After you change a SRAM module, you must set various data again. This chapter describes the procedures to input and output the parameters, the part programs and the tool offset values.

6.1 SETTING PARAMETERS FOR INPUT/OUTPUT ........................................... 400
6.2 INPUTTING/OUTPUTTING DATA ........................................... 402
6.3 INPUT/OUTPUT Super CAPi DATA ................................. 411
6.4 INPUTTING/OUTPUTTING Symbol CAPi T ........... 417
6.5 DUMP/RESTORE OF Symbol CAPi T DATA .... 419
6.6 CLEARING Symbol CAPi T DATA ......................... 420
6.7 DATA INPUT/OUTPUT ON THE ALL IO SCREEN .................. 422
6.8 DATA INPUT/OUTPUT USING A MEMORY CARD ...................... 437
Parameter writing is enabled with following steps 1 to 3.

1. Set to MDI mode or emergency stop state.

2. Press OFFSET key several times or press soft key [SETTING] to display SETTING (HANDY) screen.

3. Set the cursor to PARAMETER WRITE and, press 1 and INPUT keys in this order. Here alarm 100 will be displayed.

4. Press SYSTEM key several times to display the following screen.

![Screen Image]

To make the cursor display in bit unit, press the cursor key or .

5. Press soft key [(OPRT)] and the following operation menu is displayed.

1) Soft key [NO. SRH]: Searched by number.
   Examination) Parameter number → [NO. SRH].

2) Soft key [ON : 1]: Item with cursor position is set to 1 (bit parameter)

3) Soft key [OFF : 0]: Item with cursor position is set to 0 (bit parameter)

4) Soft key [+INPUT]: Input value is added to the value at cursor (word type)

5) Soft key [INPUT]: Input value is replaced with the value at cursor (word type)

6) Soft key [READ]: Parameters are input from reader/puncher interface.

7) Soft key [PUNCH]: Parameters are output to reader/puncher interface.
6. After the parameters have been input, set PARAMETER WRITE on the SETTING screen to 0. Press \( \text{RESET} \) to release alarm 100.

7. Convenient method

1) To change parameters in bit unit, press cursor key \( \leftarrow \) or \( \rightarrow \), then the cursor becomes bit length and you can set parameters bit by bit (Bit parameter only).

2) To set data consecutively, use \( \text{EOB} \) key.

(Ex.1) 1 2 3 4 EOB 4 5 6 7 EOB 9

This key sequence sets data as follows:

\[
\begin{array}{c}
0 \\
0 \Rightarrow 4567 \\
0 \\
0 \\
0
\end{array}
\]

(Ex.2) 1 2 3 4 EOB EOB 9 9 9 9 EOB 9

This key sequence sets data as follows:

\[
\begin{array}{c}
0 \\
0 \Rightarrow 0 \\
0 \\
0 \\
0
\end{array}
\]

3) To set the same data sequentially, press \( = \).

(Ex.) 1 2 3 4 EOB a EOB a EOB a INPUT

This key sequence sets data as follows:

\[
\begin{array}{c}
0 \\
0 \Rightarrow 1234 \\
0 \\
0 \\
0
\end{array}
\]

4) Bit parameters can be set as follows:

(Ex.) 1 1 EOB x EOB x INPUT

This key sequence sets data as follows:

\[
\begin{array}{c}
0 0 0 1 0 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0
\end{array}
\]

8. After the required parameters are set, set \text{PARAMETER WRITE} to 0.
6. INPUT AND OUTPUT OF DATA

6.2 INPUTTING/OUTPUTTING DATA

The main CPU memorized the following data.
Outputting the data I/O device while the CNC is running normally
(1) CNC parameter
(2) PMC parameter
(3) Pitch error compensation amount
(4) Custom macro variable values
(5) Tool compensation amount
(6) Part program (machining program, custom macro program)

6.2.1 Confirming the Parameters Required for Data Output

Be sure that data output cannot be done in an alarm status.
Parameters required for output are as follows:
In addition, ☆ indicates the standard setting for input/output devices made by FANUC. Change these settings according to the unit you actually use.
(Parameter can be changed in MDI mode or emergency stop status.)

<table>
<thead>
<tr>
<th>#0000</th>
<th>#7</th>
<th>#6</th>
<th>#5</th>
<th>#4</th>
<th>#3</th>
<th>#2</th>
<th>#1</th>
<th>#0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ISO</td>
<td></td>
</tr>
</tbody>
</table>

#1 (ISO)
0 : Output with EIA code
1 : Output with ISO code (FANUC cassette)

0020

Selection of I/O channel

☆ 0 : Channel 1 (JD36A of mother board)
   1 : Channel 1 (JD36A of mother board)
   2 : Channel 2 (JD36B of mother board)
   3 : Channel 3 (JD38A of serial communication board)
   4 : Memory card interface

NOTE
An operation example shown here assumes that data input/output is performed with an input/output unit connected to the JD36A. (I/O channel = 0)

<table>
<thead>
<tr>
<th>#0101</th>
<th>#7</th>
<th>#6</th>
<th>#5</th>
<th>#4</th>
<th>#3</th>
<th>#2</th>
<th>#1</th>
<th>#0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NFD</td>
<td></td>
<td></td>
<td></td>
<td>ASI</td>
<td></td>
<td>SB2</td>
<td></td>
</tr>
</tbody>
</table>

#7 (NFD)
0 : Feed is output when data is output.
1 : Feed is not output when data is output.

#3 (ASI)☆
0 : EIA or ISO code is used for input/output data.
   1 : ASCII code is used.

#0 (SB2)
0 : No. of stop bits is 1.
☆ 1 : No. of stop bits is 2.
pecification number of input/output device

<table>
<thead>
<tr>
<th>Set value</th>
<th>Input/output device</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>RS–232–C (Used control codes DC1 to DC4)</td>
</tr>
<tr>
<td>1</td>
<td>FANUC CASSETTE ADAPTOR 1 (FANUC CASSETTE B1/ B2)</td>
</tr>
<tr>
<td>2</td>
<td>FANUC CASSETTE ADAPTOR 3 (FANUC CASSETTE F1)</td>
</tr>
<tr>
<td>3</td>
<td>FANUC PROGRAM FILE Mate, FANUC FA Card Adaptor, FANUC FLOPPY CASSETTE ADAPTOR, FANUC Handy File</td>
</tr>
<tr>
<td></td>
<td>FANUC SYSTEM P-MODEL H</td>
</tr>
<tr>
<td>4</td>
<td>RS–232–C (Not used control codes DC1 to DC4)</td>
</tr>
<tr>
<td>5</td>
<td>Portable tape reader</td>
</tr>
<tr>
<td>6</td>
<td>FANUC PPR</td>
</tr>
<tr>
<td></td>
<td>FANUC SYSTEM P-MODEL G, FANUC SYSTEM P-MODEL H</td>
</tr>
</tbody>
</table>

Baud Rate


In case of PPR, steps 2 and 3 are not required.

1. Enter EDIT mode or the emergency stop condition.
2. Press PROG key and soft key PRGRM to select a program text.
3. Press soft key [(OPRT)] and soft key [EXEC].
   And then, put out the head of file by pressing [FSRH] [EXEC].
4. Press SYSTEM key and soft key [PARAM] to display parameter screen.
5. Press soft key [(OPRT)] and soft key [EXEC].
6. Press soft key [PUNCH] and [EXEC], and the parameters are started to be output.
### 6.2.3 Outputting PMC Parameters

1. Select MDI mode.

2. Press \( \text{OFFSET} \) key then soft key [SETTING] to select a setting screen.

3. Set the cursor to \textbf{PARAMETER WRITE} and input \( 1 \) and \( \text{INPUT} \). At this time, alarm 100 will be generated.

4. Press \( \text{SYSTEM} \) key and soft key [PMC].

5. Press soft key [PMCPRM] and soft key [KEEPRL].

6. Set the cursor to K17 and set the first bit to 1.

   \[
   \begin{array}{ccccccc}
   & & & & & & \\
   & X & X & X & X & 1 & X \\
   & \text{INPUT} & & & & & \\
   \end{array}
   \]

   Where, mark x is a former value

   Thus, data input/output screen has been selected.

7. Select EDIT mode.

8. Press soft key \( \leftarrow \) then key \( \rightarrow \).

9. Press soft key [I/O] and set the parameters on I/O. Item selection cursor moves to the following item after data of an item is set.

10. In CHANNEL NO item, input \( 1 \) \( \text{INPUT} \) to select I/O channel 1.

11. In DEVICE item, press soft key [FDCAS] to select the floppy cassette.

12. In KIND DATA item, press soft key [PARAM].

13. In FUNCTION item, press soft key [WRITE].

14. In FILE No item, specify a file name. In this example input as follows:

   \[
   \begin{array}{cccc}
   @ & P & M & C \\
   & \text{INPUT} & & \\
   \end{array}
   \]

15. Press soft key [EXEC]. Then PMC parameters are started to be output.

16. After the PMC parameters have been output, set PARAMETER WRITE to 0.

17. Press \( \text{RESET} \) to release alarm 100.

### 6.2.4 Outputting Pitch Error Compensation Amount

1. Select EDIT mode.

2. Press \( \text{SYSTEM} \) key several times, press soft key [PARAM], \( \rightarrow \) and [PITCH] to select the SETTING screen for pitch error amount.

3. Press soft key [(OPRT)] and \( \rightarrow \).

4. Press soft key [PUNCH] and [EXEC], then pitch error compensation amount is started to be output.
6. INPUT AND OUTPUT OF DATA

6.2.5 Outputting Custom Macro Variable Values

When custom macro function is equipped, values of variable no. 500 and later are output.

1. Press \[OFFSET\] key.
2. Press \[\rightarrow\] key and soft key [MACRO] to select custom macro variable screen.
3. Press soft key [OPRT] and then key \[\rightarrow\].
4. Press soft key [PUNCH] and [EXEC], then custom macro variable values are output.

6.2.6 Outputting Tool Compensation Amount

1. Select EDIT mode.
2. Press \[OFFSET\] key and soft key [OFFSET] to display the tool compensation amount screen.
3. Press [(OPRT)] key and soft key \[\rightarrow\].
4. Press soft key [PUNCH] and [EXEC] key, and the tool compensation amount is started to be output.

6.2.7 Outputting Part Program

1. Confirm the following parameters. If this parameter is set to 1, rather than the value indicated by \(^*\), change to MDI mode and then reset to 0. However, if you changed the parameter setting, restore the original value after finishing this work.

<table>
<thead>
<tr>
<th></th>
<th>#7</th>
<th>#6</th>
<th>#5</th>
<th>#4</th>
<th>#3</th>
<th>#2</th>
<th>#1</th>
<th>#0</th>
</tr>
</thead>
<tbody>
<tr>
<td>#4 (NE9)</td>
<td>(^*)</td>
<td>0 : Programs of 9000s are edited.</td>
<td>1 : Programs of 9000s can be protected.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#0 (NE8)</td>
<td>(^*)</td>
<td>0 : Programs of 8000s are edited.</td>
<td>1 : Programs of 8000s can be protected.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Select EDIT mode.
3. Press \[PROG\] key and press soft key [PRGRM] to display program text.
4. Press [(OPRT)] key and press soft key \[\rightarrow\].
5. Input a program number to be output. To output all programs input as: \[0 \rightarrow 9 9 9 9 9\]
6. Press [PUNCH] and [EXEC] key, then program output is started.
6.2.8 Inputting CNC Parameters

1. Set to the emergency stop state.
2. Confirm that the parameters required to input data is correct.
   In addition, \* denotes the standard setting for input/output devices made by FANUC. Change these settings according to the unit you actually use.

1) Press OFFSET key several times, and press [SETTING] to display SETTING screen.
2) Confirm that PARAMETER WRITE=1.
3) Press SYSTEM key to select the parameter screen.
4) 

<table>
<thead>
<tr>
<th>0020</th>
<th>Selection of I/O channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>*</td>
<td>0: Channel 1 (JD36A of motherboard)</td>
</tr>
<tr>
<td></td>
<td>1: Channel 1 (JD36A of motherboard)</td>
</tr>
<tr>
<td></td>
<td>2: Channel 2 (JD36B of motherboard)</td>
</tr>
<tr>
<td></td>
<td>3: Channel 3 (JD38A of serial communication board)</td>
</tr>
<tr>
<td></td>
<td>4: Memory card interface</td>
</tr>
</tbody>
</table>
5) 

<table>
<thead>
<tr>
<th>0101</th>
<th>NFD</th>
<th>ASI</th>
<th>SB2</th>
</tr>
</thead>
<tbody>
<tr>
<td>#7</td>
<td>0: Feed is output when punching out.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1: Feed is not output when punching out.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#3</td>
<td>0: EIA or ISO code is used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1: ASCII code is used.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>#0</td>
<td>0: No. of stop bits is 1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>* 1: No. of stop bits is 2.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6) 

<table>
<thead>
<tr>
<th>0102</th>
<th>Specification number of I/O device</th>
</tr>
</thead>
<tbody>
<tr>
<td>#5</td>
<td>Input/output device</td>
</tr>
<tr>
<td>0</td>
<td>RS–232–C (Used control codes DC1 to DC4)</td>
</tr>
<tr>
<td>1</td>
<td>FANUC CASSETTE ADAPTOR 1 (FANUC CASSETTE B1/B2)</td>
</tr>
<tr>
<td>2</td>
<td>FANUC CASSETTE ADAPTOR 3 (FANUC CASSETTE F1)</td>
</tr>
<tr>
<td>3</td>
<td>FANUC PROGRAM FILE Mate, FANUC FA Card Adaptor</td>
</tr>
<tr>
<td></td>
<td>FANUC FLOPPY CASSETTE ADAPTOR, FANUC Handy File</td>
</tr>
<tr>
<td></td>
<td>FANUC SYSTEM P-MODEL H</td>
</tr>
<tr>
<td>4</td>
<td>RS–232–C (Not used control codes DC1 to DC4)</td>
</tr>
<tr>
<td>5</td>
<td>Portable tape reader</td>
</tr>
<tr>
<td>6</td>
<td>FANUC PPR</td>
</tr>
<tr>
<td></td>
<td>FANUC SYSTEM P-MODEL G, FANUC SYSTEM P-MODEL H</td>
</tr>
</tbody>
</table>
7) Baud rate

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>200</td>
<td>9</td>
<td>2400</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>300</td>
<td>10</td>
<td>4800</td>
</tr>
<tr>
<td>3</td>
<td>110</td>
<td>600</td>
<td>11</td>
<td>9600</td>
</tr>
<tr>
<td>4</td>
<td>150</td>
<td>1200</td>
<td>12</td>
<td>19200 [BPS]</td>
</tr>
</tbody>
</table>

3. Press soft key [(OPRT)] and soft key [ ]
4. Press soft key [READ] and [EXEC]. Then input of parameters are started.
5. Because alarm 300 will generate for the system with absolute pulse coder, set parameter 1815#5 to 0.
6. Alarm 300 is issued if the system employs an absolute pulse coder. In such a case, perform reference position return again.

### 6.2.9 Inputting PMC Parameters

Set the emergency stop state.
Operation of 12 is not required when PPR is used.

1. Turn off (KEY4=1) the program protect key.
2. Press OFFSET SETTING key and soft key [SETTING] to select the SETTING screen.
3. Confirm that PARAMETER WRITE=1.
4. Press SYSTEM key and soft key [PMC].
5. Press soft key [PMCPRM] and soft key [KEEPRL].
6. Set the cursor to K17 and set bit 1 to 1.

```
0 0 0 0 0 0 1 0
```

7. Press [ ] key and [ ] key.
8. Press soft key [I/O] and set the parameters required for I/O.
   Item selection cursor displays the next item after an item is set.
9. In CHANNEL item, press 1 to select channel 1.
10. In DEVICE item, press [FDCAS] key to select the floppy cassette.
11. In FUNCTION item, press soft key [READ] to input data
12. In FILE NO item, press 2 to select file no. 2.
13. Press soft key [EXECT] and the PMC parameters are started to be input.
14. After data has been read, turn off power and turn it on.
6.2.10  Inputting Pitch Error Compensation Amount

1. Release the emergency stop and select EDIT mode.
2. Confirm that PARAMETER WRITE=1 on the setting screen.
3. Press **PRGRM** key and soft key [PRGRM] to display program contents.
4. Press soft key [(OPRT)], [F SRH], and [EXEC] to select the pitch error compensation file.
5. Press key several times, soft key [PARAM], [F SRH], and [PITCH] to select the screen for pitch error compensation amount.
6. Press soft key [(OPRT)] key.
7. Press soft key [READ] and [EXEC], then the pitch error compensation amount is started to be input.
8. After data has been input, press **OFFSET SETTING** key twice to display the SETTING screen and return the PARAMETER WRITE to 0.

6.2.11  Inputting Custom Macro Variable Values

If the system is equipped with the custom macro function, input the variable values.
For PPR, item 4 is not required.
1. Confirm that EDIT mode is selected.
2. Turn off the program protect key (KEY2=1).
3. Press **PRGRM** key then soft key [PRGRM] to display program contents.
4. Press soft key [(OPRT)], [F SRH], and [EXEC] to select a file.
5. Press soft key [(OPRT)] and key.
6. Press address O, a program number (0001 for example), soft key [READ] and [EXEC] key, then custom macro variable values are started to be input.
   Input a program number that is not used.
7. Select MEMORY mode on the machine operator’s panel and press cycle start button.
   When the program is executed, macro variables are set.
8. Press key, key and soft key [MACRO] to select the custom macro variable screen.
9. Press 500 and soft key [NO SRH] to display variable number 500 and confirm the custom macro variables are set correctly.
   Of the data displayed, 0 and vacant differ in meaning.
   Vacant is an undefined variable. To set vacant, press soft key [INPUT].
10. Select EDIT mode again.
11. Press **PRGRM** key to select the program display screen.
12. Press address O and a program number (0001 for example), then press [DELETE] to delete the program.

6.2.12 Inputting Tool Compensation Amount

Item 4 is not required for PPR.
1. Select the EDIT mode.
2. Turn off the program protect (KEY=1).
4. Press soft key [(OPRT)], [F SRH], and [EXEC] to select the tool compensation amount file.
5. Press [OFFSET] key, and soft key [OFFSET] to display the tool compensation amount screen.
6. Press soft key [(OPRT)] and [>] key.
7. Press [READ] key and [EXEC] key and data input is started.

6.2.13 Inputting Part Programs

Confirm the following parameters. If the setting is different from the value indicated by ∗, reset to the specified value only during this work. (Change it in MDI mode).

<table>
<thead>
<tr>
<th>#7</th>
<th>#6</th>
<th>#5</th>
<th>#4</th>
<th>#3</th>
<th>#2</th>
<th>#1</th>
<th>#0</th>
</tr>
</thead>
<tbody>
<tr>
<td>3201</td>
<td>NPE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#6 (NPE) When programs are registered in part program storage area, M02, M30 and M99 are:
0 : regarded as the end of program.
∗ 1 : not regarded as the end of program.

#1 (RAL) When programs are registered:
∗ 0 : All programs are registered.
1 : Only one program is registered.

<table>
<thead>
<tr>
<th>#7</th>
<th>#6</th>
<th>#5</th>
<th>#4</th>
<th>#3</th>
<th>#2</th>
<th>#1</th>
<th>#0</th>
</tr>
</thead>
<tbody>
<tr>
<td>3202</td>
<td></td>
<td>NE9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NE8</td>
</tr>
</tbody>
</table>

#4 (NE9)
∗ 0 : Programs of 9000s can be edited.
1 : Programs of 9000s are protected.

#0 (NE8)
∗ 0 : Programs of 8000s can be edited.
1 : Programs of 8000s are protected.
For PPR, item 4 is not required.

1. Confirm that mode is EDIT mode.
2. Turn off the program protect (KEY3=1).
3. Press \textit{PROG} key and press soft key \textit{[PRGRM]} to select a part program file.
4. Press soft key \textit{[(OPRT)], [F SRH], and 6 [EXEC]} to select a part program file.
5. Press soft \textit{[PRINT]} key, \textit{[(OPRT)]} and \textit{[PRGRM]} key.
6. Press soft key \textit{[READ]} and \textit{[EXEC]}, then data input is started.
6. INPUT AND OUTPUT DATA

6.3 INPUT/OUTPUT
Super CAPi DATA

6.3.1 Input/Output of Conversational Data in a Lump (Super CAPi M)

The following operation allows all the data used for Super CAPi M to be input and output in a lump.

1. Confirm the parameters shown below:
   P0020: I/O CHANNEL (select I/O device) : 0
   P0102: I/O device number : 3
   P0103: Baud rate for 4800 bauds : 10
   for 9600 bauds : 11

2. Select EDIT mode.

3. Press function key [PROG] and press soft key [CAP].

4. Press soft key [8] (C.A.P DATA) on the basic menu screen. Serial 16i Conversational Data Screen

5. Press soft key [DATA I/O].
6. Press soft key [READ] or [PUNCH].
7. Press soft key [ALL DATA].
8. For read, input a file no. and press soft key [READ EXEC]. (Specify a file no. for all data).

```
<table>
<thead>
<tr>
<th>FLOPPY</th>
<th>READ</th>
<th>PUNCH</th>
<th>READ EXEC</th>
<th>ALL DATA</th>
<th>DEF. FILE</th>
<th>PRE-TOOL</th>
<th>TOOL FILE</th>
<th>F.S. FILE</th>
</tr>
</thead>
</table>
```

For punch, press soft key [PUNCH EXEC].

```
<table>
<thead>
<tr>
<th>FLOPPY</th>
<th>READ</th>
<th>PUNCH</th>
<th>READ EXEC</th>
<th>ALL DATA</th>
<th>DEF. FILE</th>
<th>PRE-TOOL</th>
<th>TOOL FILE</th>
<th>F.S. FILE</th>
</tr>
</thead>
</table>
```

The above operation reads and punches default data, pre–tool list, tool file and F.S. file in a lump.
6.3.2 Input and Output of Each File (Super CAPi M)

You can input and output files individually. Execute the same operations from step 1 to 6 in the previous section 3.3.1.

(1) Reading or Punching default files
7 Press [DEF. FILE].
8 · For reading, input a file no. for default data and press soft key [READ EXEC]. (Specify a file number of default file).
   · For punching, press [PUNCH EXEC].

(2) Reading or punching pre–tool list
7 Press PRE–TOOL.
8 · For reading, press a file number and soft key [READ EXEC]. (Specify a file number of pre–tool list).
   · For punching, press soft key [PUNCH EXEC].

(3) Reading or Punching tool file
7 Press TOOL FILE.
8 · For reading, press a file number and press soft key [READ EXEC]. (Specify file number of tool file).
   · For punching, press [PUNCH EXEC].

(4) Reading or Punching F, S file
7 Press F.S. FILE.
8 · For reading, press a file no. and press soft key [READ EXEC]. (Specify a file no. of F.S. FILE).
   · For punching, press [PUNCH EXEC].

6.3.3 Input and Output of Each File (Super CAPi T)

Files can be read and punched individually.

Output of conversational machining programs

Conversational machining programs can be output and saved to an external memory unit via a reader/punch interface. Conversational machining programs can also be saved to a memory card by setting bit 7 (IO4) of parameter No. 27000 to 1. After switching to EDIT mode, display the registered program list screen for editing. Enter the number of the machining program to be output using numeric keys, or position the cursor to the program number then press [PUNCH]. The following soft keys used to confirm operation are displayed.
When [EXEC] is pressed, punch–out of the specified program starts. When [CANCEL] is pressed, punch–out operation is canceled and the previous state is restored.

To output all the machining programs, specify –9999 for the program number.

When the output device is the FANUC cassette adapter, a new file is created immediately after the existing files.

Upon the start of outputting machining programs, “OUTPUTTING” blinks at the bottom of the screen, until the output operation ends.

### NOTE

1. Only a machining program created with the conversational input function can be output by applying the above procedure.
2. A machining program created using the NC program screen cannot be output by applying the above procedure.
3. When a machining program is output to a memory card, the file name is CAPO****.DAT (with **** representing a specified program number). If the program number –9999 is specified, the file name is CAPALLPR.DAT.
4. When an attempt is made to output a machining program to a memory card, and a file with the same name is already present, the machining program is overwritten to the file.
5. When an attempt is made to output a machining program to a flash ROM card, and a file with the same name is already present, the machining program cannot be written to the card.
Input of conversational machining programs

The machining program punched out by applying the procedure described on the previous page can be read into the NC via a reader/punch interface. A machining program can also be read from the memory card by setting bit 7 (IO4) of parameter No. 27000. (Note, however, that only those files that are output to the memory card according to the procedure described above can be read.)

At this time, be sure to release the memory protect switch on the machine operator’s panel.

Before attempting to read a program, release the memory protect switch on the machine operator’s panel.

After switching to EDIT mode, display the registered program list screen for editing, then press [READ]. The following message prompting the user to input the file number is displayed, as well as the soft keys used to confirm operation.

<table>
<thead>
<tr>
<th>PROGRAM NO.</th>
<th>→SFTKY</th>
</tr>
</thead>
<tbody>
<tr>
<td>INITIAL SET</td>
<td>FC25</td>
</tr>
<tr>
<td>PROC(01)</td>
<td>BAR</td>
</tr>
<tr>
<td>PROC(02)</td>
<td>BAR</td>
</tr>
<tr>
<td>PROC(03)</td>
<td>TRANS</td>
</tr>
<tr>
<td>PROC(04)</td>
<td>BAR</td>
</tr>
<tr>
<td>PROC(05)</td>
<td>BAR</td>
</tr>
</tbody>
</table>

Enter the number of the file containing the machining program to be input, using numeric keys, then press [EXEC]. Reading of the machining program starts. When the input device is FANUC PPR, press [EXEC] without inputting a file number.

When [CANCEL] is pressed, read operation is canceled and the previous state is restored.

Upon the start of inputting machining programs, “INPUTTING” blinks at the bottom of the screen, until the input operation ends.

NOTE

Only a machining program created with the conversational input function can be input by applying the above procedure.

A machining program created using the NC program screen cannot be input by applying the above procedure.

Output of conversational tool setting data

The tool data file, cutting condition data, surface roughness data, pre–tool list, and chuck/tailstock figure data can be punched out to an external I/O device.

(1) Connect an external I/O device and set necessary parameters, such as device selection.

(2) Select EDIT mode.
(3) Display the tool data menu screen, then press [+]. The following soft keys appear. Press [PUNCH].

|   | 10 | 11 | READ | PUNCH | CLEAR |

**NOTE**

1. When data is output to a memory card, the file name is CAPTOOL.DAT.
2. When an attempt is made to output data to a memory card, and a file with the same name is already present, the data is overwritten to the file.
3. When an attempt is made to output data to a flash ROM card, and a file with the same name is already present, the data cannot be written to the card.

---

**Input of conversational tool setting data**

The setting data punched out in the previous section can be read.

1. Connect an external I/O device and set necessary parameters, such as device selection.
2. Set “PARAMETER WRITE” in the setting data to 1.
3. When the FANUC cassette adapter is used, set the file number for parameter No. 9887 (TLFLNO).
4. Display the tool data menu screen and place the system in the emergency stop state.
5. Press [READ].

**Clearing of conversational tool setting data**

The tool data file, cutting condition data, surface roughness data, pre-tool list, and chuck/tailstock figure data can be cleared.

1. Set “PARAMETER WRITE” in the setting data to 1.
2. Display the tool data menu screen. After switching to EDIT mode, place the system in the emergency stop state.
3. Press [CLEAR].
6. INPUT AND OUTPUT OF DATA

6.4 INPUTTING/OUTPUTTING Symbol CAPi T

**FAMILY PROGRAM**
1. FAMILY PROGRAM OUTPUT
2. FAMILY PROGRAM INPUT
3. ...

**PARAMETER & DATA SET**
1. SYSTEM DATA SETTING
2. SETTING DATA CORRECTION
3. MATERIAL DATA CORRECTION
4. ...

4 or 5 INPUT

(REFER TO TABLE 1)

1 INPUT

(REFER TO TABLE 2)

**SYSTEM DATA SETTING & OUTPUT/INPUT**
1. SYSTEM PARAMETER SETTING
2. SYSTEM PARAMETER OUTPUT
3. SYSTEM PARAMETER INPUT
4. ...

(REFER TO TABLE 3)
### TABLE 1: Input/Output of Family Program

<table>
<thead>
<tr>
<th>I/O</th>
<th>Item</th>
<th>Operation on I/O device</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>Family program</td>
<td>2, n [INPUT]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sub cycle</td>
<td>5, n [INPUT]</td>
<td>FANUC PPR</td>
</tr>
<tr>
<td>Output</td>
<td>Family program</td>
<td>1, n [INPUT]</td>
<td>Sub Memory</td>
</tr>
<tr>
<td></td>
<td>Sub cycle</td>
<td>4, n [INPUT]</td>
<td>*When n is omitted, parameter no. 15 becomes valid.</td>
</tr>
</tbody>
</table>

### TABLE 2: Input/Output of Material Data

<table>
<thead>
<tr>
<th>I/O</th>
<th>Item</th>
<th>Operation on I/O device</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input</td>
<td>Material data</td>
<td>5, n [INPUT]</td>
<td>FANUC PPR</td>
</tr>
<tr>
<td></td>
<td>Tooling information</td>
<td>8, n [INPUT]</td>
<td>FANUC Cassette</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sub Memory</td>
</tr>
<tr>
<td>Output</td>
<td>Material data</td>
<td>4, n [INPUT]</td>
<td>*When n is omitted, parameter no. 15 becomes valid.</td>
</tr>
<tr>
<td></td>
<td>Tooling information</td>
<td>7, n [INPUT]</td>
<td></td>
</tr>
</tbody>
</table>

### Table 3: Input/Output of system parameters and other data.

<table>
<thead>
<tr>
<th>I/O</th>
<th>Item</th>
<th>Operation on I/O device</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input/Read</td>
<td>System parameter</td>
<td>3, n [INPUT]</td>
<td>1[INPUT]=⇒(SAVE END)</td>
</tr>
<tr>
<td></td>
<td>MTF</td>
<td>7, n [INPUT]</td>
<td>5[INPUT]=⇒(SAVE END)</td>
</tr>
<tr>
<td></td>
<td>Tool data</td>
<td>11, n [INPUT]</td>
<td>9[INPUT]=⇒(SAVE END)</td>
</tr>
<tr>
<td></td>
<td>Setting</td>
<td>14, n [INPUT]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graphic data</td>
<td>16, n [INPUT]</td>
<td></td>
</tr>
<tr>
<td>Output/Registration</td>
<td>System parameter</td>
<td>2, n [INPUT]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MTF</td>
<td>6, n [INPUT]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tool data</td>
<td>10, n [INPUT]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Setting</td>
<td>13, n [INPUT]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graphic data</td>
<td>15, n [INPUT]</td>
<td></td>
</tr>
<tr>
<td>Collation</td>
<td>System parameter</td>
<td>4, n [INPUT]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MTF</td>
<td>8, n [INPUT]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tool data</td>
<td>12, n [INPUT]</td>
<td></td>
</tr>
</tbody>
</table>
6.5
DUMP/RESTORE OF Symbol CAPi T DATA

Symbol CAPi T data is stored in the sub-memory (SRAM) on the symbol CAPi T board. When replacing the symbol CAPi T board, perform data input/output operation according to this section.

6.5.1
Kind of Data in Sub Memory

1. System parameter (FAPT–SYS. PARAM.)
2. MTF (FAPT–MTF)
3. Setting data (FAPT–SETTING)
4. Tool data (FAPT–TOOL)
5. Graphic data (FAPT–GRAPHIC)
6. Files
   - Family program (FAPT–FAMILY)
   - Material file (FAPT–MATERIAL)
   - Tooling information (FAPT–TOOL)
   - Sub cycle file (FAPT–SUB. CYCLE)

6.5.2
Operation

- Outputting data (Dump)
  1. Display the screen of Symbolic FAPT TURN.
  2. To output data on FANUC Cassette, press keys as follows:
     
     [AUXILIARY]⇒ DUMP, B INPUT

     Be careful that data is memorized from top of the file.

     To output data on FANUC PPR, press keys as follows:
     
     [AUXILIARY]⇒ DUMP, P INPUT

- Inputting data (Restore)
  1. Hold SP key and turn on power.
  2. To input data from FANUC Cassette, press keys as follows:
     
     [AUXILIARY]⇒ RST R, B INPUT

     To input data from FANUC PPR, press keys as follows:
     
     [AUXILIARY]⇒ RST R, P INPUT
  3. Turn off the power once.
6.6 CLEARING Symbol
CAPiT DATA

6.6.1 Deleting File Name and Files

Symbolic FAPT TURN
(Initial screen)

Press [Family program] key

“Family program” menu screen

Press [DATA SET] key

“PARAMETER & DATASET” menu key

Press [FILE NAME] key

File name list stored in submemory

Delete a file?

No

Yes

Meet the cursor to a no. to be deleted using [CURSOR↓] or [CURSOR↑] key

Press [END]

Not only file names of family programs, but also file names and sub cycle files are displayed.

DEL EOB , INPUT

YES(Delete)

Delete really?

NO(Not delete)

1 , INPUT

0 , INPUT
6.6.2 Clearing Symbol
CAPi T Memory

Press \text{SP} while turning on power.
To input/output a particular type of data, the corresponding screen is usually selected. For example, the parameter screen is used for parameter input from or output to an external input/output unit, while the program screen is used for program input or output. However, programs, parameters, offset data, and macro variables can all be input and output using a single common screen, that is, the ALL IO screen.

![Fig. 6.7 ALL IO screen (when channel 3 is being used for input/output)]
6. INPUT AND OUTPUT OF DATA

6.7.1 Setting Input/Output–Related Parameters

Input/output–related parameters can be set on the ALL IO screen. Parameters can be set, regardless of the mode.

Setting input/output–related parameters

**Procedure**

1. Press function key [SYSTEM].

2. Press the rightmost soft key (continuous menu key) several times.

3. Press soft key [ALL IO] to display the ALL IO screen.

**NOTE**

1. If program or floppy is selected in EDIT mode, the program directory or floppy screen is displayed.
2. When the power is first turned on, program is selected by default.

```
READ/PUNCH (PROGRAM) O1234 N12345

I/O CHANNEL 3
DEVICE NUM. 0
BAUDRATE 4800
STOP BIT 2
NULL INPUT (EIA) NO
TV CHECK (NOTES) ON
CD CHECK (232C) OFF
PARITY BIT OFF
INTERFACE RS422
END CODE EXT

TV CHECK OFF
PUNCH CODE ISO
INPUT CODE ASCII
FEED OUTPUT FEED
EOB OUTPUT (ISO) CR
BAUDRATE CLK. INNER
RESET/ALARM ON
SAT COMMAND HOST
COM PROTOCOL A
COM CODE ASCII

(0:EIA 1:ISO)>1_

MDI **** *** *** *** 12:34:56

( PRGRM ) ( PARAM ) ( OFFSET ) ( MACRO ) ( OPRT )
```

**NOTE**

Baud rate clock, CD check (232C), reset/alarm report, and the parity bit for parameter No. 134, as well as the communication code, end code, communication protocol, interface, and SAT command for parameter No. 135 are displayed only when channel 3 is being used for input/output.

4. Select the soft key corresponding to the desired type of data (program, parameter, and so forth).
5 Set the parameters corresponding to the type of input/output unit to be used. (Parameter setting is possible regardless of the mode.)

Tip
First, set an I/O channel. The parameters on this screen change to those corresponding to a specified I/O channel.

- I/O channel (0 to 3)

<table>
<thead>
<tr>
<th>Setting</th>
<th>Corresponding parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No. 101 to 103</td>
</tr>
<tr>
<td>1</td>
<td>No. 111 to 113</td>
</tr>
<tr>
<td>2</td>
<td>No. 121 to 123</td>
</tr>
<tr>
<td>3</td>
<td>No. 131 to 135</td>
</tr>
</tbody>
</table>

- Device number

<table>
<thead>
<tr>
<th>Setting</th>
<th>Input/output device</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>RS–232–C (The control codes DC1 through DC4 are used.)</td>
</tr>
<tr>
<td>1</td>
<td>FANUC CASSETTE ADAPTOR 1 (FANUC CASSETTE B1/B2)</td>
</tr>
<tr>
<td>2</td>
<td>FANUC CASSETTE ADAPTOR 3 (FANUC CASSETTE F1)</td>
</tr>
<tr>
<td>3</td>
<td>FANUC PROGRAM FILE MATE, FANUC FA Card Adaptor</td>
</tr>
<tr>
<td></td>
<td>FANUC FLOPPY CASSETTE ADAPTOR, FANUC Handy File</td>
</tr>
<tr>
<td></td>
<td>FANUC SYSTEM P–MODEL H</td>
</tr>
<tr>
<td>4</td>
<td>RS–232–C (The control codes DC1 through DC4 are not used.)</td>
</tr>
<tr>
<td>5</td>
<td>Portable tape reader</td>
</tr>
<tr>
<td>6</td>
<td>FANUC PPR</td>
</tr>
<tr>
<td></td>
<td>FANUC SYSTEM P–MODEL G, FANUC SYSTEM P–MODEL H</td>
</tr>
</tbody>
</table>

- Baud rate (bps)

Set a desired baud rate value indicated below.

<table>
<thead>
<tr>
<th>Baud rate (bps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
</tr>
<tr>
<td>100</td>
</tr>
<tr>
<td>110</td>
</tr>
<tr>
<td>150</td>
</tr>
<tr>
<td>200</td>
</tr>
<tr>
<td>300</td>
</tr>
<tr>
<td>600</td>
</tr>
<tr>
<td>1200</td>
</tr>
<tr>
<td>2400</td>
</tr>
<tr>
<td>4800</td>
</tr>
<tr>
<td>9600</td>
</tr>
<tr>
<td>19200</td>
</tr>
</tbody>
</table>
6. INPUT AND OUTPUT OF DATA

6.7.2 Inputting and Outputting Programs

A program can be input and output using the ALL IO screen. When entering a program using a cassette or card, the user must specify the input file containing the program (file search).

File search

Procedure

1. Press soft key [PRGRM] on the ALL IO screen, described in Section 6.7.1.

2. Select EDIT mode. A program directory is displayed.

3. Press soft key [(OPRT)]. The screen and soft keys change as shown below.
   - A program directory is displayed only in EDIT mode. In all other modes, the ALL IO screen is displayed.

4. Enter address N.

5. Enter the number of the file to be found.
   - N0
     The first floppy file is found.
   - One of N1 to N9999
     Among the files numbered from 1 to 9999, a specified file is found.
   - N–9999
     The file immediately after that used most recently is found.
   - N–9998
     When –9998 is specified, the next file is found. Then, each time a file input/output operation is performed, N–9999 is automatically inserted. This means that subsequent files can be sequentially found automatically.
     This state is canceled by specifying N0, N1 to N9999, or N–9999, or upon a reset.

6. Press soft keys [F SRH] and [EXEC].
The specified file is found.
Inputting a program

Procedure

1. Press soft key [PRGRM] on the ALL IO screen, described in Section 6.7.1.

2. Select EDIT mode. A program directory is displayed.

3. Press soft key [(OPRT)]. The screen and soft keys change as shown below.

   - A program directory is displayed only in EDIT mode. In all other modes, the ALL IO screen is displayed.

4. To specify a program number to be assigned to an input program, enter address O, followed by the desired program number.
   If no program number is specified, the program number in the file or on the NC tape is assigned as is.

5. Press soft key [READ], then [EXEC].
   The program is input with the program number specified in step 4 assigned.
   To cancel input, press soft key [CAN].
   To stop input prior to its completion, press soft key [STOP].
6. INPUT AND OUTPUT OF DATA

Outputting programs

Procedure

1. Press soft key [PRGRM] on the ALL IO screen, described in Section 6.7.1.

2. Select EDIT mode. A program directory is displayed.

3. Press soft key [(OPRT)]. The screen and soft keys change as shown below.
   - A program directory is displayed only in EDIT mode. In all other modes, the ALL IO screen is displayed.

```
O0001 N00010
EDIT * * * * * * * * * * * * * 14:46:09
F SRH READ (OPRT)
```

4. Enter address O.

5. Enter a desired program number.
   If –9999 is entered, all programs in memory are output.
   To output a range of programs, enter OΔΔΔΔ, OΔΔΔΔ//ΔΔΔΔ. The programs numbered from ΔΔΔΔ to ΔΔΔΔ//ΔΔΔΔ are output.
   When bit 4 (SOR) of parameter No. 3107 for sorted display is set to 1 on the program library screen, programs are output in order, starting from those having the smallest program numbers.

6. Press soft key [PUNCH], then [EXEC].
The specified program or programs are output. If steps 4 and 5 are omitted, the currently selected program is output.
To cancel output, press soft key [CAN].
To stop output prior to its completion, press soft key [STOP].
Deleting files

**Procedure**

1. Press soft key [PRGRM] on the ALL IO screen, described in Section 6.7.1.

2. Select EDIT mode. A program directory is displayed.

3. Press soft key [(OPRT)]. The screen and soft keys change as shown below.
   - A program directory is displayed only in EDIT mode. In all other modes, the ALL IO screen is displayed.

4. Press soft key [DELETE].

5. Enter a file number, from 1 to 9999, to indicate the file to be deleted.

6. Press soft key [EXEC].
   - The k-th file, specified in step 5, is deleted.
6. INPUT AND OUTPUT OF DATA

6.7.3 Inputting and Outputting Parameters

Parameters can be input and output using the ALL IO screen.

**Inputting parameters**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>1</th>
<th>Press soft key [PARAM] on the ALL IO screen, described in Section 6.7.1.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>Select EDIT mode.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Press soft key [(OPRT)]. Soft keys change as shown below.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>READ  PUNCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAN  EXEC</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Press soft key [READ], then [EXEC]. The parameters are read, and the “INPUT” indicator blinks at the lower–right corner of the screen. Upon the completion of input, the “INPUT” indicator is cleared from the screen. To cancel input, press soft key [CAN].</td>
</tr>
</tbody>
</table>

**Outputting parameters**

<table>
<thead>
<tr>
<th>Procedure</th>
<th>1</th>
<th>Press soft key [PARAM] on the ALL IO screen, described in Section 6.7.1.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>Select EDIT mode.</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Press soft key [(OPRT)]. Soft keys change as shown below.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>READ  PUNCH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAN  EXEC</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>Press soft key [PUNCH], then [EXEC]. The parameters are output, and the “OUTPUT” indicator blinks at the lower–right corner of the screen. Upon the completion of output, the “OUTPUT” indicator is cleared from the screen. To cancel output, press soft key [CAN].</td>
</tr>
</tbody>
</table>
6.7.4 Inputting and Outputting Offset Data

Offset data can be input and output using the ALL IO screen.

Inputting offset data

Procedure

1. Press soft key [OFFSET] on the ALL IO screen, described in Section 6.7.1.
2. Select EDIT mode.
3. Press soft key [(OPRT)]. Soft keys change as shown below.
4. Press soft key [READ], then [EXEC].
   The offset data is read, and the “INPUT” indicator blinks at the lower–right corner of the screen.
   Upon the completion of input, the “INPUT” indicator is cleared from the screen.
   To cancel input, press soft key [CAN].

Outputting offset data

Procedure

1. Press soft key [OFFSET] on the ALL IO screen, described in Section 6.7.1.
2. Select EDIT mode.
3. Press soft key [(OPRT)]. Soft keys change as shown below.
4. Press soft key [PUNCH], then [EXEC].
   The offset data is output, and the “OUTPUT” indicator blinks at the lower–right corner of the screen. Upon the completion of output, the “OUTPUT” indicator is cleared from the screen.
   To cancel output, press soft key [CAN].
6.7.5 Outputting Custom Macro Common Variables

Custom macro common variables can be output using the ALL IO screen.

Outputting custom macro common variables

Procedure

1. Press soft key [MACRO] on the ALL IO screen, described in Section 6.7.1.

2. Select EDIT mode.

3. Press soft key [(OPRT)]. Soft keys change as shown below.

4. Press soft key [PUNCH], then [EXEC].
   The custom macro common variables are output, and the “OUTPUT” indicator blinks at the lower–right corner of the screen. Upon the completion of output, the “OUTPUT” indicator is cleared from the screen. To cancel output, press soft key [CAN].

NOTE

To input a macro variable, read the desired custom macro statement as a program, then execute the program.
6.7.6 Inputting and Outputting Floppy Files

The ALL IO screen supports the display of a directory of floppy files, as well as the input and output of floppy files.

Displaying a file directory

Procedure

1. Press the rightmost soft key (continuous menu key) on the ALL IO screen, described in Section 6.7.1.

2. Press soft key [FLOPPY].

3. Select EDIT mode. The floppy screen is displayed.

4. Press soft key [(OPRT)]. The screen and soft keys change as shown below.
   - The floppy screen is displayed only in EDIT mode. In all other modes, the ALL IO screen is displayed.

   ![Floppy Screen Screenshot]

5. Press soft key [F SRH].

6. Enter the number of the desired file, then press soft key [F SET].

7. Press soft key [EXEC]. A directory is displayed, with the specified file uppermost. Subsequent files in the directory can be displayed by pressing the page key.
A directory in which the first file is uppermost can be displayed simply by pressing the page key. (Soft key [F SRH] need not be pressed.)
Inputting a file

**Procedure**

1. Press the rightmost soft key [➡️] (continuous menu key) on the ALL IO screen, described in Section 6.7.1.

2. Press soft key [FLOPPY].

3. Select EDIT mode. The floppy screen is displayed.

4. Press soft key [(OPRT)]. The screen and soft keys change as shown below.
   The floppy screen is displayed only in EDIT mode. In all other modes, the ALL IO screen is displayed.

5. Press soft key [READ].

6. Enter the number of a file or program to be input.
   - Setting a file number: Enter the number of the desired file, then press soft key [F SET].
   - Setting a program number: Enter the number of the desired program, then press soft key [O SET].

7. Press soft key [EXEC].
   The specified file or program is read, and the “INPUT” indicator blinks at the lower–right corner of the screen. Upon the completion of input, the “INPUT” indicator is cleared from the screen.
Outputting a file

**Procedure**

1. Press the rightmost soft key (continuous menu key) on the ALL IO screen, described in Section 6.7.1.

2. Press soft key [FLOPPY].

3. Select EDIT mode. The floppy screen is displayed.

4. Press soft key [OPRT]. The screen and soft keys change as shown below. The floppy screen is displayed only in EDIT mode. In all other modes, the ALL IO screen is displayed.

```
READ/PUNCH (FLOPPY)          O1234 N12345

>                  12:34:56
MDI  ⋅⋅⋅⋅      12:34:56
       (F SRH)  (READ)  (PUNCH)  (DELETE)
```

5. Press soft key [PUNCH].

6. Enter the number of the program to be output, together with a desired output file number.
   - Setting a file number: Enter the number of the desired file, then press soft key [F SET].
   - Setting a program number: Enter the number of the desired program, then press soft key [O SET].

7. Press soft key [EXEC]. The specified program is output, and the “OUTPUT” indicator blinks at the lower-right corner of the screen. Upon the completion of output, the “OUTPUT” indicator is cleared from the screen. If no file number is specified, the program is written at the end of the currently registered files.
Deleting a file

**Procedure**

1. Press the rightmost soft key (continuous menu key) on the ALL IO screen, described in Section 6.7.1.
2. Press soft key [FLOPPY].
3. Select EDIT mode. The floppy screen is displayed.
4. Press soft key [(OPRT)]. The screen and soft keys change as shown below.
   The floppy screen is displayed only in EDIT mode. In all other modes, the ALL IO screen is displayed.
   
<table>
<thead>
<tr>
<th>READ/PUNCH (FLOPPY)</th>
<th>O1234 N12345</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12:34:56</td>
</tr>
<tr>
<td>MDI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F SRH (READ) (PUNCH) (DELETE)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Press soft key [DELETE].
6. Enter the number of the desired file, then press soft key [F SET].
7. Press soft key [EXEC]. The specified file is deleted. After the file has been deleted, the subsequent files are shifted up.
By setting the I/O channel (parameter No. 20) to 4, files on a memory card can be referenced, and different types of data such as part programs, parameters, and offset data on a memory card can be input and output in text file format.

The major functions are listed below.

- Displaying a directory of stored files
  The files stored on a memory card can be displayed on the directory screen.

- Searching for a file
  A search is made for a file on a memory card and, if found, it is displayed on the directory screen.

- Reading a file
  Text-format files can be read from a memory card.

- Writing a file
  Data such as part programs can be stored to a memory card in text file format.

- Deleting a file
  A file can be selected and deleted from a memory card.

**NOTE**

When using the program stored on a memory card to make a subprogram call for RMT mode operation (DNC operation) or the M198 command, use the special retainer for securing a memory card to the CNC.
Displaying a directory of stored files

Procedure

1. Press the EDIT switch on the machine operator’s panel.

2. Press function key \[ \text{PROG} \].

3. Press the rightmost soft key \[ \text{[>] (continuous menu key)} \].

4. Press soft key \[ \text{[CARD]} \]. The screen shown below is displayed. Using page keys \[ \text{[>] (continuous menu key)} \] and \[ \text{[<]} \], the screen can be scrolled.

```
<table>
<thead>
<tr>
<th>No.</th>
<th>FILE NAME</th>
<th>SIZE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>O1000</td>
<td>123456</td>
<td>01/07/10</td>
</tr>
<tr>
<td>0002</td>
<td>O1001</td>
<td>8458</td>
<td>01/07/30</td>
</tr>
<tr>
<td>0003</td>
<td>O0002</td>
<td>3250</td>
<td>01/07/30</td>
</tr>
<tr>
<td>0004</td>
<td>O2000</td>
<td>73456</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0005</td>
<td>O2001</td>
<td>3444</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0006</td>
<td>O3001</td>
<td>8483</td>
<td>01/08/02</td>
</tr>
<tr>
<td>0007</td>
<td>O3300</td>
<td>406</td>
<td>01/08/05</td>
</tr>
<tr>
<td>0008</td>
<td>O3400</td>
<td>2420</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0009</td>
<td>O3500</td>
<td>7460</td>
<td>01/07/31</td>
</tr>
</tbody>
</table>
```

5. Comments relating to each file can be displayed by pressing soft key \[ \text{[DIR+]}.\]

```
<table>
<thead>
<tr>
<th>No.</th>
<th>FILE NAME</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>O1000</td>
<td>(COMMENT               )</td>
</tr>
<tr>
<td>0002</td>
<td>O1001</td>
<td>(SUB PROGRAM           )</td>
</tr>
<tr>
<td>0003</td>
<td>O0002</td>
<td>(12345678              )</td>
</tr>
<tr>
<td>0004</td>
<td>O2000</td>
<td></td>
</tr>
<tr>
<td>0005</td>
<td>O2001</td>
<td>(SKIP–K                )</td>
</tr>
<tr>
<td>0006</td>
<td>O3001</td>
<td>(HI–SPEED              )</td>
</tr>
<tr>
<td>0007</td>
<td>O3300</td>
<td>(TEST PROGRAM)</td>
</tr>
<tr>
<td>0008</td>
<td>O3400</td>
<td></td>
</tr>
<tr>
<td>0009</td>
<td>O3500</td>
<td></td>
</tr>
</tbody>
</table>
```

6. Repeatedly pressing soft key \[ \text{[DIR+]} \] toggles the screen between the display of comments and the display of sizes and dates. Any comment described after the O number in the file is displayed. Up to 18 characters can be displayed on the screen.
Searching for a file

**Procedure**

1. Press the EDIT switch on the machine operator’s panel.

2. Press function key \[\text{PROG}\].

3. Press the rightmost soft key \[\Rightarrow\] (continuous menu key).

4. Press soft key \[\text{[CARD]}\]. The screen shown below is displayed.

   **DIRECTORY (M–CARD)**
   
<table>
<thead>
<tr>
<th>No.</th>
<th>FILE NAME</th>
<th>SIZE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>O1000</td>
<td>123456</td>
<td>01/07/10</td>
</tr>
<tr>
<td>0002</td>
<td>O1001</td>
<td>8458</td>
<td>01/07/30</td>
</tr>
<tr>
<td>0003</td>
<td>O0002</td>
<td>3250</td>
<td>01/07/30</td>
</tr>
<tr>
<td>0004</td>
<td>O2000</td>
<td>73456</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0005</td>
<td>O2001</td>
<td>3444</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0006</td>
<td>O3001</td>
<td>8483</td>
<td>01/08/02</td>
</tr>
<tr>
<td>0007</td>
<td>O3300</td>
<td>406</td>
<td>01/08/05</td>
</tr>
<tr>
<td>0008</td>
<td>O3400</td>
<td>2420</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0009</td>
<td>O3500</td>
<td>7460</td>
<td>01/07/31</td>
</tr>
</tbody>
</table>

5. Press soft key \[\text{[OPRT]}\].

6. Set the number of the desired file number with soft key \[\text{[F SRH]}\]. Then, start the search by pressing soft key \[\text{[EXEC]}\]. If found, the file is displayed at the top of the directory screen.

When a search is made for file number 19

**DIRECTORY (M–CARD)**

<table>
<thead>
<tr>
<th>No.</th>
<th>FILE NAME</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0019</td>
<td>O1000</td>
<td>(MAIN PROGRAM)</td>
</tr>
<tr>
<td>0020</td>
<td>O1010</td>
<td>(SUBPROGRAM–1)</td>
</tr>
<tr>
<td>0021</td>
<td>O1020</td>
<td>(COMMENT )</td>
</tr>
<tr>
<td>0022</td>
<td>O1030</td>
<td>(COMMENT )</td>
</tr>
</tbody>
</table>
Reading a file

Procedure

1. Press the EDIT switch on the machine operator's panel.

2. Press function key [PROG].

3. Press the rightmost soft key (continuous menu key).

4. Press soft key [CARD]. Then, the screen shown below is displayed.

<table>
<thead>
<tr>
<th>DIRECTORY (M–CARD)</th>
<th>O0034 N00045</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>FILE NAME</td>
</tr>
<tr>
<td>0001</td>
<td>O1000</td>
</tr>
<tr>
<td>0002</td>
<td>O1001</td>
</tr>
<tr>
<td>0003</td>
<td>O0002</td>
</tr>
<tr>
<td>0004</td>
<td>O2000</td>
</tr>
<tr>
<td>0005</td>
<td>O2001</td>
</tr>
<tr>
<td>0006</td>
<td>O3001</td>
</tr>
<tr>
<td>0007</td>
<td>O3300</td>
</tr>
<tr>
<td>0008</td>
<td>O3400</td>
</tr>
<tr>
<td>0009</td>
<td>O3500</td>
</tr>
</tbody>
</table>

5. Press soft key [(OPRT)].

6. To specify a file number, press soft key [F READ]. The screen shown below is displayed.

<table>
<thead>
<tr>
<th>DIRECTORY (M–CARD)</th>
<th>O0001 N00010</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>FILE NAME</td>
</tr>
<tr>
<td>0019</td>
<td>O1000</td>
</tr>
<tr>
<td>0020</td>
<td>O1010</td>
</tr>
<tr>
<td>0021</td>
<td>O1030</td>
</tr>
</tbody>
</table>

7. Enter file number 20 from the MDI panel, then set the file number by pressing soft key [F SET]. Next, enter program number 120, then set the program number by pressing soft key [O SET]. Then, press soft key [EXEC].

- File number 20 is registered as O0120 in the CNC.
- Set a program number to register a read file with a separate O number. If no program number is set, the O number in the file name column is registered.
8 To specify a file with its file name, press soft key [N READ] in step 6 above. The screen shown below is displayed.

<table>
<thead>
<tr>
<th>No.</th>
<th>FILE NAME</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0012</td>
<td>O0050</td>
<td>(MAIN PROGRAM)</td>
</tr>
<tr>
<td>0013</td>
<td>TESTPRO</td>
<td>(SUB PROGRAM–1)</td>
</tr>
<tr>
<td>0014</td>
<td>O0060</td>
<td>(MACRO PROGRAM)</td>
</tr>
</tbody>
</table>

READ  FILE NAME = TESTPRO
PROGRAM No. = 1230
> EDIT  15:40:21

9 To register file name TESTPRO as O1230, enter file name TESTPRO from the MDI panel, then set the file name with soft key [F NAME]. Next, enter program number 1230, then set the program number with soft key [O SET]. Then, press soft key [EXEC].
Writing a file

Procedure

1. Press the EDIT switch on the machine operator’s panel.
2. Press function key [PROG].
3. Press the rightmost soft key [➡️] (continuous menu key).
4. Press soft key [CARD]. The screen shown below is displayed.

<table>
<thead>
<tr>
<th>No.</th>
<th>FILE NAME</th>
<th>SIZE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>O1000</td>
<td>123456</td>
<td>01/07/10</td>
</tr>
<tr>
<td>0002</td>
<td>O1001</td>
<td>8458</td>
<td>01/07/30</td>
</tr>
<tr>
<td>0003</td>
<td>O0002</td>
<td>3250</td>
<td>01/07/30</td>
</tr>
<tr>
<td>0004</td>
<td>O2000</td>
<td>73456</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0005</td>
<td>O2001</td>
<td>3444</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0006</td>
<td>O3001</td>
<td>8438</td>
<td>01/08/02</td>
</tr>
<tr>
<td>0007</td>
<td>O3300</td>
<td>406</td>
<td>01/08/05</td>
</tr>
<tr>
<td>0008</td>
<td>O3400</td>
<td>2420</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0009</td>
<td>O3500</td>
<td>7460</td>
<td>01/07/31</td>
</tr>
</tbody>
</table>

5. Press soft key [(OPRT)].
6. Press soft key [PUNCH].
7. Enter a desired O number from the MDI panel, then set the program number with soft key [O SET].
   When soft key [EXEC] is pressed after the setting shown below has been made, for example, the file is written under program number O1230.

```
PUNCH FILE NAME = PROGRAM No. =1230
  > EDIT  ****  ****  **** 15:40:21
  [F NAME] [O SET] [STOP] [CAN] [EXEC]
```

8. In the same way as for O number setting, enter a desired file name from the MDI panel, then set the file name with soft key [F SET].
   When soft key [EXEC] is pressed after the setting shown below has been made, for example, the file is written under program number O1230 and file name ABCD12.

```
PUNCH FILE NAME =ABCD12 PROGRAM No. =1230
  > EDIT  ****  ****  **** 15:40:21
  [F NAME] [O SET] [STOP] [CAN] [EXEC]
```
Deleting a file

Procedure

1. Press the EDIT switch on the machine operator’s panel.

2. Press function key [PROG].

3. Press the rightmost soft key (continuous menu key).

4. Press soft key [CARD]. The screen shown below is displayed.

<table>
<thead>
<tr>
<th>No.</th>
<th>FILE NAME</th>
<th>SIZE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0001</td>
<td>O1000</td>
<td>123456</td>
<td>01/07/10</td>
</tr>
<tr>
<td>0002</td>
<td>O1001</td>
<td>8458</td>
<td>01/07/30</td>
</tr>
<tr>
<td>0003</td>
<td>O0002</td>
<td>3250</td>
<td>01/07/30</td>
</tr>
<tr>
<td>0004</td>
<td>O2000</td>
<td>73456</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0005</td>
<td>O2001</td>
<td>3444</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0006</td>
<td>O3001</td>
<td>8483</td>
<td>01/08/02</td>
</tr>
<tr>
<td>0007</td>
<td>O3300</td>
<td>406</td>
<td>01/08/05</td>
</tr>
<tr>
<td>0008</td>
<td>O3400</td>
<td>2420</td>
<td>01/07/31</td>
</tr>
<tr>
<td>0009</td>
<td>O3500</td>
<td>7460</td>
<td>01/07/31</td>
</tr>
</tbody>
</table>

5. Press soft key [(OPRT)].

6. Set the number of the desired file with soft key [DELETE], then press soft key [EXEC]. The file is deleted, and the directory screen is displayed again.

   DIRECTORY (M–CARD)  O0034 N00045
   No.    FILE NAME    SIZE    DATE     
   0019   O1000        (MAIN PROGRAM)
   0020   O1010        (SUBPROGRAM–1)
   0021   O1020        (COMMENT )
   0022   O1030        (COMMENT )

   File name O1020 is deleted.

   File number 21 is assigned to the next file name.
Batch input/output with a memory card

On the ALL IO screen, different types of data including part programs, parameters, offset data, pitch error data, custom macros, and workpiece coordinate system data can be input and output using a memory card; the screen for each type of data need not be displayed for input/output.

Procedure

1. Press the EDIT switch on the machine operator’s panel.

2. Press function key \textbf{SYSTEM}.

3. Press the rightmost soft key \textbf{[\rightarrow]} (continuous menu key) several times.

4. Press soft key \textbf{[ALL IO]}. The screen shown below is displayed.

```
READ/PUNCH (PROGRAM)   O0001_N00001
No.   FILE NAME   SIZE   DATE
* 0001   O0222   332010   01–04–06
  0002   O1003   334450   01–05–04
  0003   MACROVAR.DAT   653400   01–05–12
  0004   O0002   341205   01–05–13
[PROGRAM]
   O0001   O0002   O0003   O0005   O0100   O0020
   O0006   O0004   O0110   O0200   O2200   O0441
   O0330
>
EDIT  \cdots  \cdots  \cdots  \cdots  10:07:37
( PROG )  ( PARAM )  ( OFFSET )  ( )  (OPRT) )
```

Upper part: Directory of files on the memory card
Lower part: Directory of registered programs

5. With cursor keys \textbf{[\uparrow]} and \textbf{[\downarrow]}, the user can choose between upper part scrolling and lower part scrolling. (An asterisk (*) displayed at the left edge indicates the part for which scrolling is possible.)

\textbf{[\uparrow]} : Used for memory card file directory scrolling.

\textbf{[\downarrow]} : Used for program directory scrolling.
6 With page keys PAGE and PAGE, scroll through the file directory or program directory.

7 When this screen is displayed, the program data item is selected. The soft keys for other screens are displayed by pressing the rightmost soft key (continuous menu key).

When a data item other than program is selected, the screen displays only a file directory.
A data item is indicated, in parentheses, on the title line.

<table>
<thead>
<tr>
<th>READ/PUNCH (PARAMETER)</th>
<th>O0001</th>
<th>N00001</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>FILE NAME</td>
<td>SIZE</td>
</tr>
<tr>
<td>0001</td>
<td>O0222</td>
<td>32010</td>
</tr>
<tr>
<td>0002</td>
<td>O1003</td>
<td>4450</td>
</tr>
<tr>
<td>0003</td>
<td>MACROVAR.DAT</td>
<td>653400</td>
</tr>
<tr>
<td>0004</td>
<td>O0003</td>
<td>4610</td>
</tr>
<tr>
<td>0005</td>
<td>O0001</td>
<td>4254</td>
</tr>
<tr>
<td>0006</td>
<td>O0002</td>
<td>750</td>
</tr>
<tr>
<td>0007</td>
<td>CNCPARAM.DAT</td>
<td>34453</td>
</tr>
</tbody>
</table>

8 Display the following soft keys with soft key [OPRT].

The operation of each function is the same as on the directory (memory card) screen. Soft key [O SET], used for program number setting, and the “PROGRAM NUMBER =” indication are not displayed for data items other than program.

[F SRH] : Finds a specified file number.
[F READ] : Reads a specified file number.
[N READ] : Reads a file under a specified file name.
[DELETE] : Deletes a specified file number.
## Error codes

### Memory card error codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>007</td>
<td>The memory card is protected.</td>
</tr>
<tr>
<td>030</td>
<td>The memory card is not inserted into its slot.</td>
</tr>
<tr>
<td>032</td>
<td>The memory card's battery is exhausted.</td>
</tr>
<tr>
<td>102</td>
<td>The memory card does not have sufficient free space.</td>
</tr>
<tr>
<td>105</td>
<td>No memory card is mounted.</td>
</tr>
<tr>
<td>106</td>
<td>A memory card is already mounted.</td>
</tr>
<tr>
<td>110</td>
<td>The specified directory cannot be found.</td>
</tr>
<tr>
<td>111</td>
<td>There are too many files under the root directory to allow a directory to be added.</td>
</tr>
<tr>
<td>114</td>
<td>The specified file cannot be found.</td>
</tr>
<tr>
<td>115</td>
<td>The specified file is protected.</td>
</tr>
<tr>
<td>117</td>
<td>The file has not yet been opened.</td>
</tr>
<tr>
<td>118</td>
<td>The file is already open.</td>
</tr>
<tr>
<td>119</td>
<td>The file is locked.</td>
</tr>
<tr>
<td>121</td>
<td>A file end was detected.</td>
</tr>
<tr>
<td>122</td>
<td>The specified file name is invalid.</td>
</tr>
<tr>
<td>124</td>
<td>The extension of the specified file is invalid.</td>
</tr>
<tr>
<td>129</td>
<td>A non–corresponding function was specified.</td>
</tr>
<tr>
<td>130</td>
<td>The specification of a device is invalid.</td>
</tr>
<tr>
<td>131</td>
<td>The specification of a pathname is invalid.</td>
</tr>
<tr>
<td>133</td>
<td>Multiple files are open at the same time.</td>
</tr>
<tr>
<td>135</td>
<td>The device is not formatted.</td>
</tr>
<tr>
<td>140</td>
<td>The file has the read/write disabled attribute.</td>
</tr>
</tbody>
</table>