is output if the list of files in the database is opened by the PLC or MC database management function but there is no file or all the files have been deleted.	
Not selsect database.	This message is output if the PLC or MC database management function is started up when no database has been selected.	Select a database by system environment setting.
Cannot create. (Illegal name)	This message is output if an inappropriate character (such as double quotation marks) is entered in a new database created by the PLC or MC database management function.	Create the database using appropriate characters.
Duplicate [ ] Overwrite ok?	—	—
CPU running cpu stop and load ok	This message is output when loading is attempted while the CPU is running.	Stop the CPU.
Attention!? Nothing directory "PMC"	This message is output if the PMC directory is not on the hard disk (drive A) of the Programming Panel.	Create the PMC subdirectory.
Attention!? Exist alone "PMC"	This message is output if there are no subdirectories under the PMC directory on the hard disk (drive A) of the Programming Panel.	Create subdirectories (having database names) under the the PMC directory.
Cannot allocation. (Illegal input data)	This message is output if the memory assignment function is selected and the size of the current source in the PLC unit does not match the setting.	Match the size.
Illegal disk format. (not 1BM or not format)	This message is output if it is attempted to copy files on a floppy disk by database management function but the disk was not initialized by 1M byte formatting.	Initialize the floppy disk by 1M byte formatting.
Not enough space.	This message is output if there is insufficient or no free space in the hard disk or the floppy disk.	Delete unnecessary data or increase disk capacity.
Point-number/set-number max over.	This message is output when the extended I/O assignment function is selected and the total number of I/Os or groups exceeded the maximum allowable number.	Set up the number of I/Os or groups so as not to exceed the maximum.

6.2 MC PROGRAMMING

(1) General MC programming

Message list (1)

Message	Cause	Action to be taken
"FILE NAME" : Illegal.	This message is output if the expander for the file to be edited by MC program editing was omitted. (Example : TEST.O01 is specified as TEST.)	Specify the extpander.
N-number 999 over.	This message is output when the N number exceeded 999 in MC program editing or online editing.	Reduce N number to 999 or lower.
Cannot select line number 1.	This message is output when online editing or program monitor function is selected if the first line is selected in the range by the PF2 (SELECT) key.	Specify the second and subsequent lines.
Nothing "EOB"	This message is output during MC program editing or online editing if no semicolon is placed at the end of a program line.	Add semicolon.
Head of N-number must be "N"	This message is output during MC program editing or online editing if an N number begins with a character or numeral other than N.	Place N at the beginning of the N number.
N-number must be figure.	This message is output during MC program editing or online editing if an N number is not a number or the number has three or less characters (including N).	Enter a correct number. (Example : N010 is proper but N10 is erroneous.)
Replacing N-number... Please wait a minutes.	This message is output during MC program editing or online editing if N number consecutive modification was executed by the PF9 key.	——
Reference appoint error.	This message is output when online editing or program monitor function is selected if the first line is selected and a reference number out of the range is specified.	Specify a correct reference number.
Communicating... Please wait a minutes.	This message is output at data transmission using online functions.	——
Cannot set up.	This message is output when online editing or program monitor function is selected if the first line is selected and I/O information switching is impossible.	——
Invalid select unit.	This message is output if a non-specified unit is selected by online functions.	Specify the unit by the MC database management.
Cannot edit except ONELINE EDIT MODE.	This message is output if text editing is attempted out of online editing mode.	Enter online editing mode and edit the text.
Invalid unit.	This message is output if both units are ineffective.	Specify a unit by MC database management.
"O NUMBER" : Illegal.	This message is output if an inappropriate O number is selected by the loader.	Enter a correct O number.
(01H) : Invalid command.	Communication data error	Check the PROGIC-8 Programming System and cables.
(02H) : Contoroler running.		
(03H) : Command handler busy.		
(04H) : BCC failure.		

6. ALARM MESSAGE LIST

Message list (2)

Message	Cause	Action to be taken
(05H) : Memory protect.	The memory protect switch is ON.	Turn OFF the memory protect switch.
(07H) : Not exist program.	The specified program is not found on the MC unit.	Create the specified program and load it to the MC unit.
(08H) : Invalid scquence.	Communication data error	Check the cables and units.
(09H) : Not enough memory.	Memory of the MC unit is insufficient.	Clear programs on the MC unit.
(0AH) : Invalid func code.	Communication data error	Check the cables and units.
(0BH) : Invalid mode.	MC unit mode is inappropriate.	Switch the MC unit mode.
(0CH) : Command handler busy.	The motor is operating or MC alarm is present.	Stop the motor. Reset the alarm.
(0DH) : Not exist parameter.	Motion parameters are not loaded to the MC unit.	Load the motion parameters.
(0EH) : Not exist axis.	The axis specified in the motion program is not found.	Change the motion parameter or actual axis specification.
(0FH) : Already exist program.	The Programming Panel is defective.	Check the PROGIC-8 Programming System.
(10H) : Invalid number.	The data specified in the MC program is out of range.	Modify the MC program.
(11H) : Not opened 0#.	Failure of the PROGIC-8 Programming System or the MC unit	Check the PROGIC-8 Programming System and the MC unit.
(12H) : Close 0# number.	Failure of the PROGIC-8 Programming System or the MC unit	Check the PROGIC-8 Programming System and the MC unit.
(13H) : Not initialized program area.	Read from or write to the program area was attempted without initializing the MC unit.	Initialize the MC unit.
Exe module not found.	This message is output if memory is insufficient to start up functions.	Release unnecessary memory.
Nothing file.	This message is output if the list of files in the database is opened by the PLC or MC database management function but there is no file or all the files have been deleted.	——
Not select database.	This message is output if the PLC or MC database management function is started up when no database has been selected.	Select a database by system environment setting.
Cannot create. (not 1MB or not format)	This message is output if an inappropriate character (such as double quotation marks) is entered in a new database created by the PLC or MC database management function.	Create the database using appropriate characters.

Message list (3)

Message	Cause	Action to be taken
Duplicate overwrite ok?	——	——
Illegal disk format. (not 1MB or not format)	This message is output if it is attempted to copy files on a floppy disk by database management function but the disk was not initialized by 1M byte formatting.	Initialize the floppy disk by 1M byte formatting.
Not enough space.	This message is output if there is insufficient or no free space in the hard disk or the floppy disk.	Delete unnecessary data or increase disk capacity.

6. ALARM MESSAGE LIST

(2) MC unit alarm code

Alarm code list (common alarm 1)

Code	Message	Cause	Action to be taken
001	Program capacity over.	Program capacity is exceeded.	Delete unnecessary programs.
002	Program character max over.	Number of characters in a single block exceeded 128.	Correct the program. (The number of characters)
003	Nothing program number.	The specified program was not found.	Correct the program mode.
004	Command argument error.	• No data follow the symbol. • No symbol precedes the data.	Correct the program.
005	Numerical or decimal point error.	• "–" (minus sign), "0" (zero), or "." (decimal point) is used erroneously. • The decimal point is in the wrong position.	Correct the program. Check the decimal setting parameter.
006	Character error.	There are prohibited characters in the significant information area.	Correct the program.
007	Data over flow.	Input data has a wrong number of numerals.	Correct the program. (The number of numerals)
008	Command error. (SYNTAX)	An unavailable command is used.	Correct the program.
009	Command error. (Duplicate)	Incompatible commands are specified in a single block.	Correct the program.
010	"F" command error.	F command is omitted in interpolation operation.	Correct the program.
011	Circular interval radius none.	Radius 0 is specified for a circular instruction.	Correct the program. (R or I and J)
012	Circular interval another area.	Out-of-area specification error with a circular instruction	Correct the program. (X, Y, or R)
013	Program number out of range.	The value of P is out of range.	Correct the program. (P)
014	Notch command error.	Parameter setting error	• Check function setting parameters. • Correct the program.
015	None	None	None
016	Command error. (inteval, plane, terminal)	Interpolation instruction error ordinary instruction errorEnd point instruction error	Correct the program.
017	Invalid offset number.	Offset number specification error	Correct the program.
018	Nothing subprogram number.	P is omitted in GSB block.	Correct the program. (P)

Note : The alarm codes can be monitored by MC programming status display of the PROGIC-8 Programming System.

Alarm code list (common alarm 2)

Code	Message	Cause	Action to be taken
019	Nothing subprogram.	The program number called by GSB was not found.	Check the related programs.
020	Subprogram error. (NOT "RET")	There is no RET at the end of a subprogram.	Correct the program.
021	Multi subprogram call.	There are five or more subprogram calls.	Correct the program to reduce subprogram calls to four or less.
022	Program error. (NOT "END")	There is no END at the end of the program.	Correct the program.
023	Time set error. (wait command)	No time is specified in the TIM block.	Correct the program.
024	Axis undefined	The axis to be used is not available.	• Correct the program. • Check system setting parameters.
025	Divide by zero.	Division by zero was performed.	• Correct the program. • Correct the related parameters.
026	Over flow.	An overflow occurred during operation.	• Correct the program. • Correct the related parameters.
027	Branch command error.	There is no destination for the branch instruction.	Correct the program.
028	Repeat command error.	• There is no DEND for the repetition instruction. • The ranges to be repeated are overlapping.	Correct the program.

6. ALARM MESSAGE LIST

Alarm code list (common alarm 3)

Code	Message	Cause	Action to be taken
071	MC unit breakdown (1) RAM.	MC unit failure	Contact your Yaskawa representative.
072	MC unit breakdown (2) RAM.	MC unit failure	Contact your Yaskawa representative.
073	MC unit breakdown (3) RAM.	MC unit failure	Contact your Yaskawa representative.
074	MC unit breakdown (4) RAM.	MC unit failure	Contact your Yaskawa representative.
075	MC unit breakdown (1) ROM.	MC unit failure	Contact your Yaskawa representative.
076	MC unit breakdown (2) ROM.	MC unit failure	Contact your Yaskawa representative.
077	MC unit breakdown (3) ROM.	MC unit failure	Contact your Yaskawa representative.
078	MC unit breakdown (4) ROM.	MC unit failure	Contact your Yaskawa representative.
079	Parameter broken.	• The backup battery is disconnected. • Power system failure-MC unit failure	• Check the PLC built-in battery. • Check the power system. • Reset the parameters, program, and offsets. If the error recurs, contact your Yaskawa representative.
080	Axis nume duplicate.	Axis names are duplicated.	Correct parameters.
081	Emergency stop.	Emergency stop	Reset the emergency stop.
082	System Mismatch	System mismatch	Replace hardware or ROM.

Alarm code list (individual axis alarm A : Axes 1 to 4)

Code	Message	Cause	Action to be taken
A01	Servoamp abnormal.	Servo amplifier is abnormal.	• Check for a servo amplifier error. • Reset the servo amplifier. If the error recurs, contact your Yaskawa representative.
A02	"+" direction over travel.	• Positive direction overtravel signal ON • Operation error or program error • Parameter setting error	• Check the overtravel limit switch, reset the error, and retract in the opposite direction. • Check parameters related to overtravel alarm detection. • Check the overtravel input signal.
A03	"–" direction over travel.	• Negative direction overtravel signal ON • Operation error or program error • Parameter setting error	• Check the overtravel limit switch, reset the error, and retract in the opposite direction. • Check parameters related to overtravel alarm detection. • Check the overtravel input signal.
A04	Excessively deviation.	Excess deviation in servo system follow-up	• Check connections between the MC unit, servo amplifier, and motor. • Check parameter settings related to system setting and servo characteristics. • Check mechanical load.
A05	"+" direction soft over travel.	• Positive direction overtravel signal ON • Operation error or program error • Parameter setting error	• Check the program and operation, reset the error, and retract in the opposite direction. • Check parameters related to soft limit switches.
A06	"–" direction soft over travel.	• Negative direction overtravel signal ON • Operation error or program error • Parameter setting error	• Check the program and operation, reset the error, and retract in the opposite direction. • Check parameters related to soft limit switches.
A07	Invalid position.	• Positioning error	• Check parameters related to servo characteristics. • Check connection between servo amplifier and motor. • Check mechanical load.
A08	(reverse.)	——	——
A09	(reverse.)	——	——
A10	PG broken wire.	——	——

6. ALARM MESSAGE LIST

Alarm code list

Code	Message	Cause	Action to be taken
A11	Detect over run.	• Parameter setting error • Erroneous wiring with the motor and/or the encoder • Runaway was detected with the MC unit. • MC unit failure	• Check system setting parameters. • Check wiring of the motor and the encoder. • Review the servo system by modifying settings of servo characteristic parameters. • Contact your Yaskawa representative.

NOTES

PROGIC-8

MULTIAXES MOTION CONTROLLER

PROGRAMMING SYSTEM OPERATION MANUAL

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