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CNC SYSTEMS

OSP7000 Model U
OSP700 Model U

MacMan

INSTRUCTION MANUAL (1st Edition)

Pub.No.4023-E (EEC1-002-O2) Nov. 1995

OKUMA

SAFETY PRECAUTIONS

The machine is equipped with safety devices which serve to protect personnel and the machine itself from hazards arising from unforeseen accidents. However, operators must not rely exclusively on these safety devices: they must also become fully familiar with the safety guidelines presented below to ensure accident-free operation.

This instruction manual and the warning signs attached to the machine cover only those hazards which Okuma can predict. Be aware that they do not cover all possible hazards.

1. PRECAUTIONS RELATING TO MACHINE INSTALLATION

(1) Install the machine at a site where the following conditions (the conditions for achievement of the guaranteed accuracy) apply.

- Ambient temperature: 17 to 25°C
- Ambient humidity: 75% max. (no condensation)
- Site not subject to direct sunlight or excessive vibration; environment as free of dust, acid, corrosive gases, and salt spray as possible.

(2) Prepare a primary power supply that complies with the following requirements.

- Voltage: 200 V
- Voltage fluctuation: ±10% max.
- Power supply frequency: 50/60 Hz
- Do not draw the primary power supply from a distribution panel that also supplies a major noise source (for example an electric welder or electric discharge machine) since this could cause malfunction of the NC unit.
- If possible connect the machine to a ground not used by any other equipment. If there is no choice but to use a common ground, the other equipment must not generate a large amount of noise (such as an electric welder or electric discharge machine).

(3) Installation Environment

Observe the following points when installing the electrical control cabinet.

- Make sure that the NC unit will not be subject to direct sunlight.
- Make sure that the electrical control cabinet will not be splashed with chips, water, or oil.
- Make sure that the electrical control cabinet and operation panel are not subject to excessive vibrations or shock.
- The permissible ambient temperature range for the electrical control cabinet is 0 to 40°C.
- The permissible ambient humidity range for the electrical control cabinet is 30 to 95% (no condensation).
- The maximum altitude at which the electrical control cabinet can be used is 1000 m (3281 ft.).

2. POINTS TO CHECK BEFORE TURNING ON THE POWER

(1) Close all the doors of the electrical control cabinet and operation panel to prevent the entry of water, chips, and dust.

(2) Make absolutely sure that there is nobody near the moving parts of the machine, and that there are no obstacles around the machine, before starting machine operation.

(3) When turning on the power, turn on the main power disconnect switch first, then the CONTROL ON switch on the operation panel.

3. PRECAUTIONS RELATING TO OPERATION

(1) Always follow the instructions in the instruction manual.

(2) After turning on the power, carry out inspection and adjustment in accordance with the daily inspection procedure described in the instruction manual of the machine.

(3) Never run a new program without checking its operation. Run the program with no workpiece and make sure that there is no interference, then cut a wokpiece in the single block mode. If no problems are discovered, automatic operation may be started.

(4) Check the tool offset settings.

(5) Check the zero offset settings.

(6) Check that the workpiece and tool are properly secured.

(7) Confirm safety before performing operations involving spindle rotation or axis movement.

(8) Do not approach or touch any moving part of the machine while it is operating.

(9) Do not remove chips by hand while machining is in progress since this is dangerous. Always stop the machine first, then remove the chips with a brush or broom.

(10) Never touch a workpiece or tool while it is rotating; this is extremely dangerous.

(11) Do not operate the machine with any of the safety devices removed. Do not operate the machine with any of the covers removed unless it is necessary to do so.

(12) Do not touch any switch or button with wet hands. This is extremely dangerous.

(13) Before using any switch or button on the operation panel, check that it is the one intended.

(14) Make sure the cutting operation is within the allowable transmission power and torque ranges.

4. ON FINISHING WORK

(1) On finishing work, clean the vicinity of the machine.

(2) Always turn off the power to the machine before leaving it.

(3) To turn off the power, turn off the CONTROL ON switch on the operation panel first, then the main power disconnect switch.

5. CAUTIONS ON TURNING OFF POWER

(1) Protection of machining programs

Before turning off the power, make sure that program editing has been completed. If the power is turned off while editing, correctness of the contents of the program being edited cannot be guaranteed.

(2) Protection of parameter data, tool data, and zero point data

If parameter data setting, tool data, and/or zero point data is changed, always execute the backup command.

When power is turned off within five minutes after changing the data indicated above without executing the backup command, the updated data is not saved.

If correct operation is not performed for data saving, the machine does not operate as expected causing injuries and machine damages.

6. PRECAUTIONS DURING MAINTENANCE INSPECTION AND WHEN TROUBLE OCCURS

In order to prevent unforeseen accidents, damage to the machine, etc., it is essential to observe the following points when performing maintenance inspections or during checking when trouble has occurred.

(1) When trouble occurs, press the emergency stop button on the operation panel to stop the machine.

(2) Consult the person responsible for maintenance to determine what corrective measures need to be taken.

(3) If two or more persons must work together, establish signals so that they can communicate to confirm safety before proceeding to each new step.

(4) Use only the specified replacement parts and fuses.

(5) Always turn the power off before starting inspection or changing parts.

(6) When parts are removed during inspection or repair work, always replace them as they were and secure them properly with their screws, etc.

(7) When carrying out inspections in which measuring instruments are used – for example voltage checks – make sure the instrument is properly calibrated.

(8) Do not keep combustible materials or metals inside the electrical control cabinet or terminal box.

(9) Check that cables and wires are free of damage: damaged cables and wires will cause current leakage and electric shocks.

(10) Maintenance inside the Electrical Control Cabinet

a) Switch the main power disconnect switch OFF before opening the electrical control cabinet door.

b) Even when the main power disconnect switch is OFF, there may some residual charge in the servo amplifier and spindle drive unit, and for this reason only service personnel are permitted to perform any work on these units. Even then, they must observe the following precautions.

- Servo amplifier

  Discharge the residual voltage one minute after turning off the breaker inside the unit.

- Spindle drive unit

  Discharge the residual voltage one minute after turning off the main power disconnect switch.

c) The electrical control cabinet contains the NC unit, and the NC unit has a printed circuit board whose memory stores the machining programs, parameters, etc. In order to ensure that the contents of this memory will be retained even when the power is switched off, the memory is supplied with power by a battery. Depending on how the printed circuit boards are handled, the contents of the memory may be destroyed and for this reason only service personnel should handle these boards.

(11) Periodic Inspection of the Electrical Control Cabinet

a) Cleaning the cooling unit

The cooling unit in the door of the electrical control cabinet serves to prevent excessive temperature rise inside the electrical control cabinet and increase the reliability of the NC unit. Inspect the following points every three months.

- Is the fan motor inside the cooling unit working?

  The motor is normal if there is a strong draft from the unit.

- Is the external air inlet blocked?

  If it is blocked, clean it with compressed air.

7. GENERAL PRECAUTIONS

(1) Keep the vicinity of the machine clean and tidy.

(2) Wear appropriate clothing while working, and follow the instructions of someone with sufficient training.

(3) Make sure that your clothes and hair cannot become entangled in the machine. Machine operators must wear safety equipment such as safety shoes and safety goggles.

(4) Machine operators must read the instruction manual carefully and make sure of the correct procedure before operating the machine.

(5) Memorize the position of the emergency stop button so that you can press it immediately at any time and from any position.

(6) Do not access the inside of the control panel, transformer, motor, etc., since they contain high-voltage terminals and other components which are extremely dangerous.

(7) If two or more persons must work together, establish signals so that they can communicate to confirm safety before proceeding to each new step.

8. SYMBOLS USED IN THIS MANUAL

The following warning indications are used in this manual to draw attention to information of particular importance. Read the instructions marked with these symbols carefully and follow them.



: Indicates an imminent hazard which, if not avoided, will result in death or serious injury.



: Indicates hazards which, if not avoided, could result in death or serious injury.



: Indicates hazards which, if not avoided, could result in minor injuries or damage to devices or equipment.



: Indicates precautions relating to operation or use.

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SECTION 1 MacMan

1. OVERVIEW

The MacMan has been developed by focusing on the following problems among a variety of problems to be solved:

- What should we do to improve operation efficiency of the machine tools and other production equipment?
- What should we do to shorten lead time to output products?

Higher operation efficiency and shorter lead time are both the key themes to be achieved to successfully shift the production style to small lot production with a large number of workpiece kinds and then to variable lot size production.

The MacMan will provide you the information necessary for finding solutions to these themes.

1-1. MacMan Provides the Live Production Status Information

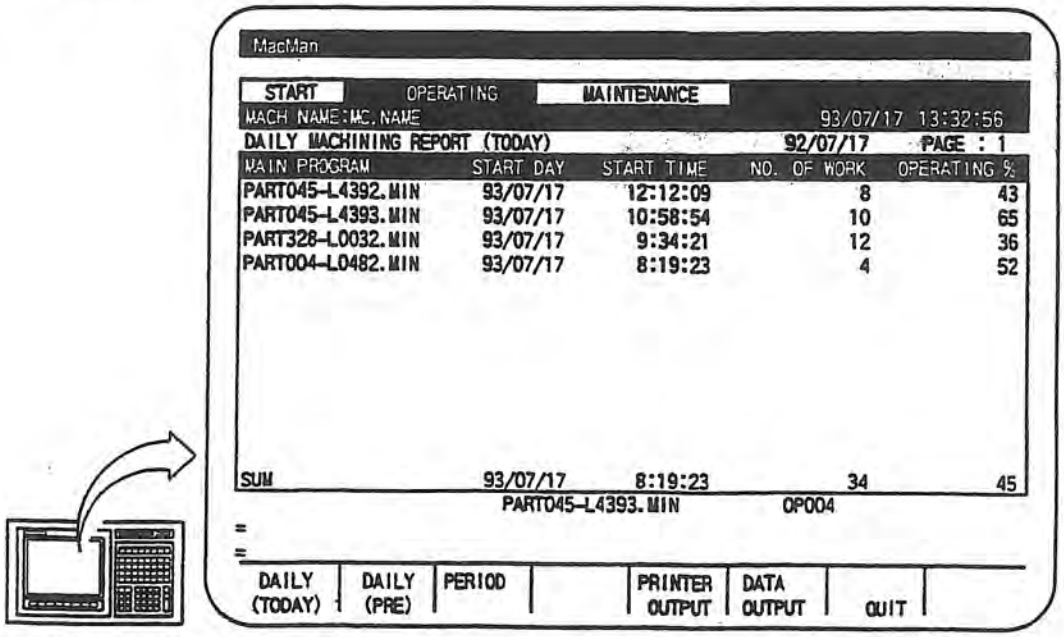
If you want to run the production equipment more efficiently, the first step you must take is to "find" the actual operating efficiency. Here, the term "find" does not mean "seeing", but it includes the processing to "digitize" the information. Similarly, to shorten the lead time, you must "find" the status how the production progresses. To "find" the actual status is the first step to improvements.

The MacMan collects and outputs the continuously changing actual status of production.

- It outputs the actual status to the NC screen. Improvements at the production field by an operator is possible by viewing the actual status.
- It outputs the actual status to the printer. The accurate production report can be output in one-touch operation.
- It outputs the actual status to the MS-DOS format floppy disk. Production field management by using a personal computer is possible.

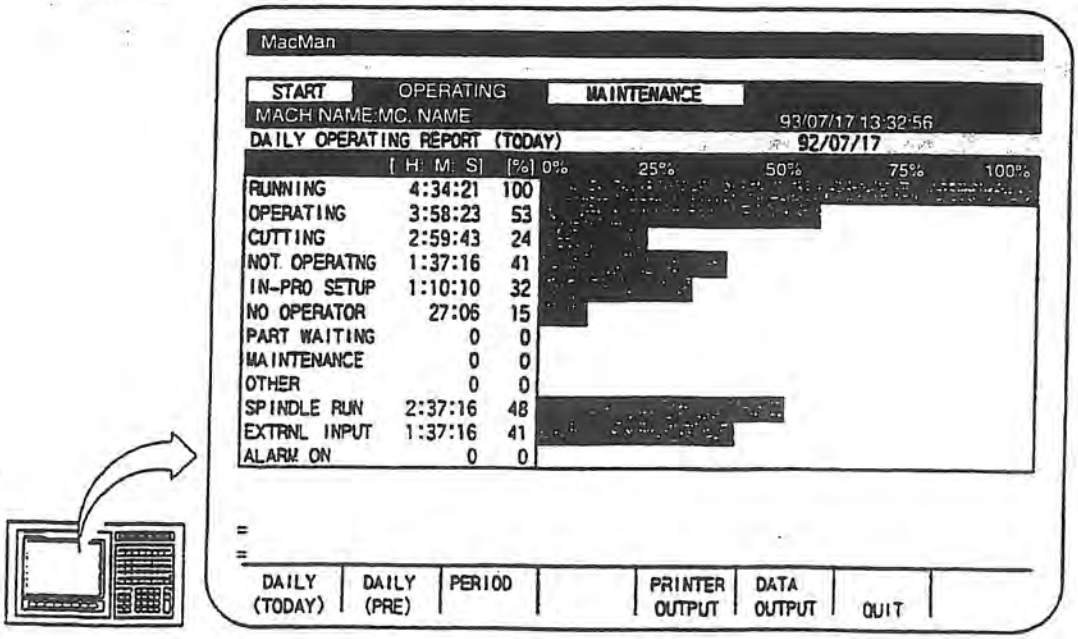
(1) Machining Report

Job progress status is displayed for each of the selected main programs.



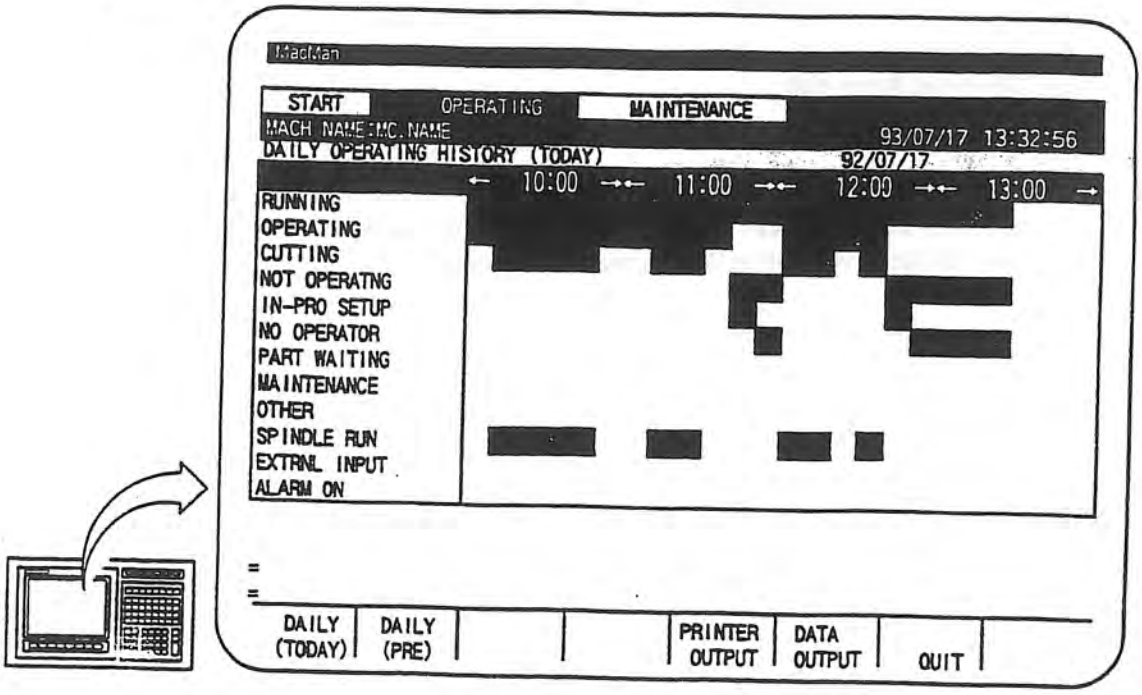
(2) Operating Report

Operating status is displayed in bar graph.



(3) Operating History

Operating status is displayed in time chart.

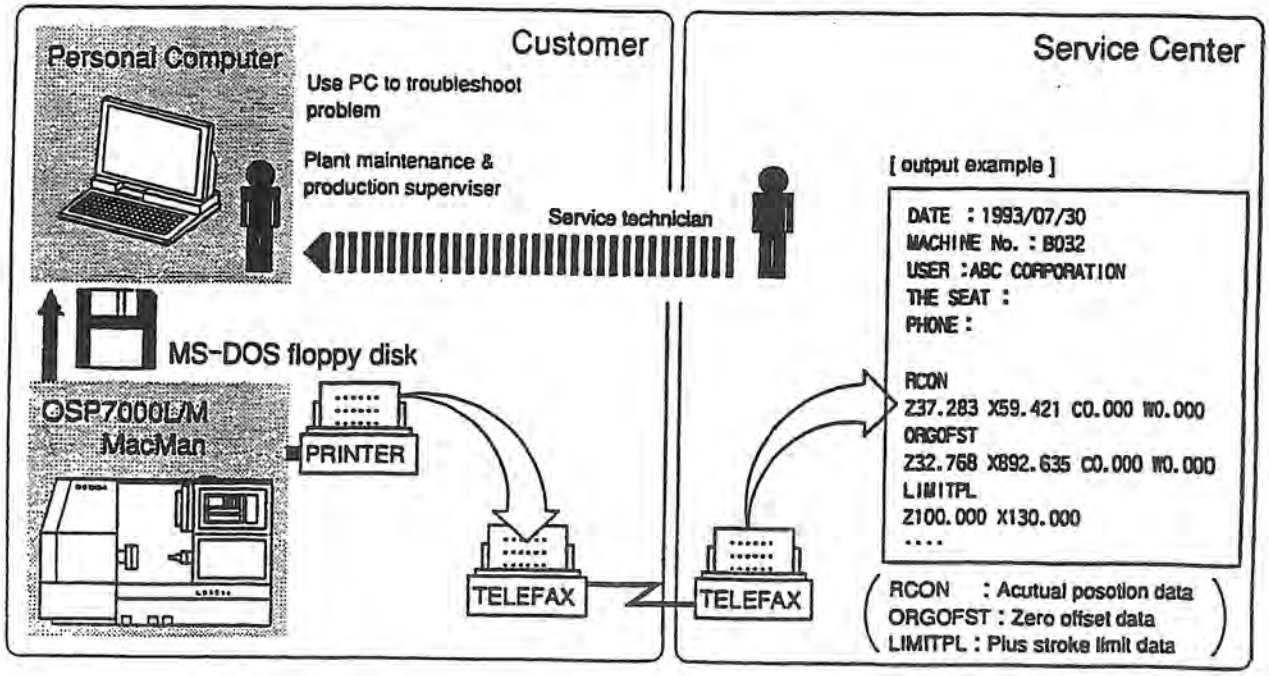


1-2. MacMan Slashes Down Time

Precise understanding of the situation of a trouble is the key to pin-pointed troubleshooting and quick recovery of the machine operation.

Using the MacMan, you can get the information necessary for troubleshooting either from a printer or on MS-DOS format floppy disk.

- Telefax the print out to Okuma service center. Your are not bothered with time consuming telephone call to explain the service technician "what happened" any more.
- If you output the information to the floppy disk, the information can be analyzed by using a personal computer by either yourself or Okuma service technician.



(1) If you are in trouble due to alarm, switch the display to NC STATUS AT ALARM.

The status of the NC (actual position, zero offset data, travel limit data, etc.) when an alarm has occurred is output to the printer or floppy disk.

(2) If you are in trouble although an alarm has not occurred, switch the display to CURRENT NC STATUS.

The current status of the NC (actual position, zero offset data, travel limit data, etc.) is output to the printer or floppy disk.

(3) If you want to know about the operation, switch the screen to OPERATION HISTORY.

The operations you have done, "what operation has been made, when and what time", "what key has been pressed, when and what time", etc. are output to the printer or floppy disk.

1-3. MacMan Streamlines In-process Setup Time

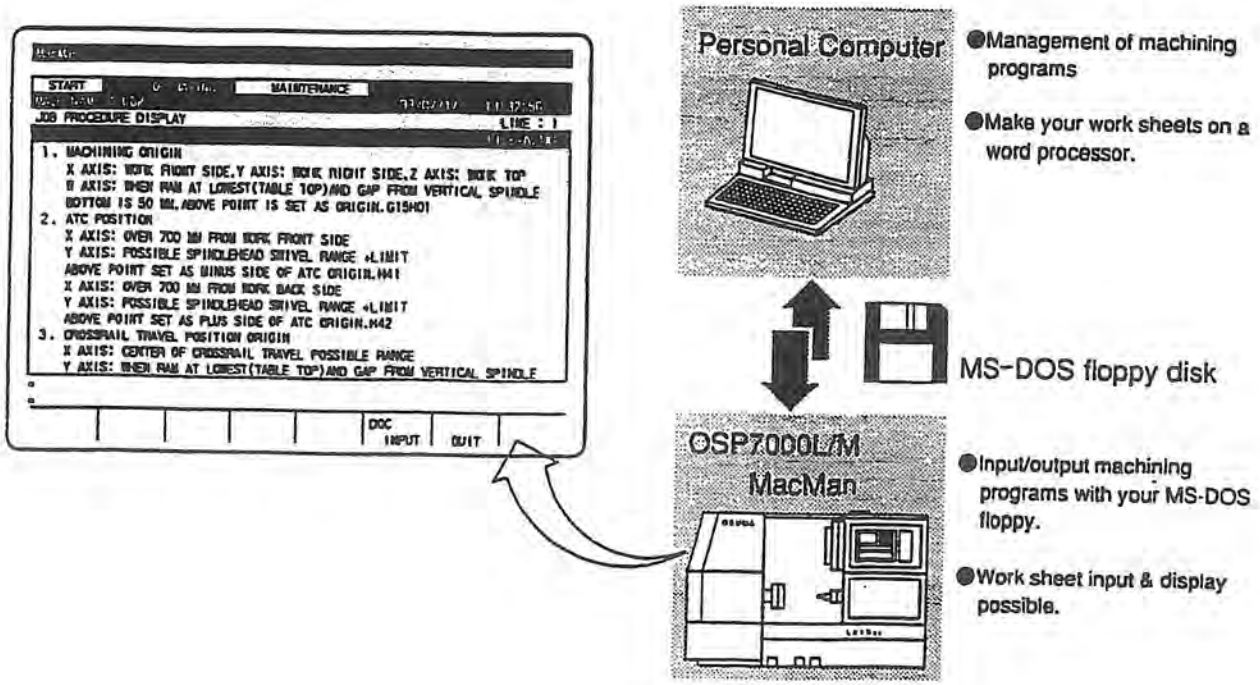
As ordinary production style shifts from mass production to small lot production, the data used for machining must be changed frequently in response to frequent change in workpiece kinds. Imagine your supervisor talks to you "This is the program for the workpieces to be machined next" and you receive floppy disk. The process to start machining after that is not simple; first you have to store the program into the NC memory from the floppy disk. Then, you are required to select the program after changing the NC mode to automatic.

The MacMan allows you to store and select the program very simply.

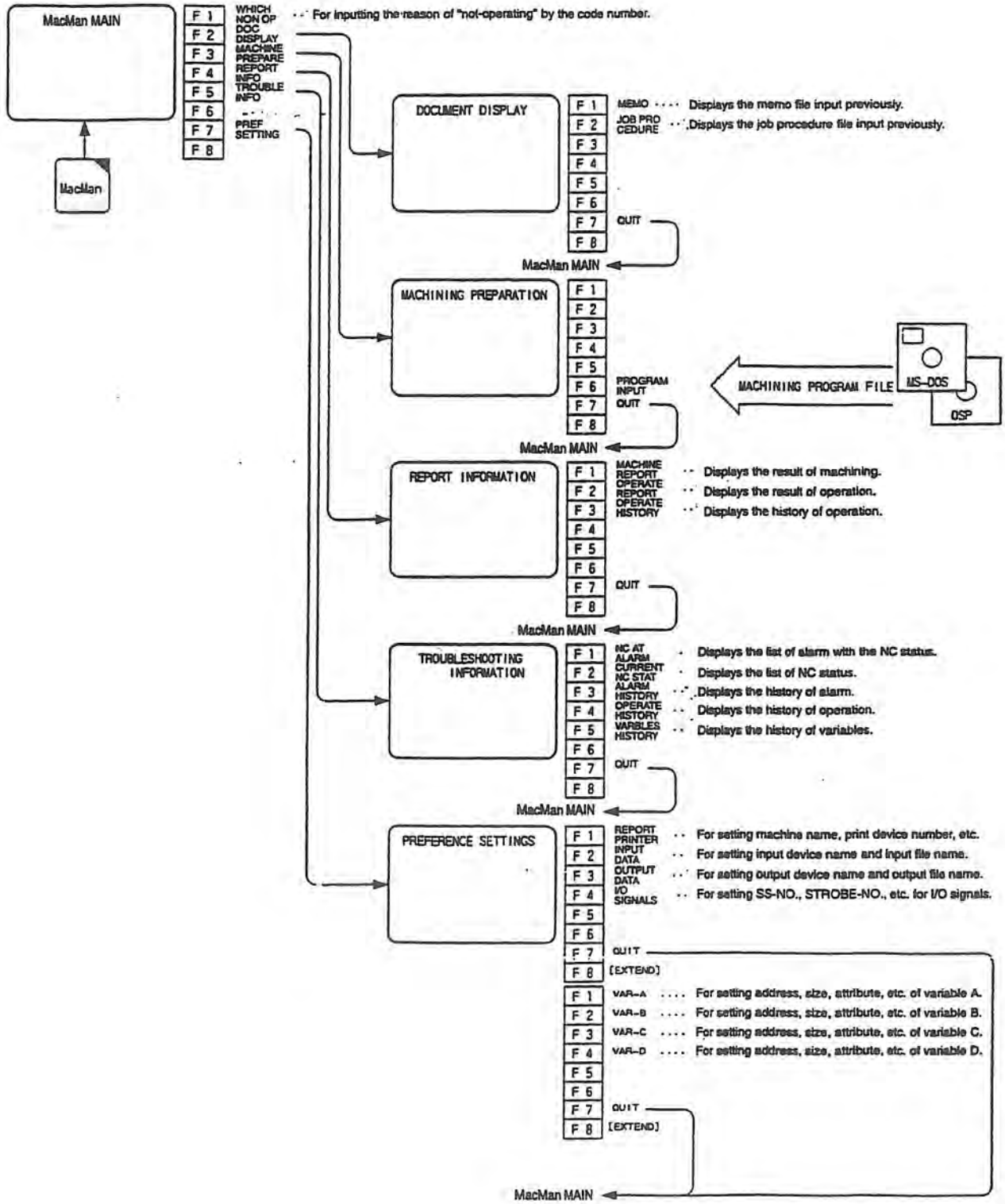
- The same procedure can be used to read and store the program for the floppy disk of different format (OSP or MS-DOS). Because the format is not visible, there may be cases that an alarm message is displayed insisting you to return to the first step of operation if you follow the procedure for reading the OSP format floppy disk while the floppy disk is MS-DOS format or vice versa when the required procedure differs between OSP format floppy disk and MS-DOS format floppy disk.
- When selecting the program having been read and stored, you do not have to specify the file name. Simply press the function key, and the read program is selected.

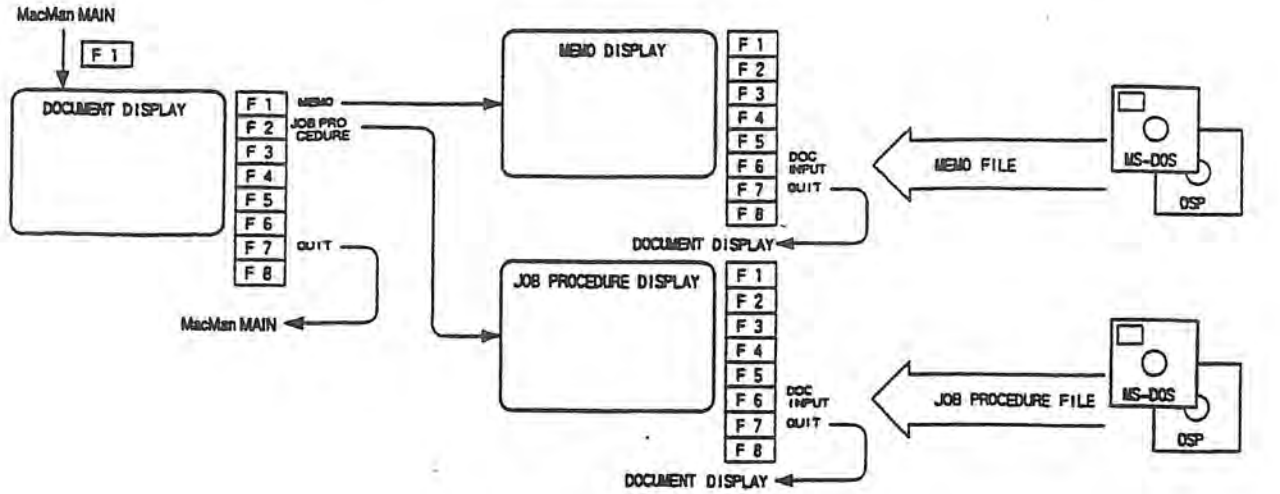
To carry out set-up work quickly while machining data or other data must be changed frequently, document such as job instruction are necessary.

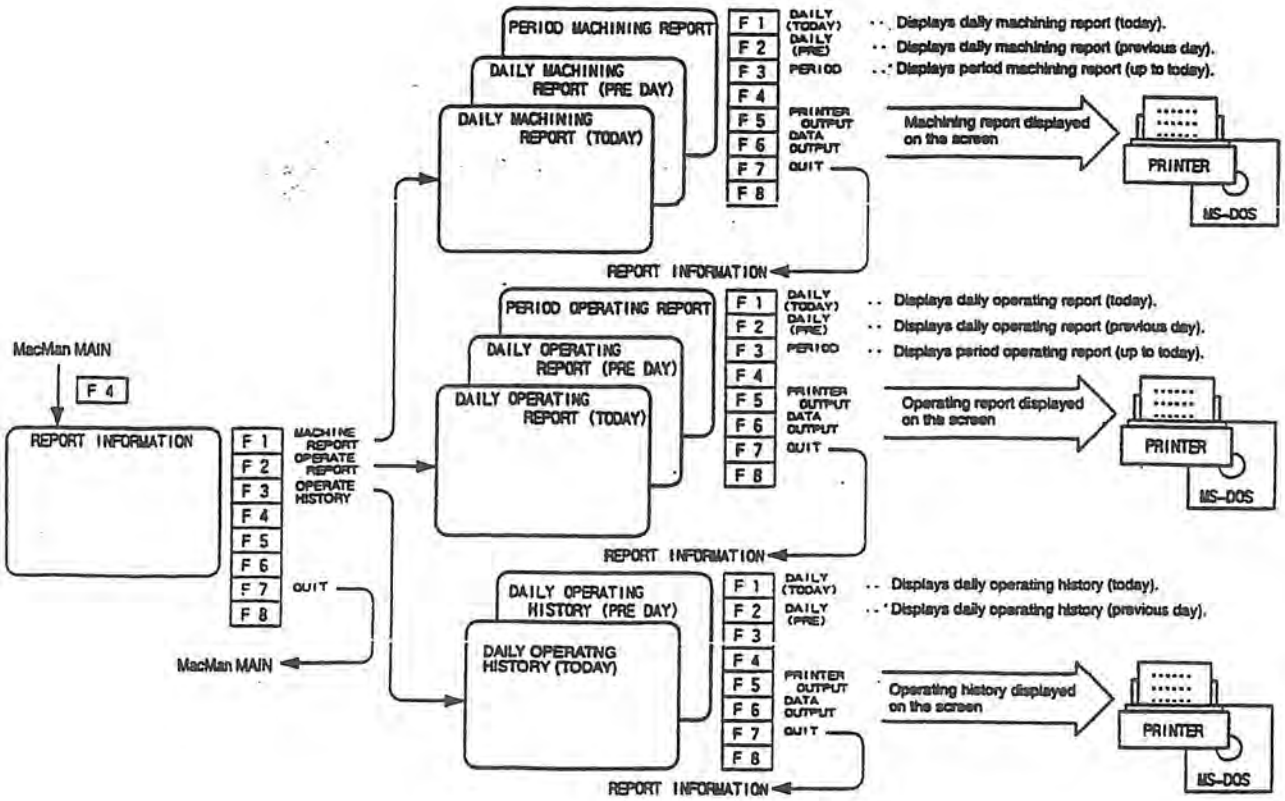
The MacMan displays the texts created using a personal computer on the NC screen. You can make and display your own job instructions such as set-up change procedure, alarm list, and G/M code table.

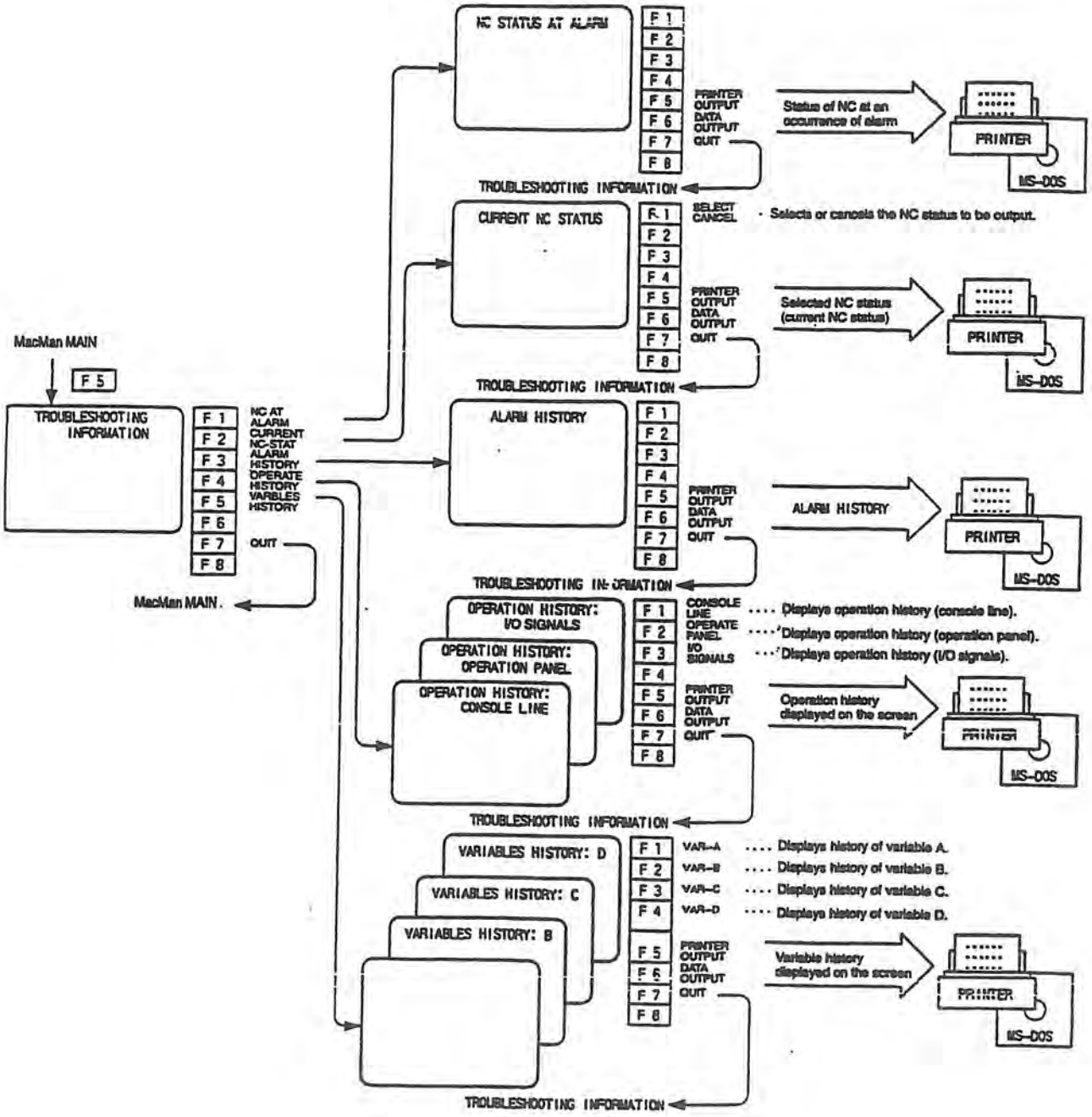


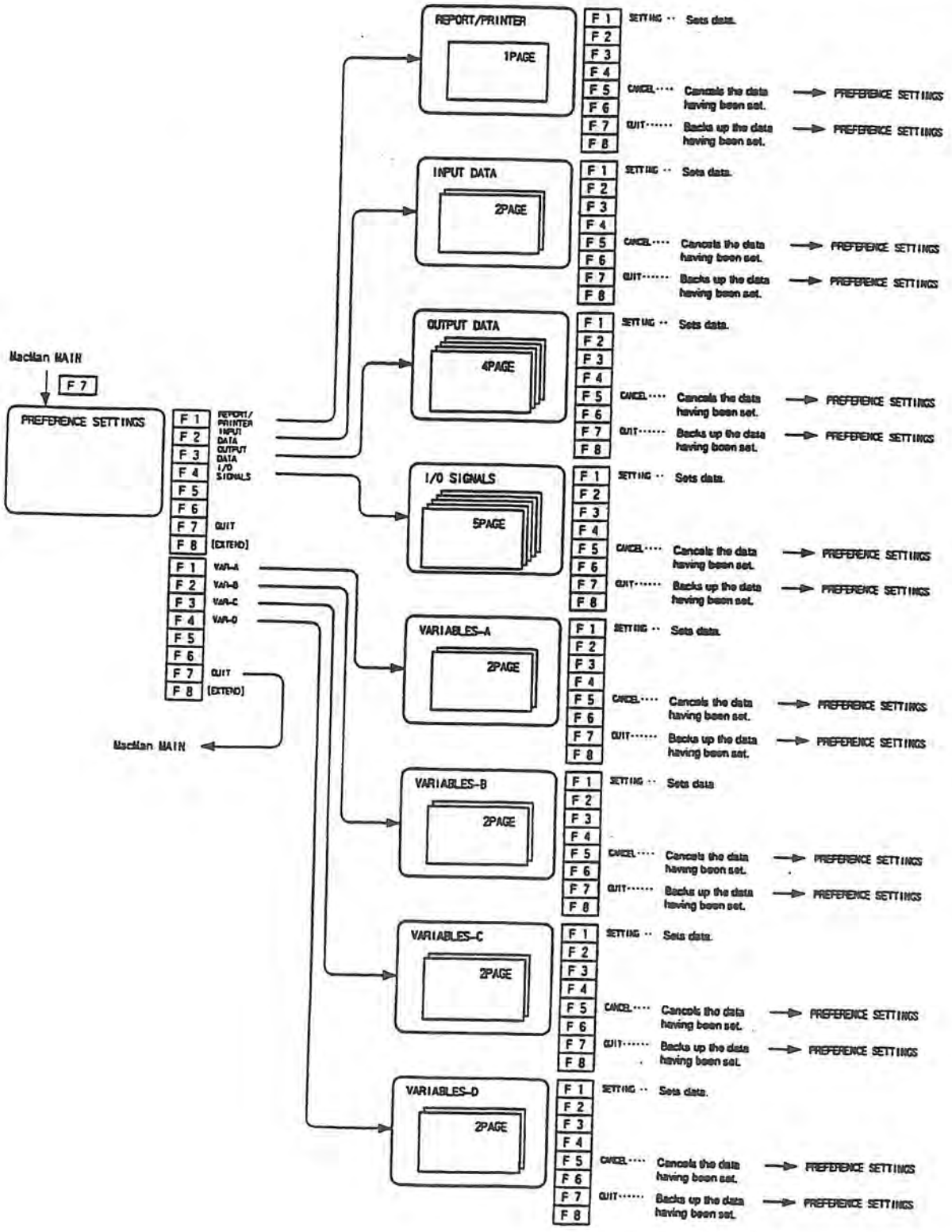
1-4. List of MacMan Operations



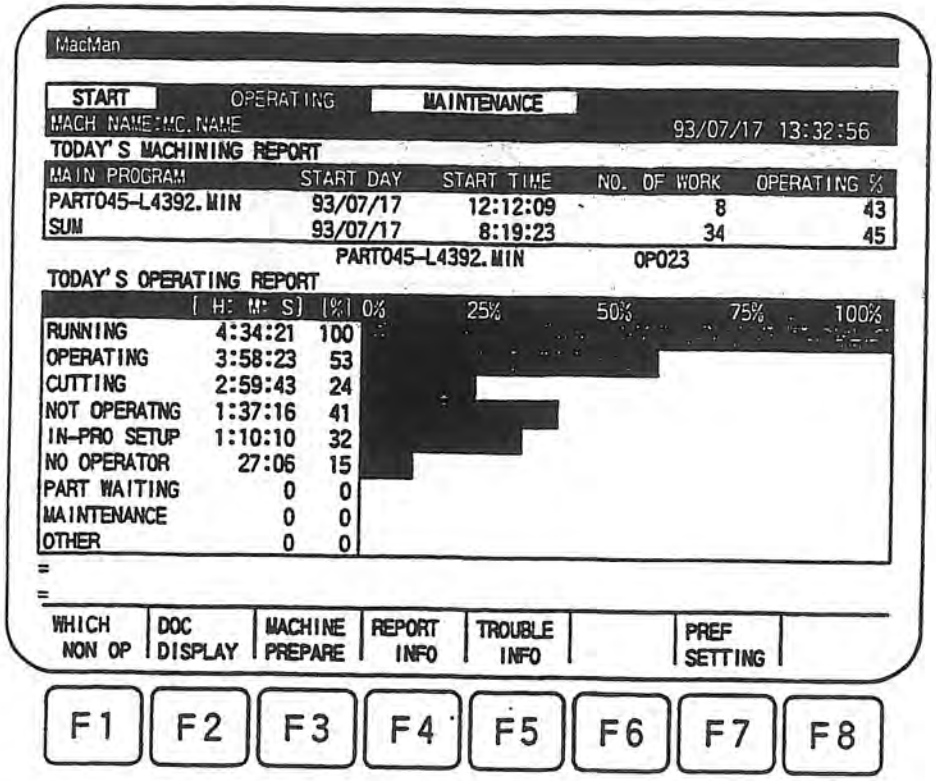

MacMan MAIN
F 1
DOCUMENT DISPLAY
F 1
F 2
F 3
F 4
F 5
F 6
F 7
F 8
MEMO
JOB PRO CEDURE
QUIT
MacMan MAIN
MEMO DISPLAY
F 1
F 2
F 3
F 4
F 5
F 6
F 7
F 8
DOC INPUT
QUIT
DOCUMENT DISPLAY
MEMO FILE
MS-DOS
OSP
JOB PROCEDURE DISPLAY
F 1
F 2
F 3
F 4
F 5
F 6
F 7
F 8
DOC INPUT
QUIT
DOCUMENT DISPLAY
JOB PROCEDURE FILE
MS-DOS
OSP


MacMan MAIN
F 4
REPORT INFORMATION
F 1
F 2
F 3
F 4
F 5
F 6
F 7
F 8
MACHINE REPORT
OPERATE REPORT
OPERATE HISTORY
QUIT
MacMan MAIN
PERIOD MACHINING REPORT
DAILY MACHINING REPORT (PRE DAY)
DAILY MACHINING REPORT (TODAY)
F 1 DAILY (TODAY) -- Displays daily machining report (today).
F 2 DAILY (PRE) -- Displays daily machining report (previous day).
F 3 PERIOD -- Displays period machining report (up to today).
F 4
F 5 PRINTER OUTPUT
F 6 DATA OUTPUT
F 7 QUIT
F 8
REPORT INFORMATION
Machining report displayed on the screen
PRINTER
MS-DOS
PERIOD OPERATING REPORT
DAILY OPERATING REPORT (PRE DAY)
DAILY OPERATING REPORT (TODAY)
F 1 DAILY (TODAY) -- Displays daily operating report (today).
F 2 DAILY (PRE) -- Displays daily operating report (previous day).
F 3 PERIOD -- Displays period operating report (up to today).
F 4
F 5 PRINTER OUTPUT
F 6 DATA OUTPUT
F 7 QUIT
F 8
REPORT INFORMATION
Operating report displayed on the screen
PRINTER
MS-DOS
DAILY OPERATING HISTORY (PRE DAY)
DAILY OPERATING HISTORY (TODAY)
F 1 DAILY (TODAY) -- Displays daily operating history (today).
F 2 DAILY (PRE) -- Displays daily operating history (previous day).
F 3
F 4
F 5 PRINTER OUTPUT
F 6 DATA OUTPUT
F 7 QUIT
F 8
REPORT INFORMATION
Operating history displayed on the screen
PRINTER
MS-DOS


MacMan MAIN
F 5
TROUBLESHOOTING INFORMATION
F 1 NC AT ALARM
F 2 CURRENT NC-STAT
F 3 ALARM HISTORY
F 4 OPERATE HISTORY
F 5 VARBLES HISTORY
F 6
F 7 QUIT
F 8
MacMan MAIN.
NC STATUS AT ALARM
F 1
F 2
F 3
F 4
F 5 PRINTER OUTPUT DATA OUTPUT
F 6
F 7 QUIT
F 8
Status of NC at an occurrence of alarm
PRINTER
MS-DOS
TROUBLESHOOTING INFORMATION
CURRENT NC STATUS
F 1 SELECT CANCEL
F 2
F 3
F 4
F 5 PRINTER OUTPUT DATA OUTPUT
F 6
F 7 QUIT
F 8
Selects or cancels the NC status to be output.
Selected NC status (current NC status)
PRINTER
MS-DOS
TROUBLESHOOTING INFORMATION
ALARM HISTORY
F 1
F 2
F 3
F 4
F 5 PRINTER OUTPUT DATA OUTPUT
F 6
F 7 QUIT
F 8
ALARM HISTORY
PRINTER
MS-DOS
TROUBLESHOOTING INFORMATION
OPERATION HISTORY: I/O SIGNALS
OPERATION HISTORY: OPERATION PANEL
OPERATION HISTORY: CONSOLE LINE
F 1 CONSOLE LINE .... Displays operation history (console line).
F 2 OPERATE PANEL .... Displays operation history (operation panel).
F 3 I/O SIGNALS .... Displays operation history (I/O signals).
F 4
F 5 PRINTER OUTPUT DATA OUTPUT
F 6
F 7 QUIT
F 8
Operation history displayed on the screen
PRINTER
MS-DOS
TROUBLESHOOTING INFORMATION
VARIABLES HISTORY: D
VARIABLES HISTORY: C
VARIABLES HISTORY: B
F 1 VAR-A .... Displays history of variable A.
F 2 VAR-B .... Displays history of variable B.
F 3 VAR-C .... Displays history of variable C.
F 4 VAR-D .... Displays history of variable D.
F 5 PRINTER OUTPUT DATA OUTPUT
F 6
F 7 QUIT
F 8
Variable history displayed on the screen
PRINTER
MS-DOS
TROUBLESHOOTING INFORMATION


MacMan MAIN
F 7
PREFERENCE SETTINGS
F 1 REPORT/PRINTER
F 2 INPUT DATA
F 3 OUTPUT DATA
F 4 I/O SIGNALS
F 5
F 6
F 7 QUIT
F 8 [EXTEND]
F 1 VAR-A
F 2 VAR-B
F 3 VAR-C
F 4 VAR-D
F 5
F 6
F 7 QUIT
F 8 [EXTEND]
MacMan MAIN
REPORT/PRINTER
1PAGE
INPUT DATA
2PAGE
OUTPUT DATA
4PAGE
I/O SIGNALS
5PAGE
VARIABLES-A
2PAGE
VARIABLES-B
2PAGE
VARIABLES-C
2PAGE
VARIABLES-D
2PAGE
F 1 SETTING ·· Sets data.
F 5 CANCEL···· Cancels the data having been set. → PREFERENCE SETTINGS
F 7 QUIT····· Backs up the data having been set. → PREFERENCE SETTINGS

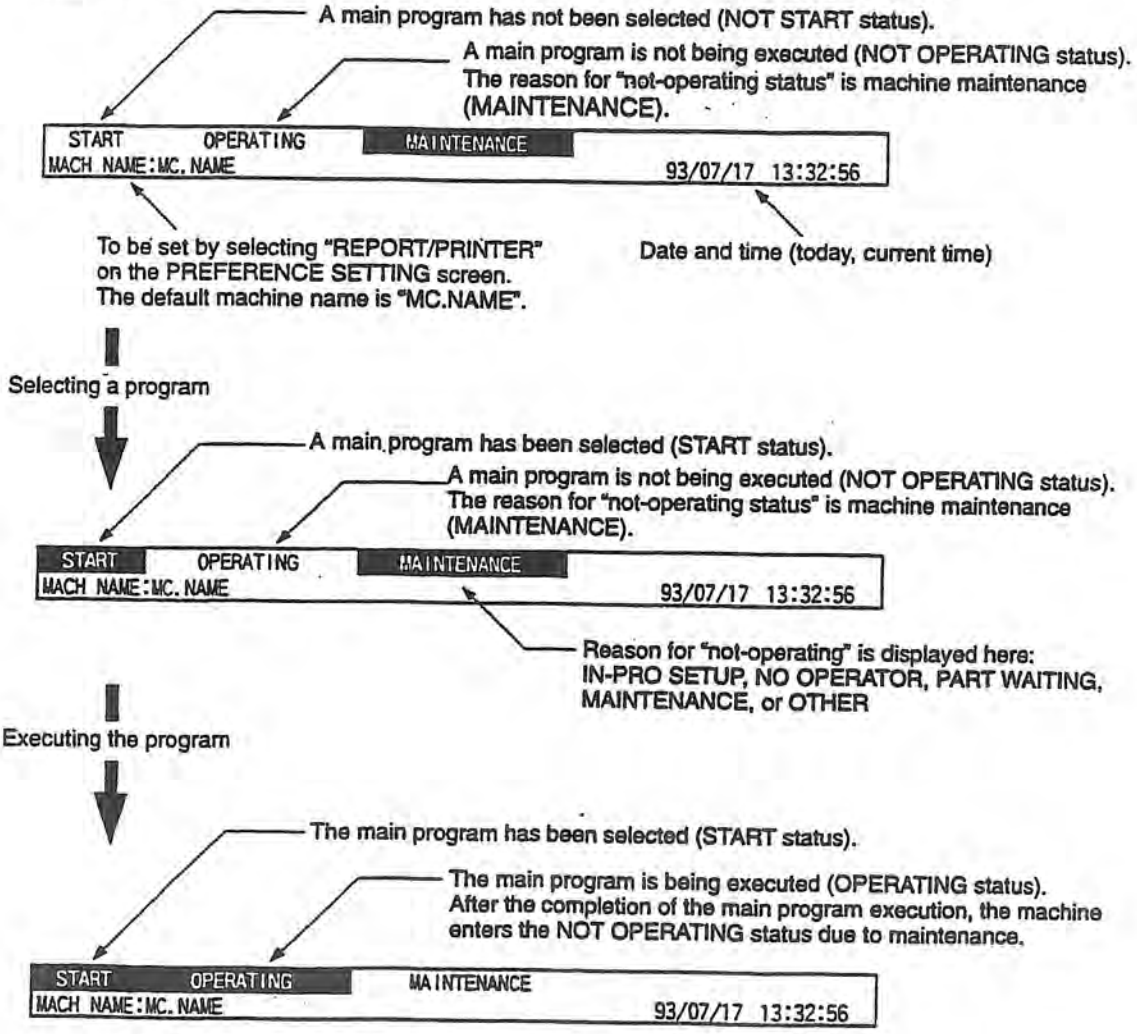
SECTION 2 MacMan MAIN SCREEN



2-1. Machining Status

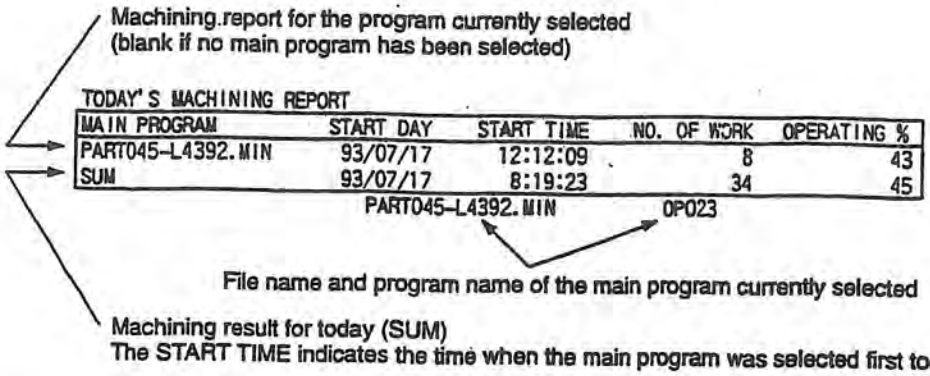
On the screen, whether or not a program has been selected is indicated by "START" and whether or not a program is being executed is indicated by "OPERATING".

The area indicating the status explained above is common to all display screens.



2-2. Today's Machining Report

(1) Today's machining report is displayed.



Item	Contents
MAIN PROGRAM	The file name of the main program having been selected
START DAY	Date of the main program selection [year/month/day]
START TIME	Time of the main program selection [hour:minute:second]
NO. OF WORK	The number of times the M02 or M30 command has been executed Execution of the M02 or M30 command in the machine lock mode operation and dry run mode operation (NC lathe) is not counted.
OPERATING %	Percentage of machine operating time in reference to power ON time [%] (Operating % = Machine operating time (OPERATING) / Power ON time (RUNNING) × 100)
RUNNING	Length of time for which power supply to the NC has been ON [hours:minutes:seconds] (Length of time for which main program has been selected)
OPERATING	Length of time for which a main program has been executed [hours:minutes:seconds] Length of time the main program has been executed in the machine lock mode or dry run mode (NC lathe) is not counted.
CUTTING	Length of time for which an axis has been moved at a cutting feedrate [hours:minutes:seconds] Length of time an axis has been moved at a cutting feedrate in the machine lock mode or dry run mode (NC lathe) is not counted.
CYCLE TIME	Length of time for which power has been ON for producing one piece of workpiece [hours:minutes:seconds/pc.] (Cycle time = Power on time (RUNNING) / No. of workpieces (NO. OF WORK))
MACHINING	Length of operating time used for producing one piece of workpiece [hours:minutes:seconds/pc.] (Machining time = Operating time (RUNNING) / No. of workpieces (NO. OF WORK))

The items of report are scrolled right or left by pressing the "right" or "left" cursor key (1 item/cursor key operation). Note that the MAIN PROGRAM is not shifted.

TODAY'S MACHINING REPORT

MAIN PROGRAM	START DAY	START TIME	NO. OF WORK	OPERATING %
PART045-L4392.MIN	93/07/17	12:12:09	8	43
SUM	93/07/17	8:19:23	34	45



TODAY'S MACHINING REPORT

MAIN PROGRAM	START TIME	NO. OF WORK	OPERATING %	RUNNING
PART045-L4392.MIN	12:12:09	8	43	4:32:46
SUM	8:19:23	34	45	8:25:32



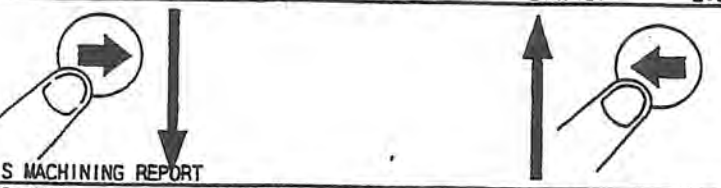
TODAY'S MACHINING REPORT

MAIN PROGRAM	NO. OF WORK	OPERATING %	RUNNING	OPERATING
PART045-L4392.MIN	8	43	4:32:46	1:57:38
SUM	34	45	8:25:32	3:47:31



TODAY'S MACHINING REPORT

MAIN PROGRAM	OPERATING %	RUNNING	OPERATING	CUTTING
PART045-L4392.MIN	43	4:32:46	1:57:38	1:02:51
SUM	45	8:25:32	3:47:31	2:05:24



TODAY'S MACHINING REPORT

MAIN PROGRAM	RUNNING	OPERATING	CUTTING	CYCLE TIME
PART045-L4392.MIN	4:32:46	1:57:38	1:02:51	34:05
SUM	8:25:32	3:47:31	2:05:24	14:52

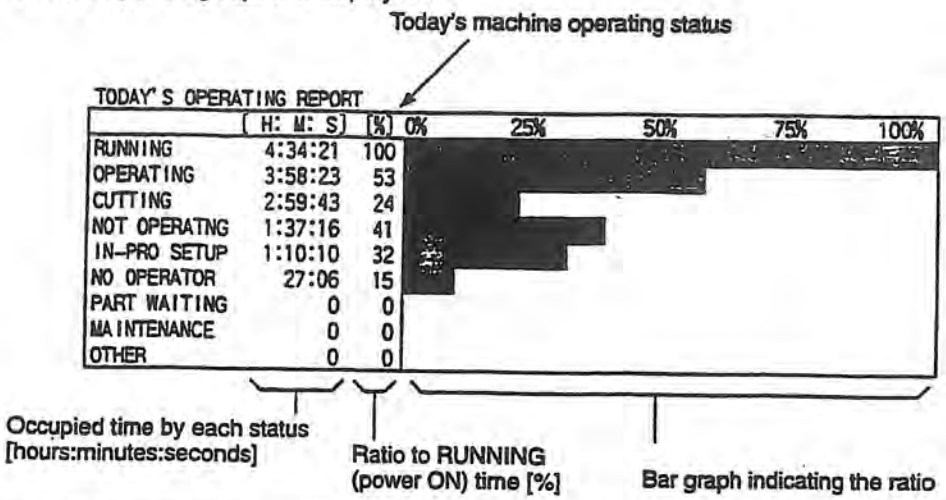


TODAY'S MACHINING REPORT

MAIN PROGRAM	OPERATING	CUTTING	CYCLE TIME	MACHINING
PART045-L4392.MIN	1:57:38	1:02:51	34:05	14:39
SUM	3:47:31	2:05:24	14:52	6:41

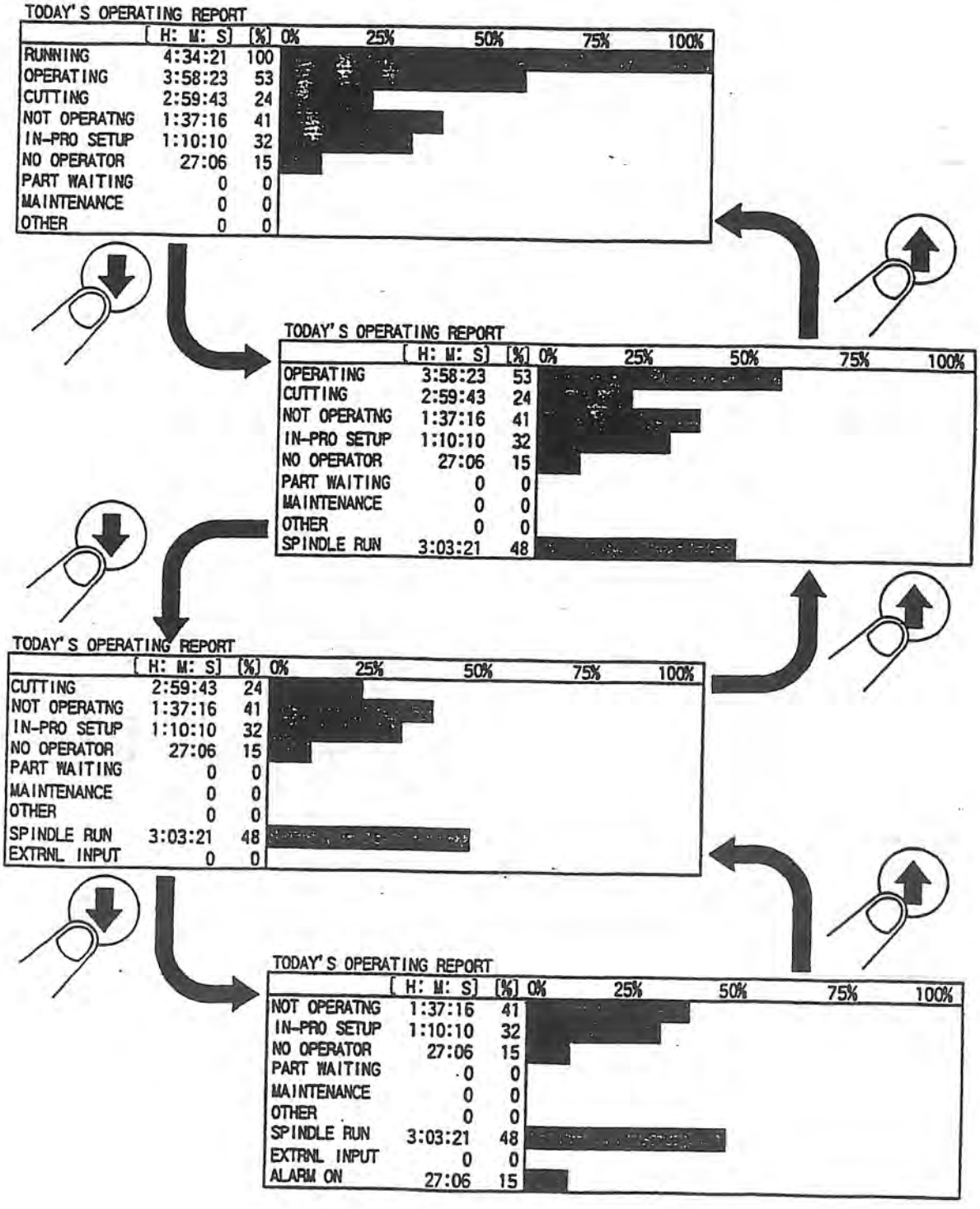
2-3. Today's Operating Report

(1) Today's operating report is displayed.



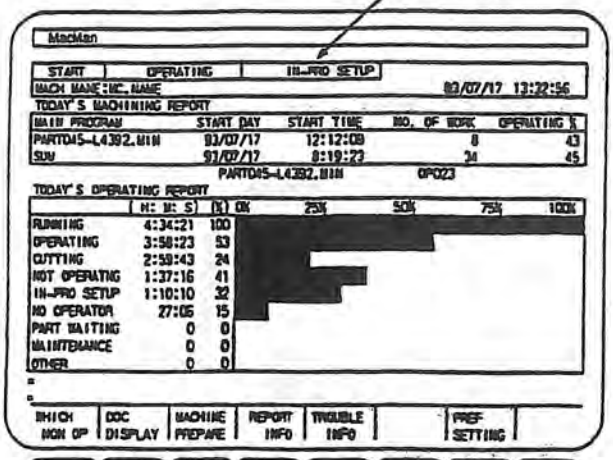
Item	Contents
RUNNING	Length of time for which power supply to the NC has been ON [hours:minutes:seconds] (Power ON (RUNNING) = OPERATING + NOT OPERATING)
OPERATING	Length of time for which a main program has been executed Length of time the main program has been executed in the machine lock mode or dry run mode (NC lathe) is not counted. (OPERATING = CUTTING + Not cutting)
CUTTING	Length of time for which an axis has been moved at a cutting feedrate [hours:minutes:seconds] Length of time an axis has been moved at a cutting feedrate in the machine lock mode or dry run mode (NC lathe) is not counted.
NOT OPERATNG	Length of time for which a main program has not been executed (NOT OPERATING = IN-PRO SETUP + NO OPERATOR + PART WAITING + MAINTENANCE + OTHER)
IN-PRO SETUP	Constituent of not-operating time: machine has not been operating due to in-process setup.
NO OPERATOR	Constituent of not-operating time: machine has not been operating due to no operator attendance.
PART WAITING	Constituent of not-operating time: machine has not been operating due to waiting for workpiece to be machined.
MAINTENANCE	Constituent of not-operating time: machine has not been operating due to machine maintenance.
OTHER	Constituent of not-operating time: machine has not been operating due to reasons not classified into the items indicated above.
SPINDLE RUN	Length of time for which the spindle has been rotating Length of time the spindle has been rotating in the machine lock mode is not counted.
EXTERNAL INPUT	Length of time for which an external input signal has been ON
ALARM ON	Length of time for which the NC has been in an alarm state (alarm A, alarm B, alarm C)

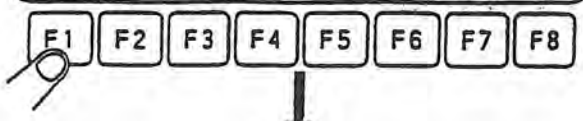
The items of report are scrolled up or down by pressing the "up" or "down" cursor key (1 item/cursor key operation).

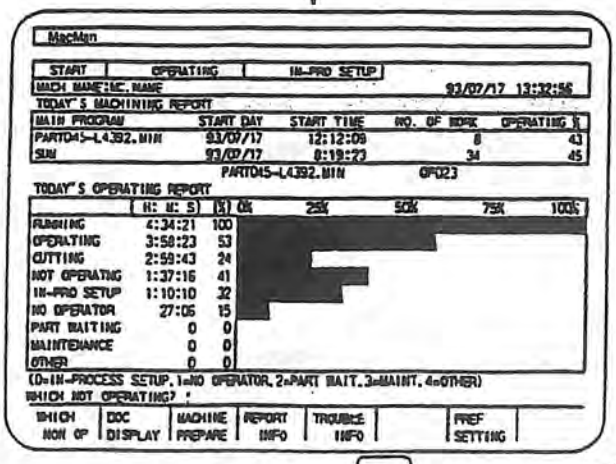


2-4. Changing the Reason of Not-operating Status

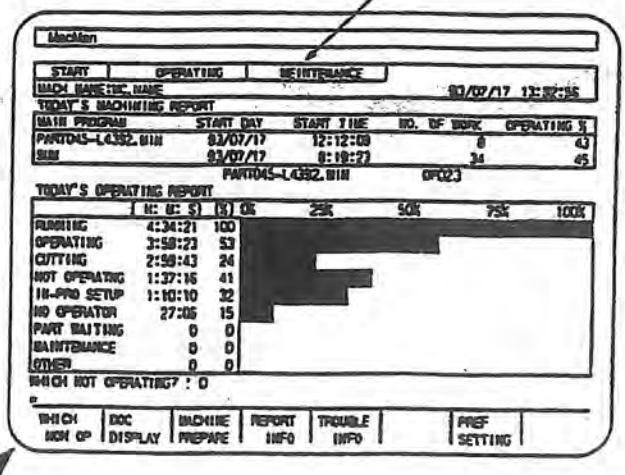
The current reason is in-process setup. Now, you are starting maintenance and the reason must be changed to maintenance accordingly.







The selected reason "MAINTENANCE" is displayed here.





Find the code number heading the reason in the line just above "WHICH NOT OPERATING?!" message.

Because you want to change the reason to maintenance, press 3 and WRITE key.

(1) Reasons for Not-operating Status

The MacMan provides five categories for the reasons for not-operating status.

a) IN-PROCESS SETUP

Setup is largely classified into two categories, the one which requires the machine to be stopped and the other which can be carried out without stopping the machine.

Select "0 = IN-PROCESS SETUP" for the setup which requires the machine to be stopped.

b) NO OPERATOR

There are cases that an operator takes care of two or more machines. In this case, if operator's attendance is required for more than one machine, the machine(s) will not be able to continue operating while an operator takes care of one machine.

Select "1 = NO OPERATOR" if the machine has to be stopped in such status.

c) PART WAIT

If a workpiece, cutting tool(s), and/or a workpiece holding device is not ready or is not supplied to the machine on time, the machine will not be able to operate until all of them are supplied to it.

Select "2 = PART WAIT" if the machine has to be stopped in such status.

d) MAINTENANCE

Select "3 = MAINTENANCE" if the machine has to be stopped due to maintenance.

e) OTHER

Select "4 = OTHER" if the machine has to be stopped due to the reasons not given above.

(2) Changing the Reason Manually

If you want to change the reason for not-operating status, press function key [F1] (WHICH NON OP) and input the code number heading the reason to be selected. For example, change the reason to "MAINTENANCE" before you begin maintenance.

Note 1: After pressing function key [F1] (WHICH NON OP), if you do not want to change the reason, simply press the [WRITE] key without keying in a code number.

Note 2: It is possible to change the reason for not-operating status while the machine is operating. If you have to leave the machine while it is operating to take care of other machine, you can change the reason to "NO OPERATOR" before you leave the machine.

(3) Changing the Reason Automatically

The MacMan can determine the reason for not-operating status automatically. If you select "IN-PROCESS SETUP" for the reason, you are not requested to change the reason while the machine is operating continuously.

a) Ordinary not-operating status, due to such as changing workpieces and removing chips, is classified into "IN-PROCESS SETUP".

b) Assume that you leave the machine, without changing the reason:

While you are not attending the machine, that situation is recognized by the NC from the fact that none of keys on the NC operation panel has not been pressed for a period longer than the parameter-set time. Upon recognition of this, the NC automatically changes to reason from "IN-PROCESS SETUP" to "NO OPERATOR".

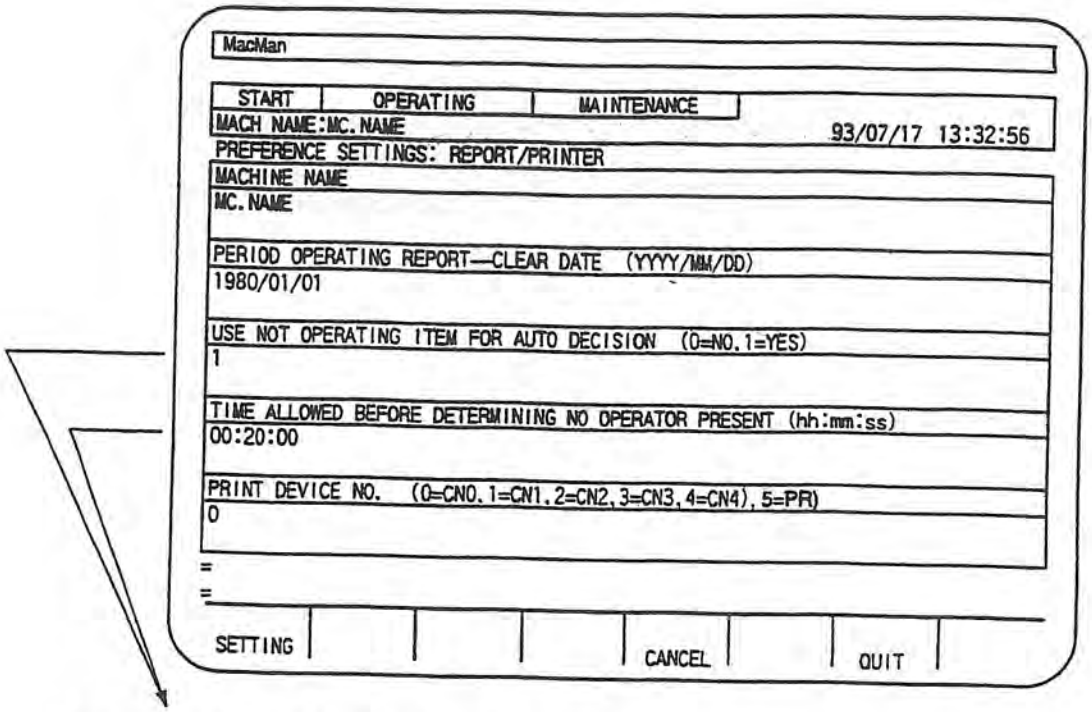
c) If you come back to the machine for which the reason for not-operating has been changed to "NO OPERATOR":

The NC recognizes that you have returned to the machine from the fact that a key on the NC operation panel has been pressed. Then, the NC automatically switches the reason back to "IN-PROCESS SETUP".

If the reason for not-operating status is "PART WAITING", "MAINTENANCE", or "OTHER", the automatic change function is not valid. If the machine has to be stopped, due to any of these reasons, change the reason manually. When the machine restarts, change the reason for not-operating status manually again.

Note: To use the automatic change function for the not-operating status reasons, change the setting for the corresponding parameters on the "REPORT/PRINTER" screen in the "PREFERENCE SETTINGS" function.

Parameter	Default
USE NOT OPERATING ITEM FOR AUTO DECISION (0=NO,1=YES)	0 (No)
TIME ALLOWED BEFORE DETERMINING NO OPERATOR PRESENT (hh:mm:ss)	00:20:00 (20 minutes)



- If the current reason is "IN-PROCESS SETUP":

  The reason is changed to "NO OPERATOR" if a key on the NC operation panel has not been pressed for more than 20 minutes (00:20:00).

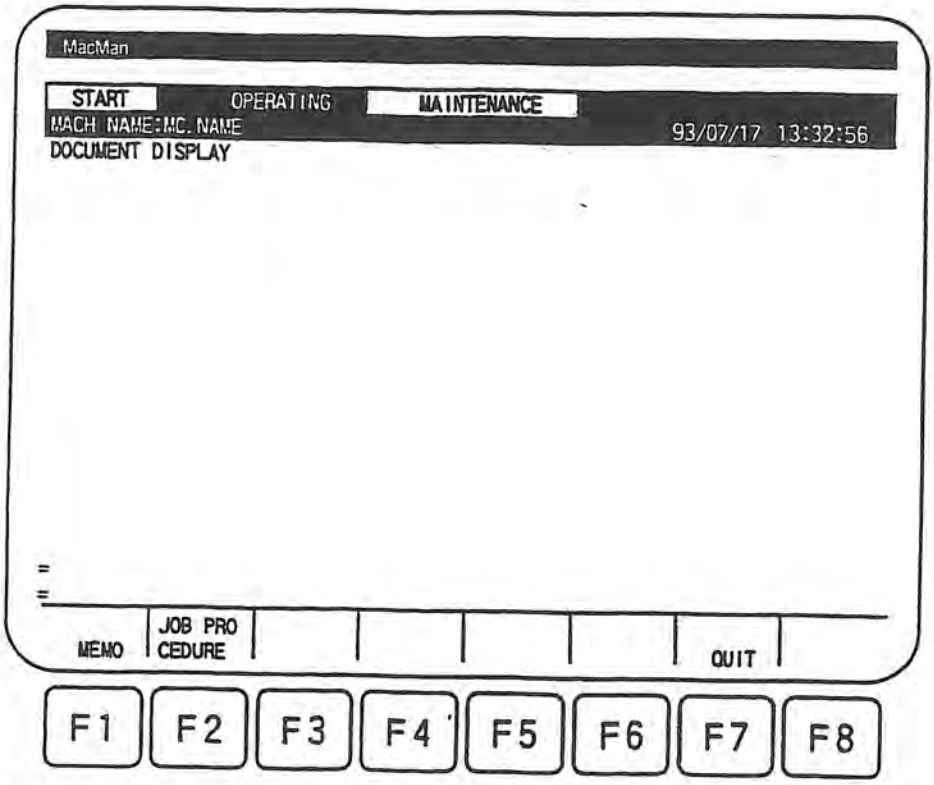
- If the current reason is "NO OPERATOR":

  The reason is changed to "NO OPERATOR" if any of the keys on the NC operation panel is pressed.

- If the current reason is "PART WAITING", "MAINTENANCE", or "OTHER":

  The reason is not changed automatically.

SECTION 3 DOCUMENT DISPLAY



(1) A document created using word processor software and saved to floppy disk (MS-DOS format, or OSP format) can be read into the OSP to be displayed on the NC screen.

- OSP format
- MS-DOS format: 2DD-640/720 KB
  2HC-1.20 MB
  2HD-1.23 MB
  2HD-1.44 MB

(2) Switch the document to be displayed by pressing function keys [F1] (MEMO) and [F2] (JOB PROCEDURE).

a) On the MEMO DISPLAY screen displayed in response to the pressing of function key [F1] (MEMO), the document file called memo file is handled. This operation is provided to use the floppy disk stored information for communications.

b) On the JOB PROCEDURE DISPLAY screen displayed in response to the pressing of function key [F2] (JOB PROCEDURE), the document file called job procedure file is handled. This operation is provided to use the floppy disk as the media to display the job instructions.

c) The memo file and job procedure file are handled as an independent file from each other. Therefore, if you make changes to one of these document files, the other file is not influenced by the changes.

(3) Just after the screen is changed, the document file read last is displayed.

a) The file name of the document file presently displayed is displayed at the upper right area of the screen. This file is registered as the "memo file" or "job procedure file" and stored in the NC memory like machining programs.

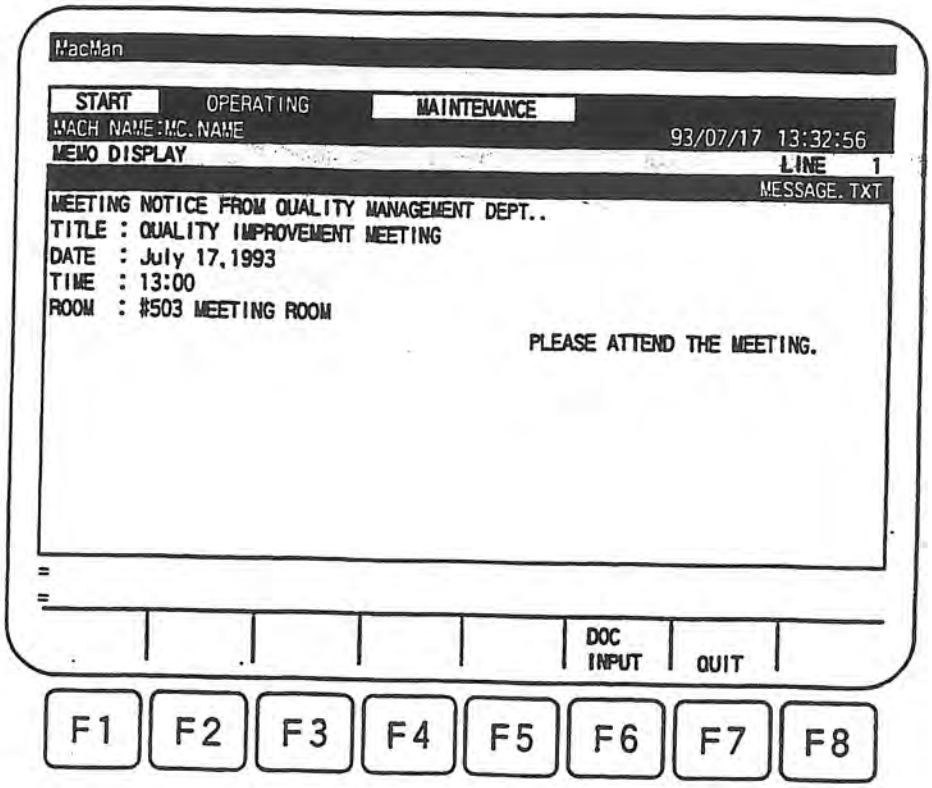
b) Since the document file displayed on the screen is stored in the NC memory, the file is displayed when the MEMO DISPLAY or JOB PROCEDURE DISPLAY screen is accessed even after the power supply to the NC is turned off and on. However, when the machine is shipped, no document file is stored in the NC memory and nothing is displayed even when the MEMO DISPLAY or JOB PROCEDURE DISPLAY screen is accessed.

(4) When you let the NC read a document file, it is displayed on the NC screen upon completion of reading.

a) When a new document file is read while the NC has the document file previously stored, the existing document file is automatically deleted and the new document file is registered as the memo file or job procedure file.

b) Since the existing document file is automatically deleted when a new document file is read, the NC memory always holds only one document file even when document files are read repeatedly.

SECTION 4 MEMO DISPLAY



4-1. Displaying a Memo File

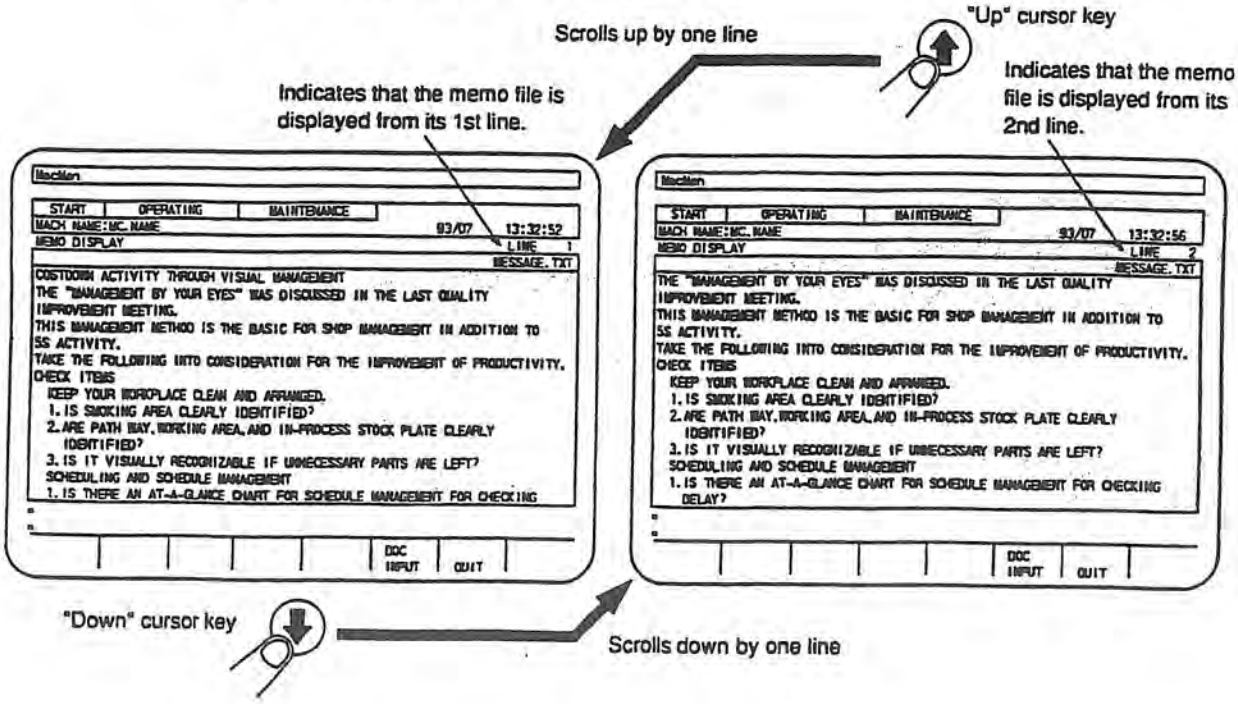
Scrolling

(1) One line scrolling

If the memo file is large and cannot be displayed in one page, you can scroll the screen line by line by using the "up" and "down" cursor keys.

Note 1: When a memo file is displayed within 14 lines, the screen is not scrolled if you press a cursor key.

Note 2: If the last page of the memo file is displayed on the screen. the screen is not scrolled even if you press the "up" or "down" cursor key,

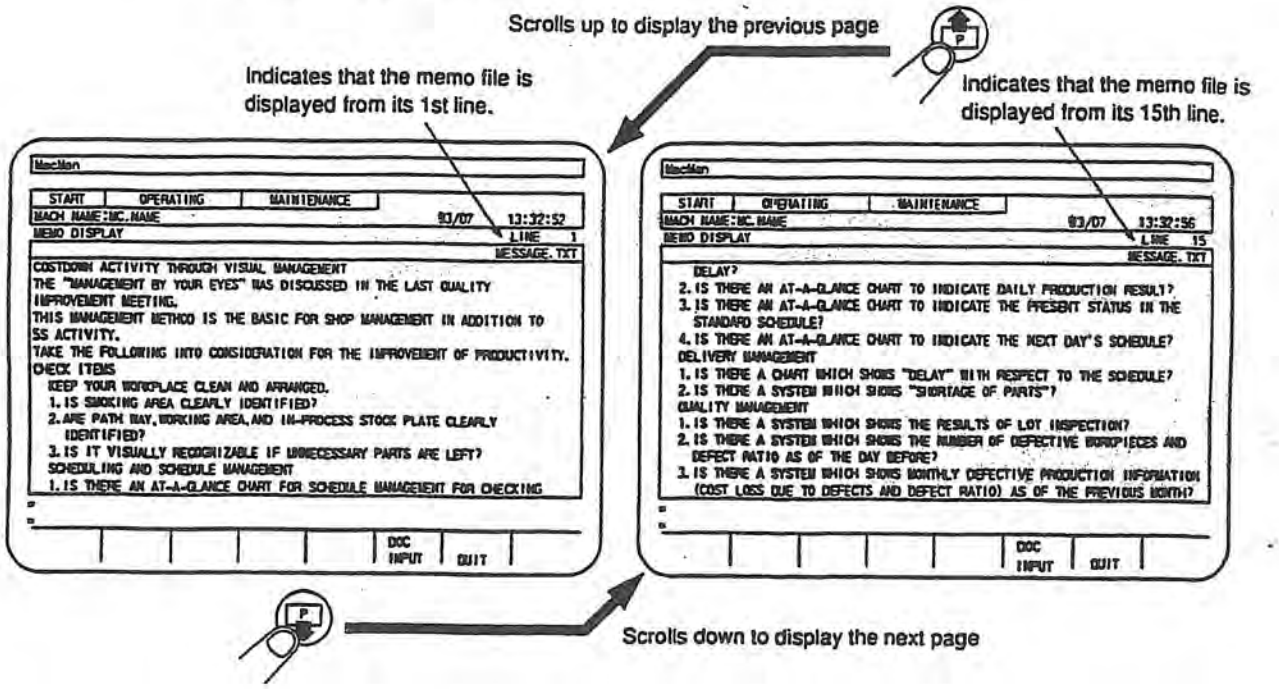


(2) One Page Scrolling

When you use a page key, the screen is scrolled in units of pages.

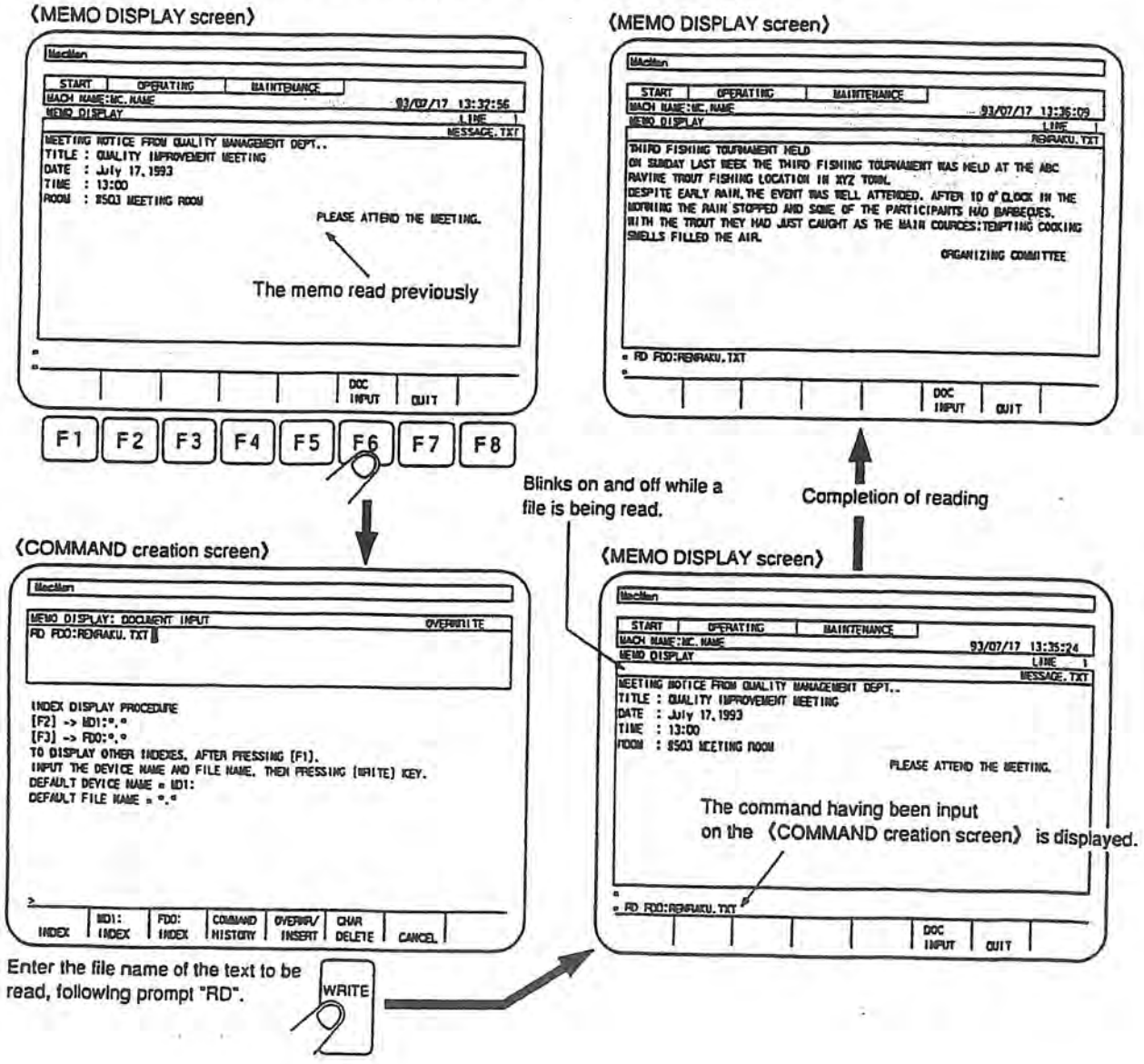
Note 1: When a memo file is displayed within 14 lines, the screen is not scrolled if you press a page key.

Note 2: If the last page of the memo file is displayed on the screen, the screen is not scrolled even wjen you press a page key.



4-2. Reading a Memo File

(1) Follow the procedure given below to store the memo file, saved in a floppy disk (MS-DOS format, OSP format), to the memory after inserting it to hte floppy disk drive.



(2) For the media to input a memo file may be MS-DOS format floppy disk or OSP format floppy disk. The OSP7000 automatically recognizes to which format the floppy disk has been initialized.

- MS-DOS format

  Text files created using word processor software can be read.

- OSP format

  Text files created using the OSP or TM-APT cam be read.

(3) Selection of the file to be read can be made by specifying the file following prompt "RD".

a) RD [WRITE]

When you press function key [F6] (DOC INPUT), prompt "RD" followed by the file name of the memo currently displayed is displayed.

b) RD ABC.TXT [WRITE]

If you press the [WRITE] key without entering a device name, the specified file "ABC.TXT" saved to floppy disk placed in "FD0:"is read.

Note: If you omit the entry of a device name, the defaulr device is automatically selected. The default device name is set on the INPUT DATA screen of the PREFERENCE SETTINGS function.

Before the shipping of the NC, default device seting is for "FD0:". Therefore, if you used "FD0:" to read a file from the floppy disk, it is not necessary to specify the device name.

c) RD FD1:ABC.TXT [WRITE]

File "ABC.TXT" is read from device "FD1:".

d) RD FD1:

The entry is not allowed. If you specify a device name, youmust enter a file name following the device name.

e) RD MD1:ABC.TXT

The device which can be used to read a memo file is floppy disk drive only. Therefore, specification of the NC memory as the device to read a memo file is not allowed.

(4) If you use MS-DOS format floppy disk, path name can be used when soecufying a file name.

a) RD \ABC.TXT [WRITE]

File "\ABC.TXT" is read from device "FD1:".

b) RD FD1:\PATH1\PATH2\ABC.TXT [WRITE]

File "FD1:\PATH1\PATH2\ABC.TXT" is read from device "FD1:".

Note: Path name cannot be specified when OSP format floppy disk is used.

(5) If a path name begins with a back slash code "\", it is recognized as an absolute path. If "\" is not placed at the beginning of a path name, it is recognized as a relative path beneathathe default path name.

The default path name is set on the INPUT DATA screen of the PREFERENCE SETTINGS function.

Before the shipping of the NC, default path name is set for "\".

Note: When reading a file just beneath the root directory, it is not necessary to specify a path name.

(6) How the memo file is read in response to the setting of "\PATH1\" for the default path name:

a) RD FD0:ABC.TXT [WRITE]

File "\PATH1\ABC.TXT" is read from device "FD0:".

b) RD FD0:\ABC.TXT [WRITE]

File "\ABC.TXT" is read from device "FD0:".

c) RD FD1:PATH2\ABC.TXT [WRITE]

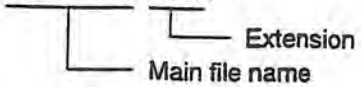
File "\PATH1\PATH2\ABC.TXT" is read from "FD1:".

d) RD FD1:\PATH2\ABC.TXT [WRITE]

File "\PATH2\ABC.TXT" is read from "FD1:".

(7) Since a memo file is stored in the NC memory in the same manner as a machining program, the file name must follow the OSP rule.

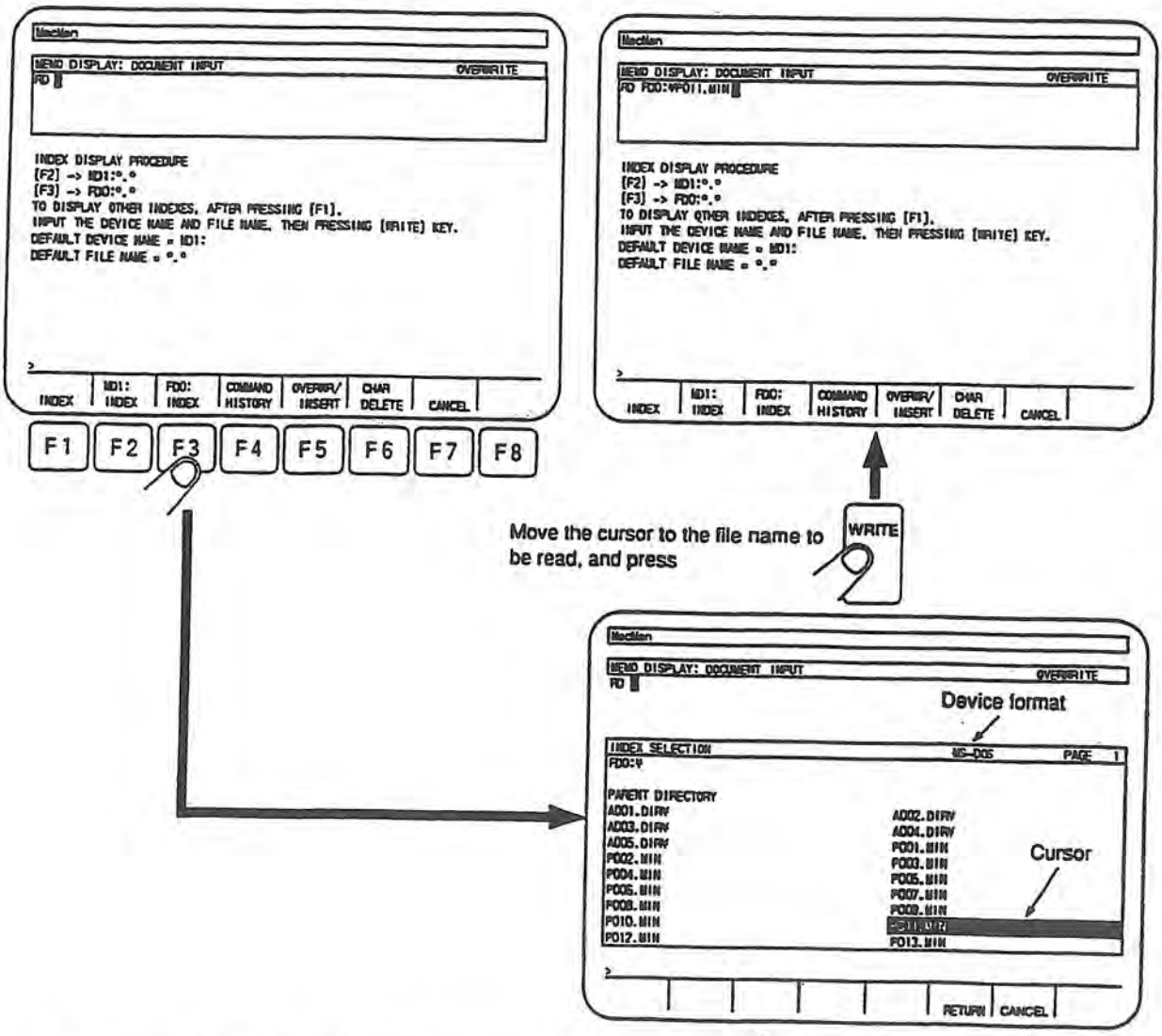
File name configuration: ** – **.***



OSP rule:

- A main file name should be within 16 alphanumerics (A to Z, 0 to 9), beginning with an alphabetic letter (A to Z).
- An extension should be within 3 alphanumerics (A to Z, 0 to 9) and is separated from a main file name with a period ".".
- An extension must not be omitted.

4-3. Selecting a File from Directory



(1) Directory is displayed by simply pressing function key [F3] (FD0: INDEX).

The directory of the files saved to floppy disk placed in "FD0:" is displayed.

The file names displayed on the screen conform to the default file name, which is set on the INPUT DATA screen of the PREFERENCE SETTINGS function.

If "*.*" is set for the default file name, all file names are displayed. Before shipping of the NC, default file name setting is "*.*".

If "*.TXT" is set for the default file name, file names having extension TXT are displayed.

(2) When you press function key [F1] (INDEX), prompt ">ISO" appears in the console line. You can enter a device name following this prompt.

a) ISO [WRITE]

If you press the [WRITE] key without entering a device name, the directory of the files saved to floppy disk placed in "FD0:" is displayed.

Note: If you omit the entry of a device name, the default device is automatically selected. The default device name is set on the INPUT DATA screen of the PREFERENCE SETTINGS function.

Before the shipping of the NC, default device setting is for "FD0:". Therefore, if you use "FD0:" to read a file from the floppy disk, it is not necessary to specify the device name.

b) ISO FD1: [WRITE]

If you press the [WRITE] key after entering the device name of "FD1:", the directory of the files saved to floppy disk placed in "FD1:" is displayed.

(3) When you press function key [F1] (INDEX), prompt ">ISO" appears in the console line. You can enter a file name following this prompt.

a) ISO FD0: [WRITE]

The directory of all files saved to the floppy disk in "FD0:" is displayed.

Note: If you omit the entry of a file name, the default file name is automatically selected. The default file name is set on the INPUT DATA screen of the PREFERENCE SETTINGS function.

Before the shipping of the NC, default file name setting is for "*.*". Therefore, if you want to display the directory of all files, it is not necessary to specify the file name.

b) ISO FD0:*.TXT [WRITE]

The directory of files having extension ".TXT" is displayed.

c) ISO FD0:AB*.TXT [WRITE]

The directory of files beginning with AB and having extension ".TXT" is displayed.

d) ISO FD0:AB??.TXT [WRITE]

The directory of files having four characters of main file name which begins with AB and having extension ".TXT" is displayed.

(4) When you press function key [F1] (INDEX), prompt ">ISO" appears in the console line. You can enter a path name following this prompt if you are using MS-DOS format floppy disk.

a) ISO FD0:*.* [WRITE]

The directory beneath the root directory is displayed.

Note: If you omit the entry of a path name, the default file name is automatically selected. The default path name is set on the INPUT DATA screen of the PREFERENCE SETTINGS function.

Before the shipping of the NC, default path name is for "\".

Note: When displaying the directory of files just beneath the root directory, it is not necessary to specify a path name.

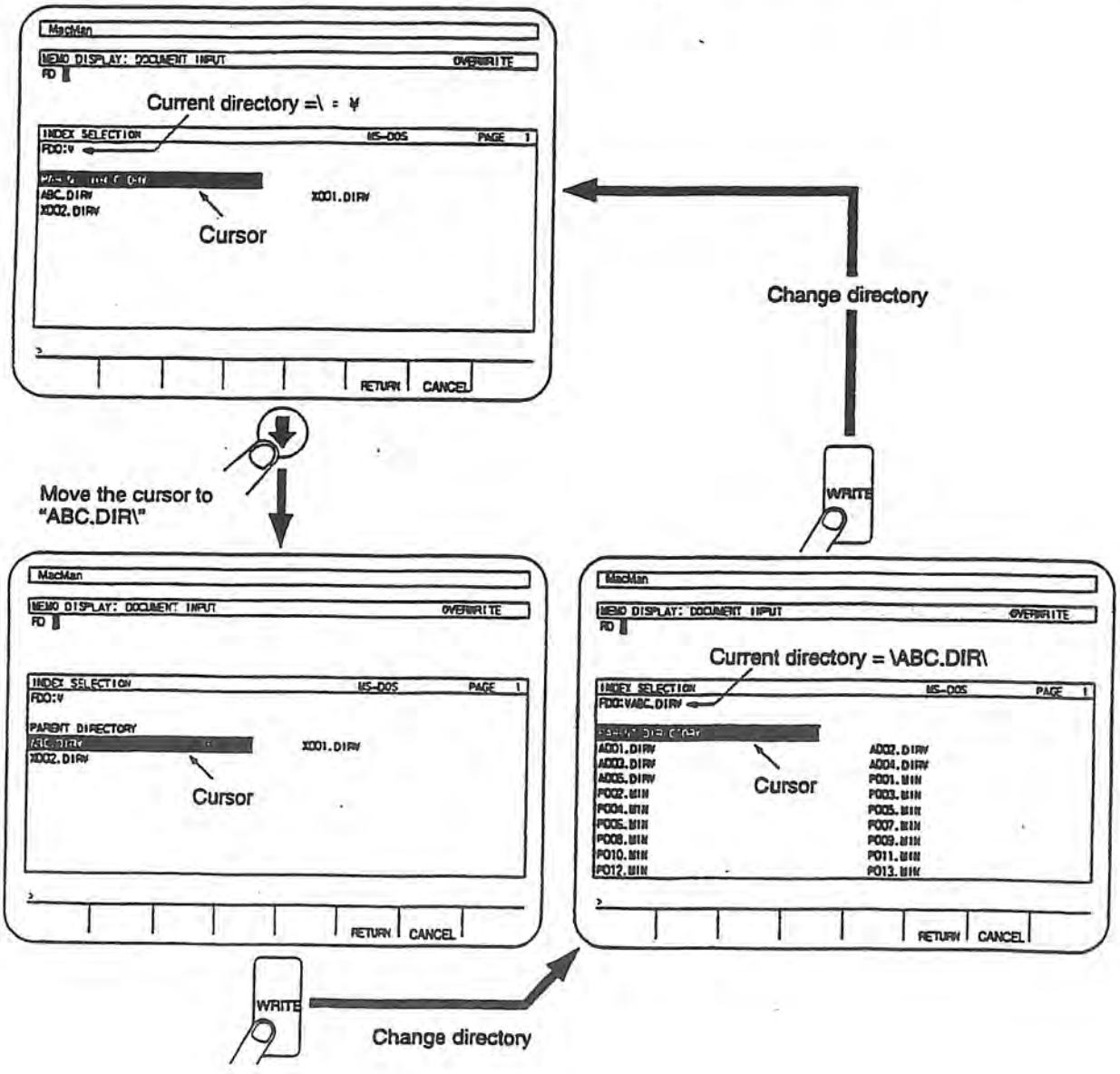
b) ISO FD0:\PATH1*.* [WRITE]

The directory of files beneath the directory "\PATH1\" is displayed.

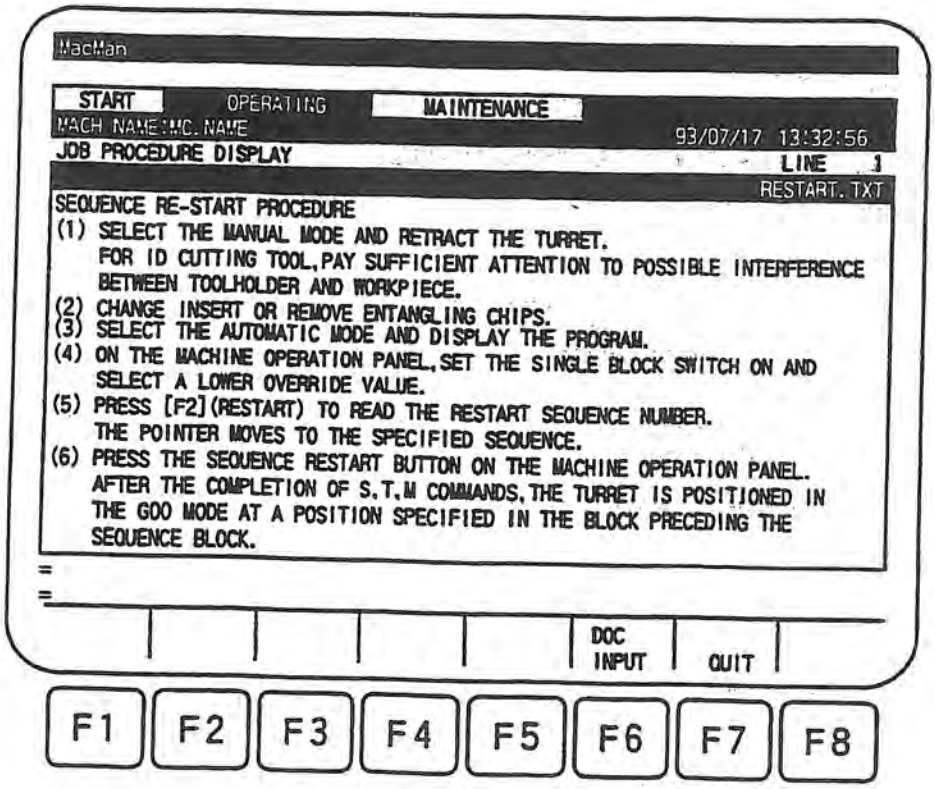
(5) If you are using MS-DOS format floppy disk, the screen displays both the directory names and file names.

If you press the [WRITE] key after moving the cursor to "PARENT DIRECTORY", the current directory is changed to the parent directory.

If you press the [WRITE] key after moving the cursor to a directory name (followed by "\" code), the current directory is changed to the selected directory.



SECTION 5 JOB PROCEDURE DISPLAY



5-1. Display a Job Procedure File

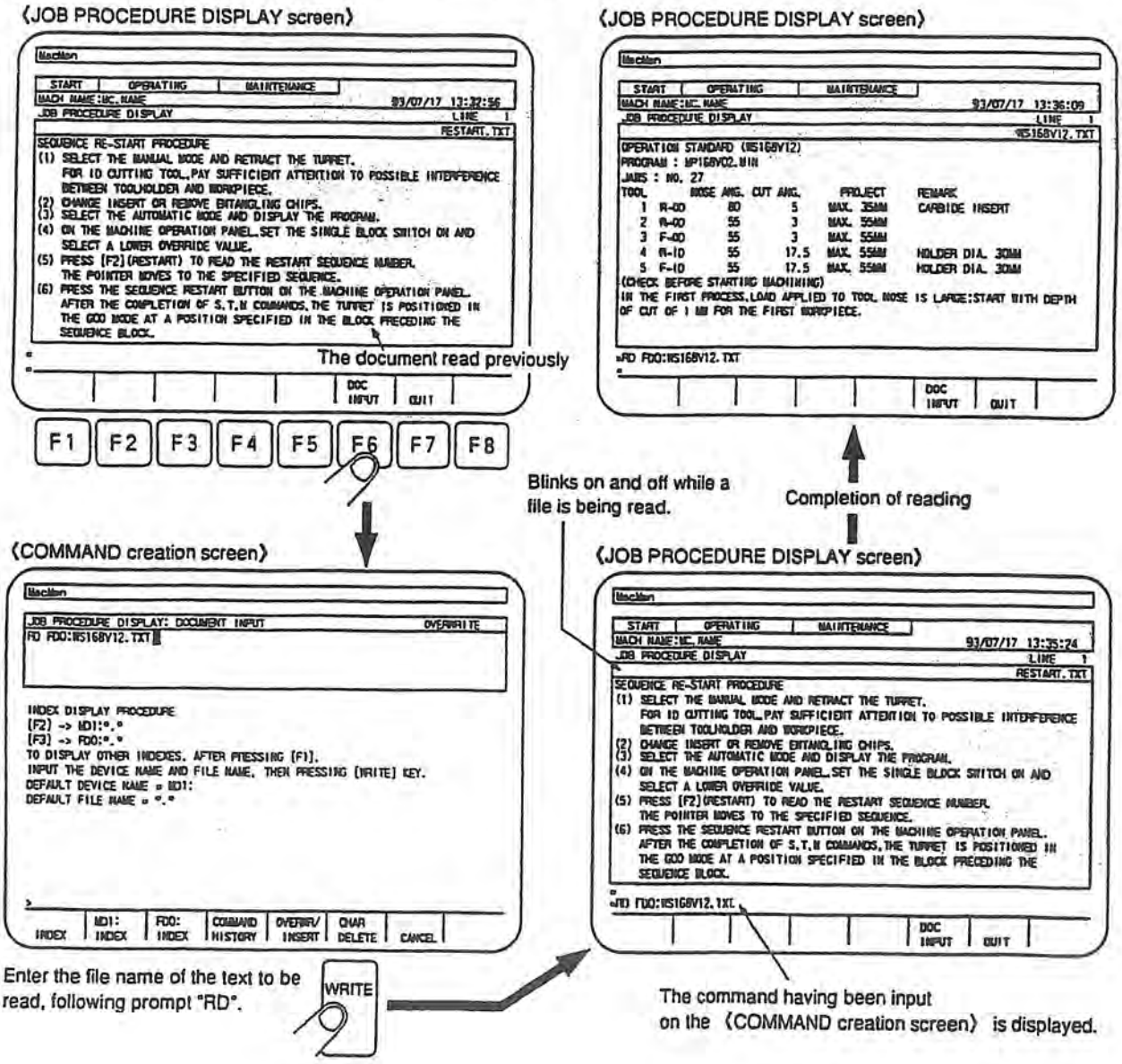
Scrolling:

The display can be scrolled by pressing the cursor keys or page keys. If you use a cursor key, the screen is scrolled line by line, and if you use a page key, the screen is scrolled in units of pages.

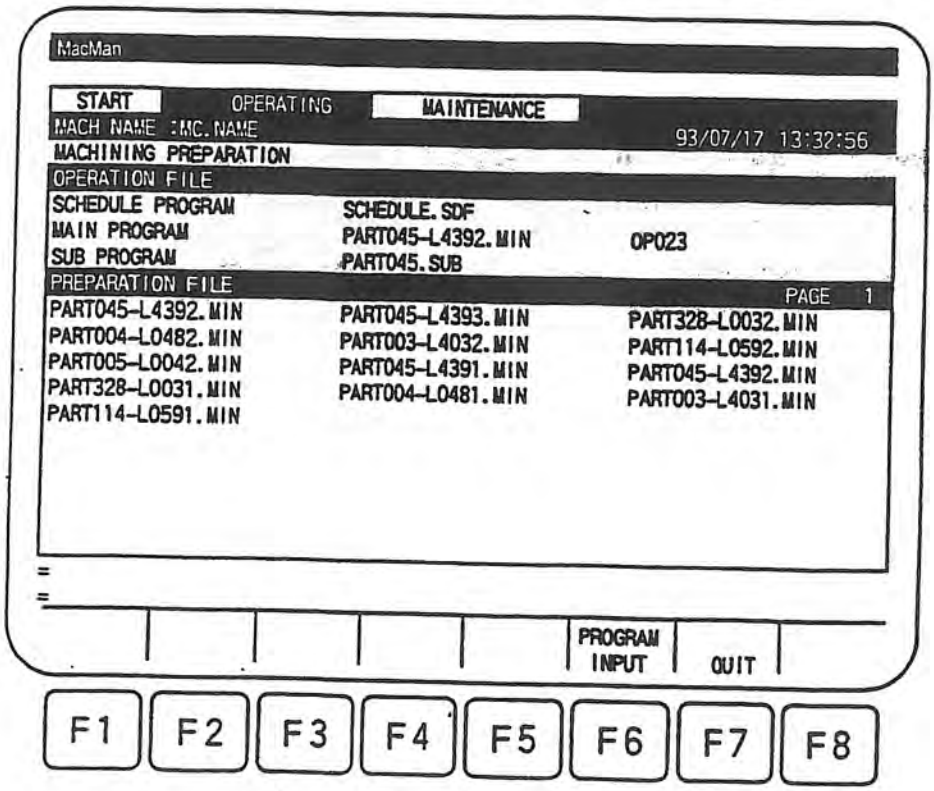
For details of scrolling operation, refer to Section 4-1. "Displaying A Memo File".

5-2. Reading a Job Procedure File

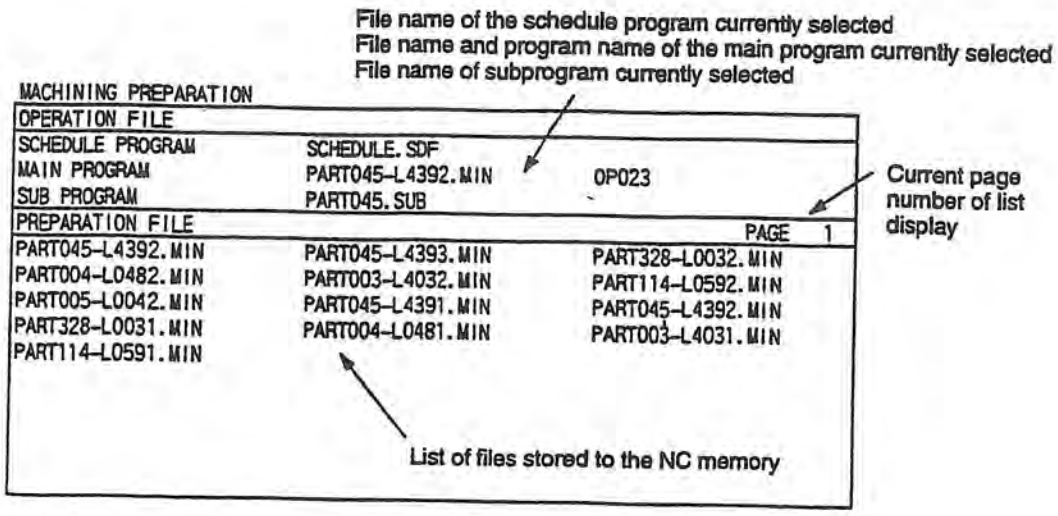
Follow the procedure given below to store the job procedure file saved in a floppy disk (MS-DOS format, OSP format) after inserting it to the floppy disk drive.



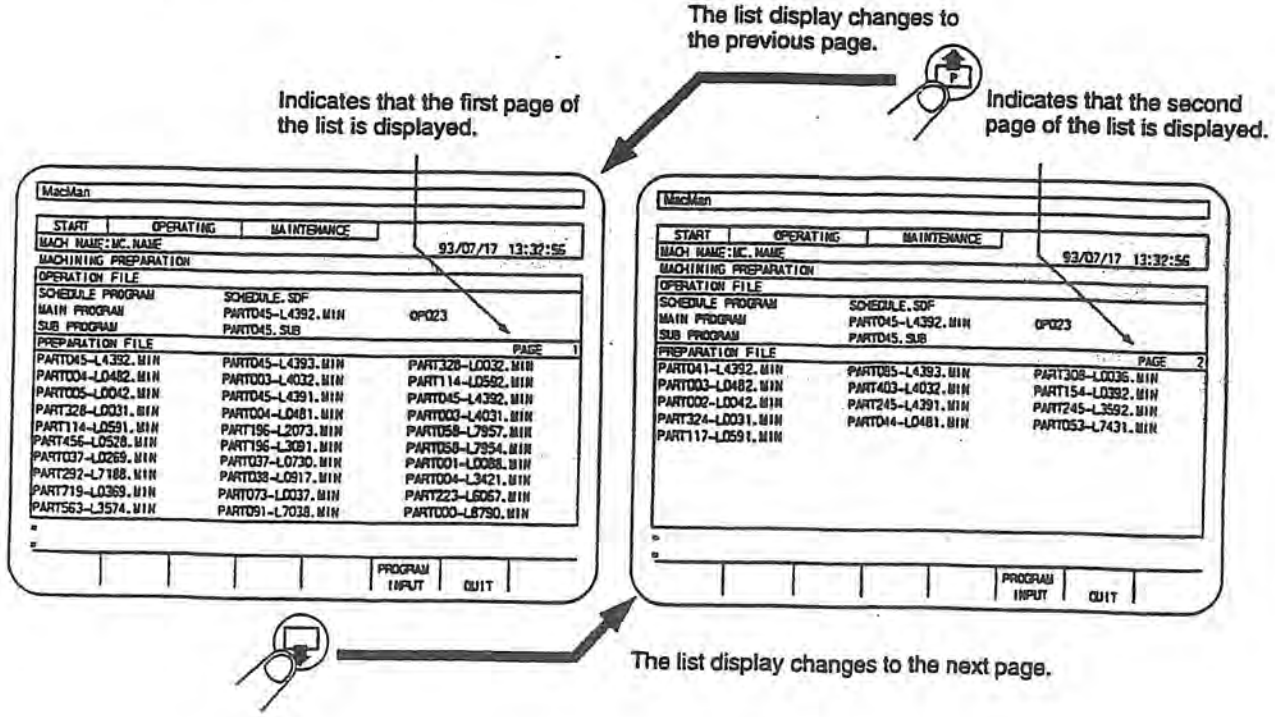
SECTION 6 MACHINING PREPARATION



6-1. Display of Operation Files and Preparation Files

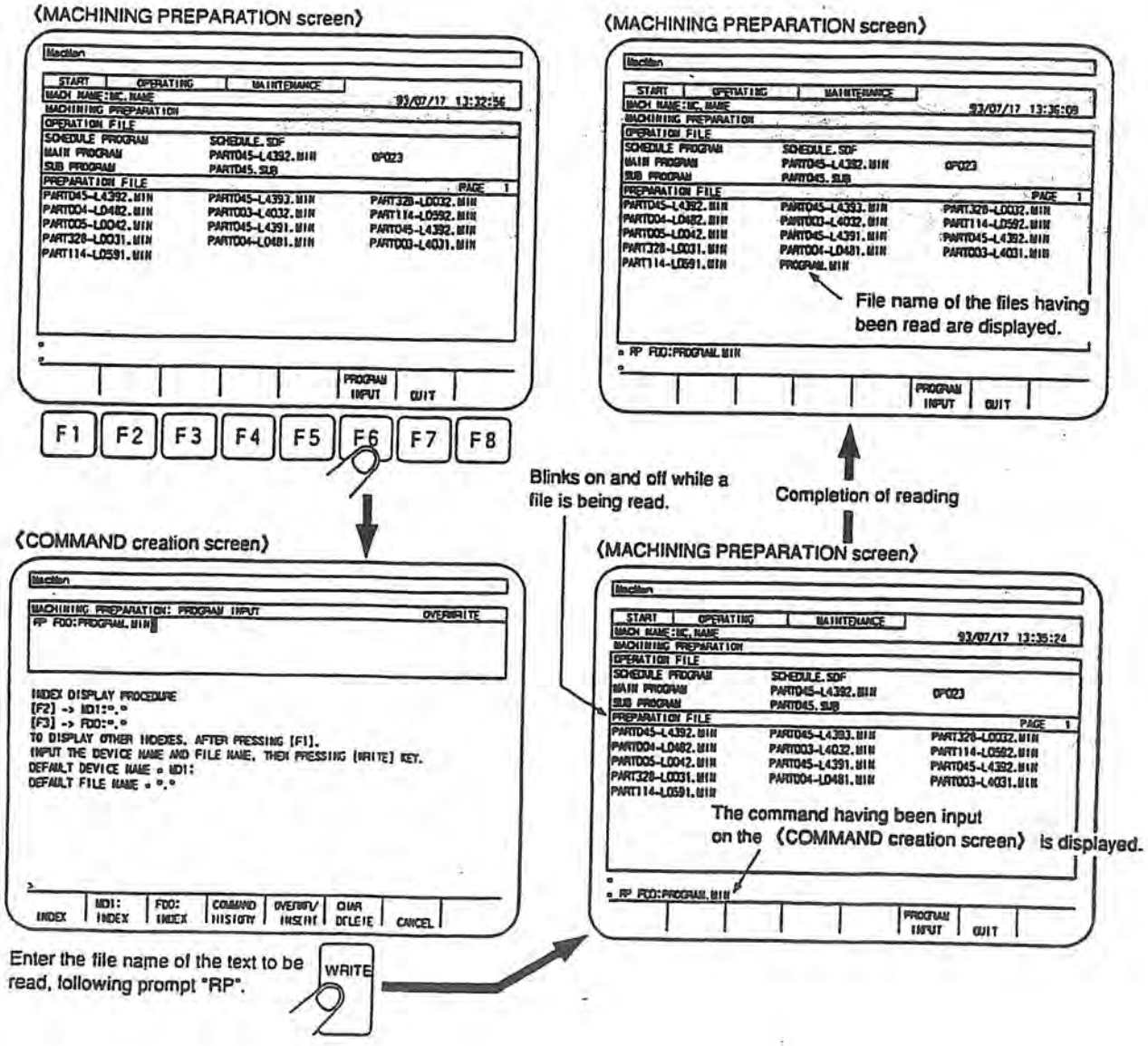


One page can contain up to 30 file names. If more than 30 file names are stored to the NC memory, press the page key to display other file names.



6-2. Reading a Machining Program File

(1) Follow the procedure given below to store the machining program file saved in a floppy disk (MS-DOS format, OSP format) after inserting it to the floppy disk drive.



(2) For the media to input a machining program file may be MS-DOS format floppy disk or OSP format floppy disk. The OSP7000 automatically recognizes to which format the floppy disk has been initialized.

- MS-DOS format

  Text files created using word processing software can be read.

- OSP format

  Text files created using the OSP or TM-APT can be read.

(3) Selection of the file to be read can be made by specifying the file name following prompt "RP".

a) RP ABC.TXT [WRITE]

If you press the [WRITE] key without entering a device name, the specified file "ABC.TXT" which is saved to floppy disk placed in "FD0:" is read.

Note: If you omit the entry of a device name, the default device is automatically selected. The default device name is set on the INPUT DATA screen of the PREFERENCE SETTINGS function.

Before the shipping of the NC, default device setting is for "FD0:". Therefore, if you use "FD0:" to read a file from the floppy disk, it is not necessary to specify the device name.

b) RP FD1:ABC.TXT [WRITE]

File "ABC.TXT" is read from device "FD1:".

c) RP
RP FD0:

This entry is not allowed. You cannot not omit a file name.

d) RP MD1:ABC.TXT

The device which can be used to read a machining program file is floppy disk drive only. Therefore, specification of the NC memory as the device to read a machining program file is not allowed.

(4) If you use MS-DOS format floppy disk, path name can be used when specifying a file name.

a) RP \ABC.TXT [WRITE]

File "\ABC.TXT" is read from device "FD0:".

b) RP FD1:\PATH1\PATH2\ABC.TXT [WRITE]

File "\PATH1\PATH2\ABC.TXT" is read from device "FD1:".

Note: Path name cannot be specified when OSP format floppy disk is used.

(5) If a path name begins with a back slash code "\", it is recognized as an absolute path. If "\" is not placed at the beginning of a path name, it is recognized as a relative path beneath the default path name.

The default path name is set on the INPUT DATA screen of the PREFERENCE SETTINGS function.

Before the shipping of the NC, default path name is set for "\".

Note: When reading a file just beneath the root directory, it is not necessary to specify a path name.

(6) How the machining program file is read in response to the setting of "\PATH1\" for the default path name is explained below.

a) RP FD0:ABC.TXT [WRITE]

File "\PATH1\ABC.TXT" is read from device "FD0:".

b) RP FD0:\ABC.TXT [WRITE]

File "\ABC.TXT" is read from device "FD0:".

c) RP FD1:PATH2\ABC.TXT [WRITE]

File "\PATH1\PATH2\ABC.TXT" is read from "FD1:".

d) RP FD1:\PATH2\ABC.TXT [WRITE]

File "\PATH2\ABC.TXT" is read from "FD1:".

(7) Since a machining program file is stored in the NC memory, the file name must follow the OSP rule.

File name configuration: ** ~ **.***

Extension

Main file name

OSP rule:

- A main file name should be within 16 alphanumerics (A to Z, 0 to 9), beginning with an alphabetic letter (A to Z).
- An extension should be within 3 alphanumerics (A to Z, 0 to 9) and is separated from a main file name with a period ".".
- An extension must not be omitted.

(8) A file name can be selected from the directory.

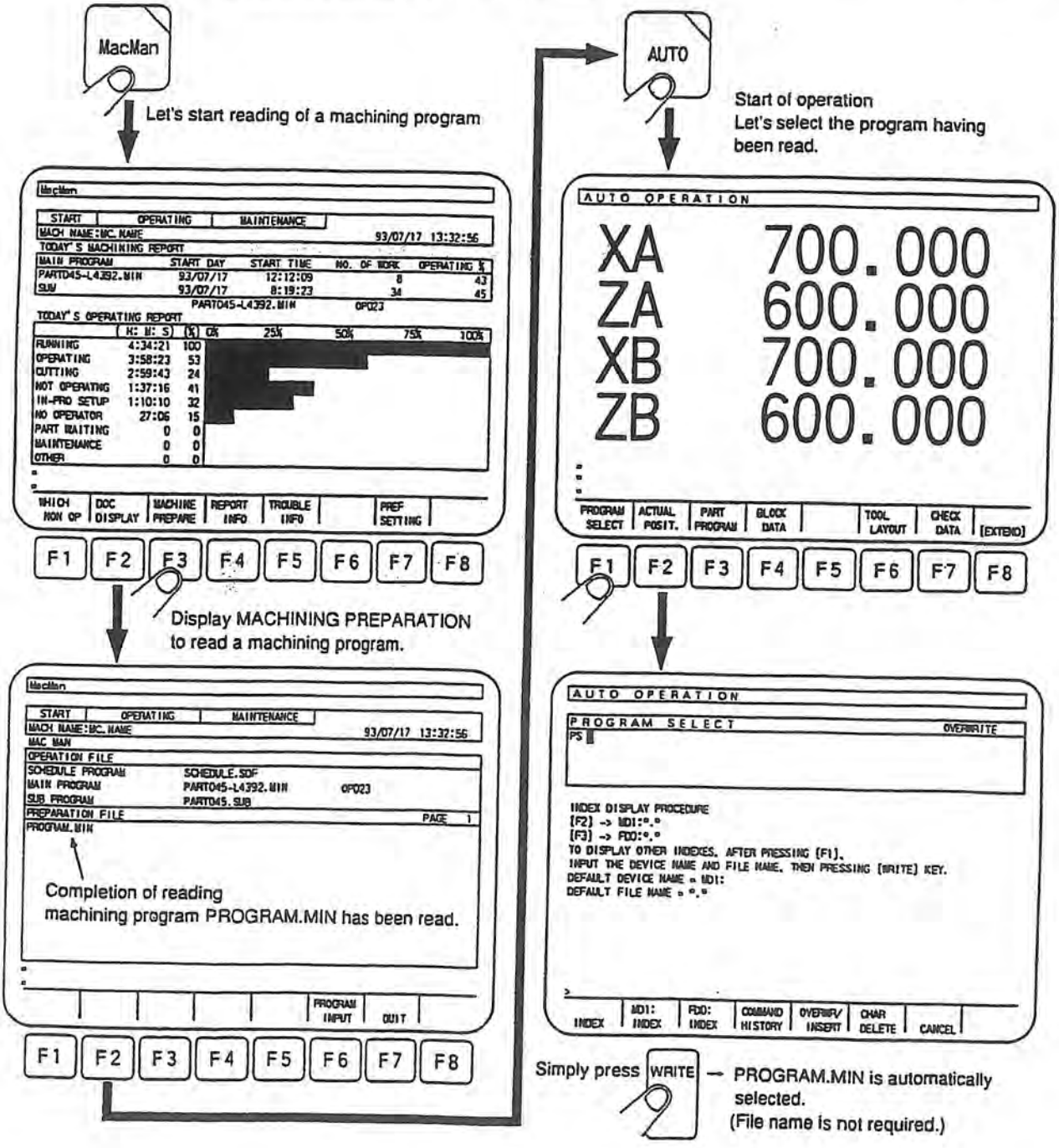
The procedure to be used for selecting a file from the directory is the same as used for selecting a memo file. For details, refer to Section 4-3. "Selecting A File from Directory".

(9) To select the main program, having been read using the MACHINING PREPARATION screen, in the automatic operation mode, you do not have to enter the file name. The program can be selected in one-touch operation.

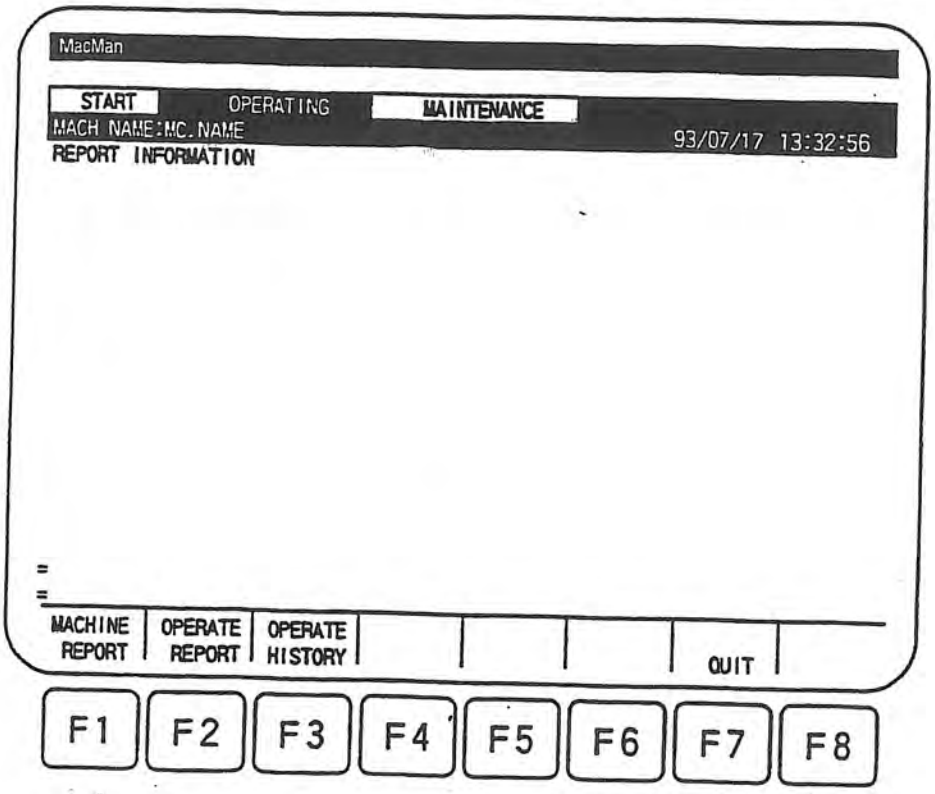
If you select a program without entering a file name, the main program which was read using the MACHINING PREPARATION screen is selected.

Note 1: If program selection is made without entering a file name just after switching ON power to the NC, main program "A.MIN" is selected.

Note 2: To select a program such as a schedule program and a subprogram which is not a main program, a file name must be specified.



SECTION 7 REPORT INFORMATION DISPLAY



(1) Press function key [F1], [F2], or [F3], and the corresponding machining or operation report screen is displayed.

a) Machining Report

The report shows the progress of each of the selected main programs.

Program progress report:

Item	Contents
MAIN PROGRAM	The file name of the main program having been selected.
START DAY	Date of the main program selection [year/month/day]
START TIME	Time of the main program selection [hour:minute:second]
NO. OF WORK	The number of times the M02 or M30 command has been executed Execution of the M02 or M30 command in the machine lock mode operation and dry run mode operation (NC lathe) is not counted.
OPERATING %	Percentage of machine operating time in reference to power ON time [%] (Operating % = Machine operating time (OPERATING) / Power ON time (RUNNING))
RUNNING	Length of time for which power supply to the NC has been ON [hours:minutes:seconds] (Length of time for which main program has been selected)
OPERATING	Length of time for which a main program has been executed [hours:minutes:seconds] Length of time the main program has been executed in the machine lock mode or dry run mode (NC lathe) is not counted.
CUTTING	Length of time for which an axis has been moved at a cutting feedrate [hours:minutes:seconds] Length of time an axis has been moved at a cutting feedrate in the machine lock mode or dry run mode (NC lathe) is not counted.
CYCLE TIME	Length of time for which power has been ON for producing one piece of workpiece [hours:minutes:seconds/pc.] (Cycle time = Power on time (RUNNING) / No. of workpieces (NO. OF WORK))
MACHINING	Length of operating time used for producing one piece of workpiece [hours:minutes:seconds/pc.] (Machining time = Operating time (RUNNING) / No. of workpieces (NO. OF WORK))

b) Operating Report

The report shows the operating status of the machine.

Machine operating report:

Item	Contents
RUNNING	Length of time for which power supply to the NC has been ON [hours:minutes:seconds] (Power ON (RUNNING) = OPERATING + NOT OPERATNG)
OPERATING	Length of time for which a main program has been executed Length of time the main program has been executed in the machine lock mode or dry run mode (NC lathe) is not counted. (OPERATING = CUTTING + Not cutting)
CUTTING	Length of time for which an axis has been moved at a cutting feedrate [hours:minutes:seconds] Length of time an axis has been moved at a cutting feedrate in the machine lock mode or dry run mode (NC lathe) is not counted.
NOT OPERATNG	Length of time for which a main program has not been executed (NOT OPERATING = IN-PRO SETUP + NO OPERATOR + PART WAITING + MAINTENANCE + OTHER)
IN-PRO SETUP	Constituent of not-operating time: machine has not been operating due to in-process setup.
NO OPERATOR	Constituent of not-operating time: machine has not been operating due to no operator attendance.
PART WAITING	Constituent of not-operating time: machine has not been operating due to waiting for workpiece to be machined.
MAINTENANCE	Constituent of not-operating time: machine has not been operating due to machine maintenance.
OTHER	Constituent of not-operating time: machine has not been operating due to reasons not classified into the items indicated above.
SPINDLE RUN	Length of time for which the spindle has been rotating Length of time the spindle has been rotating in the machine lock mode is not counted.
EXTERNAL INPUT	Length of time for which an external input signal has been ON
ALARM ON	Length of time for which the NC has been in an alarm state (alarm A, alarm B, alarm C)

c) Operating History

The operating history shows the operating status (ON/OFF) of the machine using the time chart in intervals of 10 minutes.

Machine history:

Item	Contents
RUNNING	Length of time for which power supply to the NC has been ON [hours:minutes:seconds]
OPERATING	Length of time for which a main program has been executed Length of time the main program has been executed in the machine lock mode or dry run mode (NC lathe) is not counted.
CUTTING	Length of time for which an axis has been moved at a cutting feedrate [hours:minutes:seconds] Length of time an axis has been moved at a cutting feedrate in the machine lock mode or dry run mode (NC lathe) is not counted.
NOT OPERATNG	Length of time for which a main program has not been executed
IN-PRO SETUP	Constituent of not-operating time: machine has not been operating due to in-process setup.
NO OPERATOR	Constituent of not-operating time: machine has not been operating due to no operator attendance.
PART WAITING	Constituent of not-operating time: machine has not been operating due to waiting for workpiece to be machined.
MAINTENANCE	Constituent of not-operating time: machine has not been operating due to machine maintenance.
OTHER	Constituent of not-operating time: machine has not been operating due to reasons not classified into the items indicated above.
SPINDLE RUN	Length of time for which the spindle has been rotating Length of time the spindle has been rotating in the machine lock mode is not counted.
EXTERNAL INPUT	Length of time for which an external input signal has been ON
ALARM ON	Length of time for which the NC has been in an alarm state (alarm A, alarm B, alarm C)

(2) You can output the report information to the floppy disk.

a) Simply press function key [F6] (DATA OUTPUT), and the report information is output to the floppy disk. The information presently displayed is output. The device name and the file name are set on the OUTPUT DATA screen of the PREFERENCE SETTINGS function. With the setting made at the shipping, date is entered to the file name.

b) The report information is output to the MS-DOS format floppy disk.
- 2DD-640/720 KB
- 2HC-1.20 MB
- 2HD-1.23 MB
- 2HD-1.44 MB

c) The report information is output in either the text file format or the work sheet file format. The default setting is the text file format.

Text file format : You can analyze the information by using word processor software.

Work sheet file format : You can analyze the information by using data base software.

	English Characters	Other Language
Text file	Alphabetic characters only	Characters displayed on the screen are included
Work sheet file	Alphabetic characters only Lotus 1-2-3 R2	Alphabetic characters only Lotus 1-2-3 R2

d) Which of the file format (text file / work sheet file) is used for outputting the report information to the floppy disk is determined by the extension of file name set on the OUTPUT DATA screen of the PREFERENCE SETTINGS function.

File name configuration: ** ~ **.***

Extension

Main file name

	English Characters	Other Language
Extension = WJ2	Text file	Text file
Extension = WK1	Work sheet file	Work sheet file
Extension ≠ WJ2 Extension ≠ WK1	Text file	Text file

(3) You can output the report information to a printer.

a) The information output to the floppy disk can be printed using a personal computer. If a printer is connected to the OSP7000, it is possible to print the report directly from the OSP7000.

b) The characters which are printed are shown in the table below. Use the printer which can print the indicated characters.

	English Characters	Other Language
Machining report	Alphabetic characters only	Alphabetic characters only
Operating report		
Operating history		

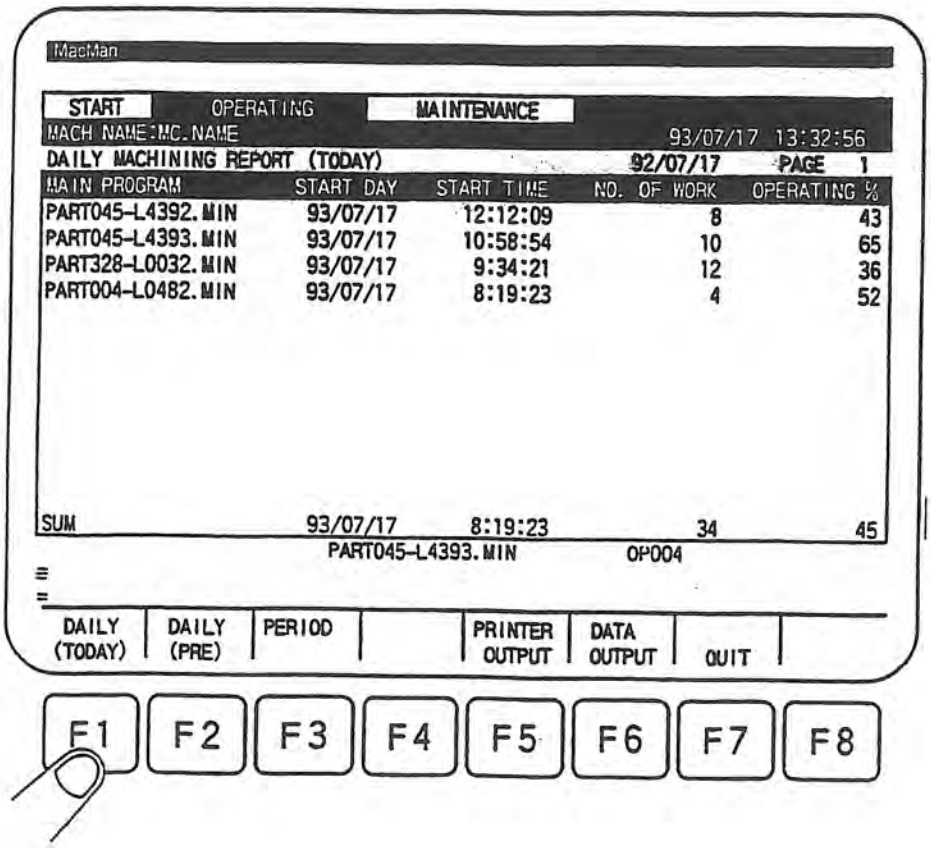
c) Connect the printer to the RS232C (serial) interface or centronics (parallel) interface. Which of the interfaces should be used is set on the PREFERENCE SETTING screen.

d) For printing, the following protocol is used.

ESC/P (EPSON)

SECTION 8 MACHINING REPORT DISPLAY

8-1. Daily Machining Report (Today)



(1) Display Order of the Selected Main Programs

The machining result of the main programs selected today is displayed for each main program in the order the main programs selected later (START TIME).

Note 1: The first line in the first page shows the machining result of the main program presently selected.

Note 2: When the screen is changed to the MACHINING REPORT screen, the DAILY MACHINING REPORT (TODAY) screen is displayed.

Date (today) Page No.

DAILY MACHINING REPORT (TODAY) 92/07/17 PAGE 1

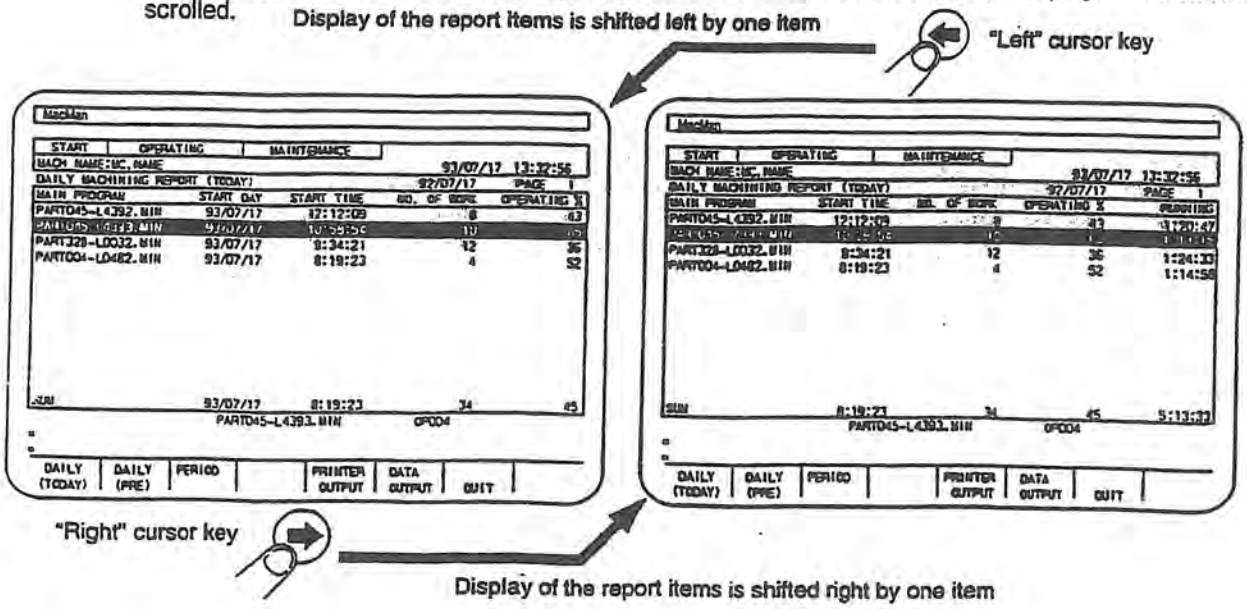
MAIN PROGRAM	START DAY	START TIME	NO. OF WORK	OPERATING %
PART045-L4392.MIN	93/07/17	12:12:09	8	43
PART045-L4393.MIN	93/07/17	10:58:54	10	65
PART328-L0032.MIN	93/07/17	9:34:21	12	36
PART004-L0482.MIN	93/07/17	8:19:23	4	52
SUM	93/07/17	8:19:23	34	45
	PART045-L4393.MIN		OP004	

The first main program selection time (today)

Total daily machining result (today)

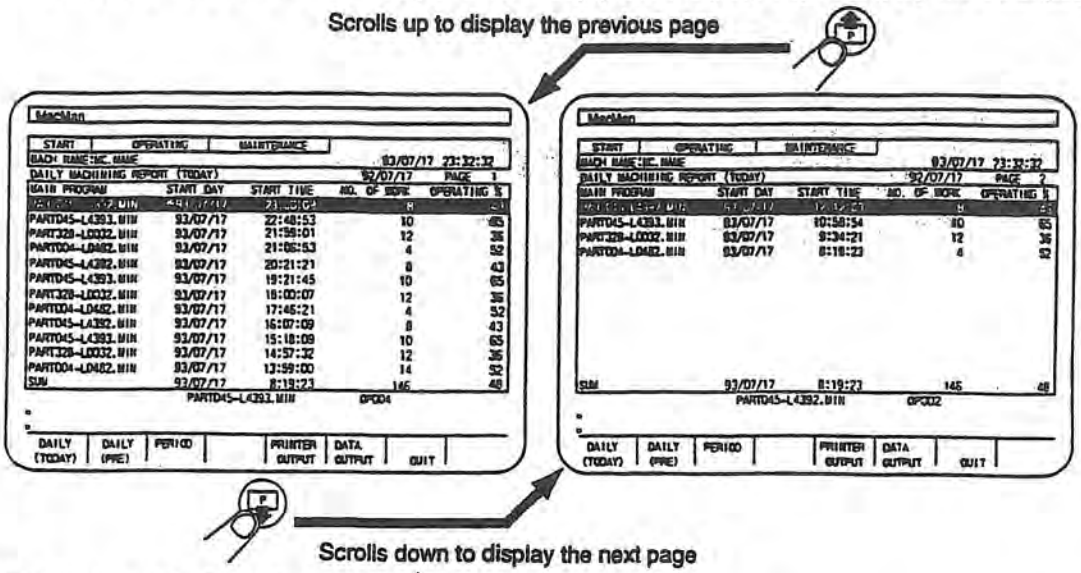
(2) Scrolling the Display (One Item)

The machining report consists of a main program file name and nine items showing the progress of the main program. Since one line in the display screen is able to show a main program file name and four items, use the "left" and "right" cursor keys to scroll the screen to display the other items. Note that the main program file name stays displayed at the same column even when the display of the items is scrolled.



(3) Changing the Machining Report Display Pages

One page of the machining report display page shows the information on 12 main programs. If you have selected more than 12 main programs for a day, press the page key to display the other pages.



(4) Display of the Main Program File Names

At the MAIN PROGRAM item column on the DAILY MACHINING REPORT (TODAY) screen, the file name of the selected main programs is displayed. In this column, a file name of the first 16 characters can be displayed.

File name = □□□□□□□□□□□□□□□□.□□□

Extension (up to 3 characters)

Main file name (up to 16 characters)

Note: If the file name of the selected main program exceeds 16 characters, see the file name which is displayed below the report display area. In this area, the file name (up to 20 characters) and the program name of the main program indicated by the cursor are displayed.

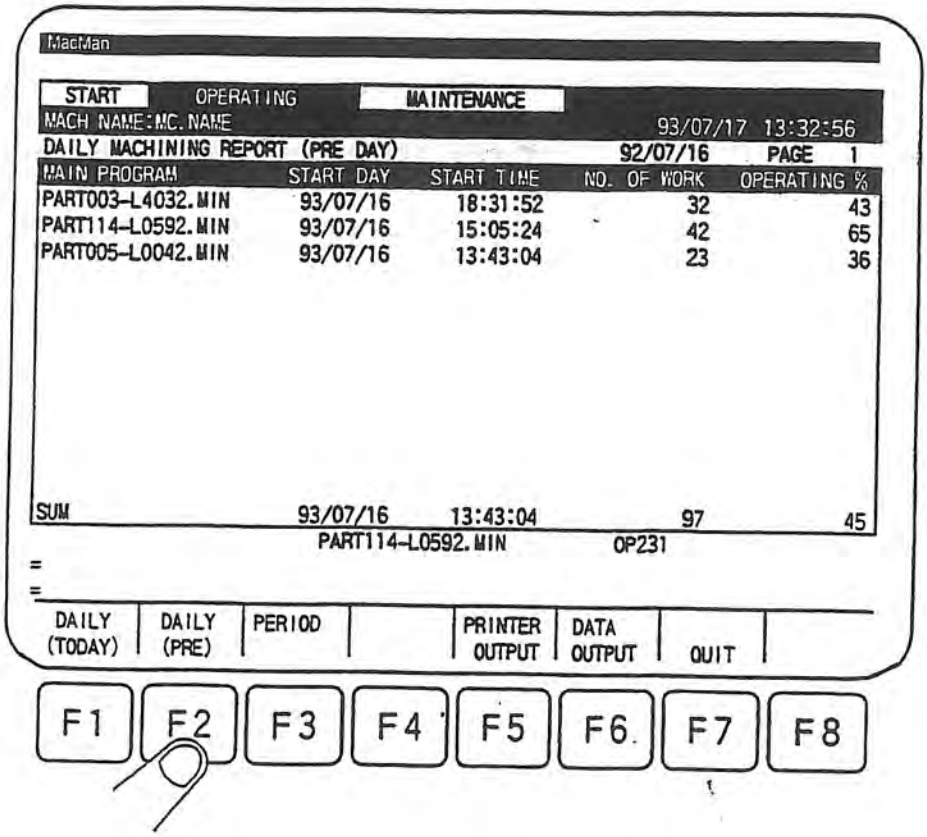
MAIN PROGRAM	START DAY	START TIME	NO. OF WORK	OPERATING %
PART045-L4392.MI	93/07/17	12:12:09	8	43
PART38-L74.MIN	93/07/17	10:58:54	10	65
PART2865-L63-A.	93/07/17	9:34:21	12	36
TEST.MIN	93/07/17	8:19:23	4	52
SUM	93/07/17	8:19:23	34	45

← Cursor

PART2865-L63-A.MIN OP004

File name and program name of the main program on the cursor line

8-2. Daily Machining Report (Pre Day)

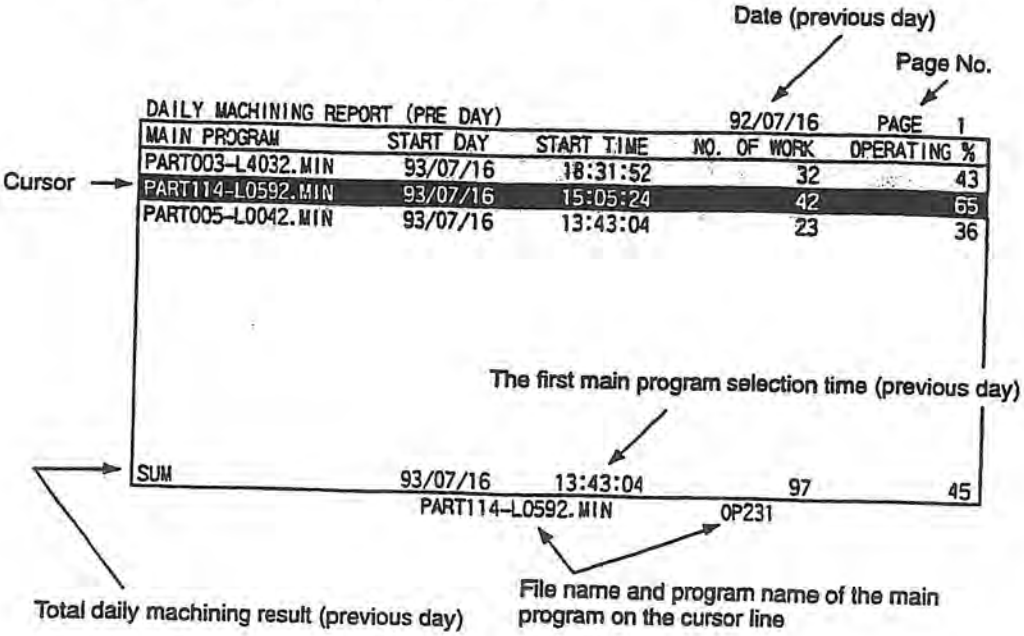


(1) Display Order of the Selected Main Programs

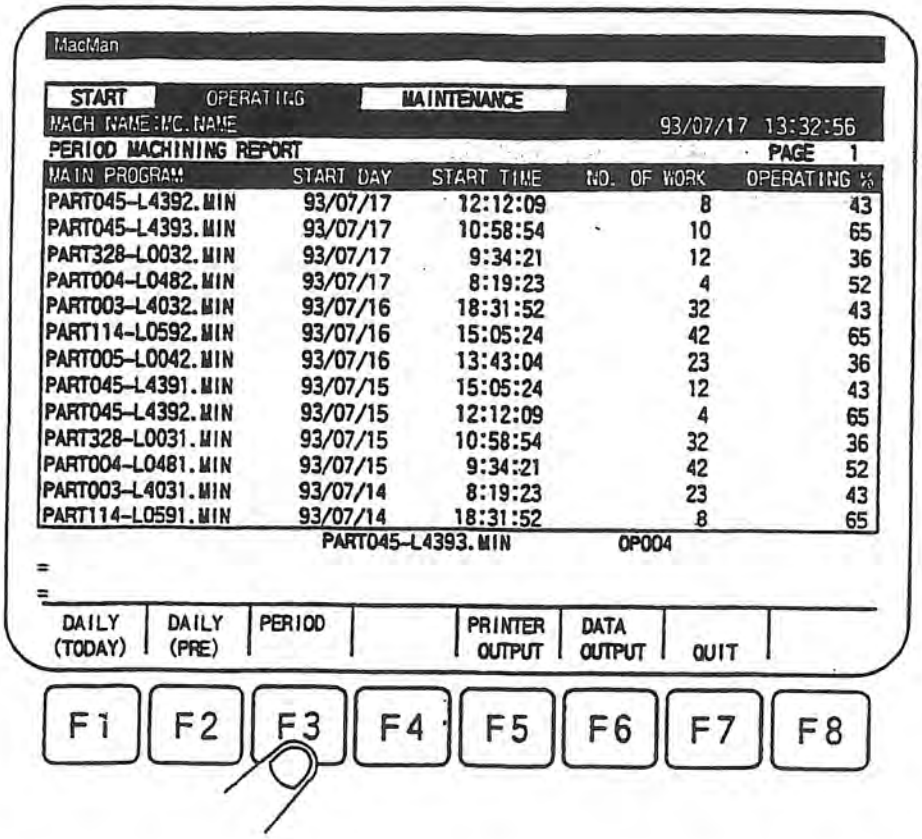
The machining result of the main programs selected in the previous day is displayed for each main program in the order the main programs selected later (START TIME).

Note 1: The term previous day does not always mean "yesterday". It indicates the last day the NC was operated. If the NC had been stopped for two days, say Saturday and Sunday, and assume that you turned it ON on Monday, the previous day refers to Friday in the last week, or the day three days before today.

Note 2: The functions of the cursor keys and the page keys are the same as those used in the MACHINING REPORT (TODAY) screen.



8-3. Period Machining Report



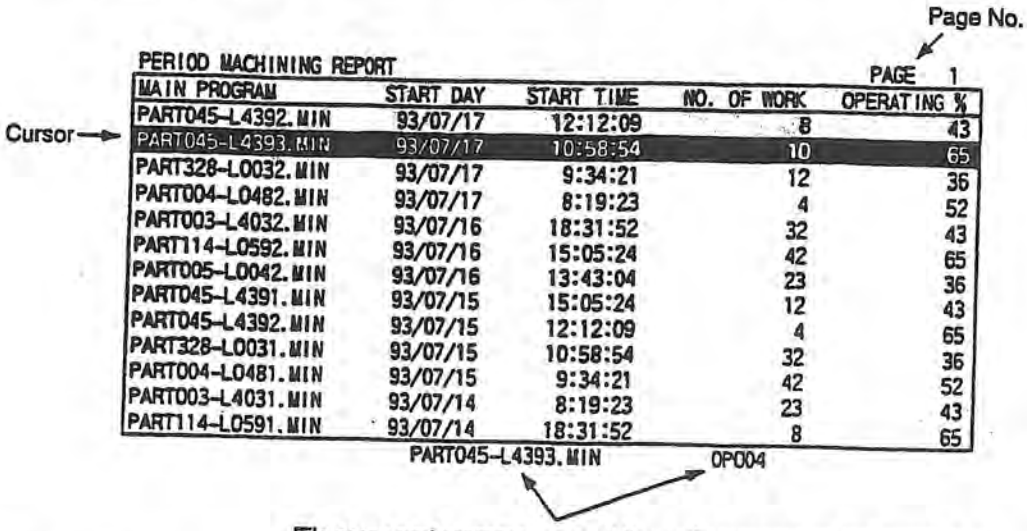
(1) Display Order of the Selected Main Programs

The machining result of the main programs having been selected up to today is displayed for each main program in the order the main programs selected later (START TIME).

Note 1: The first line in the first page shows the machining result of the main program presently selected.

Note 2: One page of the report display shows the machining report of up to 13 main programs. In this report, total information is not given.

Note 3: If the total number of the selected main programs exceeds 13, the report is given on the following pages which are accessible by pressing a cursor key or a page key. The functions of the cursor keys and the page keys are the same as those used in the MACHINING REPORT (TODAY) screen.



File name and program name of the main program on the cursor line

(2) Report Storing Capacity

The period machining report function is able to store the machining result information for up to 64 main programs, including the main program selected presently.

Note 1: If the memory has already stored the machining result information for 64 main programs, selection of a new main program will cause the machining result information of the oldest main program among the stored 64 main programs to be deleted. The machining report of the newly selected main program is created instead.

Note 2: The machining report (today) is created by extracting the machining report of the main programs for which the START DAY is today from the period machining report.

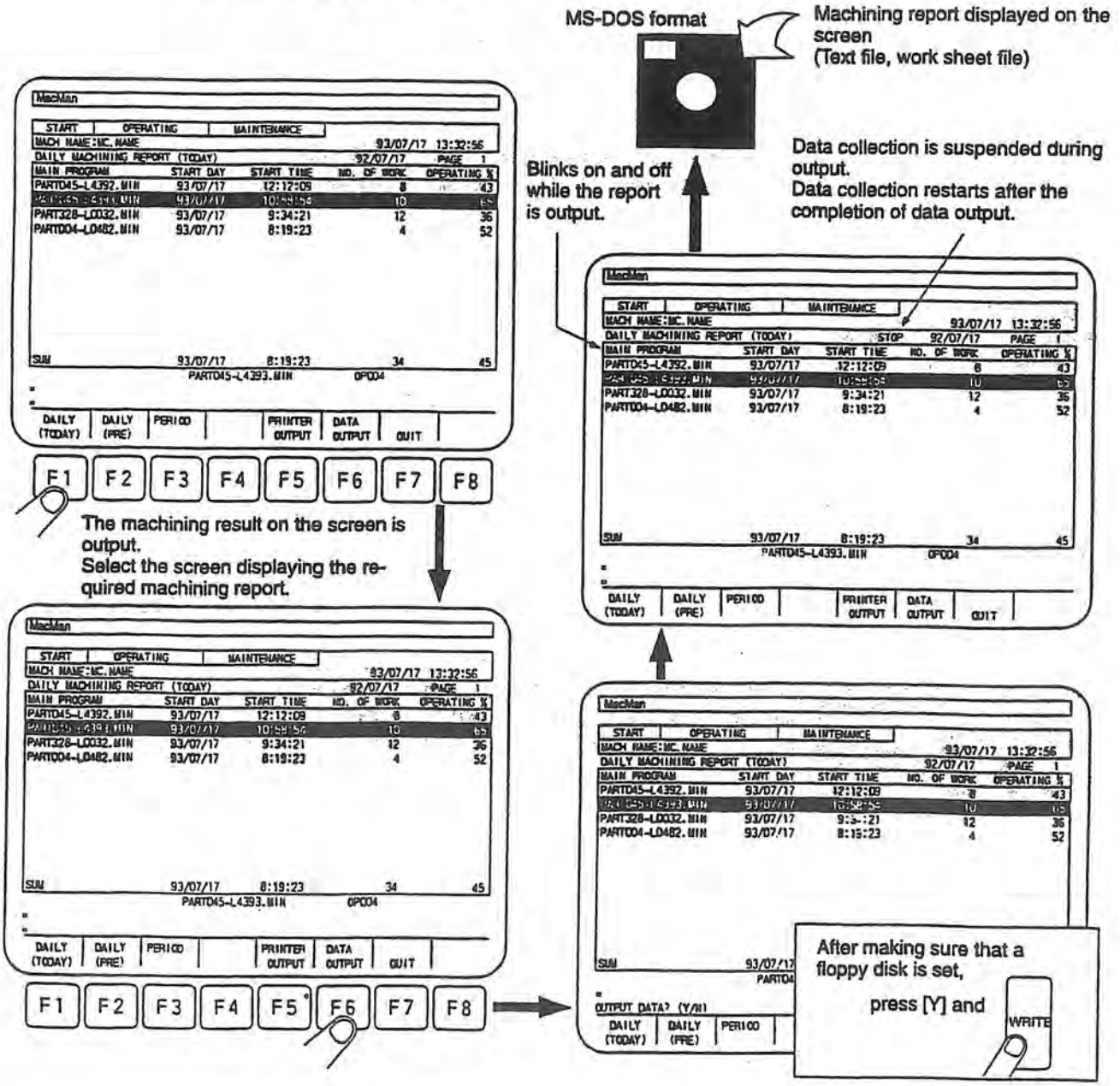
Note 3: The machining report (pre day) is created by extracting the machining report of the main programs for which the START DAY is previous day from the period machining report.

8-4. Outputting the Machining Report to Floppy Disk

You can save the machining report displayed on the screen by outputting it to floppy disk.

(1) Operating Procedure

Insert an MS-DOS format floppy disk to the floppy disk drive. The machining report displayed on the screen is output to the floppy disk.



(2) Output Device and File Name

The machining report displayed on the screen can be output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT). The device name and the file name are set on the OUTPUT DATA screen of the PREFERENCE SETTINGS function.

Note 1: Output device name

The machining report is output to the device set for DEFAULT DEVICE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT DEVICE NAME is "FD0:". Therefore, to output the machining report to a floppy disk set in the FD0:, you do not have to set the output device name.

Note 2: Output file name

The machining report to be output to the floppy disk is assigned the file name which is set for DEFAULT FILE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT FILE NAME is:

*DW*Y*M*D.TXT for daily machining report file*

*TW*Y*M*D.TXT for period machining report file.*

If today is April 12, 1993 and the previous day is April 07, 1993, the actual file names to be assigned are:

Daily machining report (today) DW930412.TXT

Daily machining report (pre day) DW930407.TXT

Period machining report TW930412.TXT

(3) Output Format of the Machining Report

If you output the machining report to the floppy disk (MS-DOS format), it is output in either the text file or work sheet file.

Refer to Section 19. "OUTPUT FILES".

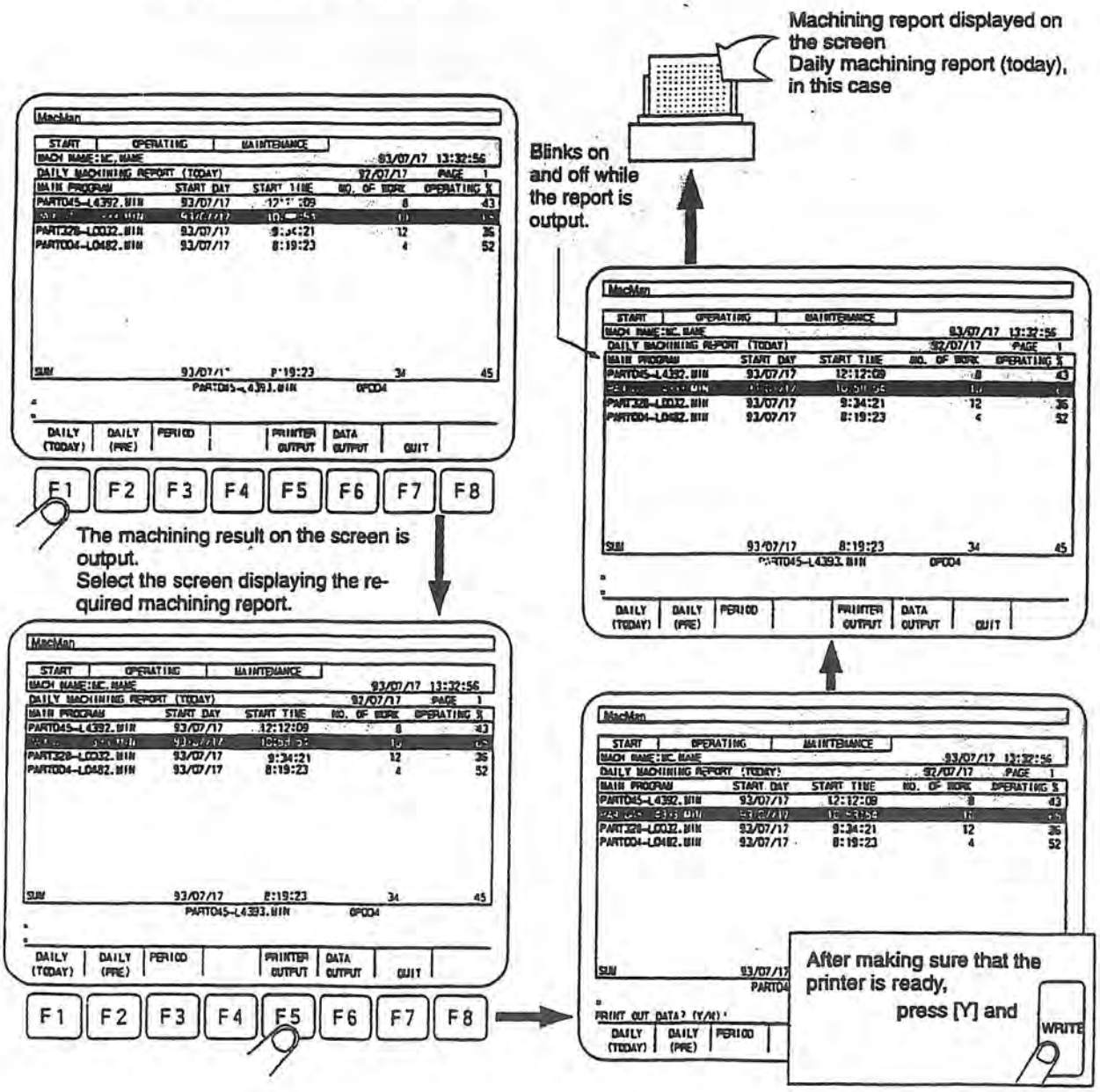
- If the report information is output in the text file, it can be displayed or analyzed using word processor software. The default setting is "output in text file".
- If the report information is output in the work sheet file, it can be displayed or analyzed using data base software.

8-5. Outputting the Machining Report to Printer

(1) The information output to the floppy disk can be printed using a personal computer. If a printer is connected to the OSP7000, it is possible to print the report directly from the OSP7000.

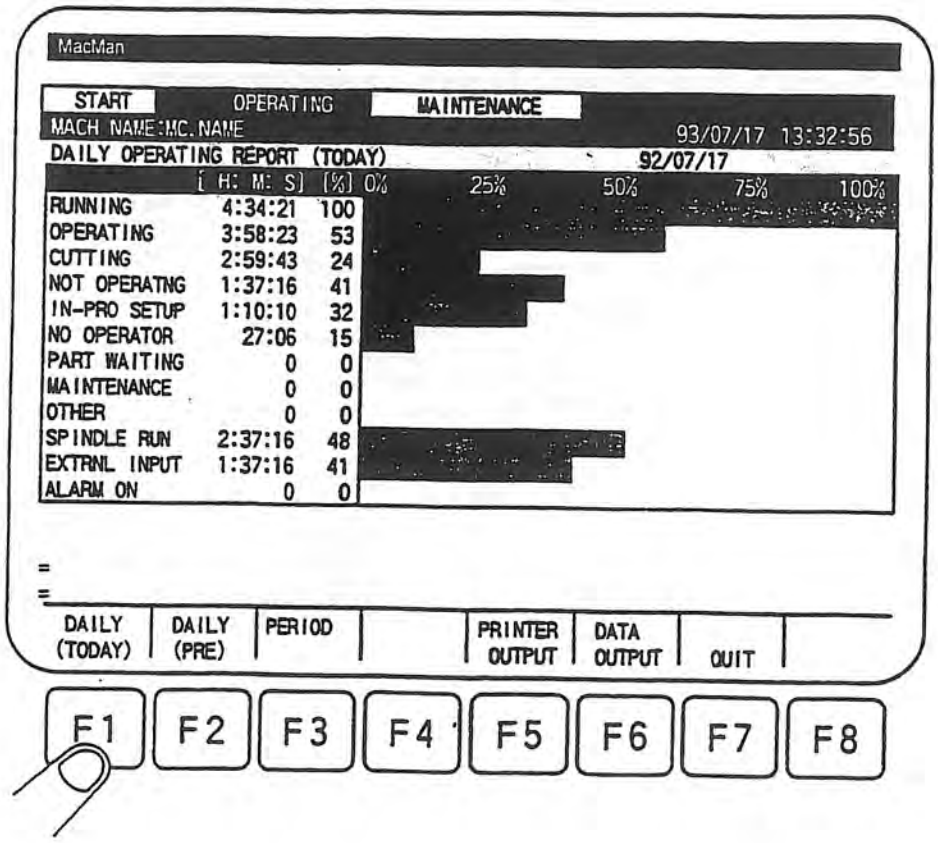
(2) The contents to be printed with the printer connected to the OSP7000 are the same as those printed using the floppy disk saving the machining report in the text file.

Refer to Section 19. "OUTPUT FILES".



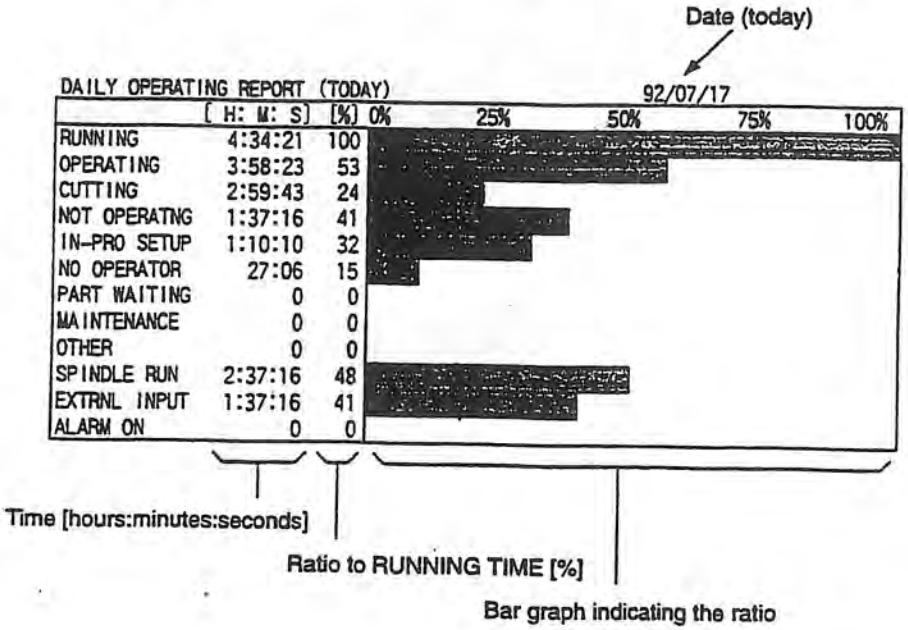
SECTION 9 OPERATING REPORT

9-1. Daily Operating Report (Daily)

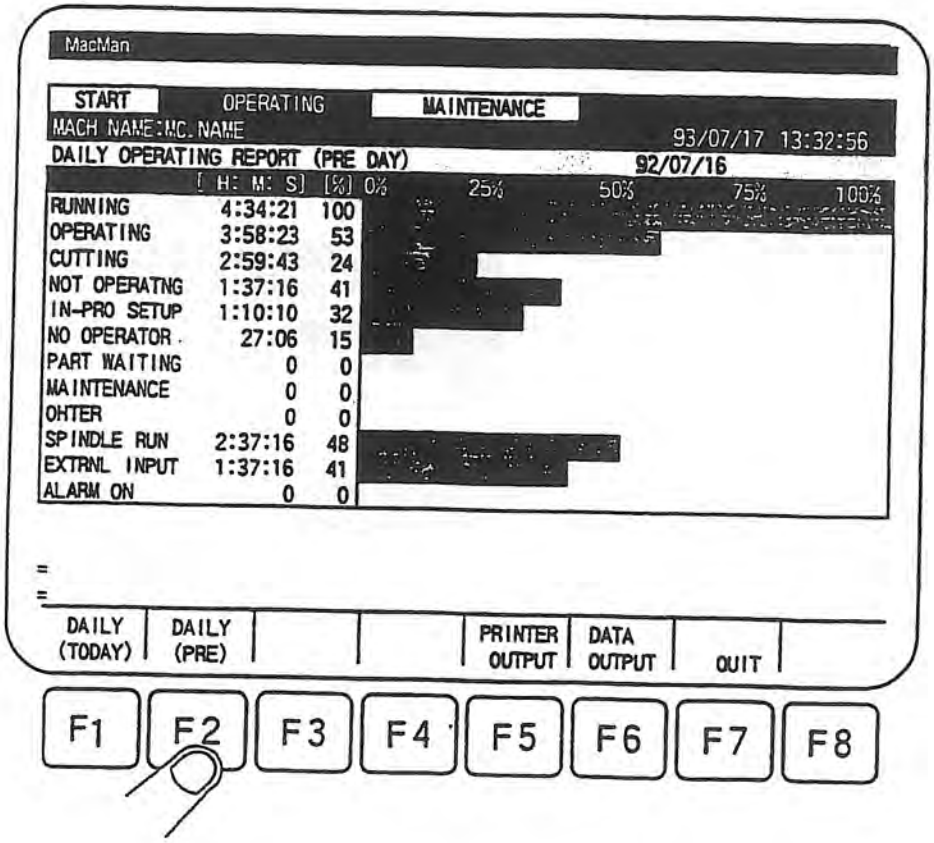


(1) Today's machine operating report is displayed.

When the screen is changed to the daily operating report screen, the DAILY OPERATING REPORT (TODAY) screen is displayed.

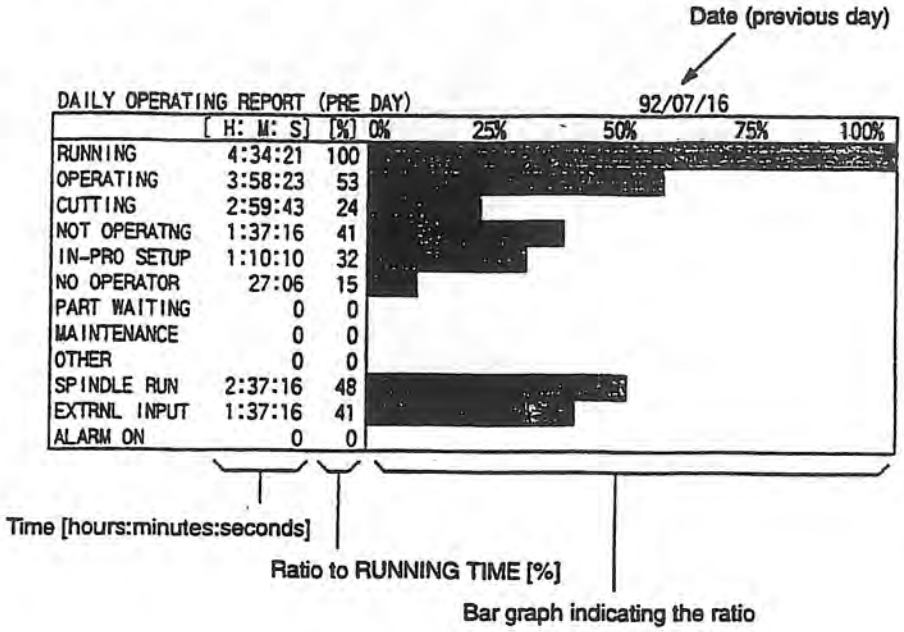


9-2. Daily Operating Report (Pre Day)

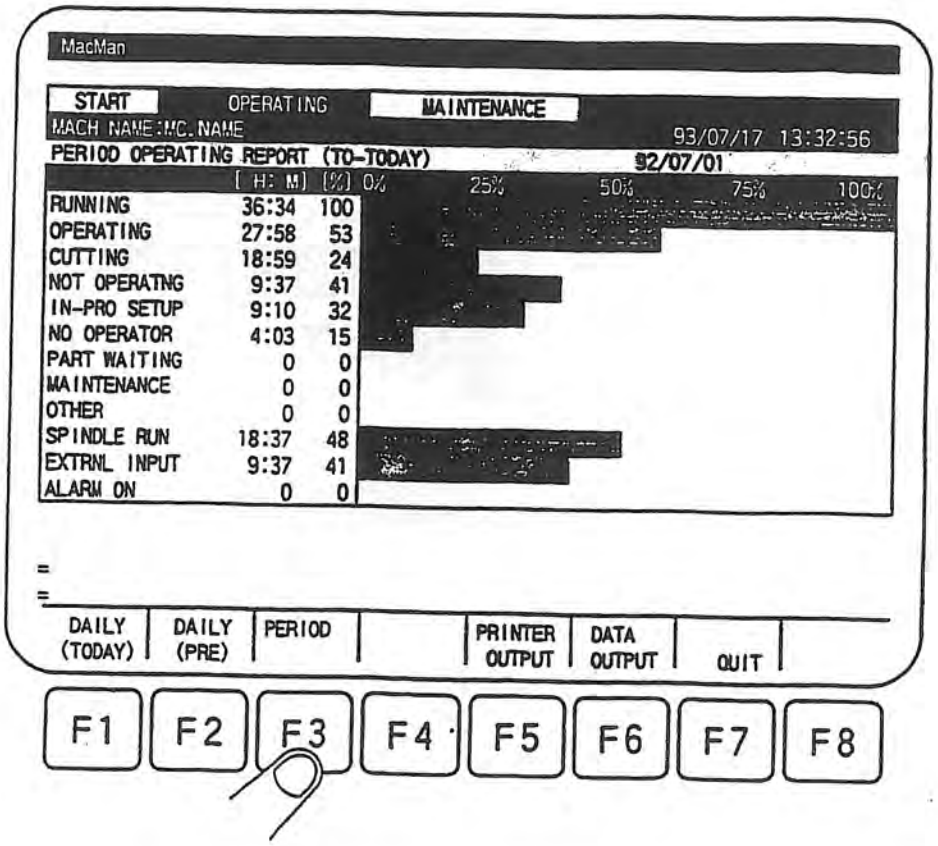


(1) The machine operating report of the previous day is displayed.

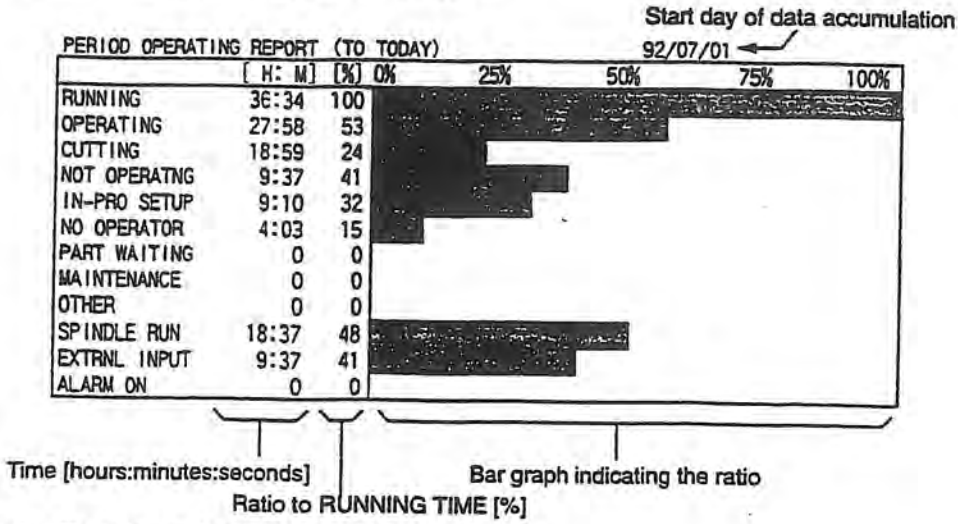
The term previous day does not always indicate yesterday. If the NC is turned on after it has been stopped for two days, the previous day means the day two days before yesterday.



9-3. Period Operating Report (To-Today)



(1) The total machine operating report is displayed.



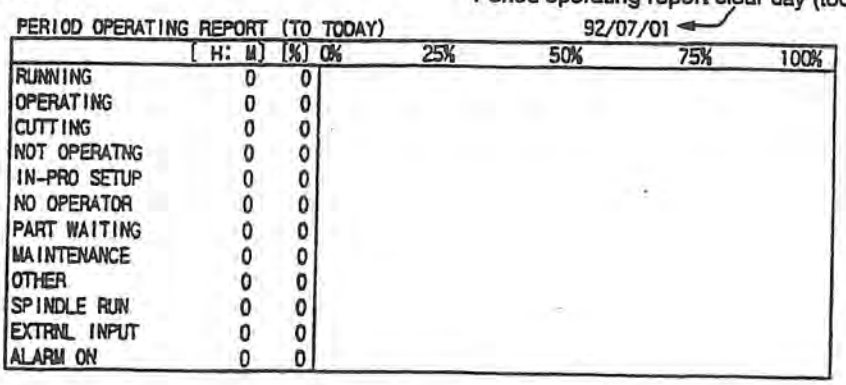
(2) Operating Time in the Period Operating Report

The operating time of each item displayed on the period operating report is the accumulated time from the day the period operating report was cleared last. When the NC is turned on in the same day set as the clear date, the period operating report is cleared and the operating time is accumulated from "0".

Note 1: The period operating report clear date is set for PERIOD OPERATING REPORT CLEAR DATE on the REPORT/PRINTER screen of the PREFERENCE SETTINGS function.

Note 2: The period operating report is cleared at the first power on operation to the NC on the same day as set for the report clear date. The report is not cleared in the succeeding power on operation.

Note 3: Make sure that the date set for PERIOD OPERATING REPORT CLEAR DATE is not a holiday. Unless the NC is turned on in the set report clear date, the period operating report is not cleared.



Example: Setting the period operating report clear date

- To use the period operating report as the weekly report, set the date of Monday of the next week (Tuesday, if Monday is holiday) for PERIOD OPERATING REPORT CLEAR DATE.
- To use the period operating report as the monthly report, set the first day of the next month (the second day if the first day is holiday) for PERIOD OPERATING REPORT CLEAR DATE.
- To collect the result of improvements in operation, set the next day on the day when improvement preparation has been finished.

9-4. Outputting the Operating Report to Floppy Disk

You can save the operating report displayed on the screen by outputting it to floppy disk.

(1) Operating Procedure

Insert an MS-DOS format floppy disk to the floppy disk drive and follow the same procedure as explained indicated in Section 8-4. "Outputting the Machining Report to Floppy Disk". The operating report displayed on the screen is output to the floppy disk.

Note: Use an MS-DOS format floppy disk to output the machining report.

(2) Output Device and File Name

The operating report displayed on the screen can be output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT). The device name and the file name are set on the OUTPUT DATA screen of the PREFERENCE SETTINGS function.

Note 1: Output device name

The machining report is output to the device set for DEFAULT DEVICE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT DEVICE NAME is "FD0:". Therefore, to output the machining report to a floppy disk set in the FD0:, you do not have to set the output device name.

Note 2: Output file name

The machining report to be output to the floppy disk is assigned the file name which set for DEFAULT FILE NAME on the OUTPUT DATA screen of the PREFERENCE SETTINGS function. The initial setting for DEFAULT FILE NAME is:

*DM*Y*M*D.TXT for daily machining report file*

*TM*Y*M*D.TXT for period machining report file.*

If today is April 12, 1993 and the previous day is April 07, 1993, the actual file names to be assigned are:

Daily machining report (today) DM930412.TXT

Daily machining report (pre day) DM930407.TXT

Period machining report TM930412.TXT

(3) Output Format of the Operating Report

If you output the operating report to the floppy disk (MS-DOS format), it is output in either the text file or work sheet file.

Refer to Section 19. "OUTPUT FILES".

- If the report information is output in the text file, it can be displayed or analyzed using word processor software. The default setting is "output in text file".
- If the report information is output in the work sheet file, it can be displayed or analyzed using data base software.

9-5. Outputting the Operating Report to Printer

(1) The information output to the floppy disk can be printed using a personal computer. If a printer is connected to the OSP7000, it is possible to print the report directly from the OSP7000.

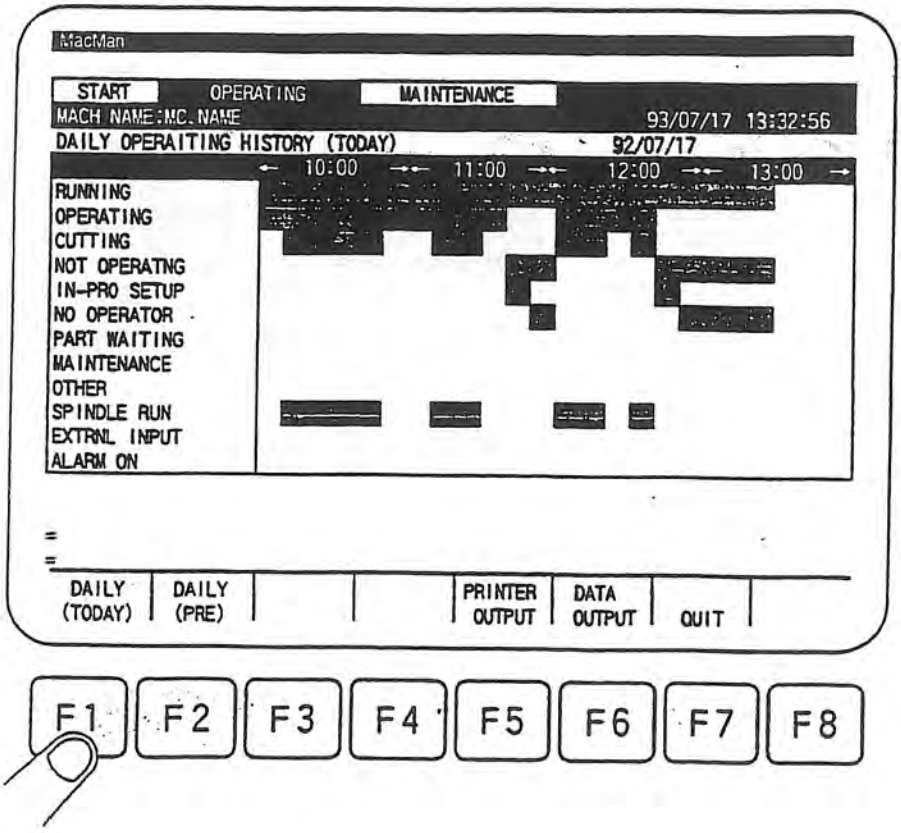
The output procedure is the same as outputting the machining report. Refer to Section 8, 8-5. "Outputting the Machining Report to Printer".

(2) The contents to be printed with the printer connected to the OSP7000 are the same as those printed using the floppy disk saving the machining report in the text file.

Refer to Section 19. "OUTPUT FILES".

SECTION 10 OPERATING HISTORY

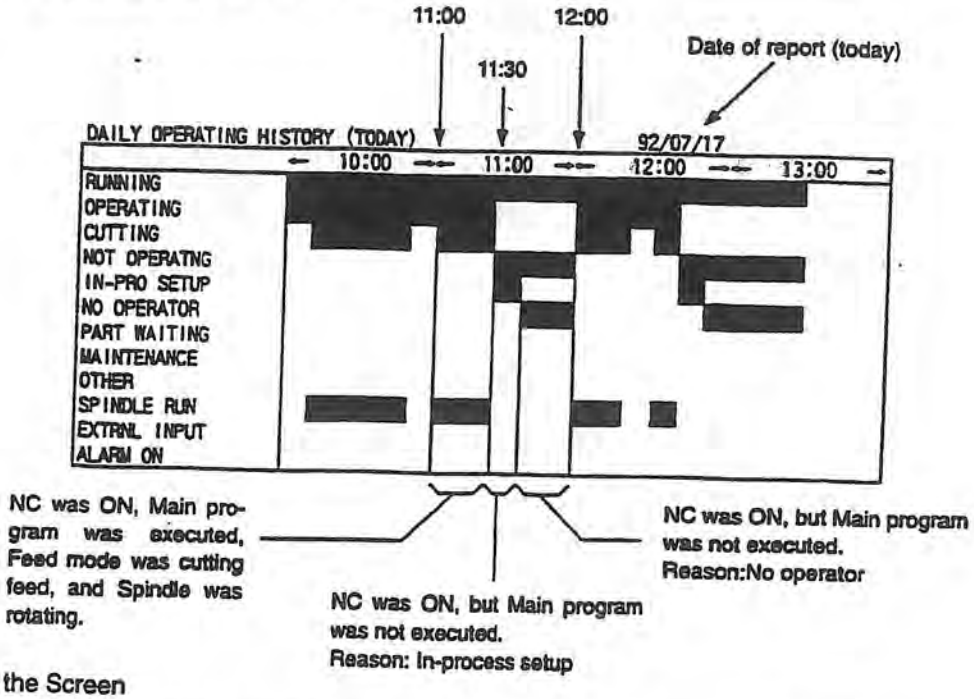
10-1. Daily Operating History (Today)



(1) Display

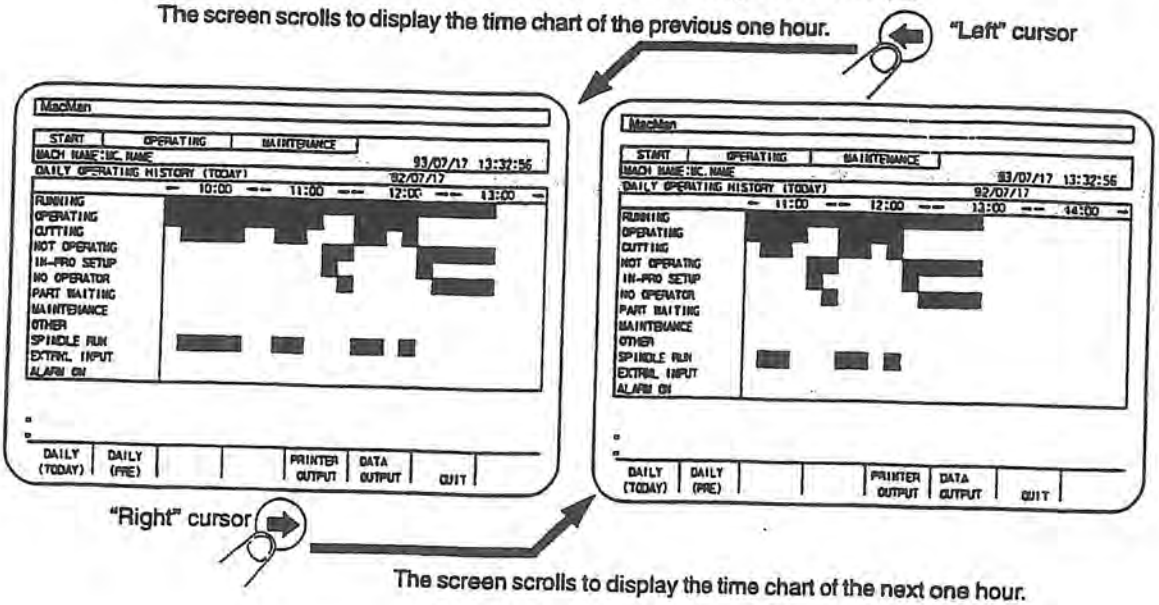
The machine operating status for one day (today) is displayed in time chart.

The operating status of the machine (ON/OFF) is checked in every 10 minutes and the results of the check are displayed on the screen in time chart.

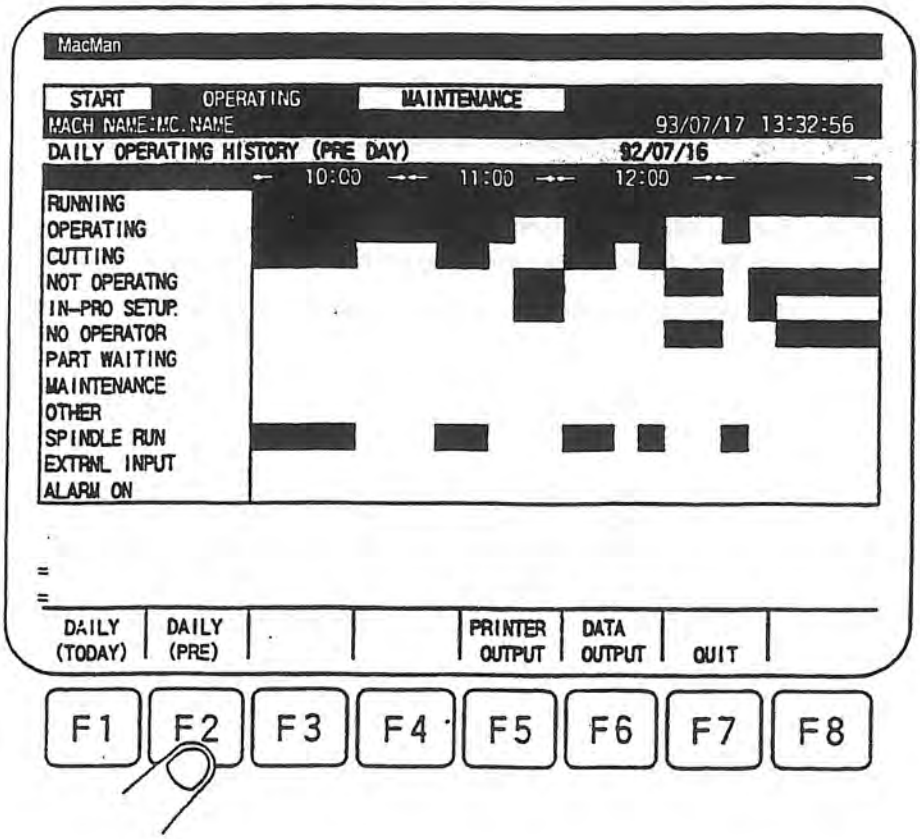


(2) Scrolling the Screen

The operating history for four hours is displayed on the screen. The display can be scrolled to view the history of other operating hours by using the "left" and "right" cursor keys.



10-2. Daily Operating History (Pre Day)



(1) Display

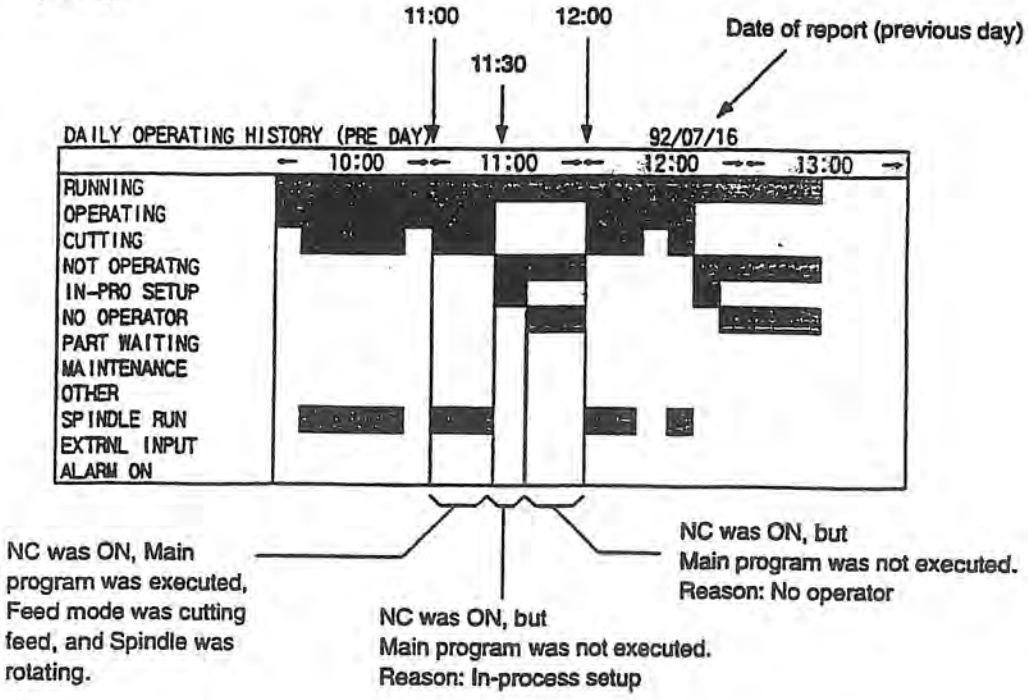
The machine operating status for one day (previous day) is displayed in time chart.

The operating status of the machine (ON/OFF) is checked in every 10 minutes and the results of the check are displayed on the screen in time chart.

Note 1: The term previous day does not always indicate yesterday. If the NC is turned on after it has been stopped for two days, the previous day means the day three days before yesterday.

Note 2: The operating history for four hours is displayed on the screen. The display can be scrolled to view the history of other operating hours by using the "right" and "left" cursor keys.

You can scroll the screen in the same manner as explained in 10-1. "Daily Operating History (Today)".



10-3. Outputting the Operating History to Floppy Disk

You can save the operating history displayed on the screen by outputting it to floppy disk.

(1) Operating Procedure

Insert an MS-DOS format floppy disk to the floppy disk drive and follow the same procedure as explained in indicated in Section 8-4. "Outputting the Machining Report to Floppy Disk". The operating history displayed on the screen is output to the floppy disk.

Note: Use an MS-DOS format floppy disk to output the operating history.

(2) Output Device and File Name

The operating report displayed on the screen can be output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT). The device name and the file name are set on the OUTPUT DATA screen of the PREFERENCE SETTINGS function.

Note 1: Output device name

The machining report is output to the device set for DEFAULT DEVICE NAME on the OUTPUT DATA screen of the PREFERENCE SETTINGS function. The initial setting for DEFAULT DEVICE NAME is "FD0:". Therefore, to output the operating history to a floppy disk set in the FD0:, you do not have to set the output device name.

Note 2: Output file name

The operating history to be output to the floppy disk is assigned the file name which set for DEFAULT FILE NAME on the OUTPUT DATA screen of the PREFERENCE SETTINGS function. The initial setting for DEFAULT FILE NAME is:
DH∗Y∗M∗D.TXT for daily operating history file

If today is April 12, 1993 and the previous day is April 07, 1993, the actual file names to be assigned are:

Daily operating history (today) DH930412.TXT
Daily operating report (pre day) DH930407.TXT

(3) Output Format of the Operating History

If you output the operating history to the floppy disk (MS-DOS format), it is output in either the text file or work sheet file.

Refer to Section 19. "OUTPUT FILES".

- If the report information is output in the text file, it can be displayed or analyzed using word processor software. The default setting is "output in text file".
- If the report information is output in the work sheet file, it can be displayed or analyzed using data base software.

10-4. Outputting the Operating History to Printer

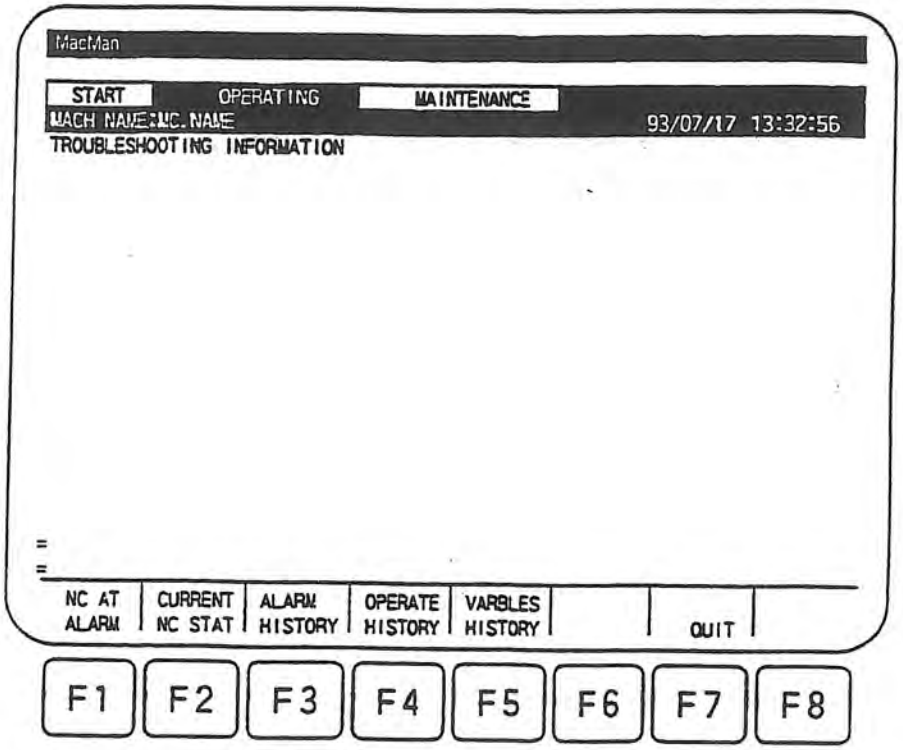
(1) The information output to the floppy disk can be printed using a personal computer. If a printer is connected to the OSP7000, it is possible to print the report directly from the OSP7000.

The output procedure is the same as outputting the machining report. Refer to Section 8-5. "Outputting the Machining Report to Printer".

(2) The contents to be printed with the printer connected to the OSP7000 are the same as those printed using the floppy disk saving the machining report in the text file.

Refer to Section 19. "OUTPUT FILES".

SECTION 11 TROUBLESHOOTING INFORMATION



(1) On the TROUBLESHOOTING INFORMATION screen, press function keys [F1] to [F5] according to the function you want to call. The information which will help you check and troubleshoot the problem is displayed.

- To check the NC status at the time the alarm occurred : NC AT ALARM
- To check the current NC status : CURRENT NC STAT
- To check the alarm occurrence time and nature of alarm : ALARM HISTORY
- To check the alarm occurrence time and type of operation involved: OPERATE HISTORY
- To check the value of a specific variable at a specific time : VARBLES HISTORY

a) [F1] (NC AT ALARM)

If alarm A occurs, the data such as actual position, zero offset, and limit position are automatically collected. Since the data is collected when an alarm occurs, the collected data represents the "NC status at an occurrence of alarm". In this manual the data is simply referred to as "NC status at alarm" which is displayed as the title of the screen.

Press function key [F1] (NC AT ALARM) and the alarm history is displayed. The "NC status at alarm" is saved to the memory for all the alarms displayed on the screen. You can know the NC status at alarm by printing it or saving it to the floppy disk after selecting the alarm number or alarm code of the alarm which you want to investigate.

b) [F2] (CURRENT NC STAT)

In response to the pressing of function key [F2] (CURRENT NC STAT), the menu is displayed on the screen. The menu shows the list of the names of the data which can be output to the printer.

Request the data output by selecting the data name from the menu; the selected data is output to the printer or the floppy disk. Since the data are collected after your request is recognized, the collected data represent the "current NC status" and are referred to as the "current NC status".

c) [F3] (ALARM HISTORY)

The alarm history is displayed on the screen. At each occurrence of an alarm, the data which identify the alarm are logged -- date, time, alarm number, alarm code, and alarm character string.

It is possible to output the alarm history to the printer or the floppy disk.

d) [F4] (OPERATE HISTORY)

Three types of operation history are displayed on the screen, and you can output the history either to the printer or the floppy disk.

1) CONSOLE LINE

The messages which were displayed on the screen.

2) OPERATION PANEL

The NC operation panel keys which were pressed.

3) I/O SIGNALS

The ON/OFF status of the I/O signals

e) [F5] (VARBLES HISTORY)

Four types of variable history (A, B, C, D) are displayed on the screen. If the setting for a variable is changed, the details of the change are stored to the memory – date and time when the setting was changed, and the new setting.

It is possible to output the variable history to the printer or the floppy disk.

(2) You can output the trouble information to the floppy disk.

a) Simply press function key [F6] (DATA OUTPUT), and the trouble information is output to the floppy disk. The information presently displayed is output. The device name and the file name are set on the PREFERENCE SETTING screen. With the setting made at the shipping, date is entered to the file name.

b) The report information is output to the MS-DOS format floppy disk.

- 2DD-640/720 KB
- 2HC-1.20 MB
- 2HD-1.23 MB
- 2HD-1.44 MB

c) The trouble information is output in the text file format.

You can analyze the information by using word processor software.

	English Characters	Other Language
OPERATIN PANEL	Alphabetic characters only	Characters displayed on the screen are included
MACHINE PANEL		
VARBLES HISTORY		
NC AT ALARM		
CURRENT NC STAT		
ALARM HISTORY		
CONSOLE LINE		

(3) You can output the trouble information to a printer.

a) The information output to the floppy disk can be printed using a personal computer. If a printer is connected to the OSP7000, it is possible to print the report directly from the OSP7000.

b) The characters which are printed are shown in the table below. Use the printer which can print the indicated characters.

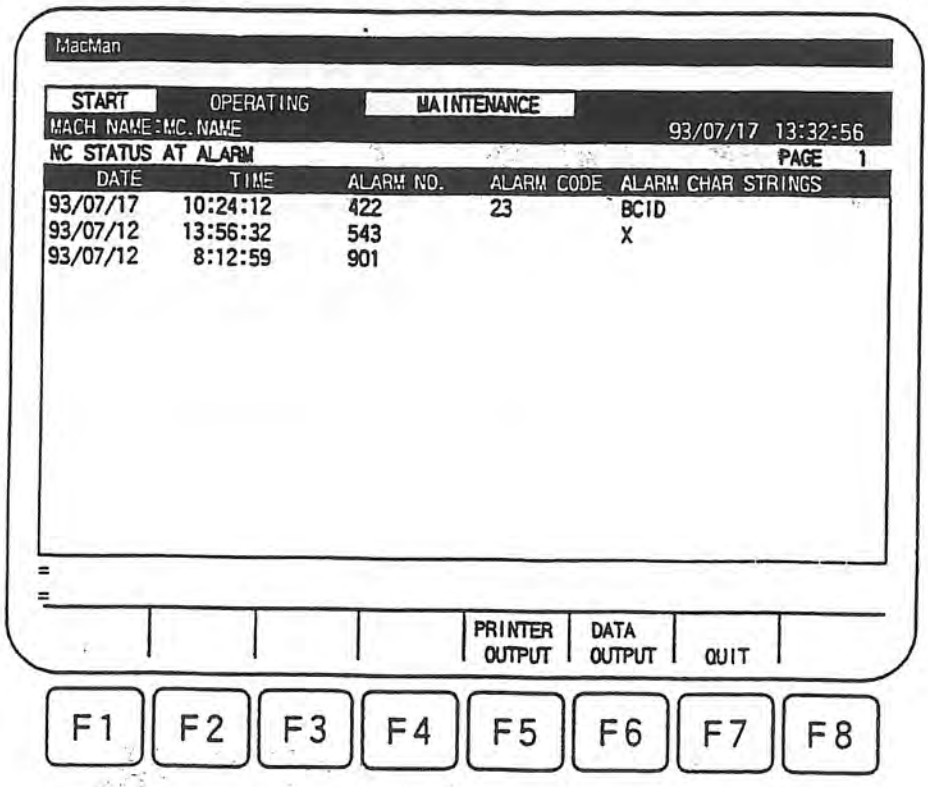
<table>
<tr><th></th><th>English Characters</th><th>Other Language</th></tr>
<tr><td>OPERATIN PANEL</td><td rowspan="8">Alphabetic characters only</td><td rowspan="3">Alphabetic characters only</td></tr>
<tr><td>MACHINE PANEL</td></tr>
<tr><td>VARBLES HISTORY</td></tr>
<tr><td>NC AT ALARM</td><td rowspan="5">Characters displayed on the screen are included</td></tr>
<tr><td>CURRENT NC STAT</td></tr>
<tr><td>ALARM HISTORY</td></tr>
<tr><td>CONSOLE LINE</td></tr>
</table>

c) Connect the printer to the RS232C (serial) interface or centronics (parallel) interface. Which of the interfaces should be used is set on the PREFERENCE SETTING screen.

d) For printing, the following protocol is used.

ESC/P (EPSON)

SECTION 12 NC STATUS AT ALARM

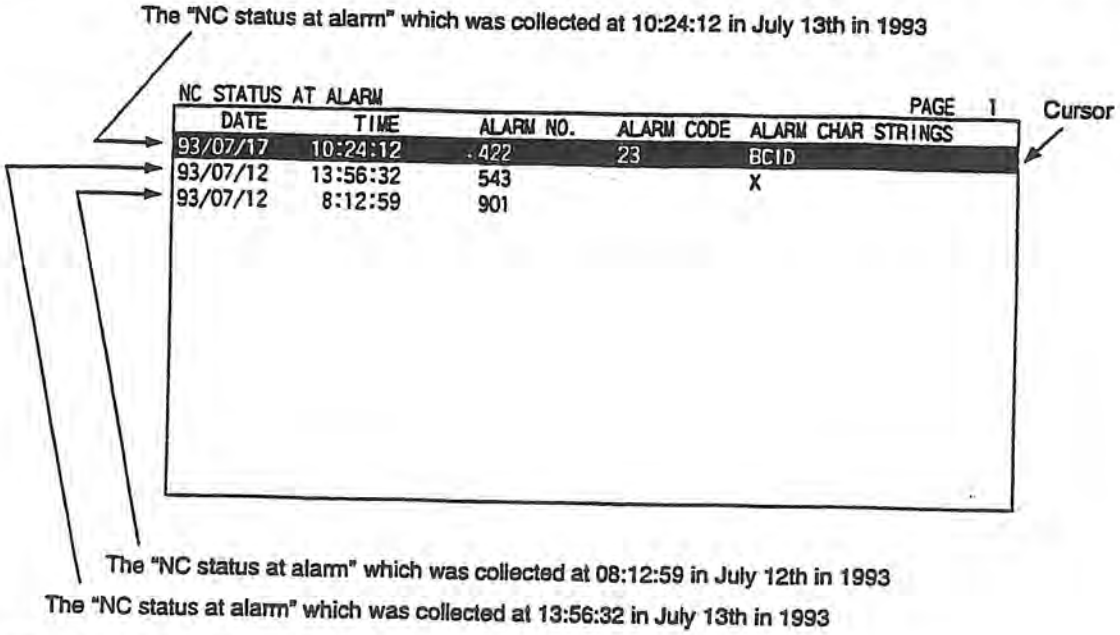


12-1. Selecting the Alarm for Output

(1) If alarm A occurs, the data such as actual position, zero offset, and limit position are automatically collected. Since the data is collected when an alarm occurs, the collected data represents the "NC status at an occurrence of alarm". In this manual the data is simply referred to as "NC status at alarm" which is displayed as the title of the screen.

(2) Displaying the NC AT ALARM Screen

Press function key [F1] (NC AT ALARM) and the alarm history is displayed. The "NC status at alarm" has been saved to the memory for all the alarms displayed on the screen.



(3) Selecting the Alarm

Select the alarm, for which you want to know the NC status, by moving the cursor. The NC status when the selected alarm occurred is output to the printer or the floppy disk.

Note 1: Use the "up" or "down" cursor key to move the cursor up and down.

Note 2: While in alarm state

If the NC is in the alarm state, the first line in the screen indicates the current alarm.

Note 3: Alarm A, B, and C

On this screen, the list of only alarm A is displayed. For alarm B and C, no NC data are collected when an alarm occurs.

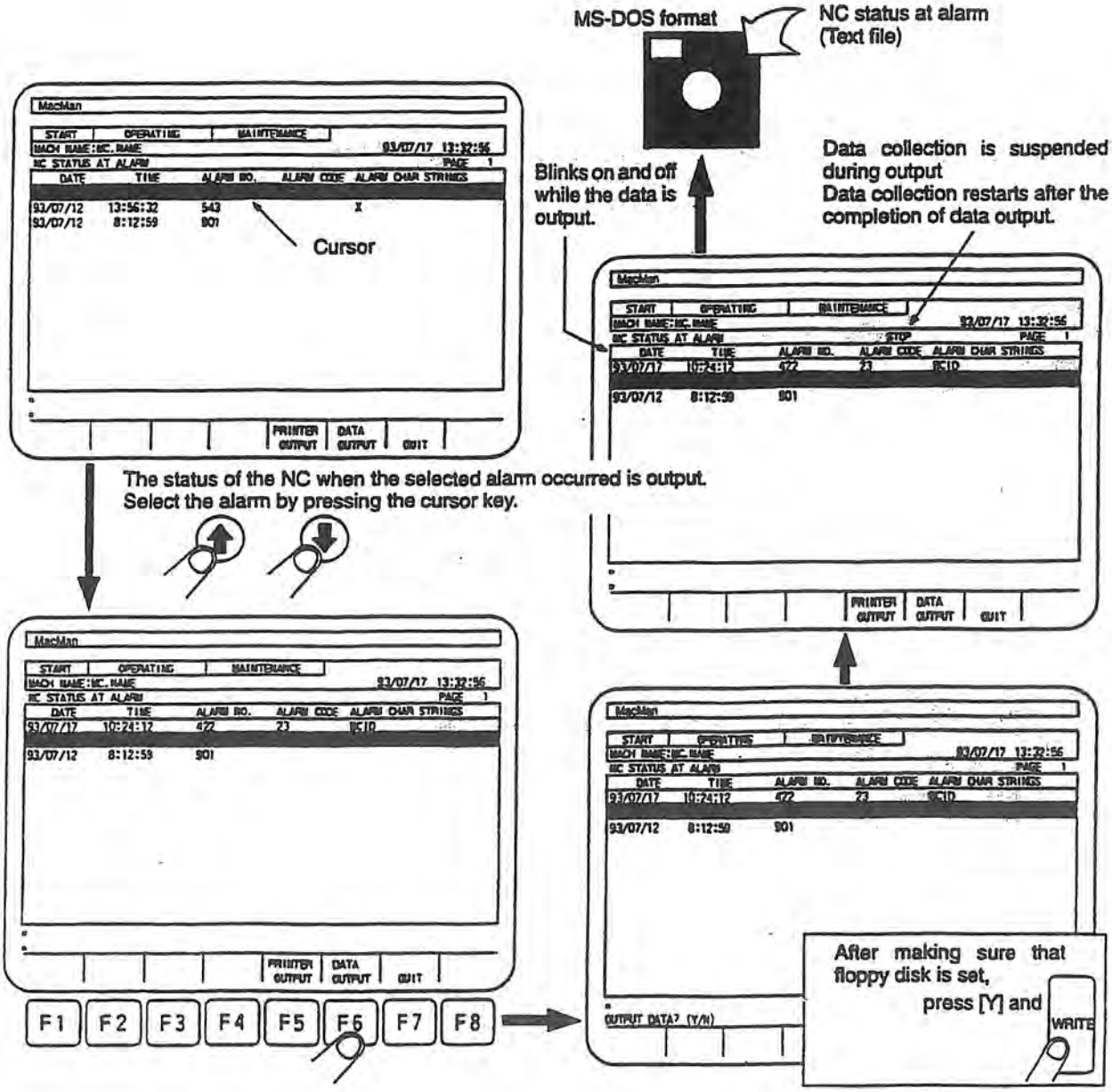
12-2. Outputting the NC Status at Alarm to Floppy Disk

You can save the NC status at alarm displayed on the screen by outputting it to floppy disk.

(1) Operating Procedure

Insert an MS-DOS format floppy disk to the floppy disk drive and follow the procedure indicated below. The status of the NC when the designated alarm occurred is output to the floppy disk.

Note: Use an MS-DOS format floppy disk to output the NC status at alarm.



(2) Output Format of the NC Status at Alarm

If you output the NC status at alarm to the floppy disk (MS-DOS format), it is output in the text file.

It can be displayed or analyzed using word processor software.

Refer to Section 19. "OUTPUT FILES".

(3) Output Device and File Name

The NC status at alarm can be output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT). The device name and the file name are set on the OUTPUT DATA screen of the PREFERENCE SETTINGS function.

Note 1: Output device name

The NC status at alarm is output to the device set for DEFAULT DEVICE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT DEVICE NAME is "FD0:". Therefore, to output the NC status at alarm to a floppy disk set in the FD0:, you do not have to set the output device name.

Note 2: Output file name

The NC status at alarm to be output to the floppy disk is assigned the file name which is set for DEFAULT FILE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT FILE NAME is:

*AN*h*m*s.D*D*

If function key [F6] (DATA OUTPUT) is pressed at 13:30:48 in April 12, 1993, the actual file name to be assigned is:

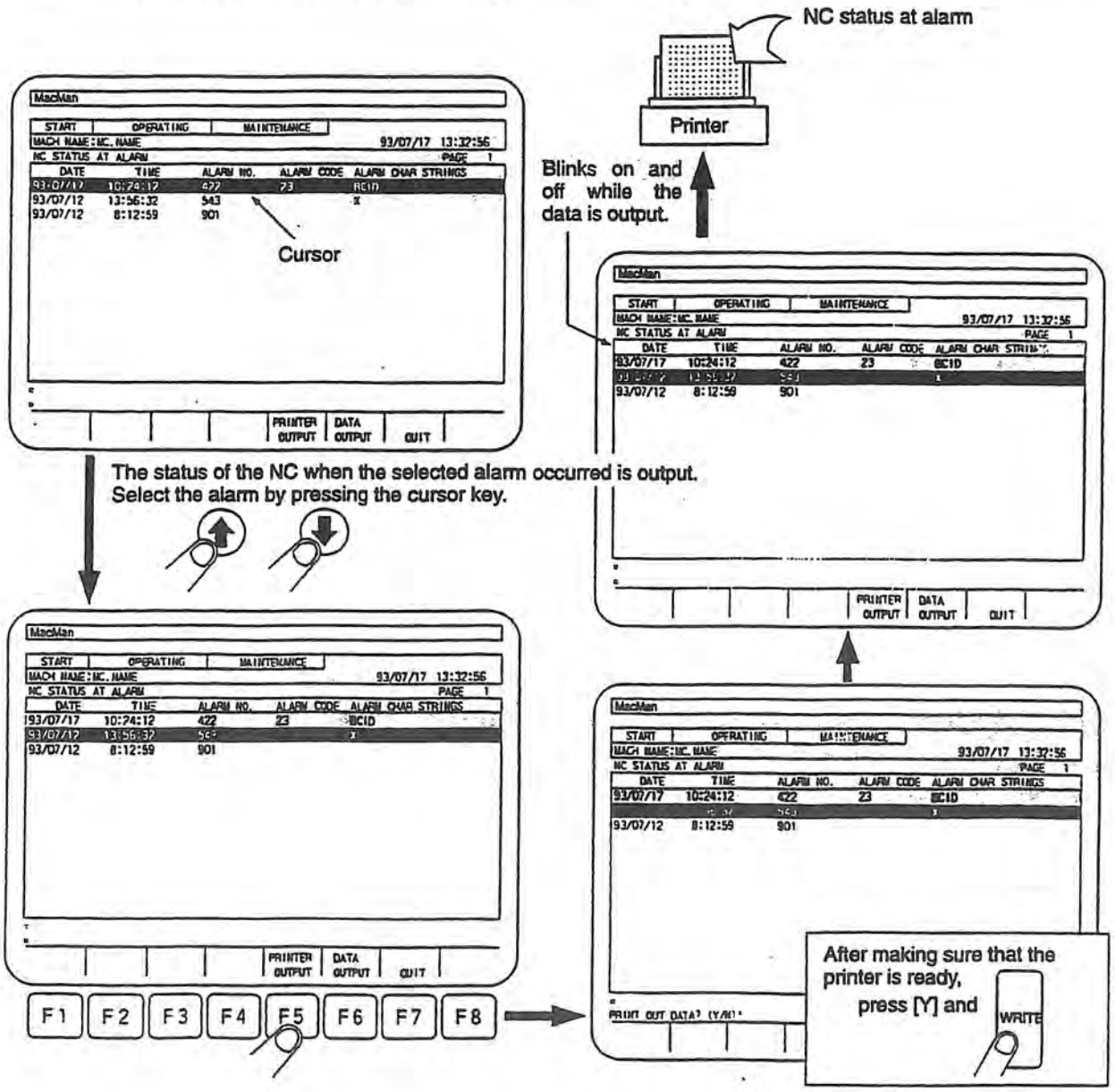
AN133048.D12

12-3. Outputting the NC Status at Alarm to Printer

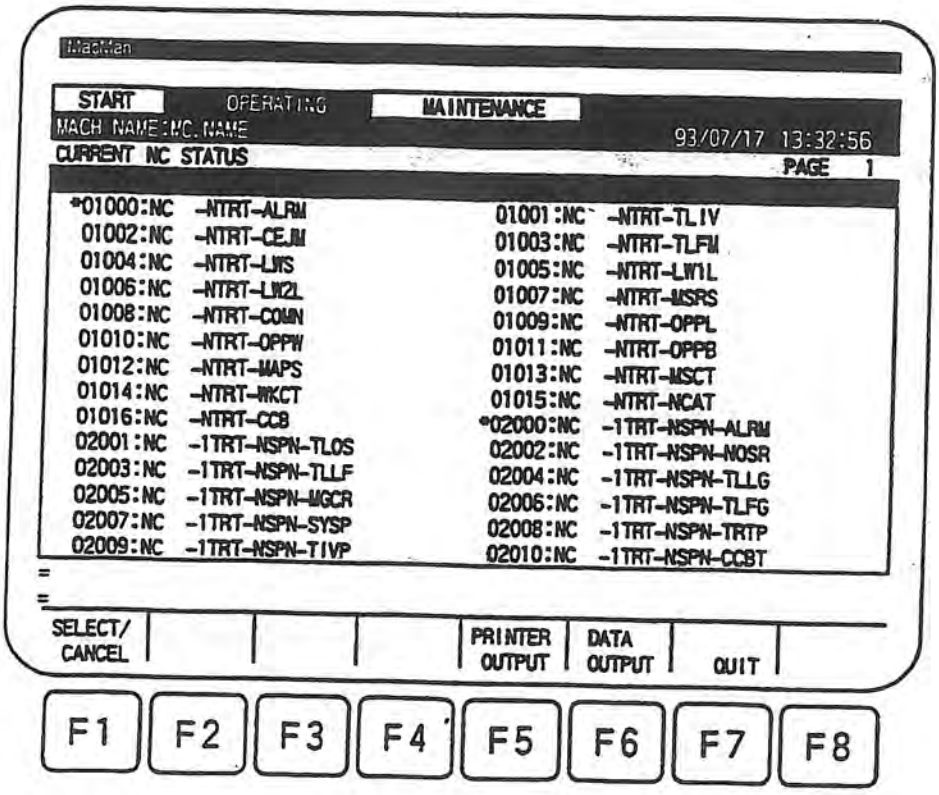
(1) The information output to the floppy disk can be printed using a personal computer. If a printer is connected to the OSP7000, it is possible to print the report directly from the OSP7000.

(2) The contents to be printed with the printer connected to the OSP7000 are the same as those printed using the floppy disk saving the machining report in the text file.

Refer to Section 19. "OUTPUT FILES".



SECTION 13 CURRENT NC STATUS



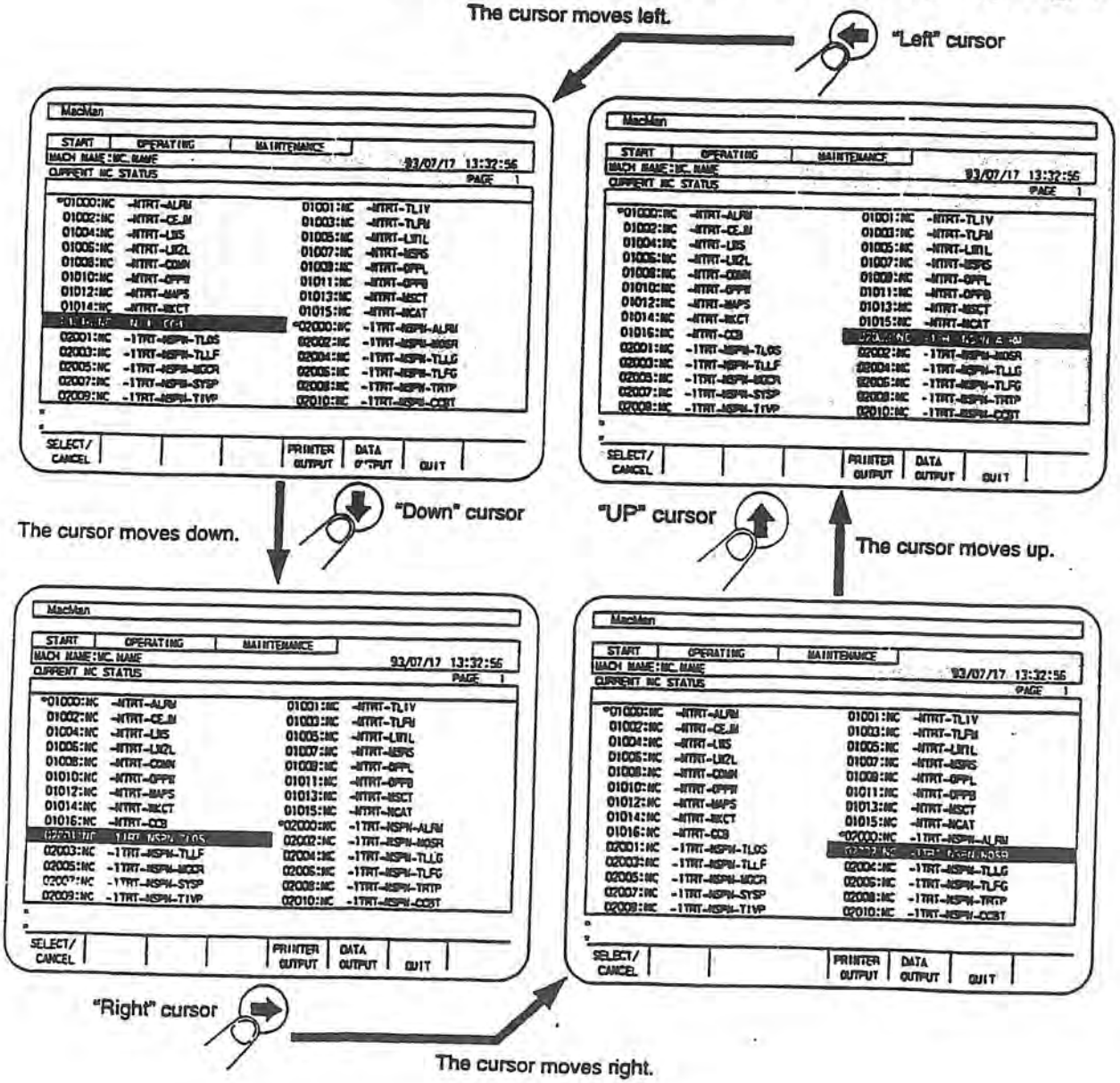
13-1. Selecting the Output Data

When you selected the CURRENT NC STATUS screen, the list of the names of the data which can be output is displayed.

(1) Selecting the Data Name

From the list of data names, selects the name of the data to be output using the cursor keys and function key [F1] (SELECT/CANCEL).

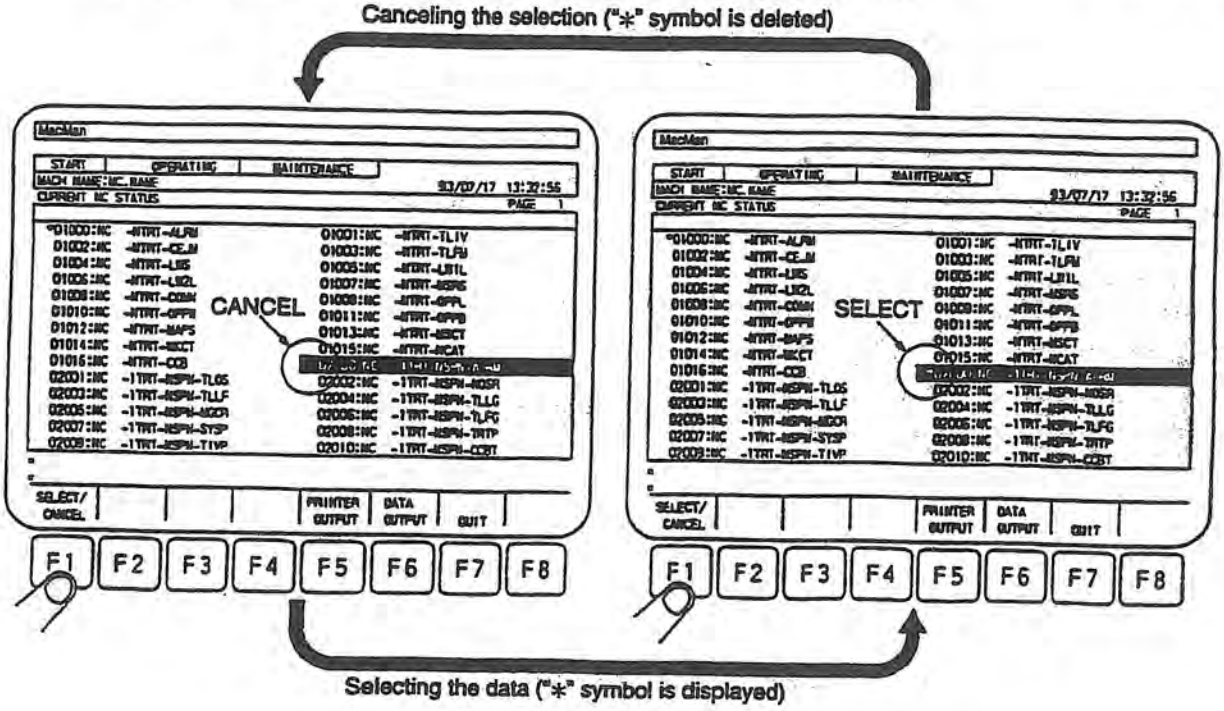
Move the cursor to the required data name by using the cursor key (⇧ , ⇩ , ⇦ , ⇨).



(2) Confirming Your Selection

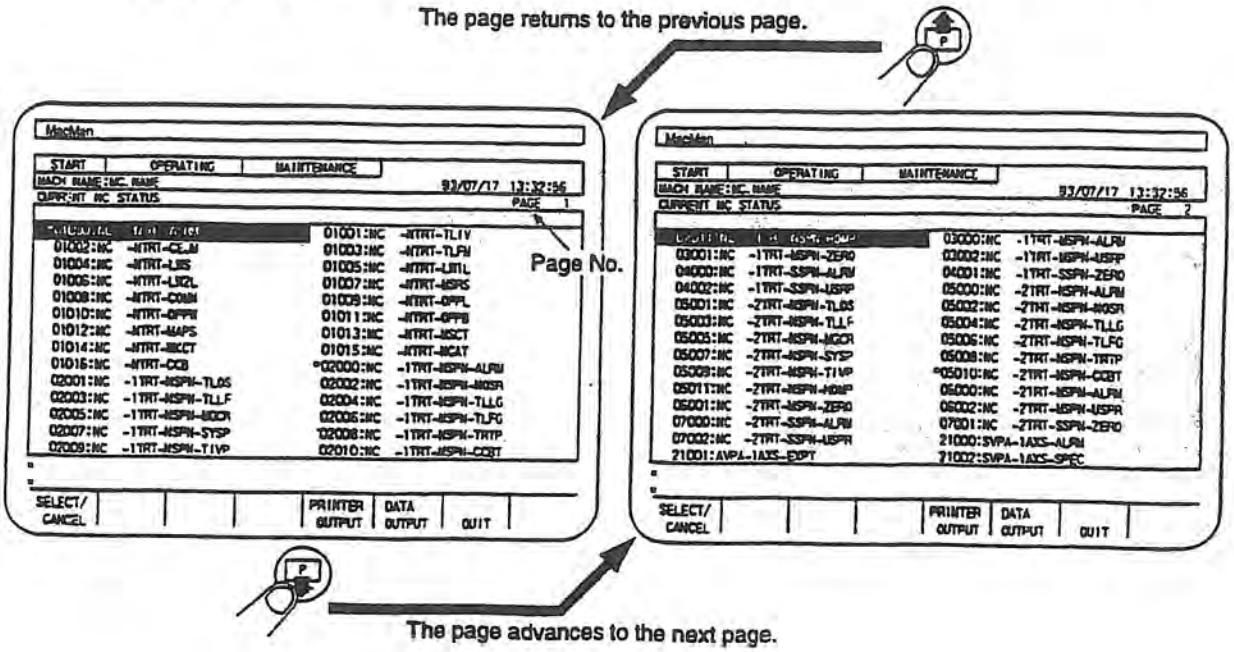
After moving the cursor to the name of the data to be output, press function key [F1] (SELECT/CANCEL). An asterisk (*) is displayed at the left if the selected data name.

To cancel the selected status of the data, press function key [F1] (SELECT/CANCEL) after moving the cursor on it. When the selection is canceled, the asterisk (*) is deleted.



(3) Changing the Display Pages

A total of 28 data names is displayed in one page. Press the page key to view the other lists by changing the display page.



13-2. List of Output Data

The contents of the data are summarized below.

Note: The data actually displayed depends on your machine and NC specifications.

(1) NC Lathes

01000:NC-NTRT-ALRM ..... Data necessary for troubleshooting the NC
01001:NC-NTRT-TLIV ..... Tool interference data
01002:NC-NTRT-CEJM ..... CEJmatic measurement data
01003:NC-NTRT-TLFM ..... ATC tool geometry data
01004:NC-NTRT-LWS ..... Load monitoring data – reference data
01005:NC-NTRT-LW1L ..... Load monitoring data – 1st limit data
01006:NC-NTRT-LW2L ..... Load monitoring data – 2nd limit data
01007:NC-NTRT-MSRS ..... Post-process gaging data – RS232C channel
01008:NC-NTRT-COMN ..... Common variable data
01009:NC-NTRT-OPPL ..... Optional parameter (long word)
01010:NC-NTRT-OPPW ..... Optional parameter (word)
01011:NC-NTRT-OPPB ..... Optional parameter (bit)
01012:NC-NTRT-MAPS ..... Spindle orientation position parameter data
01013:NC-NTRT-MSCT ..... Gaging counter data
01014:NC-NTRT-WKCT ..... NC work counter data
01015:NC-NTRT-NCAT ..... NC operating time data
01016:NC-NTRT-CCB ..... Chuck/tailstock barrier data
02000:NC-1TRT-NSPN-ALRM ..... Data necessary for troubleshooting turret A
02001:NC-1TRT-NSPN-TLOS ..... Turret A: Tool offset data
02002:NC-1TRT-NSPN-NOSR ..... Turret A: Nose R offset data
02003:NC-1TRT-NSPN-TLLF ..... Turret A: Tool life management information table data
02004:NC-1TRT-NSPN-TLLG ..... Turret A: Tool life management group information table data
02005:NC-1TRT-NSPN-MGCR ..... Turret A: Post-process gaging automatic offset data
02006:NC-1TRT-NSPN-TLFG ..... Turret A: Tool geometry data
02007:NC-1TRT-NSPN-SYSP ..... Turret A: System parameter data
02008:NC-1TRT-NSPN-TRTP ..... Turret A: Turret position offset data
02009:NC-1TRT-NSPN-TIVP ..... Turret A: Tool interference parameter data
02010:NC-1TRT-NSPN-CCBT ..... Turret A: Chuck/tailstock barrier turret data
02011:NC-1TRT-NSPN-HOMP ..... Turret A: Home position data
03000:NC-1TRT-MSPN-ALRM ..... Data necessary for troubleshooting turret A spindle
03001:NC-1TRT-MSPN-ZERO ..... Turret A spindle: Zero point data
03002:NC-1TRT-MSPN-USRP ..... Turret A spindle: User parameter data
04000:NC-1TRT-SSPN-ALRM ..... Data necessary for troubleshooting turret A sub-spindle

04001:NC-1TRT-SSPN-ZERO ..... Turret A sub-spindle: Zero point data
04002:NC-1TRT-SSPN-USRP ..... Turret A sub-spindle: User parameter data
05000:NC-2TRT-NSPN-ALRM ..... Data necessary for troubleshooting turret B
05001:NC-2TRT-NSPN-TLOS ..... Turret B: Tool offset data
05002:NC-2TRT-NSPN-NOSR ..... Turret B: Nose R offset data
05003:NC-2TRT-NSPN-TLLF ..... Turret B: Tool life management information table data
05004:NC-2TRT-NSPN-TLLG ..... Turret B: Tool life management group information table data
05005:NC2TRT-NSPN-MGCR ..... Turret B: Post-process gaging automatic offset data
05006:NC-2TRT-NSPN-TLFG ..... Turret B: Tool geometry data
05007:NC-2TRT-NSPN-SYSP ..... Turret B: System parameter data
05008:NC-2TRT-NSPN-TRTP ..... Turret B: Turret position offset data
05009:NC-2TRT-NSPN-TIVP ..... Turret B: Tool interference parameter data
05010:NC-2TRT-NSPN-CCBT ..... Turret B: Chuck/tailstock barrier turret data
05011:NC-2TRT-NSPN-HOMP ..... Turret B: Home position data
06000:NC-2TRT-MSPN-ALRM ..... Data necessary for troubleshooting turret B spindle
06001:NC-2TRT-MSPN-ZERO ..... Turret B spindle: Zero point data
06002:NC-2TRT-MSPN-USRP ..... Turret B spindle: User parameter data
07000:NC-2TRT-SSPN-ALRM ..... Data necessary for troubleshooting turret B sub-spindle
07001:NC-2TRT-SSPN-ZERO ..... Turret B sub-spindle: Zero point data
07002:NC-2TRT-SSPN-USRP ..... Turret B sub-spindle: User parameter data

(2) Machining Centers

01000:NC-ALRM ..... Data necessary for troubleshooting the NC
01001:NC-ZERO ..... Zero offset data
01002:NC-TLLN ..... Tool length offset data
01003:NC-TLRD ..... Cutter diameter offset data
01004:NC-TLNM ..... Tool management number data
01005:NC-TLDT ..... Tool management data
01006:NC-COMN ..... Common variable data
01007:NC-SYSP ..... System parameter data
01008:NC-HOMP ..... Home position data
01009:NC-USRP ..... User parameter data
01010:NC-SCRP ..... Screw pitch error compensation data
01011:NC-OPPL ..... NC optional parameter (long word)
01012:NC-OPPW ..... NC optional parameter (word)
01013:NC-OPPB ..... NC optional parameter (bit)
11000:EC-ALRM ..... Data necessary for troubleshooting the machine
11001:EC-OPUL ..... Machine user parameter (long word)
11002:EC-OPSL ..... Machine system parameter (long word)
11003:EC-OPUW ..... Machine user parameter (word)
11004:EC-OPSW ..... Machine system parameter (word)
11005:EC-OPUB ..... Machine user parameter (bit)

(3) Common to NC Lathes and Machining Centers

2?000:SVPA-1AXS-ALRM ..... Data necessary for troubleshooting SVP ?th-axis
2?001:SVPA-1AXS-EXPT ..... SVP ?th-axis: Error data
2?002:SVPA-1AXS-SPEC ..... SVP ?th-axis: Specification data
2?003:SVPA-1AXS-WLDT ..... SVP ?th-axis: Parameter data
4?000:VAC-1AXS-ALRM ..... VAC ?th-board: Data necessary for troubleshooting
4?001:VAC-1AXS-NTOV ..... VAC ?th-board: NC – VAC communication data
4?002:VAC-1AXS-VTON ..... VAC ?th-board: VAC – NC communication data
5?000:TFP-1BOD-ALRM ..... TFP ?th-board: Data necessary for troubleshooting
5?001:TFP-1BOD-FNST ..... TFP ?th-board: Status data
5?002:TFP-1BOD-INDT ..... TFP ?th-board: Input data
5?003:TFP-1BOD-OTBT ..... TFP ?th-board: Output bit data
5?004:TFP-1BOD-OTCD ..... TFP ?th-board: Output code data
60001:FN-IODT ..... I/O signal data of Fieldnet

Note: "?" represents a number in the range of 1 - 9, or "" if a number is greater than 9.*

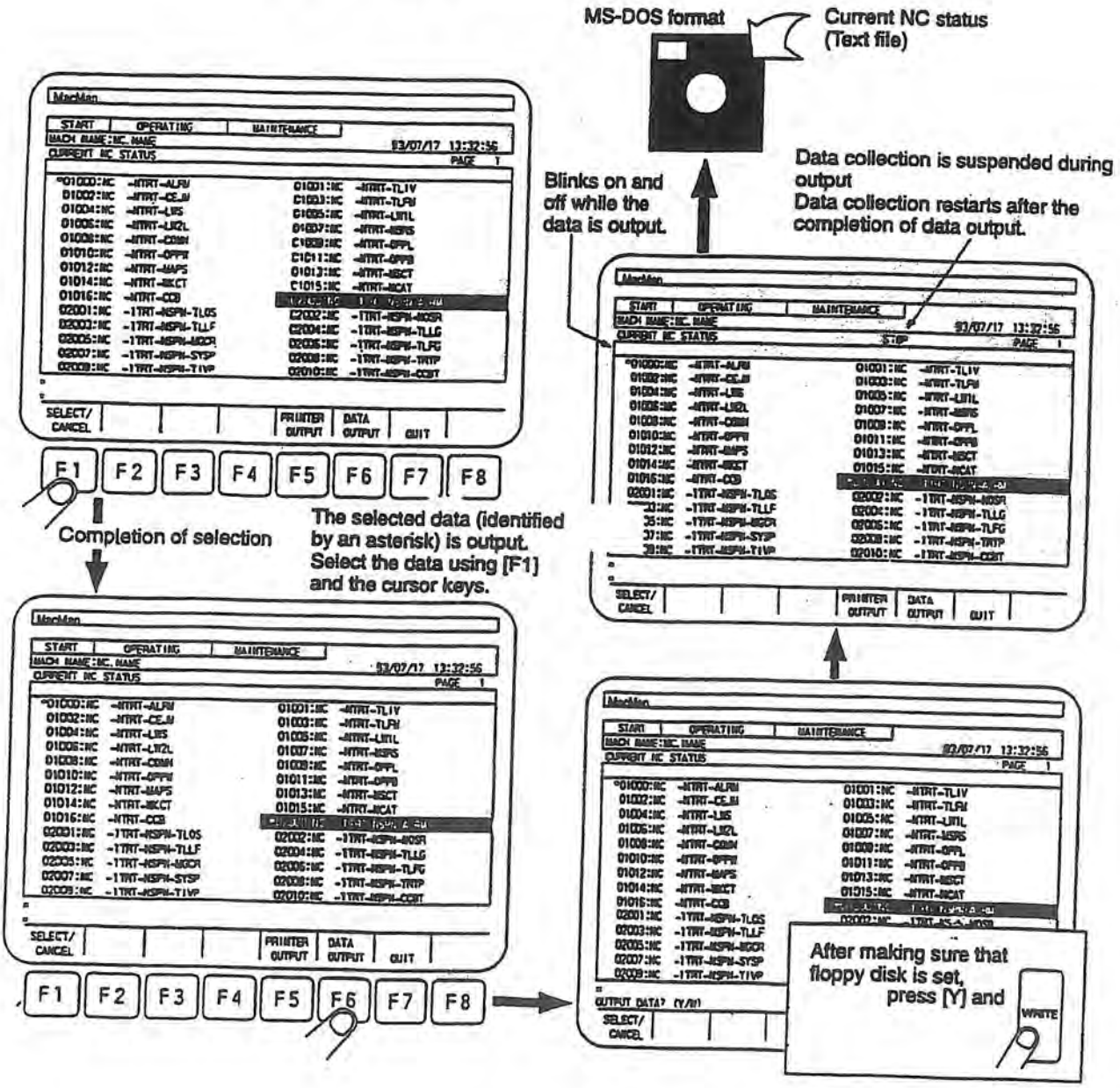
13-3. Outputting the Current NC Status to Floppy Disk

You can save the current NC status displayed on the screen by outputting it to floppy disk.

(1) Operating Procedure

Insert MS-DOS format floppy disk to the floppy disk drive and follow the procedure indicated below. The current status of the NC which is identified by an asterisk (*) is output to the floppy disk.

Since the data to be output are collected in response to the pressing of function key [F6] (DATA OUTPUT), the collected data are called the "current NC status".



(2) If you output the current NC Status to the floppy disk (MS-DOS format), it is output in the text file.

It can be displayed or analyzed using word processor software.

Refer to Section 19. "OUTPUT FILES".

(3) Output Device and File Name

The (current NC) status can be output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT). The device name and the file name are set on the OUTPUT DATA screen of the PREFERENCE SETTINGS function.

Note 1: Output device name

The current NC status is output to the device set for DEFAULT DEVICE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT DEVICE NAME is "FD0:". Therefore, to output the current NC status to a floppy disk set in the FD0:, you do not have to set the output device name.

Note 2: Output file name

The current NC status to be output to the floppy disk is assigned the file name which is set for DEFAULT FILE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT FILE NAME is:

*CN*h*m*s.D*D*

If function key [F6] (DATA OUTPUT) is pressed at 13:30:48 in April 12, 1993, the actual file name to be assigned is:

CN133048.D12

(4) After the completion of output of current NC status (text file), the following message is displayed to ask you whether or not the file necessary for I/O signal analysis should be output.

DATA HAS BEEN OUTPUT.

OUTPUT FILE REQUIRED FOR I/O SIGNAL ANALYSIS?(Y/N)

For the current NC status (only when 60001:FN–IODT is selected), the ON/OFF status of the I/O signals is described in hexadecimal.

This file is necessary to analyze the I/O signals in the same manner as the check data display in automatic operation.

Attribute of the file necessary for I/O signal analysis: Binary

Name of the file necessary for I/O signal analysis: □□□□□□□□.PBU

If there is more than one file (□□□□□□□□.PBU) which is necessary for I/O signal analysis, the following message is displayed for the second and later files.

OUTPUT FILE REQUIRED FOR I/O SIGNAL ANALYSIS?(Y/N)

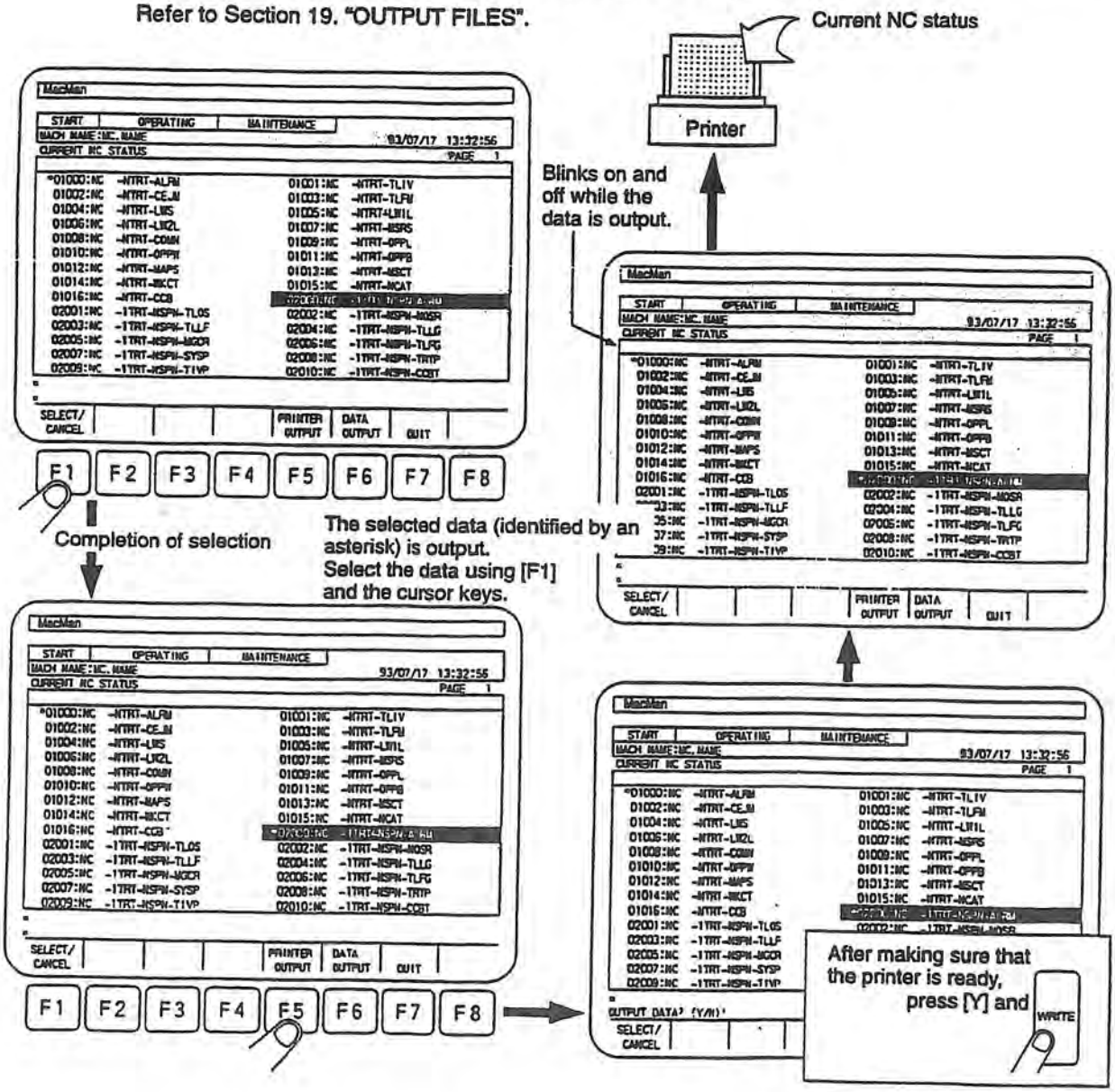
13-4. Outputting the Current NC Status to Printer

(1) You can print the current NC status saved to the floppy disk using a personal computer. If you connect a printer directly to the OSP7000, it is possible to print the data of the item identified by an asterisk (*).

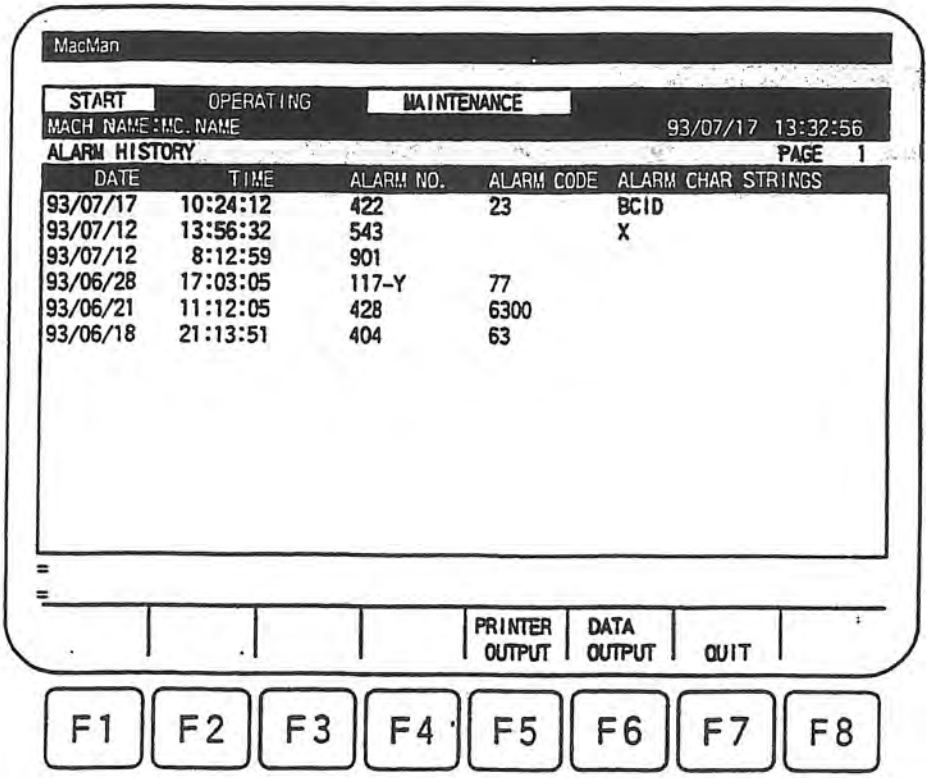
Since the data to be output to the printer are collected in response to the pressing of function key [F5] (PRINTER OUTPUT), the collected data are called the "current NC status".

(2) The contents to be printed with the printer connected to the OSP7000 are the same as those printed using the floppy disk saving the current NC status in the text file.

Refer to Section 19. "OUTPUT FILES".



SECTION 14 ALARM HISTORY

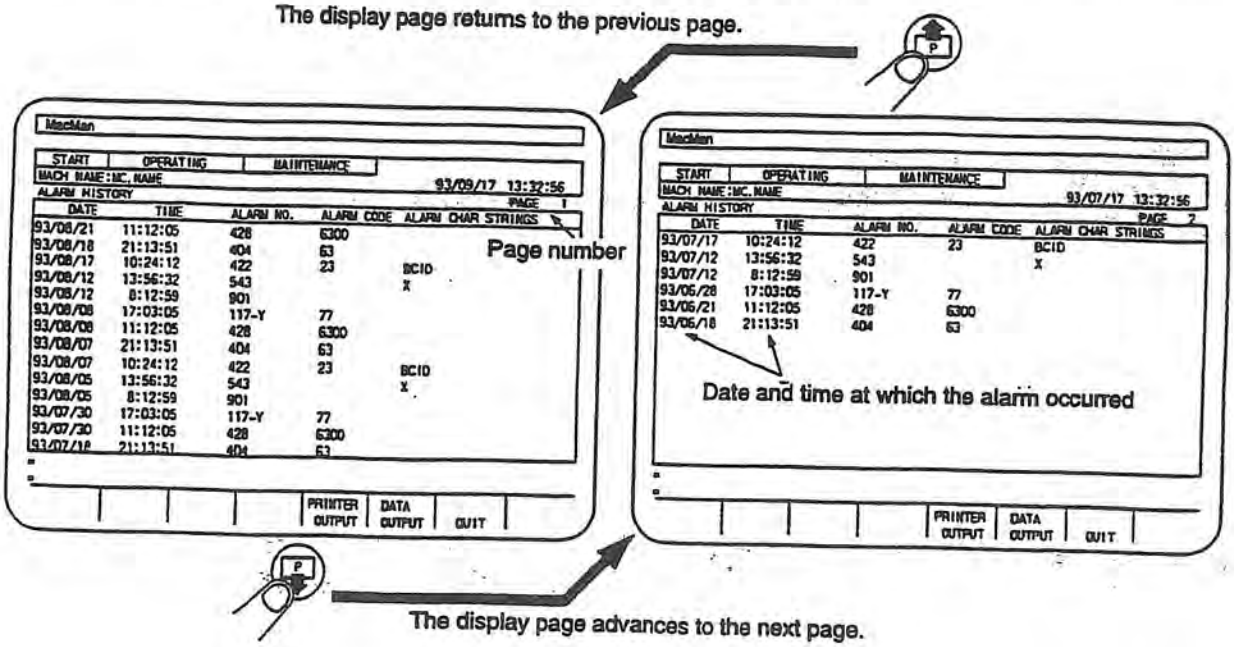


14-1. Displaying the Alarm History

You can back track the occurrence of alarms.

(1) At each occurrence of an alarm, the data which identify the alarm are logged and displayed on the screen. The information which identifies individual alarms consists of the date, time, alarm number, alarm code, and alarm character string.

(2) On the ALARM HISTORY screen, up to 14 sets of alarm information are displayed. To view other alarms which are not displayed on the screen, press the page key.



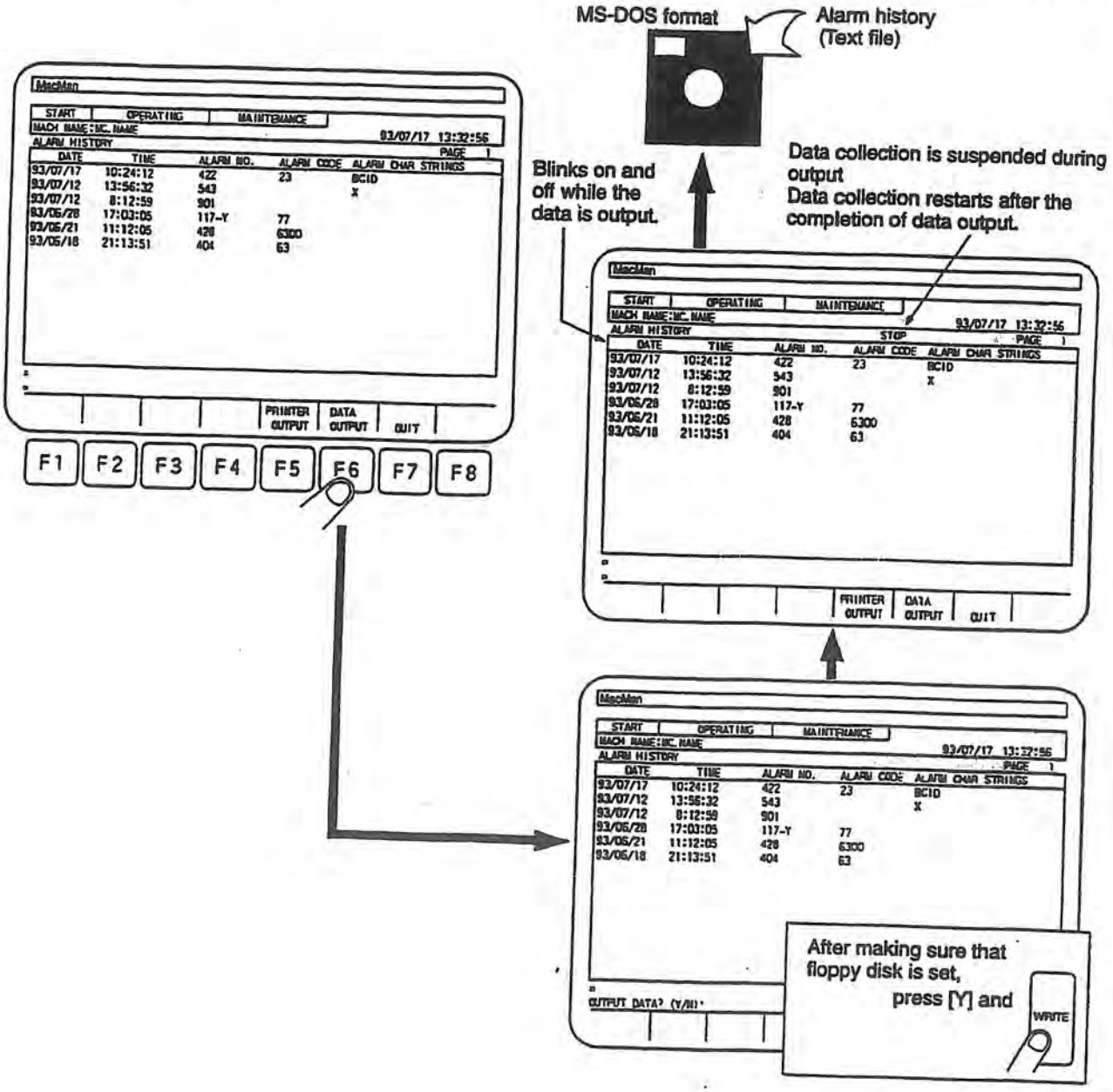
14-2. Outputting the Alarm History to Floppy Disk

You can save the alarm history by outputting it to floppy disk.

(1) Operating Procedure

Insert an MS-DOS format floppy disk to the floppy disk drive and follow the procedure indicated below

The alarm history is output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT).



(2) Output Format of the Alarm History

If you output the machining report to the floppy disk (MS-DOS format), it is output in the text file.

It can be displayed or analyzed using word processor software.

Refer to Section 19. "OUTPUT FILES".

(3) Output Device and File Name

The alarm history can be output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT). The device name and the file name are set on the OUTPUT DATA screen of the PREFERENCE SETTINGS function.

Note 1: Output device name

The alarm history is output to the device set for DEFAULT DEVICE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT DEVICE NAME is "FD0:". Therefore, to output the alarm history to a floppy disk set in the FD0:, you do not have to set the output device name.

Note 2: Output file name

The alarm history to be output to the floppy disk is assigned the file name which is set for DEFAULT FILE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT FILE NAME is:

AL∗h∗m∗s.D∗D

If function key [F6] (DATA OUTPUT) is pressed at 13:30:48 in April 12, 1993, the actual file name to be assigned is:

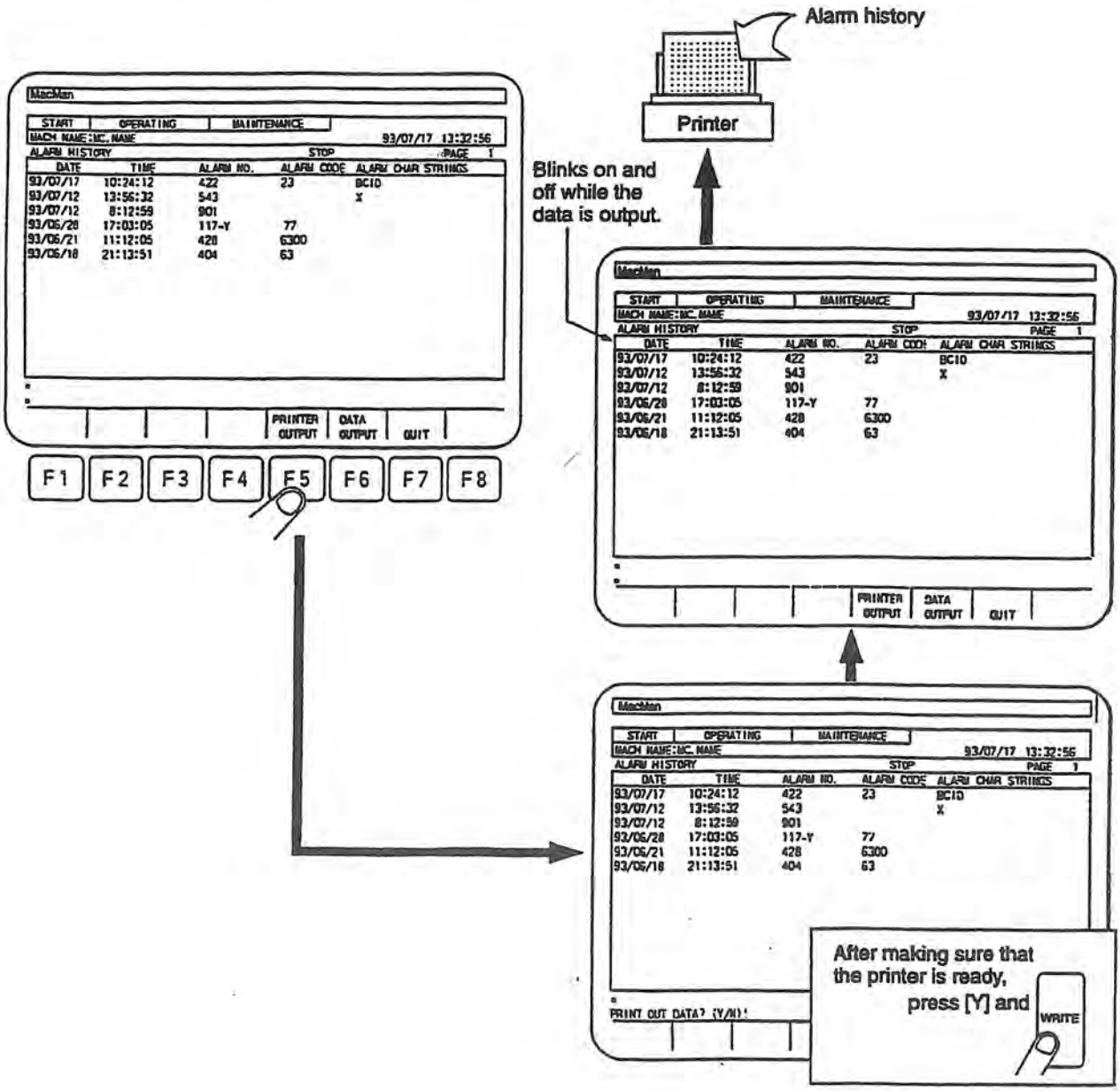
AL133048.D12

14-3. Outputting the Alarm History to Printer

(1) The information output to the floppy disk can be printed using a personal computer. If a printer is connected to the OSP7000, it is possible to print the report directly from the OSP7000.

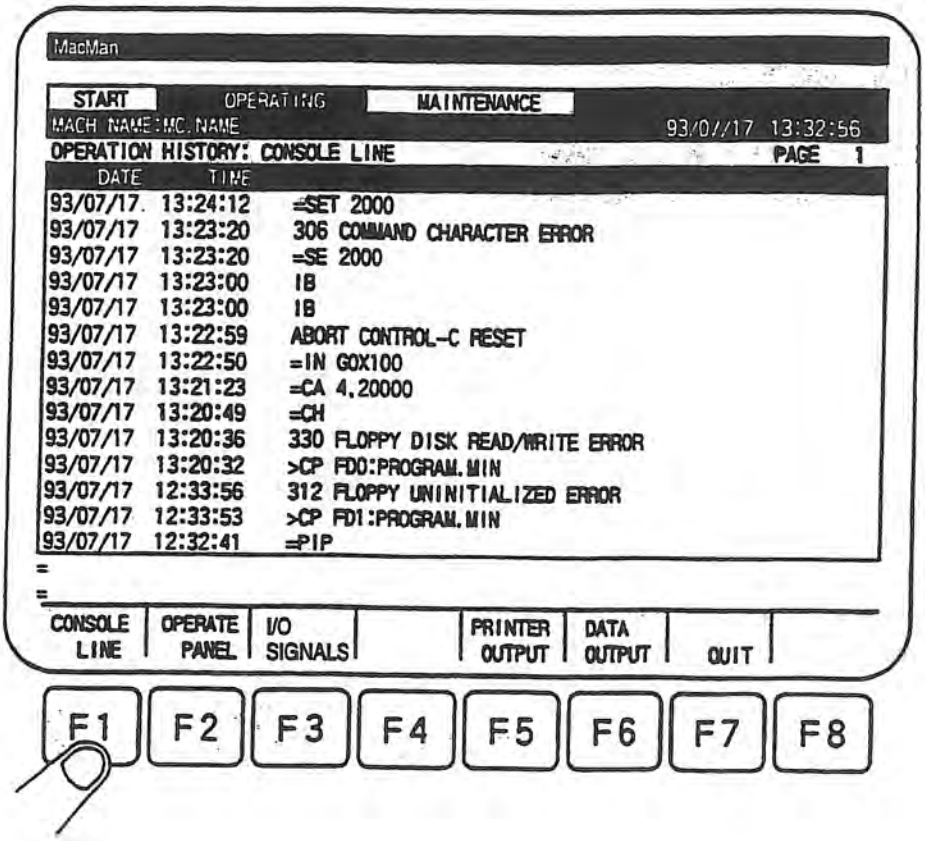
(2) The contents to be printed with the printer connected to the OSP7000 are the same as those printed using the floppy disk saving the machining report in the text file.

Refer to Section 19. "OUTPUT FILES".



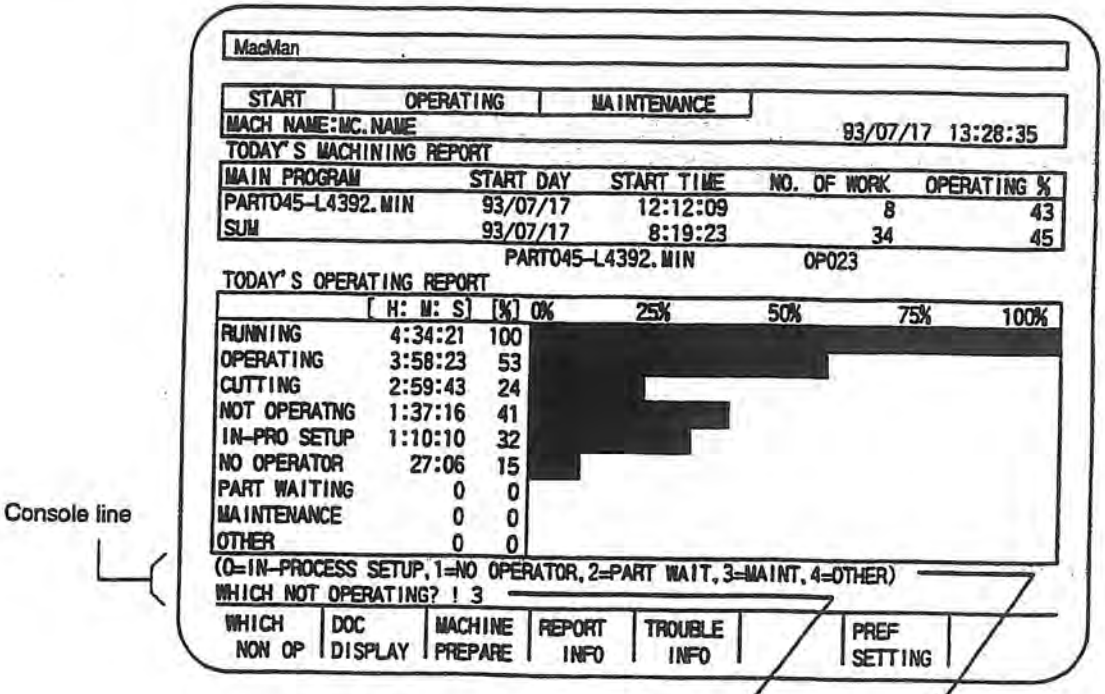
SECTION 15 OPERATION HISTORY

15-1. Operation History – Console Line

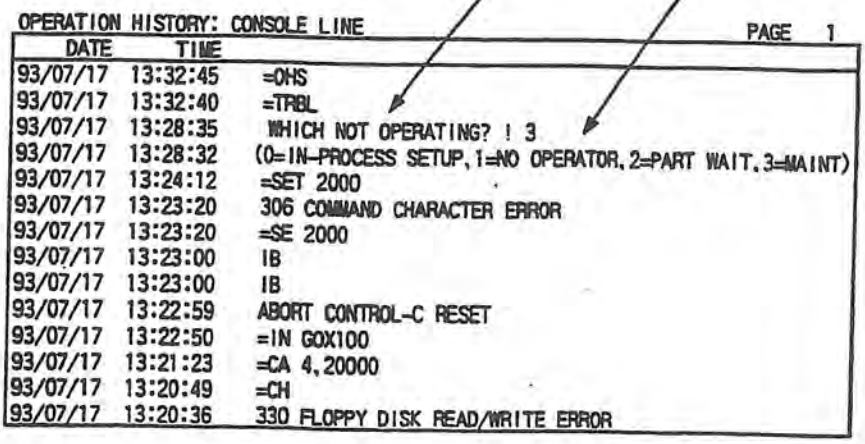


(1) Contents of Operation History – Console Line

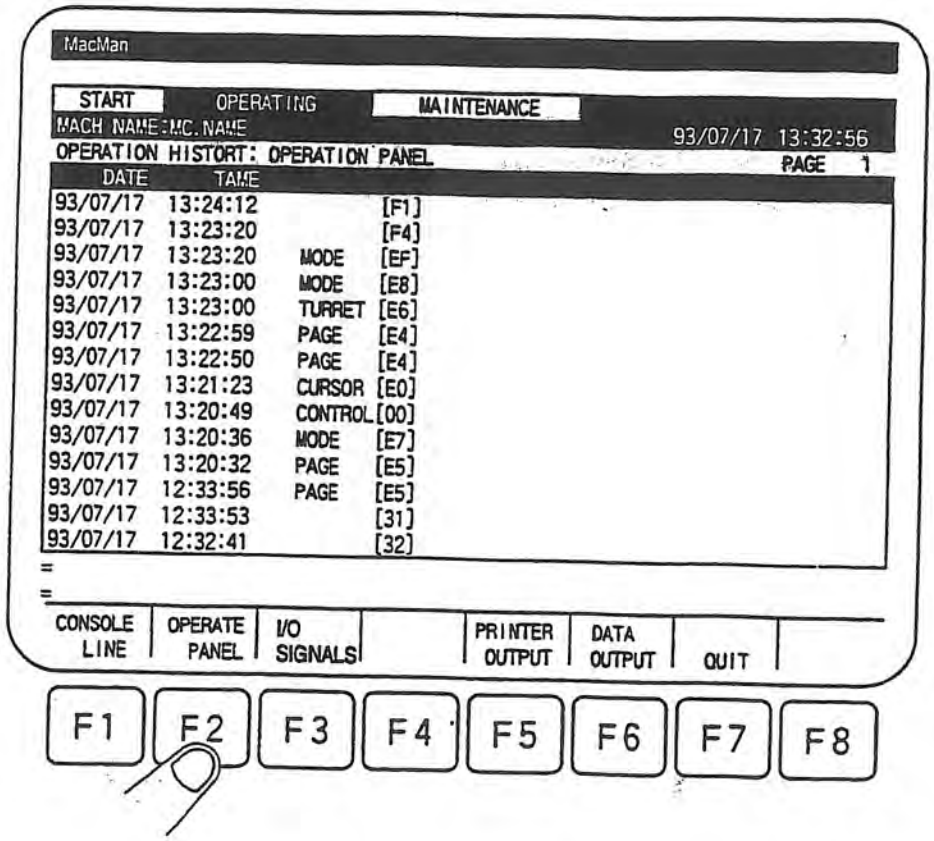
The messages having been displayed in the console line of the NC screen are stored in the memory including the date and time of display.



Console line



15-2. Operation History – Operation Panel



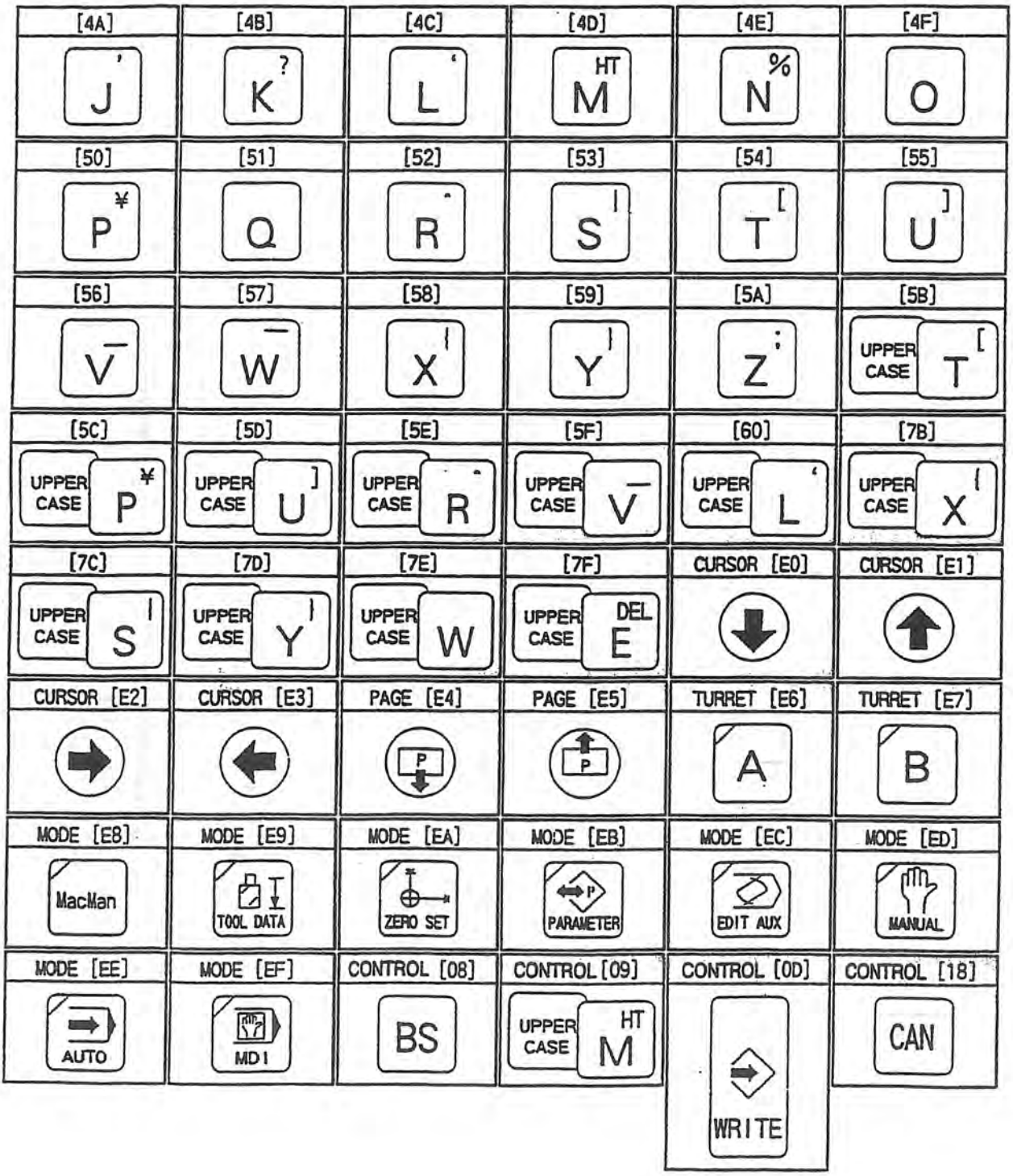
(1) Contents of Operation History – Operation Panel

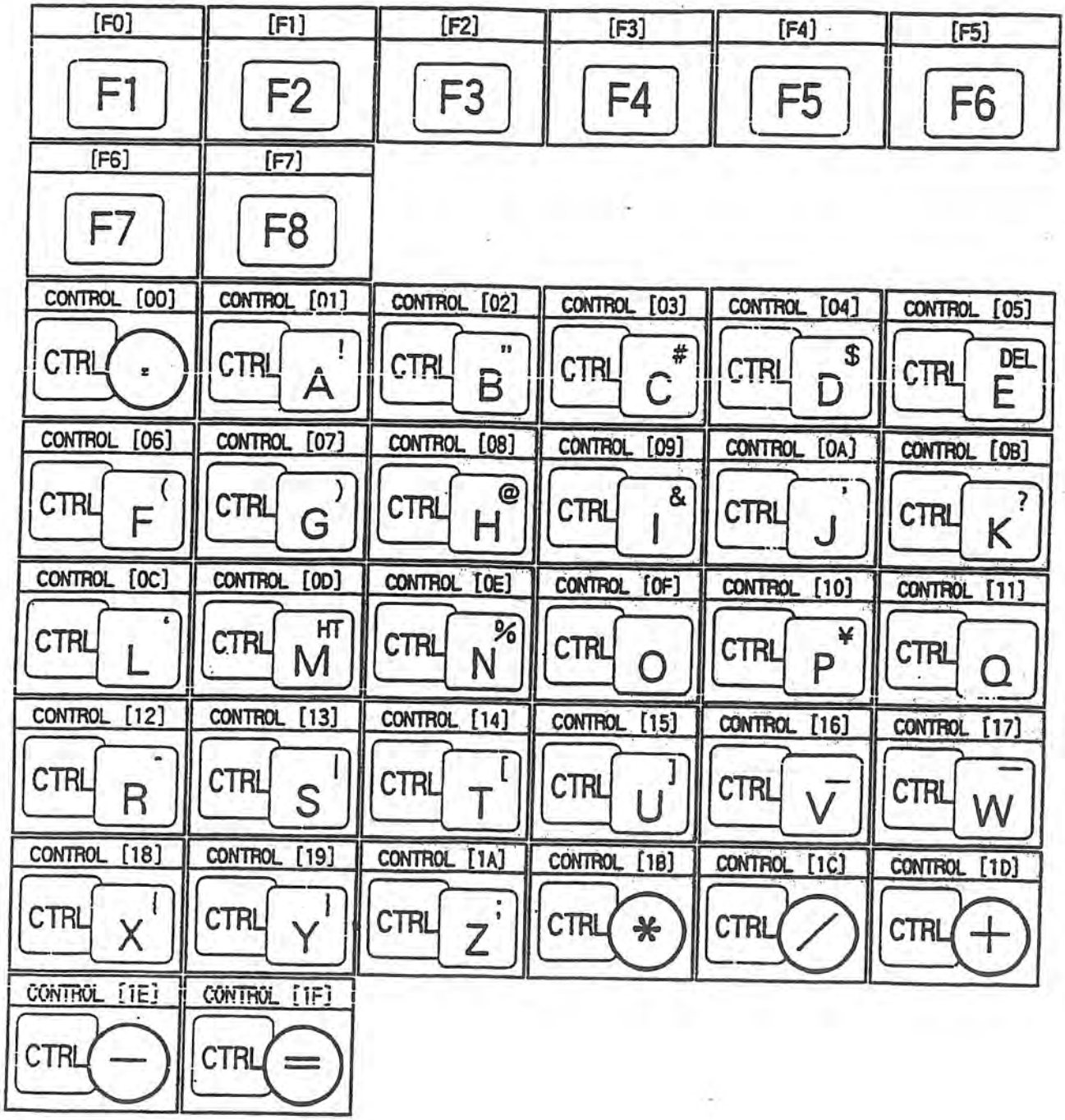
Key operations having been made on the operation panel of the NC unit are stored in the memory by the code, which represents the key, including the date and time of key operation.

The codes which represent individual keys are summarized below:

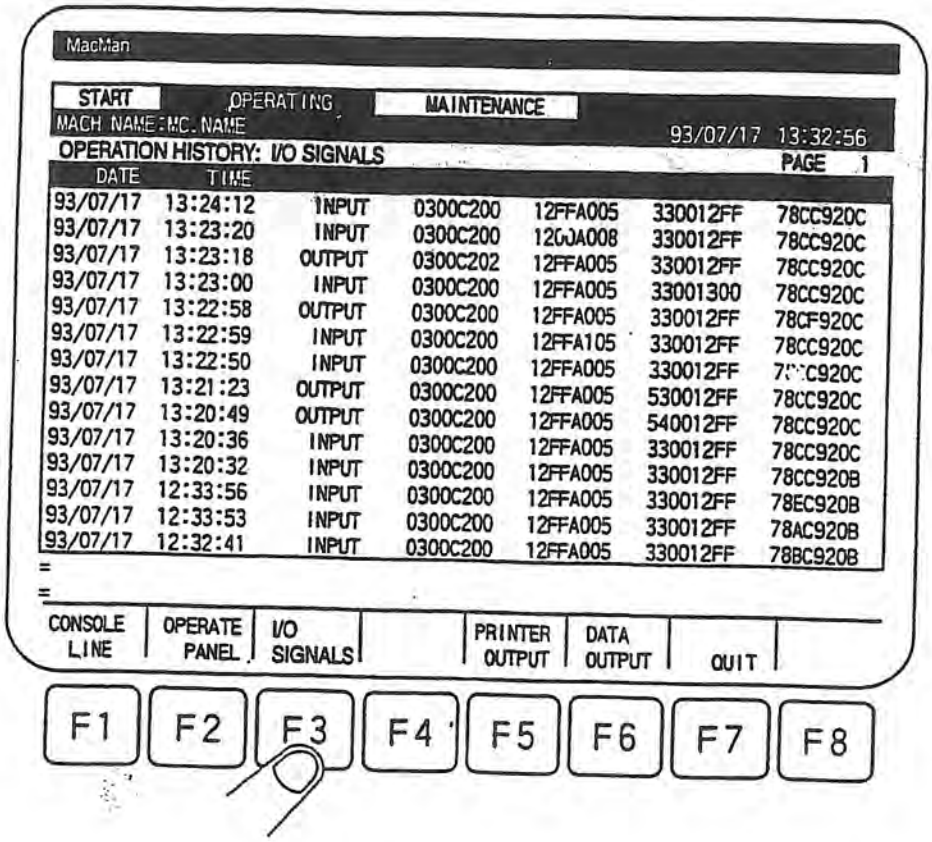
Key code

[20]	[21]	[22]	[23]	[24]	[25]
SP	UPPER CASE ! A	UPPER CASE " B	UPPER CASE # C	UPPER CASE $ D	UPPER CASE % N
[26]	[27]	[28]	[29]	[2A]	[2B]
UPPER CASE & I	UPPER CASE ' J	UPPER CASE (F	UPPER CASE) G	*	+
[2C]	[2D]	[2E]	[2F]	[30]	[31]
> ,	—	.	/	0	1
[32]	[33]	[34]	[35]	[36]	[37]
2	3	4	5	6	7
[38]	[39]	[3A]	[3B]	[3C]	[3D]
8	9	: <	UPPER CASE ; Z	UPPER CASE : <	=
[3E]	[3F]	[40]	[41]	[42]	[43]
UPPER CASE > ,	UPPER CASE ? K	UPPER CASE @ H	! A	" B	# C
[44]	[45]	[46]	[47]	[48]	[49]
$ D	DEL E	(F	) G	@ H	& I


[4A]
J
[4B]
K
[4C]
L
[4D]
HT
M
[4E]
N
[4F]
O
[50]
P
[51]
Q
[52]
R
[53]
S
[54]
T
[55]
U
[56]
V
[57]
W
[58]
X
[59]
Y
[5A]
Z
[5B]
UPPER CASE T
[5C]
UPPER CASE P
[5D]
UPPER CASE U
[5E]
UPPER CASE R
[5F]
UPPER CASE V
[60]
UPPER CASE L
[7B]
UPPER CASE X
[7C]
UPPER CASE S
[7D]
UPPER CASE Y
[7E]
UPPER CASE W
[7F]
UPPER CASE DEL E
CURSOR [E0]
CURSOR [E1]
CURSOR [E2]
CURSOR [E3]
PAGE [E4]
PAGE [E5]
TURRET [E6]
A
TURRET [E7]
B
MODE [E8]
MacMan
MODE [E9]
TOOL DATA
MODE [EA]
ZERO SET
MODE [EB]
PARAMETER
MODE [EC]
EDIT AUX
MODE [ED]
MANUAL
MODE [EE]
AUTO
MODE [EF]
MDI
CONTROL [08]
BS
CONTROL [09]
UPPER CASE HT M
CONTROL [0D]
WRITE
CONTROL [18]
CAN


[F0]
F1
[F1]
F2
[F2]
F3
[F3]
F4
[F4]
F5
[F5]
F6
[F6]
F7
[F7]
F8
CONTROL [00]
CTRL @
CONTROL [01]
CTRL A !
CONTROL [02]
CTRL B "
CONTROL [03]
CTRL C #
CONTROL [04]
CTRL D $
CONTROL [05]
CTRL E DEL
CONTROL [06]
CTRL F (
CONTROL [07]
CTRL G)
CONTROL [08]
CTRL H @
CONTROL [09]
CTRL I &
CONTROL [0A]
CTRL J '
CONTROL [0B]
CTRL K ?
CONTROL [0C]
CTRL L
CONTROL [0D]
CTRL M HT
CONTROL [0E]
CTRL N %
CONTROL [0F]
CTRL O
CONTROL [10]
CTRL P ¥
CONTROL [11]
CTRL Q
CONTROL [12]
CTRL R
CONTROL [13]
CTRL S
CONTROL [14]
CTRL T [
CONTROL [15]
CTRL U]
CONTROL [16]
CTRL V
CONTROL [17]
CTRL W
CONTROL [18]
CTRL X
CONTROL [19]
CTRL Y
CONTROL [1A]
CTRL Z ;
CONTROL [1B]
CTRL *
CONTROL [1C]
CTRL /
CONTROL [1D]
CTRL +
CONTROL [1E]
CTRL —
CONTROL [1F]
CTRL =

15-3. Operation History – I/O Signals



(1) 16-byte signals (128 signals) are scanned for inputs and outputs, respectively, and if ON/OFF status of any of the I/O signal has been changed, it is recorded.

(2) The recorded I/O signals are displayed in the following format. □□ corresponds to 1-byte signal (8 signals).

INPUT	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□
OUTPUT	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□

(3) The signals to be scanned are defined on the I/O SIGNALS screen of the PREFERENCE SETTINGS function. The signal scan mode is determined by the contents of definition.

a) The predetermined I/O signals (keys, switches, LEDs, etc. on the machine operation panel) are scanned.

b) The signals are scanned by setting the slave station number, strobe number, and bit on the I/O SIGNALS screen of the PREFERENCE SETTINGS function.

c) The status of the I/O signals are not recorded even if the ON/OFF status of them is changed.

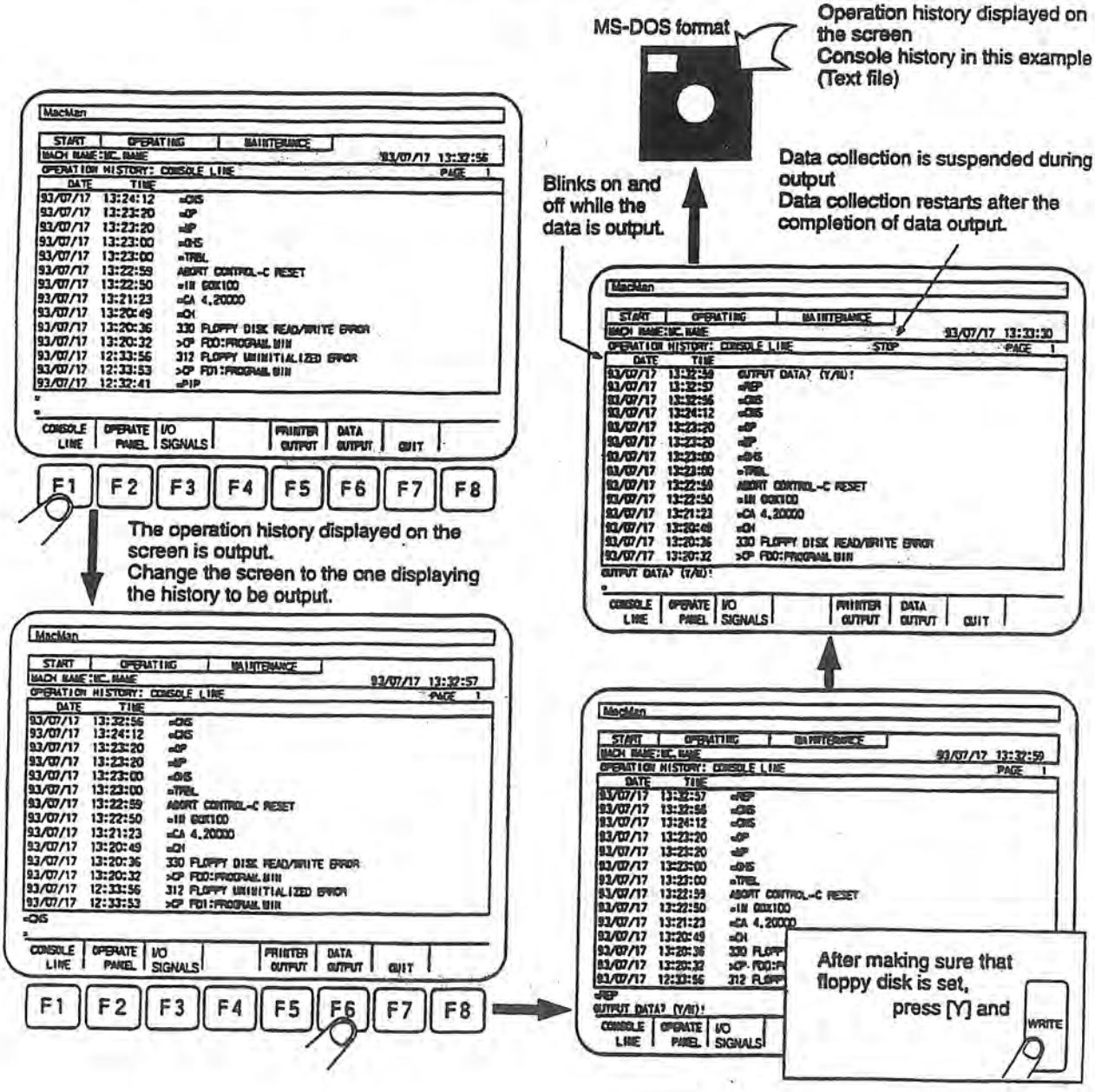
15-4. Outputting the Operation History to Floppy Disk

You can save the operation history by outputting it to floppy disk.

(1) Operation Procedure

Insert an MS-DOS format floppy disk to the floppy disk drive and follow the procedure indicated below.

The operation history is output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT).



(2) Output Format of the Operation History

If you output the machining report to the floppy disk (MS-DOS format), it is output in the text file .

It can be displayed or analyzed using word processor software.

Refer to Section 19. "OUTPUT FILES".

(3) Output Device and File Name

The alarm history can be output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT). The device name and the file name are set on the OUTPUT DATA screen of the PREFERENCE SETTINGS function.

Note 1: Output file name

The operation history to be output to the floppy disk is assigned the file name which is set for DEFAULT FILE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT FILE NAME is:

*Operation history: Console line ..... CS*h*m*s.D*D*

*Operation history: Operation panel .... OP*h*m*s.D*D*

*Operation history: I/O signals ..... MP*h*m*s.D*D*

If function key [F6] (DATA OUTPUT) is pressed at 13:30:48 in April 12, 1993, the actual file names to be assigned are:

Operation history: Console line CS133048.D12

Operation history: Operation panel OP133048.D12

Operation history: I/O signals MP133048.D12

(4) After the completion of output of operation history (text file), the following message is displayed to ask you whether or not the file necessary for I/O signal analysis should be output.

DATA HAS BEEN OUTPUT.

OUTPUT FILE REQUIRED FOR I/O SIGNAL ANALYSIS?(Y/N)

For the operation history (I/O signals), the ON/OFF status of the I/O signals is described in hexadecimal.

This file is necessary to analyze the I/O signals in the same manner as the check data display in automatic operation.

Attribute of the file necessary for I/O signal analysis: Binary

Name of the file necessary for I/O signal analysis: □□□□□□□□.PBU

If there is more than one file (□□□□□□□□.PBU) which is necessary for I/O signal analysis, the following message is displayed for the second and later files.

OUTPUT FILE REQUIRED FOR I/O SIGNAL ANALYSIS?(Y/N)

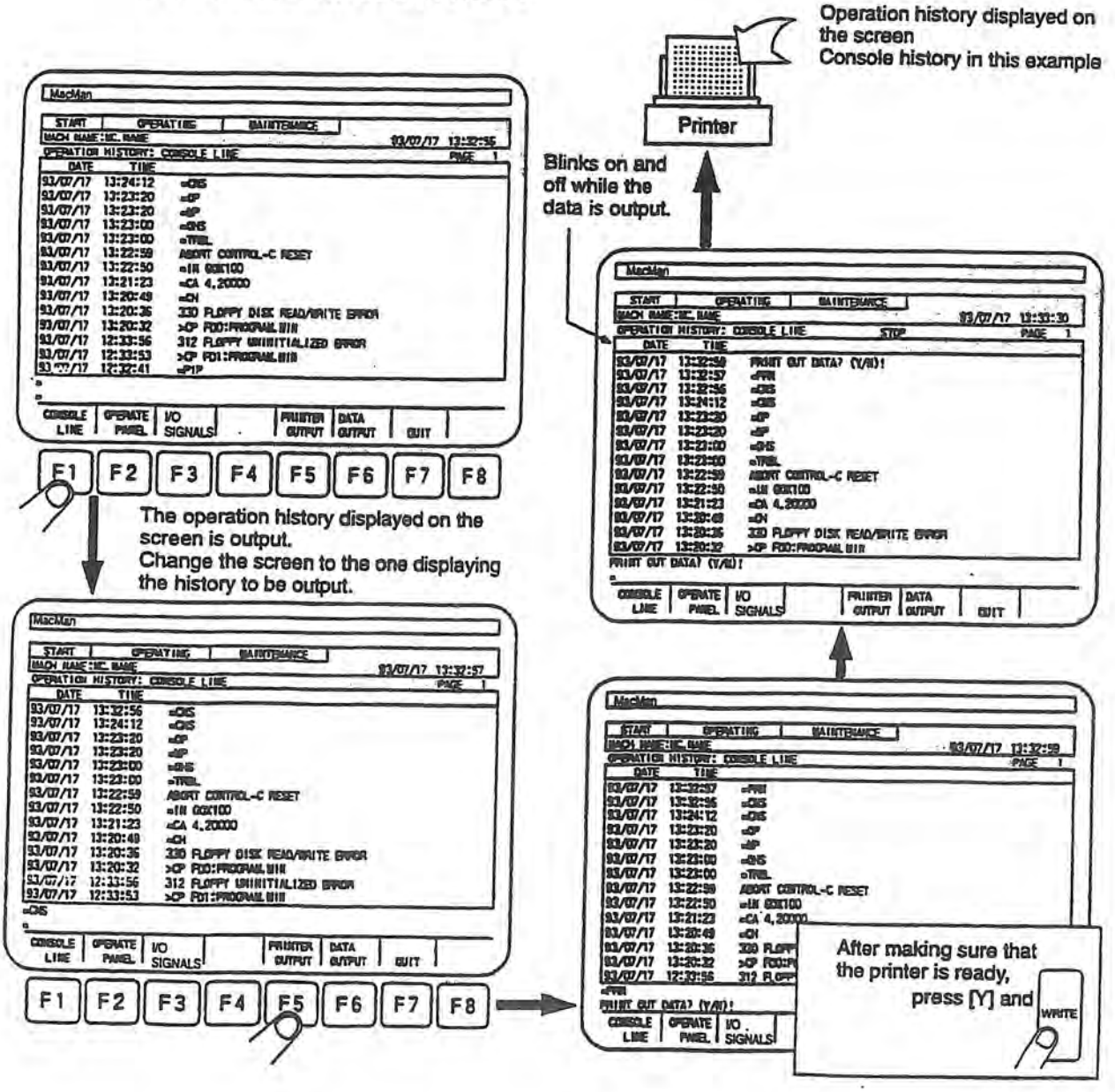
15-5. Outputting the Operation History to Printer

(1) The information output to the floppy disk can be printed using a personal computer. If a printer is connected to the OSP7000, it is possible to printer the report directly from the OSP7000.

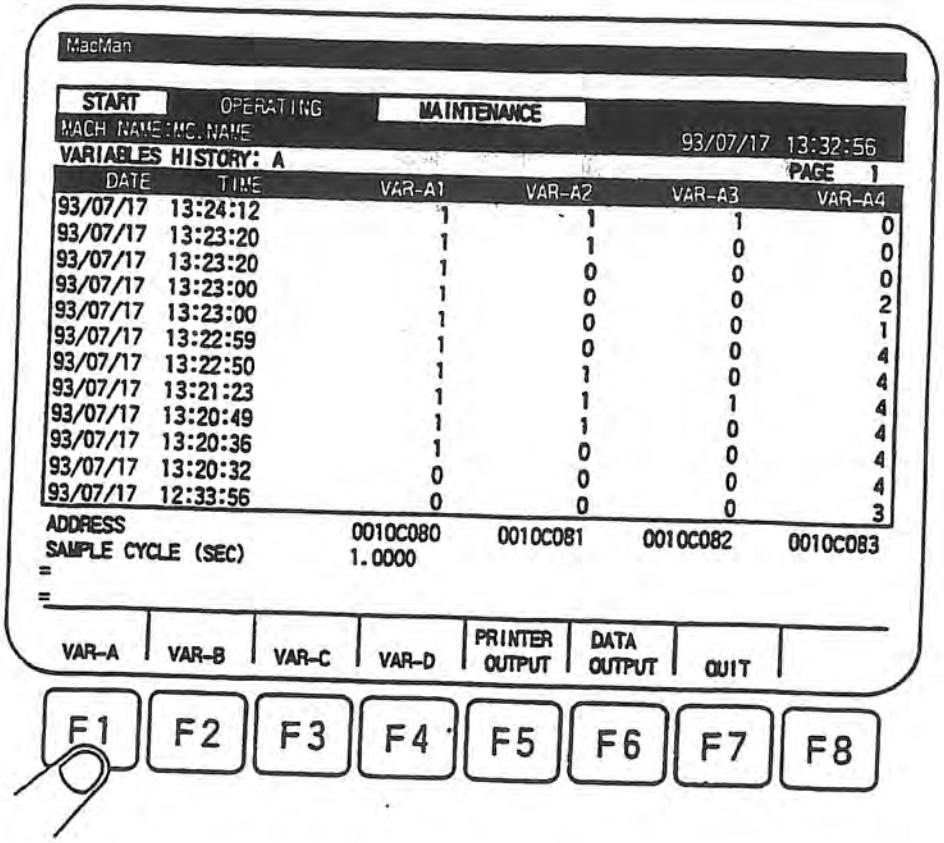
The output procedure is the same as ouputting the machining report. Refer to Section 8, 8-5. "Outputting the Machining Report to Printer".

(2) The contents to be printed with the printer connected to the OSP7000 are the same as those printed using the floppy disk saving the machining report in the text file.

Refer to Section 19. "OUTPUT FILES".



SECTION 16 VARIABLE HISTORY



16-1. Displaying the Variable History

(1) Periodical Scanning

The variables in the NC are scanned in fixed intervals and if the value set for a variable is changed, the date and time of change and the new variable value are stored.

(2) Four Types of Variable Histories

The NC uses four types of variables and the screen displaying the history of each type of the variables can be selected by pressing a proper function key ([F1] to [F4]).

a) Variables history: A

The variables (variable A1, variable A2, variable A3, and variable A4) in the NC are scanned in fixed intervals and if the value set for any of variable A1, variable A2, variable A3, and variable A4 is changed, the date and time of change and the new variable value are stored.

b) Variables history: B

The variables (variable B1, variable B2, variable B3, and variable B4) in the NC are scanned in fixed intervals and if the value set for any of variable B1, variable B2, variable B3, and variable B4 is changed, the date and time of change and the new variable value are stored.

c) Variables history: C

The variables (variable C1, variable C2, variable C3, and variable C4) in the NC are scanned in fixed intervals and if the value set for any of variable C1, variable C2, variable C3, and variable C4 is changed, the date and time of change and the new variable value are stored.

d) Variables history: D

The variables (variable D1, variable D2, variable D3, and variable D4) in the NC are scanned in fixed intervals and if the value set for any of variable D1, variable D2, variable D3, and variable D4 is changed, the date and time of change and the new variable value are stored.

(3) Defining the Variables

The variables are defined by "address", "size", "attribute", and "attribute for display".

- Variables of "VARIABLES HISTORY: A" are set at the VARIABLES-A screen of the PREFERENCE SETTINGS function.
- Variables of "VARIABLES HISTORY: B" are set at the VARIABLES-B screen of the PREFERENCE SETTINGS function.
- Variables of "VARIABLES HISTORY: C" are set at the VARIABLES-C screen of the PREFERENCE SETTINGS function.
- Variables of "VARIABLES HISTORY: D" are set at the VARIABLES-D screen of the PREFERENCE SETTINGS function.

(4) Sampling Cycle

As explained above, the variables are scanned in fixed intervals. This scanning intervals are set for SAMPLING CYCLE (SEC) on the same screen as used to set the variables. The sampling cycle can be set for each variable history.

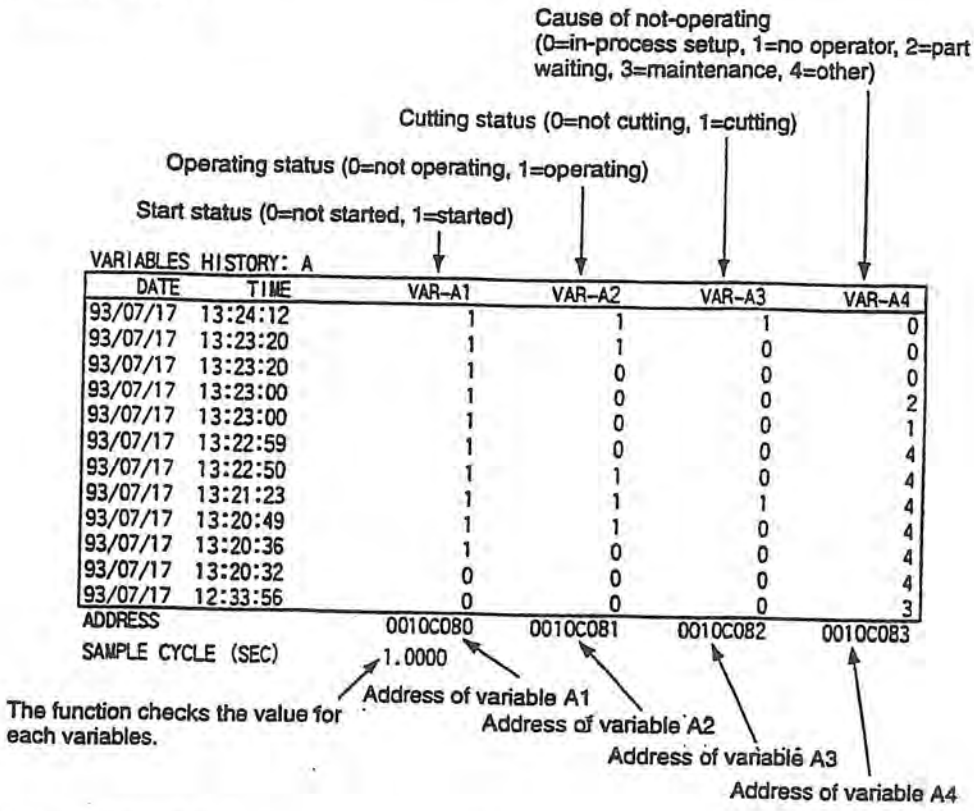
(5) The history information (machining report, alarm history, operation history, variable history) is usually displayed in the order of latest date and time. However, in the case of the variable history, it is possible to display the history in the state it is stored in the memory (in the order of address).

DS [WRITE] ..... The display format is changed alternately between the order of date and the order of address.

(6) Default Setting

By the default setting, variables history A checks the variables which represent the machine operating status. Variables history B to D do not check the variables.

a) Variables history A



VARIABLES HISTORY: A

DATE	TIME	VAR-A1	VAR-A2	VAR-A3	VAR-A4
93/07/17	13:24:12	1	1	1	0
93/07/17	13:23:20	1	1	0	0
93/07/17	13:23:20	1	0	0	0
93/07/17	13:23:00	1	0	0	2
93/07/17	13:23:00	1	0	0	1
93/07/17	13:22:59	1	0	0	4
93/07/17	13:22:50	1	1	0	4
93/07/17	13:21:23	1	1	1	4
93/07/17	13:20:49	1	1	0	4
93/07/17	13:20:36	1	0	0	4
93/07/17	13:20:32	0	0	0	4
93/07/17	12:33:56	0	0	0	3
ADDRESS		0010C080	0010C081	0010C082	0010C083
SAMPLE CYCLE (SEC)		1.0000			

b) Variables history B to D

VARIABLES HISTORY: B

DATE	TIME	VAR-B1	VAR-B2	VAR-B3	VAR-B4
ADDRESS					
SAMPLE CYCLE (SEC)		0.0000			

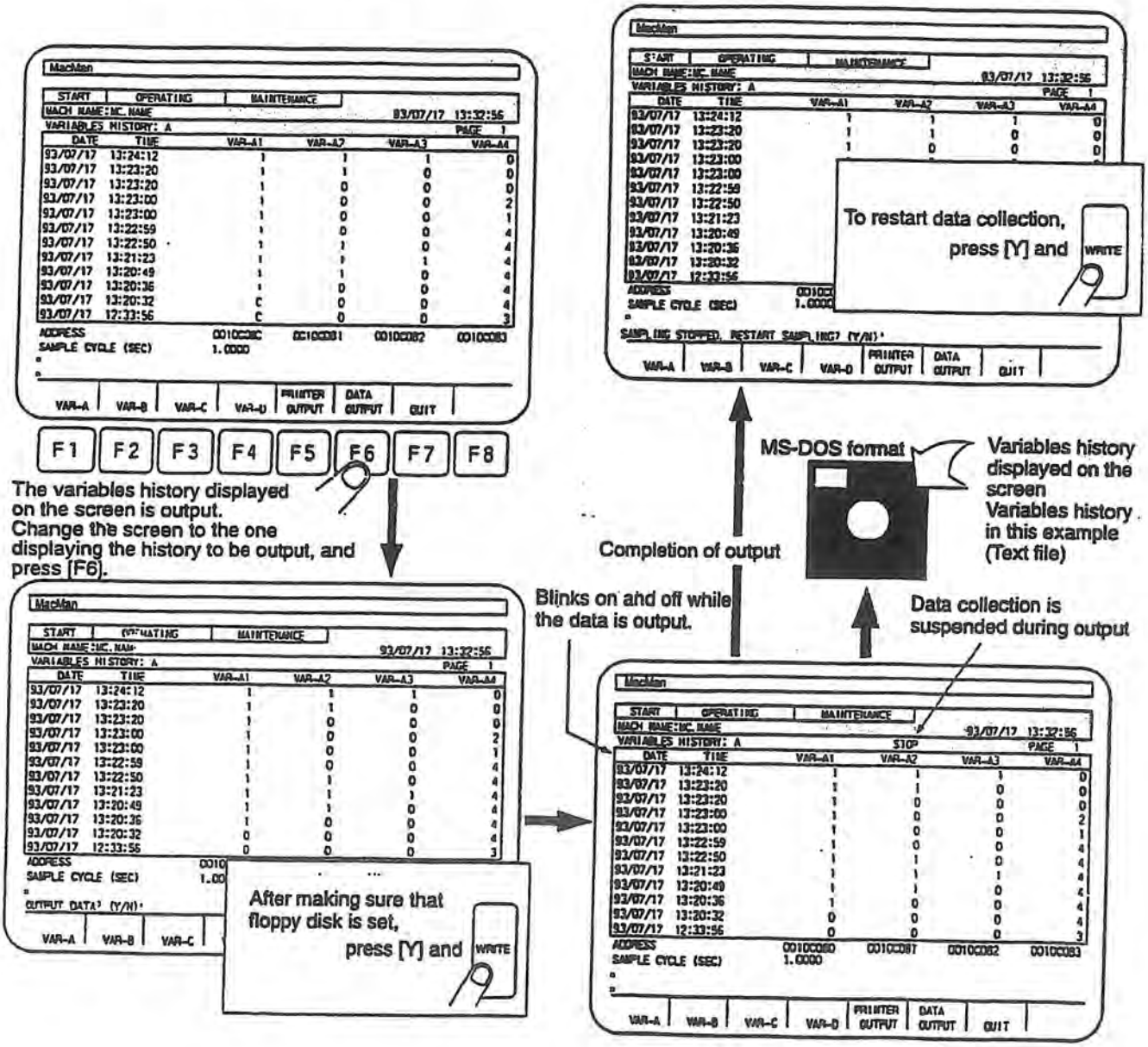
16-2. Outputting the Variables History to Floppy Disk

You can save the variables history by outputting it to floppy disk.

(1) Operating Procedure

Insert an MS-DOS format floppy disk to the floppy disk drive and follow the procedure indicated below.

The variables history displayed on the screen is output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT).



(2) Output Format of the Variables History

If you output the machining report to the floppy disk (MS-DOS format), it is output the text file.

Refer to Section 19. "OUTPUT FILES".

It can be displayed or analyzed using word processor software.

(3) Output Device and File Name

The variables history can be output to the floppy disk by simply pressing function key [F6] (DATA OUTPUT). The device name and the file name are set on the OUTPUT DATA screen of the PREFERENCE SETTINGS function.

Note 1: Output device name

The variables history is output to the device set for DEFAULT DEVICE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT DEVICE NAME is "FD0:". Therefore, to output the variables history to a floppy disk set in the FD0:, you do not have to set the output device name.

Note 2: Output file name

The variables history to be output to the floppy disk is assigned the file name which is set for DEFAULT FILE NAME on the PREFERENCE SETTINGS screen. The initial setting for DEFAULT FILE NAME is:

*Variables history: A ..... VA*h*m*s.D*D*

*Variables history: B ..... VB*h*m*s.D*D*

*Variables history: C ..... VC*h*m*s.D*D*

*Variables history: D ..... VD*h*m*s.D*D*

If function key [F6] (DATA OUTPUT) is pressed at 13:30:48 in April 12, 1993, the actual file names to be assigned are:

Variables history: A VA133048.D12

Variables history: B VB133048.D12

Variables history: C VC133048.D12

Variables history: D VD133048.D12

(4) Data collection is suspended while the data is being output to the printer or floppy disk. At the completion of data output, the screen displays the message "SAMPLING STOPPED, RESTART SAMPLING (Y/N)!" in the console line asking you if you want to restart sampling.

You can simply input [Y] or [N] depending on whether you want to restart data collection or not.

The following commands may also be used to start or stop collection of the variables history:

NS [WRITE] ..... Data collection restarts for the history of the displayed variables.

NE [WRITE] ..... Data collection is stopped for the history of the displayed variables.

NS;A [WRITE] ..... Data collection restarts for all the variables histories.

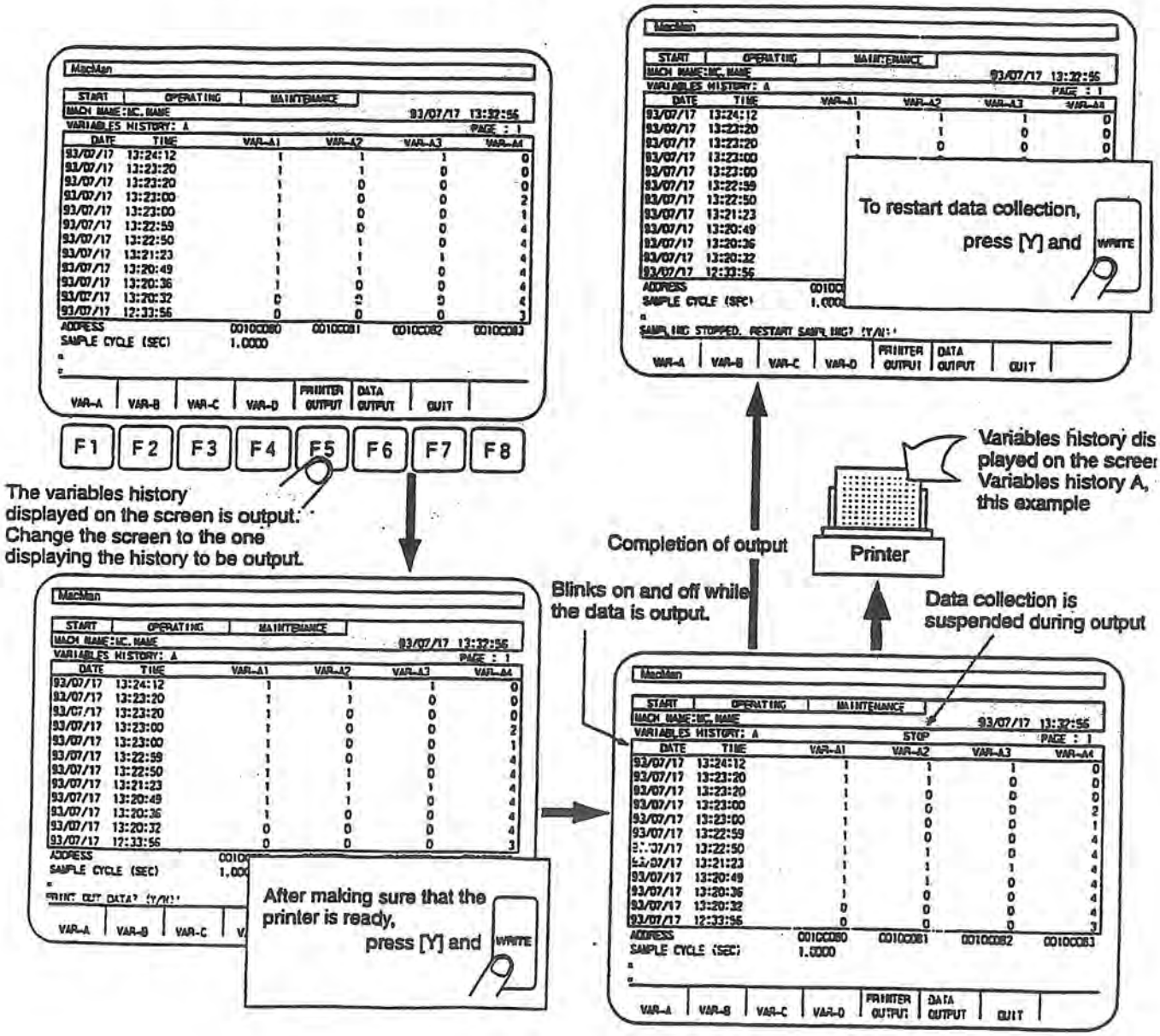
NE;A [WRITE] ..... Data collection is stopped for all the variables histories.

16-3. Outputting the Variables History to Printer

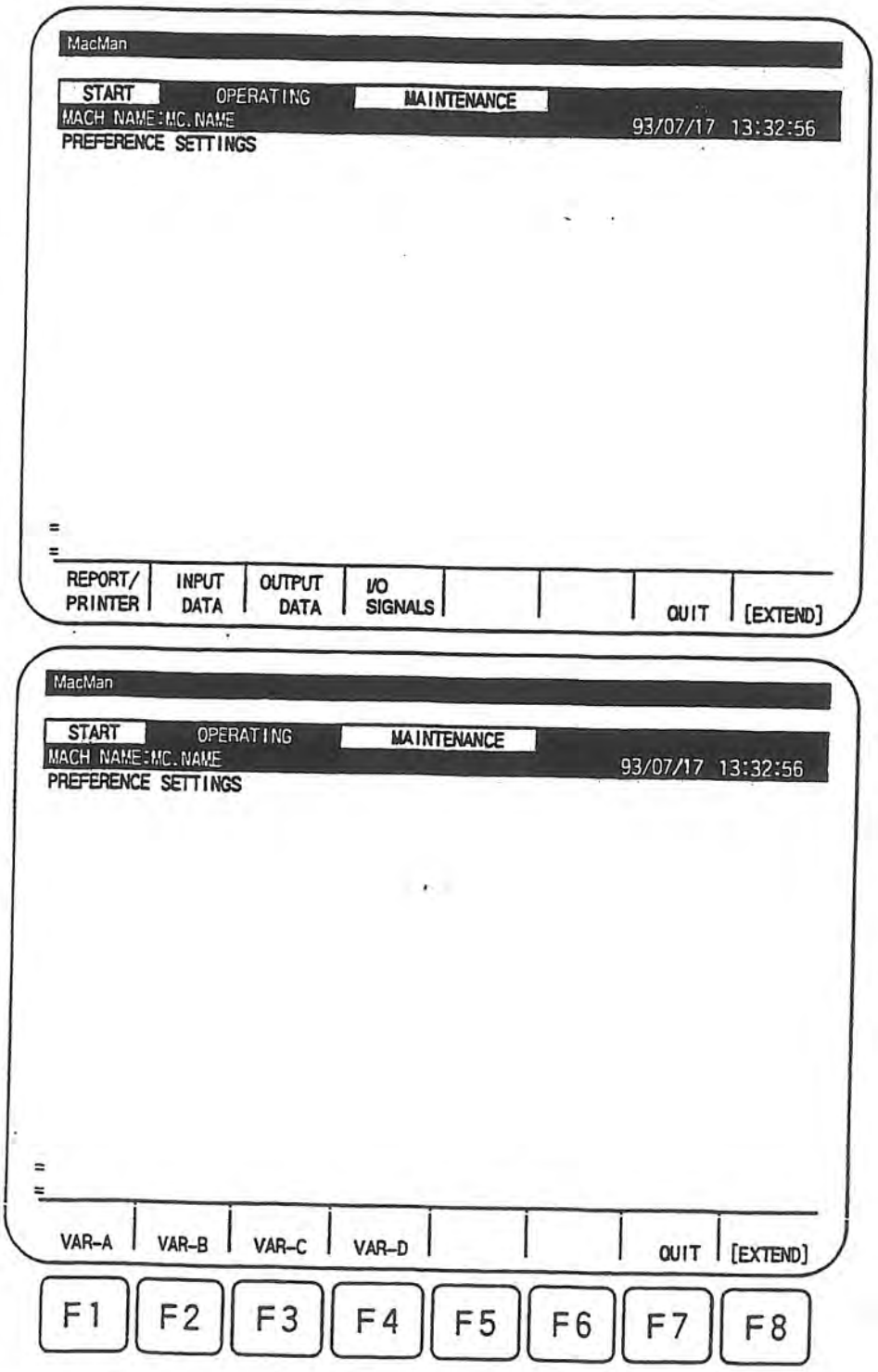
(1) The information output to the floppy disk can be printed using a personal computer. If a printer is connected to the OSP7000, it is possible to print the report directly from the OSP7000.

(2) The contents to be printed with the printer connected to the OSP7000 are the same as those printed using the floppy disk saving the machining report in the text file.

Refer to Section 19. "OUTPUT FILES".



SECTION 17 PREFERENCE SETTINGS



(1) On the PREFERENCE SETTINGS function screen, you can access various functions which will allow you to set various parameters necessary for the cell operation management function. Press a proper function key to access the required function. The function keys are summarized below.

a) REPORT/PRINTER

The following parameters are set:

- Machine name
- Parameters necessary for collecting the operating data
- Channel number for connecting the printer

b) INPUT DATA

The following names are set for the memo file, job procedure file, and machining program file which are input from the floppy disk:

- Default device name
- Default file name
- Default path name

c) OUTPUT DATA

The following names are set for the report files and trouble information files to be output to the floppy disk:

- Default device name
- Default file name

d) I/O SIGNALS

For the operation history (I/O signal), 16-byte signals (128 signals) are scanned for input and output, respectively.

It is possible to define the signals to be scanned in units of bytes by setting the slave station number, strobe number and bit.

e) VAR-A

The following is set for the four variables (variable A1, variable A2, variable A3, variable A4) which are checked on the variables history A screen:

- Address
- Size
- Attribute
- Display attribute

The sampling period is also set.

f) VAR-B

The following is set for the four variables (variable B1, variable B2, variable B3, variable B4) which are checked on the variables history B screen:

- Address
- Size
- Attribute
- Display attribute

The sampling period is also set.

g) VAR-C

The following is set for the four variables (variable C1, variable C2, variable C3, variable C4) which are checked on the variables history C screen:

- Address
- Size
- Attribute
- Display attribute

The sampling period is also set.

h) VAR-D

The following is set for the four variables (variable D1, variable D2, variable D3, variable D4) which are checked on the variables history D screen:

- Address
- Size
- Attribute
- Display attribute

The sampling period is also set.

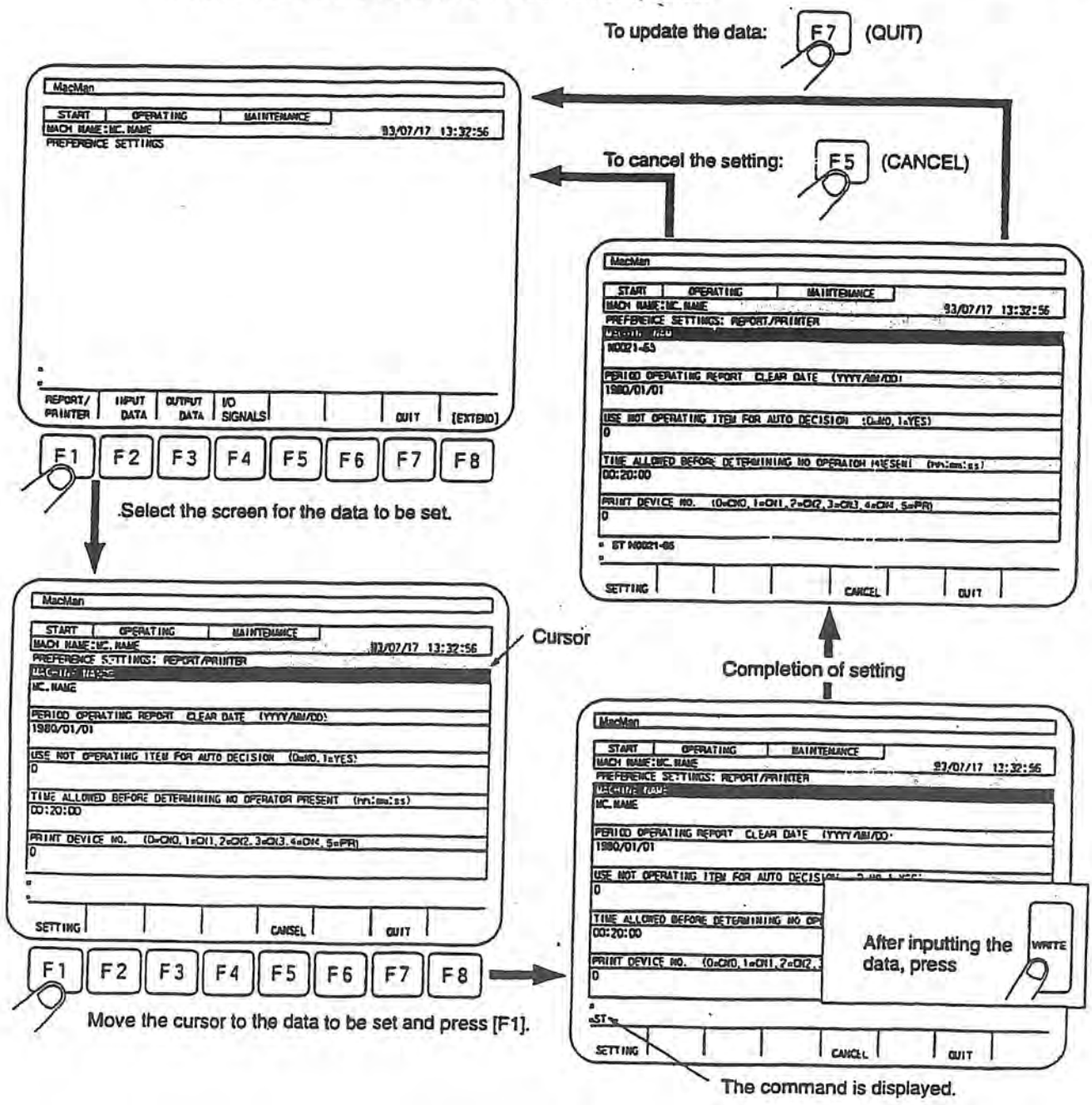
(2) [F5] (CANCEL) and [F7] (QUIT) keys

[F7] (QUIT):

To confirm the data which you have set, press function key [F7]. The previous setting is updated to the new data, or the new data is saved.

[F5] (CANCEL):

To cancel the data which you have set so that the previous data is restored, press function [F5]. The new data is canceled and the previous data is not updated.



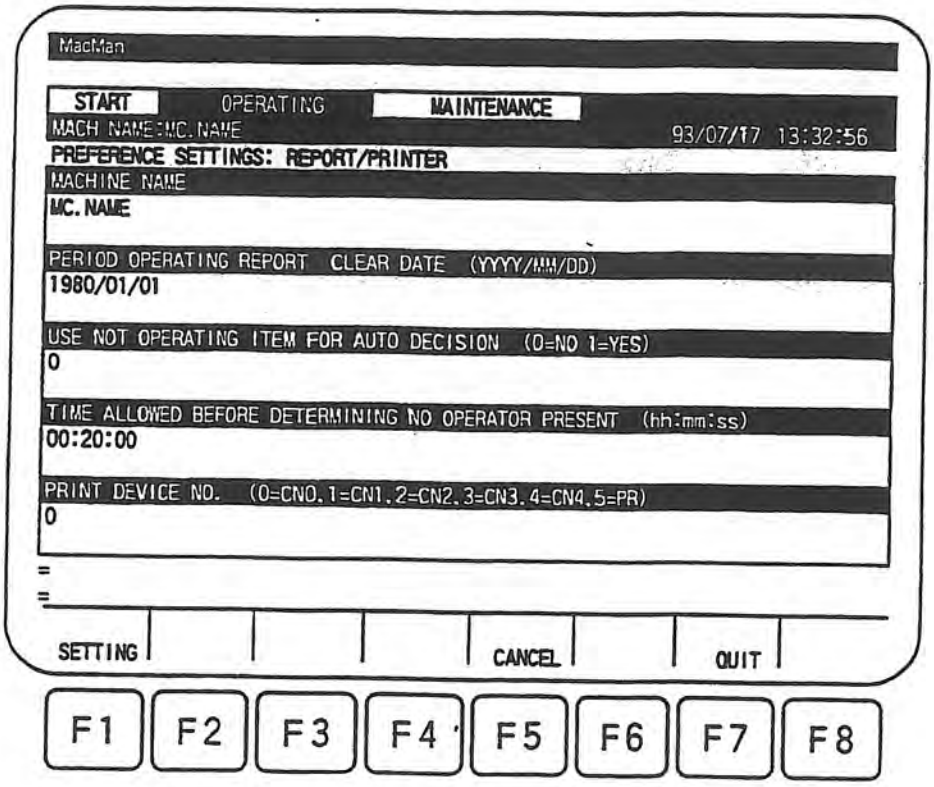
(3) The information (machining report, trouble information) stored in the NC memory is cleared by executing the following commands.

Command	Information to be cleared
CLEAR [WRITE]	Machining report (today, pre day, period) Operating report (today, pre day, period) Operating history (today, pre day) NC status at alarm Alarm history Operation history (console line, operation panel, I/O signal) Variable history (A – D)
CLEAR 2 [WRITE]	Operating report (today, pre day, period)
CLEAR 3 [WRITE]	Machining report (today, pre day, period)
CLEAR 4 [WRITE]	Operating history (today, pre day)
CLEAR 5 [WRITE]	Operation history (console line, operation panel, I/O signals)
CLEAR 6 [WRITE]	Variable history (A – D)
CLEAR 7 [WRITE]	NC status at alarm Alarm history

These commands are valid only on the PREFERENCE SETTINGS screens.

Upon completion of clear, collection of machining information and trouble information begins.

17-1. REPORT/PRINTER Screen



The parameters which are set on the REPORT/PRINTER screen are explained below.

(1) MACHINE NAME

Explanation	Setting
The machine name set here is displayed on all screens of the cell operation management function. The machine name is described in the file when outputting the report or troubleshooting information to a floppy disk. When outputting the report or troubleshooting information to a printer, the machine name is printed at the head of the print-out.	Within eight alphanumeric characters

(2) PERIOD OPERATING REPORT CLEAR DATE

Explanation	Setting
If the date of today agrees with the date set for "PERIOD OPERATING REPORT CLEAR DATE", the operating report in the memory is cleared when the NC is turned on.	Ten characters (fixed) If the number of digits of a number used to express the month or day is not two, prefix "0" to the number. Examples: 1993/07/30 Acceptable 1993/7/30 Not acceptable

(3) USE NOT OPERATING ITEM FOR AUTO DECISION

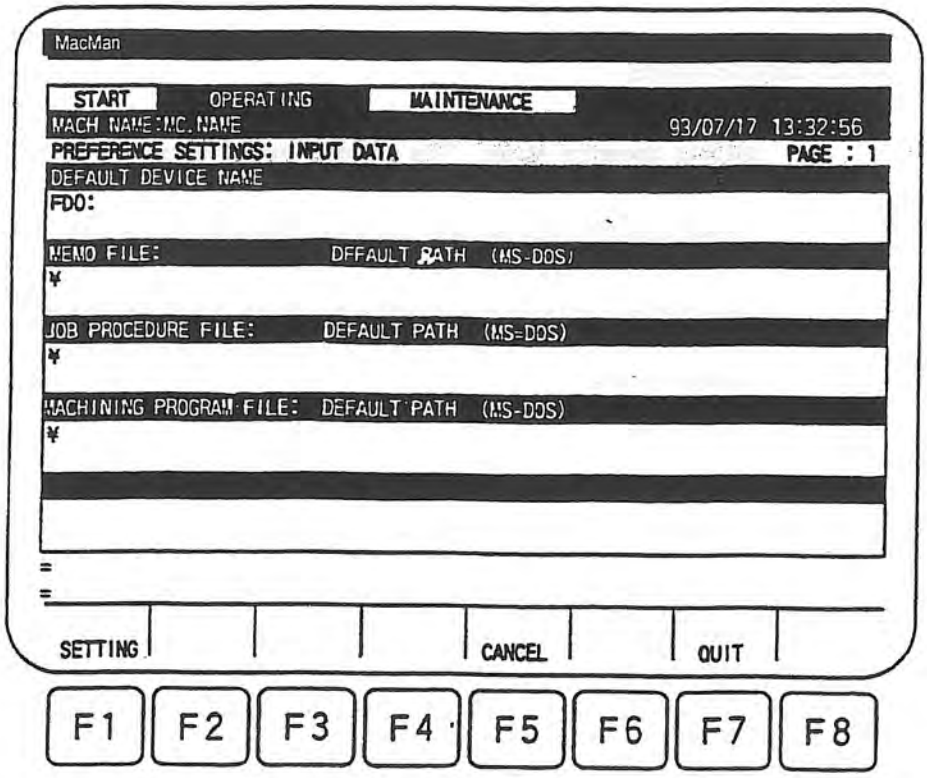
(4) TIME ALLOWED BEFORE DETERMINING NO OPERATOR PRESENT

Explanation	Setting
If you set "1" for "USE NOT OPERATING ITEM FOR AUTO DECISION", the reasons for not-operating status are automatically determined as follows: - If a key on the NC operation panel has not been pressed for the period set for "TIME ALLOWED BEFORE DETERMINING NO OPERATOR PRESENT", the reason for not-operating status is changed to "NO OPERATOR". Note that this automatic change is made only when the current reason is "IN-PRO SETUP". - If a key on the NC operation panel is pressed, the reason for not-operating is automatically changed to "IN-PRO SETUP". Note that this automatic change is made only when the current reason is "NO OPERATOR".	Eight characters (fixed) If the number of digits of a number used to express the time is not two, prefix "0" to the number. Examples: 08:59:00 Acceptable 8:59:00 Not acceptable

(5) PRINT DEVICE NO.

Explanation	Setting
Set the channel where the report or trouble-shooting information should be output to the printer. Output is possible to RS-232C or Centronics interface. Note that the setting simply specifies the channel and the status of the printer is not checked. This means the printer may not be connected to the specified channel.	Set any of the following numbers (0 to 5). 0 to 4: RS-232C interface (serial) 5: Centronics (parallel)

17-2. INPUT DATA Screen



The default device name and path (file) names, used to input a file from the floppy disk, which are set on the INPUT DATA screen are explained below.

Page 1:

(1) DEFAULT DEVICE NAME

Explanation: The default name of the device where the file is read if no device name is specified for file reading operation is set. This device name is also used as the default device for displaying the directory.

The set default device name is used for inputting any of the memo file, job procedure file, and machining program files.

Note that the setting simply specifies the device name and the status of the floppy disk drive is not checked. This means the floppy disk drive may not be installed even if the setting is made.

Setting: FD0: to FD9:

(2) MEMO FILE: DEFAULT PATH (MS-DOS)

(3) JOB PROCEDURE FILE: DEFAULT PATH (MS-DOS)

(4) MACHINING PROGRAM FILE: DEFAULT PATH (MS-DOS)

Explanation: These default path names are used to input a file from the MS-DOS format floppy disk. These specify which directory should be used for reading the file if file input is specified without a path name. They are also used to specify the directory for which the file directory should be displayed if path name is omitted. The default path name can be specified for each of the files (memo file, job procedure file, and machining program file).

Setting: Within 65 characters of alphanumerics; preceded and followed by the back slash code (\). The directory beneath the specified path must conform with the rule of the MS-DOS.

\PART13.DIR\WORK954.DIR\

Page 2:

(5) MEMO FILE: DEFAULT FILE (MS-DOS)

(6) JOB PROCEDURE FILE: DEFAULT FILE (MS-DOS)

(7) MACHINING PROGRAM FILE: DEFAULT FILE (MS-DOS)

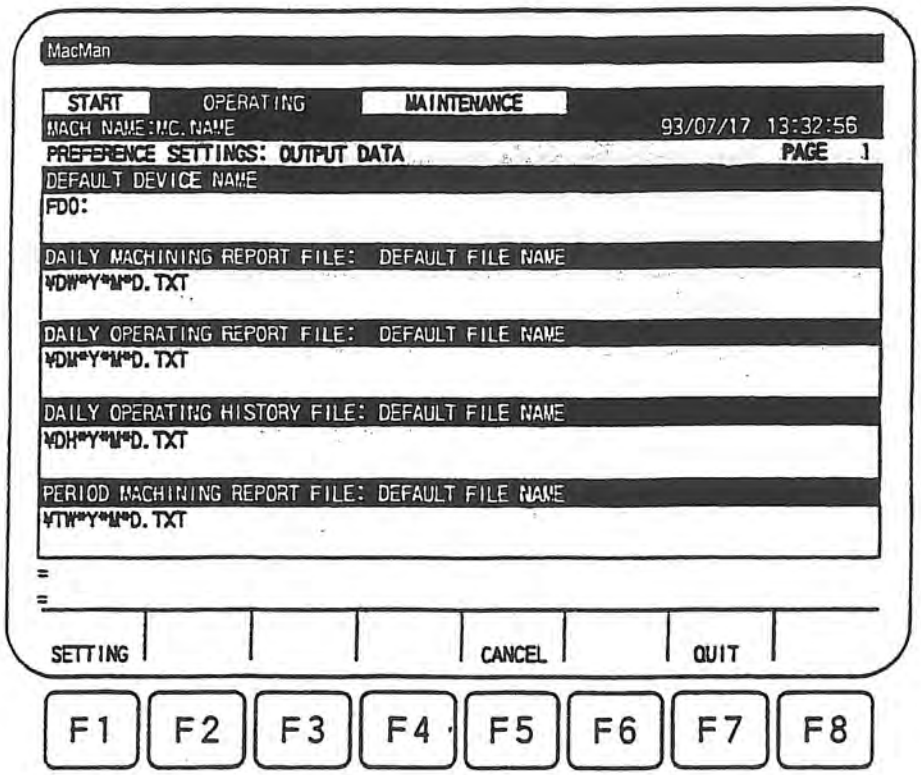
Explanation: These default path names are used to display the directory of the files in the floppy disk. If the display of directory is specified without specifying a file name, the directory of the file specified by the default file name is displayed. The default file name can be specified for each of the files (memo file, job procedure file, and machining program file).

Setting: The main file name is fixed to "*", in other words, you can use only "*" for the main file name. The extension is either "*" or alphanumeric characters (within three characters).

.

*.TXT

17-3. OUTPUT DATA Screen



The default device name and file names, used to output a file to the floppy disk, which are set on the OUTPUT DATA screen are explained below.

Page 1:

(1) DEFAULT DEVICE NAME

Explanation: The default name of the device where the file is output if no device name is specified for file output operation is set.

Note that the setting simply specifies the device name and the status of the floppy disk drive is not checked. This means the floppy disk drive may not be installed even if the setting is made.

Setting: FD0: to FD9:

Page 1 – 4:

(2) DAILY MACHINING REPORT FILE: DEFAULT FILE NAME

(3) DAILY OPERATING REPORT FILE: DEFAULT FILE NAME

(4) DAILY OPERATING HISTORY FILE: DEFAULT FILE NAME

(5) PERIOD MACHINING REPORT FILE: DEFAULT FILE NAME

(6) PERIOD OPERATING FILE: DEFAULT FILE NAME

(7) NC STATUS AT ALARM FILE: DEFAULT FILE NAME

(8) CURRENT NC STATUS FILE: DEFAULT FILE NAME

(9) ALARM HISTORY FILE: DEFAULT FILE NAME

(10) CONSOLE HISTORY FILE: DEFAULT FILE NAME

(11) OPERATION PANEL HISTORY FILE: DEFAULT FILE NAME

(12) I/O SIGNALS HISTORY FILE: DEFAULT FILE NAME

(13) VARIABLES A HISTORY FILE: DEFAULT FILE NAME

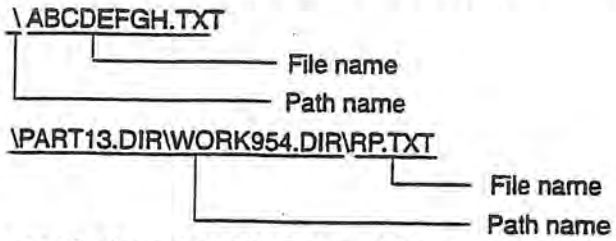
(14) VARIABLES B HISTORY FILE: DEFAULT FILE NAME

(15) VARIABLES C HISTORY FILE: DEFAULT FILE NAME

(16) VARIABLES D HISTORY FILE: DEFAULT FILE NAME

Explanation: The default names of the files used to output the report or troubleshooting information to the floppy disk. Since the report and troubleshooting information are output to the MS-DOS format floppy disk, the default file names to be set must conform to the rule of MS-DOS.

Setting: For a path name, within 65 characters of alphanumerics which are preceded and followed by the back slash code (\) can be input. Set a file name following the path name. Note that the directory name and path name must conform to the MS-DOS rule.



If you specify a specific character (Y, M, D, h, m, s) following an asterisk (*), it is replaced with a two-digit number.

*Y :	Year	(Example: 1993, July 30	→	93)
*M :	Month	(Example: 1993, July 30	→	07)
*D :	Date	(Example: 1993, July 30	→	30)
*h :	Hour	(Example: 8:34:52	→	08)
*m :	Minute	(Example: 8:34:52	→	34)
*s :	Second	(Example: 8:34:52	→	52)

Year/month/day: Today if DAILY REPORT (TODAY) or PERIOD REPORT is output.
Previous day if DAILY REPORT (PRE DAY) is output.

Hour/minute/second: The time at which the file is output.

Example 1: To output DAILY OPERATING REPORT (TODAY) in July 30th of 1993

DW*Y*M*D.TXT → DW930730.TXT

Example 2: To output DAILY OPERATING REPORT (PRE DAY) in July 30th of 1993 (date of previous day: July 29th)

DW*Y*M*D.TXT → DW930729.TXT

Example 3: To output the ALARM HISTORY at 13:30:48 in July 30th of 1993

AL*h*m*s.D*D → AL133048.D30

Note: For the report files (1) to (6), the file format is determined according to the default extension of file name.

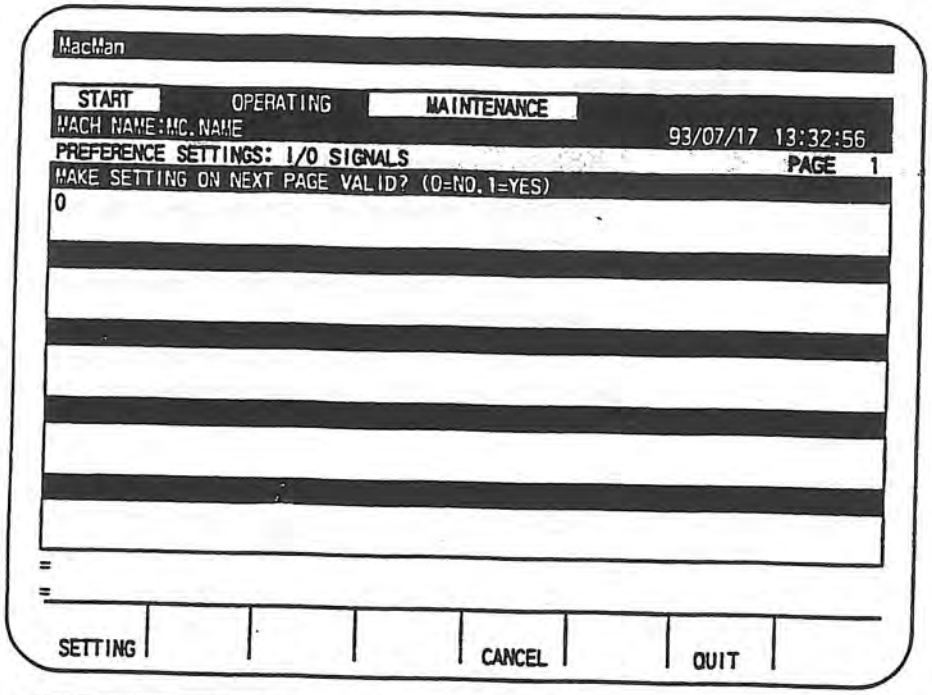
File name configuration: ** ~ **.***

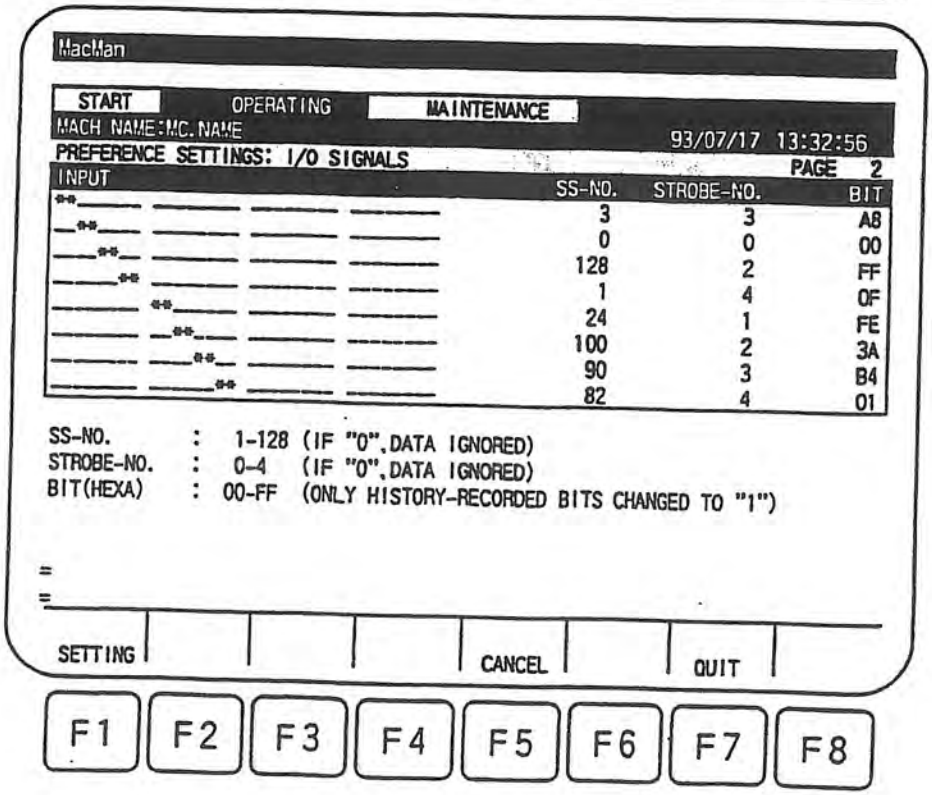
Extension

Main file name

	English Characters	Other Language
Extension = WJ2	Text file	Text file
Extension = WK1	Work sheet file	Work sheet file
Extension ≠ WJ2 Extension ≠ WK1	Text file	Text file

17-4. I/O Signals





Page 1

(1) MAKE SETTING ON NEXT PAGE VALID? (0=NO, 1=YES)

Explanation: You can specify whether or not you want to check the I/O signals which are set on the following pages.

Setting: 0 ..... The predetermined I/O signals (keys, switches, LEDs, etc. on the ..... machine operation panel) are scanned.

- If ON/OFF status of any of these signals is changed, the new status is recorded.
- The status of the I/O signals are not recorded even if the ON/OFF status of them are changed.

1 ..... The I/O signals set on page 2 and later are scanned and if ON/OFF status of any of these signals is changed, the new status is recorded.

Page 2 – Page 5

For the operation history, 16-byte signals (128 signals) are scanned for input and output respectively, and if ON/OFF status of any of the I/O signal has been changed, it is displayed in the following format. □□ corresponds to 1-byte signal (8 signals) (□ = 0 – 9, A – F)

INPUT	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
OUTPUT	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

On pages 2 and 3, input signals are set and on pages 4 and 5, output signals are set.

** — — — — — — —	Set the I/O signal which corresponds to (1) above.
—** — — — — — —	Set the I/O signal which corresponds to (2) above.
——** — — — — —	Set the I/O signal which corresponds to (3) above.
———** — — — — —	Set the I/O signal which corresponds to (4) above.
——— ** — — — —	Set the I/O signal which corresponds to (5) above.
——— —** — — —	Set the I/O signal which corresponds to (6) above.
——— ——** — — —	Set the I/O signal which corresponds to (7) above.
——— ———** — —	Set the I/O signal which corresponds to (8) above.
——— ——— ** — —	Set the I/O signal which corresponds to (9) above.
——— ——— —** — —	Set the I/O signal which corresponds to (10) above.
——— ——— ——** —	Set the I/O signal which corresponds to (11) above.
——— ——— ———**	Set the I/O signal which corresponds to (12) above.
——— ——— ——— ** —	Set the I/O signal which corresponds to (13) above.
——— ——— ——— —** —	Set the I/O signal which corresponds to (14) above.
——— ——— ——— ——**	Set the I/O signal which corresponds to (15) above.
——— ——— ——— ———**	Set the I/O signal which corresponds to (16) above.

(2) SS-NO.

Explanation: The slave station where I/O signals are scanned is set.

Setting: The slave station is selected by a number (1 – 128). If "0" is set, I/O signals of that slave station are not scanned.

(3) STROBE-NO.

Explanation: One strobe corresponds to 1-byte signal (8 signals). Since a slave station has four strobes, it is necessary to specify the strobe to scan.

Setting: The strobe is selected by a number (1 – 4). If "0" is set, I/O signals (8 signals) of the corresponding strobe are not scanned.

(4) BIT (HEXA)

Explanation: Which of the signal of the strobe specified in (2) should be scanned is set.

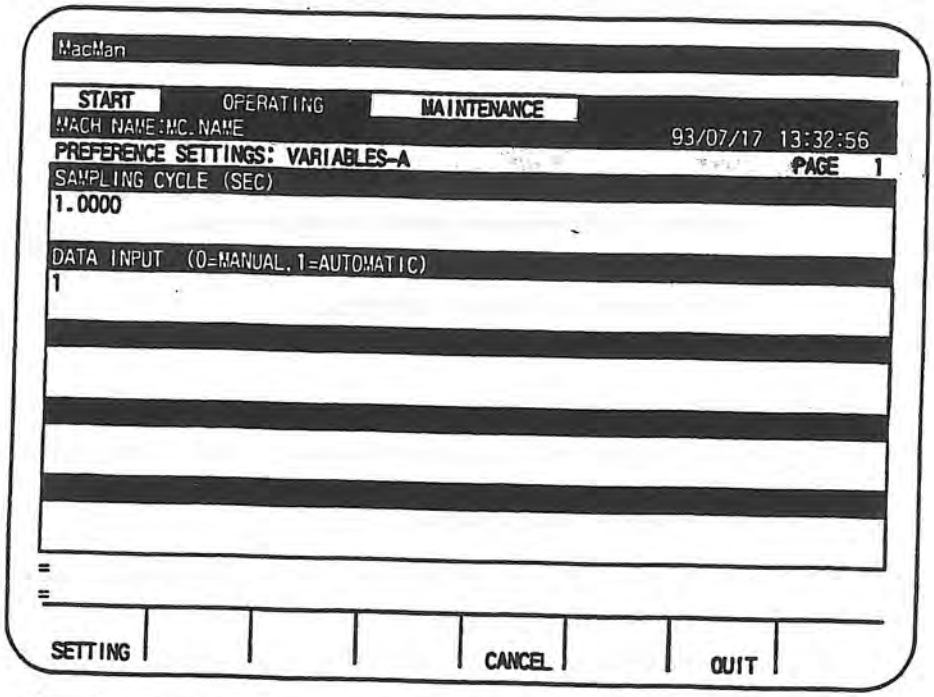
This setting can be effectively used to ignore the signals whose I/O status changes frequently under normal operating conditions, blinking LEDs for example, or to select only specific signals to be scanned within a strobe.

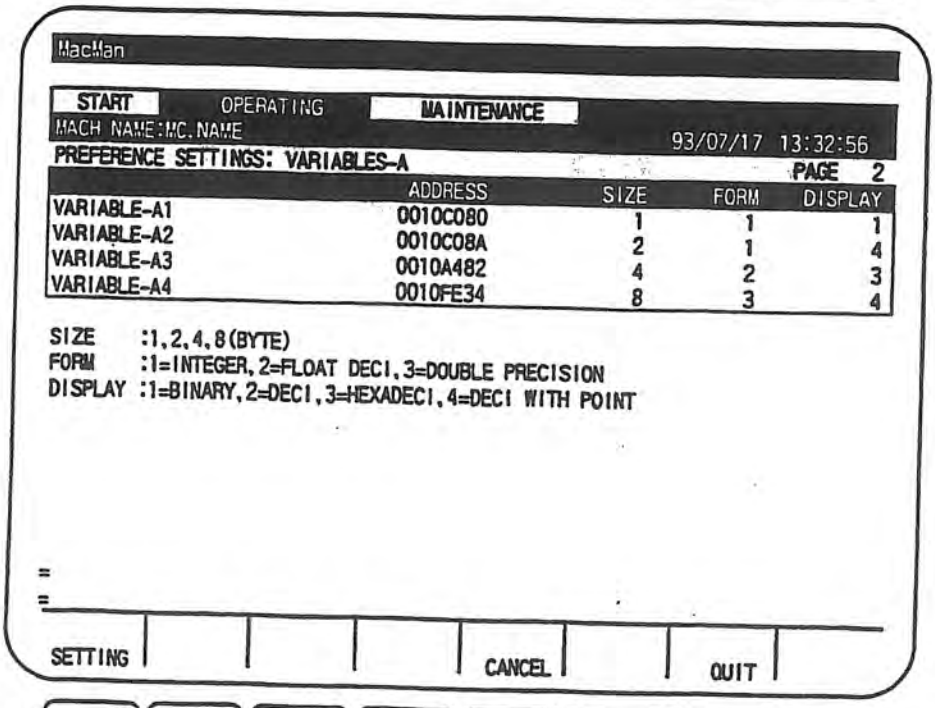
⚠CAUTION : If you press function key [F7] (QUIT) after carrying out the following operation, the history data of the operation history (I/O signals) is cleared.

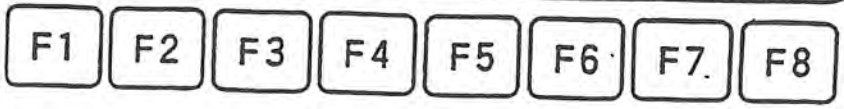
- The setting on page 1 (MAKE SETTING ON NEXT PAGE VALID?) is changed.
- The setting on any of pages 2 to 5 is changed while the setting on page 1 remains unchanged.

If function key [F5] (CANCEL) is pressed, pages 1 to 5 revert to the previous state and the history data of the operation history (I/O signals) is not cleared.

17-5. VARIABLES-A Screen to VARIABLES-D Screen







The sampling cycle (scanning intervals), data input method, and detailed information on the individual variables, which are set on the VARIABLES screen, are explained below.

Page 1:

(1) SAMPLING CYCLE (SEC)

Explanation: The variables history is created by scanning the variables in the NC in fixed intervals. The scanning interval is set for "SAMPLING CYCLE (SEC)".

Setting: Set the scanning interval in units of seconds (up to four digits right to a decimal point).

If the set value is smaller than the base control cycle, sampling is executed in the base control cycle.

If the set value is not a multiple of the base control cycle, sampling is executed in the intervals of a multiple of base control cycle.

(2) DATA INPUT

Explanation: The variables to be scanned can be specified; whether the variables which are set on page 2 should be scanned or those predetermined should be scanned.

The predetermined variables:

Variable 1 Variable which represents the start status (0=not started, 1=started)

Variable 2 Variable which represents the operating status (0=not operating, 1=operating)

Variable 3 Variable which represents the cutting status (0=not cutting, 1=cutting)

Variable 4 Variable which represents the reason for not-operating (0=in-process setup, 1=no operator, 2=waiting for part, 3=maintenance, 4=others)

Setting: 0 ..... Variables set on page 2 are checked.

1 ..... Predetermined variables are checked.

Page 2:

(3) ADDRESS

Explanation: The addresses of variables ?1 – ?D (?=A – D) are set. Remember that whether the address can be referenced or not is not checked.

If "********" is displayed for the address on the variables history screen, it indicates that the set address cannot be referenced.

Setting: The address should be set in hexadecimal. If "0" is set, the corresponding variable is not checked.

(4) SIZE

Explanation: The sizes of variables ?1 – ?D (?=A – D) are set.

Setting: The size should be set in the number of bytes. Input the data following the instructions displayed on the screen.

(5) FORM

Explanation: The attributes of variables ?1 – ?D (?=A – D) are set.

Setting: Input the data following the instructions displayed on the screen.

(6) DISPLAY

Explanation: How the variables ?1 – ?D (?=A – D) are displayed is set.

Setting: Input the data following the instructions displayed on the screen.

⚠CAUTION : (1) If combination of the setting of Form, Size, and Display is incorrect, the function cannot be ended even when function key [F7] (QUIT) is pressed. (Correct combination)

Form	Size	Display
1: Integer	1	1: Binary 2: Decimal 3: Hexadecimal 4: Decimal with decimal point
1: Integer	2 4	2: Decimal 3: Hexadecimal 4: Decimal with decimal point
2: Floating-point number 3: Double precision floating-point number	8	2: Decimal 4: Decimal with decimal point

(2) If function key [F7] (QUIT) is pressed, the history data of variable history is cleared unconditionally. Use function key [F5] (CANCEL) if you have not changed the data.

SECTION 18 LIST OF OUTPUT MESSAGES

On the Main Screen:

(1) (0=IN-PROCESS SETUP, 1=NO OPERATOR, 2=PART WAIT, 3=MAINT, 4=OTHER)

WHICH NOT OPERATING

If you press function key [F1] (WHICH NON OP) at the main screen of the cell operation management function, this message is displayed. Input the number heading the corresponding item using the number key. To cancel the inputting of the reason for not-operating status, simply press the WRITE key. The processing restarts without changing the reason for not-operating status.

On the MEMO DISPLAY, JOB PROCEDURE DISPLAY, and MACHINING PREPARATION Screens:

(1) CANNOT DETERMINE THE NAME OF MEMO FILE.

This message is displayed if you switch the display to the MEMO DISPLAY screen before reading any memo files. When the screen is changed to the MEMO DISPLAY screen, the system attempts to read the previously read memo file. The system fails to read in this attempt if no memo files have been read. Once a memo file is read, this message will not appear. However, if you clear the file registered as the memo file by selecting the program operation mode, this message will be displayed when you switch the display to the MEMO DISPLAY screen.

(2) CANNOT DETERMINE THE NAME OF JOB PROCEDURE FILE.

This message is displayed if you switch the display to the JOB PROCEDURE DISPLAY screen before reading any job procedure files. When the screen is changed to the JOB PROCEDURE DISPLAY screen, the system attempts to read the previously read job procedure file. The system fails to read in this attempt if no job procedure files have been read. Once a job procedure file is read, this message will not appear. However, if you clear the file registered as the job procedure file by selecting the program operation mode, this message will be displayed when you switch the displayed to the JOB PROCEDURE DISPLAY screen.

(3) CANNOT DISPLAY MAXIMUM NUMBER OF LINES EXCEEDED.

This message is displayed if the file (memo file or job procedure file) currently read exceeds 1280 pages (17920 lines). When this message is displayed while the screen is scrolled, scrolling toward the end of the file is disabled. In this case, however, scrolling to the start of the file is allowed.

(4) ERROR IN INPUT DATA.

This message is displayed if a command, not conforming to the format, is given while a file is read. For example, the message is displayed if you execute the previous command which was created in other screen. When this message is displayed, it is necessary to create a correct command.

(5) FILE NAME NEEDED TO READ MACHINING PROGRAM.

This message is displayed if you omit a file name when reading a machining program file by displaying the MACHINING PREPARATION screen. In the MEMO DISPLAY and JOB PROCEDURE DISPLAY screens, if you omit a file name, the file previously read is re-displayed. However, the file name must be specified when reading a machining program.

(6) ERROR IN SPECIFIED FILE NAME.

This message is displayed if you specify a device name other than the floppy disk drive or a path or file name which does not conform to MS-DOS rule when reading a file. It is also displayed when a file name does not conform to the OSP rule because the read file is stored to the NC memory. If this message is displayed, create the correct command.

a) Device name

FD0: to FD9: Other device name is not acceptable.

b) Path name

1) Alphanumeric characters of up to 56 characters, preceded and followed by the back slash (\) code. The directory beneath the specified path must conform to the MS-DOS rule.

2) Lower case characters are not acceptable.

c) File name

1) A main file name is alphanumeric characters of up to 16 characters, beginning with an alphabetic letter.

2) An extension is alphanumeric characters of up to 3 characters, beginning with an alphabetic letter. An extension is specified following a main file name using a period for a delimiter.

3) Lower case characters are not acceptable.

(7) SPECIFIED FILE DOESN'T EXIST.

This message is displayed if you specify a file name or path name which does not exist when reading a file. If this message is displayed, check and correct the command.

(8) ERROR DURING FILE INPUT.

This message is displayed if the system fails to read a file. Probable cause is defective floppy disk; change the floppy disk to a new one.

(9) CANNOT INPUT SELECTED FILE.

This message may be displayed if you specify the same file name as the one used for the main program selected presently when reading a file (for machining centers). If this message is displayed, change the file name to be read.

(10) SPECIFIED FILE ALREADY EXISTS. OVERWRITE? (Y/N)

This message is displayed if you specify the same file name as the one used for the file resident in the NC memory (MD1:).

If the existing file may be updated, input Y, or if the existing file should be remained in the memory, input N. Then, press the WRITE key.

(11) FLOPPY DISK FORMAT IS INCOMPATIBLE.

This message is displayed if the floppy disk is neither MS-DOS format nor OSP format when reading a file from the floppy disk.

Use the floppy disk formatted in MS-DOS or OSP.

(12) CANNOT INPUT WRITE PROTECT.

This message is displayed if you specify the same file name as the name of the write-protected file. If this message is displayed, change the file name of the file to be read.

On the REPORT and TROUBLESHOOTING INFORMATION Screens:

(1) PRINT OUT DATA? (Y/N)!

This message is displayed requesting your confirmation when you pressed function key [F5] (PRINTER OUTPUT).

To output the data to the printer, first make sure that the printer is ready and press [Y] and WRITE keys. If you do not want to output the data to the printer, press [N] and WRITE keys.

(2) OUTPUT DATA? (Y/N)!

This message is displayed requesting your confirmation when you press function key [F6] (DATA OUTPUT).

To output the data to the floppy disk, first make sure that a floppy disk is set in the drive and press [Y] and WRITE keys. If you do not want to output the data to the floppy disk, press [N] and WRITE keys.

(3) SPECIFIED FILE ALREADY EXISTS. OVERWRITE? (Y/N)

This message is displayed if you specify the same file name as the one used for the file existing in the floppy disk.

If the existing file may be updated, input Y, or if the existing file should be remained in the floppy disk, input N. Then, press the WRITE key.

(4) FLOPPY DISK FORMAT IS INCOMPATIBLE.

This message is displayed if the floppy disk is neither MS-DOS format nor OSP format when reading a file from the floppy disk.

Use the floppy disk formatted in MS-DOS or OSP.

(5) ERROR DURING FILE OUTPUT.

This message is displayed if the system fails to output a file to the floppy disk. Probable cause is defective floppy disk; change the floppy disk to a new one.

On the CURRENT NC STATUS and OPERATION HISTORY (I/O SIGNAL) Screens:

(1) DATA HAS BEEN OUTPUT.

OUTPUT FILE REQUIRED FOR I/O SIGNAL ANALYSIS?(Y/N)

When you press function key [F6] (DATA OUTPUT), the data is output and then this message is displayed after the completion of data output to ask you if you want output of a file which is necessary for I/O analysis.

For the current NC status (only when 60001:FN-IODT is selected) and operation history (I/O signals), the ON/OFF status of I/O signals is described in hexadecimal.

This file is necessary if you want to analyze the I/O signals in the same manner as with the check data display in automatic operation mode.

Attribute of the file necessary for I/O signal analysis: Binary

Name of the file necessary for I/O signal analysis: □□□□□□□□.PBU

(2) OUTPUT FILE REQUIRED FOR I/O SIGNAL ANALYSIS?(Y/N)

If there is more than one file (□□□□□□□□.PBU) which is necessary for I/O signal analysis, this message is displayed for the second and later files.

On the HISTORY Screens:

(1) SAMPLING STOPPED. RESTART SAMPLING? (Y/N)!

When you press function key [F5] (PRINTER OUTPUT) or [F6] (DATA OUTPUT) to output the data to the printer or floppy disk, this message is displayed after the completion of data output to ask you if you want to restart data collection.

To restart data collection, press [Y] and WRITE keys. If you do not want to restart data collection, press [N] and WRITE keys.

Note: On the VARIABLES HISTORY screen, data collection is suspended in the same manner while the data is output. However, data collection restarts automatically after the completion of data output.

On the PREFERENCE SETTINGS Screen:

(1) ERROR IN INPUT DATA.

This message is displayed if the input data is outside the specified range.

If this message is displayed, check if you followed the instruction to input the data and also the file name if it is correct.

(2) ERROR IN SIZE, FORM, DISPLAY ATTRIBUTE COMBINATION.

In the second and later pages of variables A to D, the system checks the combination of the size, attribute and display attribute which have been input when you press function key [F7] (QUIT) or a page key. This message is displayed if the combinations of the input data are incorrect. If this message is displayed, input the data correctly.

Note: If "0" is set for address, data combination check is no made because data collection is not made for such variables.

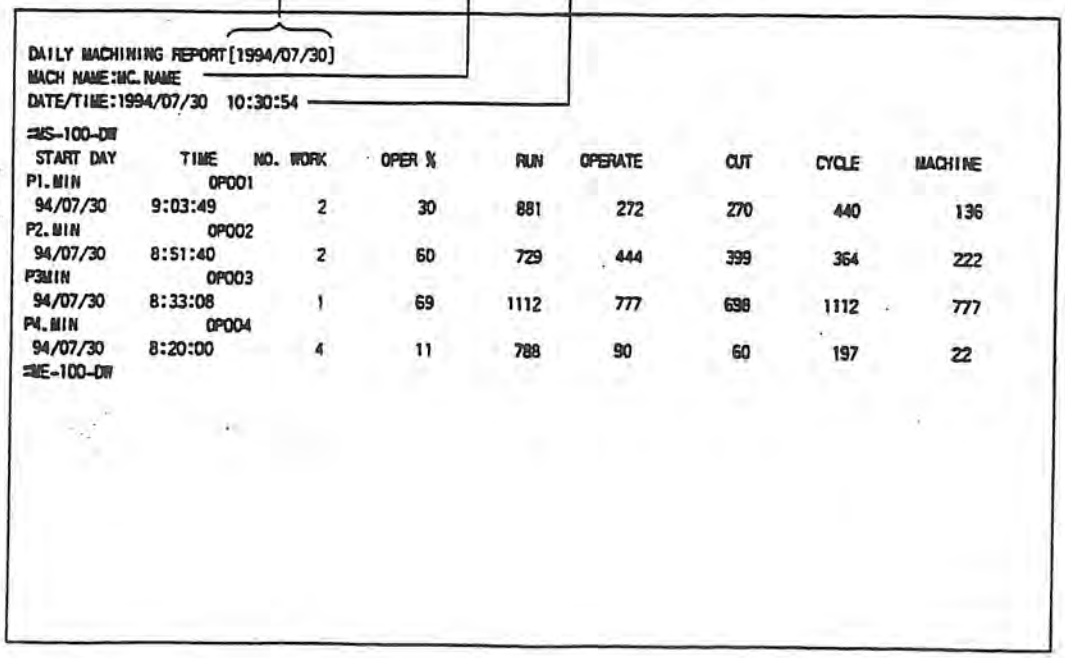
SECTION 19 OUTPUT FILES

(1) Daily Machining Report (Text File)

Date of today : If DAILY REPORT (TODAY) is output
Date of previous day : If DAILY REPORT (PRE DAY) is output

Machine name displayed at the upper left area on the MacMan mode screen

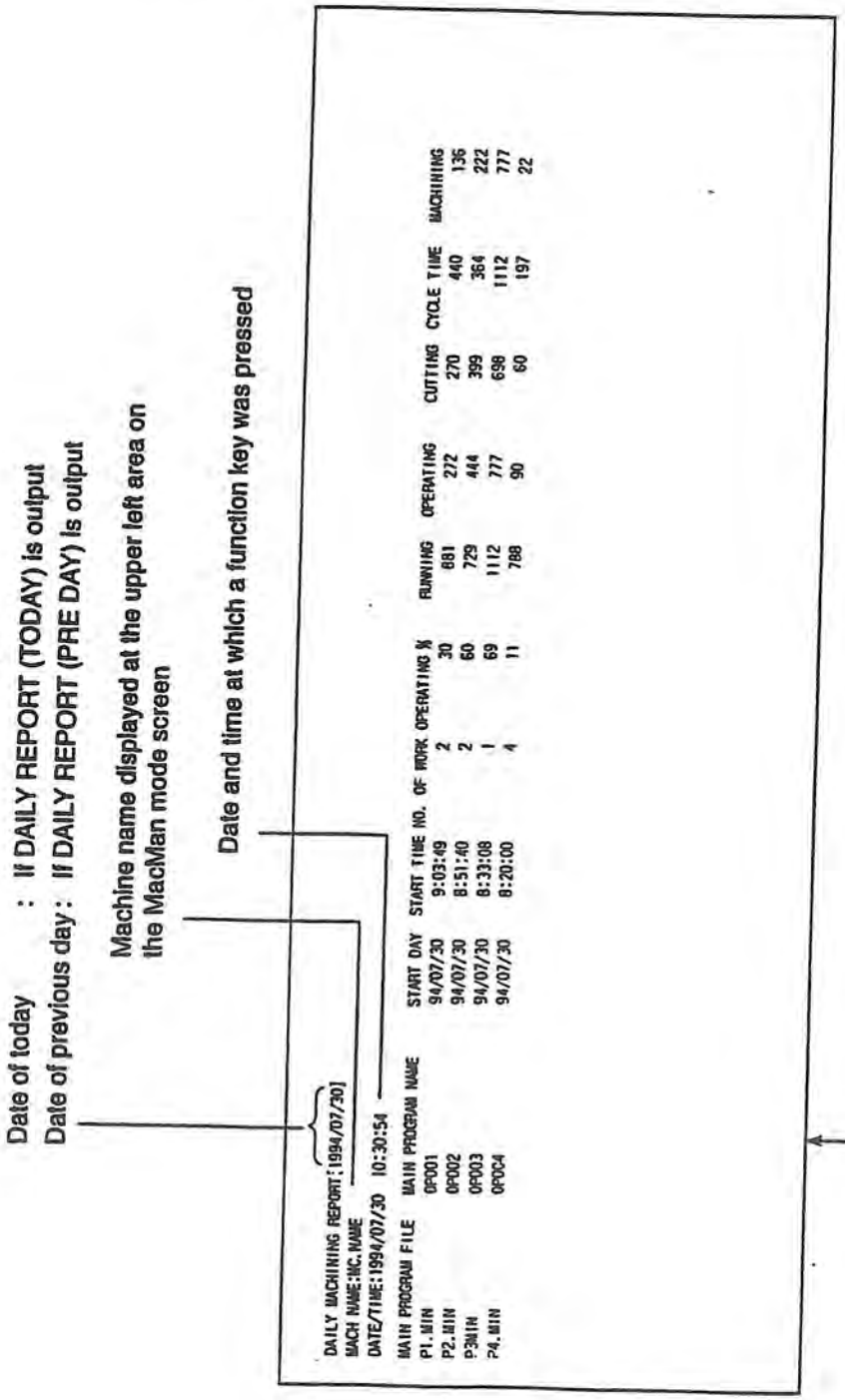
Date and time at which a function key was pressed



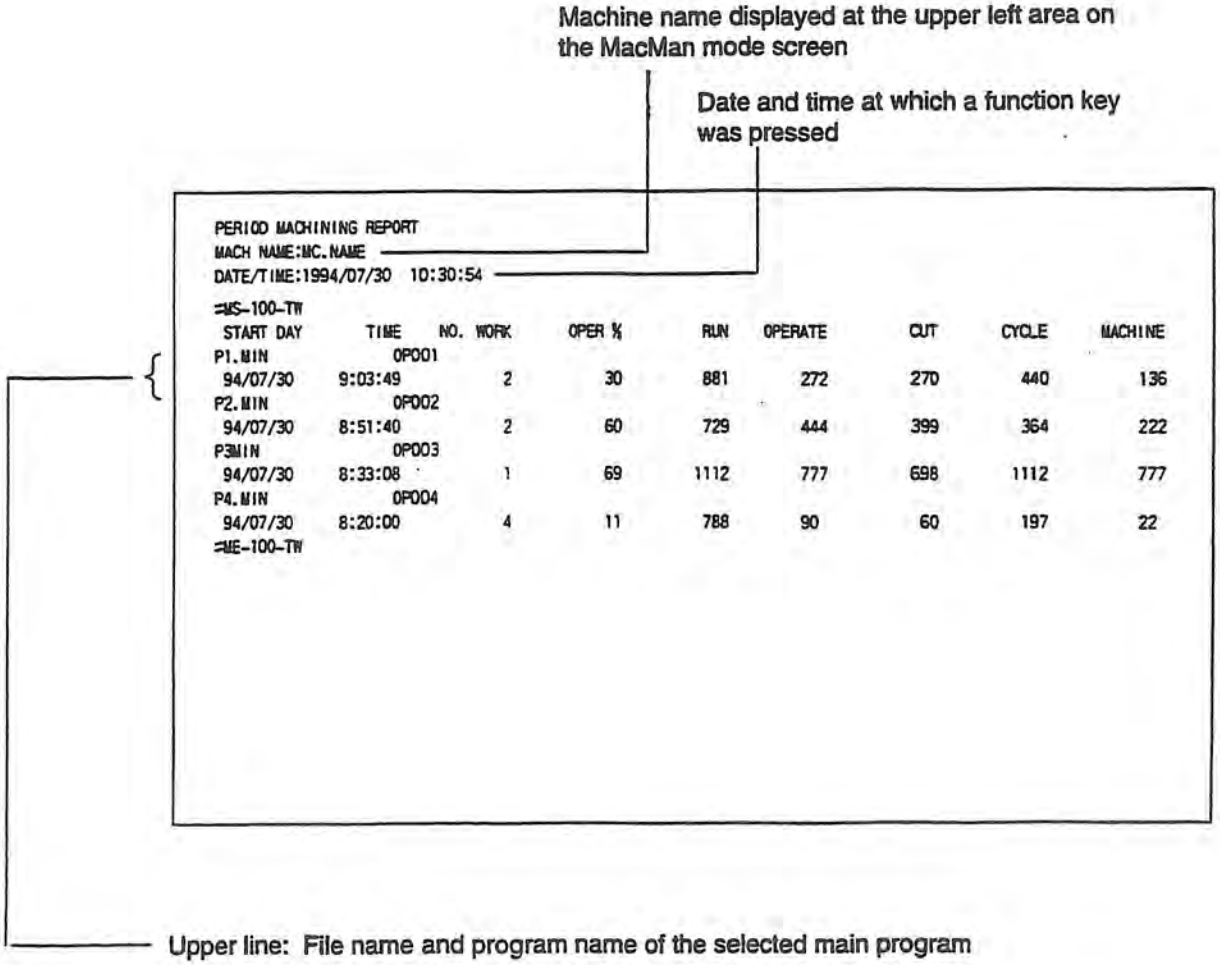
```
DAILY MACHINING REPORT[1994/07/30]
MACH NAME:MC.NAME
DATE/TIME:1994/07/30  10:30:54
=MS-100-DW
 START DAY      TIME     NO. WORK    OPER %      RUN     OPERATE      CUT     CYCLE     MACHINE
P1.MIN              OP001
 94/07/30    9:03:49          2        30      881         272      270       440         136
P2.MIN              OP002
 94/07/30    8:51:40          2        60      729         444      399       364         222
P3MIN               OP003
 94/07/30    8:33:08          1        69     1112         777      698      1112         777
P4.MIN              OP004
 94/07/30    8:20:00          4        11      788          90       60       197          22
=ME-100-DW
```

Upper line: File name and program name of the selected main program
Lower line: Report data (time data is displayed in units of seconds)

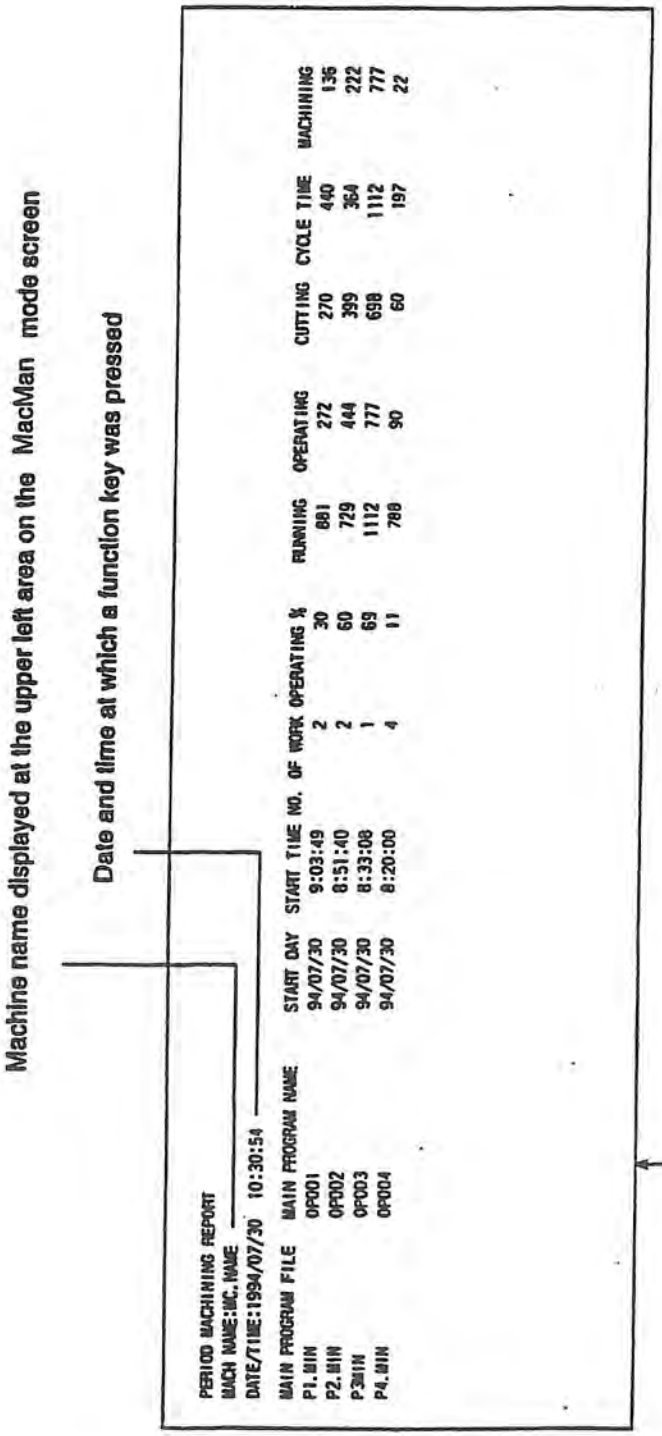
(2) Daily Machining Report (Work Sheet)



(3) Period Machining Report (Text File)



(4) Period Machining Report (Work Sheet)



PERIOD MACHINING REPORT
MACH NAME:MC. NAME
DATE/TIME:1994/07/30 10:30:54

MAIN PROGRAM FILE	MAIN PROGRAM NAME	START DAY	START TIME	NO. OF WORK	OPERATING %	RUNNING	OPERATING	CUTTING	CYCLE TIME	MACHINING
P1.MIN	OP001	94/07/30	9:03:49	2	30	881	272	270	440	136
P2.MIN	OP002	94/07/30	8:51:40	2	60	729	444	399	364	222
P3MIN	OP003	94/07/30	8:33:08	1	69	1112	777	698	1112	777
P4.MIN	OP004	94/07/30	8:20:00	4	11	788	90	60	197	22

Machine name displayed at the upper left area on the MacMan mode screen

Date and time at which a function key was pressed

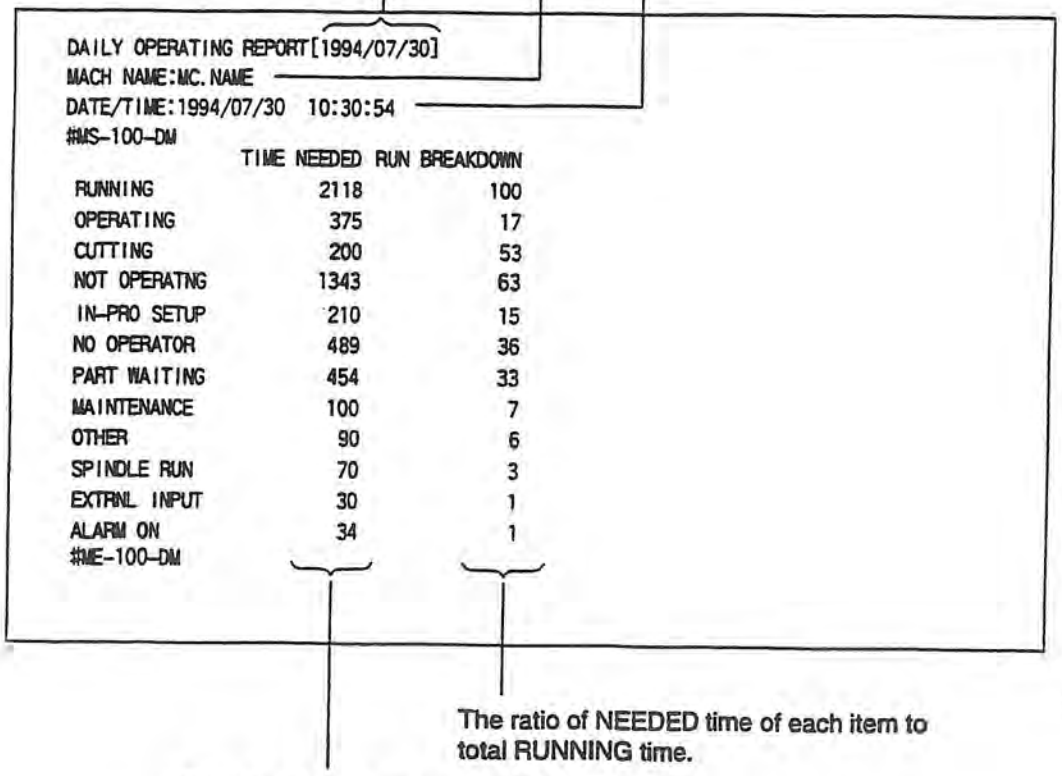
Display and analysis is possible using Lotus 1-2-3 (R2)
In the file, line data is not included.

(5) Daily Operating Report (Text File)

Date of today : If DAILY REPORT (TODAY) is output
Date of previous day : If DAILY REPORT (PRE DAY) is output

Machine name displayed at the upper left area on the MacMan mode screen

Date and time at which a function key was pressed



```
DAILY OPERATING REPORT[1994/07/30]
MACH NAME:MC.NAME
DATE/TIME:1994/07/30  10:30:54
#MS-100-DM
                TIME NEEDED  RUN BREAKDOWN
 RUNNING           2118          100
 OPERATING          375           17
 CUTTING            200           53
 NOT OPERATNG      1343           63
 IN-PRO SETUP       210           15
 NO OPERATOR        489           36
 PART WAITING       454           33
 MAINTENANCE        100            7
 OTHER               90            6
 SPINDLE RUN         70            3
 EXTRNL INPUT        30            1
 ALARM ON            34            1
#ME-100-DM
```

The ratio of NEEDED time of each item to total RUNNING time.

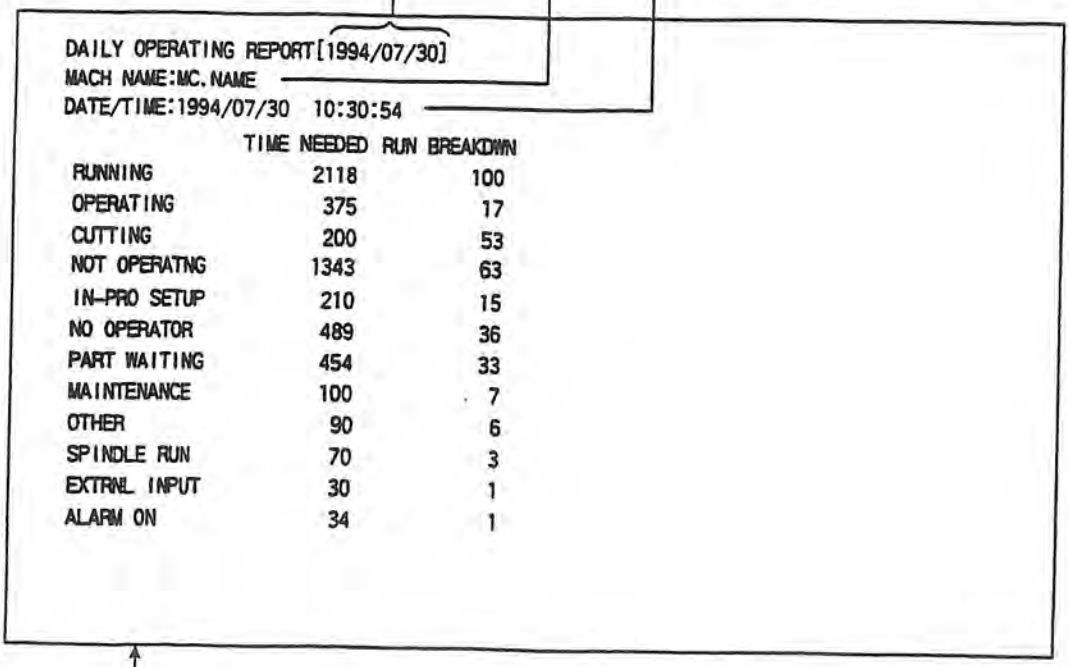
Time data is displayed in units of seconds.

(6) Daily Operating Report (Work Sheet File)

Date of today : If DAILY REPORT (TODAY) is output
Date of previous day : If DAILY REPORT (PRE DAY) is output

Machine name displayed at the upper left area on the MacMan mode screen

Date and time at which a function key was pressed



DAILY OPERATING REPORT[1994/07/30]
MACH NAME:MC. NAME
DATE/TIME:1994/07/30 10:30:54

	TIME NEEDED	RUN BREAKDWN
RUNNING	2118	100
OPERATING	375	17
CUTTING	200	53
NOT OPERATNG	1343	63
IN-PRO SETUP	210	15
NO OPERATOR	489	36
PART WAITING	454	33
MAINTENANCE	100	7
OTHER	90	6
SPINDLE RUN	70	3
EXTRNL INPUT	30	1
ALARM ON	34	1

Display and analysis is possible using Lotus 1-2-3 (R2)
In the file, line data is not included.

(7) Period Operating Report (Text File)

The date at which the PERIOD REPORT was cleared.
In this case, the report is made from 1993 April 01.

Machine name displayed at the upper left area on the MacMan mode screen

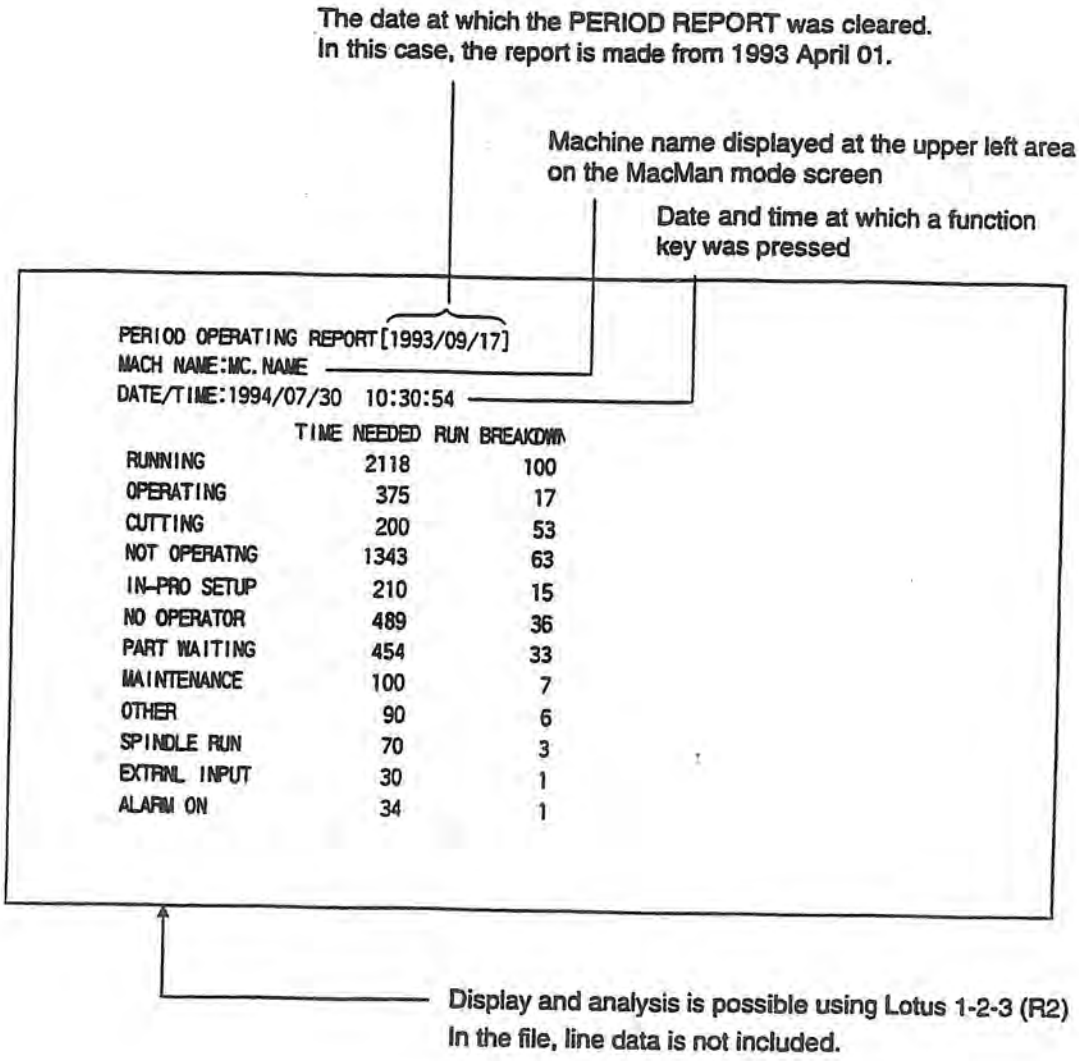
Date and time at which a function key was pressed

```
PERIOD OPERATING REPORT[1993/09/17]
MACH NAME:MC.NAME
DATE/TIME:1994/07/30  10:30:54
#MS-100-TM
                TIME NEEDED RUN BREAKDOWN
RUNNING               2118          100
OPERATING              375           17
CUTTING                200           53
NOT OPERATNG          1343           63
IN-PRO SETUP           210           15
NO OPERATOR            489           36
PART WAITING           454           33
MAINTENANCE            100            7
OTHER                   90            6
SPINDLE RUN             70            3
EXTRNL INPUT            30            1
ALARM ON                34            1
#ME-100-TM
```

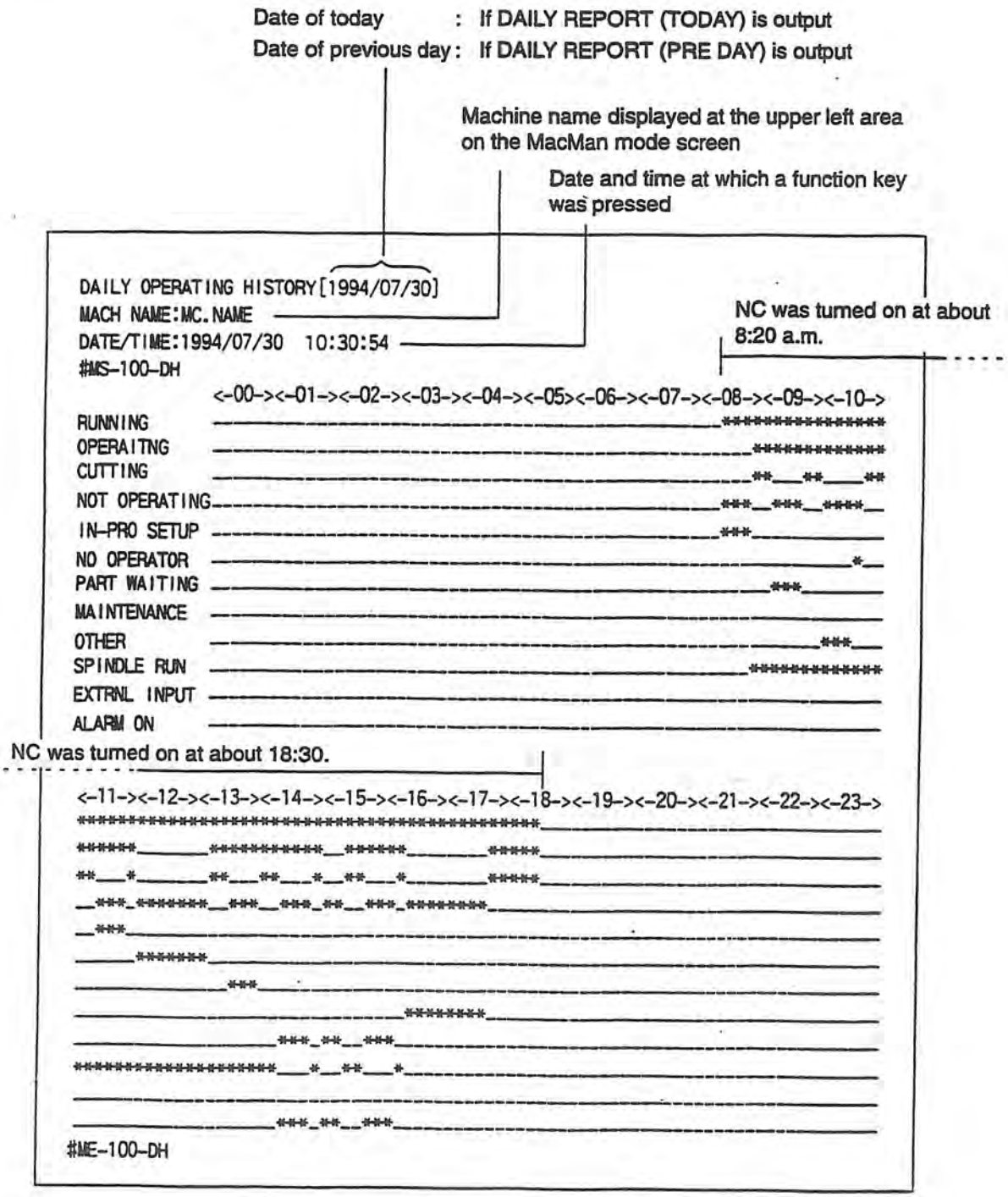
The ratio of NEEDED time of each item to total RUNNING time.

Time data is displayed in units of seconds.

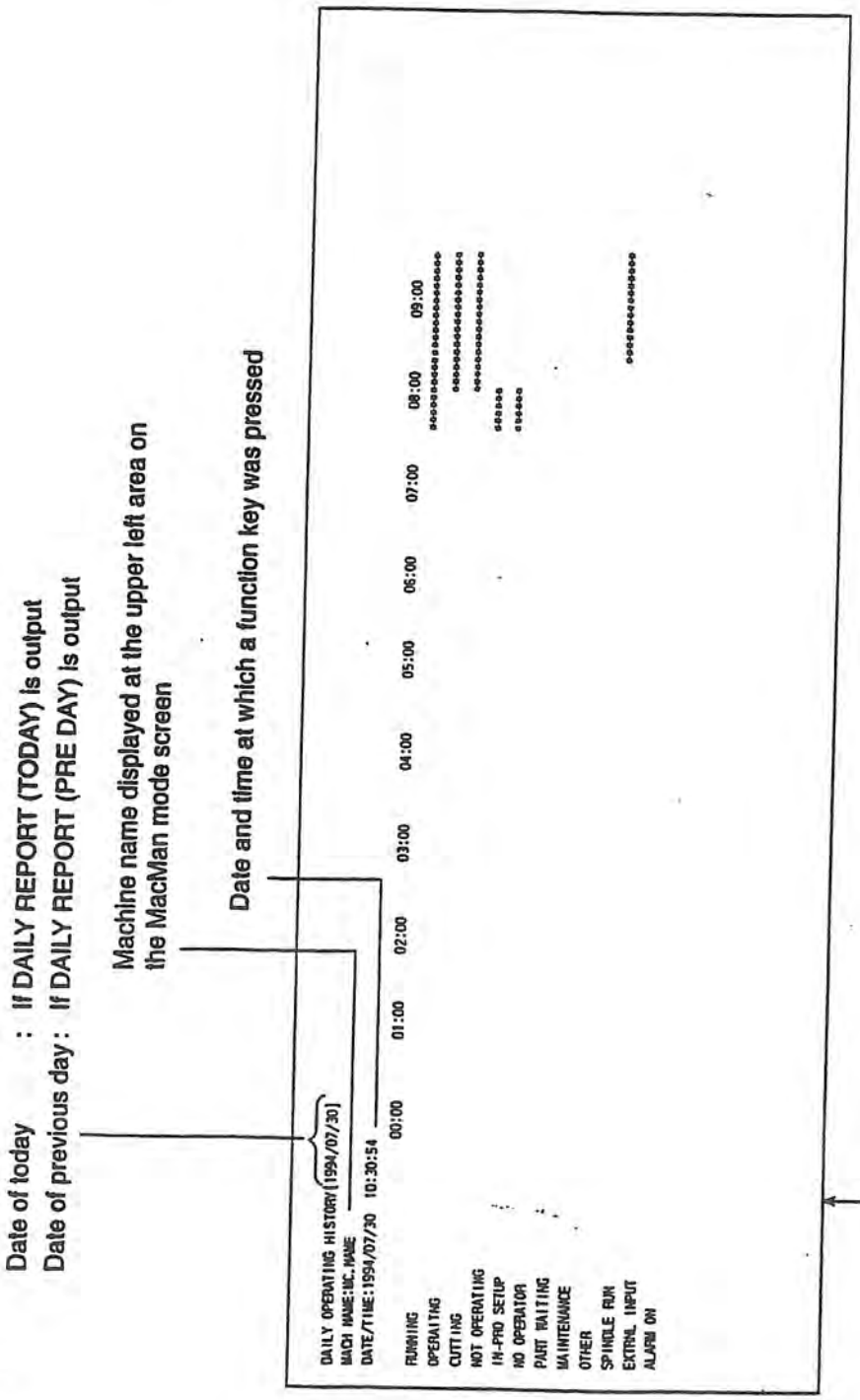
(8) Period Operating Report (Work Sheet File)



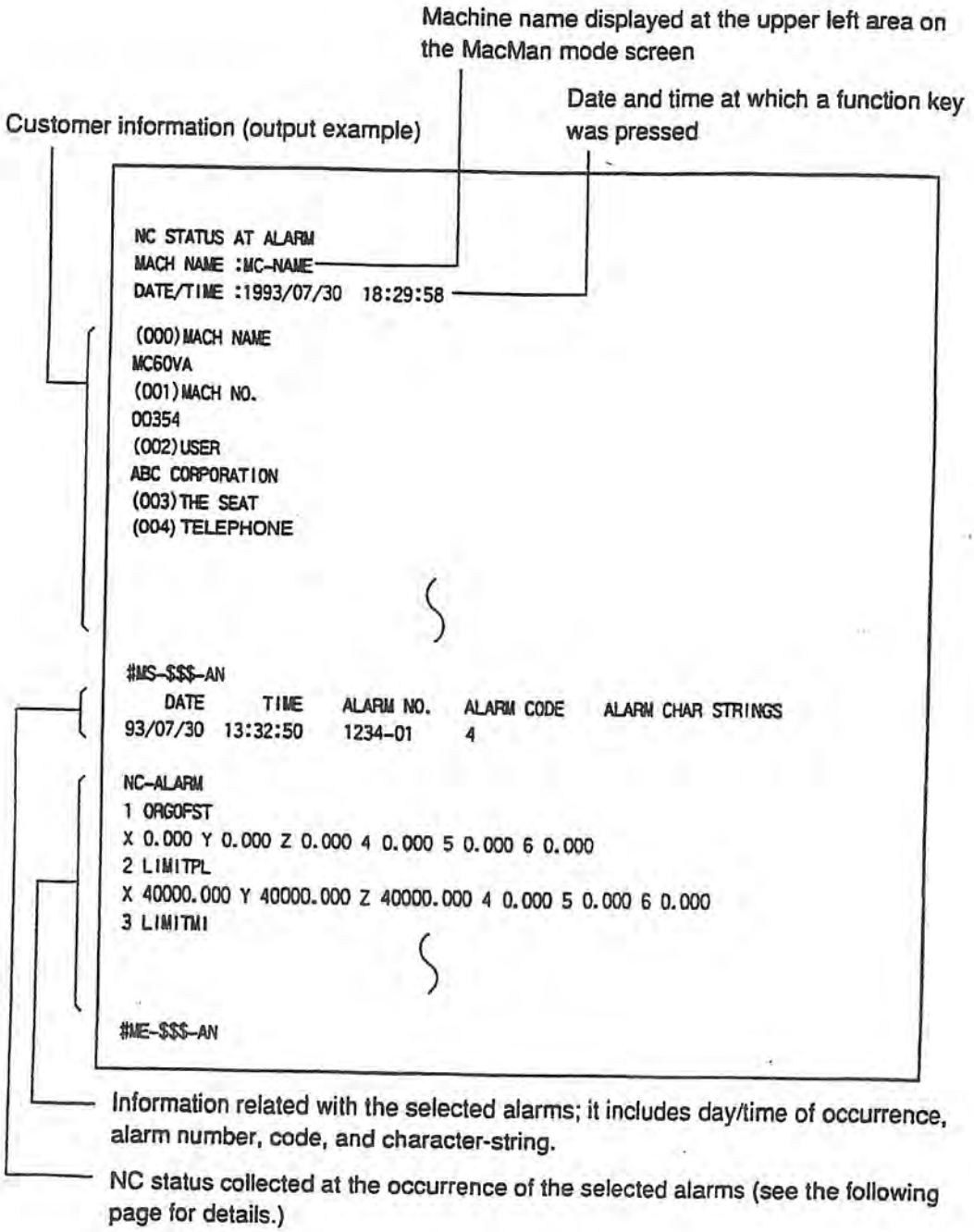
(9) Daily Operating History (Text File)



(10) Daily Operating History (Work Sheet File)



(11) NC Status at Alarm (Text File)



The following gives the NC status data which are collected at an occurrence of an alarm.

Note: The data actually displayed depends on your machine and NC specifications.

[Lathe]

MANMDF	:	Manual mode status data
MPWFF	:	Main program write completed status data
ECINDATA	:	EC input data
ECOUTDATA	:	EC output data
RCON	:	Command value
HOMEP	:	Home position
RCONM	:	M-axis command value
RAPAM	:	M-axis actual value
ORGOF	:	Zero offset value
PRGPL	:	Program limit (plus)
PRGML	:	Program limit (minus)
NEGFSAA	:	Coordinate value in the minus area at the graphic front view
PLGFSAA	:	Coordinate value in the plus area at the graphic front view

[Machining center]

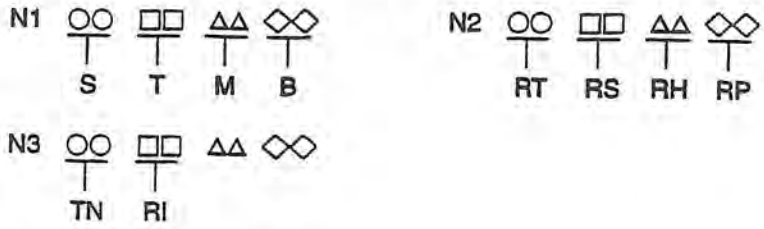
ORGOFST	:	System parameter/zero (machine) offset
LIMITPL	:	System parameter/plus travel limit
LIMITMI	:	System parameter/minus travel limit
PRLMTPL	:	User parameter/plus program travel limit
PRLMTMI	:	User parameter/minus program travel limit
WKCONO	:	Work coordinate system number used presently
WKORGOF	:	Work coordinate system offset used presently
LOCOSF	:	Local coordinate shift used presently
TLLNCRNO	:	Tool length offset number used presently
TLLNCR	:	Tool length offset data used presently
TLRDCRNO	:	Cutter radius compensation number used presently
TLRDCR	:	Cutter radius compensation data used presently
BLKCNT	:	Block counter data
ORDER	:	Coordinate value calculated by interpolation function (machine coordinate value)
TARGET	:	Target value in the command (machine coordinate value)
REST	:	Remaining distance to the target value (machine coordinate value)
UNIT	:	Unit movement distance calculated by interpolation function
TGTRC1 TO 3	:	History of target value (machine coordinate value) (collected in the order of TGTRC1 → TGTRC2 → TGTRC3 → TGTRC1

[Machining center]

RTTRC1 TO 3 : History of distance (machine coordinate value) to the target value (collected in the order of RTTRC1 → RTTRC2 → RTTRC3 → RTTRC1)

TRCWP : 0 = TGTRC1 and RTTRC1 indicate the latest data
4 = TGTRC2 and RTTRC2 indicate the latest data
8 = TGTRC3 and RTTRC3 indicate the latest data

STMHLDF : Whether or not S, T, and M commands exist
(00 = command existing, 80 = command not existing)

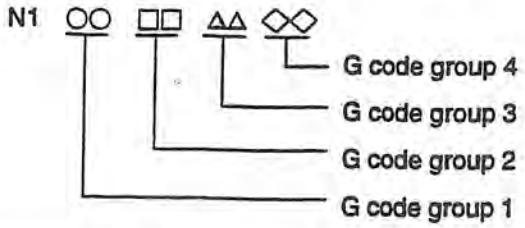


EXS : Data specified by S code

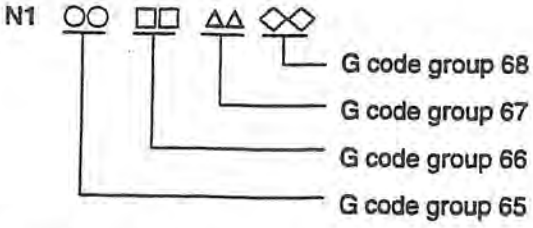
EXNT : Data specified by T code

EXM : Data specified by M code

GCODE1 : Presently valid G code data (hexadecimal)



GCODE2 : Presently valid G code data (hexadecimal)



MCODE : Presently valid M code data

[Machining center]

PRGMOD : 0 = Ordinary status
1 = During the execution of fixed cycle
2 = In the cutter radius compensation mode
3 = In the 3D tool length offset mode
4 = During the execution of area machining
5 = During movement to the home position
6 = During movement to the home position called by M code

NCTOEC : Communication data: From EC to NC

ECTONC : Communication data: From NC to EC

DIAGMSG1 TO 16 : Machine diagnosis message given at the time the alarm occurred

[Common to Lathe and machining center (feed axis control system)]

RAPA : Actual value

SRCON : Position command value (absolute)

SRCOND : Position command value (incremental)

FALM : Flag indicating an occurrence of alarm

FEXALM : Flag indicating an exception error

PALMN : Alarm number

FSAOP : Flag indicating the servo amplifier operation enabled state to the main processor

RALMDT : Alarm data

PERRSTS : Internal status

[Common to Lathe and machining center (spindle control system)]

COMMAND1 : Sequential mode (base command output of operation command)

COMMAND2 : Sequential mode (additional command output of operation command)

RE_COMMAND1 : Sequential mode (base command response of operation command response)

RE_COMMAND2 : Sequential mode (additional command response of operation command response)

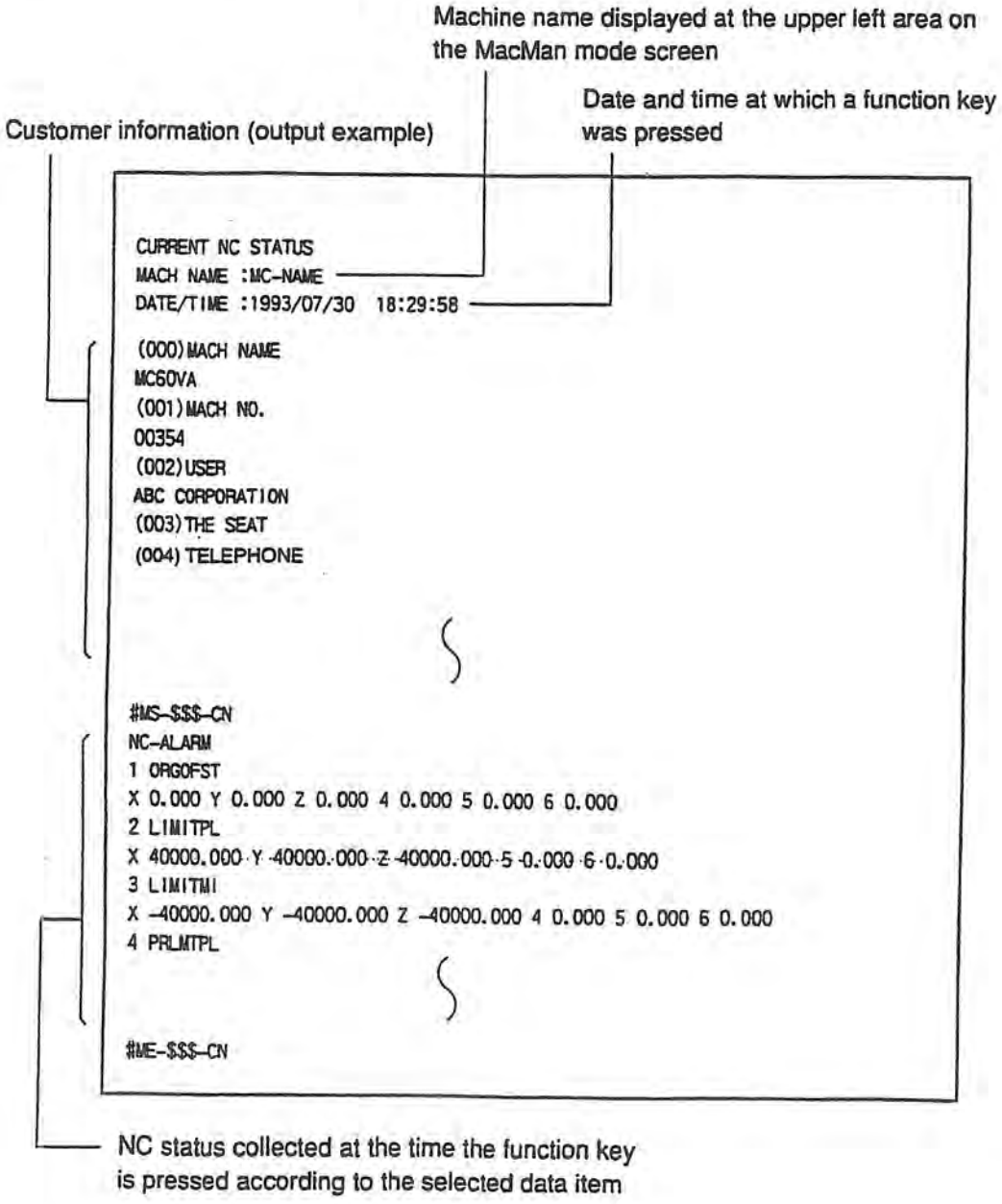
QSTATUS : Sequential mode (control status)

PDIAG : Sequential mode (self-diagnosis data of control status data)

PALMN : Sequential mode (alarm number of control status data)

RALRMDT : Sequential mode (alarm data of control status data)

(12) Current NC Status (Text File)



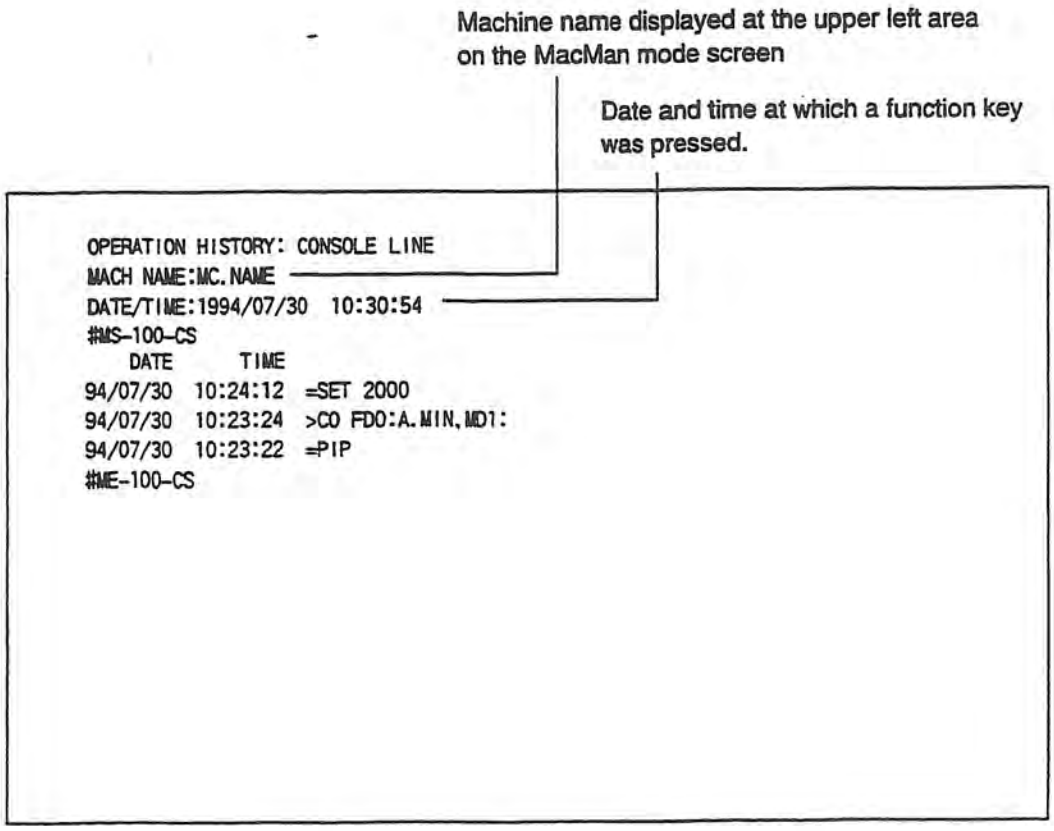
(13) Alarm History (Text File)

Machine name displayed at the upper left area on the MacMan mode screen

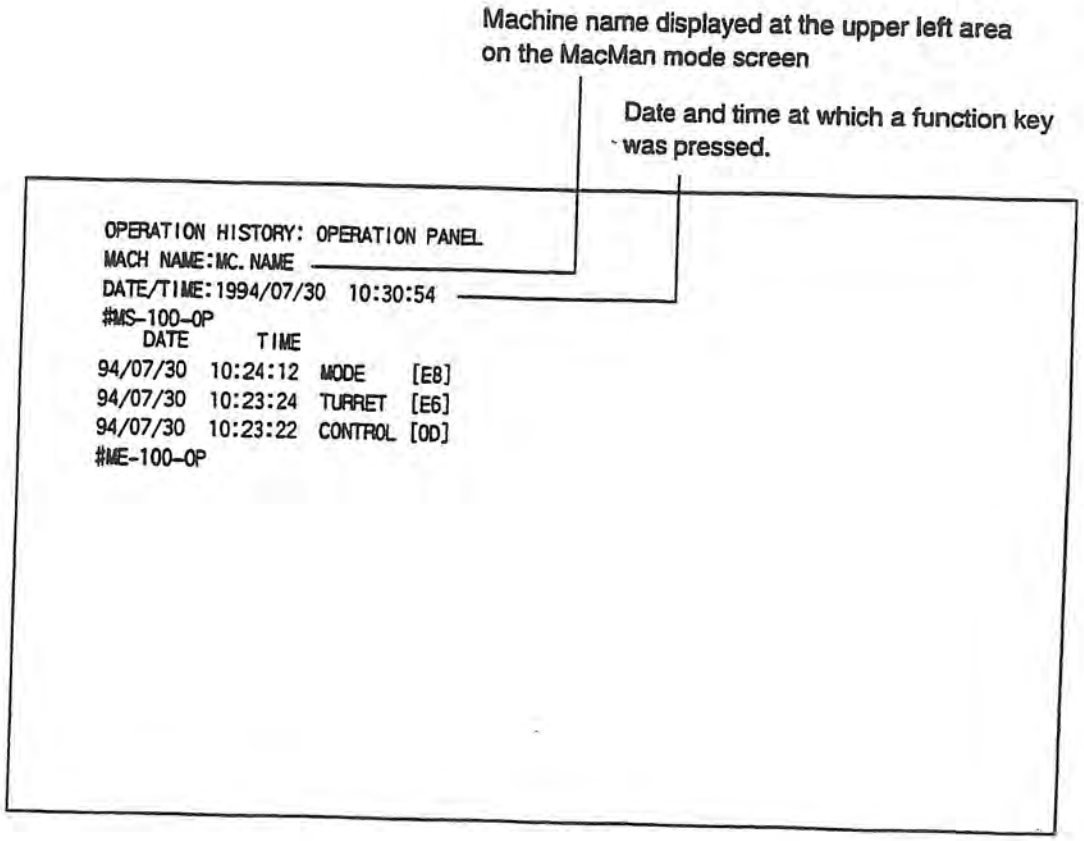
Date and time at which a function key was pressed.

```
ALARM HISTORY
MACH NAME:MC.NAME
DATE/TIME:1994/07/30  10:30:54
#MS-100-AL
    DATE      TIME    ALARM NO.   ALARM CODE  ALARM CHAR STRINGS
94/07/30  20:32:50   1234-01     23          BCID
94/07/30  18:21:56   2222        11
#ME-100-AL
```

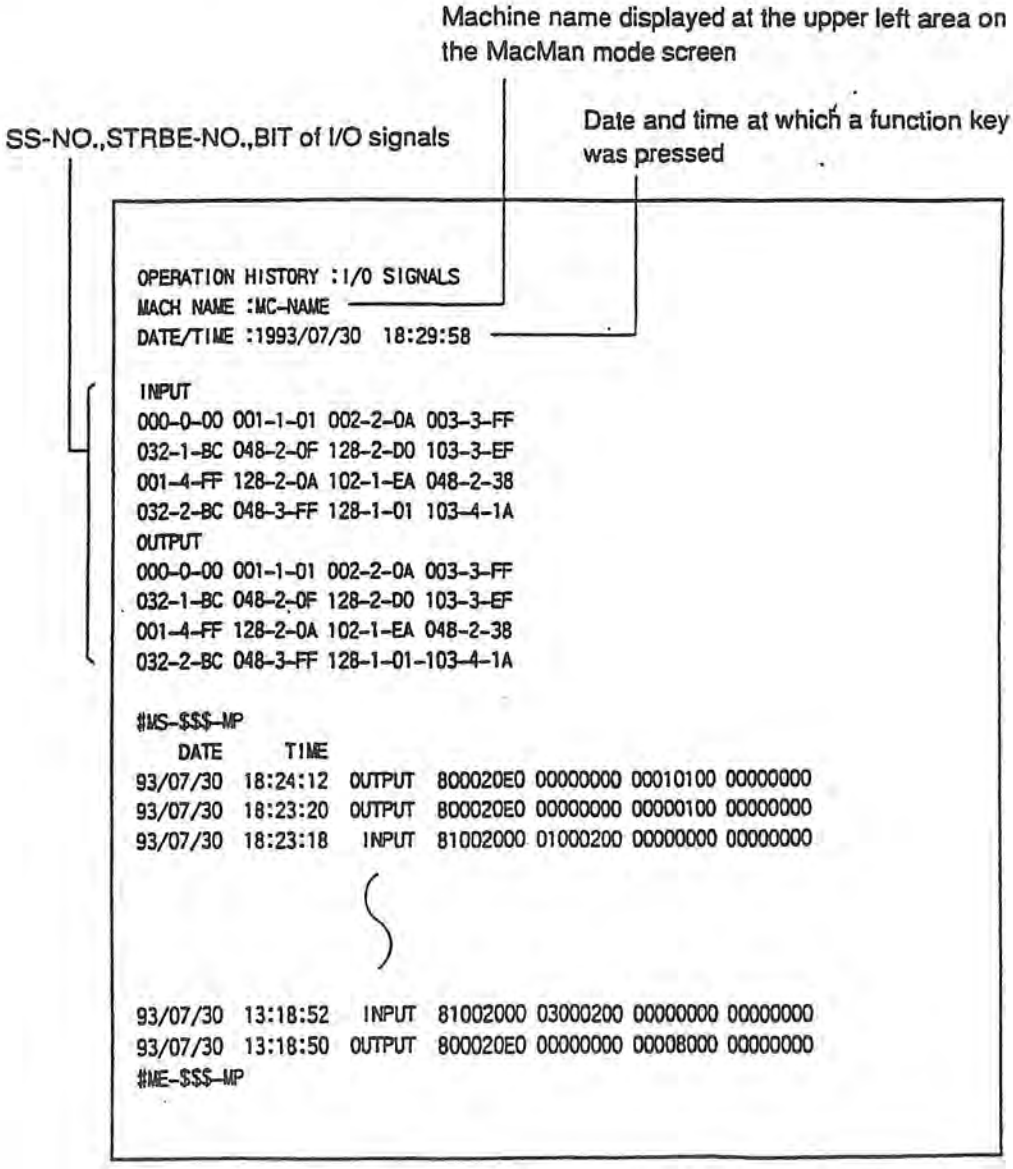
(14) Console Line (Text File)

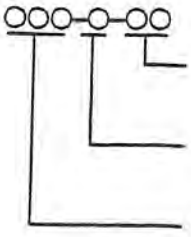


(15) Operation Panel (Text File)



(16) I/O Signals (Text File)





: I/O status is scanned for the signals for which setting is "1". (00 – FF).

: I/O signals are not scanned for the strobe for which "0" is set. (0 – 4)

: I/O signals are not scanned for the slave station for which "0" is set. (0 – 128)

INPUT

OOO-1-OO	OOO-2-OO	OOO-3-OO	OOO-4-OO
OOO-5-OO	OOO-6-OO	OOO-7-OO	OOO-8-OO
OOO-9-OO	OOO-10-OO	OOO-11-OO	OOO-12-OO
OOO-13-OO	OOO-14-OO	OOO-15-OO	OOO-16-OO

OUTPUT

OOO-a-OO	OOO-b-OO	OOO-c-OO	OOO-d-OO
OOO-e-OO	OOO-f-OO	OOO-g-OO	OOO-h-OO
OOO-i-OO	OOO-j-OO	OOO-k-OO	OOO-l-OO
OOO-m-OO	OOO-n-OO	OOO-o-OO	OOO-p-OO

INPUT □□□□□□□□ □□□□□□□□ □□□□□□□□ □□□□□□□□
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

OUTPUT □□□□□□□□ □□□□□□□□ □□□□□□□□ □□□□□□□□
a b c d e f h i j k l m n o p q

(17) Variables History (Text File)

Machine name displayed at the upper left area on the MacMan mode screen

Date and time at which a function key was pressed.

```
VARIABLES HISTORY: A
MACH NAME:MC.NAME
DATE/TIME:1994/07/30  10:30:54
#MS-100-VA
SAMPLE CYCLE (SEC)  86400.0000
ADDRESS             00081000   00081080   00001000   00001080
    DATE      TIME    VAR-A1     VAR-A2     VAR-A3     VAR-A4
94/07/30  10:24:12  00200340 999999.999 AAAAAAAAAA   00000000
94/07/30  10:23:24  00AE56AC ********** BBBBBBBBBB   01010101
94/07/30  10:23:22  00128000     23.000 XXXXXXXXXX   00001111
#ME-100-VA
```

This manual may be at variance with the actual product due to specification or design changes.
Please also note that specifications are subject to change without notice. If you require clarification or further explanation of any point in this manual, please contact your OKUMA representative.

REVISION HISTORY

Manual Name : OSP7000/700 MODEL U
MacMan INSTRUCTION MANUAL

Manual No. : 4023-E
(EEC1-002-O∗∗)

Edition	Date	Revision
(01)	November '95	First edition

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