

## 4 OPERATION

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This chapter describes each operation method for RAKU RAKU LOADER.

Basically, settings cannot be performed in the operation mode (MEM mode).

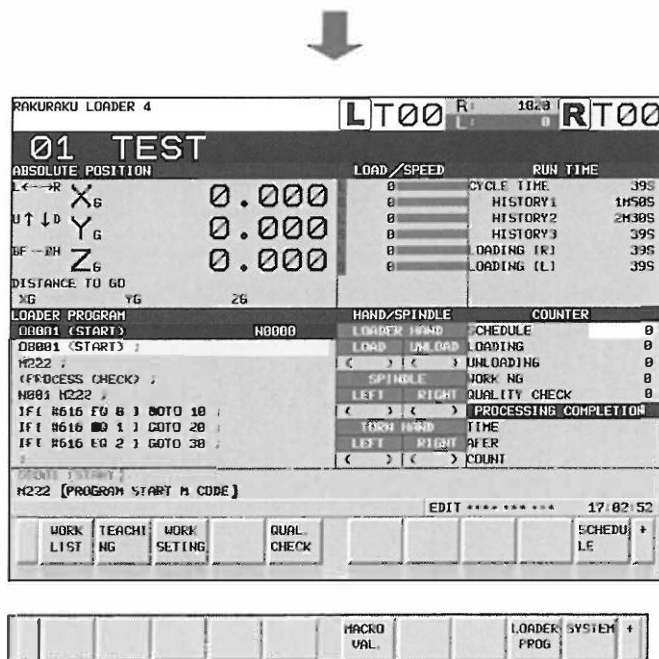
## 4-1 Loader main screen display method

When "LOADER" button is pressed on the operation panel, the loader main screen is displayed.

When  key is pressed several times, the loader main screen is displayed.

### 1 Loader main screen display

Press  or  several times.



## 2 MDI mode program execution procedure

Note) When the loader type is D type, the program cannot be executed in the MDI mode. It does on the NC program screen.

Procedure: MDI mode → Loader main screen → Program input → Execution



Press the button of the loader pendant button to change it to MDI mode.

The loader main screen is displayed.

RAKURAKU LOADER 4

01 TEST

ABSOLUTE POSITION

X<sub>G</sub> 0.000

Y<sub>G</sub> 0.000

Z<sub>G</sub> 0.000

DISTANCE TO GO

XG 0.000 YG 0.000 ZG 0.000

LOADER PROGRAM

LOAD/SPEED

122

2000

152

0000

103

9000

RUN TIME

CYCLE TIME 26S

HISTORY1 2H00S

HISTORY2 1H40S

HISTORY3 26S

LOADING (R) 26S

LOADING (L) 26S

HAND/SPINDLE

LOADER HAND SCHEDULE

LOAD UNLOAD LOADING

UNLOADING

SPINDLE WORK NG

LEFT RIGHT QUALITY CHECK

PROCESSING COMPLETION

TURN HAND TIME

LEFT RIGHT AFTER

COUNT

MDI 17 05 10

MACRO VAL. LOADER PROG SYSTEM

Command X-axis to return to the original position.  
Input "G28 U0 ;", and then press the "INSERT" key.

RAKURAKU LOADER 4

01 TEST

ABSOLUTE POSITION

X<sub>G</sub> 0.000

Y<sub>G</sub> 0.000

Z<sub>G</sub> 0.000

DISTANCE TO GO

XG 0.000 YG 0.000 ZG 0.000

LOADER PROGRAM

G28 U0 ;

LOAD/SPEED

0

0

0

0

0

0

RUN TIME

CYCLE TIME 39S

HISTORY1 1H50S

HISTORY2 2H30S

HISTORY3 39S

LOADING (R) 39S

LOADING (L) 39S

HAND/SPINDLE

LOADER HAND SCHEDULE

LOAD UNLOAD LOADING

UNLOADING

SPINDLE WORK NG

LEFT RIGHT QUALITY CHECK

PROCESSING COMPLETION

TURN HAND TIME

LEFT RIGHT AFTER

COUNT

MDI 17 06 20

MACRO VAL. LOADER PROG SYSTEM



When the start switch of the loader pendant is pressed, "G28 U0 ;" will be executed.

Programs of up to 7 lines can be commanded.

## 4-2 Workpiece relating operation

Newly creating workpieces, editing comments, copying workpieces, deleting workpieces, etc. can be performed.

Teaching or operation setting is saved for the memory of workpieces.

Up to 99 workpieces can be created.

### 1 Workpiece list screen display

Procedure: [Work List]→ Work List Screen

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

ABSOLUTE POSITION

|          | LOAD/SPEED | RUN TIME        |
|----------|------------|-----------------|
| XG 0.000 | 0          | CYCLE TIME 39S  |
| YG 0.000 | 0          | HISTORY1 1M50S  |
| ZG 0.000 | 0          | HISTORY2 2M30S  |
|          | 0          | HISTORY3 39S    |
|          | 0          | LOADING (R) 39S |
|          | 0          | LOADING (L) 39S |

DISTANCE TO GO

YB YG ZG

LOADER PROGRAM

00001 (START) : N0000

M222 :

(PROCESS CHECK) :

N001 M222 :

IF1 #616 EQ 0 1 GOTO 10

IF1 #616 EQ 1 1 GOTO 20

IF1 #616 EQ 2 1 GOTO 30

00001 (START) :

M222 (PROGRAM START M CODE)

EDIT \*\*\*\*\* 17:02:52

WORK LIST

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

WORK LIST

| WORK No. | COMMENT | MODIFIED DATE    | SIZE(KB) |
|----------|---------|------------------|----------|
| 01       | TEST    | 2012/07/25 15:52 | 3        |
| 02       | TEST    | 2012/08/06 17:52 | 2        |
| 10       | TEST    | 2012/08/02 17:27 | 2        |
| 20       | TEST    | 2012/08/09 10:43 | 2        |

HUM. OF WORKS 4

MEMORY AREA(KB) 9

MDI \*\*\*\*\* 17:10:24

NEW CREATE COPY DELETE FILE WORK CLOSE

INSERT EDIT INPUT EOB

## 2 "Newly creating" workpieces

Newly create work pieces as follows:

Procedure: [NEW CREATE]→ Set the work No. and comment. → [CREATE]

| WORK No. | COMMENT | MODIFIED DATE    | SIZE(KB) |
|----------|---------|------------------|----------|
| * 01     | TEST    | 2012/07/25 15:57 | 3        |

CREATING NEW WORK

WORK No. 02

COMMENT NEW WORK

Workpiece Nos.: 1 to 99  
Comment: Max. 22 characters

After inputting, press the "INPUT" key.

Up to 99 workpieces can be created.

For workpieces newly created, the teaching coordinate value is "space" and the approach is an initial value.

The operation setting is created according to the initial value.

### 3 "Selecting" workpieces

Select a workpiece.

If no workpiece is selected, setting teaching or operation cannot be executed.

Procedure: Move the cursor. → [WORK SELECT (select a workpiece)] → Main screen

RAKURAKU LOADER 4

LT00 R 1828 RT00

01 TEST

WORK LIST

| WORK No. | COMMENT  | MODIFIED DATE    | SIZE (KB) |
|----------|----------|------------------|-----------|
| * 01     | TEST     | 2012/07/25 15:57 | 3         |
| 02       | NEW WORK | 2012/09/03 17:23 | 2         |

MDI \*\*\*\*\* 17:23:19

NEW COPY COPY DELETE FILE WORK CLOSE  
CREATE EDIT OUTPUT SELECT EDS

RAKURAKU LOADER 4

LT00 R 1828 RT00

02 NEW WORK

ABSOLUTE POSITION

X G 0.000

Y G 0.000

Z G 0.000

DISTANCE TO GO

XG YG ZG 26

LOAD/SPEED

CYCLE TIME 395

HISTORY1 1H50S

HISTORY2 2H30S

HISTORY3 395

LOADING TRJ 395

LOADING (L) 395

RUN TIME

HAND/SPINDLE

LOADER HAND SCHEDULE 0

LOAD UNLOAD LOADING 0

UNLOADING 0

SPINDLE WORK NG 0

LEFT RIGHT QUALITY CHECK 0

PROCESSING COMPLETION

TOUCH HAND TIME

LEFT RIGHT AFTER

COUNT

PROGRAM LIST

0001 (START) N0000

M222

(PROCESS CHECK)

N001 M222

IF #616 E0 0 1 GOTO 10

IF #616 M0 1 1 GOTO 20

IF #616 F0 2 1 GOTO 30

END (START)

M222 [PROGRAM START M CODE]

EDT \*\*\*\*\* 17:24:34

WORK TEACH WORK DUAL  
LIST NG SETTING CHECK

Selected workpiece No. and comment are displayed.

When setting workpiece, setting for the teaching or operation are converted into macro variables for the loader and set into PMC.

Setting for teaching or operation is executed for the selected workpiece.

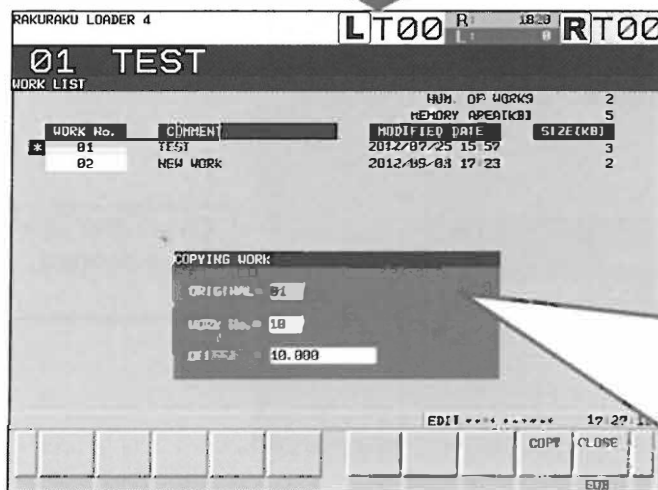
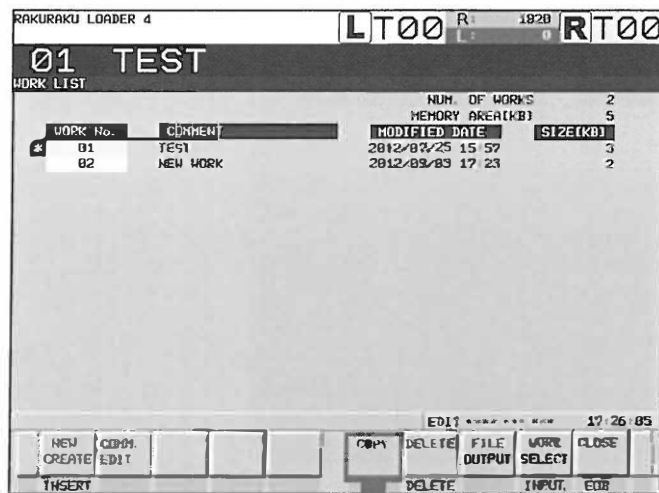
If no workpiece is selected, the Interlock button of the loader is not turned on.

Thus, operating the loader is not possible.

## 4 "Copying" workpieces

Copy the data of the existing workpiece to newly create a workpiece.

Procedure: [COPY (the date of the workpiece)] → Set copy No. and work offset. → [COPY]



Workpiece Nos.: 1 to 99  
Workpiece offset: 8 digit

After inputting, press the "INPUT" key.

To perform workpiece offset, set the difference of the work length.

If nothing is input into the workpiece offset area, copying only is executed.

For the copied workpiece, settings of the teaching or operation are also copied. When the difference of the length of the workpiece is set into the workpiece offset area, teaching coordinate value will be changed, considering the difference of the length of the workpiece.

For detail, refer to "3-2 Copying Workpiece."

When the difference in the length of the workpiece is not set for workpiece offset, copying only is executed.

After copying, be sure to check the teaching position.

## 5 "Deleting" workpiece

Delete the data for the existing workpiece.

Procedure: Move the cursor. →[DELETE] → Check the deletion. → [DELETE]

RAKURAKU LOADER 4      LT00 R 1828 RT00

01 TEST

WORK LIST

| WORK No. | COMMENT  | MODIFIED DATE    | SIZE(KB) |
|----------|----------|------------------|----------|
| * 01     | TEST     | 2012/09/03 17:32 | 2        |
| 02       | NEW WORK | 2012/09/03 17:23 | 2        |

EDIT \*\*\*\*\* 17:33:52

NEW CREATE COMM. EDIT COPY DELETE FILE OUTPUT WORK SELECT CLOSE

INSERT INPUT EOB

RAKURAKU LOADER 4      LT00 R 1828 RT00

01 TEST

WORK LIST

| WORK No. | COMMENT  | MODIFIED DATE    | SIZE(KB) |
|----------|----------|------------------|----------|
| * 01     | TEST     | 2012/09/03 17:32 | 2        |
| 02       | NEW WORK | 2012/09/03 17:23 | 2        |

WORK DELETION

WORK No. = 2

COMMENT = NEW WORK

EDIT \*\*\*\*\* 17:35:01

DELETE CLOSE

DELETE EOB

Check the workpiece No. to be deleted.

Once the data are deleted, it is not possible to recover the data.  
Before deleting the data, save them into a memory card or USB memory.  
For saving method, refer to "4-2 6. Outputting" Workpiece Information."

## 6 "Outputting" workpiece information

Information on the existing workpiece (settings for teaching and operation) are output as a file.

Procedure: Move the cursor. →[FILE OUTPUT] → Set name of file and where to output. → [FILE OUTPUT]

| WORK No. | COMMENT  | MODIFIED DATE    | SIZE(KB) |
|----------|----------|------------------|----------|
| 01       | TEST     | 2012-09-03 17:32 | 2        |
| 02       | NEW WORK | 2012-09-03 17:23 | 2        |

WORK PROGRAM OUTPUT

WORK No. = 02

FILENAME = WORK\_02.TXT

OUTPUT = MEMORY CARD

Workpiece Nos.: 1 to 99  
File name: Max. 12 characters  
Where to output: Memory card and USB memory

If "-9999" is specified as a workpiece No., all workpieces data will be output as one file.

WORK PROGRAM OUTPUT

WORK No. = -9999

FILENAME = WORK\_ALL.TXT

OUTPUT = USB MEMORY

The file is output in text file format as a NC program.

"%" is written into the head and end of the file.

When "-9999" is specified to the workpiece No. and output, the information on all the workpieces are output as one file.

When "-9999" is input into the workpiece No. area, the name of the file will automatically change to "WORK\_ALL.TXT."

If the same file name already exists, the "Check message" is displayed.

To overwrite, press "OK."

Specify the memory card or USB memory as a place to output.

Memory cards or USB memories may not be unusable.

Regardless of I/O channel for NC setting, the data can be output to either the memory card or USB memory.

The output file is NC program.

To register again, input from the NC program screen.

### 4-3 Operation relating to teaching

If no workpiece is selected, any operations relating to the teaching cannot be performed.

Select a workpiece before performing the teaching.

## 1 Display and operation of teaching screen

Procedure: [TEACHING] → Teaching screen → [(OPRT)]

|                             |          |              |              |                       |  |
|-----------------------------|----------|--------------|--------------|-----------------------|--|
| OKURU LOADER 4              |          | LT00 R: 1928 |              | RT00                  |  |
| <b>R0K1 TEST</b>            |          |              |              |                       |  |
| ABSOLUTE POSITION           |          | LOAD/SPEED   |              | RUN TIME              |  |
| X <sub>G</sub>              | 0.0000   | 0            | CYCLE TIME   | 39S                   |  |
| Y <sub>G</sub>              | 0.0000   | 0            | HISTORY1     | 1H58S                 |  |
| Z <sub>G</sub>              | 0.0000   | 0            | HISTORY2     | 2H38S                 |  |
|                             |          | 0            | HISTORY3     | 39S                   |  |
|                             |          | 0            | LOADING (RJ) | 39S                   |  |
|                             |          | 0            | LOADING (LJ) | 39S                   |  |
| DISTANCE TO GO<br>XG YG ZG  |          |              |              |                       |  |
| LOADER PROGRAM              |          | HAND/SPINDLE |              | COUNTER               |  |
| OB001 (START) N0000         |          | LOADER HAND  |              | SCHEDULE              |  |
| OB001 (START) ;             |          | LOAD UNLOAD  |              | LOADING               |  |
| M222 ;                      |          | ( ) ( )      |              | UNLOADING             |  |
| <PROCESS CHECK> ;           |          | SPINDLE      |              | WORK NG               |  |
| N001 M222 ;                 |          | LEFT RIGHT   |              | QUALITY CHECK         |  |
| IF1 #616 EQ 0 J GOTO 10 ;   |          | ( ) ( )      |              | PROCESSING COMPLETION |  |
| IF1 #616 EQ 1 J GOTO 20 ;   |          | TURN HAND    |              | TIME                  |  |
| IF1 #616 EQ 2 J GOTO 30 ;   |          | LEFT RIGHT   |              | AFR                   |  |
|                             |          | ( ) ( )      |              | COUNT                 |  |
| M222 [PROGRAM START H CODE] |          |              |              |                       |  |
| EDIT *****                  |          | 17:02:52     |              |                       |  |
| WORK LIST                   | TEACHING | WORK SETTING | DATA CHECK   | SCHEDULE              |  |

RAKURAKU LOADER 4

LT00 18.00 RT00

# 01 TEST

ABSOLUTE POSITION

L ← R X<sub>G</sub> 0.000

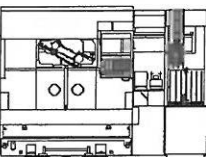
U ↑ D ↓ Y<sub>G</sub> 0.000

BF ← BH Z<sub>G</sub> 0.000

DISTANCE TO GO

X<sub>G</sub> Y<sub>G</sub> Z<sub>G</sub>

TEACHING POINT 01: WORK LOAD



TEACHING POSITION 01: WORK LOAD

X<sub>G</sub> -22.000

Y<sub>G</sub> -174.871

Z<sub>G</sub> -122.520

A 10.000

WORK LOADING POINT

PLEASE TEACH LOADING POINT ON THE WORKFEEDER.

POSITION SWITCH

X<sub>B</sub> (09) -301.000 ~ 1.000

Y<sub>B</sub> (10) -411.000 ~ 1.234

Exit \*\*\* \*\*\* \*\*\*

19:00:49

POINT LIST

POINT 1

POINT ↓

PAGE ↑ PAGE ↓

COPT CLOSE

EOB

|  |  |  |        |     |        |        |        |        |
|--|--|--|--------|-----|--------|--------|--------|--------|
|  |  |  | P-HOME | ALL | SINGLE | DELETE | #INPUT | RETURN |
|--|--|--|--------|-----|--------|--------|--------|--------|

## 2 "Directly inputting" teaching coordinate value

Set the value to the teaching coordinate value area.

Procedure: Move the cursor. → Input the coordinate value. → [INPUT] key

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

ABSOLUTE POSITION

XG 0.000

YG 0.000

ZG 0.000

TEACHING POSITION

XG -20.100

YG -174.871

ZG -122.520

A 10.000

WORK LOADING POINT

PLEASE TEACH LOADING POINT ON THE WORKFEEDER

POSITION SWITCH

XG (09) -381.000 ~ 1.000

YG (10) -411.000 ~ 1.234

EDIT \*\*\*\*\* 18 20 16

P-MOVE ALL SINGLE DELETE INPUT RETURN

Input the coordinate value

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

ABSOLUTE POSITION

XG 0.000

YG 0.000

ZG 0.000

TEACHING POSITION

XG -22.000

YG -174.871

ZG -122.520

A 10.000

WORK LOADING POINT

PLEASE TEACH LOADING POINT ON THE WORKFEEDER

POSITION SWITCH

XG (09) -381.000 ~ 1.000

YG (10) -411.000 ~ 1.234

EDIT \*\*\*\*\* 18 23 29

P-MOVE ALL SINGLE DELETE INPUT RETURN

Input "-22.000."

The value input by using the key is displayed at the cursor position on light blue background.

[INPUT] key

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

ABSOLUTE POSITION

XG 0.000

YG 0.000

ZG 0.000

TEACHING POSITION

XG -22.000

YG -174.871

ZG -122.520

A 10.000

WORK LOADING POINT

PLEASE TEACH LOADING POINT ON THE WORKFEEDER

POSITION SWITCH

XG (09) -381.000 ~ 1.000

YG (10) -411.000 ~ 1.234

EDIT \*\*\*\*\* 18 24 37

P-MOVE ALL SINGLE DELETE INPUT RETURN

If the input coordinate value is out of the range of the position switch, the error is displayed.

If the "POSITION SWITCH check" is "invalid", no error is displayed.

### 3 Setting the teaching coordinate value for "ALL the coordinates"

The current loader position is set to the teaching coordinate value for all the axes.

Procedure: Move the loader to the teaching point. → [ALL]

RAKURAKU LOADER 4

01 TEST

ABSOLUTE POSITION

|                |       |
|----------------|-------|
| X <sub>G</sub> | 0.000 |
| Y <sub>G</sub> | 0.000 |
| Z <sub>G</sub> | 0.000 |

TEACHING POSITION

|                |          |
|----------------|----------|
| X <sub>G</sub> | -22.000  |
| Y <sub>G</sub> | -174.871 |
| Z <sub>G</sub> | -122.520 |
| A              | 10.000   |

POSITION SWITCH

XG (091) -301.000 ~ 1.000

YG (101) -411.000 ~ 1.234

EDIT

ALL SINGLE DELETE +INPUT RETURN

RAKURAKU LOADER 4

01 TEST

ABSOLUTE POSITION

|                |       |
|----------------|-------|
| X <sub>G</sub> | 0.000 |
| Y <sub>G</sub> | 0.000 |
| Z <sub>G</sub> | 0.000 |

TEACHING POSITION

|                |        |
|----------------|--------|
| X <sub>G</sub> | 0.000  |
| Y <sub>G</sub> | 0.000  |
| Z <sub>G</sub> | 0.000  |
| A              | 10.000 |

POSITION SWITCH

XG (091) -301.000 ~ 1.000

YG (101) -411.000 ~ 1.234

EDIT

ALL SINGLE DELETE +INPUT RETURN

Current loader position is set to the teaching coordinate for all axes (X and Y and Z).

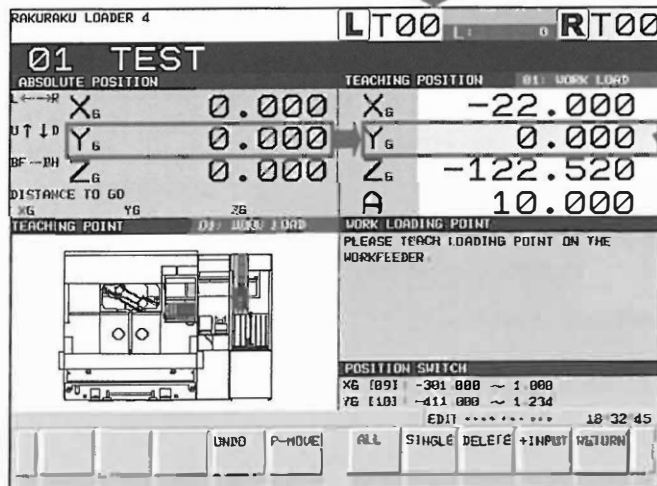
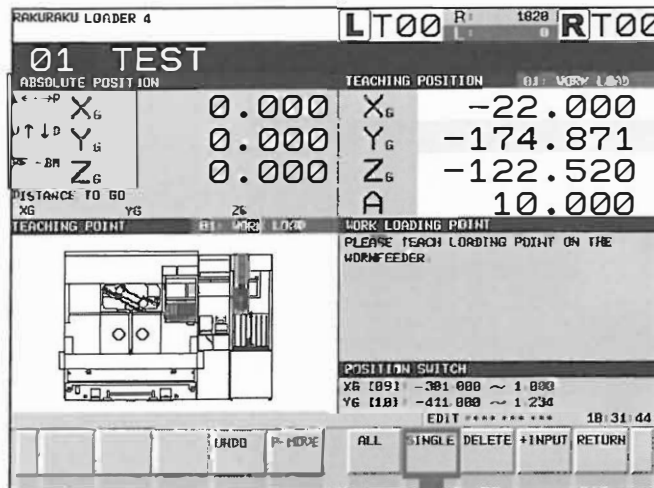
A (approach coordinate value) is not set.

If the "POSITION SWITCH" is out of the range with the "POSITION SWITCH check" for setting the system "VALID", the error is displayed and setting is not possible.

## 4 Setting the teaching coordinate value for "SINGLE coordinate"

Set the current loader position to the teaching coordinate value for one axis only.

Procedure: Move the loader to the teaching point. → Move the cursor. → [SINGLE (Single coordinate)]



The loader position of the axis at the cursor position is set.

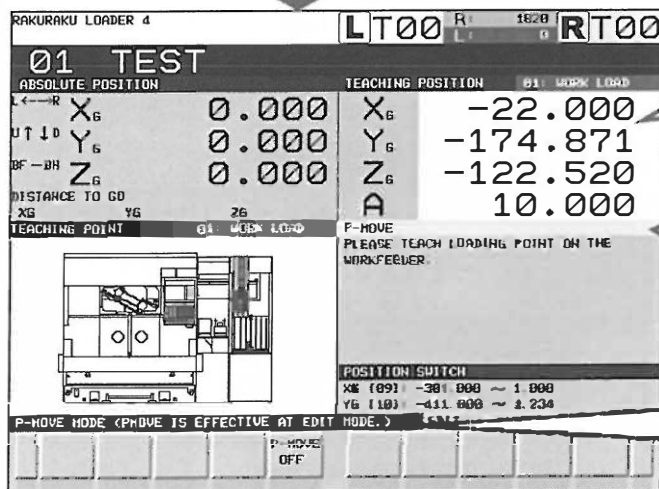
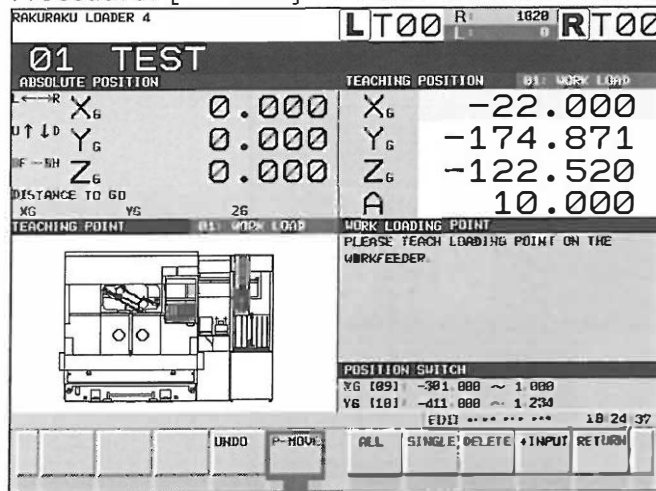
A (approach coordinate value) is not set.

If the "POSITION SWITCH" is out of the range with the "POSITION SWITCH check" for setting the system "VALID", the error is displayed and setting is not possible.

## 5 Moving axis to teaching coordinate value by using "P-MOVE."

Move the axis to the teaching coordinate value.

Procedure: [P-MOVE] → Move the loader manually. →[P-MOVE OFF]



Move "P-MOVE" to this position.

When it is in P-MOVE mode, "P-MOVE" is displayed.

When it is in P-MOVE mode, the message is displayed.

### (1) Operation



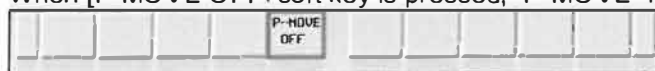
Press button of the loader pendant to change it to the editing (EDIT) mode.

If the direction key is pressed with the loader pendant shift button pressed, the axis moves to the teaching point.

When the axis moves to the teaching coordinate value, it stops. (It does not rotate in the reverse direction.)

### (2) Cancelling

When [P-MOVE OFF] soft key is pressed, "P-MOVE" mode is canceled.



When the screen is changed to NC screen or other screen, "P-MOVE" mode will be canceled.

## 6 Setting teaching coordinate value by "+ INPUT"

Input the positive "+ INPUT" value to the teaching coordinate value area.

Procedure: Move the cursor. → Input the value. → [+ INPUT]

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

ABSOLUTE POSITION

XG 0.000

YG 0.000

ZG 0.000

TEACHING POSITION 01: WORK LOAD

XG -22.000

YG -174.871

ZG -122.520

A 10.000

TEACHING POINT 01: WORK LOAD

WORK LOADING POINT

PLEASE TEACH LOADING POINT ON THE WORKFEEDER.

POSITION SWITCH

XG (09) -301.000 ~ 1.000

YG (10) -411.000 ~ 1.234

EDIT \*\*\*\*\* 18:31:44

UNDO P-MOVE ALL SINGLE DELETE +INPUT RETURN

値を入力

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

ABSOLUTE POSITION

XG 0.000

YG 0.000

ZG 0.000

TEACHING POSITION 01: WORK LOAD

XG -22.000

YG -10.000

ZG -122.520

A 10.000

TEACHING POINT 01: WORK LOAD

WORK LOADING POINT

PLEASE TEACH LOADING POINT ON THE WORKFEEDER.

POSITION SWITCH

XG (09) -301.000 ~ 1.000

YG (10) -411.000 ~ 1.234

EDIT \*\*\*\*\* 18:45:21

UNDO P-MOVE ALL SINGLE DELETE +INPUT RETURN

Input -10.

The value input by using the key is displayed at the cursor position on light blue background.

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

ABSOLUTE POSITION

XG 0.000

YG 0.000

ZG 0.000

TEACHING POSITION 01: WORK LOAD

XG -22.000

YG -184.871

ZG -122.520

A 10.000

TEACHING POINT 01: WORK LOAD

WORK LOADING POINT

PLEASE TEACH LOADING POINT ON THE WORKFEEDER.

POSITION SWITCH

XG (09) -301.000 ~ 1.000

YG (10) -411.000 ~ 1.234

EDIT \*\*\*\*\* 18:47:25

UNDO P-MOVE ALL SINGLE DELETE +INPUT RETURN

If the coordinate value after "+" input is out of the position switch range, the error is displayed.

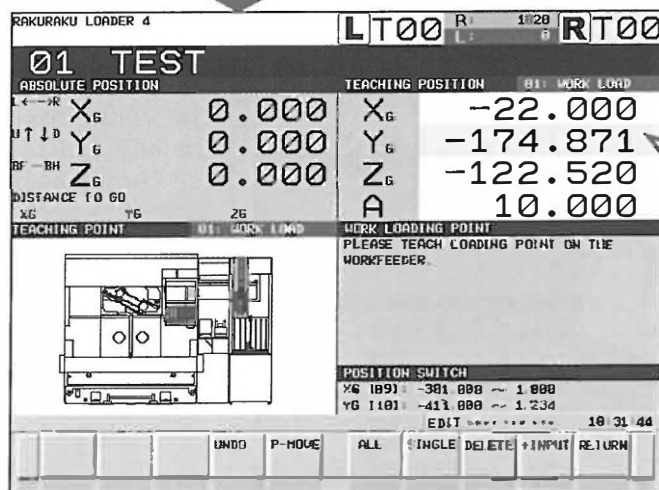
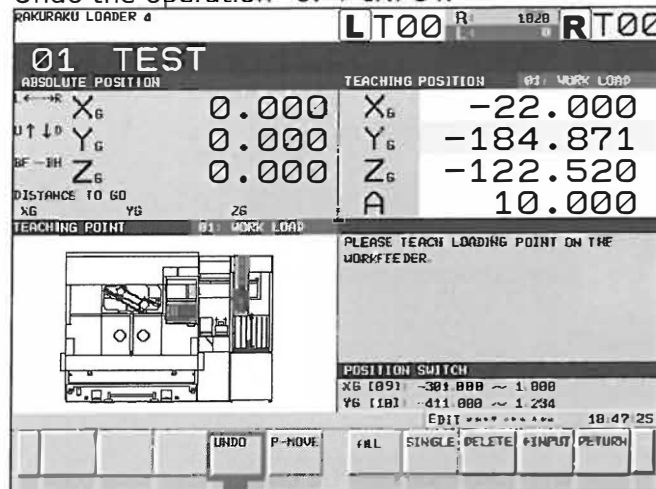
If the "POSITION SWITCH check" of the system setting is "disabled", the error is not displayed.

## 7 Returning (UNDO) teaching coordinate value

Teaching coordinate value can be returned to the previous value only one time even after it has been set.

Procedure: Setting the coordinate value. →[UNDO]→ The value returns to the coordinate value before setting.

Undo the operation "6. + INPUT."



The value will be the coordinate value before "-10." is input by using "+ INPUT."

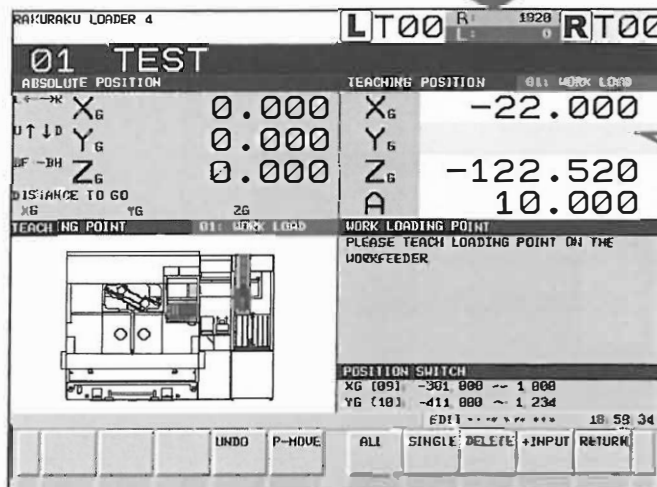
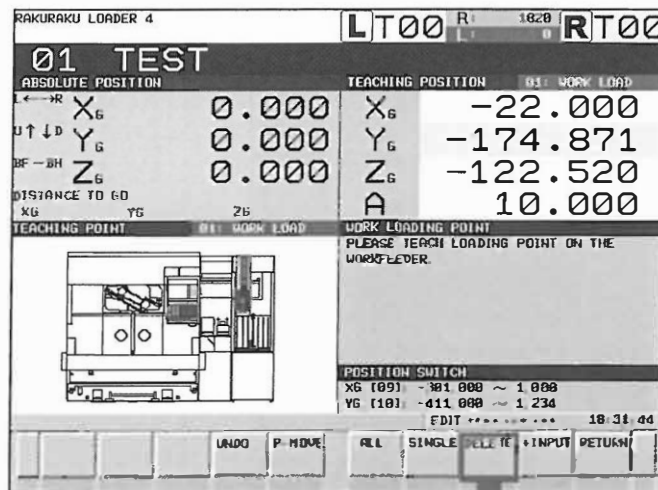
The operations "INPUT", "+ INPUT", "ALL", or "DELETE" can be returned (UNDO) only one time.

The soft key is displayed only when the operation can be returned (UNDO).

## 8 "Deleting (DELETE)" teaching coordinate value

Delete the teaching coordinate value.

Procedure: Move the cursor. →[DELETE]



When they are deleted, "spaces" are set.

If the micro variable for the "space" is executed by the teaching coordinate value while the loader program is operating, the alarm is given, stopping the operating program.

## 9 Displaying teaching list screen

Procedure: [Teaching setting] → [POINT LIST] → Teaching list screen

RAKURAKU LOADER 4 LT00 R 1820 RT00

### 01 TEST

| ABSOLUTE POSITION |       | LOAD / SPEED |   | RUN TIME |       |
|-------------------|-------|--------------|---|----------|-------|
| X←→R              | 0.000 | 0            | 0 | 0        | 39S   |
| U↑↓D              | 0.000 | 0            | 0 | 0        | 1450S |
| BF←BH             | 0.000 | 0            | 0 | 0        | 2430S |
|                   |       | 0            | 0 | 0        | 39S   |
|                   |       | 0            | 0 | 0        | 39S   |
|                   |       | 0            | 0 | 0        | 39S   |

DISTANCE TO GO  
XG YG ZG

| LOADER PROGRAM           |       | HAND/SPINDLE |                       | COUNTER |   |
|--------------------------|-------|--------------|-----------------------|---------|---|
| 00001 (START)            | N0000 | TURN R       | SCHEDULE              | 0       | 0 |
| 00001 (START)            |       | LOAD UNLOAD  | LOADING               | 0       | 0 |
| M222                     |       | ( ) ( )      | UNLOADING             | 0       | 0 |
| (PROCESS CHECK)          |       | SPINDLE      | WORK NG               | 0       | 0 |
| N001 M222                |       | LEFT RIGHT   | QUALITY CHECK         | 0       | 0 |
| IF1 M616 EQ 0 1 GO TO 10 |       | ( ) ( )      | PROCESSING COMPLETION |         |   |
| IF1 M616 EQ 1 1 GO TO 20 |       | TURN HAND    | TIME                  |         |   |
| IF1 M616 EQ 2 1 GO TO 30 |       | LEFT RIGHT   | OFFER                 |         |   |
|                          |       | ( ) ( )      | COUNT                 |         |   |

M222 [PROGRAM START M CODE] EDIT \*\*\*\*\* 17:02:52

WORK LIST TEACH NG WORK SETTING QUAL CHECK SCHEDULE

RAKURAKU LOADER 4 LT00 R 1820 RT00

### 01 TEST

| ABSOLUTE POSITION |       | TEACHING POSITION |          |
|-------------------|-------|-------------------|----------|
| X←→R              | 0.000 | XG                | -22.000  |
| U↑↓D              | 0.000 | YG                | -174.871 |
| BF←BH             | 0.000 | ZG                | -122.520 |
|                   |       | A                 | 10.000   |

DISTANCE TO GO  
XG YG ZG

TEACHING POINT 01: WORK LOAD

WORK LOADING POINT  
PLEASE TEACH LOADING POINT ON THE WORKFEEDER.

POSITION SWITCH  
XG (09) -301.000 ~ 1.000  
YG (10) -411.000 ~ 1.234  
EDIT \*\*\*\*\* 19:00:49

POINT LIST POINT ↑ POINT ↓ PAGE ↑ PAGE ↓

RAKURAKU LOADER 4 LT00 R 1820 RT00

### 01 TEST

#### TEACHING POINT LIST

| No. | TEACH POINT  | X: L←→R   | Y: U↑↓D  | Z: BF←BH | A: APPROACH |
|-----|--------------|-----------|----------|----------|-------------|
| 01  | WORK LOAD    | -22.000   | -174.871 | -122.520 | 10.000      |
| 02  | HC-R UNLOAD  | -1101.467 | -440.670 | -135.700 | 0.000       |
| 03  | HC-R LOAD    | -1101.467 | -650.530 | -135.633 | 5.000       |
| 04  | TURN RIGHT   | -1101.322 | -11.295  | -100.667 | 5.000       |
| 05  | TURN LEFT    | -1519.870 | -20.237  | -114.627 | 5.000       |
| 06  | HC-L UNLOAD  | -1521.143 | -440.940 | -132.000 | 0.000       |
| 07  | HC-L LOAD    | -1521.343 | -659.033 | -130.933 | 5.000       |
| 08  | WORK UNLOAD  | -20.100   | -174.671 | -122.520 | 50.000      |
| 09  | WORK NG      |           |          |          | 50.000      |
| 10  | QUALITY      |           |          |          | 20.000      |
| 11  | MEASUREMENT  |           |          |          | 20.000      |
| 12  | MEASURING NG |           |          |          | 20.000      |
| 13  | ORIENTATION  |           |          |          | 20.000      |
| 14  | FIRST UNLOAD |           |          |          | 50.000      |
| 15  | QUALITY 2    |           |          |          | 20.000      |

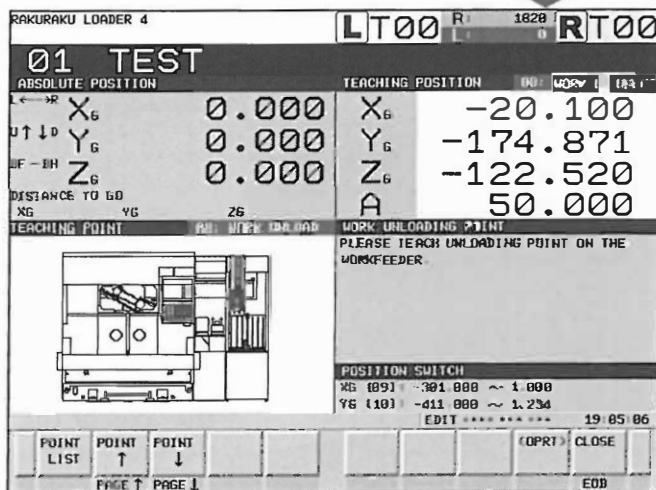
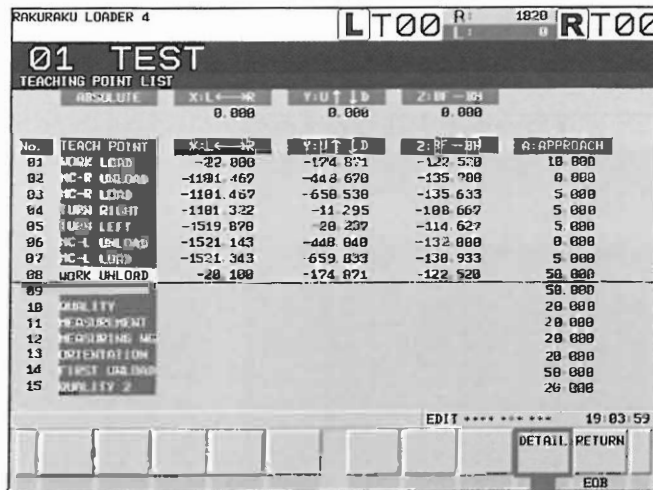
EDIT \*\*\*\*\* 19:02:36

DETAIL RETURN

With the page key "↓", spare teaching lists can be displayed.

## 10 Displaying "DETAILS" of teaching point

Procedure: Move the cursor to the teaching point. →[DETAILS] → Teaching screen



The teaching point becomes workpieces unloading position, and the teaching screen is displayed.

The [DETAILS] soft key is displayed when the cursor is at the teaching point.

## 11 Setting the coordinate value of teaching list by "SINGLE" coordinate

Set the current loader position as a teaching coordinate value of the cursor position.

Procedure: Move the cursor in X or Z direction, → [SINGLE] coordinate

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

TEACHING POINT LIST

| No. | TEACH POINT  | X: L ← R  | Y: U ↑ D | Z: F ← B | A: A ← PROX |
|-----|--------------|-----------|----------|----------|-------------|
| 01  | WORK LOAD    | -22.000   | -174.871 | -122.520 | 10.000      |
| 02  | HC-R UNLOAD  | -1181.467 | -448.670 | -135.780 | 0.000       |
| 03  | HC-R LOAD    | -1181.467 | -658.538 | -135.633 | 5.000       |
| 04  | TURN RIGHT   | -1181.322 | -11.295  | -108.667 | 5.000       |
| 05  | TURN LEFT    | -1519.870 | -20.237  | -114.627 | 5.000       |
| 06  | HC-L UNLOAD  | -1521.143 | -448.048 | -132.000 | 0.000       |
| 07  | HC-L LOAD    | -1521.143 | -659.833 | -130.933 | 5.000       |
| 08  | WORK UNLOAD  | -20.100   | -174.871 | -122.520 | 50.000      |
| 09  | WORK NG      |           |          |          | 50.000      |
| 10  | QUALITY      |           |          |          | 20.000      |
| 11  | MEASUREMENT  |           |          |          | 20.000      |
| 12  | MEASURING NG |           |          |          | 20.000      |
| 13  | ORIENTATION  |           |          |          | 20.000      |
| 14  | FIRST UNLOAD |           |          |          | 50.000      |
| 15  | QUALITY 2    |           |          |          | 20.000      |

EDIT \*\*\*\*\* 19:07:05

SINGLE DELETE +INPUT RETURN

END

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

TEACHING POINT LIST

| No. | TEACH POINT  | X: L ← R  | Y: U ↑ D | Z: F ← B | A: A ← PROX |
|-----|--------------|-----------|----------|----------|-------------|
| 01  | WORK LOAD    | -22.000   | -174.871 | -122.520 | 10.000      |
| 02  | HC-R UNLOAD  | -1181.467 | -448.670 | -135.780 | 0.000       |
| 03  | HC-R LOAD    | -1181.467 | -658.538 | -135.633 | 5.000       |
| 04  | TURN RIGHT   | -1181.322 | -11.295  | -108.667 | 5.000       |
| 05  | TURN LEFT    | -1519.870 | -20.237  | -114.627 | 5.000       |
| 06  | HC-L UNLOAD  | -1521.143 | -448.048 | -132.000 | 0.000       |
| 07  | HC-L LOAD    | -1521.143 | -659.833 | -130.933 | 5.000       |
| 08  | WORK UNLOAD  | -20.100   | -174.871 | -122.520 | 50.000      |
| 09  | WORK NG      | 0.000     |          |          |             |
| 10  | QUALITY      |           |          |          | 20.000      |
| 11  | MEASUREMENT  |           |          |          | 20.000      |
| 12  | MEASURING NG |           |          |          | 20.000      |
| 13  | ORIENTATION  |           |          |          | 20.000      |
| 14  | FIRST UNLOAD |           |          |          | 50.000      |
| 15  | QUALITY 2    |           |          |          | 20.000      |

EDIT \*\*\*\*\* 19:08:16

UNDO SINGLE DELETE +INPUT RETURN

END

The loader position for the axis of the cursor position is set.

A (approach coordinate value) is not set.

If the "POSITION SWITCH" is out of the range with the "POSITION SWITCH check" for setting the system "VALID", the error is displayed and setting is not possible.

## 12 "Deleting [DELETE]" the coordinate value of teaching list

Delete the teaching coordinate value.

Procedure: Move the cursor. →[DELETE]

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

TEACHING POINT LIST

| No. | TEACH POINT  | X: L←R    | Y: U↑D   | Z: F←B   | A: APPROACH |
|-----|--------------|-----------|----------|----------|-------------|
| 01  | WORK LOAD    | -22.000   | -174.071 | -122.520 | 10.000      |
| 02  | HC-R UNLOAD  | -1101.467 | -448.670 | -135.700 | 0.000       |
| 03  | HC-R LOAD    | -1101.467 | -650.530 | -135.633 | 5.000       |
| 04  | TURN RIGHT   | -1101.322 | -11.295  | -100.667 | 5.000       |
| 05  | TURN LEFT    | -1519.070 | -20.237  | -114.627 | 5.000       |
| 06  | HC-L UNLOAD  | -1521.143 | -440.640 | -132.000 | 0.000       |
| 07  | HC-L LOAD    | -1521.343 | -659.033 | -130.933 | 5.000       |
| 08  | WORK UNLOAD  | -20.100   | -174.071 | -122.520 | 50.000      |
| 09  | WORK NG      | 0.000     |          |          | 50.000      |
| 10  | QUALITY      |           |          |          | 20.000      |
| 11  | MEASUREMENT  |           |          |          | 20.000      |
| 12  | MEASURING NG |           |          |          | 20.000      |
| 13  | ORIENTATION  |           |          |          | 20.000      |
| 14  | FIRST UNLOAD |           |          |          | 50.000      |
| 15  | QUALITY 2    |           |          |          | 20.000      |

EDIT \*\*\*\*\* 19:00:16

UNDO SINGLE DELETE +INPUT RETURN

EOB

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

TEACHING POINT LIST

| No. | TEACH POINT  | X: L←R    | Y: U↑D   | Z: F←B   | A: APPROACH |
|-----|--------------|-----------|----------|----------|-------------|
| 01  | WORK LOAD    | -22.000   | -174.071 | -122.520 | 10.000      |
| 02  | HC-R UNLOAD  | -1101.467 | -448.670 | -135.700 | 0.000       |
| 03  | HC-R LOAD    | -1101.467 | -650.530 | -135.633 | 5.000       |
| 04  | TURN RIGHT   | -1101.322 | -11.295  | -100.667 | 5.000       |
| 05  | TURN LEFT    | -1519.070 | -20.237  | -114.627 | 5.000       |
| 06  | HC-L UNLOAD  | -1521.143 | -440.640 | -132.000 | 0.000       |
| 07  | HC-L LOAD    | -1521.343 | -659.033 | -130.933 | 5.000       |
| 08  | WORK UNLOAD  | -20.110   | -174.071 | -122.520 | 50.000      |
| 09  | WORK NG      |           |          |          | 50.000      |
| 10  | QUALITY      |           |          |          | 20.000      |
| 11  | MEASUREMENT  |           |          |          | 20.000      |
| 12  | MEASURING NG |           |          |          | 20.000      |
| 13  | ORIENTATION  |           |          |          | 20.000      |
| 14  | FIRST UNLOAD |           |          |          | 50.000      |
| 15  | QUALITY 2    |           |          |          | 20.000      |

EDIT \*\*\*\*\* 19:10:38

UNDO SINGLE DELETE +INPUT RETURN

EOB

"Spaces" are set when deleted.

When they are deleted, "spaces" are set.

If the micro variable for the "space" is executed by the teaching coordinate value while the loader program is operating, the alarm is given, stopping the operating program.

### 13 Setting the coordinate value for teaching list by "+ INPUT"

Input the value into the teaching coordinate value area with "+ INPUT" key.

Procedure: Move the cursor. → Input the value. → [+INPUT]

RAKURAKU LOADER 4

LT00 R: 1828 RT00

01 TEST

TEACHING POINT LIST

| No. | TEACH POINT  | X: L←→R   | Y: U↑ D↓ | Z: F←→B  | A: APPROACH |
|-----|--------------|-----------|----------|----------|-------------|
| 01  | WORK LOAD    | -22.000   | -174.071 | -122.520 | 10.000      |
| 02  | WC-R UNLOAD  | -1101.467 | -440.670 | -135.633 | 0.000       |
| 03  | WC-R LOAD    | -1101.467 | 650.530  | -135.633 | 5.000       |
| 04  | TURN RIGHT   | -1101.322 | -11.295  | -100.667 | 5.000       |
| 05  | TURN LEFT    | -1519.070 | -20.237  | -114.627 | 5.000       |
| 06  | WC-L UNLOAD  | -1521.143 | -440.840 | -132.000 | 0.000       |
| 07  | WC-L LOAD    | -1521.343 | -659.033 | -130.933 | 5.000       |
| 08  | WORK UNLOAD  | -20.100   | -174.071 | -122.520 | 50.000      |
| 09  | WORK NG      | -296.000  | -174.071 | -122.520 | 50.000      |
| 10  | QUALITY      |           |          |          | 20.000      |
| 11  | MEASUREMENT  |           |          |          | 20.000      |
| 12  | MEASURING HG |           |          |          | 20.000      |
| 13  | ORIENTATION  |           |          |          | 20.000      |
| 14  | FIRST UNLOAD |           |          |          | 50.000      |
| 15  | QUALITY 2    |           |          |          | 20.000      |

EDIT \*\*\*\*\* 19 13 14

UNDO SINGLE DELETE +INPUT RETURN

EOB

値を入力

RAKURAKU LOADER 4

LT00 R: 1828 RT00

01 TEST

TEACHING POINT LIST

| No. | TEACH POINT  | X: L←→R   | Y: U↑ D↓ | Z: F←→B  | A: APPROACH |
|-----|--------------|-----------|----------|----------|-------------|
| 01  | WORK LOAD    | -22.000   | -174.071 | -122.520 | 10.000      |
| 02  | WC-R UNLOAD  | -1101.467 | -440.670 | -135.633 | 0.000       |
| 03  | WC-R LOAD    | -1101.467 | 650.530  | -135.633 | 5.000       |
| 04  | TURN RIGHT   | -1101.322 | -11.295  | -100.667 | 5.000       |
| 05  | TURN LEFT    | -1519.070 | -20.237  | -114.627 | 5.000       |
| 06  | WC-L UNLOAD  | -1521.143 | -440.840 | -132.000 | 0.000       |
| 07  | WC-L LOAD    | -1521.343 | -659.033 | -130.933 | 5.000       |
| 08  | WORK UNLOAD  | -20.100   | -174.071 | -122.520 | 50.000      |
| 09  | WORK NG      | -296.000  | -174.071 | -122.520 | 50.000      |
| 10  | QUALITY      |           |          |          | 20.000      |
| 11  | MEASUREMENT  |           |          |          | 20.000      |
| 12  | MEASURING HG |           |          |          | 20.000      |
| 13  | ORIENTATION  |           |          |          | 20.000      |
| 14  | FIRST UNLOAD |           |          |          | 50.000      |
| 15  | QUALITY 2    |           |          |          | 20.000      |

EDIT \*\*\*\*\* 19 14 26

UNDO SINGLE DELETE +INPUT RETURN

EOB

Input -10.

The value input by using the key is displayed at the cursor position on white background.

RAKURAKU LOADER 4

LT00 R: 1828 RT00

01 TEST

TEACHING POINT LIST

| No. | TEACH POINT  | X: L←→R   | Y: U↑ D↓ | Z: F←→B  | A: APPROACH |
|-----|--------------|-----------|----------|----------|-------------|
| 01  | WORK LOAD    | -22.000   | -174.071 | -122.520 | 10.000      |
| 02  | WC-R UNLOAD  | -1101.467 | -440.670 | -135.633 | 0.000       |
| 03  | WC-R LOAD    | -1101.467 | 650.530  | -135.633 | 5.000       |
| 04  | TURN RIGHT   | -1101.322 | -11.295  | -100.667 | 5.000       |
| 05  | TURN LEFT    | -1519.070 | -20.237  | -114.627 | 5.000       |
| 06  | WC-L UNLOAD  | -1521.143 | -440.840 | -132.000 | 0.000       |
| 07  | WC-L LOAD    | -1521.343 | -659.033 | -130.933 | 5.000       |
| 08  | WORK UNLOAD  | -20.100   | -174.071 | -122.520 | 50.000      |
| 09  | WORK NG      | -296.000  | -174.071 | -122.520 | 50.000      |
| 10  | QUALITY      |           |          |          | 20.000      |
| 11  | MEASUREMENT  |           |          |          | 20.000      |
| 12  | MEASURING HG |           |          |          | 20.000      |
| 13  | ORIENTATION  |           |          |          | 20.000      |
| 14  | FIRST UNLOAD |           |          |          | 50.000      |
| 15  | QUALITY 2    |           |          |          | 20.000      |

EDIT \*\*\*\*\* 19 15 40

UNDO SINGLE DELETE +INPUT RETURN

EOB

## 14 Returning (UNDO) the coordinate value of teaching coordinate list

Teaching coordinate value can be returned to the previous value only on time even after it has been set.

Procedure: Set the coordinate value. → [UNDO] → The value returns to the coordinate value before setting.

Undo the operation "13. +INPUT."

RAKURAKU LOADER 4

LT00 R: 1020 L: 0 RT00

01 TEST

TEACHING POINT LIST

| No. | TEACH POINT  | X: L←R    | Y: U↑D   | Z: F←BH  | A: APPROACH |
|-----|--------------|-----------|----------|----------|-------------|
| 01  | WORK LOAD    | -22.000   | -174.071 | -122.520 | 10.000      |
| 02  | HC-R UNLOAD  | -1101.467 | -440.670 | -135.700 | 0.000       |
| 03  | HC-R LOAD    | -1101.467 | -650.530 | -135.633 | 5.000       |
| 04  | TURN RIGHT   | -1101.322 | -11.295  | -100.667 | 5.000       |
| 05  | TURN LEFT    | -1519.070 | -20.237  | -114.627 | 5.000       |
| 06  | HC-L UNLOAD  | -1521.143 | -440.040 | -130.000 | 0.000       |
| 07  | HC-L LOAD    | -1521.343 | -659.033 | -130.933 | 5.000       |
| 08  | WORK UNLOAD  | -20.100   | -174.071 | -122.520 | 50.000      |
| 09  | WORK NG      | -296.000  | -174.071 | -122.520 | 50.000      |
| 10  | QUALITY      |           |          |          | 20.000      |
| 11  | MEASUREMENT  |           |          |          | 20.000      |
| 12  | MEASURING NG |           |          |          | 20.000      |
| 13  | ORIENTATION  |           |          |          | 20.000      |
| 14  | FIRST UNLOAD |           |          |          | 50.000      |
| 15  | QUALITY 2    |           |          |          | 20.000      |

EDIT 19:15:48

UNDO SINGLE DELETE +INPUT RETURN

END

RAKURAKU LOADER 4

LT00 R: 1020 L: 0 RT00

01 TEST

TEACHING POINT LIST

| No. | TEACH POINT  | X: L←R    | Y: U↑D   | Z: F←BH  | A: APPROACH |
|-----|--------------|-----------|----------|----------|-------------|
| 01  | WORK LOAD    | -22.000   | -174.071 | -122.520 | 10.000      |
| 02  | HC-R UNLOAD  | -1101.467 | -440.670 | -135.700 | 0.000       |
| 03  | HC-R LOAD    | -1101.467 | -650.530 | -135.633 | 5.000       |
| 04  | TURN RIGHT   | -1101.322 | -11.295  | -100.667 | 5.000       |
| 05  | TURN LEFT    | -1519.070 | -20.237  | -114.627 | 5.000       |
| 06  | HC-L UNLOAD  | -1521.143 | -440.040 | -130.000 | 0.000       |
| 07  | HC-L LOAD    | -1521.343 | -659.033 | -130.933 | 5.000       |
| 08  | WORK UNLOAD  | -20.100   | -174.071 | -122.520 | 50.000      |
| 09  | WORK NG      | -206.000  |          |          | 50.000      |
| 10  | QUALITY      |           |          |          | 20.000      |
| 11  | MEASUREMENT  |           |          |          | 20.000      |
| 12  | MEASURING NG |           |          |          | 20.000      |
| 13  | ORIENTATION  |           |          |          | 20.000      |
| 14  | FIRST UNLOAD |           |          |          | 50.000      |
| 15  | QUALITY 2    |           |          |          | 20.000      |

EDIT 19:13:14

UNDO SINGLE DELETE +INPUT RETURN

END

The value will be the coordinate value before "-10." is input by using "+ INPUT."

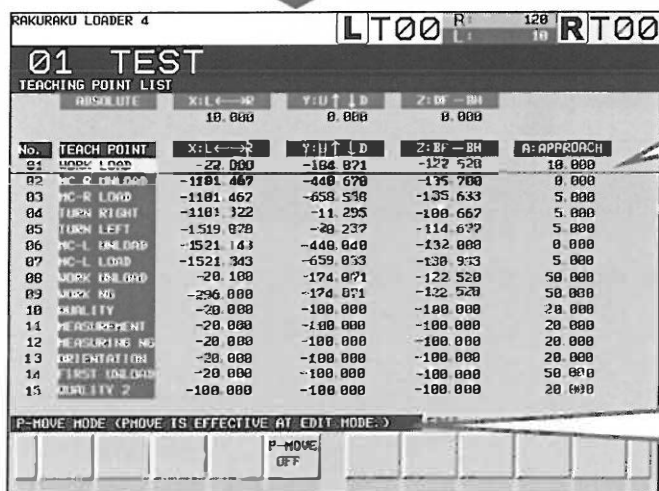
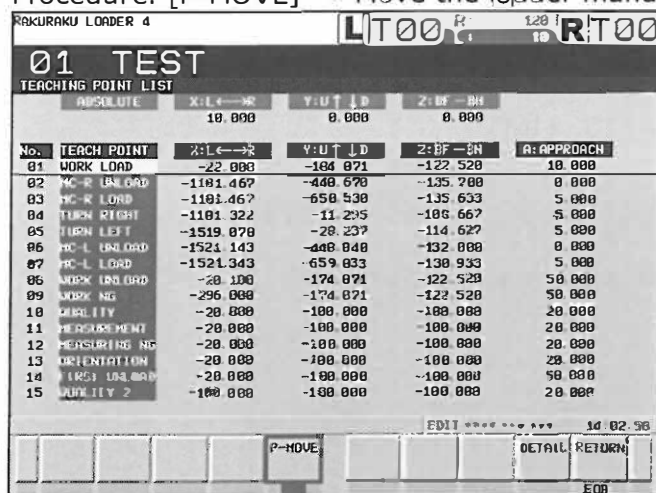
The operations "INPUT", "+ INPUT", "ALL", or "DELETE" can be returned (UNDO) only one time.

The soft key is displayed only when the operation can be returned (UNDO).

## 15 Moving axis to teaching coordinate value by using "P-MOVE."

Move the axis to the teaching coordinate value.

Procedure: [P-MOVE] → Move the loader manually. → [P-MOVE OFF]



Move "P-MOVE" to this position.

When it is in P-MOVE mode, the message is displayed.

### (1) Operation



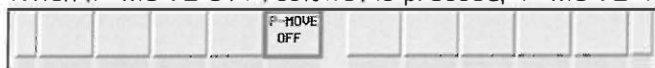
Press  button of the loader pendant to change it to the editing (EDIT) mode.

If the direction key is pressed with the loader pendant shift button pressed, the axis moves to the teaching point.

When the axis moves to the teaching coordinate value, it stops. (It does not rotate in the reverse direction.)

### (2) Cancelling

When [P-MOVE OFF] soft key is pressed, "P-MOVE" mode is canceled.



When the screen is changed to NC screen or other screen, "P-MOVE" mode will be canceled.

## 4-4 Operation setting

Perform the setting relating to the operation of the loader.

### 1 Displaying operation setting screen

Procedure: [WORK SETTING] → OPERATION SETTING screen

The image shows two screenshots of the RAKURAKU LOADER 4 control interface. The top screenshot is the '01 TEST' screen, and the bottom screenshot is the '01 TEST' screen with the 'OPERATION SETTING' sub-menu selected. An arrow points from the 'WORK SETTING' button on the top screen to the 'OPERATION SETTING' screen below.

**Top Screenshot: 01 TEST**

RAKURAKU LOADER 4 LT00 R: 1820 RT00

**01 TEST**

ABSOLUTE POSITION: XG 0.000, YG 0.000, ZG 0.000

LOAD/SPEED: 0, 0, 0, 0, 0, 0

RUN TIME: CYCLE TIME 39S, HISTORY1 1H50S, HISTORY2 2H06S, HISTORY3 39S, LOADING (R) 39S, LOADING (L) 39S

LOADER PROGRAM: 08001 (START) N0000

SPINDLE: 0, 0, 0, 0, 0, 0

COUNTER: SCHEDULE 0, UNLOADING 0, UNLOADING 0, WORK WG 0, QUALITY CHECK 0, PROCESSING COMPLETION 0

M222 (PROGRAM START H CODE) EDIT \*\*\*\*\* 17:02:52

Buttons: WORK LIST, TEACHING, WORK SETTING, DUAL CHECK, SCHEDULE +

**Bottom Screenshot: 01 TEST OPERATION SETTING**

RAKURAKU LOADER 4 LT00 R: 1820 RT00

**01 TEST**

OPERATION SETTING 1/4

080 SPIND. ORIENTATION LOAD (R) NO USE 015 AIR BLOW UNLOAD TIME (R) 1.000

081 SPIND. ORIENTATION UNL (R) NO USE 016 AIR BLOW LOAD TIME (L) 1.000

082 SPIND. ORIENTATION LOAD (L) NO USE 017 AIR BLOW UNLOAD TIME (L) 1.000

083 SPIND. ORIENTATION UNL (L) NO USE 018 HAND AIR BLOW TIME 1.000

084 SPIND. ORI. ANGLE LOAD (R) 0.0 019 020 LOAD HAND SIDE CLOSE

085 SPIND. ORI. ANGLE UNL (R) 0.0 021 UNLOAD HAND SIDE CLOSE

086 SPIND. ORI. ANGLE LOAD (L) 0.0 022 LOAD HAND LOOSE CHECK TIME 0.200

087 SPIND. ORI. ANGLE UNL (L) 0.0 023 (LOAD) HAND TIGHT CHECK TIME 0.696

088 024 UNL. HAND LOOSE CHECK TIME 0.400

089 025 UNL. HAND TIGHT CHECK TIME 0.200

090 026 027 028 029

091 AIR BLOW LOAD (R) USE 092 093 094 095 096 097 098 099 100

091 AIR BLOW UNLOAD (R) USE 092 093 094 095 096 097 098 099 100

091 AIR BLOW LOAD (L) USE 092 093 094 095 096 097 098 099 100

091 AIR BLOW UNLOAD (L) USE 092 093 094 095 096 097 098 099 100

091 AIR BLOW LOAD TIME (R) 1.000 092 093 094 095 096 097 098 099 100

EDIT \*\*\*\*\* 19:19:28

Buttons: PAGE 1, PAGE 2, (OPRT), CLOSE, PAGE 1, PAGE 2, END

## 2 Changing operation setting

Procedure: [(OPRT) operation] → The soft key corresponding to the item is displayed. → Press the soft key.

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

OPERATION SETTING

|                                 |        |                                |       |
|---------------------------------|--------|--------------------------------|-------|
| 000 SPINDL ORIENTATION LOAD (R) | NO USE | 015 AIR BLOW UNLOAD TIME (R)   | 1.000 |
| 001 SPINDL ORIENTATION UNL (R)  | NO USE | 016 AIR BLOW LOAD TIME (L)     | 1.000 |
| 002 SPINDL ORIENTATION LOAD (L) | NO USE | 017 AIR BLOW UNLOAD TIME (L)   | 1.000 |
| 003 SPINDL ORIENTATION UNL (L)  | NO USE | 018 HAND AIR BLOW TIME         | 1.000 |
| 004 SPINDL ORI. ANGLE LOAD (R)  | 0.0    | 019                            |       |
| 005 SPINDL ORI. ANGLE UNL (R)   | 0.0    | 020 LOAD HAND SIDE             | CLOSE |
| 006 SPINDL ORI. ANGLE LOAD (L)  | 0.0    | 021 UNLOAD HAND SIDE           | CLOSE |
| 007 SPINDL ORI. ANGLE UNL (L)   | 0.0    | 022 LOAD HAND LOOSE CHECK TIME | 0.200 |
| 008                             |        | 023 LOAD HAND TIGHT CHECK TIME | 0.696 |
| 009                             |        | 024 UNL. HAND LOOSE CHECK TIME | 0.400 |
| 010 AIR BLOW LOAD (R)           | USE    | 025 UNL. HAND TIGHT CHECK TIME | 0.200 |
| 011 AIR BLOW UNLOAD (R)         | USE    |                                |       |
| 012 AIR BLOW LOAD (L)           | USE    |                                |       |
| 013 AIR BLOW UNLOAD (L)         | USE    |                                |       |
| 014 AIR BLOW LOAD TIME (R)      | 1.000  | 029                            |       |

EDIT \*\*\*\*\* 19/19/20

PAGE ↑ PAGE ↓ (OPRT) CLOSE

PAGE ↑ PAGE ↓

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

OPERATION SETTING

|                                 |        |                                |       |
|---------------------------------|--------|--------------------------------|-------|
| 000 SPINDL ORIENTATION LOAD (R) | NO USE | 015 AIR BLOW UNLOAD TIME (R)   | 1.000 |
| 001 SPINDL ORIENTATION UNL (R)  | NO USE | 016 AIR BLOW LOAD TIME (L)     | 1.000 |
| 002 SPINDL ORIENTATION LOAD (L) | NO USE | 017 AIR BLOW UNLOAD TIME (L)   | 1.000 |
| 003 SPINDL ORIENTATION UNL (L)  | NO USE | 018 HAND AIR BLOW TIME         | 1.000 |
| 004 SPINDL ORI. ANGLE LOAD (R)  | 0.0    | 019                            |       |
| 005 SPINDL ORI. ANGLE UNL (R)   | 0.0    | 020 LOAD HAND SIDE             | CLOSE |
| 006 SPINDL ORI. ANGLE LOAD (L)  | 0.0    | 021 UNLOAD HAND SIDE           | CLOSE |
| 007 SPINDL ORI. ANGLE UNL (L)   | 0.0    | 022 LOAD HAND LOOSE CHECK TIME | 0.200 |
| 008                             |        | 023 LOAD HAND TIGHT CHECK TIME | 0.696 |
| 009                             |        | 024 UNL. HAND LOOSE CHECK TIME | 0.400 |
| 010 AIR BLOW LOAD (R)           | USE    | 025 UNL. HAND TIGHT CHECK TIME | 0.200 |
| 011 AIR BLOW UNLOAD (R)         | USE    |                                |       |
| 012 AIR BLOW LOAD (L)           | USE    |                                |       |
| 013 AIR BLOW UNLOAD (L)         | USE    |                                |       |
| 014 AIR BLOW LOAD TIME (R)      | 1.000  | 029                            |       |

000 SPINDLE ORIENTATION LOAD (R)  
When lead work to the spindle, specify whether to spindle orientation.  
If do spindle orientation, set the "USE".

EDIT \*\*\*\*\* 19/20/44

NO USE USE CURSOR ↑ CURSOR ↓ CURSOR ← CURSOR → RETURN

Explanations about the items are described.

The soft key corresponding to the item is displayed.

When the soft key is pressed, the setting is changed.

For the item to which numerical values are input, the soft key is not displayed. Input the numerical value, and press "INPUT" key. Then, setting is completed.

## 4-5 Quality check

Set the operation for checking the quality.

### 1 Displaying quality check screen

Procedure: [QUAL. CHECK] → Quality check screen

The first screenshot shows the main test screen for '01 TEST'. It displays absolute positions for X, Y, and Z axes, all at 0.000. The 'QUALITY CHECK' option is highlighted in the bottom menu. An arrow points to the second screenshot, which shows the 'QUALITY CHECK' screen. This screen has a 'PROCESSING WORK' section with 'OFF' selected, a 'SETTING VALUE' of 0, and a 'COUNTER' of 0. The bottom menu now includes 'NO USE', 'USE', and 'CLOSE' options.

RAKURAKU LOADER 4

LT00 R: 1820 RT00

01 TEST

ABSOLUTE POSITION

XG 0.000

YG 0.000

ZG 0.000

DISTANCE TO GO

XG YG ZG

LOADER PROGRAM

00001 (START) NO000

M222 ;

PROCESS CHECK ;

NO01 M222 ;

IFT #616 EQ 0 1 GOTO 10 ;

IFT #616 EQ 1 1 GOTO 20 ;

IFT #616 EQ 2 1 GOTO 30 ;

LOAD/SPEED

CYCLE TIME 39S

HISTORY1 1M58S

HISTORY2 2M30S

HISTORY3 39S

LOADING (R) 39S

LOADING (L) 39S

HAND/SPINDLE COUNTER

LOADER HAND SCHEDULE 0

LOAD UNLOAD LOADING 0

SPINDLE UNLOADING 0

LEFT RIGHT WORK NG 0

LEFT RIGHT QUALITY CHECK 0

TOP HAND TIME

LEFT RIGHT AFER

COUNT

M222 [PROGRAM START M CODE]

EDIT \*\*\*\*\* 17:02:52

WORK TEACHI WORK DUAL SCHEDULE

LIST NG SETING CHECK IE

RAKURAKU LOADER 4

LT00 R: 1820 RT00

01 TEST

ABSOLUTE POSITION

XG 0.000

YG 0.000

ZG 0.000

DISTANCE TO GO

XG YG ZG

LOADER PROGRAM

00001 (START) NO000

M222 ;

PROCESS CHECK ;

NO01 M222 ;

IFT #616 EQ 0 1 GOTO 10 ;

IFT #616 EQ 1 1 GOTO 20 ;

IFT #616 EQ 2 1 GOTO 30 ;

QUALITY CHECK

PROCESSING WORK OFF

SETTING VALUE 0

COUNTER 0

M222 [PROGRAM START M CODE]

EDIT \*\*\*\*\* 19:22:21

NO USE USE CLOSE

0 1 EOB

## 2 Checking quality of workpieces under processing

Procedure: Move the cursor to "PROCESSING WORK." → Select [OFF] or [ON].

RAKURAKU LOADER 4

LT00 R 1920 RT00

### 01 TEST

| ABSOLUTE POSITION |       | LOAD / SPEED | RUN TIME        |
|-------------------|-------|--------------|-----------------|
| X <sub>G</sub>    | 0.000 | 0            | CYCLE TIME 39S  |
| Y <sub>G</sub>    | 0.000 | 0            | HISTORY1 1M50S  |
| Z <sub>G</sub>    | 0.000 | 0            | HISTORY2 2M30S  |
|                   |       | 0            | HISTORY3 39S    |
|                   |       | 0            | LOADING (R) 39S |
|                   |       | 0            | LOADING (L) 39S |

DISTANCE TO GO  
X<sub>G</sub> Y<sub>G</sub> Z<sub>G</sub>

LOADER PROGRAM  
08001 (START) N0000

08001 (START)  
M222  
(PROCESS CHECK)  
N001 M222  
IF1 #616 EQ 0 1 GOTO 10  
IF1 #616 EQ 1 1 GOTO 20  
IF1 #616 EQ 2 1 GOTO 30  
M222 [PROGRAM START M CODE]

QUALITY CHECK

PROCESSING WORK OFF

SETTING VALUE 0

COUNTER 0

EDIT 19:22:21

NO USE USE CLOSE

END

When [ON] is selected, the quality check is performed.

It is set into the macro variable for the loader, and workpieces are put on the quality check position.

When the workpieces are put, the status will change to [OFF] from [ON].

## 3 Periodically checking quality

Procedure: Move the cursor to "SETTING VALUE." → Set the cycle.

RAKURAKU LOADER 4

LT00 R 1820 RT00

### 01 TEST

| ABSOLUTE POSITION |       | LOAD / SPEED | RUN TIME        |
|-------------------|-------|--------------|-----------------|
| X <sub>G</sub>    | 0.000 | 0            | CYCLE TIME 39S  |
| Y <sub>G</sub>    | 0.000 | 0            | HISTORY1 1M50S  |
| Z <sub>G</sub>    | 0.000 | 0            | HISTORY2 2M30S  |
|                   |       | 0            | HISTORY3 39S    |
|                   |       | 0            | LOADING (R) 39S |
|                   |       | 0            | LOADING (L) 39S |

DISTANCE TO GO  
X<sub>G</sub> Y<sub>G</sub> Z<sub>G</sub>

LOADER PROGRAM  
08001 (START) N0000

08001 (START)  
M222  
(PROCESS CHECK)  
N001 M222  
IF1 #616 EQ 0 1 GOTO 10  
IF1 #616 EQ 1 1 GOTO 20  
IF1 #616 EQ 2 1 GOTO 30  
M222 [PROGRAM START M CODE]

QUALITY CHECK

PROCESSING WORK OFF

SETTING VALUE 0

COUNTER 0

EDIT 19:20:02

NO USE USE CLOSE

END

Set the cycle for performing the quality check for the "SETTING VALUE" input area.

If you want to perform the quality check every 10 workpieces, input "10."

The value of the "COUNTER" shows the number of processed workpieces.

When this value becomes equal to the set value, quality check is performed.

After the quality check is performed, the value returns to "0."

# 1 Scheduled number of workpieces to be processed

When the scheduled number of workpieces to be processed is set, the each value on the schedule is calculated according to the cycle time.

## 1 Setting scheduled number of workpieces to be processed

Procedure: [SCHEDULE] → Set the scheduled number of workpieces to be processed.

RAKURAKU LOADER 4

01 TEST

ABSOLUTE POSITION

LOAD/SPEED

RUN TIME

LOAD/SPINDLE

COUNTER

EDIT \*\*\*\*\* 17:02:52

SCHEDULE

RAKURAKU LOADER 4

01 TEST

ABSOLUTE POSITION

LOAD/SPEED

RUN TIME

LOAD/SPINDLE

COUNTER

EDIT \*\*\*\*\* 19:25:14

COUNT

Input "1000", and press the [INPUT] key.

RAKURAKU LOADER 4

01 TEST

ABSOLUTE POSITION

LOAD/SPEED

RUN TIME

LOAD/SPINDLE

COUNTER

EDIT \*\*\*\*\* 19:26:38

COUNT

When the scheduled number of workpieces to be processed is set, each value on the schedule is calculated according to the cycle time.

## 4-7 Displaying macro variable

Note) When the loader type is D type, the macro variable cannot be displayed.  
The macro variable screen of NC is used.

The value of the macro variable for the loader is displayed.  
This is used to check the value set as a macro variable.

### 2 Displaying macro variable for loader

Procedure: [MACRO VAL.] → The macro variable is displayed.

RAKURAKU LOADER 4

01 TEST

ABSOLUTE POSITION

XG 0.000

YG 0.000

ZG 0.000

DISTANCE TO GO

LOAD/SPEED

122

7000

152

8000

183

9000

RUN TIME

CYCLE TIME 26S

HISTORY1 2H00S

HISTORY2 1H40S

HISTORY3 26S

LOADING (R) 26S

LOADING (L) 26S

HAND/SPINDLE

LOADER 1000

SCHEDULE 1000

LOAD UNLOAD LOADING 26.3

UNLOADING 52

SPINDLE WORK NG 26

LEFT RIGHT QUALITY CHECK 17

PROCESSING COMPLETION

TURN (R) TIME 09:04 17 56 51

LEFT RIGHT AFER 22H20:15:45

COUNT 987

EDIT \*\*\* 19:27:57

MACRO VAL.

LOADER SYSTEM +

PROG

RAKURAKU LOADER 4

01 TEST

ABSOLUTE POSITION

XG 0.000

YG 0.000

ZG 0.000

DISTANCE TO GO

LOADER PROGRAM

00001 (START) N0000

M222

(PROCESS CHECK)

N001 M222

IFT #616 EQ 0 1 GOTO 10

IFT #616 EQ 1 1 GOTO 20

IFT #616 EQ 2 1 GOTO 30

MACRO VARIABLE

M001 -22.000 517 -28.237 534 -122.520

M002 -174.071 510 -114.627 535 50.000

M003 -122.520 519 5.000 536

M004 10.000 520 -1521.143 537

M005 -1101.467 521 -440.000 538

M006 -440.670 522 -132.000 539

M007 -135.700 523 0.000 540

M008 0.000 524 -1521.343 541

M009 -1101.467 525 -659.033 542

M010 -650.530 526 -130.933 543

M011 5.000 527 5.000 544

M012 -1101.322 529 -174.071 546

M013 -11.295 530 -122.520 547

M014 -100.667 531 50.000 548

M015 5.000 532 -296.000 549

M016 -1519.070 533 -174.071

EDIT \*\*\* 19:29:22

MACRO VAL.

LOADER SYSTEM +

PROG

The value of the macro variable for the loader is displayed.  
Range: 1 to 999

To cancel the display of the macro variable, press the [MACRO VAL.] soft key again.

By using the page key, No. to be displayed changes.

It is not possible to set macro variables.

## 2 Outputting loader program

The loader program is output for the purpose of backup.

### 1 Displaying loader program list

Procedure: [LOADER PROG] → The loader program list is displayed.

The image shows two screenshots of the RAKURAKU LOADER 4 interface. The top screenshot displays the '01 TEST' menu with various status indicators and a 'LOADER PROGRAM LIST' button. The bottom screenshot displays the 'LOADER PROGRAM LIST' screen, which lists the loader programs and their details.

**RAKURAKU LOADER 4** **LT00** **R: 1820** **RT00**

**01 TEST**

ABSOLUTE POSITION: XG 0.000, YG 0.000, ZG 0.000

LOAD/SPEED: 122, 7800, 152, 8000, 183, 9800

RUN TIME: CYCLE TIME 26S, HISTORY1 2H00S, HISTORY2 1M40S, HISTORY3 26S, LOADING (R) 26S, LOADING (L) 26S

LOADER PROGRAM: 08001 (START) N0000

PROCESS CHECK: M222

IF1 #616 E0 0 3 60T0 10, IF1 #616 E0 1 3 60T0 20, IF1 #616 E0 2 3 60T0 30

LOADER PROGRAM LIST

| PROGRAM NO. | COMMENT             | MODIFY DATE      | SIZE(KB) |
|-------------|---------------------|------------------|----------|
| 0801        | START               | 2012/07/30 09:43 | 1        |
| 0810        | LOADER CALL CHECK   | 2012/07/11 20:27 | 1        |
| 0820        | WF IN-OUT-1STEP     | 2012/07/11 20:27 | 2        |
| 0821        | WF IN-OUT           | 2012/07/11 20:27 | 1        |
| 0830        | MC1 IN              | 2012/07/11 20:27 | 1        |
| 0840        | MC1 OUT-IN          | 2012/07/11 20:27 | 1        |
| 0841        | MC1 LOCATION TRY    | 2012/07/11 20:27 | 1        |
| 0844        | MC1 OUT-IN PARALLEL | 2012/07/11 20:27 | 1        |
| 0850        | MC1 OUT             | 2012/07/11 20:27 | 1        |
| 0854        | MC1 OUT PARALLEL    | 2012/07/11 20:27 | 1        |
| 0860        | WF OUT-1STEP        | 2012/07/11 20:27 | 1        |
| 0861        | WF OUT              | 2012/07/11 20:27 | 1        |
| 0870        | TURN IN             | 2012/07/11 20:27 | 1        |
| 0871        | TURN IN REVERSE     | 2012/07/11 20:27 | 1        |
| 0880        | TURN OUT            | 2012/07/11 20:27 | 1        |
| 0881        | TURN OUT REVERSE    | 2012/07/11 20:27 | 1        |

FILE OUTPUT, CLOSE, F08

## 2 "Outputting" loader program

Loader programs are output as files.

Procedure: Move the cursor. → [FILE OUTPUT] → Set the file name and where to output. → [FILE OUTPUT]

| PROGRAM No. | COMMENT             | MODIFIED DATE    | SIZE(KB) |
|-------------|---------------------|------------------|----------|
| 0001        | START               | 2012/07/30 09:43 | 1        |
| 0010        | LOADER CALL CHECK   | 2012/07/11 20:27 | 1        |
| 0020        | WF IN-OUT-1STEP     | 2012/07/11 20:27 | 2        |
| 0021        | WF IN-OUT           | 2012/07/11 20:27 | 1        |
| 0030        | MC1 IN              | 2012/07/11 20:27 | 1        |
| 0040        | MC1 OUT/IN          | 2012/07/11 20:27 | 1        |
| 0041        | MC1 LOCATION TRY    | 2012/07/11 20:27 | 1        |
| 0044        | MC1 OUT/IN PARALLEL | 2012/07/11 20:27 | 1        |
| 0050        | MC1 OUT             | 2012/07/11 20:27 | 1        |
| 0054        | MC1 OUT PARALLEL    | 2012/07/11 20:27 | 1        |
| 0060        | WF OUT-1STEP        | 2012/07/11 20:27 | 1        |
| 0061        | WF OUT              | 2012/07/11 20:27 | 1        |
| 0070        | TURK IN             | 2012/07/11 20:27 | 1        |
| 0071        | TURN IN REVERSE     | 2012/07/11 20:27 | 1        |
| 0080        | TURN OUT            | 2012/07/11 20:27 | 1        |
| 0001        | TURN OUT REVERSE    | 2012/07/11 20:27 | 1        |

| PROGRAM No. | COMMENT                   | MODIFIED DATE    | SIZE(KB) |
|-------------|---------------------------|------------------|----------|
| 0001        | START                     | 2012/07/30 09:43 | 1        |
| 0010        | LOADER CALL CHECK         | 2012/07/11 20:27 | 1        |
| 0020        | WF IN-OUT-1STEP           | 2012/07/11 20:27 | 2        |
| 0021        | WF IN-OUT                 | 2012/07/11 20:27 | 1        |
| 0030        | MC1 IN                    | 2012/07/11 20:27 | 1        |
| 0040        | MC1 OUT/IN                | 2012/07/11 20:27 | 1        |
| 0041        | MC1 LOCATION TRY          | 2012/07/11 20:27 | 1        |
| 0044        | MC1 LOADER PROGRAM OUTPUT | 2012/07/11 20:27 | 1        |
| 0050        | MC                        |                  | 1        |
| 0054        | MC                        |                  | 1        |
| 0060        | WF                        |                  | 1        |
| 0061        | WF                        |                  | 1        |
| 0070        | TU                        |                  | 1        |
| 0071        | TU                        |                  | 1        |
| 0080        | TU                        |                  | 1        |
| 0001        | TURN OUT REVERSE          | 2012/07/11 20:27 | 1        |

Program: 8001 to 8899  
File name: Max. 12 characters  
Where to output:  
Memory card and USB memory

If "-9999" is specified as a workpiece No., all workpieces data will be output as one file.

LOADER PROGRAM OUTPUT

PROGRAM = -9999

FILENAME = LDP\_ALL.TXT

OUTPUT = USB MEMORY

The file is output in text file format as NC program.

"%" is written into the head and end of the file.

When "-9999" is specified in the program and output, all the loader programs are output as one file.

When "-9999" is input into the program, the file name will automatically change to "LDP\_ALL.TXT."

If the same file name already exists, the "Check message" is displayed.

To overwrite, press "OK."

Specify the memory card or USB memory as a place to output.

Memory cards or USB memories may not be unusable.

Regardless of I/O channel for NC setting, the data can be output to either the memory card or USB memory.

The output file is NC program.

To register again, input from the NC program screen.

## 4-9 System setting

Setting the loader, character strings, position switches, etc. are performed.

### 1 Displaying system setting screen

Procedure: [SYSTEM] → System setting screen

RAKURAKU LOADER 4

LT00 R: 1820 RT00

01 TEST

ABSOLUTE POSITION

| AXIS | VALUE |
|------|-------|
| X    | 0.000 |
| Y    | 0.000 |
| Z    | 0.000 |

LOAD/SPEED

| LOAD | SPEED |
|------|-------|
| 122  | 265   |
| 7800 | 265   |
| 152  | 265   |
| 8000 | 265   |
| 183  | 265   |
| 9800 | 265   |

RUN TIME

| CYCLE TIME | HISTORY 1 | HISTORY 2 | HISTORY 3 | LOADING (R) | LOADING (L) |
|------------|-----------|-----------|-----------|-------------|-------------|
| 265        | 265       | 265       | 265       | 265         | 265         |

LOADER PROGRAM

| PROGRAM                 | START |
|-------------------------|-------|
| 08001 (START)           | 08000 |
| 09001 (START)           | 09000 |
| H222                    |       |
| PROGRAMS CHECK          |       |
| 0001 H222               |       |
| IF1 #616 EQ 0 1 GOTO 18 |       |
| IF1 #616 EQ 1 1 GOTO 20 |       |
| IF1 #616 EQ 2 1 GOTO 38 |       |

EDIT \*\*\*\*\* 19:27:57

MACRO VAL. LOADER PROG SYSTEM +

RAKURAKU LOADER 4

LT00 R: 1820 RT00

01 TEST

LOADER SETTING

| SETTING                   | VALUE  |
|---------------------------|--------|
| 000 MACHINE TYPE          | TT-32  |
| 001 LOADER TYPE           | A-TYPE |
| 002 LOADING DIRECTION     | RIGHT  |
| 003                       |        |
| 004                       |        |
| 005                       |        |
| 006 POSITION SWITCH CHECK | ON     |
| 007                       |        |
| 008                       |        |
| 009                       |        |
| 010 LOADING UNIT TYPE     | WORKFD |
| 011 UNLOADING UNIT TYPE   | WORKFD |
| 012                       |        |
| 013                       |        |
| 014                       |        |

015 NO. 1 AXIS DIRECTION

016 NO. 2 AXIS DIRECTION

017 NO. 3 AXIS DIRECTION

018

019

020 NO. 1 AXIS LOAD VALUE

021 NO. 2 AXIS LOAD VALUE

022 NO. 3 AXIS LOAD VALUE

023

024

025

026

027

028 "PSH" CHECK INTERFERENCE

029 OVERLAP OF FEED BLOCK

STNDRD

STNDRD

STNDRD

ON

OFF

VERSION1 SYS(1) 656F/0002 SYS(2) PPLD/2500

EDIT \*\*\*\*\* 19:34:23

LOADER STRING POS COPY SWITCH OFFSET FILE OUTPUT (OPRT) CLOSE

END

## 2 Changing loader setting

Procedure: [LOADER] → [(OPRT)] → Display the soft key corresponding to the item. →

Press the soft key.

RAKURAKU LOADER 4

LT00 R 1828 RT00

### 01 TEST

LOADER SETTING

|                           |        |                              |        |
|---------------------------|--------|------------------------------|--------|
| 000 MACHINE TYPE          | TT-32  | 015 NO.1 AXIS DIRECTION      | L←→R   |
| 001 LOADER TYPE           | A-TYPE | 016 NO.2 AXIS DIRECTION      | U↑D↓   |
| 002 LOADING DIRECTION     | RIGHT  | 017 NO.3 AXIS DIRECTION      | BF←BH  |
| 003                       |        | 018                          |        |
| 004                       |        | 019                          |        |
| 005                       |        | 020 NO.1 AXIS LOAD VALUE     | STNDRD |
| 006 POSITION SWITCH CHECK | ON     | 021 NO.2 AXIS LOAD VALUE     | STNDRD |
| 007                       |        | 022 NO.3 AXIS LOAD VALUE     | STNDRD |
| 008                       |        | 023                          |        |
| 009                       |        | 024                          |        |
| 010 LOADING UNIT TYPE     | WORKFD | 025                          |        |
| 011 UNLOADING UNIT TYPE   | WORKFD | 026                          |        |
| 012                       |        | 027                          |        |
| 013                       |        | 028 "PSW" CHECK INTERFERENCE | ON     |
| 014                       |        | 029 OVERLAP OF FEED BLOCK    | OFF    |

[VERSION] SYS(1) 656F/8882 SYS(2) RALD/2508

EDIT \*\*\*\*\* 19:34:23

LOADER STRING POS COPY FILE (OPRT) CLOSE

SWITCH OFFSET OUTPUT EOB

RAKURAKU LOADER 4

LT00 R 1828 RT00

### 01 TEST

LOADER SETTING

|                           |        |                              |        |
|---------------------------|--------|------------------------------|--------|
| 000 MACHINE TYPE          | TT-32  | 015 NO.1 AXIS DIRECTION      | L←→R   |
| 001 LOADER TYPE           | A-TYPE | 016 NO.2 AXIS DIRECTION      | U↑D↓   |
| 002 LOADING DIRECTION     | RIGHT  | 017 NO.3 AXIS DIRECTION      | BF←BH  |
| 003                       |        | 018                          |        |
| 004                       |        | 019                          |        |
| 005                       |        | 020 NO.1 AXIS LOAD VALUE     | STNDRD |
| 006 POSITION SWITCH CHECK | ON     | 021 NO.2 AXIS LOAD VALUE     | STNDRD |
| 007                       |        | 022 NO.3 AXIS LOAD VALUE     | STNDRD |
| 008                       |        | 023                          |        |
| 009                       |        | 024                          |        |
| 010 LOADING UNIT TYPE     | WORKFD | 025                          |        |
| 011 UNLOADING UNIT TYPE   | WORKFD | 026                          |        |
| 012                       |        | 027                          |        |
| 013                       |        | 028 "PSW" CHECK INTERFERENCE | ON     |
| 014                       |        | 029 OVERLAP OF FEED BLOCK    | OFF    |

002 LOADING DIRECTION  
LOADING DIRECTION ARE SET. A-TYPE: RIGHT, B-TYPE: LEFT  
TEACHING NAME INITIALIZED

[VERSION] SYS(1) 656F/8882 SYS(2) RALD/2508

EDIT \*\*\*\*\* 19:36:02

RIGHT LEFT RETURN

EOB

Explanations about the items are described.

The soft key corresponding to the item is displayed.

When the soft key is pressed, the setting changes.



### CAUTION

If wrong setting is performed, the loader does not operate normally.  
To change the setting, take extreme care.

### 3 Changing spare character string

Procedure: [STRING] → [(OPRT)] → Input characters.

RAKURAKU LOADER 4

LT00 R 0 RT01

01 TEST

CHARACTER STRING SETTING 1/3

| TEACHING STRING |              | TEACHING STRING |              |
|-----------------|--------------|-----------------|--------------|
| 01: TEACHING01  | WORK LOAD    | 16: TEACHING16  | QUAL. RETURN |
| 02: TEACHING02  | ORIENTATION  | 17: TEACHING17  | WORK NG      |
| 03: TEACHING03  | MC-R UNLOAD  | 18: TEACHING18  | WORK NG 2    |
| 04: TEACHING04  | MC-R LOAD    | 19: TEACHING19  | FIRST UNLOAD |
| 05: TEACHING05  | TURN RIGHT   | 20: TEACHING20  | QUALITY 2    |
| 06: TEACHING06  | TURN LEFT    | 21: TEACHING21  | RESERVE 1    |
| 07: TEACHING07  | MC-L UNLOAD  | 22: TEACHING22  | RESERVE 2    |
| 08: TEACHING08  | MC-L LOAD    | 23: TEACHING23  | RESERVE 3    |
| 09: TEACHING09  | WASHER. UNLD | 24: TEACHING24  | RESERVE 4    |
| 10: TEACHING10  | WASHER. LOAD | 25: TEACHING25  | RESERVE 5    |
| 11: TEACHING11  | MEAS. UNLOAD |                 |              |
| 12: TEACHING12  | MEAS. LOAD   |                 |              |
| 13: TEACHING13  | MEASURING NG |                 |              |
| 14: TEACHING14  | QUALITY      |                 |              |
| 15: TEACHING15  | WORK UNLOAD  |                 |              |

EDIT \*\*\*\*\* 13:53:15

LOADER STRING POS COPY FILE (OPRT) CLOSE  
SWITCH OFFSET OUTPUT

EOB

RAKURAKU LOADER 4

LT00 R 0 RT01

01 TEST

CHARACTER STRING SETTING 1/3

| TEACHING STRING |              | TEACHING STRING |              |
|-----------------|--------------|-----------------|--------------|
| 01: TEACHING01  | WORK LOAD    | 16: TEACHING16  | QUAL. RETURN |
| 02: TEACHING02  | ORIENTATION  | 17: TEACHING17  | WORK NG      |
| 03: TEACHING03  | MC-R UNLOAD  | 18: TEACHING18  | WORK NG 2    |
| 04: TEACHING04  | MC-R LOAD    | 19: TEACHING19  | FIRST UNLOAD |
| 05: TEACHING05  | TURN RIGHT   | 20: TEACHING20  | QUALITY 2    |
| 06: TEACHING06  | TURN LEFT    | 21: TEACHING21  | RESERVE 1    |
| 07: TEACHING07  | MC-L UNLOAD  | 22: TEACHING22  | RESERVE 2    |
| 08: TEACHING08  | MC-L LOAD    | 23: TEACHING23  | RESERVE 3    |
| 09: TEACHING09  | WASHER. UNLD | 24: TEACHING24  | RESERVE 4    |
| 10: TEACHING10  | WASHER. LOAD | 25: TEACHING25  | RESERVE 5    |
| 11: TEACHING11  | MEAS. UNLOAD |                 |              |
| 12: TEACHING12  | MEAS. LOAD   |                 |              |
| 13: TEACHING13  | MEASURING NG |                 |              |
| 14: TEACHING14  | QUALITY      |                 |              |
| 15: TEACHING15  | WORK UNLOAD  |                 |              |

EDIT \*\*\*\*\* 13:54:43

RETURN

EOB

### Inputting Numerical Values or Alphabetical Characters

Input numerical values or Alphabetical characters from MDI keyboard, and then press "INPUT" key.

Ex.) In case of setting "KEISOKU2"

Input "KEISOKU2" from the keyboard, and press "INPUT" key.

| TEACHING [RESERVE] STRING |            |
|---------------------------|------------|
| 16: TEACHING00            | >MEASURE2  |
| 17: TEACHING01            | RESERVE 2  |
| 18: TEACHING02            | RESERVE 3  |
| 19: TEACHING03            | RESERVE 4  |
| 20: TEACHING04            | RESERVE 5  |
| 21: TEACHING05            | RESERVE 6  |
| 22: TEACHING06            | RESERVE 7  |
| 23: TEACHING07            | RESERVE 8  |
| 24: TEACHING08            | RESERVE 9  |
| 25: TEACHING09            | RESERVE 10 |

## Inputting Japanese characters

Input the Japanese characters shift JIS code No. between 2 "\*" marks.

Ex) In case of setting "計測 (Measurement)"

Input "\*" mark, input the shift JIS code No., and input "\*" again in the end of the code. Then, press "INPUT" key.

The shift JIS code is as follows:

"計: 8C76" and "測: 91AA."

Then input the following code, and then press "INPUT" key.

\*8C7691AA\*

| TEACHING       | [RESERVE] | STRING      |
|----------------|-----------|-------------|
| 16: TEACHING00 |           | MEASURE2    |
| 17: TEACHING01 |           | >*8C7691AA* |
| 18: TEACHING02 |           | RESERVE 3   |
| 19: TEACHING03 |           | RESERVE 4   |
| 20: TEACHING04 |           | RESERVE 5   |
| 21: TEACHING05 |           | RESERVE 6   |
| 22: TEACHING06 |           | RESERVE 7   |
| 23: TEACHING07 |           | RESERVE 8   |
| 24: TEACHING08 |           | RESERVE 9   |
| 25: TEACHING09 |           | RESERVE 10  |



| TEACHING       | [RESERVE] | STRING     |
|----------------|-----------|------------|
| 16: TEACHING00 |           | MEASURE2   |
| 17: TEACHING01 |           | 計測         |
| 18: TEACHING02 |           | RESERVE 3  |
| 19: TEACHING03 |           | RESERVE 4  |
| 20: TEACHING04 |           | RESERVE 5  |
| 21: TEACHING05 |           | RESERVE 6  |
| 22: TEACHING06 |           | RESERVE 7  |
| 23: TEACHING07 |           | RESERVE 8  |
| 24: TEACHING08 |           | RESERVE 9  |
| 25: TEACHING09 |           | RESERVE 10 |

To input alphabetical characters after the Japanese characters, input the following code, and then press "INPUT" key.

\*8C7691AA\*TEST



| TEACHING       | [RESERVE] | STRING     |
|----------------|-----------|------------|
| 16: TEACHING00 |           | MEASURE2   |
| 17: TEACHING01 |           | 計測         |
| 18: TEACHING02 |           | 計測TEST     |
| 19: TEACHING03 |           | RESERVE 4  |
| 20: TEACHING04 |           | RESERVE 5  |
| 21: TEACHING05 |           | RESERVE 6  |
| 22: TEACHING06 |           | RESERVE 7  |
| 23: TEACHING07 |           | RESERVE 8  |
| 24: TEACHING08 |           | RESERVE 9  |
| 25: TEACHING09 |           | RESERVE 10 |

## 4 Changing position switch

Take care when changing the No. of the position switch.  
If wrong setting is performed, the teaching cannot be executed.

Procedure: [POS SWITCH] → [(OPRT)] → Set the No.

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

POSITION SWITCH SETTING 1/2

| TEACH POINT  | SW1 | SW2 | TEACH POINT | SW1 | SW2 |
|--------------|-----|-----|-------------|-----|-----|
| WORK LOAD    | 09  | 10  | MEASURE2    | 00  | 00  |
| MC-R UNLOAD  | 02  | 01  | STAN        | 00  | 00  |
| MC-R LOAD    | 02  | 01  | STAN TEST   | 00  | 00  |
| TURN RIGHT   | 14  | 13  | RESERVE 4   | 00  | 00  |
| TURN LEFT    | 14  | 13  | RESERVE 5   | 00  | 00  |
| MC-L UNLOAD  | 06  | 01  | RESERVE 6   | 00  | 00  |
| MC-L LOAD    | 06  | 01  | RESERVE 7   | 00  | 00  |
| WORK UNLOAD  | 09  | 10  | RESERVE 8   | 00  | 00  |
| WORK NG      | 09  | 10  | RESERVE 9   | 00  | 00  |
| QUALITY      | 09  | 10  | RESERVE 10  | 00  | 00  |
| MEASUREMENT  | 09  | 10  |             |     |     |
| MEASURING NG | 09  | 10  |             |     |     |
| ORIENTATION  | 09  | 10  |             |     |     |
| FIRST UNLOAD | 09  | 10  |             |     |     |
| QUALITY 2    | 09  | 10  |             |     |     |

EDIT \*\*\*\*\* 19:45:58

LOADER STRING POS SWITCH COPY OFFSET FILE OUTPUT OPRT CLOSE

EOB

RAKURAKU LOADER 4

LT00 R 1820 RT00

01 TEST

POSITION SWITCH SETTING 1/2

| TEACH POINT  | SW1 | SW2 | TEACH POINT | SW1 | SW2 |
|--------------|-----|-----|-------------|-----|-----|
| WORK LOAD    | 09  | 10  | MEASURE2    | 00  | 00  |
| MC-R UNLOAD  | 02  | 01  | STAN        | 00  | 00  |
| MC-R LOAD    | 02  | 01  | STAN TEST   | 00  | 00  |
| TURN RIGHT   | 14  | 13  | RESERVE 4   | 00  | 00  |
| TURN LEFT    | 14  | 13  | RESERVE 5   | 00  | 00  |
| MC-L UNLOAD  | 06  | 01  | RESERVE 6   | 00  | 00  |
| MC-L LOAD    | 06  | 01  | RESERVE 7   | 00  | 00  |
| WORK UNLOAD  | 09  | 10  | RESERVE 8   | 00  | 00  |
| WORK NG      | 09  | 10  | RESERVE 9   | 00  | 00  |
| QUALITY      | 09  | 10  | RESERVE 10  | 00  | 00  |
| MEASUREMENT  | 09  | 10  |             |     |     |
| MEASURING NG | 09  | 10  |             |     |     |
| ORIENTATION  | 09  | 10  |             |     |     |
| FIRST UNLOAD | 09  | 10  |             |     |     |
| QUALITY 2    | 09  | 10  |             |     |     |

EDIT \*\*\*\*\* 19:47:11

RETURN

EOB



### CAUTION

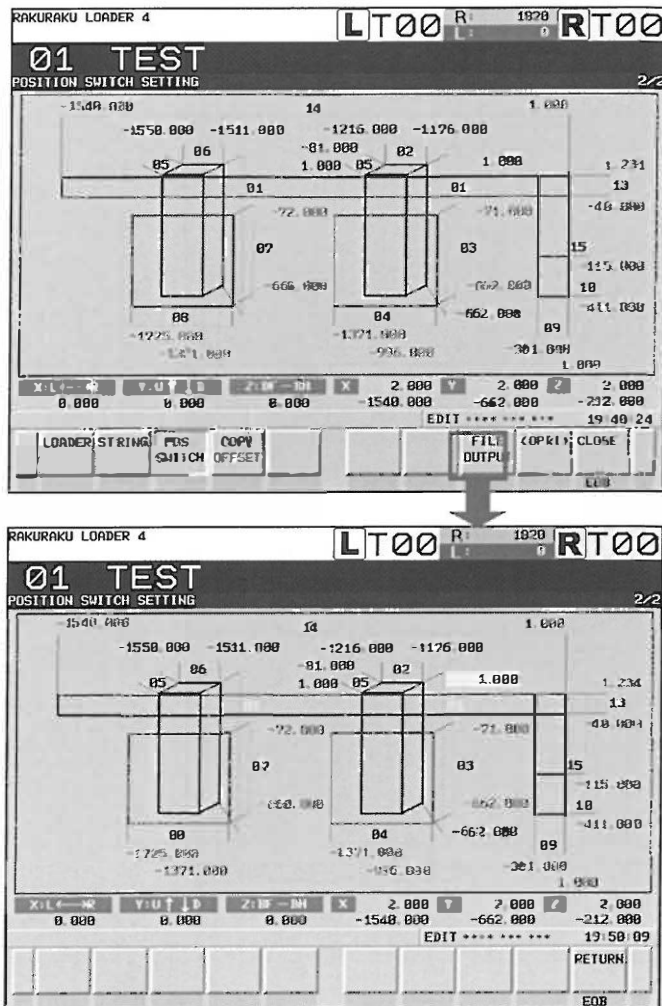
If wrong setting is performed, the loader does not operate normally.  
To change the setting, take extreme care.

## 5 Setting coordinate value of the position switch

Take care when setting the coordinate value of the position switch.  
If wrong setting is performed, the loader becomes inoperable.

Procedure: [Position switch] → [Page key ↓] → [(OPRT)] → Set the coordinate.

### (1) 1PAGE



When the direction keys ↑ or ↓ is pressed, the cursor will move.

The cursor moves in the order of the position switches Nos.

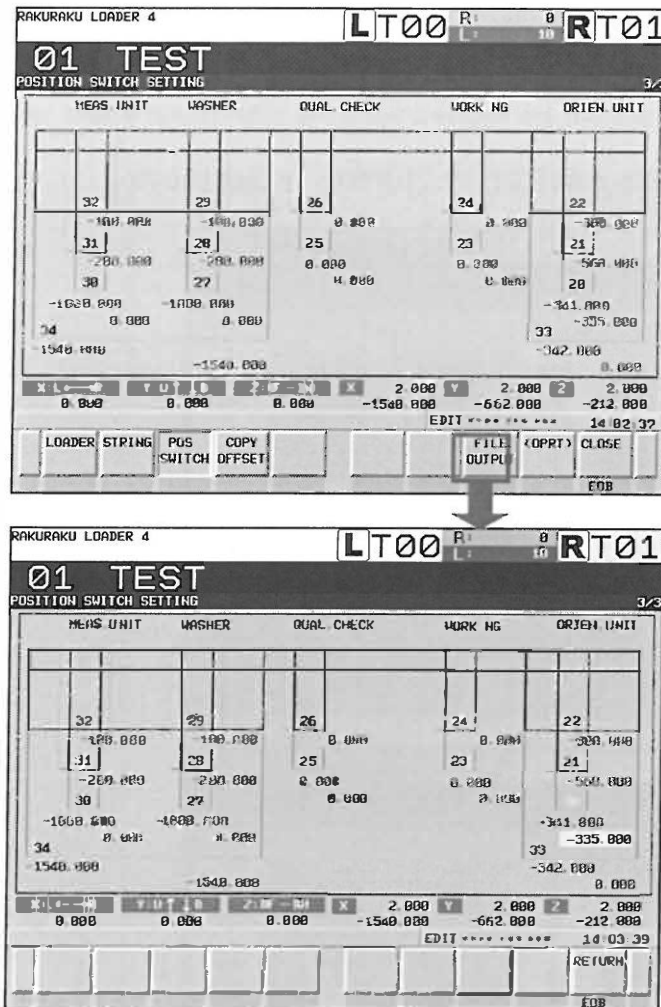
If the maximum value of the position switch No. 13 is changed, the maximum values of the position switches 06, 10, 12, 15, and 16 are changed to the same value.



#### CAUTION

If wrong coordinate value is set, the loader does not operate normally.  
To change the setting, take extreme care.

## (2) 2PAGE



When the direction keys ↑ or ↓ is pressed, the cursor will move.

The cursor moves in the order of the position switches Nos.

If the maximum value of the position switch No. 13 is changed, the maximum values of the position switches 21, 22, 24, 26, 28, 29, 31, and 32 are changed to the same value.



### CAUTION

If wrong coordinate value is set, the loader does not operate normally.  
To change the setting, take extreme care.

## 6 Setting offset axis for copying workpieces

When setting the work offset and copying the data of the workpiece, considering the difference of the work length, set the axis of the spare teaching points, which should be applied with the workpiece offset value.

Procedure: [POS SWITCH] → [(OPRT) → Set the No.

RAKURAKU LOADER 4

LT00 R 0 RT01

01 TEST

OFFSET AXIS SETTING

| WORK COPY     | OFFSET AXIS SETTING |      |               |                   |
|---------------|---------------------|------|---------------|-------------------|
| 01 TEACHING01 | WORK LOAD           | NONE | 16 TEACHING16 | QUAL. RETURN Y    |
| 02 TEACHING02 | ORIENTATION         | NONE | 17 TEACHING17 | WORK NG Y         |
| 03 TEACHING03 | MC-R UNLOAD         | Z    | 18 TEACHING18 | WORK NG 2 Y       |
| 04 TEACHING04 | MC-R LOAD           | Z    | 19 TEACHING19 | FIRST UNLOAD NONE |
| 05 TEACHING05 | TURN RIGHT          | Z    | 20 TEACHING20 | QUALITY 2 Y       |
| 06 TEACHING06 | TURN LEFT           | Z    | 21 TEACHING21 | RESERVE 1 NONE    |
| 07 TEACHING07 | MC-L UNLOAD         | Z    | 22 TEACHING22 | RESERVE 2 NONE    |
| 08 TEACHING08 | MC-L LOAD           | Z    | 23 TEACHING23 | RESERVE 3 NONE    |
| 09 TEACHING09 | WASHER UNLD         | Y    | 24 TEACHING24 | RESERVE 4 NONE    |
| 10 TEACHING10 | WASHER LOAD         | Y    | 25 TEACHING25 | RESERVE 5 NONE    |
| 11 TEACHING11 | MEAS UNLOAD         | Y    |               |                   |
| 12 TEACHING12 | MEAS LOAD           | Y    |               |                   |
| 13 TEACHING13 | MEASURING NG        | Y    |               |                   |
| 14 TEACHING14 | QUALITY             | Y    |               |                   |
| 15 TEACHING15 | WORK UNLOAD         | NONE |               |                   |

EDIT \*\*\*\*\* 14:04:47

LOADER SIKING POS COPY FILE OUTPUT CLOSE

SWITCH OFFSET

OPRT

EOB

RAKURAKU LOADER 4

LT00 R 0 RT01

01 TEST

OFFSET AXIS SETTING

| WORK COPY     | OFFSET AXIS SETTING |      |               |                   |
|---------------|---------------------|------|---------------|-------------------|
| 01 TEACHING01 | WORK LOAD           | NONE | 16 TEACHING16 | QUAL. RETURN Y    |
| 02 TEACHING02 | ORIENTATION         | NONE | 17 TEACHING17 | WORK NG Y         |
| 03 TEACHING03 | MC-R UNLOAD         | Z    | 18 TEACHING18 | WORK NG 2 Y       |
| 04 TEACHING04 | MC-R LOAD           | Z    | 19 TEACHING19 | FIRST UNLOAD NONE |
| 05 TEACHING05 | TURN RIGHT          | Z    | 20 TEACHING20 | QUALITY 2 Y       |
| 06 TEACHING06 | TURN LEFT           | Z    | 21 TEACHING21 | RESERVE 1 NONE    |
| 07 TEACHING07 | MC-L UNLOAD         | Z    | 22 TEACHING22 | RESERVE 2 NONE    |
| 08 TEACHING08 | MC-L LOAD           | Z    | 23 TEACHING23 | RESERVE 3 NONE    |
| 09 TEACHING09 | WASHER UNLD         | Y    | 24 TEACHING24 | RESERVE 4 NONE    |
| 10 TEACHING10 | WASHER LOAD         | Y    | 25 TEACHING25 | RESERVE 5 NONE    |
| 11 TEACHING11 | MEAS UNLOAD         | Y    |               |                   |
| 12 TEACHING12 | MEAS LOAD           | Y    |               |                   |
| 13 TEACHING13 | MEASURING NG        | Y    |               |                   |
| 14 TEACHING14 | QUALITY             | Y    |               |                   |
| 15 TEACHING15 | WORK UNLOAD         | NONE |               |                   |

EDIT \*\*\*\*\* 14:05:56

NONE X Y Z RETURN

EOB

Offset axis for the standard teaching point has already been decided.

It cannot be changed.

For detail, refer to "3-2 Copying Workpieces" and "3-2 1. Workpiece Offset List."

## 7 "Outputting" system setting

The system setting is output as a file.

Procedure: [FILE OUTPUT] → Setting file name and where to output → [FILE OUTPUT]

RAKURAKU LOADER 4

LT00 R: 1820 L: 0 RT00

01 TEST

LOADER SETTING

|                           |        |                              |        |
|---------------------------|--------|------------------------------|--------|
| 000 MACHINE TYPE          | TT-32  | 015 NO.1 AXIS DIRECTION      | L←→R   |
| 001 LOADER TYPE           | A-TYPE | 016 NO.2 AXIS DIRECTION      | U↑↓D   |
| 002 LOADING DIRECTION     | RIGHT  | 017 NO.3 AXIS DIRECTION      | BF←BH  |
| 003                       |        | 018                          |        |
| 004                       |        | 019                          |        |
| 005                       |        | 020 NO.1 AXIS LOAD VALUE +/- | STNDRD |
| 006 POSITION SWITCH CHECK | ON     | 021 NO.2 AXIS LOAD VALUE +/- | STNDRD |
| 007                       |        | 022 NO.3 AXIS LOAD VALUE +/- | STNDRD |
| 008                       |        | 023                          |        |
| 009                       |        | 024                          |        |
| 010 LOADING UNIT TYPE     | WORKFD | 025                          |        |
| 011 UNLOADING UNIT TYPE   | WORKFD | 026                          |        |
| 012                       |        | 027                          |        |
| 013                       |        | 028 "PSW" CHECK INTERFERENCE | ON     |
| 014                       |        | 029 OVERLAP OF FEED BLOCK    | OFF    |

(VERSION) SYS(1) 656F/0002 SYS(2) RMLD/2500

EDIT \*\*\*\*\* 19:34:23

LOADER STRING PDS SWITCH COPY OFFSET FILE OUTPUT LOPRT CLOSE EOB

RAKURAKU LOADER 4

LT00 R: 1820 L: 0 RT00

01 TEST

LOADER SETTING

|                           |                        |                              |        |
|---------------------------|------------------------|------------------------------|--------|
| 000 MACHINE TYPE          | TT-32                  | 015 NO.1 AXIS DIRECTION      | L←→R   |
| 001 LOADER TYPE           | A-TYPE                 | 016 NO.2 AXIS DIRECTION      | U↑↓D   |
| 002 LOADING DIRECTION     | RIGHT                  | 017 NO.3 AXIS DIRECTION      | BF←BH  |
| 003                       |                        | 018                          |        |
| 004                       |                        | 019                          |        |
| 005                       |                        | 020 NO.1 AXIS LOAD VALUE +/- | STNDRD |
| 006 POSITION SWITCH CHECK | ON                     | 021 NO.2 AXIS LOAD VALUE +/- | STNDRD |
| 007                       |                        | 022 NO.3 AXIS LOAD VALUE +/- | STNDRD |
| 008                       |                        | 023                          |        |
| 009                       |                        | 024                          |        |
| 010 LOADING UNIT TYPE     | SYSTEM PROGRAM OUTPUTS |                              |        |
| 011 UNLOADING UNIT TYPE   |                        |                              |        |
| 012                       |                        |                              |        |
| 013                       |                        |                              |        |
| 014                       |                        |                              |        |

FILENAME: LD\_SYS.TXT

OUTPUT: MEMORY CARD

(VERSION) SYS(1) 656F/0002 SYS(2) RMLD/2500

EDIT \*\*\*\*\* 19:59:44

FILE OUTPUT CLOSE EOB

File name: Max. 12 characters  
Where to output:  
Memory card and USB memory

The file is output in text file format as NC program.

"%" is written into the head and end of the file.

If the same file name already exists, the "Check message" is displayed.

To overwrite, press "OK."

Specify the memory card or USB memory as a place to output.

Memory cards or USB memories may not be unusable.

Regardless of I/O channel for NC setting, the data can be output to either the memory card or USB memory.

The output file is NC program.

To register again, input from the NC program screen.

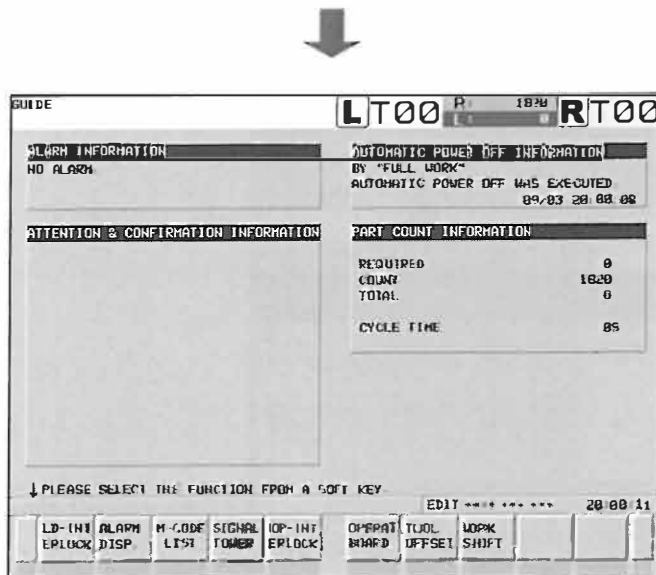
## 4-10 Guide

When "GUIDE" button on the operation panel is pressed, the guide screen is displayed.

When  key is pressed several times, the guide screen is also displayed.

### 1 Displaying guide screen

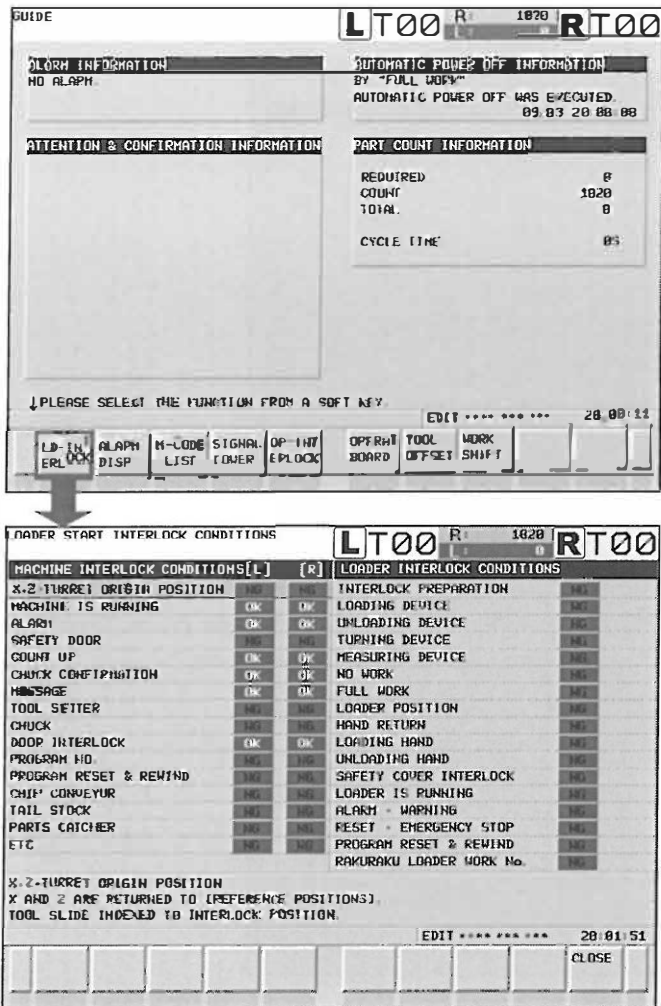
Press  or  several times.



When selecting the function from the soft key, the corresponding screen is displayed.

## 2 Displaying loader starting condition screen

Procedure: GUIDE screen [LD-INTERLOCK] → START INTERLOCK CONDITIONS screen

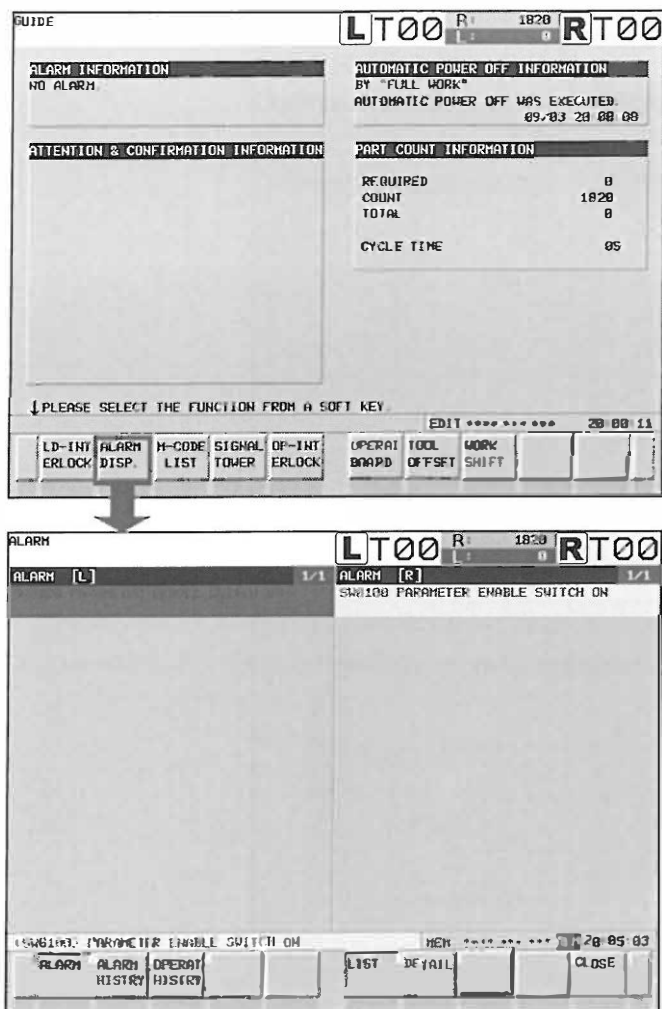


If the LD-INTERLOCK button does not turn on even after pressing the main machine interlock preparation button, the START INTERLOCK CONDITIONS screen is automatically displayed.

As with the main machine, if the INTERLOCK button does not turn on even after pressing the loader interlock preparation button, the START INTERLOCK CONDITIONS screen is automatically displayed.

### 3 Displaying alarm display screen

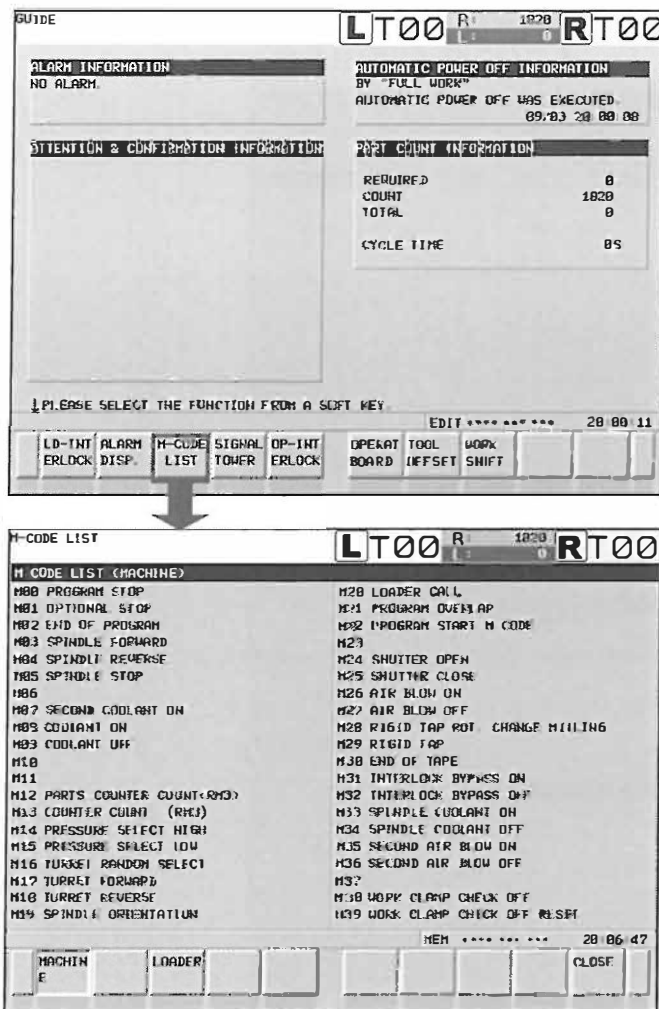
Procedure: GUIDE screen [ALARM DISP.] → ALARM screen



When the alarm or operator message is given, the ALARM screen is automatically displayed.

#### 4 Displaying M-code list screen

Procedure: GUIDE screen [M-CODE LIST] → M-CODE LIST screen



## 5 Displaying signal tower setting screen

Procedure: GUIDE screen [Indicating Lamp] → SIGNAL TOWER SETTING screen

**GUIDE** **LT00 R 1820 RT00**

**ALARM INFORMATION**  
NO ALARM

**AUTOMATIC POWER OFF INFORMATION**  
BY "FULL WORK"  
AUTOMATIC POWER OFF HAS EXECUTED  
09/03 28 08 08

**ATTENTION & CONFIRMATION INFORMATION**

**PORT COUNT INFORMATION**

|            |      |
|------------|------|
| REQUIRED   | 0    |
| COUNT      | 1820 |
| TOTAL      | 0    |
| CYCLE TIME | 09   |

↓ PLEASE SELECT THE FUNCTION FROM A SOFT KEY

EDIT \*\*\*\*\* 28 08 11

LD-INT ALARM H-CODE SIGNAL OP-INT OPERAT TOOL WORK  
ERLOCK DISP LIST TOWER ERLOCK BOARD OFFSET SHIFT

**SIGNAL TOWER SETTING** **LT00 R 1820 RT00**

**MACHINE SIGNAL TOWER SETTING** N R G

MACHINE ALARM/NC ALARM (BATTERY IS TOO LOW, etc.) ●

LEVEL OF BED LUB. OIL IS TOO LOW ●

CHIP CONVEYOR ALARM (MOTOR OVER LOAD) ●

SERVO BATTERY IS TOO LOW ●

MACHINE RUNNING ●

TOOL LIFE END (COUNT UP) ●

FORECAST AND WARNING (RM3) ●

CYCLE END (M30) ●

**LOADER SIGNAL TOWER SETTING** N R G

LOADER ALARM ●

NO WORK ●

FULL WORK ●

LOADER RUNNING ●

CYCLE END (M30) ●

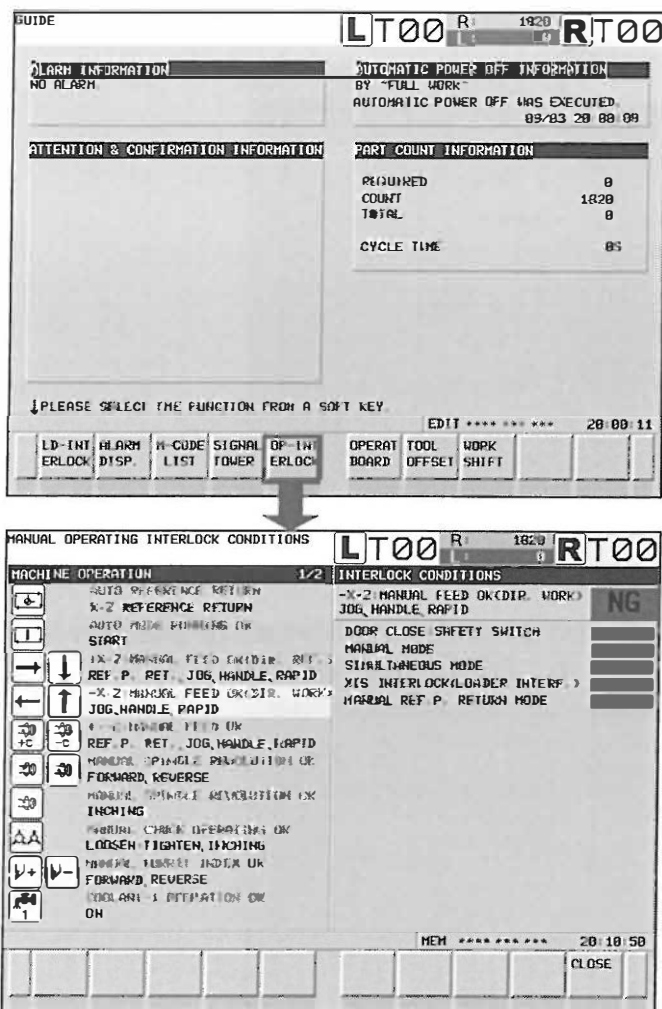
COUNT UP ●

MEM \*\*\*\*\* 28 07 54

NONE LIGHT BLINK CLOSE

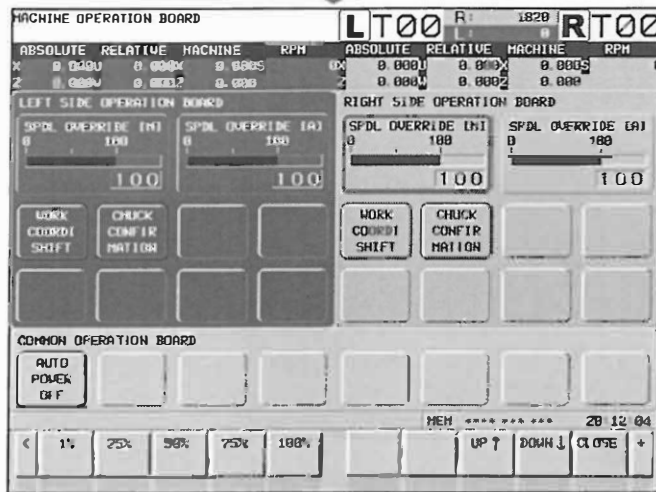
## 6 Displaying manual operation conditions screen

Procedure: GUIDE screen [OP-INTERLOCK] → Manual Operation Conditions screen

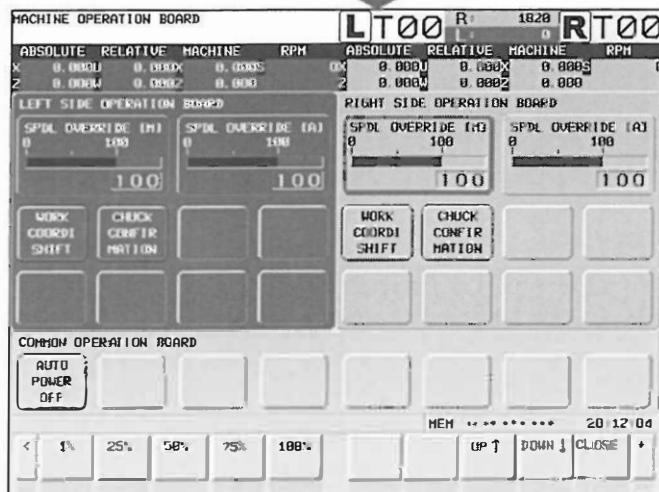
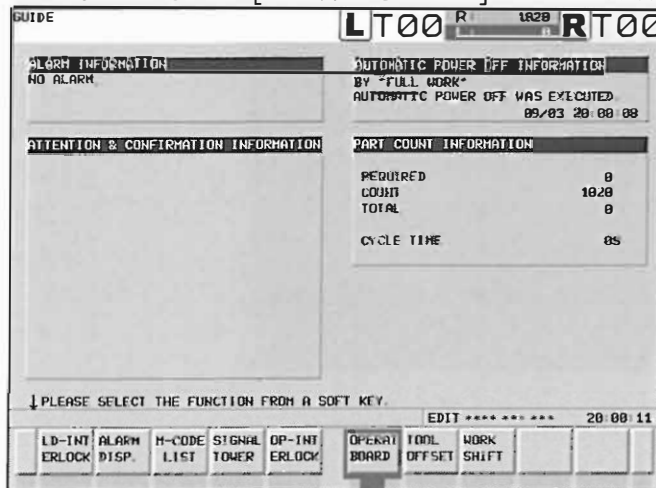


## 7 Displaying operation panel (board) screen

Press  or  several times.



Or GUIDE screen [OPERAT BOARD] → MACHINE OPERATION BOARD screen



## 8 Displaying tool offset/wear screen

Procedure: GUIDE screen [TOOL OFFSET] → Tool offset/wear screen

The top screenshot shows the GUIDE screen with the following sections:

- ALARM INFORMATION:** NO ALARM
- ATTENTION & CONFIRMATION INFORMATION:** (Empty)
- AUTOMATIC POWER OFF INFORMATION:** BY "FULL WORK" AUTOMATIC POWER OFF WAS EXECUTED. 09:03 20 00 00
- PORT COUNT INFORMATION:**

|            |      |
|------------|------|
| REQUIRED   | 0    |
| COUNT      | 1820 |
| TOTAL      | 0    |
| CYCLE TIME | 0%   |

At the bottom, a message says "PLEASE SELECT THE FUNCTION FROM A SOFT KEY." The soft key row includes: LD INT, ALARM, H-CODE, SIGNAL, OP-INT, OPERAT, **TOOL**, WORK, and EDIT. The "TOOL" key is highlighted.

The bottom screenshot shows the TOOL OFFSET screen, titled "OFFSET / WEAR". It displays tool offset data for the left and right sides, categorized by X, Y, Z, and R axes. The data is presented in a table format with columns for tool number, X, Y, Z, R, and U values.

| LEFT SIDE (ABSOLUTE) |       |       |       |   |   | RIGHT SIDE (ABSOLUTE) |       |       |       |   |   |
|----------------------|-------|-------|-------|---|---|-----------------------|-------|-------|-------|---|---|
| No.                  | X     | Y     | Z     | R | U | No.                   | X     | Y     | Z     | R | U |
| 001                  | 0.001 | 0.011 | 0.500 | 0 |   | 001                   | 0.011 | 0.011 | 0.500 | 0 |   |
| 002                  | 0.000 | 0.000 | 0.000 | 0 |   | 002                   | 0.000 | 0.000 | 0.000 | 0 |   |
| 003                  | 0.000 | 0.000 | 0.000 | 0 |   | 003                   | 0.000 | 0.000 | 0.000 | 0 |   |
| 004                  | 0.000 | 0.000 | 0.000 | 0 |   | 004                   | 0.000 | 0.000 | 0.000 | 0 |   |
| 005                  | 0.000 | 0.000 | 0.000 | 0 |   | 005                   | 0.000 | 0.000 | 0.000 | 0 |   |
| 006                  | 0.000 | 0.000 | 0.000 | 0 |   | 006                   | 0.000 | 0.000 | 0.000 | 0 |   |
| 007                  | 0.000 | 0.000 | 0.000 | 0 |   | 007                   | 0.000 | 0.000 | 0.000 | 0 |   |
| 008                  | 0.000 | 0.000 | 0.000 | 0 |   | 008                   | 0.000 | 0.000 | 0.000 | 0 |   |
| 009                  | 0.000 | 0.000 | 0.000 | 0 |   | 009                   | 0.000 | 0.000 | 0.000 | 0 |   |
| 010                  | 0.000 | 0.000 | 0.000 | 0 |   | 010                   | 0.000 | 0.000 | 0.000 | 0 |   |
| 011                  | 0.011 | 0.010 | 0.211 | 1 |   | 011                   | 0.011 | 0.010 | 0.211 | 1 |   |
| 012                  | 0.012 | 0.010 | 0.212 | 2 |   | 012                   | 0.012 | 0.010 | 0.212 | 2 |   |
| 013                  | 0.013 | 0.013 | 0.213 | 3 |   | 013                   | 0.013 | 0.013 | 0.213 | 3 |   |
| 014                  | 0.014 | 0.014 | 0.214 | 4 |   | 014                   | 0.014 | 0.014 | 0.214 | 4 |   |
| 015                  | 0.015 | 0.015 | 0.215 | 5 |   | 015                   | 0.015 | 0.015 | 0.215 | 5 |   |
| 016                  | 0.016 | 0.016 | 0.216 | 6 |   | 016                   | 0.016 | 0.016 | 0.216 | 6 |   |

The bottom soft key row includes: GEOMET, WEAR, ZOOM, ABSOLU, RELATI, (OPRT), and CLOSE.

## 9 Displaying work shift screen

Procedure: GUIDE screen [WORK SHIFT] → Work shift screen

**GUIDE** LT00 R 1820 RT00

|                                                 |                                                                                                                 |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>ALARM INFORMATION</b><br>NO ALARM            | <b>AUTOMATIC POWER OFF INFORMATION</b><br>BY "FIELD WORK"<br>AUTOMATIC POWER OFF WAS EXECUTED<br>89.83 20:00:00 |
| <b>ATTENTION &amp; CONFIRMATION INFORMATION</b> | <b>PORT COUNT INFORMATION</b><br>REQUIRED 0<br>COUNT 1820<br>TOTAL 0<br>CYCLE TIME 0%                           |

↓ PLEASE SELECT THE FUNCTION FROM A SOFT KEY

EDIT \*\*\*\*\* 20:00:11

LD-INT ALARM H-CODE SIGNAL DP-INT OPERAT TOOL WORK  
ERLOCK DISP LIST TUNER EXLOCK BOARD OFFSET SHIFT

↓

**WORK SHIFT** LT00 R 1820 RT00

| LEFT SIDE |            |            | RIGHT SIDE |            |            |
|-----------|------------|------------|------------|------------|------------|
| (MACHINE) | (ABSOLUTE) | (RELATIVE) | (MACHINE)  | (ABSOLUTE) | (RELATIVE) |
| X 0.000   | X 0.000    | X 0.000    | X 0.000    | X 0.000    | X 0.000    |
| Z 0.000   | Z 0.000    | Z 0.000    | Z 0.000    | Z 0.000    | Z 0.000    |

| SHIFT VALUE |       | SHIFT VALUE |       |
|-------------|-------|-------------|-------|
| X           | 0.000 | X           | 0.000 |
| Z           | 0.000 | Z           | 0.000 |

| MEASUREMENT |       | MEASUREMENT |       |
|-------------|-------|-------------|-------|
| X           | 0.000 | X           | 0.000 |
| Z           | 0.000 | Z           | 0.000 |

MEM \*\*\*\*\* 20:16:17

INPUT +INPUT CLOSE

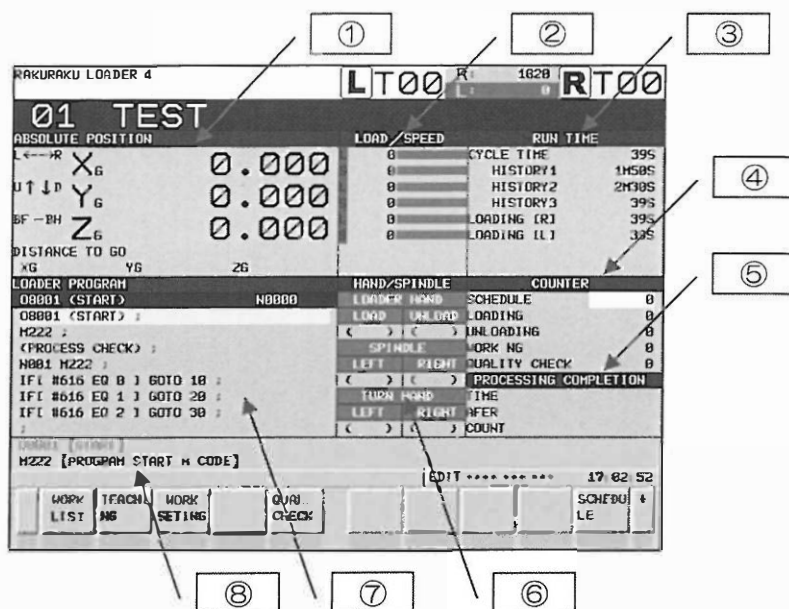
## 5 EXPLANATION ABOUT SCREENS

---

In this chapter, items displayed on each screen of RAKU RAKU LOADER are explained.

Displays on the screen are internally operated at the level lower than CNC operation. Therefore, the operation on the screen display could be slow during CNC operation.

## 5-1 Loader main screen



### 1 Explanation about displays

#### ① ABSOLUTE POSITION

The current position of the loader is displayed.

"Remaining distance" is displayed under the current position display.

#### ② LOAD/SPEED

Load value and actual speed for each axis are displayed.

They are also displayed by a bar graph.

#### ③ RUN TIME

Cycle time or loading time is displayed.

#### ④ COUNTER

Set the scheduled number of workpieces to be processed. (Number of materials for the work feeder)

When the number is set, scheduled total number is calculated after the cycles are completed.

Loading counter (M36): Number of work carrying times from the loading position is displayed.

Unloading counter (M37): Number of work carrying times to the unloading position is displayed.

NG counter (M38): Number of work carrying times to NG position is displayed.

Quality check counter (M39): Number of work carrying times to the quality check position is displayed.

#### ⑤ PROCESSING COMPLETION

Scheduled processing completion time, remaining time, number or remaining workpieces are displayed.

When the scheduled number is not set yet (0), the calculation is not performed.

#### ⑥ HAND/SPINDLE

Open/Close status of the loader hand or spindle chuck is displayed.

#### ⑦ LOADER PROGRAM

The loader program is displayed.

The leading block (block currently executed) is displayed on yellow background.

Items giving a command while the loader is operating are displayed in blue (letters.)

### ⑧ DISPLAY OF EXPLANATION ABOUT THE PROGRAM BLOCK

Explanation about the leading block and the next block is displayed.

M-code name, macro variable name, macro variable value, etc. are displayed.

## 2 Soft key

|  |              |              |                |  |                |               |  |  |  |                |          |
|--|--------------|--------------|----------------|--|----------------|---------------|--|--|--|----------------|----------|
|  | WORK<br>LIST | TEACHI<br>NG | WORK<br>SETING |  | QUAL.<br>CHECK |               |  |  |  | SCHEDU<br>LE   | +        |
|  |              |              |                |  |                |               |  |  |  |                |          |
|  |              |              |                |  |                | MACRO<br>VAL. |  |  |  | LOADER<br>PROG | SYSTEM + |

[WORK LIST]

Workpiece List screen is displayed.

[TEACHING]

Teaching Setting screen is displayed.

[WORK SETTING]

Operation Setting screen is displayed.

[QUAL. SETTING]

Quality Check screen is displayed.

[SCHEDULE]

becomes

The scheduled number of workpieces to be processed settable.

[MACRO VAL.]

The macro variable is displayed.

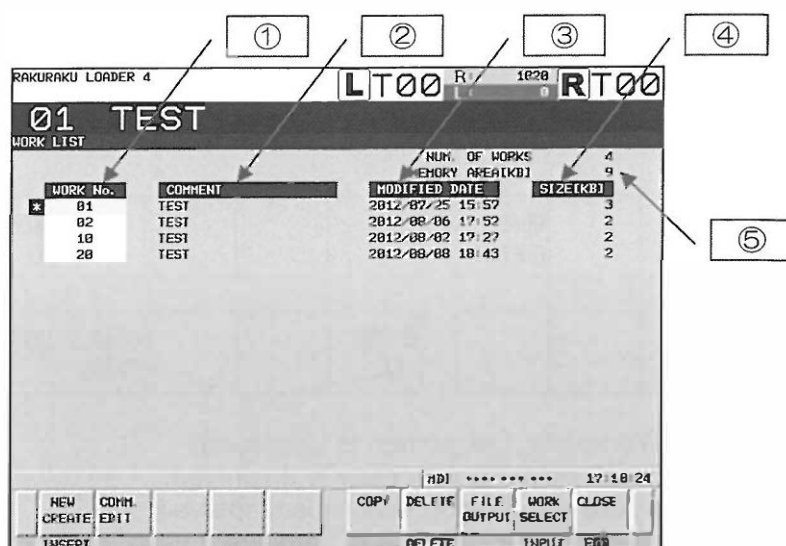
[LOADER PROG]

Loader Program List screen is displayed.

[SYSTEM]

System Setting screen is displayed.

## 5-2 Workpiece list screen



### 1 Explanation about displays

- ① WORK NO.  
Workpiece No. is displayed. 1 to 99 Nos. can be displayed.
- ② COMMENT  
The comment for the workpiece is displayed. Up to 22 characters can be displayed.
- ③ MODIFIED DATE  
Date when the data are updated is displayed.  
When setting the teaching coordinate value or operation setting is performed, the date is updated.
- ④ SIZE [KB]  
Workpiece and memory used [KB] are displayed.
- ⑤ NUMBER OF WORKPIECES AND MEMORY USED  
Number of workpieces and used memory [KB] are displayed.

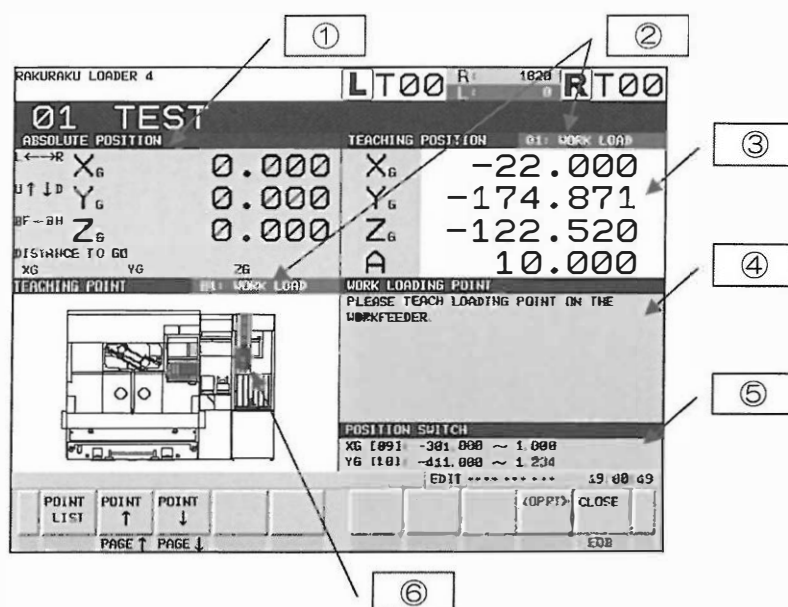
### 2 Soft key

|               |               |  |  |  |  |      |        |                |                |       |  |
|---------------|---------------|--|--|--|--|------|--------|----------------|----------------|-------|--|
| NEW<br>CREATE | COMM.<br>EDIT |  |  |  |  | COPY | DELETE | FILE<br>OUTPUT | WORK<br>SELECT | CLOSE |  |
|---------------|---------------|--|--|--|--|------|--------|----------------|----------------|-------|--|

|                |                               |
|----------------|-------------------------------|
| [NEW CREATE]   | Workpieces are newly created. |
| [COMMENT EDIT] | Comment is edited.            |
| [COPY]         | Workpieces are copied.        |
| [WORK SELECT]  | Workpieces are selected.      |
| [CLOSE]        | The screen is closed.         |
| [DELETE]       | Workpieces are deleted.       |
| [FILE OUTPUT]  | Workpieces are output.        |

For the operation, refer to "4-2 Workpiece relating operation."

## 5-3 Teaching screen



### 1 Explanation about displays

- ① ABSOLUTE POSITION  
The current position of the loader is displayed.  
"Remaining distance" is displayed under the current position display.
- ② NAME OF THE TEACHING POINT  
Name of the teaching point is displayed.
- ③ TEACHING POSITION  
The teaching coordinate values for axes X and Z are displayed.  
A indicates the approach position.
- ④ WORK LOADING POINT  
Explanation about the teaching point is displayed.
- ⑤ DISPLAY OF POSITION SWITCH  
The range of the position switch is displayed.
- ⑥ POSITION DISPLAY OF TEACHING POINT  
The position of the teaching point is indicated on the drawing.

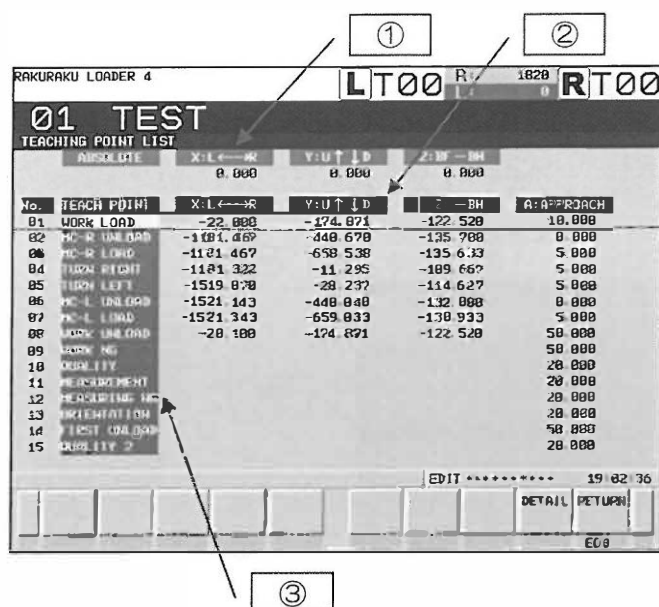
### 2 Soft key

|            |         |         |  |  |  |  |  |        |       |  |
|------------|---------|---------|--|--|--|--|--|--------|-------|--|
| POINT LIST | POINT ↑ | POINT ↓ |  |  |  |  |  | (OPRT) | CLOSE |  |
|------------|---------|---------|--|--|--|--|--|--------|-------|--|

|              |                                           |
|--------------|-------------------------------------------|
| [POINT LIST] | Teaching list screen is displayed.        |
| [POINT ↑]    | The previous teaching point is displayed. |
| [POINT ↓]    | The next teaching point is displayed.     |
| [(OPRT)]     | The cursor is displayed.                  |
| [CLOSE]      | The screen is closed.                     |

For the operation, refer to "4-3 Operation Relating to Teaching."

## 5-4 Teaching list screen



### 1 Explanation about displays

- ① ABSOLUTE POSITION  
The current loader position is displayed.
- ② POSITION DISPLAY OF TEACHING POINT  
The teaching coordinate values for axes X and Z are displayed.  
A indicates the approach position.
- ③ TEACHING POINT  
The teaching point is displayed.

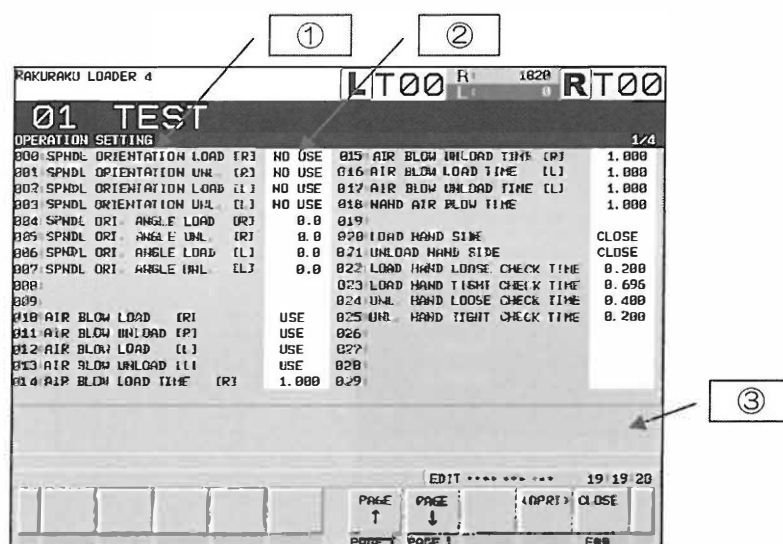
### 2 Soft key

|  |  |  |  |  |  |  |  |  |        |        |  |
|--|--|--|--|--|--|--|--|--|--------|--------|--|
|  |  |  |  |  |  |  |  |  | DETAIL | RETURN |  |
|--|--|--|--|--|--|--|--|--|--------|--------|--|

- [DETAILS] The teaching screen is displayed at the teaching point of the cursor
- [RETURN] It returns to the teaching screen.

For the operation, refer to "4-3 Operation Relating to Teaching."

## 5-5 Operation setting screen

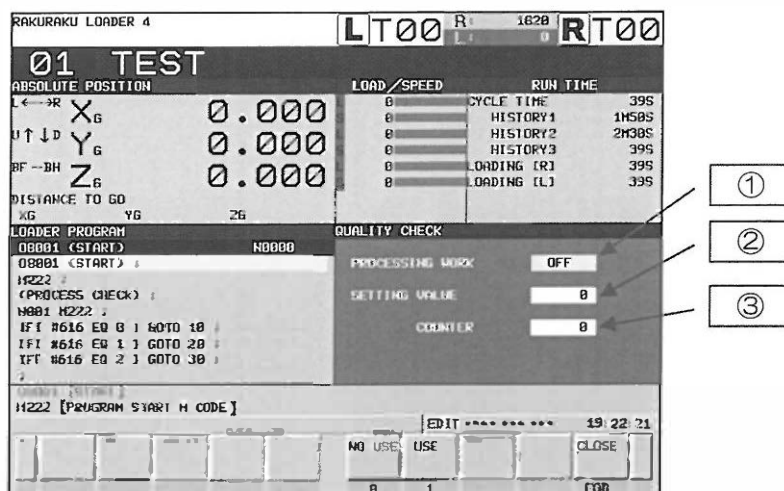


### 1 Explanation about displays

- ① DISPLAY OF OPERATION SETTING ITEMS  
Items for which operations should be set are displayed.  
Nos. 000 to 149 are displayed.
- ② DISPLAY OF SETTING VALUES  
The setting value corresponding to the item is displayed.

For the operation, refer to "4-4 Operation setting."

## 5-6 Quality check screen



### 2 Explanation about displays

#### ① PROCESSING WORK

ON: The quality check is not performed when a workpiece is being processed.

OFF: The quality check is performed when a workpiece is being processed.

#### ② SETTING VALUE

Cycle to perform the quality check is displayed.

#### ③ COUNTER

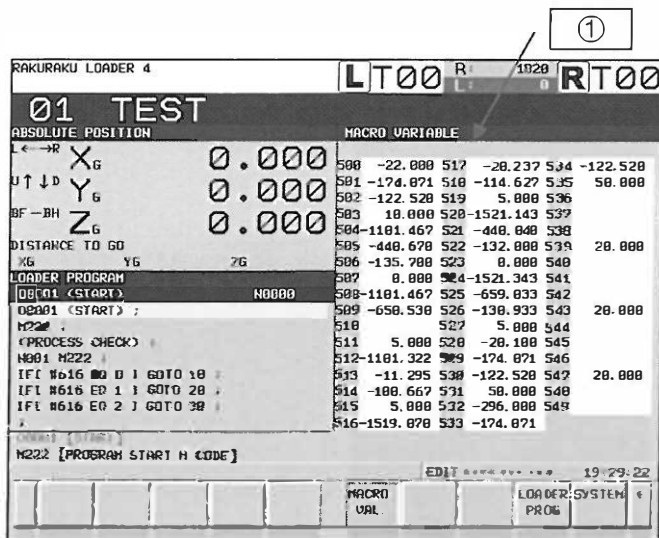
Number of workpieces to be processed is displayed.

When this value is equal to the set value, the quality check is performed.

For the operation, refer to "4-5 Quality Check."

## 5-7 Macro variable screen

Note) When the loader type is D type, the macro variable cannot be displayed.



### 1 Explanation about displays

#### ① MACRO VARIABLE

The value of the macro variable is displayed.

Up to 50 variables are displayed.

The variable No. is changed by using the page key.

For details, refer to "4-7 Displaying macro variable."

## 5-8 Loader program list screen

Note) When the loader type is D type, the loader program list cannot be displayed.

| PROGRAM No.      | COMMENT             | MODIFIED DATE    | SIZE [KB] |
|------------------|---------------------|------------------|-----------|
| 0001             | START               | 2012/02/20 09:43 | 1         |
| 0010             | LOADER CALL CHECK   | 2012/07/11 20:27 | 1         |
| 0020             | WF IN-OUT-1STEP     | 2012/07/11 20:27 | 2         |
| 0021             | WF IN-OUT           | 2012/07/11 20:27 | 1         |
| 0030             | MC1 IN              | 2012/07/11 20:27 | 1         |
| 0040             | MC1 OUT-IN          | 2012/07/11 20:27 | 1         |
| 0041             | MC1 LOCATION TRY    | 2012/07/11 20:27 | 1         |
| 0044             | MC1 OUT-IN PARALLEL | 2012/07/11 20:27 | 1         |
| 0050             | MC1 OUT             | 2012/07/11 20:27 | 1         |
| 0054             | MC1 OUT PARALLEL    | 2012/07/11 20:27 | 1         |
| 0060             | WF OUT-1STEP        | 2012/07/11 20:27 | 1         |
| 0061             | WF OUT              | 2012/07/11 20:27 | 1         |
| 0070             | TURN IN             | 2012/07/11 20:27 | 1         |
| 0071             | TURN IN REVERSE     | 2012/07/11 20:27 | 1         |
| 0080             | TURN OUT            | 2012/07/11 20:27 | 1         |
| 0081             | TURN OUT REVERSE    | 2012/07/11 20:27 | 1         |
| NUM. OF PROGRAMS |                     |                  | 27/50     |
| MEMORY AREA [KB] |                     |                  | 29/60     |

At the bottom of the screen, there is a status bar with 'EDIT \*\*\*\*\* 19:31:04' and a row of soft keys: 'FILE OUTPUT', 'CLOSE', and 'EOB'.

### 1 Explanation about displays

- ① PROGRAM No.  
The loader program No. is displayed.
- ② COMMENT  
The comment of the loader program is displayed.
- ③ MODIFIED DATE  
Date when the loader program is updated is displayed.
- ④ SIZE [KB]  
The loader program size [KB] is displayed.
- ⑤ NUMBER OF PROGRAMS AND USED MEMORY SIZE [KB]  
Number of programs and used memory size [KB] are displayed.  
Up to 50 programs are memorized.

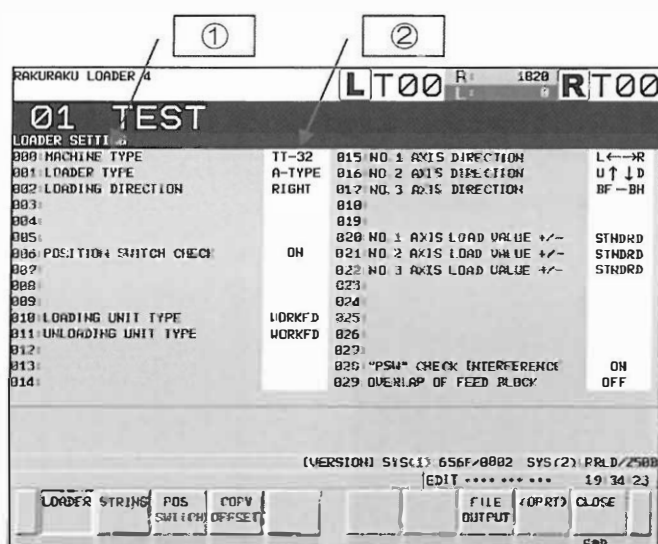
### 2 Soft key

|                |  |  |  |  |  |  |  |  |  |       |
|----------------|--|--|--|--|--|--|--|--|--|-------|
| FILE<br>OUTPUT |  |  |  |  |  |  |  |  |  | CLOSE |
|----------------|--|--|--|--|--|--|--|--|--|-------|

- [FILE OUTPUT]      The loader program is output.  
[CLOSE]              The screen is closed.

For the operation, refer to "4-8 Outputting loader program."

## 5-9 System setting



### 1 Explanation about Displays

- ① DISPLAY OF ITEMS OF LOADER SETTING  
Items for the loader setting are displayed.  
Nos. 000 to 029 are displayed.
- ② DISPLAY OF SETTING VALUE  
The setting value corresponding to the item is displayed.

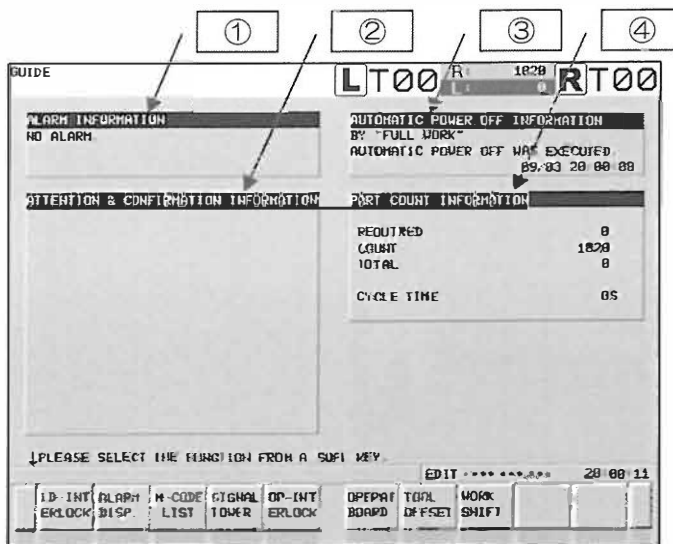
### 2 Soft key

|          |          |               |               |               |          |         |
|----------|----------|---------------|---------------|---------------|----------|---------|
| [LOADER] | [STRING] | [POS. SWITCH] | [COPY OFFSET] | [FILE OUTPUT] | [(OPRT)] | [CLOSE] |
|----------|----------|---------------|---------------|---------------|----------|---------|

|               |                                                                     |
|---------------|---------------------------------------------------------------------|
| [LOADER]      | The loader setting screen is displayed.                             |
| [STRING]      | The character string setting screen is displayed.                   |
| [POS. SWITCH] | The position switch setting screen is displayed.                    |
| [COPY OFFSET] | The offset axis setting screen for copying workpieces is displayed. |
| [FILE OUTPUT] | The system setting is output.                                       |
| [(OPRT)]      | The cursor is displayed.                                            |
| [CLOSE]       | The screen is closed.                                               |

For the loader setting, character string setting, position switch setting, and offset axis setting for copying work, refer to "4-9 System setting."

## 5-10 Guide screen



### 1 Explanation about displays

#### ① DISPLAY OF ALARM INFORMATION

When the alarm is given,  
"ALARM OCCURS. PLEASE CHECK IT ON THE ALARM SCREEN." is displayed.

#### ② DISPLAY OF ATTENTION & CONFIRMATION INFORMATION

Information for items requiring cautions or check is displayed.  
The following information is displayed.

- DOOR INTERLOCK [CAN]
- SAFETY COVER OF WORK FEEDER [CAN]
- OVERRIDE OF SPINDLE [ON]
- OVERRIDE OF FEED RATE [ON]
- PROGRAM CHECK MODE [ON]
- OPTIONAL PROGRAM STOP MODE [ON]
- CHIP CONVEYOR [OFF]

#### ③ DISPLAY OF AUTOMATIC POWER OFF INFORMATION

If automatic power supply is shut off, the reason for performing the shut-off is displayed.

Ex.) BY "FULL WORK" AUTOMATIC POWER OFF WAS EXECUTED.

At 21:00 of June 21st (shut-off time)

#### ④ DISPLAY OF PARTS COUNT INFORMATION

Number of required parts, parts to be processed, number of total parts and cycle time are displayed.

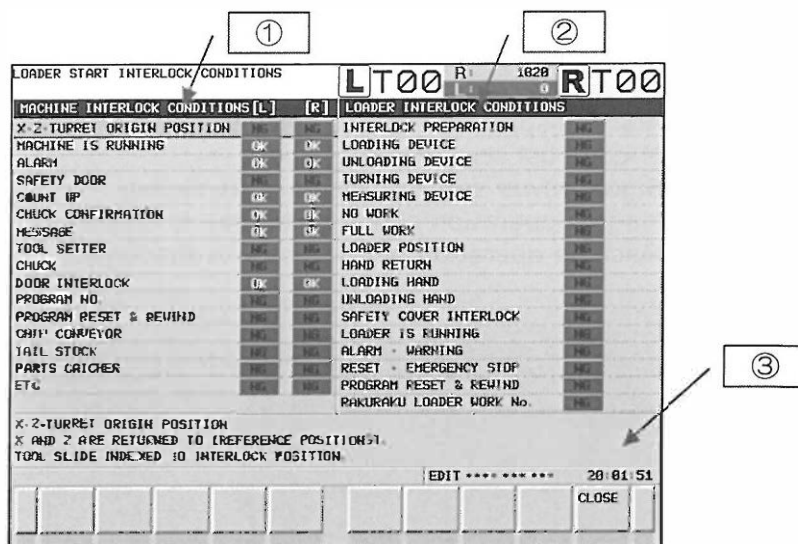
The number of required parts, number of parts to be processed and total number of parts are those displayed on the RAKU RAKU MONITOR.

## 2 Soft key

|  |                  |                |                |                 |                  |                 |                |               |  |  |  |
|--|------------------|----------------|----------------|-----------------|------------------|-----------------|----------------|---------------|--|--|--|
|  | LD-INT<br>ERLOCK | ALARM<br>DISP. | M-CODE<br>LIST | SIGNAL<br>TOWER | OP-INT<br>ERLOCK | OPERAT<br>BOARD | TOOL<br>OFFSET | WORK<br>SHIFT |  |  |  |
|--|------------------|----------------|----------------|-----------------|------------------|-----------------|----------------|---------------|--|--|--|

|                 |                                                 |
|-----------------|-------------------------------------------------|
| [LD-INTERLOCK]  | Loader starting condition screen is displayed.  |
| [ALARM DISP.]   | Alarm display screen is displayed.              |
| [M-CODE LIST]   | M-code list screen is displayed.                |
| [SIGNAL TOWER]  | Signal tower setting screen is displayed.       |
| [OP-INTERLOCK]  | Manual operation condition screen is displayed. |
| [OPERAT ABOARD] | Machine operation panel screen is displayed.    |

## 5-11 Loader starting condition screen



### 1 Explanation about displays

Items for starting condition and the status are displayed.

OK: Starting condition is met.

NG: Starting condition is not met.

#### ① DISPLAY OF MACHINE INTERLOCK CONDITIONS

Conditions required for starting the main machine are displayed.

#### ② DISPLAY OF LOADER INTERLOCK CONDITIONS

Conditions required for starting the loader are displayed.

#### ③ DETAILED EXPLANATION ABOUT THE CORRESPONDING ITEMS

Detailed explanation of the items selected by the cursor is displayed.

For details, refer to 3-7 2. Loader Starting Condition."

### 2 Operation key

Up and down arrow keys



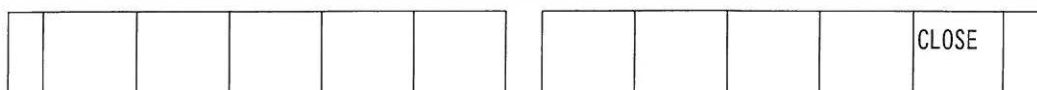
To move the items for the selected conditions up or down

Right and left arrow keys



To move the items for the selected conditions for both the machine and loader

### 3 Operation Soft key

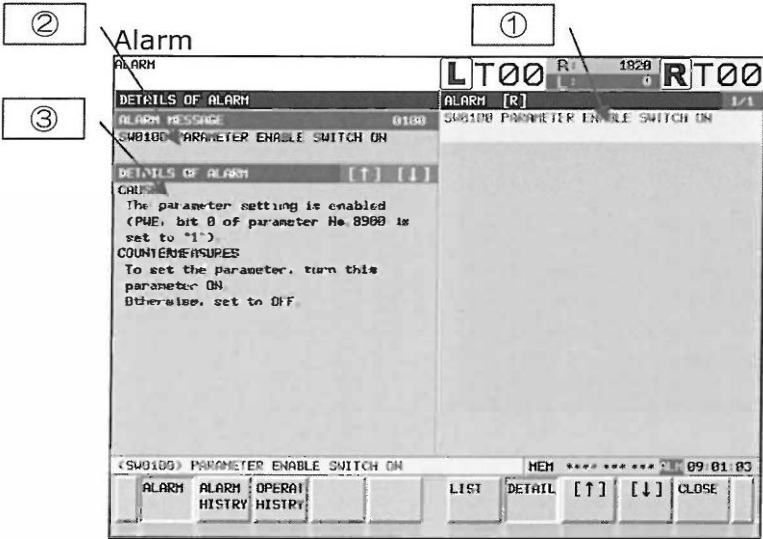
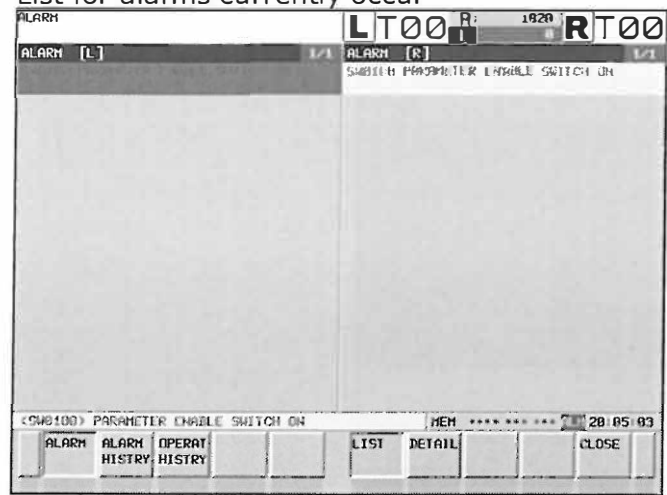


[CLOSE]

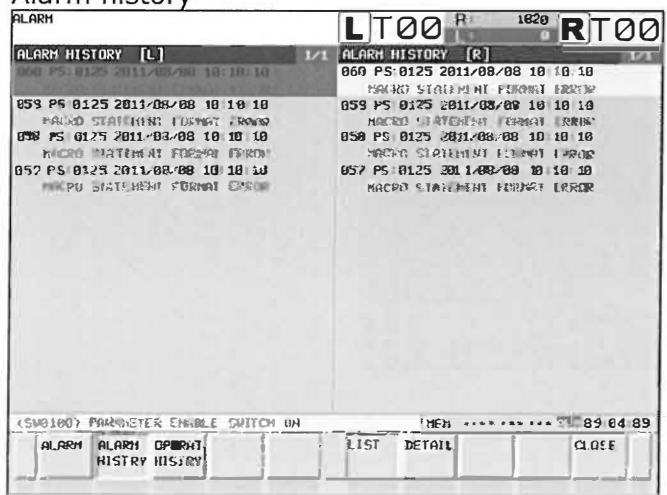
Return to the guide screen.

# 5-12 Alarm display screen

List for alarms currently occur



Alarm history



| DETAILS OF ALARM                                                    |      | ALARM HISTORY                   |                              |
|---------------------------------------------------------------------|------|---------------------------------|------------------------------|
| ALARM MESSAGE                                                       | 0125 | 060 PS:0125 2011-08-08 10:10:10 | MACRO STATEMENT FORMAT ERROR |
| PS0125 MACRO STATEMENT FORMAT ERROR                                 |      | 065 PS 0125 2011-08-08 10:10:10 | MACRO STATEMENT FORMAT ERROR |
| CAUSE                                                               |      | 058 PS 0125 2011-08-08 10:10:10 | MACRO STATEMENT FORMAT ERROR |
| The format used in a macro statement in a custom macro is an error. |      | 057 PS 0125 2011-08-08 10:10:10 | MACRO STATEMENT FORMAT ERROR |

|                                                                                          |               |                  |  |        |  |                                 |        |       |  |        |  |
|------------------------------------------------------------------------------------------|---------------|------------------|--|--------|--|---------------------------------|--------|-------|--|--------|--|
| ALARM                                                                                    |               | L T00            |  | R1     |  | 1920                            |        | R T00 |  |        |  |
| OPERATOR MESSAGE HISTORY [L]                                                             |               |                  |  | 1/1    |  | OPERATOR MESSAGE HISTORY [R]    |        |       |  | 1/1    |  |
| 009 OP 2011 2011-08-08 10:10:10                                                          |               |                  |  |        |  | 029 OP 2011 2011-08-08 10:10:10 |        |       |  |        |  |
| STATEMENT ERROR                                                                          |               |                  |  | FORMAL |  | STATEMENT ERROR                 |        |       |  | FORMAL |  |
| 015 OP 2011 2011-08-08 10:10:10                                                          |               |                  |  |        |  | 015 OP 2011 2011-08-08 10:10:10 |        |       |  |        |  |
| STATEMENT ERROR                                                                          |               |                  |  | FORMAL |  | STATEMENT ERROR                 |        |       |  | FORMAL |  |
| 016 OP 2011 2011-08-08 10:10:10                                                          |               |                  |  |        |  | 016 OP 2011 2011-08-08 10:10:10 |        |       |  |        |  |
| STATEMENT ERROR                                                                          |               |                  |  | FORMAL |  | STATEMENT ERROR                 |        |       |  | FORMAL |  |
| 017 OP 2011 2011-08-08 10:10:10                                                          |               |                  |  |        |  | 017 OP 2011 2011-08-08 10:10:10 |        |       |  |        |  |
| STATEMENT ERROR                                                                          |               |                  |  | FORMAL |  | STATEMENT ERROR                 |        |       |  | FORMAL |  |
| (SW100) PARAMETER ENABLE SWITCH ON <span style="float: right;">MEM ***** 09.12.55</span> |               |                  |  |        |  |                                 |        |       |  |        |  |
| ALARM                                                                                    | ALARM HISTORY | OPERATOR HISTORY |  |        |  | LIST                            | DETAIL |       |  | CLOSE  |  |

|                                                                                                 |               |                                 |      |        |       |
|-------------------------------------------------------------------------------------------------|---------------|---------------------------------|------|--------|-------|
| ALARM                                                                                           |               | LT00 R1 1820                    |      | RT00   |       |
| DETAILS OF ALARM                                                                                |               | OPERATOR MESSAGE HISTORY [RT]   |      |        |       |
| ALARM MESSAGE 0125                                                                              |               | 020 OP 2011 2011/09/08 10 10 10 |      |        |       |
| PS0125 MACRO STATEMENT FORMAT ERROR                                                             |               | STATEMENT ERROR FORMAT          |      |        |       |
|                                                                                                 |               | 015 OP 2011 2011/08/08 10 10 10 |      |        |       |
|                                                                                                 |               | STATEMENT ERROR FORMAT          |      |        |       |
| DETAILS OF ALARM 011 011                                                                        |               | 010 OP 2011 2011/08/08 10 10 10 |      |        |       |
| CAUSE                                                                                           |               | STATEMENT ERROR FORMAT          |      |        |       |
| The format used in a macro statement in a custom macro is in error.                             |               |                                 |      |        |       |
| STATEMENT ERROR FORMAT                                                                          |               |                                 |      |        |       |
| 017 OP 2011 2011/08/08 10 10 10                                                                 |               |                                 |      |        |       |
| STATEMENT ERROR FORMAT                                                                          |               |                                 |      |        |       |
| (G00100) PARAMETER ENABLE SWITCH ON <span style="float: right;">HEM *** * * * * 09:12:55</span> |               |                                 |      |        |       |
| ALARM                                                                                           | ALARM HISTORY | OPERATOR HISTORY                | LIST | DETAIL | CLOSE |

## 1 Explanation about displays

The list of alarms currently occurring and detail of the alarms are displayed.

### ① DISPLAY OF LIST OF ALARMS CURRENTLY OCCURRING

The list of the alarms currently occurring is displayed.

### ② DISPLAY OF ALARM NO. AND MESSAGE

The alarm No. and message are displayed.

### ③ DISPLAY OF DETAILS OF ALARM

Detailed alarm (heating timing, causes, countermeasures, etc.) is displayed.

Refer to this for taking measures when alarms occur.

## 2 Operation key

Up and down arrow keys



To move the alarm item up or down

Up and down page keys



To move the alarm item to previous page or next page

## 3 Operation soft key

|  |       |                 |                  |  |  |      |        |     |     |       |  |
|--|-------|-----------------|------------------|--|--|------|--------|-----|-----|-------|--|
|  | ALARM | ALARM<br>HISTRY | OPERAT<br>HISTRY |  |  | LIST | DETAIL | [↑] | [↓] | CLOSE |  |
|--|-------|-----------------|------------------|--|--|------|--------|-----|-----|-------|--|

[ALARM]

The list of alarms currently occurs is displayed.

[ALARM HISTRY]

The alarm history screen is displayed.

[OPERATHISTRY]

The operator message history screen is displayed.

[ [↑] ]

The alarm detailed display is scrolled up.

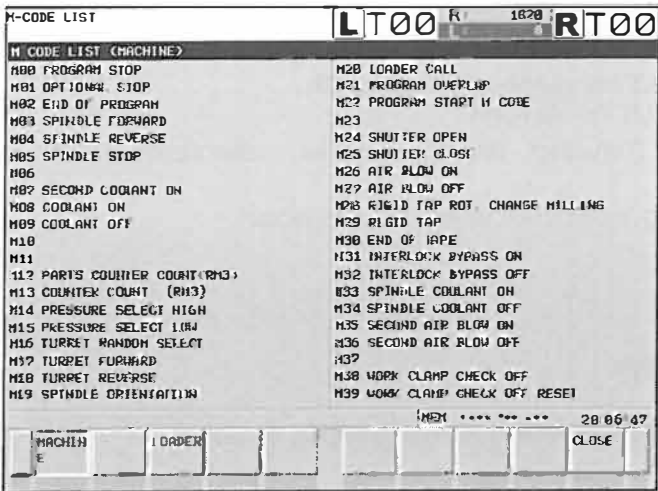
[ [↓] ]

The alarm detailed display is scrolled down.

[CLOSE]

It returns to the GUIDE screen.

5-13 M-code list screen



1 Explanation about displays

M-code list is displayed.

2 Operation key

Up and down page keys



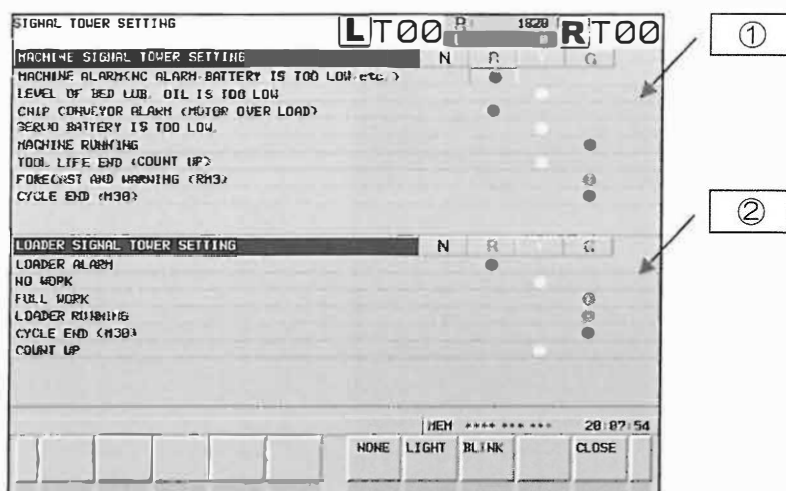
To move the list display to the previous page or next page

3 Operation soft key



- [MACHINE] The M-code list for the machine is displayed.
- [LOADER] The list for M-code for the loader is displayed.
- [CLOSE] To return to the GUIDE screen

## 5-14 Signal tower setting screen



### 1 Explanation about displays

Display and setting of each indicating lamp and the lighting status for both the machine and loader are performed.

- ① DISPLAY AND SETTING OF THE LIST OF THE MACHINE SIGNAL TOWER  
The lighting status of each indicating lamp of the machine is displayed and set.
- ② DISPLAY OF THE LIST AND SETTING AREA OF THE LOADER SIGNAL TOWER  
The lighting status of each indicating lamp of the loader is displayed and set.

### 2 Operation key

Up and down arrow keys



To move the items for the indicating lamp up or down

Right and left arrow keys



To move the items for the indicating lamp right or left  
It does not move to the lighting color "NONE."

### 3 Operation soft key



[NONE]

[LIGHT]

[BLINK]

[CLOSE]

Setting for lighting the indicating lamp is not performed.  
The lighting status of the indicating lamp is set to always lighting.

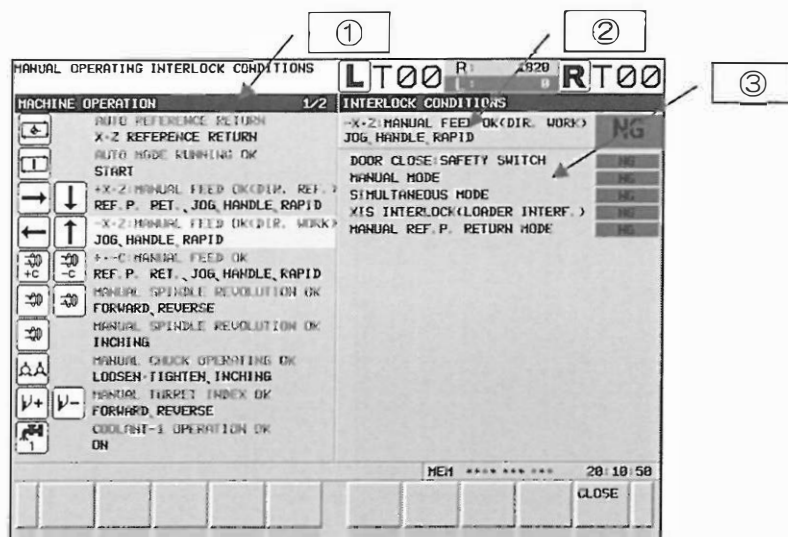
"●" corresponding to the lighting color is displayed.

The lighting status of the indicating lamp is set to blink.

"@ " for the color corresponding to the lighting color item is displayed.

It returns to the GUIDE screen.

## 5-15 Manual operation condition screen



### 1 Explanation about displays

Items for starting condition and the status are displayed.

OK: Starting condition is met.

NG: Starting condition is not met.

#### ① DISPLAY OF ITEM LIST FOR MANUAL OPERATION

The mark of the manual operation button and list of the name of the item are displayed.

If the operation is possible, blue characters are displayed and if impossible, red characters are displayed.

#### ② DISPLAY FOR EITHER THE OPERATION IS VALID OR INVALID FOR THE SELECTED MANUAL OPERATION ITEM

Either the operation is valid or invalid for the manual operation items is displayed.

If "OK" is displayed, starting the manual operation for that item is possible.

#### ③ DISPLAY OF DETAILED CONDITIONS FOR THE APPLICABLE ITEMS

The detailed conditions for the manual operation items are displayed.

If "NG" is displayed, make the conditions to be met.

### 2 Operation key

Up and down arrow keys



To move the manual operation item up or down.

Up and down page keys



To move the manual operation items to the previous page or next page

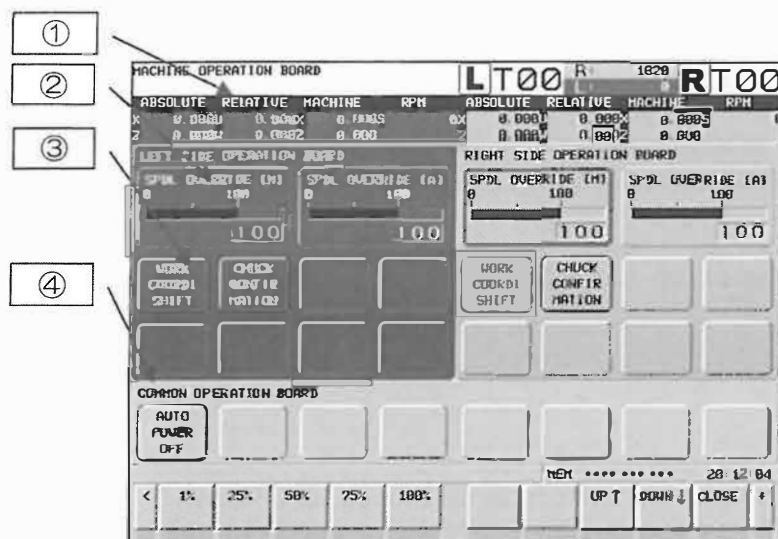
### 3 Operation soft key



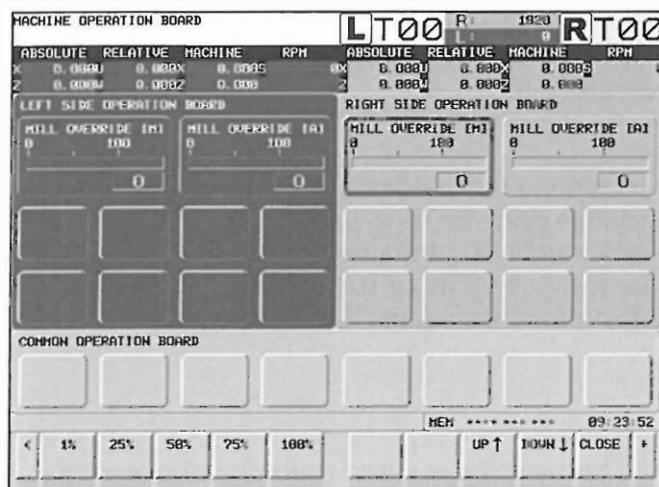
[CLOSE]

It returns to the GUIDE screen.

## 5-16 Machine operation panel screen



1Page



2Page

### 1 Explanation about displays

Each type of override and push button are displayed.

The pushbutton can be turned on/off by using the soft key.

Displays of the pushbuttons or lamps are different depending on the type of the machine.

- ① DISPLAY OF THE CURRENT COORDINATE AND SPINDLE ROTARY SPEED  
The current "Absolute coordinate", "Relative coordinate", "Machine coordinate" and spindle rotary speed are displayed.

- ② DISPLAY OF SPINDLE OVERRIDE

"Spindle override" value for both manual and automatic operation is displayed.

On the 2nd page, override value of the milling is displayed.

### ③ DISPLAY OF OPERATION BUTTON

Operable buttons are displayed.

When more than one buttons are selected (the 4 buttons' frames are lit in red), they can be turned on/off by using the corresponding soft keys.

When only one button is selected (one button's frame is lit in red), it is possible to turn on/off the selected buttons by turning on/off the soft keys.

### ④ DISPLAY OF RIGHT AND LEFT COMMON OPERATION BUTTON

The operable buttons are displayed.

When more than one buttons are selected (the 8 buttons' frames are lit in red), it is possible to turn on/off the selected buttons by turning on/off the soft key.

When only one button is selected (one button's frame is lit in red), it is possible to turning on/off the selected button by turning on/off the soft key.

## 2 Operation key

Up/Down key



For moving buttons to be moved up or down

If only one button is selected, more than one button will be selected.

Right/Left key



For moving the button to be moved to the right or left

If more than one button is selected, only one button will be selected.

Up/Down page key



For moving the machine operation panel display to previous page or next page

If the machine is the one provided with a milling function, the override value of the milling is displayed, and the setting for that values is possible.

## 3 Soft key

The 1st page of the operation soft keys when the manual override is selected

|   |    |     |     |     |      |  |  |      |        |       |   |
|---|----|-----|-----|-----|------|--|--|------|--------|-------|---|
| < | 1% | 25% | 50% | 75% | 100% |  |  | UP ↑ | DOWN ↓ | CLOSE | + |
|---|----|-----|-----|-----|------|--|--|------|--------|-------|---|

[ 1% ]

Override value is set to 1%.

[ 25% ]

Override value is set to 25%.

When setting, a confirmation message is displayed.

[ 50% ]

Override value is set to 50%.

When setting, a confirmation message is displayed.

[ 75% ]

Override value is set to 75%.

When setting, a confirmation message is displayed.

[100%]

Override value is set to 100%

When setting, a confirmation message is displayed.

[ UP ↑ ]

Override is added by preset value.

Set values can be changed by using the operation soft keys of the 2nd page.

[DOWN ↓]

Override value is deducted by set values.

The set value can be changed by using the operation soft keys of the 2nd page.

[CLOSE]

It returns to the GUIDE screen

[ < ]

Operation soft keys of the 2nd page are displayed.

[ + ]

Operation soft keys of the 2nd page are displayed.

### Operation soft keys of the 1st page when automatic override is selected

|   |  |  |     |     |      |  |      |      |      |        |       |   |
|---|--|--|-----|-----|------|--|------|------|------|--------|-------|---|
| < |  |  | 50% | 75% | 100% |  | 120% | 150% | UP ↑ | DOWN ↓ | CLOSE | + |
|---|--|--|-----|-----|------|--|------|------|------|--------|-------|---|

|            |                                                                                                                         |
|------------|-------------------------------------------------------------------------------------------------------------------------|
| [ 50% ]    | Override value is set to 50%.                                                                                           |
| [ 75% ]    | Override value is set to 75%.                                                                                           |
| [ 100% ]   | Override value is set to 100%.                                                                                          |
| [ 120% ]   | Override value is set to 120%                                                                                           |
| [ 150% ]   | Override value is set to 150%                                                                                           |
| [ UP ↑ ]   | Override value is added by set value.<br>The set value can be changed by using the operation soft keys of the 2nd page. |
| [ DOWN ↓ ] | Override value is deducted by set value.<br>The set value can be changed by using the soft keys of the 2nd page.        |
| [ CLOSE ]  | It returns to the GUIDE screen                                                                                          |
| [ < ]      | Operation soft keys of the 2nd page is displayed.                                                                       |
| [ + ]      | Operation soft keys of the 2nd page is displayed.                                                                       |

### Operation soft keys of the 2nd page when automatic override is selected

|   |  |  |    |    |    |  |    |     |      |        |       |   |
|---|--|--|----|----|----|--|----|-----|------|--------|-------|---|
| < |  |  | ×1 | ×2 | ×3 |  | ×5 | ×10 | UP ↑ | DOWN ↓ | CLOSE | + |
|---|--|--|----|----|----|--|----|-----|------|--------|-------|---|

|            |                                                        |
|------------|--------------------------------------------------------|
| [ X 1 ]    | Increasing/Decreasing value of override is set to 1%.  |
| [ X 2 ]    | Increasing/Decreasing value of override is set to 2%.  |
| [ X 3 ]    | Increasing/Decreasing value of override is set to 3%.  |
| [ X 5 ]    | Increasing/Decreasing value of override is set to 5%.  |
| [ X 10 ]   | Increasing/Decreasing value of override is set to 10%. |
| [ UP ↑ ]   | Override value is added by set value.                  |
| [ DOWN ↓ ] | Override value is deducted by set value.               |
| [ CLOSE ]  | It returns to the GUIDE screen                         |
| [ < ]      | Operation soft keys of the 1st page is displayed.      |
| [ + ]      | Operation soft keys of the 1st page is displayed.      |



### CAUTION

When the power is turned on, manual override of the spindle / milling is, It is set to 1%.  
Automatic override of the spindle / milling, is set to 100%.  
Increase or decrease the value of the override is set to × 1.

Operating the soft keys when more than one button are selected (when the pushbutton for each system is selected)

|                |                 |  |  |  |                |                 |  |  |       |  |
|----------------|-----------------|--|--|--|----------------|-----------------|--|--|-------|--|
| WORK<br>COORDI | CHUCK<br>CONFIR |  |  |  | WORK<br>COORDI | CHUCK<br>CONFIR |  |  | CLOSE |  |
|----------------|-----------------|--|--|--|----------------|-----------------|--|--|-------|--|

[ WORK  
COORDI ]

The mode will be "Workpiece coordinate system shift writing mode,  
5-18 "Workpiece coordinate system shift" screen is displayed.  
If this option is not provided, the soft keys are not displayed.  
SFK1: Left system side is applicable.  
SFK5: Right system side is applicable.

[ CHUCK  
CONFIR]

Whether or not the function to check that a workpiece is clamped should be set to valid or invalid.

The machine not provided with this option is not able To display.

SFK2: Left system side is applicable.

SFK6: Right side system is applicable.

[(Button  
name)]

For selecting either turning on or off of the corresponding button

Names of buttons are displayed on positions of valid buttons.

Operation of soft keys on positions of invalid buttons are invalid.

SFK1 to 4: Left system side is applicable.

SFK5 to 8: Right side system is applicable.

[CLOSE]

It returns to the GUIDE screen

Soft keys when more than one operating button are selected (with the common operation panel is selected)

|  |                      |                  |                  |                  |  |                  |                  |                  |                  |       |  |
|--|----------------------|------------------|------------------|------------------|--|------------------|------------------|------------------|------------------|-------|--|
|  | AUTO<br>POWER<br>OFF | (Button<br>name) | (Button<br>name) | (Button<br>name) |  | (Button<br>name) | (Button<br>name) | (Button<br>name) | (Button<br>name) | CLOSE |  |
|--|----------------------|------------------|------------------|------------------|--|------------------|------------------|------------------|------------------|-------|--|

[AUTO  
POWER  
OFF]

Whether or not the automatic power off function is set to valid or invalid is selected.

The machine not provided with this option is not able to display.

[(Button  
name)]

Turning on/off of the corresponding button is selected.

The name of the button is displayed on the valid button's position.

Operation of soft keys on positions of invalid buttons are invalid.

[CLOSE]

It returns to the GUIDE screen

Operation soft keys when only one button is selected

|  |  |  |  |  |  |  |  |    |     |       |  |
|--|--|--|--|--|--|--|--|----|-----|-------|--|
|  |  |  |  |  |  |  |  | ON | OFF | CLOSE |  |
|--|--|--|--|--|--|--|--|----|-----|-------|--|

[ON]

Turn on the selected button.

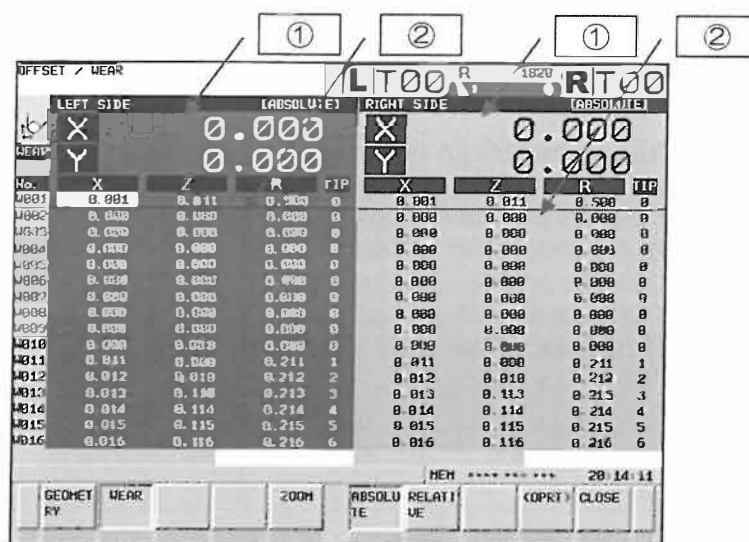
[OFF]

Turn off the selected button.

[CLOSE]

It returns to the GUIDE screen

## 5-17 Tool offset screen



### 4 Explanation of displays

- ① DISPLAY OF CURRENT COORDINATE  
Current "absolute coordinate" ([ABSOLUTE]) or "relative coordinate" ([RELATIVE]) is displayed.  
Selecting either "absolute coordinate" or "relative coordinate" can be performed by using the soft key.
- ② DISPLAY OF OFFSET VALUE  
"Shape correction" ([GEOMETORY]) or "wear correction" ([WEAR]) is displayed.  
Selecting either "shape correction" or "wear correction" can be performed by using the soft key.

### 5 Operation key

Up/Down key



For moving a selected item up or down

Right/Left key



For moving a selected item to the right or left

## 6 Soft key

|  |              |      |  |  |      |              |              |  |        |       |  |
|--|--------------|------|--|--|------|--------------|--------------|--|--------|-------|--|
|  | GEOMET<br>RY | WEAR |  |  | ZOOM | ABSOLU<br>TE | RELATI<br>VE |  | (OPRT) | CLOSE |  |
|--|--------------|------|--|--|------|--------------|--------------|--|--------|-------|--|

|            |                                                       |
|------------|-------------------------------------------------------|
| [GEOMETRY] | Shape correction is displayed.                        |
| [WEAR]     | Wear correction is displayed.                         |
| [ZOOM]     | Data on the cursor position are enlarged.             |
| [ABSOLUTE] | Current position is displayed at absolute coordinate. |
| [RELATIVE] | Current position is displayed at relative coordinate. |
| [(OPRT)]   | The cursor is displayed.                              |
| [CLOSE]    | It returns to the GUIDE screen                        |

### Right side

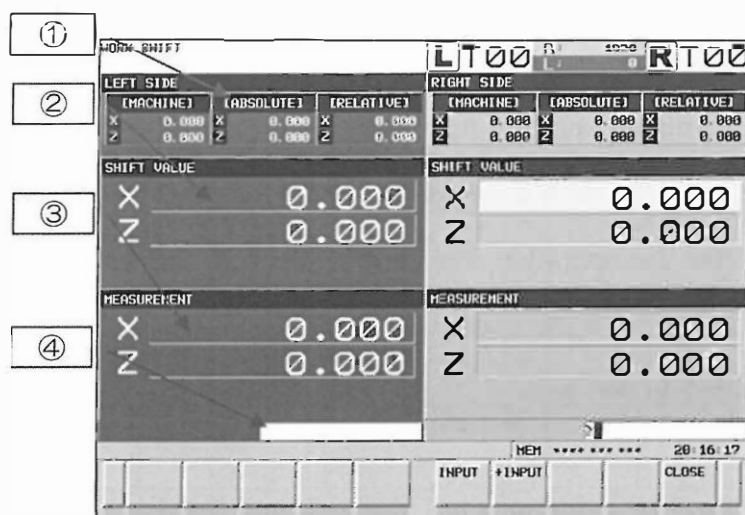
|  |  |  |  |  |      |         |  |       |        |  |  |
|--|--|--|--|--|------|---------|--|-------|--------|--|--|
|  |  |  |  |  | UNDO | No. SRH |  | INPUT | +INPUT |  |  |
|--|--|--|--|--|------|---------|--|-------|--------|--|--|

### Left side

|  |         |  |       |        |  |      |  |  |  |  |  |
|--|---------|--|-------|--------|--|------|--|--|--|--|--|
|  | No. SRH |  | INPUT | +INPUT |  | REDO |  |  |  |  |  |
|--|---------|--|-------|--------|--|------|--|--|--|--|--|

|           |                                                                                                                              |
|-----------|------------------------------------------------------------------------------------------------------------------------------|
| [No. SRH] | When this key is pressed after the offset No. (correction No.) is input, the offset No. is searched and the cursor is moved. |
| [INPUT]   | Key-input value is set.                                                                                                      |
| [+INPUT]  | Value by adding the key-input value is set.                                                                                  |
| [UNDO]    | Value is returned to the previous value.                                                                                     |
| [REDO]    | Setting is redone from the value returned to the previous value.                                                             |

## 5-18 Workpiece coordinate system shift screen



### 7 Explanation about displays

Each override value and pushbutton are displayed.  
The pushbutton can be turned on/off by using the soft key.  
The buttons or lamps displayed could differ depending on the type of the machine.

- ① DISPLAY OF CURRENT COORDINATE  
Current "absolute coordinate" ([ABSOLUTE]) or "relative coordinate" ([RELATIVE]), and "machine coordinate" ([MACHINE]) are displayed.
- ② DISPLAY OF WORKPIECE SHIFT VALUE  
Current workpiece shift value is displayed.  
For the machine with an option of C-axis, workpiece shift value for C-axis is also displayed.
- ③ DISPLAY OF WORKPIECE SHIFT MEASURED VALUE  
Current workpiece shift measured value is displayed.  
For the machine with an option of C-axis, workpiece shift value for C-axis is also displayed.
- ④ WORKPIECE SHIFT VALUE DATA INPUT AREA  
Data input here are set to the selected area.

### 8 Operation key

Up/Down key



Selected items for workpiece coordinate shift value and measured value for workpiece coordinate shift are moved up/down.

Right/Left key



Selected items for workpiece coordinate shift value and measured value for workpiece coordinate shift are moved between systems.

## 9 Soft key

|  |  |  |  |  |  |       |        |  |  |       |  |
|--|--|--|--|--|--|-------|--------|--|--|-------|--|
|  |  |  |  |  |  | INPUT | +INPUT |  |  | CLOSE |  |
|--|--|--|--|--|--|-------|--------|--|--|-------|--|

[INPUT]

④ Data input into the data input area of workpiece coordinate shift are input as they are.

[+ INPUT]

④ Data input into the data input area of workpiece coordinate shift are added to the currently selected set data.

After the operation, the next "Execution checking operation soft key" is displayed.

[CLOSE]

It returns to the GUIDE screen

### Execution checking operation soft key

|  |  |  |  |  |  |  |  |  |        |       |  |
|--|--|--|--|--|--|--|--|--|--------|-------|--|
|  |  |  |  |  |  |  |  |  | CANCEL | EXEC. |  |
|--|--|--|--|--|--|--|--|--|--------|-------|--|

[CANCEL]

Specified operations are stopped, and the display is returned to the previous operation soft key.

[EXEC.]

Specified operations are executed, and the display is returned to the previous operation soft key.

### Operation soft key after the operation is executed

|  |  |  |  |  |  |       |        |      |  |       |  |
|--|--|--|--|--|--|-------|--------|------|--|-------|--|
|  |  |  |  |  |  | INPUT | +INPUT | UNDO |  | CLOSE |  |
|--|--|--|--|--|--|-------|--------|------|--|-------|--|

[UNDO]

Value changed by the input operation right before is returned to the previous value.

"Execution checking operation soft key" is displayed after operating "UNDO."

### Operation soft key right after "UNDO" is executed.

|  |  |  |  |  |  |       |        |      |  |       |  |
|--|--|--|--|--|--|-------|--------|------|--|-------|--|
|  |  |  |  |  |  | INPUT | +INPUT | REDO |  | CLOSE |  |
|--|--|--|--|--|--|-------|--------|------|--|-------|--|

[REDO]

The value returned to the previous value by "UNDO" operation right before is returned to the value when changed.

"Execution checking operation soft key" is displayed after operating "REDO."

### Operation soft key in "Workpiece coordinate system setting mode"

|  |  |  |  |  |  |                   |  |  |        |       |  |
|--|--|--|--|--|--|-------------------|--|--|--------|-------|--|
|  |  |  |  |  |  | WK SFT<br>SETTING |  |  | CANCEL | CLOSE |  |
|--|--|--|--|--|--|-------------------|--|--|--------|-------|--|

[WK SFT  
SETTING]

Workpiece coordinate shaft value for Z-axis is set with the current Z-axis coordinate value set as an "original position."

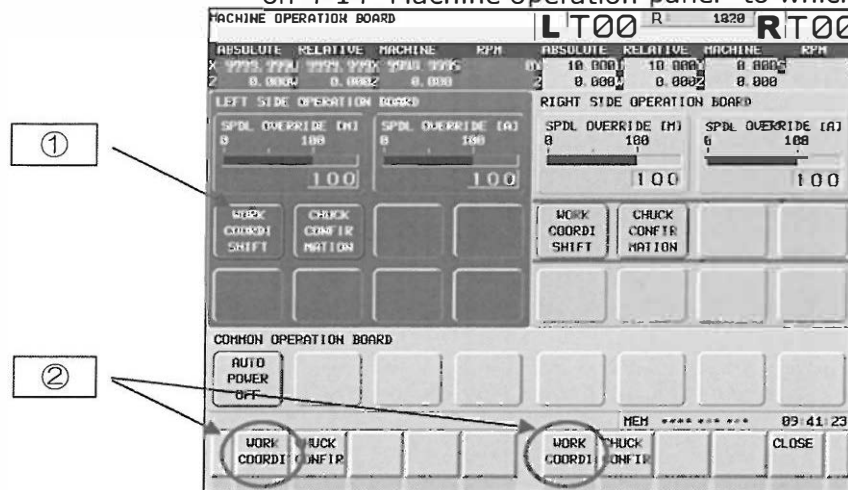
[CANCEL]

"Workpiece coordinate system setting mode" is stopped and returned to the original operation soft key display.

If this optional function "workpiece coordinate system shift setting mode" is not added, this operation soft key is not displayed.

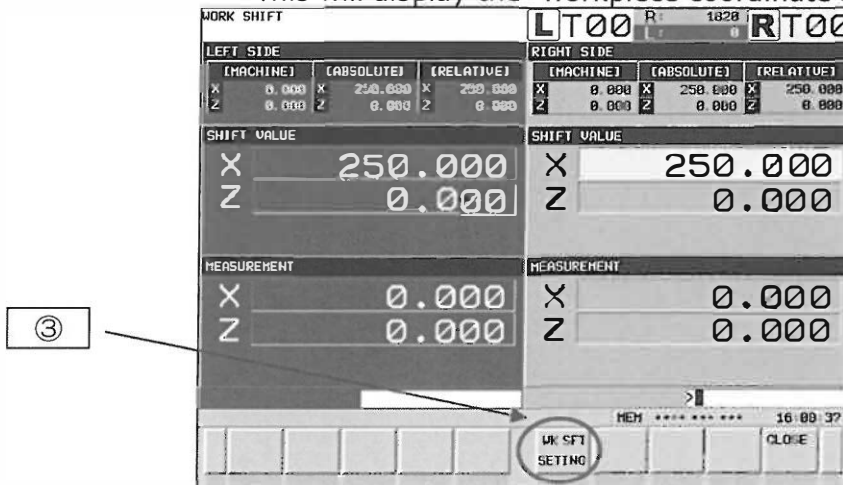
## Workpiece coordinate system shift writing procedure

- 1) Press the "workpiece coordinate shift" button for one side of the system on 4-14 "Machine operation panel" to which data should be written.



- ① Select the button operation area which "workpiece coordinate system shift" button is provided to.
- ② Press the operation soft key "workpiece coordinate system" for one side which data should be written into.

This will display the "workpiece coordinate shift" screen.



- ③ Press the "workpiece shift setting" ([WK SFT SETTING]) button ③. By this, workpiece shift value of Z-axis will be written so that the current Z-axis coordinate value is set as "original position."

## 6 APPENDIX

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This chapter describes about other functions.

## 6-1 Memory card and USB memory

Use memory cards recommended by Fanuc or purchased from Fanuc.  
There are restrictions on use of USB memories.  
For details, refer to the Fanuc manual or maintenance manual.

### Kinds of memory cards

Compact flash card (adapter is required)

### 10 NC setting when the memory card is used

Display the setting screen by using  key.  
Set the I/O channel item on the screen to "4."

### 11 Restrictions for use of USB memories

There are following restrictions for use of USB memories.

- The file system supports FAT12/FAT16/FAT32 and VFAT.
- Up to 6 hierarchies can be handled by the folder (route folder is excluded.)
- Up to 32 ASCII code characters (alphanumeric) can be used for names of the files and folders.
- Use USB memories of USB Ver1.0.
- Only one USB memory is perceptible. (USB hub is not perceptible.)
- DNC operation cannot be performed on the program inside USB memory.
- Schedule operation cannot be performed on the program inside USB memory.
- Program inside the USB memory cannot be called out by calling out external sub program (M198).
- Editing the memory card program operation cannot be applied to USB memories.
- We are not responsible for operations of all the USB memories commercially available.
- Accessing speed of some USB memories is slow.
- Be sure to check the operation conditions before using USB memories.

### 12 NC setting when using USB memories

Display the setting screen by using  key.  
Set the I/O channel item on the setting screen to "17."

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