RECIPROCAL FLAT BED CUTTING PLOTTER

CF2 Series

CF2-0912 CF2-1215 CF2-1218

RC model
RT model

OPERATION MANUAL

⚠ **CAUTION**

CAUTION

1. Prior to using this device, be sure to read this Operation manual and become fully familiar with its operation method and usage cautions.
2. While the plotter is operating (while it is moving or its blades are vibrating), absolutely never bring any part of your body (face, hands), clothes, or other objects near the flat bed (cutting panel), as serious injury may result.
   Particularly when lifting the head and operating the device without a work piece in order to check data, one's hand can enter under the head safety cover. As this may cause serious injury, proceed with great care.
3. The head units (A, B, C) move at high speed. When checking work results or adjusting work slippage or floating, be sure to stop the device and perform these actions in either the local mode or with the power switched off.
4. When attaching tools (reciprocal cutter, etc.), be sure to power off the device beforehand. Attempting to change tools while the power is on presents the risk of unexpected injuries due to erroneous panel operation, etc.

This device is a first-class information processing device (information processing device that shall be commissioned in a commercial and industrial area) and conforms to the Voluntary Control Council Interference (VCCI) standard that has been developed for the purpose of prevention of radio disturbance in commercial or industrial areas. This device, therefore, can interfere with radios and televisions if put into service in a residential area and its adjacent areas. Correct handling procedure shall be followed according to this Operation manual.

In the case where MIMAKI-designated cable is not used for the connection of this device, limits provided by VCCI rules can be exceeded. To prevent this, use of MIMAKI-designated cable is essential for the connection of this device.

Interference to televisions and radios

The product covered by this Operation manual produces high frequency waves while it is in operation. The product can interfere with radios and televisions if set up or commissioned under improper conditions. The product is not guaranteed against any damage to specific-purpose radio and televisions. The product's interference with your radio or television will be checked by turning off the power to the product.

If the interference is elimiated by turning the product off, the product is the cause of interference. In the event that the product is the cause of interference, try to elimiate it by taking one of th following corrective measures or taking some of them in combination.

- Change the direction of the antenna of your radio/television to find one that avoids interference.
- Install your radio/television at a place that is sufficiently spaced from the product.
- Connect the plug of your radio/television into a receptacle that does not share the power supply with the product.

DISCLAIMER OF WARRANTY

FOREWARD

Congratulations on your purchase of a "CF2 Series" of reciprocal flat bed cutting plotter.

This Operation manual is intended for RC model and RT model under the "CF2 Series."
Any function for which no head name is designated is common to all models.

Please read and fully understand this Operation manual before putting the machine into service.
It is also necessary to keep this Operation manual on hand.

> ⚠ **CAUTION**
> - **This device uses blades and is extremely dangerous while it is operating. Absolutely never bring your hands or head near the head as doing so may result in cut fingers, etc.**

NOTES
- Make arrangements to deliver this Operation manual to the person in charge of the operation of this device.
- This Operation manual has been carefully prepared for your easy understanding, however, please do not hesitate to contact a distributor or our office in your country if you have any questions.
- Description contained in this Operation manual are subject to change without notice.
- In the case where this Operation manual should be illegible due to destruction by fire or breakage, purchase another copy of the Operation manual from our office.

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CHAPTER 2   BASIC OPERATION 2.1

CHAPTER 3   WHEN ABNORMAL CONDITIONS ARE ENCOUNTERED

CHAPTER 6　SELF-TEST

APPENDIX

ABOUT MODEL NAME

The structure of model name is as follows.
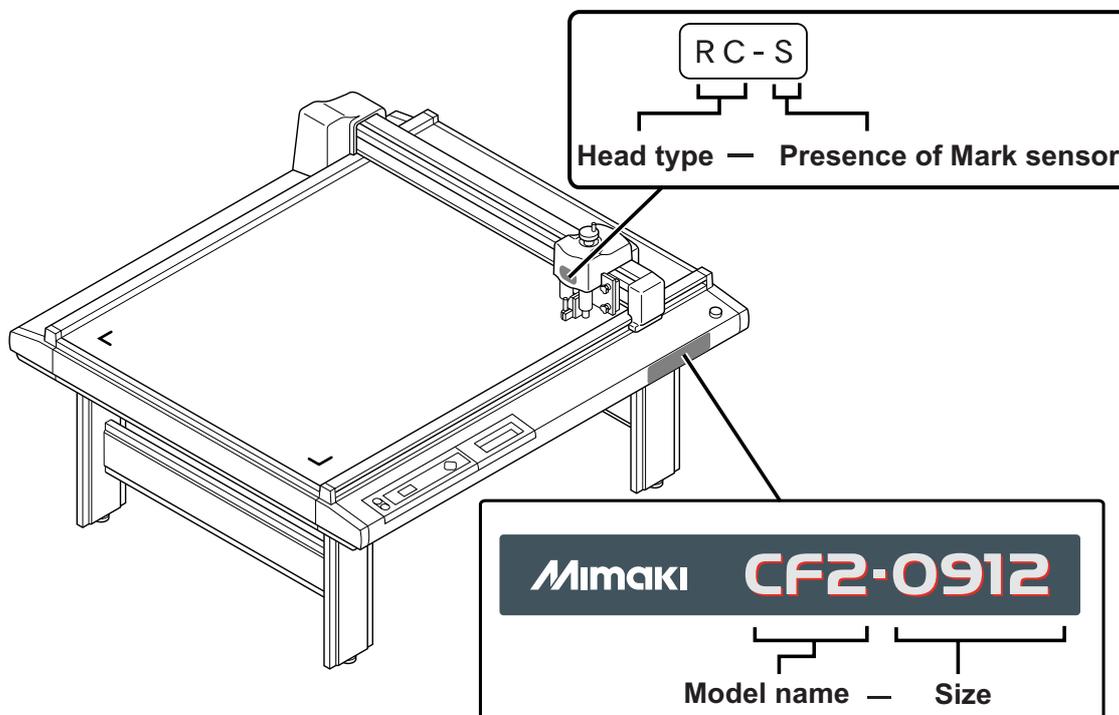
Model Name: CF2

Size

0912	1200 x 900mm
1215	1500 x 1200mm
1218	1800 x 1200mm

Head type

RC	Reciprocal cutter unit 2mm Creasing unit
RT	Reciprocal cutter unit 5mm Creasing unit

Mark sensor

N	No mark sensor
S	Mark sensor equipped

FOR SAFE OPERATION

Prior to using this device, be sure to read this Operation manual and become fully familiar with its operation method and usage cautions.

Pictorial signs

Pictorial signs are used in this Operation manual for safe operation of and in prevention of damages to the device. Pictorial signs and their meanings are given below. Read and fully understand the following before reading the text.

⚠ **WARNING** — **Indicates the case where it is asumed that misuse of the machine, ignoring this sign, can expose the operator to danger of injury or death.**

⚠ **CAUTION** — **Indicates the case where it is assumed that misuse of the machine, ignoring this sign, can cause danger only to property.**

Example of pictorial signs

The symbol " △ " indicates the case where some phenomenon that requires a CAUTION sign (including "DANGER" and "WARNING" signs) exists. A concrete precaution (precaution against an electric shock in the case of the sketch given on the left) is shown in the illustration.

The symbol " ⊘ " indicates a prohibited behavior. A concrete illustration of prohibition (disassembly is prohibited on the sketch given on the left) is shown in or next to the illustration.

The symbol " ● " indicates a thing that is forced to be done and instruction that is forced to be followed. A concrete illustration of instruction (the removal of a plug from the receptacle is instructed in the sketch given on the left) is drawn in the illustration.

The symbol " 🔆 " indicates helpful information that will facilitate the use of the device.

⚠ WARNING

Do not disassemble or remodel the device

* Never disassemble or remodel the main unit of the plotter and the blower unit. Disassembling/remodeling any of them will result in electric shocks or breakdown of the device.

Do not use the device in damp places

* Avoid damp environments when putting the device into service. Do not splash water onto the device. High-humidity or water will give rise to fire, electric shocks or breakdown of the device.

Abnormal event occurs

* If the device is used under an abnormal condition where the device produces smoke or unpleasant smell, fire or electric shocks can result. Be sure to turn off the power switch immediately and detach the plug from the receptacle. Check first to be sure that the device no longer produces smoke, and contact a distributor in your district or MIMAKI office for repair. Never repair your device by yourself since it is very dangerous for you to do so.

Power supply and voltage

* Be sure to use the device with the power supply specifications indicated.
  Be sure to connect the plug of the power cable to a grounded receptacle.
  If not, fire or electric shocks can result.

Handling of the cable

* Take care not to damage, break or work on the power cable or communication cable. If a heavy matter is placed on the power cable, heated or drawn, the power cable can break to cause fire or electric shocks.

Handling of tools

* Store cutter holders or blades in a place that is out of the reach of children. Never place cutter holders or blades in the tray on the operation panel.

Preventive measure against dust

* When handling any dust-producing substance that will jeopardize the health of personnel, wear a mask or the like to prevent dust.

Leave maintenance to a serviceman

* Leave maintenance works to a serviceman whenever the device has broken. Never conduct maintenance works by yourself since the works are always accompanied by possible risks of electric shocks, etc.

For safe operation

<div style="border:1px solid">

⚠ CAUTION

Use the following electrical specifications

Be sure to connect the power cable to a power outlet with the following electrical specifications.
Be sure to perform tap change depending on the voltage.

Main unit: 100/120/220/240 VAC ±10%
50/60 Hz
500W or higher

Do not restart the power until 30 seconds after turn off

If the device is restarted, do not turn on the power until 30 seconds after turning off. The device may be caused faulty function.

Do not put any matters on the cable

Do not bend the power cable and the communication cable, and do not placed any matters. These cables may be broken and heated, the power cable can cause fire or electric shocks.

Do not dress baggy suits and accessories

Do not work with dressing baggy suits and any accessories, and also tie any long hairs.

Do not move your face in front of cut panel

Do not move your face and hands in front of the cut panel while the unit is working.
The device can wind and touch your hairs or hands.

The device is moved by our service engineer only

The device is too sensitive equipment, so in case if you require movement of the unit, please contact to our service engineer.

</div>

Precautions in installation

<table>
<tr><td colspan="2" align="center">⚠ CAUTION</td></tr>
<tr>
<td>

A place exposed to direct sunlight

🚫 Do not install the device at a place where the temperature of the cut panel surface exceeds 60°C. The cut panel can deform or break down.

A place in which temperature and humidity vary by a great margin

❗ Use the device under the following environment.
Operating environment:
    10 to 35°C
    35 to 75% (Rh)

A place exposed to direct air blow from air conditioner., etc

🚫 Cutting quality could be adversely affected.

</td>
<td>

A plate that is not horizontal

🚫 If the plotter is not leveled, the plotter will fail to give correct results. Also the tilted plotter can break.

A place that vibrates

🚫 The device will fail to give correct results if installed in a place that vibrates.

A place filled with dirt, dust or tobacco smoke

🚫 The plotter is a precision machine. Do not use it in a place that is filled with dirt and dust.

Near flammable materials

❗ When the blower is used fully open, the exhaust port temperature becomes extremely high. Do not place flammable materials near the blower or in front of the exhaust port.

</td>
</tr>
</table>

HOW TO READ THIS OPERATION MANUAL

Name of function shown on LCD

List of values
that can be set

Number of step
of operating
procedure

Gives the
description of
operating procedure.
Indication on LCD
is bracketed as
[INTERFACE].

LCD display

Indicates the key
to be used to select
a function from
indications given on
LCD shown on the
left.

Page number

MATCHING THE FUNCTIONS OF THE DEVICE TO THE SPECIFICATIONS OF THE COMPUTER

The following explains how to set the functions required to connect the device to your personal computer.

Setting communication conditions [INTERFACE]

Communication conditions for the communication between the device and the computer to which the device is connected by way of RS232C.

Set values

Baud rate:	1200, 2400, 4800, 9600, 19200 (bps)
Data bit:	7, 8 (bit)
Parity:	NO PARITY, EVEN, ODD
Stop bit:	1, 2, (bit)
Handshake:	Hardware, X code, ENQ/ACK, software *1

*1: [ENQ-ACK], [SOFTWARE] can be selected when MGL-IIC3 command has been selected through command setting for the operation mode.

1
```
[ LOCAL ]        1 / 4
TOOL SELECT        ――>
CONDITION          ――>
TEST CUT           ――>
```
Press the (PAGE+) key several times until the LCD indicates page 3 of the LOCAL MENU.

2
```
[ LOCAL ]        3 / 4
INTERFACE        ―>
MODE SET         ――>
SELF TEST        ――>
```
Select the [INTERFACE] from the menu.

3
```
« INTERFACE »     1 / 2
I / F AUTO         ――>
BAUD RATE        *9600 >
DATA BITS        *8 >
```
Set the [BAUD RATE] to a desired value.
The value marked with an asterisk (*) is the current set value.
1200, 2400, 4800, 9600, 19200 (bps)

4
```
« INTERFACE »     1 / 2
I / F AUTO         ――>
BAUD RATE        19200 >
DATA BITS        *8 >
```
Set the [DATA BIT] to one of the following.
7, 8 (bit)

Structure of this operation manual

Chapter 1 Set-up

This chapter describes the procedures to be taken after the unpacking to specify functions that are required for the connection of this device to your computer.

Chapter 2 Basic operation

This chapter describes normal operation of the device such as the replacing/attaching of tools or works.

Chapter 3 When abnormal conditions are encountered

This chapter describes how to correct troubles after the occurrence of an abnormal condition on the device.

Chapter 4 Application functions

This chapter describes helpful functions that facilitate operation.

Chapter 5 Mark detect function

This chapter describes mark function

Chapter 6 Self-test

This chapter describes "self-test" that is performed to check whether or not the device unit has failed.

Appendix

This appendix describes the replacement of blades, menu structure and output smaples and introduces separately-available parts.

FEATURES OF THE DEVICE

The device is capable of cutting thick materials and flexible materials

The device can cut thick materials of up to 20 mm thick by moving the cutter up and down at high speed. It can cut a variety of materials such as sponge and fiberboard, which cannot be cut by conventional cutting plotters.

Heads corresponding to materials are prepared

RT model: Pen/1.5-kg tangential cutter/reciprocal cutter
RC model: Pen/5-kg tangential cutter/reciprocal cutter

Applicable materials

RT Model	RC Model
Sponge	Corrugated fiberboard (E to AB corrugation)
Vinyl chloride sheet for signboard	Coated board No. 10
Reflecting sheet	Vinyl chloride sheet for signboard
Sand-blast rubber	Industrial sheet rubber
Industrial sheet rubber	Pasteboard
Wood rack	
Coated board No. 10	

Upgraded reliability and consistent cutting quality

With its four-axis (X, Y, Z, θ) software servo control, the device promises upgraded reliability. With its high-rigid special drive mechanism, the device produces high- precision beautiful cutting results while preventing overshoot and warp. Furthermore, eccentricity of the cutter holder can be adjusted through software by the eccentricity correcting function, achieving cutting results with upgraded accuracy.

The device incorporates a mechanism that securely supports works

Air-suction work clamping system has been introduced to the table unit on which works are se-
cured. This allows works to be clamped without fail and to be easily placed/removed on/from the
device. Furthermore, the table is equipped with a plate surface that protects the cutter blade at the
time of performing die-cut. Moreover, a set including an roll hanger is also available.
* Depending on characteristics and size of the material, it may not be possible to fix it securely.

With its most-advanced functions, high-quality finish is promised

Start/end point correction
In the case of processing heavy-weight works, works can be easily cut out by correcting the start
and end positions for cutting.

Pressure correction
In the case of cutting heavy-weight works, works can be fully cut with no portion remained uncut
by correcting the pressure employed to lower the tool.

Circle θ correction
When cutting out a circle, the start and points of cutting sometimes fail to align in accordance with
thickness and hardness of the work used. However, an almost regular circle can be cut out by
correcting the amount of such a departure.

Eccentric correction
The curve cutting accuracy can be improved by shifting the center toward the cutting direction.
Moreover, the cutting direction and the position of the cutter at right angle can be adjusted as
desired. This enables accurate cutting without depending on the holder accuracy.

Cutting conditions for two or more tools can be entered
The twelve cutting conditions such as pressure, speed, start/end point correction, offset, etc. can be
entered separately for two or more tools.

**This devices provides a throughput that is increased by 30% at the maximum as
compared with conventional models**

The device increases the total throughput by 30% at the maximum by increasing both arc cutting
speed and cutter up/down speed in terms of the X/Y directions while upgrading accuracy as com-
pared with the former models.

CHAPTER 1

SET-UP

This chapter describes the procedure to be taken after the unpacking to specify functions that are required for the connection of this device to your computer.

Table of Contents

INSTALLATION SITE

Install the device at a place where the below-stated installation area is provided.

⚠ **CAUTION**

- **Place nothing within an installation area. If a thing is placed, the risk of tripping over will be caused.**
- **Place this device in a well ventilated area. If this device is used in a closed space, the blower exhaust and the reciprocal exhaust may cause the operator to feel unwell.**
- **The distance between the floor and the ceiling must be at least 2300 mm.**

Installation area (CF2-0912)

1000 mm

1000 mm   1000 mm

3595 mm

1000 mm

3757 mm

Installation area (CF2-1215)

1000 mm

1000 mm · 1000 mm

3895 mm

1000 mm

4057 mm

Installation area (CF2-1218)

1000 mm

1000 mm · 1000 mm

3895 mm

1000 mm

4357 mm
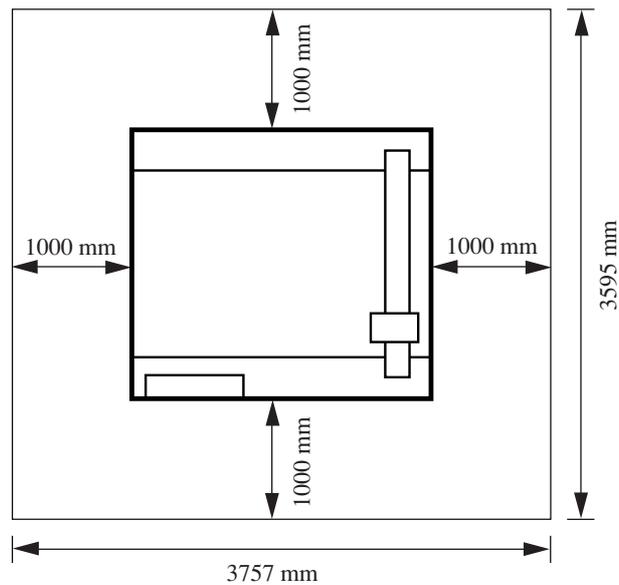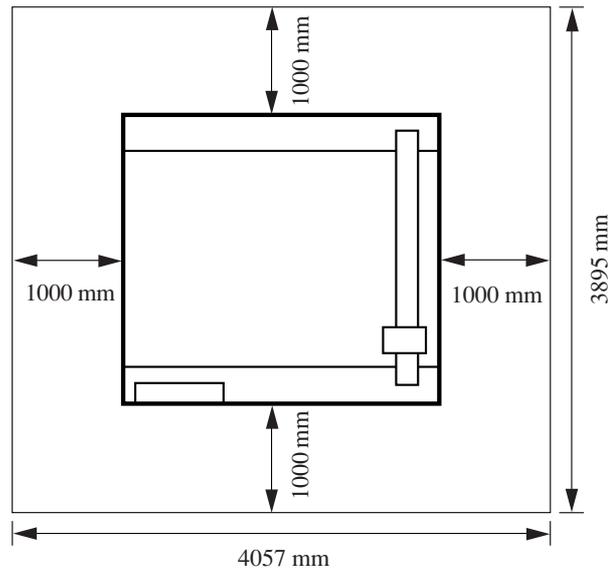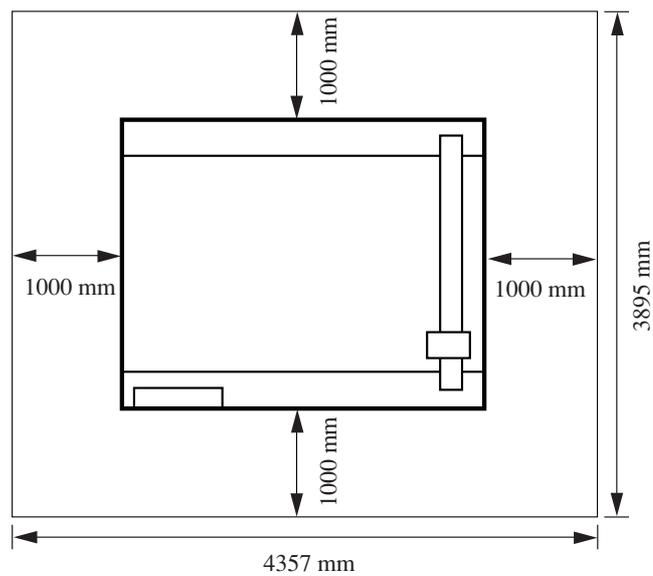
Blower installation area

Set the blower under the main unit.

⚠ **CAUTION**

- **The exhaust temperature reaches high levels. Do not place easily flammable materials in the direction of the exhaust.**
- **The exhaust temperature can rise as high as 140°C. Since the temperature remains high even after the blower is stopped, be careful not to get burned.**

EFFECTIVE CUTTING AREA

The maximum effective cutting areas by the models of devices are given below.

The maximum cutting area does not change by the models of heads (RC-head and RT-head)
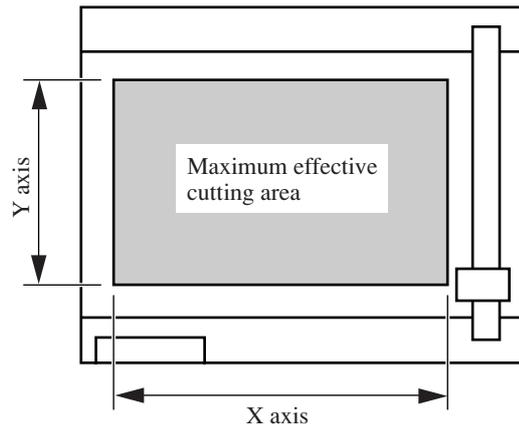
	Model name	X axis (mm)	Y axis (mm)
Mark sensor Equipped Model	CF2-0912	1170	900
	CF2-1215	1470	1200
	CF2-1218	1770	1200
Mark sensor not equipped Model	CF2-0912	1200	900
	CF2-1215	1500	1200
	CF2-1218	1800	1200

CHECKING THE ACCESSORIES

Accessories differs with the models of heads and applications. Check the accessories referring to the accompanying **"Accessory list."**
If you find any missing accessory or damaged one, contact your local dealer or MIMAKI office.

CONFIGURATION AND FUNCTION

Main unit

⚠️ **WARNING** HAZARDOUS MOVING PARTS (Y BAR AND HEAD) KEEP FINGERS AND OTHER BODY PARTS AWAY
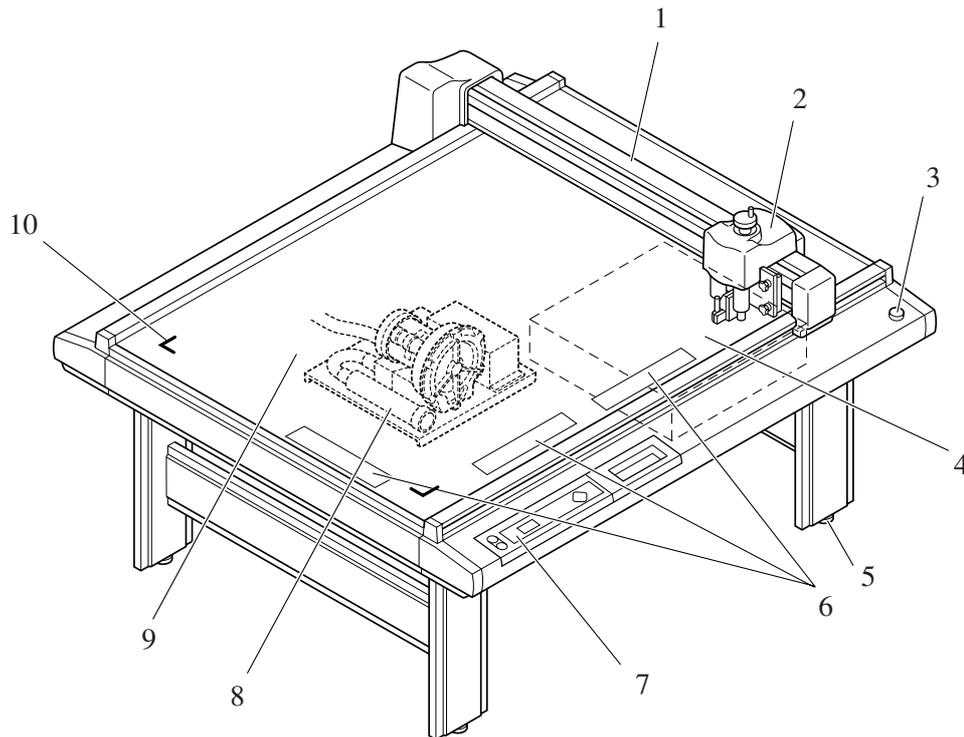
Name	Function
1 Y bar	Moves the head in Y direction
2 Head	Tools are attached to the head. Tools that can be set to the head differs with the models of heads.
3 EMERGENCY switch	To be pressed at the time of emergency. Pressing this switch forcefully turns the power off to make the device to stop performance.
4 Electrical box	PCBs or the like are built in this box.
5 Adjuster foot	Adjusts the height of foot and keeps the cut panel surface leveled.
6 Work guide	Align the work to set straight.
7 Operation panel	Data required for the operation of the device are specified on this panel.
8 Blower unit	This allows a work to be pneumatically picked on the cut panel.
9 Cut panel (felt mat)	A board to which a work is attached. Air-suction small holes are arranged regularly on it. When using a reciprocal cutter, place it on this felt mat.
10 Origin marker label	Indicates the maximum effective cutting area.

Right-hand side face of the electrical box
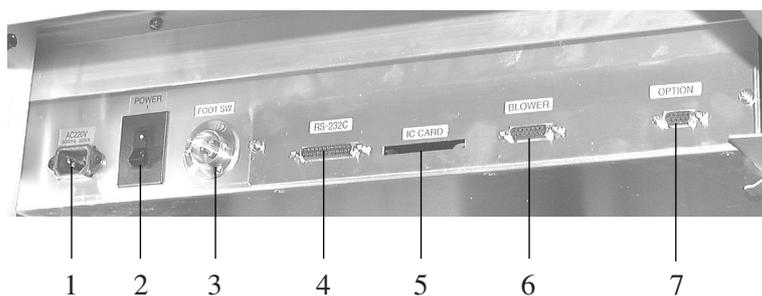
	Name	Function
1	Power connector	To be connected to the power cable of the plotter.
2	Main power switch	Used to turn on/off the main power of this device. Normally set it to the on state. Set it to the off state when conducting maintenance works.
3	Foot switch connector	Foot switch for vacuum is connected to this connector. (Optional) Note: The shape of this connector may differ from that shown in the photograph.
4	RS-232C interface	To be connected to a personal computer using an interface cable.
5	IC card slot	To be used when conducting maintenance works.
6	Signal wire connector for blower	To be connected to the blower unit (option) using a signal wire.
7	Optional connector	Connector to support particular purpose use.

Blower unit (Option)
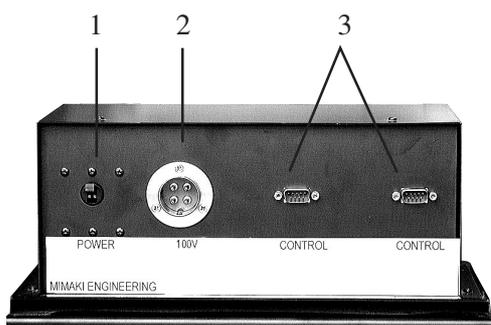
> ⚠ **CAUTION**
>
> • **When using a separately sold blower that differs from the standard blower, there may be no power switch. For the output voltage, refer to the value display on the blower unit.**

	Name	Function
1	Power switch	Used to turn on/off the power to the blower unit. Normally, it is set to the on position. Turn it off when conducting maintenance works.
2	Power connector	The power cable for the blower is connected to this connector.
3	Signal wire connector	To be connected, using a signal wire, to the signal wire connector for the blower on the electrical box.

Head

Front face
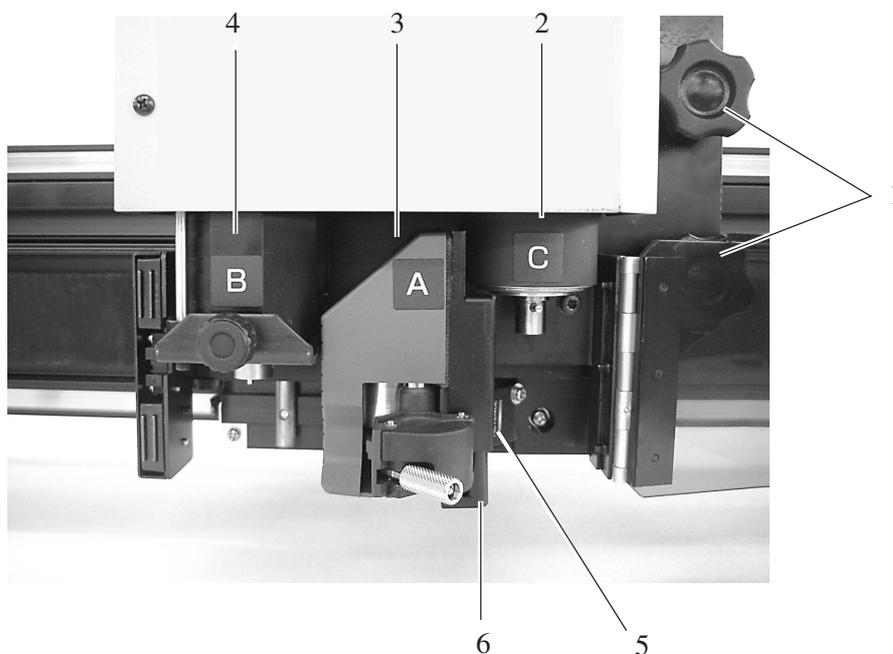
	Name	Function
1	Head securing screw	Used to fix the head on the Y bar. Loosen it when adjusting the height of the head or removing the head.
2	Unit C	Attach a creasing roller or cutter holder (=> A.19). In the case of the RC head model, a cutting pressure of 1 kg to 5 kg is output. In the case of the RT head model, a cutting pressure of 0.3 kg to 1.5 kg is output.
3	Mark sensor	Used to detect the square mark. (Mark sensor equipped model only)
4	Light pointer	Light up in red when matching the position for register mark detection. (Mark sensor equipped model only)
3	Unit A	A pen or swivel cutter (option => A.19) is attached to the head C.

4	Unit B	Attach a reciprocal cutter holder.
		RC head SPA-0113 (cutter holder 2N)
		                SPA-0114 (cutter holder 07)
		RT head SPA-0113 (cutter holder 2N)
		                SPA-0099 (cutter holder 06)
		Note: No holder may be provided depending on the model

5.	Mark sensor	Used to detect the register mark. (Mark sensor equipped model only)
6.	Light pointer	Light up in red when matching the position for register mark detection.

Left-hand side face
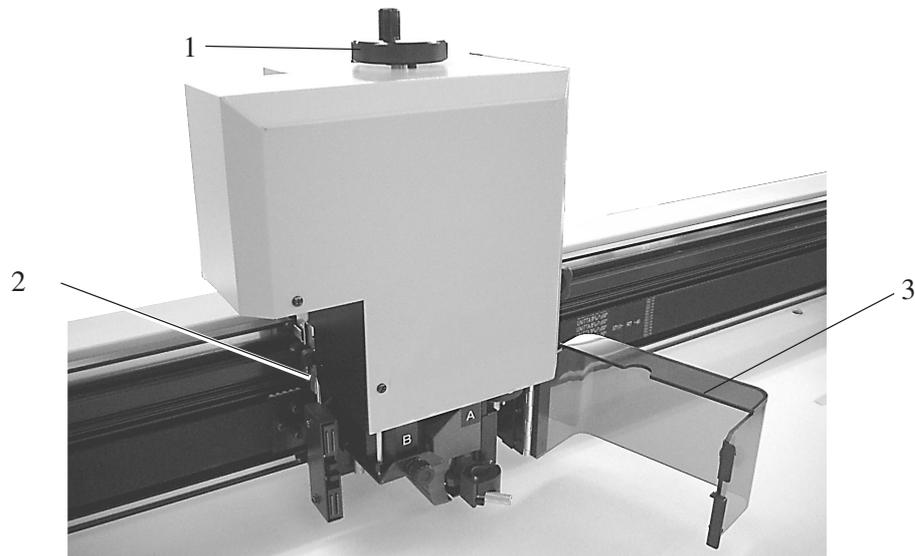
	Name	Function
1	Height adjusting knob	Used to adjust the height of the head.
2	Height adjusting bar	Used to adjust the height of the head in accordance with the thickness of a work to be used.
3	Head safety cover	Protects the operator from the blades. If this cover is opened while the head is operating, the plotter stops and recovery is not possible. In this case, power the device off and then back on.

Operation panel
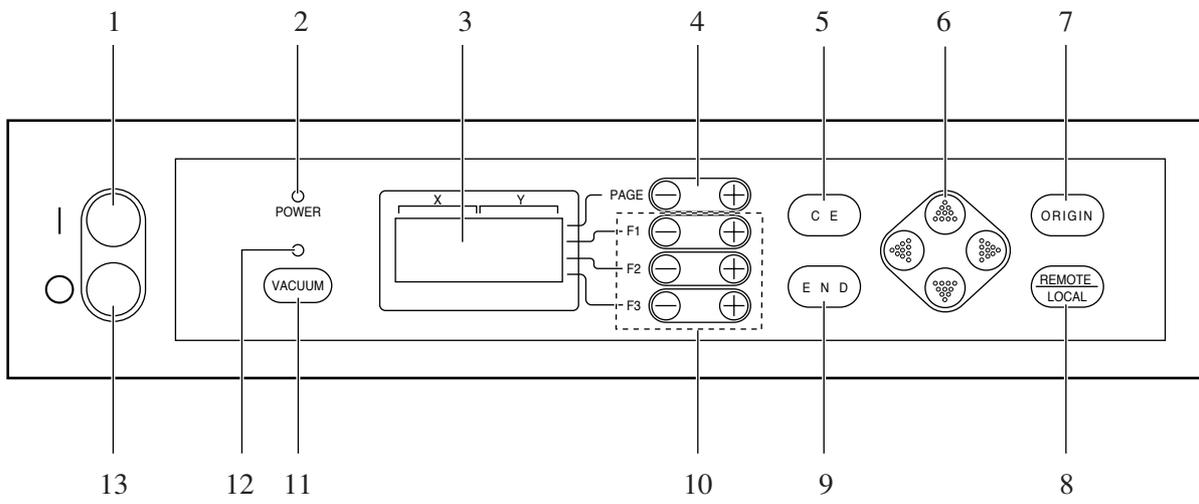
Name	Representation	Function
1 POWER ON switch	$\boxed{\,|\,}$	Used to turn ON the power to the device.
2 POWER lamp		Lights up (in green) when the power to the device is turned on.
3 LCD	[LOCAL]　　　　　1 / 4 TOOL SELECT　　－－－> CONDITION　　　　－－－> TEST CUT　　　　－－－>	LCD indicates states of the device and specified menus on its 16-column and 4-line cells. In the case where an indication on LCD is referred to in the text, it is shown with bracketed as [TOOL SELECT].
4 PAGE key	PAGE(+) , PAGE(−)	Used to advance or return the page on the LCD.
5 CE key	C E	Used to cancel the performance (data clear, copy, etc.) or return to the previous hierarchy without entering an input value.
6 JOG key	◀, ▶, ▲, ▼	Used to scroll the head in the direction of the arrow while local menus (see pages 2.2 to 2.5) are displayed.
7 ORIGIN key	ORIGIN	Used to set a plotting origin (ORIGIN) at the top of the cutting area of the device.
8 REMOTE/LOCAL key	REMOTE LOCAL	Used to change over the operation mode of the device between the remote and the local modes.
9 END key	END	Used to enter an input value.
10 FUNCTION key	F1(+) , F1(−) , F2(+) , F2(−) , F3(+) , F3(−)	Used to select a function from the local menu and input a set value.
11 VACUUM key	VACUUM	Used to turn on/off the blower for pneumatically picking a work.
12 VACUUM lamp		Lights up (in green) when pressing the VACUUM key to actuate the blower.
13 POWER OFF switch	◯	Used to turn of the power to the device.
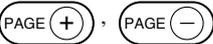
CONNECTING THE CABLES

Connecting the signal wire cable for the blower

The signal wire cable for the blower connect the electrical box located below the cutting panel surface to the blower unit.

1
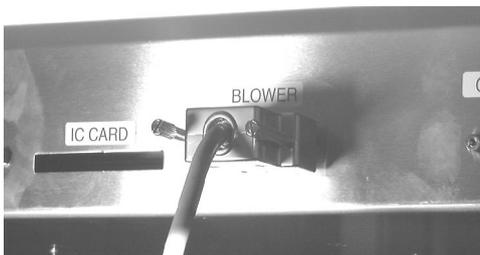
Screws

Insert one end of the signal wire cable for the blower into the connector of the electrical box.

Fix the connector with screws.

2
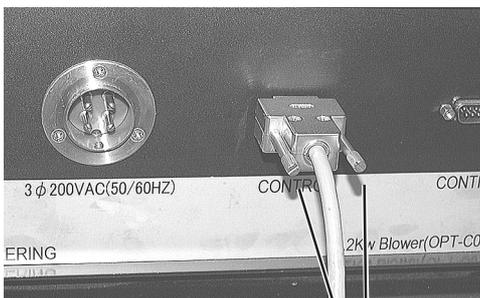
Screws

Insert the other end of the signal wire cable for the blower into the connector on the blower unit (option).

Fix the connector with screws.

Connecting the interface cable

The device is equipped as standard with an interface conforming to RS-232C.
Use a MIMAKI-recommended interface cable or a cable that matches your computer.

1

Turn off the power to the plotter and that to the personal computer.

2
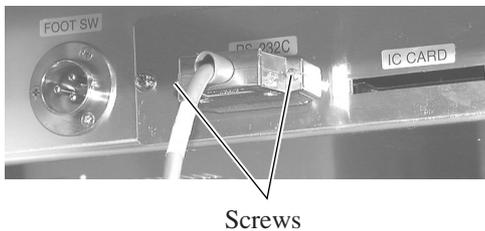
Screws

Insert one end of the interface cable into the connector on the electrical box.

Fix the connector with screws.

3

Insert the other end of the interface cable into the connector of the computer.

Fix the connector with screws.

Connecting the power cable

Two power cables are provided, one for the main unit and the other for the blower unit.
Insert the respective power cables into the receptacles of the following specifications.

	Power cable for the main unit	Power cable for the blower
Voltage	100 VAC ±10% / 220 VAC ±10%	
Frequency	50/60 Hz ±1%	Depend on the types of option.
Capacity	500W or more (10A or more)	

WARNING

- **Be sure to insert the power cable into an appropriately-grounded receptacle. If not, there is a fear of the arising of electric shock hazards and damage to the device.**

CAUTION

- **Many types of blowers are available as an option.**
  Cable speciffication differs depend on the blower type. Be sure to follow the "Blower installation" manual when connectting.

1

Press the POWER OFF switch ⊙.

2

Power cable for the main unit

Insert the power cable for the plotter into the AC inlet of the electrical box.

3
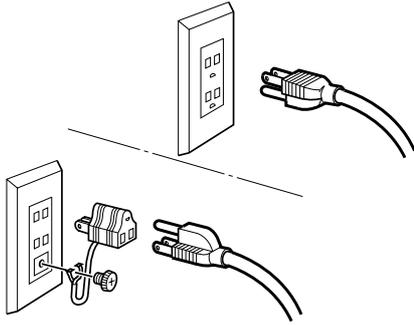
Insert the other end of the power cable into the 3P receptacle.

In the case where a 2-pole receptacle is used, additionally use the installation adapter supplied with the unit as an accessory. Properly ground the earth cable (green one), then insert the power cable to the receptacle.

If the earth cable cannot be properly grounded, contact electrical work shop in your district.

TURNING THE POWER ON/OFF

The device is provided with separate switches for turning the power on and off. Turn on/off the power to the device following the procedure described below.

> ⚠ **CAUTION**
> - **Do not place any thing other than a work on the cutting panel when turning the power on.**
>   **Turning the power on causes the head to travel to the retracted point located at the lower right of the cutting panel. If a thing is present on the cutting panel, the head may come in contact with the thing, giving rise to a failure.**
> - **If the device is restarted, do not turn on the power until 30 minute after turning off. The device may be caused faulty function.**

Turning the power on

1

Confirm nothing is placed on the cutting panel.

If there is a thing on the cutting panel, remove it from the panel.

2

Press the POWER ON switch (|) .

The POWER lamp lights up (in green). The head travels to the retracted point (at the lower right) on the cutting panel. Then, the first page of the local menus will appear on the LCD.

Turning the power off

To turn the power off, check first whether or not there is data received and there remains data that has not yet been output in the device.

To check for the remaining data, press the $\left(\frac{\text{REMOTE}}{\text{LOCAL}}\right)$ key to cause the device to enter the REMOTE mode. The amount of data received is displayed on the LCD, and the device starts cutting (plotting) according to the data displayed.

To clear the remaining data received, press the $\left(\frac{\text{REMOTE}}{\text{LOCAL}}\right)$ key to cause the device to enter the LOCAL mode, then execute the "data clear" function. (See page 2.48).

1   **Turn off the power to the personal computer that is connected to the device.**

2

POWER DOWN WAIT

Press the POWER OFF switch ⊚ .
After displaying [POWER DOWN WAIT] on the LCD, the POWER lamp goes out to turn the power off.

EMERGENCY STOP

In an emergency, the device can be stopped at once.

How to stop the device in an emergency

1
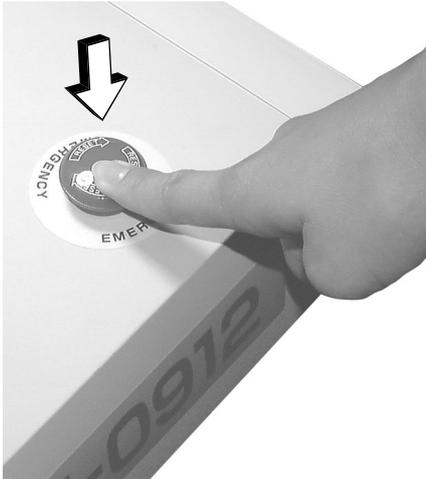
Press the EMERGENCY button.

This causes the device to stop its operation and turns the power off.

How to reset the emergency stop

1

Turn the EMERGENCY button clockwise for unlocking.

2

Press the POWER ON switch ⊙.
The device will start up.

⚠ **CAUTION** • **To recover from an emergency stop, do so after powering off the device and waiting for 30 seconds. Failure to do so will result in malfunction.**

LOCAL/REMOTE MODES

The operation mode is changed over alternately between the LOCAL mode and the REMOTE mode every time the (REMOTE/LOCAL) key is pressed.

LOCAL mode and the indication on the LCD

Under LOCAL mode, the head travels, functions of the device are set, and data from the personal computer are received.
All keys on the operation panel are rendered operative under the LOCAL mode.

Under the LOCAL mode, the following three different kinds of indications are given on the LCD.

LOCAL menu: Function name selecting screen

This screen appears when the power to the device is turned on. The main menu consists of four pages.

Indicates that the device is → [LOCAL]   1 / 4 ← Indicates the page number
under the LOCAL mode.   TOOL SELECT   ———>   of the main menu.
Indicates the name of function { CONDITION   ———> } Indicates the function keys to be
                                 TEST CUT   ———>   used to select the function.
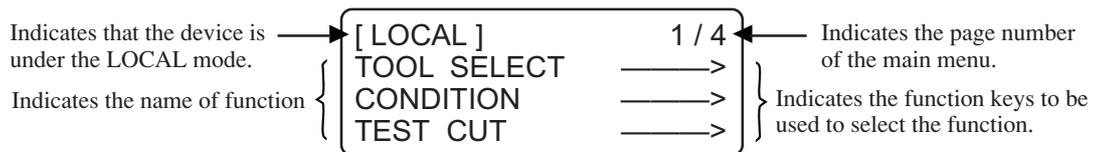
Sub menu 1: Set value inputting screen

This screen appears after a function has been selected on the main menu using the corresponding function key.
A set value can be input on this screen using function keys.
The asterisk (*) mark given on the left of the set value indicates that the value is currently valid.

Indicates the name of → < INTERFACE >   1 / 2 ← Indicates the page number
function that has been   RESERVE   of the sub menu.
selected.   BAUD RATE   * 9600 > } Indicates the function keys to be
                         DATA BITS   * 8 >   used to select the function.

Sub menu 2: Function executing screen

A function is executed on this screen. Functions that can be executed include "test cut," "data clear" and "automatic judgment of communication conditions."

Indicates the name of → < TEST CUT >   1 / 1
function that has been   END KEY to START ← Indicates the execution key.
selected.   CE KEY to CANCEL ← Indicates the cancel key.
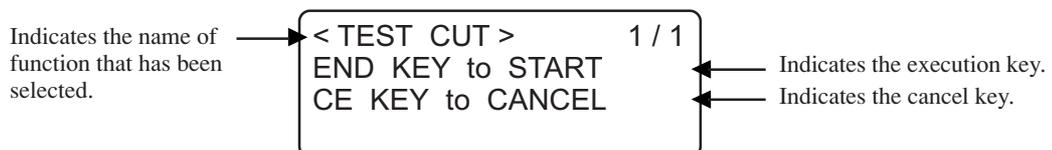
REMOTE mode and the indications on the LCD

Under the REMOTE mode, cutting or plotting can be carried out in accordance with data received. The LCD indicates cutting (plotting) conditions and the capacity of data received.

Capacity of data decreases as you proceeds with cutting (plotting). The POWER ON (|) key, the POWER OFF (○) key, the (VACUUM) key and the (REMOTE/LOCAL) key are operative.

Under the REMOTE mode, the following three different indications are shown on the LCD.

When the tangential cutter or marking roller is selected:

This REMOTE screen appears when [HEAD: C] and [TOOL: CUTTER1 OR CUTTER2] have been selected for the TOOL SELECTION in the LOCAL MENU.

If the marking roller has been selected, F (start correction) and E (end correction) are not displayed.

```
[ REMOTE ]        0KB
TANGENTIAL  BLD
S50   P1500  R0.30
H  30  F0.00   E0.00
```

S: Cutting speed   P: Cutting pressure
R: Rounding-off distance   H: Cutter lifting angle
F: Start correction   E: End correction

When selecting a pen

This REMOTE screen appears when [HEAD : A] and [TOOL : PEN] have been selected for the TOOL SELECTION in the LOCAL MENU.

```
[ REMOTE ]        0KB
PEN
S50   P200
```

S: Cutting speed   P: Cutting pressure

When selecting an eccentric cutter

This REMOTE screen appears when [HEAD : A] and [TOOL : ECCENTRIC CUTTER] have been selected for the TOOL SELECTION in the LOCAL MENU.

```
[ REMOTE ]        0KB
SWIVEL  BLD
S50   P120   O0.30
```

S: Cutting speed   P: Cutting pressure
O: Offset value

MATCHING THE FUNCTIONS OF THE DEVICE TO THE SPECIFICATIONS OF THE COMPUTER

The following explains how to set the functions required to connect the device to your personal computer.

Setting communication conditions [INTERFACE]

Communication conditions for the communication between the device and the computer to which the device is connected by way of RS232C.

Set values

Baud rate:	1200, 2400, 4800, 9600, 19200 (bps)
Data bit:	7, 8 (bit)
Parity:	NO PARITY, EVEN, ODD
Stop bit:	1, 2, (bit)
Handshake:	Hardware, X code, E/A, software

1
```
[ LOCAL ]              1 / 4
TOOL  SELECT     – – –>
CONDITION         – – –>
TEST  CUT          – – –>
```
PAGE (+)

Press the PAGE(+) **key several times until the LCD indicates page 3 of the LOCAL MENU.**

2
```
[ LOCAL ]              3 / 4
INTERFACE        ———>
MODE  SET         ———>
SELF  TEST         ———>
```
F1 (+)

Select the [INTERFACE] from the menu.

3
```
< INTERFACE >        1 / 2
RESERVE
BAUD  RATE        *9600 >
DATA  BITS            *8 >
```
F2 (+)

Set the [BAUD RATE] to a desired value.
The value marked with an asterisk (*) is the current set value.
1200, 2400, 4800, 9600, 19200 (bps)

4
```
< INTERFACE >        1 / 2
RESERVE
BAUD  RATE       19200 >
DATA  BITS            *8 >
```
F3 (+)

Set the [DATA BITS] to one of the following.
7, 8 (bit)

5

```
< INTERFACE >        1 / 2
RESERVE
BAUD  RATE        19200 >
DATA  BITS            7 >
```

PAGE (+)

Press the (PAGE +) **key until the LCD indicates page 2 of the [INTERFACE].**

6

```
< INTERFACE >        2 / 2
PARITY            *NON >
STOP  BITS          *2 >
HANDSHAKE        *HARD >
```

F1 (+)

Set the [PARITY] to one of the following.

    NO PARITY, EVEN, ODD

7

```
< INTERFACE >        2 / 2
PARITY             ODD >
STOP  BITS          *2 >
HANDSHAKE        *HARD >
```

F2 (+)

Set the [STOP BITS] to one of the following.

    1, 1.5, 2 bit

8

```
< INTERFACE >        2 / 2
PARITY             ODD >
STOP  BITS           1 >
HANDSHAKE        *HARD >
```

F3 (+)

Set the [HANDSHAKE] to one of the following.

Hardware, X code, E/A, software [1]

[1]: **[ENQ-ACK] and [SOFTWARE] can be selected when MGL-IIC3 command has been selected through command setting for the operation mode.**

To return to the previous page, press the (PAGE −) key.

END

9

```
< INTERFACE >        2 / 2
PARITY             ODD >
STOP  BITS           1 >
HANDSHAKE        XCODE >
```

⇩

```
[ LOCAL ]            3 / 4
INTERFACE         ———>
MODE  SET         ———>
SELF  TEST        ———>
```

Enter the input values.

Press the (END) key to enter the input values.

If you do not enter the input data, press the (C E) key.

Rendering the set values on the personal computer effective [MODE SET] > [CMD SW]

The set values (commands) that are rendered effective are specified either those set on the operation panel or those set on the CAD.

Set values

VALID: If items that are set on the operation panel of this device can also be set on the CAD, the latest command specified is given priority. If the device receives data set on the CAD after the data have been set on the operation panel, the data received will be given priority.

INVALID: Commands that are set on the operation panel of the device are given priority while ignoring commands set on the CAD.

1

```
[ LOCAL ]          1 / 4
TOOL  SELECT      ———>
CONDITION         ———>
TEST  CUT         ———>
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 3 of the LOCAL MENU.

2

```
[ LOCAL ]          3 / 4
INTERFACE         ———>
MODE  SET         ———>
SELF  TEST        ———>
```
(F2 +)

Select the [MODE SET].

3

```
< MODE  SET >      1 / 6
Z  STROKE         *7mm >
MULTI-PASS        ——— >
RESERVE
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 3 of the [MODE SET].

4

```
< MODE  SET >      3 / 6
ROTATE            *+90° >
COMMAND           ——— >
CMD  SW       *INVALID >
```
(F3 +)

Set the [CMD SW] to one of the following.
    VALID, INVALID

(END)

5

```
< MODE  SET >      3 / 6
ROTATE            *+90° >
COMMAND           ——— >
CMD  SW          VALID >
```

⇩

```
[ LOCAL ]          3 / 4
INTERFACE         ———>
MODE  SET         ———>
SELF  TEST        ———>
```

Enter the input values.
    Press the (END) key to enter the input values.
    If you do not enter the input data, press the (END) key.

Setting the response value with respect to the valid area [MODE SET] > [OH UNIT]

The response value that is to be transmitted to the CAD in response to a valid area coordinate output command for the device is selected between the following.

Set values

INITIAL VALUE: The value of the max. valid cutting area of the device is transmitted to CAD.

SET VALUE: The value set in the "Setting the cutting area" on the LOCAL MENU. (See page 2.43).

1

```
[ LOCAL ]          1 / 4
TOOL  SELECT    ———>
CONDITION       ———>
TEST  CUT       ———>
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 3 of the LOCAL MENU.

2

```
[ LOCAL ]          3 / 4
INTERFACE       ———>
MODE  SET       ———>
SELF  TEST      ———>
```
(F2 +)

Select the [MODE SET].

3

```
< MODE  SET >      1 / 6
Z  STROKE       *7mm >
MULTI–PASS      ——— >
RESERVE
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 4 of the [MODE SET].

4

```
< MODE  SET >      4 / 6
OH  UNIT      *INIT val >
ORIGIN        *CENTER >
GDP           *0.025 mm >
```
(F1 +)

Set the [OH UNIT] to one of the following.

  Press the (F1 +) key to change the selected item alternately.

  INITIAL VALUE, SET VALUE

5

(END)

```
< MODE  SET >      4 / 6
OH  UNIT        SET val >
ORIGIN        *CENTER >
GDP           *0.025 mm >
```
⇩
```
[ LOCAL ]          3 / 4
INTERFACE       ———>
MODE  SET       ———>
SELF  TEST      ———>
```

Enter the input values.

  Press the (END) key to enter the input values.

  If you do not enter the input data, press the (C E) key.

Setting the command origin [MODE SET] > [ORIGIN]

Adjust the position of the command origin of the device to the origin of the command origin of your CAD. Refer to the Operation manual for your CAD for the position of the command origin supported by the CAD.

Set values

    LOWER LEFT: The command origin is set to the lower left of the maximum effective cutting area.

    CENTER: The command origin is set to the center of the maximum effective cutting area.

1
```
[ LOCAL ]              1 / 4
TOOL  SELECT        ——>
CONDITION          ——>
TEST  CUT          ——>
```
(PAGE +)

Press the (PAGE +) **key several times until the LCD indicates page 3 of the LOCAL MENU.**

2
```
[ LOCAL ]              3 / 4
INTERFACE          ——>
MODE  SET          ——>
SELF  TEST         ——>
```
(F2 +)

Select the [MODE SET].

3
```
< MODE  SET >          1 / 6
Z  STROKE          *7mm >
MULTI–PASS         ——— >
RESERVE
```
(PAGE +)

Press the (PAGE +) **key several times until the LCD indicates page 4 of the [MODE SET].**

4
```
< MODE  SET >          4 / 6
OH  UNIT         *INIT val >
ORIGIN           *CENTER >
GDP              *0.025 mm >
```
(F2 +)

Set the [ORIGIN].
Press the (F2 +) key to change the selected item alternately.
LWR LEFT, CENTER

(END)

5
```
< MODE  SET >          4 / 6
OH  UNIT         *INIT val >
ORIGIN           *LWR LEFT >
GDP              *0.025 mm >
```

⇩

```
[ LOCAL ]              3 / 4
INTERFACE          ——>
MODE  SET          ——>
SELF  TEST         ——>
```

Enter the input values.
Press the (END) key to enter the input values.
If you do not enter the input data, press the (C E) key.

Setting the resolution (GDP) [MODE SET] > [GDP]

Set the resolution of the device to that of your CAD. Refer to the operation manual for your CAD for the resolution supported by the CAD.

GDP: Graphic Display Pitch

Set values

  0.025 mm : The resolution is set to 0.025 mm.

  0.010 mm : The resolution is set to 0.010 mm.

1

```
[ LOCAL ]              1 / 4
TOOL  SELECT     ——————>
CONDITION        ——————>
TEST  CUT        ——————>
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 3 of the LOCAL MENU.

2

```
[ LOCAL ]              3 / 4
INTERFACE        ——————>
MODE  SET        ——————>
SELF  TEST       ——————>
```
(F2 +)

Select the [MODE SET].

3

```
< MODE  SET >          1 / 6
Z  STROKE        *7mm >
MULTI–PASS       ———— >
RESERVE
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 4 of the [MODE SET].

4

```
< MODE  SET >          4 / 6
OH  UNIT         *INIT val >
ORIGIN           *CENTER >
GDP              *0.025 mm >
```
(F3 +)

Set the [GDP] to on of the following.

  Press the (F3 +) key to change the selected item alternately.

(END)

5

```
< MODE  SET >          4 / 6
OH  UNIT         *INIT val >
ORIGIN           *CENTER >
GDP              0.010 mm >
```

⇩

```
[ LOCAL ]              3 / 4
INTERFACE        ——————>
MODE  SET        ——————>
SELF  TEST       ——————>
```

Enter the input values.

  Press the (END) key to enter the input values. If you do not enter the input data, press the (C E) key.

Matching the specifications on the plotter's side

The command for using this device is MGL-IIc3.
Set the command of the CAD connected to the device to MGL-IIc3.

> ⚠️ **CAUTION**
> - **The only command in the operation mode is MGL-IIc3. Switching commands on the plotter side is not possible.**

Setting for automatic head retract [AUTO VIEW]

A period of time required to cause the head to start to travel to its retracted position after the completion of cutting (plotting).
If the blower is powered on, it switches off after the head has automatically retracted.

Retracted position
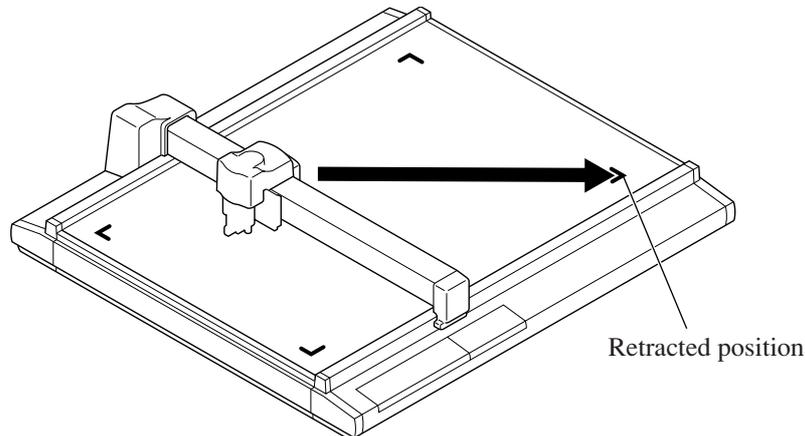
Set values

OFF: Automatic head retract is not performed.

1s: When one second has passed after the completion of cutting (plotting), the head starts to travel to the retracted position

3s: When three second has passed after the completion of cutting (plotting), the head starts to travel to the retracted position

1
```
[ LOCAL ]              1 / 4
TOOL  SELECT      ———>
CONDITION          ———>
TEST  CUT          ———>
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 3 of the LOCAL MENU.

2
```
[ LOCAL ]              3 / 4
INTERFACE          — — —>
MODE  SET          — — —>
SELF  TEST          — — —>
```
(F2 +)

Select the [MODE SET].

3
```
< MODE SET >          1 / 6
Z  STROKE          *7 mm >
MULTI–PASS        ———>
RESERVE
```
(PAGE +)

Press the (PAGE +) key until the LCD indicates page 2 of the [MODE SET].

4
```
< MODE SET >          2 / 6
AUTO  VIEW          *OFF >
DUMMY  CUT          *ON >
ONE  STROKE        *OFF >
```
(F1 +)

Set the [AUTO VIEW] to one of the following.
    OFF, 1s, 3s

5

```
< MODE SET >        2 / 6
AUTO  VIEW           1s >
DUMMY  CUT          *ON >
ONE  STROKE        *OFF >
```

⬇

```
[ LOCAL ]            3 / 4
INTERFACE         ——>
MODE  SET         ——>
SELF  TEST        ——>
```

(END)

Enter the input values.

Press the (END) key to enter the input values.

If you do not enter the input data, press the (C E) key.

AUTO-OFF FEATURE OF THE VACUUM

The validity of the Auto-OFF feature can be set up.

When the automatic head retraction function is set to 1s or 3s, the vacuum will turn off automatically after the head retracts.

When the automatic head retraction function is off, the vacuum will not turn off automatically.

While operating copy function, number cut function, or completing continuous register mark copy, will turn the vacuum off automatically, regardless of the automatic head retraction function.

☀ • **To use the vaccum function,Blower (available as opttion) is needed.**

Auto-OFF/Panel-OFF[MODE SET]>[VACUUM]

1

```
[ LOCAL ]          1 / 4
TOOL  SELECT    ——>
CONDITION       ——>
TEST  CUT       ——>
```

(PAGE ⊕)

Press the (PAGE ⊕) key several times until the LCD indicates page 3 of the LOCAL MENU.

2

```
[ LOCAL ]          3 / 4
INTERFACE       ——>
MODE  SET       ——>
SELF  TEST      ——>
```

(F2 ⊕)

Select the [MODE SET].

3

```
< MODE SET >       1 / 6
Z  STROKE      *7 mm >
MULTI–PASS     ——>
VACUUM         *AutoOFF>
```

(F3 ⊕)

Select[VACUUM].
   Auto OFF, Panel OFF

(END)

4

```
< MODE SET >       1 / 6
Z  STROKE      *7 mm >
MULTI–PASS     ——>
VACUUM         *AutoOFF>
```

Register the setting.
   Push on the (END) key to register the setting. When not registering, push on the (C E) key.

CHAPTER 2

BASIC OPERATION

In Chapter 2, normal operation of the device such as the attaching of tools or works.

Table of Contents

BASIC OPERATION ON THE LOCAL MENU

LOCAL menu

Various kinds of data and functions required for the connection with your personal computer are set.

Function	Description	Reference page
TOOL SELECTION	Head and tool to be used are selected.	P. 2.20
CONDITIONS	Conditions for the tool selected using the [TOOL SELECTION] function are specified.	P. 2.22
TEST CUT	Test cutting is performed so as to check that the settings specified using the [CUTTING CONDI-TIONS] function are proper.	P. 2.29
DATA CLEAR	Data received are cleared when aborting the cutting (plotting) or in prior to the execution of the [COPY] function.	P. 2.42
ORGkey to SC.CLR	Clear the mark scale correction.	P.5-15
COPY	Cutting is performed again in accordance with the data that have been once received.	P. 4.4
VIEW	Moves the head to the top right head retracting position or bottom right and cap station.	P. 2.7
INTERFACE	Communication conditions for the serial port that matches the personal computer to be used are established.	P. 1.22
MODE TEST	Settings required to match the device to the personal computer or application functions are specified.	P. 2.3
SELF TEST	Cutting is performed in accordance with sample data so as to check the cutting quality or whether the device itself has failed. In addition, data are plotted using ASCII code or set values (parameters) for this device are plotted as as to check for abnormal data.	P. 6.2
CUT AREA	Size of a work attached on the device or an area for cutting is specified.	P. 2.37
AXIS ALIGN	If ruled lines such as scales are printed, mechanical axes (X-axis, Y-axis) of the device are aligned to them.	P. 4.16
TOOL ADJUST	Tools and relation between tools are adjusted. Adjust Light pointer position is adjusted.	P. 3.5

MODE SET menu

The following explains functions of the [MODE SET] in the LOCAL menu.

Function	Description	Reference page
COMMAND	Commands are set to the MGL-IIc3. Switching commands on the plotter side is not possible. (For the CF2, only MGL-IIC3 is available)	P. 1.24
UNIT	The unit to be used when indicating numerics on the LCD is specified.	P. 4.11
AUTO VIEW	A period of time from the completion of cutting (plotting) to the start of head retraction is specified. If a time is specified, the blower automatically switches off following head retraction.	P. 1.29
ONE STROKE	To eliminate a portion that remains uncut, unnecessary vertical motion of the cutter is omitted to permit single-stroke cutting.	P. 4.8
GDP	Resolution is adjusted to the one supported by your CAD.	P. 1.29
ORIGIN	A command origin is established that matches your CAD.	P. 1.27
Z STROKE	The height of the tool, in its lifted position, from the surface of a work to the bottom of tool is specified.	P. 4.10
OH UNIT	A value that is transmitted to the computer in return to the command for the output of effective area coordinate of the device.	P. 1.26
ROTATE	A direction in which data transmitted from application software are to be turned by 90 is specified.	P. 4.9
COMMAND SW	The set values that are rendered effective are specified either those set on the operation panel or those set on the personal computer.	P. 1.25
PEN ASSIGN	Pen numbers included in data are assigned to tools of the device.	P. 4.2
MULTI-PASS	The number of times to perform cutting is set when cutting a work that cannot be cut by performing cutting once.	P. 4.6
VACUUM	Setup the validity of the auto-off function.	P. 1.31
EXPAND	When Mark sensor is not used, expand the cut area of x-axis up to 30mm	P. 4.16
MARK SENSOR	Set up the register mark detect setting	P. 5.8

Basic operation on the LOCAL menu

The following describes basic operating procedure to be followed to set the LOCAL menu.

Sub menu for [CONDITION]

```
[ LOCAL ]            1 / 4
TOOL  SELECT    ——––>
CONDITION       ——––>
TEST  CUT       ——––>
```

F2 ⊕

```
< CUTTER 1 >         1 / 4
SPEED         *50 cm / S >
PRESSURE      *1500 g >
ACCELE           *0.5 G >
```

PAGE ⊕

END or C E

If the END key is pressed, the set values will be entered.
If the C E key is pressed, the set values will not be entered.

PAGE ⊖

Sub menu for [DATA CLEAR]

```
[ LOCAL ]            2 / 4
DATA  CLEAR     ——––>
COPY            ——––>
VIEW            ——––>
```

F1 ⊕

```
< DATA  CLEAR >
END  KEY  to  START
CE  KEY  to  CANCEL
```

PAGE ⊕

END or C E

If the END key is pressed, the data clear operation is not executed.
If the C E key is pressed, the data clear operation is canceled.

PAGE ⊖

```
[ LOCAL ]            3 / 4
INTERFACE       ——––>
MODE  SET       ——––>
SELF  TEST      ——––>
```

PAGE ⊕

PAGE ⊖

```
[ LOCAL ]            4 / 4
CUT  AREA       ——––>
AXIS  ALIGN     ——––>
TOOL  ADJUST    ——––>
```

(1) Set the device in the LOCAL mode.

Check first that no data received remain, and press the $\left(\substack{\text{REMOTE}\\\text{LOCAL}}\right)$ key to set the device in the LOCAL mode.

(2) Advance the LOCAL menu pages.

Each press on the $\left(\text{PAGE}\boxplus\right)$ key will advance the page one by one.
Each press on the $\left(\text{PAGE}\boxminus\right)$ key will return the page one by one.

(3) Select the setting item.

Select the setting item using the six function keys, ($\left(\text{F1}\oplus\right)$ or $\left(\text{F1}\ominus\right)$, $\left(\text{F2}\oplus\right)$ or $\left(\text{F2}\ominus\right)$, $\left(\text{F3}\oplus\right)$ or $\left(\text{F3}\ominus\right)$). The corresponding sub menu appears on the LCD. The + keys ($\left(\text{F1}\oplus\right)$, $\left(\text{F2}\oplus\right)$ and $\left(\text{F3}\oplus\right)$ keys) of the function keys are used in this explanation.

(4) Input a set value.

Change the set value using the six function keys that are shown on the right of each item.
If the $\left(\text{F1}\oplus\right)$, $\left(\text{F2}\oplus\right)$ or $\left(\text{F3}\oplus\right)$ key is pressed, the next value will appear on the screen.
If the $\left(\text{F1}\ominus\right)$, $\left(\text{F2}\ominus\right)$ or $\left(\text{F3}\ominus\right)$ key is pressed, the previous value will appear on the screen.

(5) Save the set values.

Press the $\left(\text{END}\right)$ key, and the LOCAL menu will be restored on the screen.

To cancel the set values:

Press the $\left(\text{C E}\right)$ key, and the previous indication screen will be restored without saving the set values.

BASIC OPERATION FLOW CHART

The following is the basic operation flow chart.
Refer to the page to be referred to for detailed explanation of each operation.

Attach a work in position.	Fixing the work (Refer to P. 2.10)

⇩

Attach tools in position.	Attaching tools (Refer to P. 2.17)

⇩

Adjust the height of the head.	Adjusting the height of the head (Refer to P. 2.22)

⇩

Select a tool to be used.	Selecting a tool (Refer to P. 2.26)

⇩

Set cutting conditions for the tool.	Check the cutting conditions for the tool (Refer to P. 2.28)

⇩

Set cutting conditions	Check the cutting conditions (Refer to P. 2.36)

⇩

Set a cutting area.	Setting a cutting area (Refer to P. 2.44)

⇩

Set an origin for plotting.	Setting an origin (Refer to P. 2.47)

⇩

Change the operation mode to the REMOTE mode.	Basic operation on the LOCAL menu (Refer to P. 1.20)

⇩

Transmit data.

MOVING THE HEAD

It is possible to move the head for easier operation when attaching a tool or a work on the device or executing test cut. The head can be moved in the following two different procedures:

* Moving the head by "VIEW" function
* Moving the head by the jog keys

Moving the head by "VIEW" function

This function works to move the head in one stroke to the lower right point or the retracting point (upper right) of the cutting area. This function is used when the head rests inside the cutting area to hinder the works.
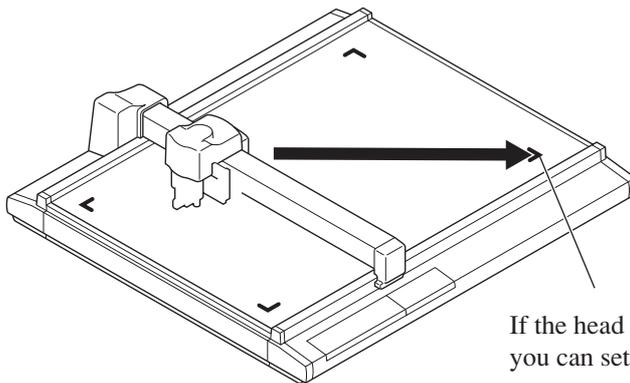
If the head is retracted to this point,
you can set a work on the device with ease.

💡 • **If the "VIEW" (see page 1.29) is specified, the head will automatically move to the retracting point after the completion of cutting (plotting). This omits the execution of the "VIEW" function.**

1

```
[ LOCAL ]              1 / 4
TOOL  SELECT     ———>
CONDITION        ———>
TEST  CUT        ———>
```
(PAGE +)
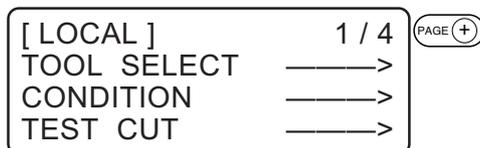
Press the   key several times until the LCD indicates page 2 of the LOCAL MENU.

2

```
[ LOCAL ]              2 / 4
DATA  CLEAR      ———>
COPY             ———>
VIEW             ———>
```
(F3 +)
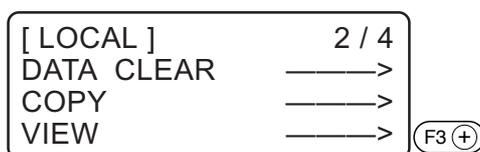
Select the [VIEW].

3

```
┌─────────────────────────────┐
│ < VIEW >              1 / 1 │
│ LOWER  LEFT    ——— >        │   F1 ⊕
│ LOWER  RIGHT   ——— >        │   F2 ⊕
│                             │
└─────────────────────────────┘
```

⇩

```
┌─────────────────────────────┐
│ [ LOCAL ]             2 / 4 │
│ DATA  CLEAR    ———>         │
│ COPY           ———>         │
│ VIEW           ———>         │
└─────────────────────────────┘
```

Select a point to which the head is moved to.

Press the F1 ⊕ key to move the head to the lower right of the cutting area.

Press the F2 ⊕ key to move the head to the retract point at the upper right of the cutting area.

Moving the head by the jog keys

Follow this procedure when attaching a tool or executing test cut or sample cut.

Press a jog key to select the jog mode, and the following two functions can be carried out to move the head to a desired position with accuracy.

- Moving speed of the head (high-speed, medium-speed, low-speed)
- Moving the tool up/down

Coordinates as from the command origin are indicated on the coordinate indicating portion of the screen.

```
< MOVE >              [ mm ]
    382.6            −565.0
SPEED               FAST >
PEN                   UP >
```

X coordinate → 382.6
Y coordinate ← −565.0
Moving speed of the head ← FAST >
Up/down of the tool ← UP >

1
```
[ LOCAL ]           1 / 4
TOOL  SELECT      ———>
CONDITION         ———>
TEST  CUT         ———>
```
PAGE +

Invoke the LOCAL menu on the screen.

If the device is in the REMOTE mode, press the (REMOTE/LOCAL) key to select the LOCAL mode.

You may open any page of the menu from among pages 1 to 4.

2
◄ ► ▲ ▼
```
< MOVE >              [ mm ]
   00.00            00.00
SPEED               FAST >
PEN                   UP >
```

Press one of the jog keys once.

The device enters the travel mode.

Coordinates of the tip of tool that is currently specified are displayed.

3
◄ ► ▲ ▼
```
< MOVE >              [ mm ]
   382.62           565.55
SPEED               FAST >
PEN                   UP >
```
F2 +
F3 +

Move the head by the jog keys.

Coordinates of the tip of tool that is currently specified are displayed.

Change the moving speed or move up/down the tip of tool when necessary.

4
END
```
[ LOCAL ]           1 / 4
TOOL  SELECT      ———>
CONDITION         ———>
TEST  CUT         ———>
```

Exit from the travel mode.

Press the (C E) key or the (END) key. This restores the procedure 1 on the screen.

FIXING A WORK

A work can be fixed on the device following one of the two procedures described below.

• Fixing the work with vacuum

• Fixing the work with adhesive tape

⚠ CAUTION
• **Thickness of works that can be attached on this device should not exceed 20 mm.**

Four area marker labels are attached to the cutting panel under the felt mat. The area within the labels is the maximum effective cutting area in which cutting can be performed. Fix a work within this area.

Cutting cannot be mechanically performed in any area outside the area marker labels.

Fixing a work that is comparatively light in weight

A work that is comparatively light in weight such as thin coated board or corrugated fiberboard is vacuum-sucked for the securing.

⚠ CAUTION
• **If a work is too small to cover all suction holes, cover all the holes with a sheet. If any of the suction holes is not covered, the suction force will decrease to fail to secure the work.**
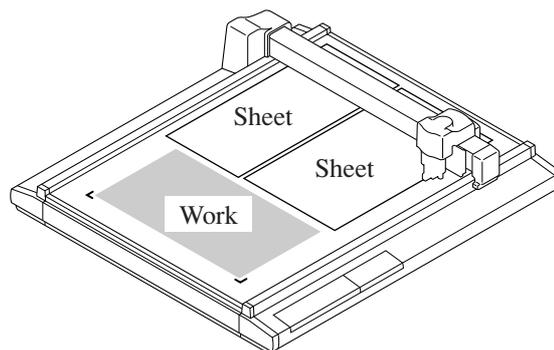
1   **Place a work on the cutting panel.**
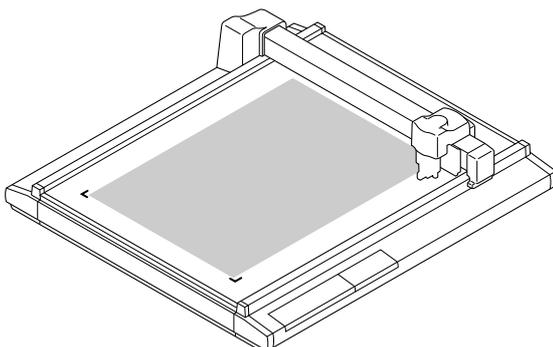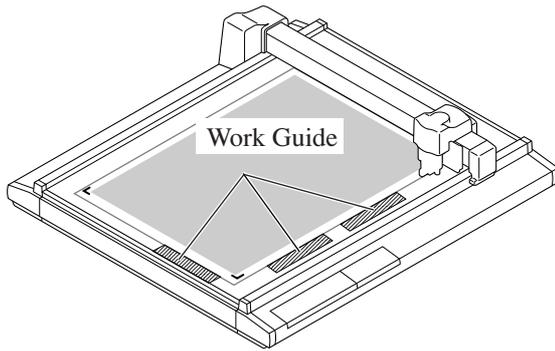
Work Guide

- By aliging the mdia edge to the media guide, work can be set straight. Be sure to set the work within the Maximum effective cutting area
- When EXPAND is set to ON with a sensor model or No sensor model, work guide may interrupt the maximum cutting area. Remove either work guide plate, or work guide pin.

2

Press the (VACUUM) key.

The VACUUM lamp lights up (in green). The vacuuming unit actuates to pick the work by suction.

Fixing heavy-weight packing etc.

A work such as a heavy-weight packing or industrial rubber may not be sufficiently secured by vacuum-suction. In this case, secure the work with adhesive tape.

⚠ **CAUTION** • **Use such adhesive tape that adhesive glue or tape will not remain on the cutting panel.**

Fix four sides of the work with adhesive tape.
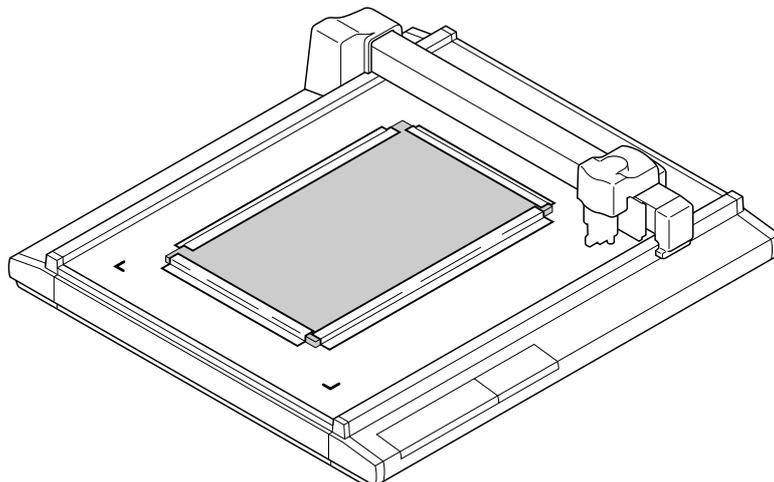
ADJUSTING THE BLADE AND THE PEN

Adjusting procedure for the blade of the tangential cutter, reciprocal cutter holder and the swivel cutter is given below.

For the applicable blade of each holder, see page A.18.

> ⚠ **CAUTION**
> • **Proceed with care to avoid getting injured by the blades.**
> **Use the supplied pin set to be safe.**

Cutter holders 4N and 10N (for unit C)

Cutter holders 4N and 10N are tangential cutters used for the C unit.
The procedure for taking out the carbide blade 30° or the high-speed steel blade 30° of cutter holder 4N is described below.

Carbide blade 30° .... For hard works such as industrial rubber and packings
High-speed steel blade 30° ...... For light-weight and soft works such as coated board and corrugated fiberboard.

> 💡 • **Special blades and holders for tangential cutters are prepared in accordance with works. Please contact your local dealer or MIMAKI office for details.**

1
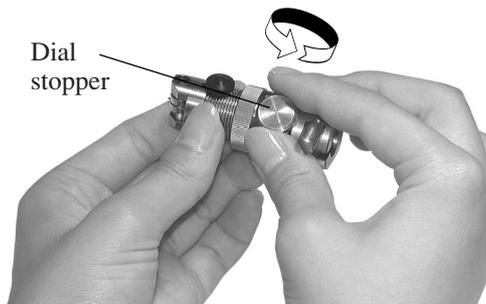
Dial stopper

Loosen the dial stopper.

Loosen the dial stopper counterclockwise to loosen it.

2
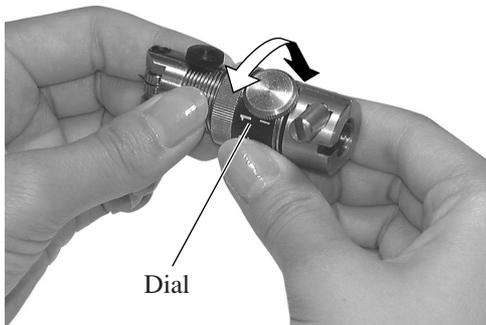
Dial

Turn the dial.

If you turn the dial in the direction of the arrow, the blade tip will protrude by 0.1 mm.

Projecting amount of the blade tip to be used as a guide:

Thickness of work + 0.2 mm

3
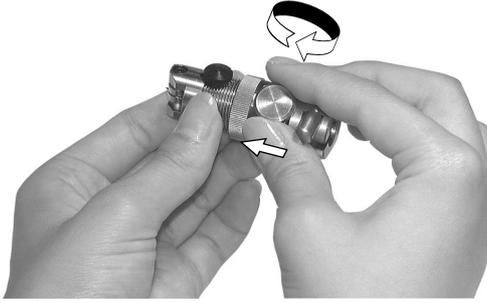
Pressing the dial in the direction of the arrow, tighten the dial stopper.

> ⚠️ **CAUTION**
>
> • The dial has a play. To eliminate an error in the projecting amount of the blade tip, tighten the dial stopper while keeping the dial held pushed in the direction of the arrow.

Cutter holder 2N (for unit B)

Cutter holder 2N is a tangential cutter used for the unit B.

The unit B (reciprocal head) is used for non-reciprocal operation. (For the cutting conditions, refer to page 2-28.) Works of up to 2 mm thick can be cut.

> ⚠ **CAUTION**
> - **The carbide blades (SPB-0045, 0046) and high-speed steel blades (SPB-0043, 0044) are the tools that can be used.**
> - **When using a cutter holder 2N, be sure to set the "VIBRATION" of cut condition to "OFF".**
> **If "VIBRATION" is set to 1 to 5, cutter holder or this machine may be damaged.**

The adjustment method is the same as that described above for cutter holders 4N and 10N. Please refer to that section.

Reciprocal cutter holder (for unit B)

The reciprocal cutter holder is a cutter used for the unit B.
The reciprocal cutter holder comes in two types, according to the type of application.

For RC head unit B
Name: Cutter holder 07
Applicable blade: Carbide blade 17 (SPB-0065)
20-mm blade (SPB-0055)
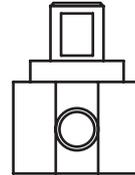
For RT head unit B
Name: Cutter holder 06
Applicable blade: Carbide blade 2° (SPB-0064)

The procedure for attaching the cutter holder 06 blade is described below.

1

Short   Long
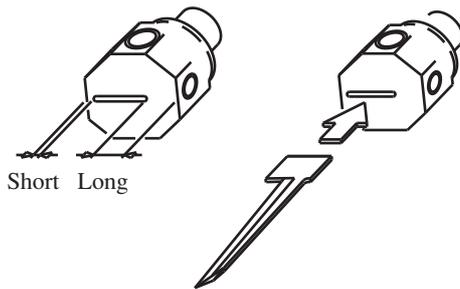
Push in the blade all the way into the cutter holder.
Use the supplied pin set to be safe.
Pay attention to the blade orientation.

2
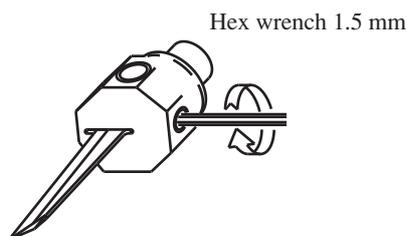
Hex wrench 1.5 mm

Using the supplied hex wrench (1.5 mm), fix the blade by tightening the fixing screw.

⚠ CAUTION
• The amount of blade protrusion cannot be adjusted.

3
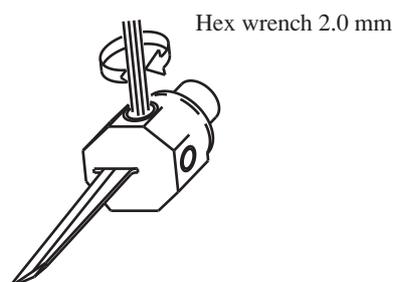
Hex wrench 2.0 mm

Using the supplied hex wrench (2.0 mm), fix the blade by tightening the fixing screw.

Swivel cutter

Follow the procedure described below when projecting the blade tip of the swivel cutter.

> • **Special blades for the optional swivel cutters are prepared in accordance with works. Please contact your local dealer or MIMAKI office for details.**

1
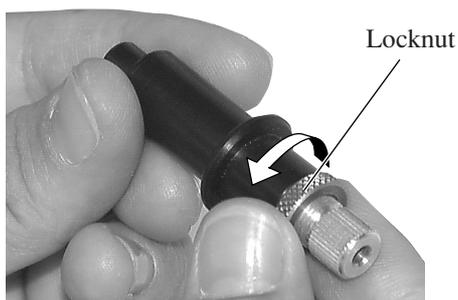
Locknut

Loosen the locknut.

Loosen the locknut counterclockwise to loosen it.

2
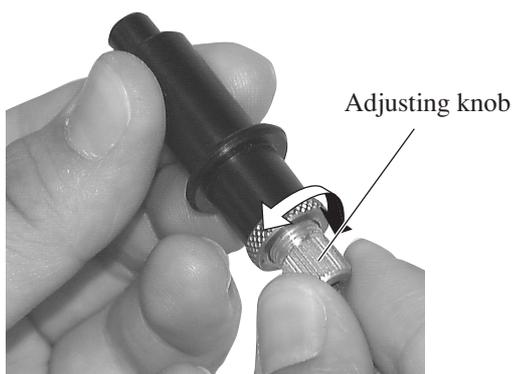
Adjusting knob

Turning the adjusting knob, adjust the projecting amount of the blade tip.

The blade tip goes inside the holder when the adjustment knob is turned clockwise.

Projecting amount of the blade tip to be used as a guide:
Thickness of work + Thickness of base sheet/2

3

Taking care not to allow the adjusting knob to turn, tighten the locknut.

Turn the locknut clockwise to tighten it.

ATTACHING THE TOOLS

The tools attached to each unit are as follows.

> ⚠️ **CAUTION**
> - **Attaching tools is a dangerous procedure. Switch off the power before starting the tool attachment procedure.**
> - **After opening the head cover and attaching the tool, close the cover.**
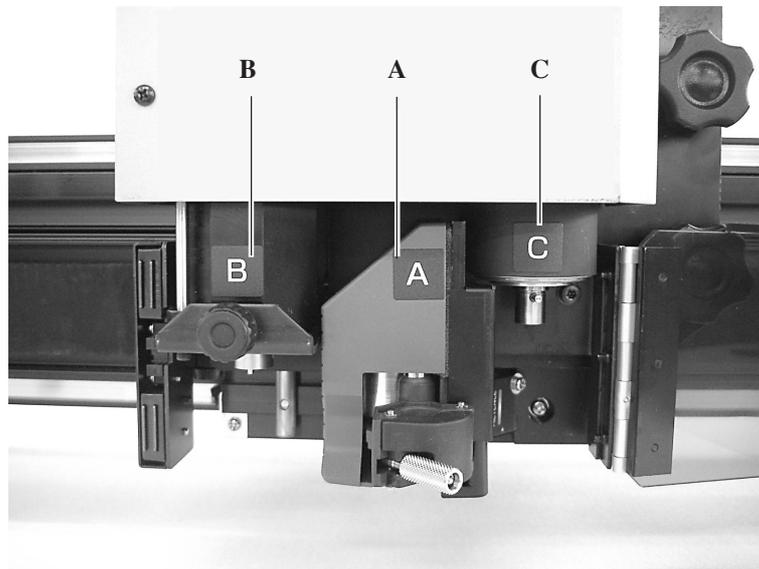
Tool ⟍ Model name	RC model	RT model
Pen	A	A
Swivel blade	A	A
Tangential cutter	C/B	C/B
Creasing tool	C	–
Reciprocal cutter	B	B

Refer to the "Accessory List".

Attaching the pen and the swivel blade

If the head is in the lower position and a tool cannot be installed, lift the head. ("Adjusting the height of the tool" See page 2.18.)

1
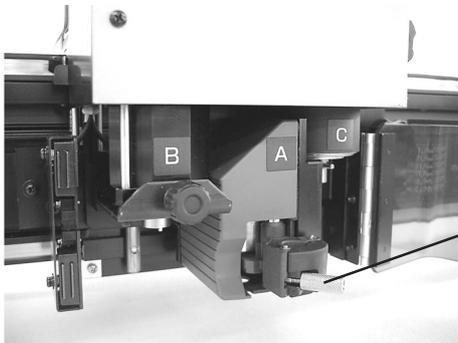
Screw

Loosen the screw in head unit A.
> Turn the screw A counterclockwise to loosen it.

2
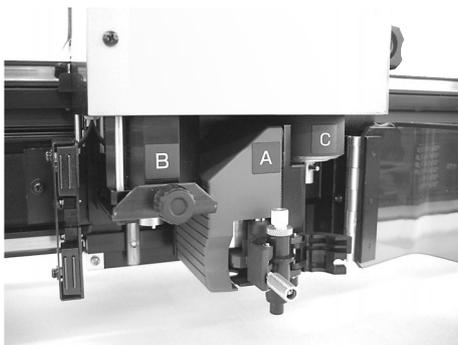
Insert the eccentric cutter or plotter pen in unit unit A.
> Fit the collar of the pen or the swivel cutter in the groove in the holder.

3
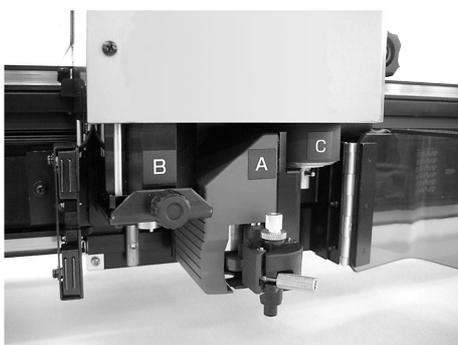
Tighten the screw in head unit A.
> Close the holders and turn the screw clockwise.

> ⚠ **CAUTION**
> • Securely fix the cutter holder. If the screw is securely tightened, normal product quality cannot be obtained.

Attaching the tangential cutter

If the head is in the lower position and a tangential cutter cannot be installed, lift the head. ("Adjusting the height of the tool" See page 2.22.)

1
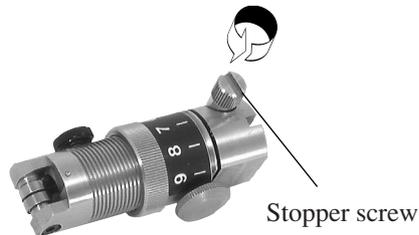
Stopper screw

Loosen the stopper screw in the tangential cutter.

Turn the stopper screw counterclockwise to loosen it.

2

Insert the pin of unit C into the tangential cutter while fitting the pin in the groove on the cutter.

3

Tighten the stopper screw with the screwdriver supplied with the device as an accessory.

⚠ **CAUTION**
- Securely fix the cutter holder. If it is not securely fixed, normal product quality cannot be achieved.

Attaching the reciprocal cutter (cutter holder)

Install the reciprocal cutter holder to unit B.

1 **Press the local mode jog key and move the fixing screw of unit B to the front.**

2 **Switch off the power.**

3
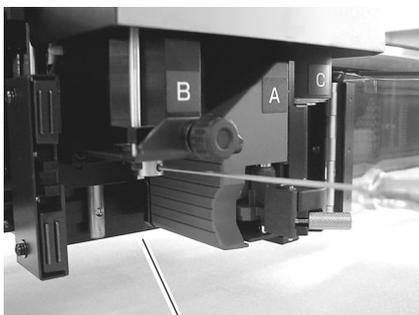
Fixing screw

Loosen the fixing screw of unit B.
To loosen the fixing screw, turn it counterclockwise.

> ⚠ **CAUTION**
> • The fixing screw is 3 mm long. If it is excessively loosened, it will fall off unit B.

4
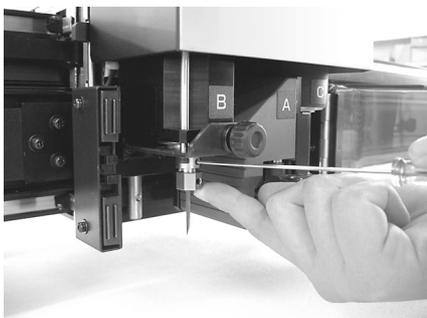
Tighten the fixing screw.
Tighten the fixing screw while pressing up the cutter holder, so as to not leave a space between the protruding part of unit B and the recessed part of the reciprocal cutter holder.

> ⚠ **CAUTION**
> • Fix the cutter securely in place. Failing to do so will cause the holder to become unstable and make accurate cutting impossible.

Installing the crease roller

This part is used for the RC head model.

If the head is in the lower position and the crease roller cannot be installed, lift the head. ("Adjusting the height of the head" See page 2.22.)

1
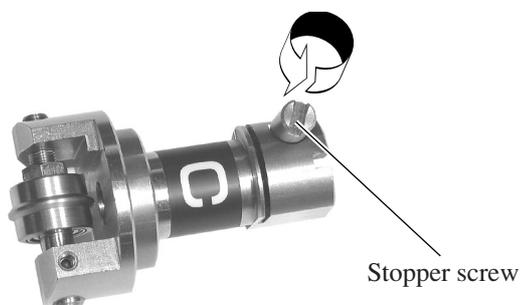
Stopper screw

Loosen the stopper screw in the crease roller.

Turn the stopper screw counterclockwise to loosen it.

2

Insert the pin of unit C into the marking roller while fitting the pin in the groove on the roller.

3

Tighten the stopper screw with the screwdriver supplied with the device as an accessory.

⚠ **CAUTION**
- Securely fix the cutter holder. If the stopper screw is not securely tightened, normal product quality cannot be achieved.

ADJUSTING THE HEIGHT OF THE HEAD

Once the work and tool have been attached, adjust the head height according to the tool that is used and the thickness of the work.

> ⚠ **CAUTION**
>
> - **Be sure to use the felt mat placed on top of an insulated cutting mat. If cutting is performed using unit B without using a felt mat, incomplete cutting will occur.**
> - **When lifting the head, be sure to support the head base by hand. If lifting the head only by the height adjusting handle, the height adjusting handle can break.**
> - **Be sure to tight the both fixing screws alternately. If not, the fixing screws may be broken.**

1
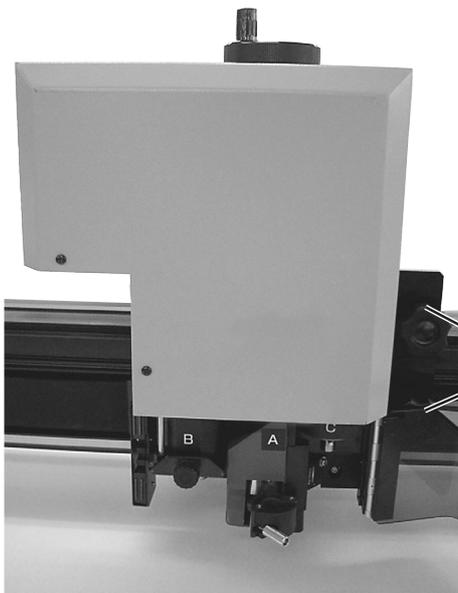
Fixing screw

Loosen two fixing screws in the head.

Turn the fixing screws counterclockwise to loosen them.

2
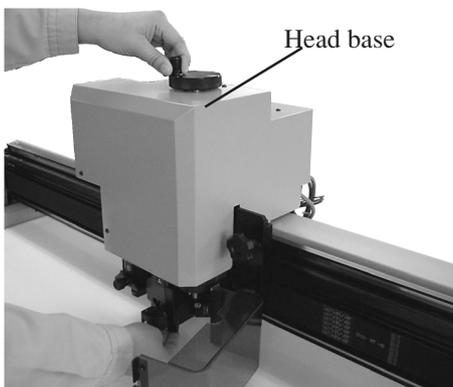
Head base

Raise the head using the height adjusting handle.

Turn the height adjusting handle counterclockwise to lift the head.

> ⚠ **CAUTION**
>
> - Since the head is heavy in weight, support the head base by hand. If not, the handle can break.

3
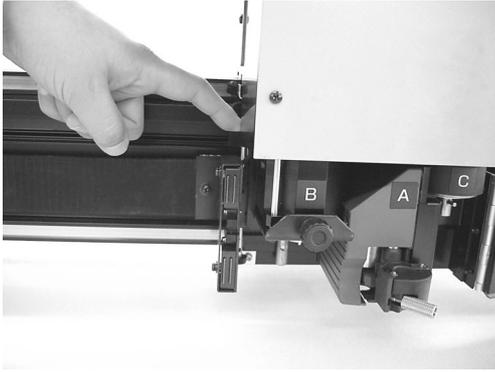
Pressing down the height adjusting bar, turn the height adjusting handle to lower the head.

Lower the head until the bottom end of the adjusting bar comes in contact with the top surface of the work.

4
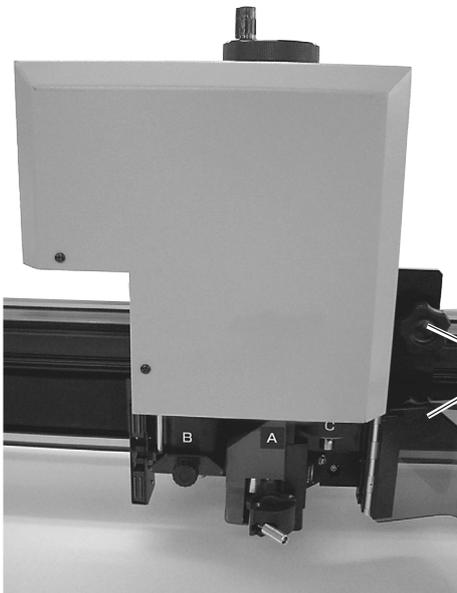
Tight the both fixing screws on the head alternately.

Turn the fixing screws clockwise to tighten them.

Fixing screw

ATTACHING THE WORK HOLDER

The work holder prevents the work from moving up after it is cut.

Work holder

⚠ **CAUTION**

- **The work holder can be used for works of up to 10 mm thick.**
  The work holder does not support thickness greater than 10 mm.
- **When using soft works (sponges, etc.), do not use the work holder. The work holder is designed to hold works such as corrugated fiberboard.**
- **When using a work holder, be sure that overall bottom surface is flat against the work.**
  If bottom surface run off the work edge, in a case cutting edge of a work, cutter does not down and may not cut correctly.

1
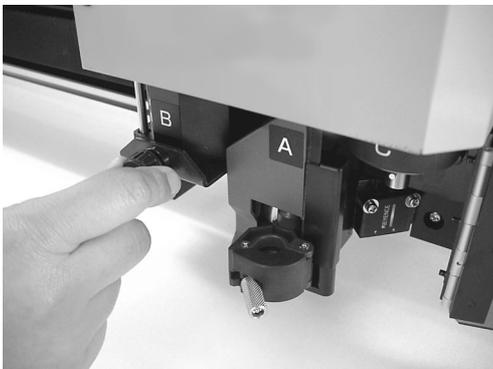
Remove the fixing screw of unit B.

To loosen the screw, turn it counterclockwise.

2

Set the work holder by aligning its hole with the screw hole on unit B.
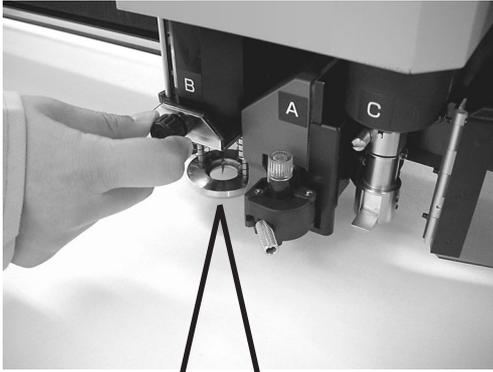
Set the work holder to unit B and tighten the screw.
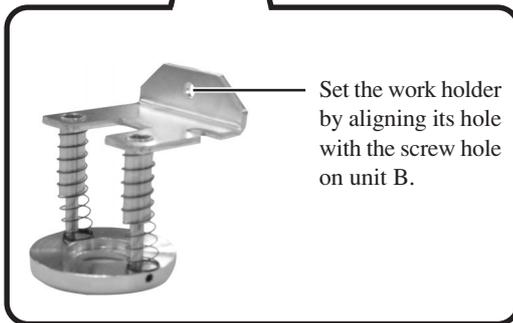
SELECTING A TOOL [TOOL SELECT]

Now, select a head and a tool to be used in the cases described below.
- In the case where the pen number cannot be specified on the CAD.
- In the case where [TEST CUT] function or [SELF TEST] function is executed on the device itself
- In the case where the [CMD SW] is set to "invalid" in the OPERATION mode

Tools that can be seperetely set for each head are as follows:

Head	A	B	C	
Tool / Model name	Pen / Swivel blade	Reciprocal Cutters 1 to 2	Rollers 1 to 4 / R. cutters 1 to 2	Cutters 1 to 2
RC-head model	O	O	O	—
RT-head model	O	O	—	O

The following describes how to set the head from A to B and the tool to cutter 2.

1

```
[ LOCAL ]         1 / 4
TOOL  SELECT   ——–—>
CONDITION      ——–—>
TEST  CUT      ——–—>
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 3 of the LO-CAL MENU.

2

```
[ LOCAL ]         1 / 4
TOOL  SELECT   ——–—>
CONDITION      ——–—>
TEST  CUT      ——–—>
```
(F1 +)

Select the [TOOL SELECT].

3

```
< TOOL  SELECT >   1 / 1
HEAD               *A >
TOOL             *PEN >
```

Select the head to be used in the operation

Every time the (F1 +) key is pressed, the selected head will change.

A, B, C

Heads that can be selected differ with the head models.

4

```
< TOOL  SELECT >    1 / 1
HEAD                    B >
TOOL        RecCutter 1 >
```
(F2 (+))

Select the tool to be used.
    RecCutter 1
    RecCutter 2

(END)

5

```
< TOOL  SELECT >    1 / 1
HEAD                    B >
TOOL        RecCutter 2 >
```

⇩

```
[ LOCAL ]              1 / 4
TOOL  SELECT     ————>
CONDITION         ————>
TEST  CUT           ————>
```

Enter the input values.
Press the (END) key to enter the input values.
If you do not enter the input data, press the (C E) key.

SETTING CUTTING CONDITIONS [CONDITION]

Cutting conditions are set for the tool that has been selected in the [TOOL SELECT].

Setting items

Cutting condition setting items differ with the tools.

> 💡 • **In the case Approximate Type is set to "Arc" on the FineCut plotter settting, excesive pressure may applied and damage the cutter depend on the media type. When set to "Arc", be sure to readjust the cut condition of FineCut or set the [R speed] on the plotter. When [R speed] is set, [R speed] value is given priority over the FineCut speed setting.**
> • **When using a cutter holder 2N, be sure to set the "VIBRATION" of cut condition to "OFF".**
> **If "VIBRATION" is set to 1 to 5, cutter holder or this machine may be damaged.**

Setting item	Description	Pen	Tangential cutter	Crease roller	Swivel blade
Speed	The speed at which the tool moves.	O	O	O	O
Pressure	A pressure that is applied by the tool to a work.	O	O	O	O
Accele	The max. acceleration specified for the tool. Change the acceleration in accordance with the types of tools and works to be used as well as data sizes.	O	O	O	O
Offset	Offset amount of the blade tip of the swivel blade is specified. Change the offset in accordance with the work thickness and wear of the blade tip.				O
Front offset	The amount of correction of the powition from which cutting starts when the tool comes down. For heavy-weight materials, the amount of correction should be increased. This will cause the cutter to start cutting from this side of the predetermined start position, thereby allowing easy cut-out of the work. Adjust the start position while checking the finished state of products.		O	O	

Setting item	Description	Pen	Tangential cutter	Crease roller	Swivel blade
End offset	The amount of correction of the position at which cutting ends when the tool goes up. For heavy-weight materials, the amount of correction should be increased. This will cause the cutter to finish cutting at a position that goes beyond the predetermined cutting end position, thereby allowing easy cut-out of the work. Adjust the start position while checking the finished state of products. Work Dcrease the cutting depth Increase the cutting depth Cutting end position in terms of data		O	O	
Up angle	The minimum angle required by the raised tool to change the direction of cutting (marking). This reduces the degree by which the tool pries the work.		O	O	O
Ring distance	If minute line segments continue, a rounding distance (R) is provided between each two of the line segments to add another one. R R Line segment 2 Added line segment Line segment 1		O	O	O
Press correction	The pressure applied to the tool at the time of descending is to be corrected when cutting (marking) heavy-weight works. The works can be cut without fail when the tool is lowered by adding a pressure correction value to the previously-set pressure value.		O	O	
Press (Y)	The pressure applied to the roller/cutter can be corrected in terms of Y-axis, to perform marking with a Y-axis pressure applied separately from an X-axis pressure. To mark a piece of corrugated fiberboard, it can be placed with its flutes oriented in the Y-axis for marking with a lighter pressure applied as compared with the X-axis.			O	
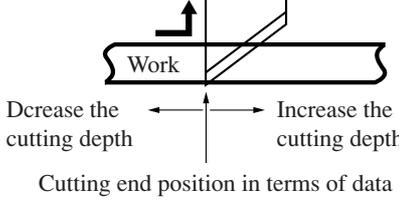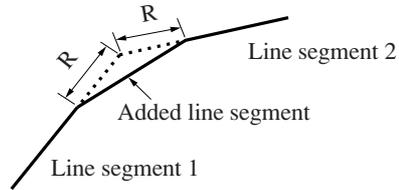
Setting item	Description	Pen	Tangential cutter	Crease roller	Swivel blade
R5 speed	The speed that is employed when cutting an arc that is 5 mm or less in radius. If [OFF] is selected, the arc is cut at the previously specified speed.	O	O		
R10 speed	The speed that is employed when cutting an arc that is less than 5 mm or more and 10 mm or less in radius. If [OFF] is selected, the arc is cut at the previously specified speed.	O	O		
R15 speeds	The speed that is employed when cutting an arc that is 10 mm or more and less that 15 mm. If [OFF] is selected, the arc is cut at the previously specified speed.	O	O		
R20 speed	The speed that is employed when cutting an arc that is 15 mm or more and less that 20 mm. If [OFF] is selected, the arc is cut at the previously specified speed.	O			
R30 speed	The speed that is employed when cutting an arc that is 25 mm or more and less that 30 mm. If [OFF] is selected, the arc is cut at the previously specified speed.	O			
R40 speed	The speed that is employed when cutting an arc that is 30 mm or more and less that 40 mm. If [OFF] is selected, the arc is cut at the previously specified speed.	O			
R50 speed	The speed that is employed when cutting an arc that is 40 mm or more and less that 50 mm. If [OFF] is selected, the arc is cut at the previously specified speed.	O			
R100 speed	The speed that is employed when cutting an arc that is 50 mm or more and less that 100 mm. If [OFF] is selected, the arc is cut at the previously specified speed.	O			
VIBRATION	Vibration speed can be set to 5 levels. Normally, set the vibration speed to 4 or 5. Works that are easily affected by heat should be cut using a lower vibration speed. When using cutter holder 2N, set the vibration to "OFF."		O		

Set values

Plotting conditions for pens

Set values for plotting conditions are given below.

Set values

Speed:	0.2, 0.5, 1, 2, 5, 10, 15, 20, 25, 30 (cm/s)
Pressure:	20 to 100 (in increments of 5 g)
	100 to 400 (n increments of 10 g)
Acceleration:	0.1 to 0.3 (in increments of 0.1 G)
R5 speed:	Off, 1, 2 (cm/s)
R10 speed:	Off, 1, 2, 3, 4, 5 (cm/s)
R15 speed:	Off, 1, 2, 3, 4, 5, 10 (cm/s)
R20 speed:	Off, 1, 2, 3, 4, 5, 10, 15 (cm/s)
R30 speed:	Off, 1, 2, 3, 4, 5, 10, 15, 20 (cm/s)
R40 speed:	Off, 1, 2, 3, 4, 5, 10, 15, 20, 25 (cm/s)
R50 speed:	Off, 1, 2, 3, 4, 5, 10, 15, 20, 25, 30 (cm/s)
R100 speed:	Off, 1, 2, 3, 4, 5, 10, 15, 20, 25, 30 (cm/s)

Cutting conditions for the tangential cutter

Set values for the tangential cutter are given below. The tangential cutter comes in two different types, a cutter attached to unit C, and a reciprocal cutter (vibration cutter) attached to unit B.

Set values

Speed:	0.2, 0.5, 1, 2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (cm/s)
Pressure:	500 to 1500 (in increments of 100 g) Low-pressure cutter
	1000 to 5000 (in increments of 100 g) High-pressure cutter
	Fixed to 1500 g (reciprocal cutter)
Acceleration:	0.1 to 0.5 (in increments of 0.1 G)
Start correction:	0.00 to 2.50 (in increments of 0.05 mm)
End correction:	0.00 to 2.50 (in increments of 0.05 mm)
Up angle:	0 to 180 (in increments of 1°)
Ring distance:	0.00 to 2.50 (in increments of 0.05 mm)
Press correction:	0 to 500 (in increments of 100 g)
VIBRATION:	1 to 5 or OFF (unit B only)
R5 speed:	Off, 0.5 (mm/s), 0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
R10 speed:	Off, 0.5 (mm/s), 0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
R15 speed:	Off, 0.5 (mm/s), 0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)

Marking conditions for the crease roller

The following gives set values for crease conditions for the crease roller.

Set values

Speed:	0.2, 0.5, 1, 2, 5, 10, 15, 20, 25, 30 (cm/s)
Pressure:	1000 to 5000 (in increments of 100 g)
Acceleration:	0.1 to 0.3 (in increments of 0.1 G)
Up angle:	0 to 180 (in increments of 1°)
Ring distance:	0.00 to 2.50 (in increments of 0.05 mm)
Press correction:	0 to 1000 (in increments of 100 g)
Press (Y):	−5000 to 5000 (in increments of 100 g)

Cutting conditions for the swivel blade

The following gives set values for cutting conditions for the swivel blade (optional).

Set values

Speed:	0.2, 0.5, 1, 2, 5, 10, 15, 20, 25, 30 (cm/s)
Pressure:	20 to 100 (in increments of 5 g)
	100 to 400 (in increments of 10 g)
Offset:	0.00 to 2.50 (in increments of 0.05 mm)
Acceleration:	0.1 to 0.3 (in increments of 0.1 G)

Setting cutting conditions

The following describes how to establish cutting conditions for cutter 2 (tangential cutter) as an example.

Once you have set cutting conditions, execute the [TEST CUT] function to check whether or not the cutting conditions are proper. (See page 2.35.)

1
    Select the head and the tool in the [TOOL SELECT]. (See page 2.26.)
        Select B for the head and cutter 2 for the tool.

2
```
[ LOCAL ]           1 / 4
TOOL  SELECT     ———>
CONDITION        ———>
TEST  CUT        ———>
```
PAGE(+)

    Invoke the 1st page of the LOCAL MENU.

3
```
[ LOCAL ]           1 / 4
TOOL  SELECT     ———>
CONDITION        ———>
TEST  CUT        ———>
```
F2(+)

    Select the [CONDITION].
        Select the CONDITION, and the cutting conditions for the cutter 2 will appear on the screen.

4
```
< CUTTER 2 >        1 / 4
SPEED          *40 cm/s >
PRESSURE       *400 g >
ACCELE         *0.4 G >
```
F1(+)
F2(+)
F3(+)

    Set the speed, pressure and acceleration to adequate values.
        F1(+) ..... Input a speed.
        F2(+) ..... Input a pressure.
        F3(+) ..... Input an acceleration.
        • If the "– (minus)" key of the respective function keys is pressed, a previous value is indicated on the display.

5
```
< CUTTER 2 >        1 / 4
SPEED          50 cm/s >
PRESSURE       900 g >
ACCELE         0.3 G >
```
PAGE(+)

    Invoke the 2nd page of the cutting conditions screen for cutter 2.

6
```
< CUTTER 2 >        2 / 4
F  OFFSET      *0.50 mm >
E  OFFSET      *0.50 mm >
UP  ANGLE          *30° >
```
F1(+)
F2(+)
F3(+)

    Set the [START CORRECTION], [END CORRECTION] and [UP ANGLE] to adequate values.
        F1(+) ..... Input a start correction.
        F2(+) ..... Input an end correction.
        F3(+) ..... Input an up angle.
        • If the "– (minus)" key of the respective function keys is pressed, a previous value is indicated on the display.

7

```
< CUTTER 2 >         2 / 4
F  OFFSET      1.00 mm >
E  OFFSET      1.00 mm >
UP  ANGLE         15° >
```
PAGE (+)

Invoke the 3rd page of the CUTTING CONDITIONS screen for cutter 2.

8

```
< CUTTER 2 >         3 / 4
RING  DIS    *0.30 mm >
PRESS  COR      *0 g >
VIBRATION     *OFF >
```
F1 (+)
F2 (+)
F3 (+)

Set the RING DISTANCE and PRESS CORRECTION to adequate value.

F1 (+) ..... Input a ring distance.

F2 (+) ..... Input a press correction.

F3 (+) ..... Input a vibration.

- If the "– (minus)" key of the respective function keys is pressed, a previous value is indicated on the display.

9

```
< CUTTER 2 >         3 / 4
RING  DIS     0.10 mm >
PRESS  COR    1.00 g >
VIBRATION     *OFF >
```
PAGE (+)

Invoke the 4th page of the CUTTING CONDITIONS screen for cutter 2.

10

```
< CUTTER 2 >         4 / 4
R5  SPD       *OFF >
R10  SPD      *OFF >
R15  SPD      *OFF >
```
F1 (+)
F2 (+)
F3 (+)

Set the R5 SPEED, R10 SPEED and R15 SPEED.

F1 (+) ..... Input an R5 speed.

F2 (+) ..... Input an R10 speed.

F3 (+) ..... Input an R15 speed.

- If the "– (minus)" key of the respective function keys is pressed, a previous value is indicated on the display.

END

11

```
< CUTTER 2 >         4 / 4
R5  SPD      0.1 mm / s >
R10  SPD     0.2 mm / s >
R15  SPD     0.5 mm / s >
```

⇩

```
[ LOCAL ]            1 / 4
TOOL  SELECT   ———>
CONDITION      ———>
TEST  CUT      ———>
```

Enter the input values.

Press the (END) key to enter the input values.

If you do not enter the input data, press the (C E) key.

CHECKING CUTTING CONDITIONS [TEST CUT]

Whenever you have changed cutting conditions or the tool(s) to be used, execute the "test cut" function to check the following items. Refer to "Checking the status of tools" (see page 2.37).

    (1)   Whether or not the cutting (plotting) conditions are proper

           Whether or not a work is properly cut or the finished plot has thin spots

    (2)   Whether or not the tool is off-center

           If the tool is off-center, inaccuracy in cutting will result.

    (3)   Whether or not the tools are matched to each other

           If the plot is cut with a tangential cutter, check whether or not the cut pattern exactly matches the plot.

For the above-stated case (1), re-establish the cutting conditions. (See page 2.28.)

For the above-stated cases (2) or (3), correct the trouble through the "adjustment of the tools." (See page 3.5.)

The pattern for the test cut and the cutting (plotting) order is as follows:

O : Start point
→ : Direction of cutting
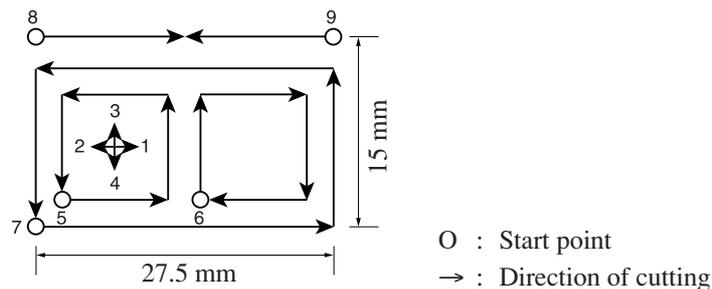
1

    Select a tool to be used for test cut using the [TOOL SELECT] function. Call up the first page of the LOCAL menu to the screen. See page 2.26.

2
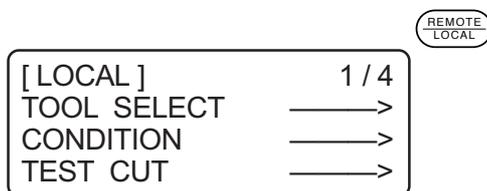
```
[ LOCAL ]                1 / 4
TOOL  SELECT          ———>
CONDITION            ———>
TEST  CUT            ———>
```

    Invoke the LOCAL menu on the screen.

    If the device is in the REMOTE mode, press the (REMOTE/LOCAL) key to select the LOCAL mode.

3

```
< MOVE >              [ mm ]
   00.00             00.00
SPEED               FAST >
PEN                   UP >
```

    Move the head to a position where test cut is to be performed.

    Press the jog keys to move the head.

4

```
< MOVE >              [ mm ]
    00.00             00.00
SPEED                 FAST >
PEN                     UP >
```

⬇

```
[ LOCAL ]             1 / 4
TOOL SELECT          ——–>
CONDITION            ——–>
TEST  CUT            ——–>
```

(END)

Exit from the MOVE mode.

Press the (END) key or (C E) key to exit from the MOVE mode.
The LOCAL MENU will appear on the screen. If the 1st page of the LOCAL MENU does not appear, press the (PAGE +) key to invoke the 1st page on the screen.

5

```
[ LOCAL ]             1 / 4
TOOL SELECT          ——–>
CONDITION            ——–>
TEST  CUT            ——–>
```

(F3 +)

Select the [TEST CUT].

6

(END)

```
< TEST  CUT >          1/1
END  KEY  to  START
CE  KEY  to  CANCEL

```

⬇

```
[ LOCAL ]             1 / 4
TOOL SELECT          ——–>
CONDITION            ——–>
TEST  CUT            ——–>
```
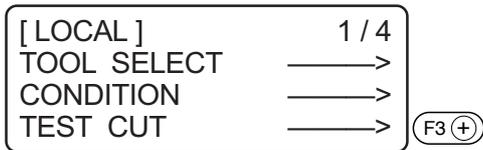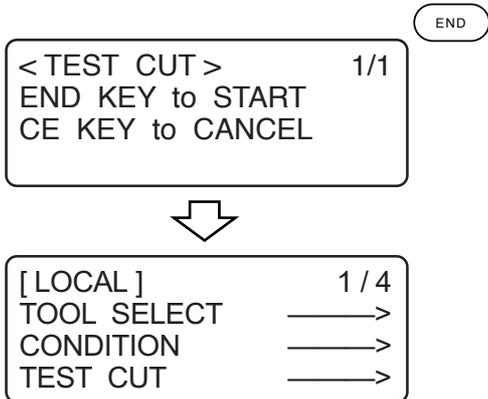
Execute the [TEST CUT].

Press the (END) key, and the test cut will be executed.
To cancel the [TEST CUT] press the (C E) key. This restores the step of procedure 2 on the screen.

Checking the status of tools

Execute the [TEST CUT] function with the tools specified using the tool selecting function. Items to be checked for the tools are shown in the tables below.
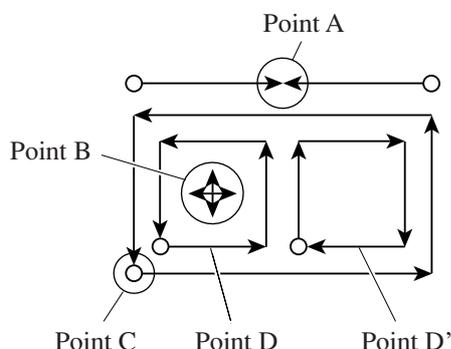
Pen

Checkpoint	Cause	Corrective measure	Reference page
Lines fail to meet at point A.	Pen not securely installed.	Securely tighten the screw in the holder.	See page 2.18.
Dots or thin spots are made.	Ink has run out.	Replace the pen with a new one.	See page 2.18.
	The pressure is insufficient.	Increase the speed.	See page 2.28.
	The speed is so high that the pen rises above the work.	Decrease the speed.	See page 2.28.

Tangential cutter

Checkpoint	Cause	Corrective measure	Reference page
Lines fail to meet at point A.	Set value for the [END CORRECTION] is too small.	Set a larger value for the [END CORRECTION].	See page 2.29.
	The cutter is off-center.	Conduct the "adjustment of the eccentricity" that is one of the tool adjusting functions.	See page 3.6.
Line at point A is out of position	The tangential cutter is defective in terms of θ angle.	Carry out the "adjustment of the θ angle" that is one of the tool adjusting functions. A part of the work remains uncut.	See page 3.8.
The work remains uncut.	The pressure is insufficient.	Increase the pressure.	See page 2.28.
A corner of the work remains uncut.	Set value for the [START CORRECTION] and that for the [END CORRECTION] are too small.	Set a larger value respectively for the [START CORRECTION] and the [END CORRECTION].	See page 2.28.

Checkpoint	Cause	Corrective measure	Reference page
D and D' are different in size.	The cutter is off-center.	Conduct the "adjustment of the eccenticity" that is one of the tool adjustig functions.	See page 3.6.
Cutting depth at C is excessive.	The set value for the [START CORRECTION] is too large.	Set a smaller value for the [START CORRECTION].	See page 2.28.
	The cutter is off-center.	Conduct the "adjustment of the eccentricity" that is one of the tool adjusting functions.	See page 3.6.

Crease roller

Checkpoint	Cause	Corrective measure	Reference page
Lines fail to meet at point A.	The cutter is off-center.	Conduct the "adjustment of the eccentricity" that is one of the tool adjusting functions.	See page 3.10.
Line at point A is out of position.	The tangential cutter is defective in terms of θ angle.	Carry out the "adjustment of the θ angle" that is one of tool adjusting functions. A part of the work remains uncut.	See page 3.11.
Marking performance is poor.	The pressure is insufficient.	Increase the pressure.	See page 2.28.
	A roller for corrugated fiberboard is used for coated board.	Use a roller for coated board.	—
Corrugated fiberboard is cut out at flutes though marking is performed.	Set value for the [PRESS (Y)] in [CUTTING CONDITIONS] specified using the cutting condition setting functions is too large.	Place the corrugated fiberboard so that its flutes are oriented in Y-axis. Specify a smaller value for the [PRESS (Y)] in the [CUTTING CONDITIONS] using the cutting condition setting functions.	See page 3.4. See page 2.26.

Swivel blade

Checkpoint	Cause	Corrective measure	Reference page
Dots are drawn.	The eccentric cutter is improperly installed.	Securely tighten the screw in the holder.	See page 2.18.
	The speed is too low.	Increase the speed.	See page 2.28.
	The pressure is insufficient.	Increase the pressure.	See page 2.28.
Corners are cut round.	The projecting amount of the blade tip is insufficient.	Increase the projecting amount of the blade tip.	See page 2.16.
	The offset value is too small.	Increase the offset value.	See page 2.28.

Checking the status of tools

Check the relation between the tools (th pen and the tangential cutter, and the pen and the crease roller) using the TEST CUT function.

For this purpose, perform plotting first using the pen, then execute the test cut function using the tangential cutter or the crease roller at the same position to check the relation between the tools.

The following describes how to correct problems on ten samples. The number of items required to be adjusted differs with the samples. Determine the items to be adjusted using the samples as a guide. In these sample, the relation between the pen and the tangential cutter is explained. In the case of the crease roller, read the following while replacing the description "tangential cutter" with the "crease roller."

Sample A

The tangential cutter is out of the correct position regardless of the proceeding direction.
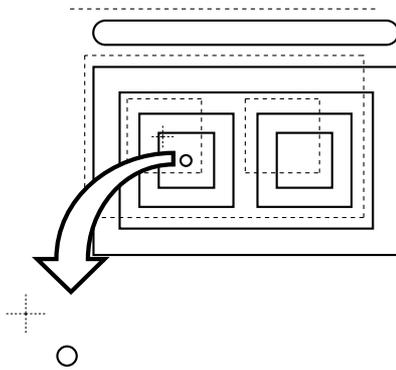
Corrective measure

Perform the offset function contained in the cutter adjusting functions of the tool adjusting functions. (See page 3.9.)

Sample B

The cutter rotates clockwise (or counterclockwise).
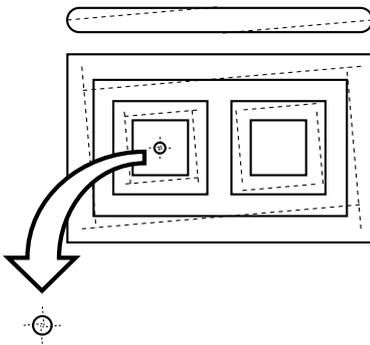
Corrective measure

Conduct the q angle adjustment contained in the cutter adjusting functions of the tool adjusting functions. (See page 3.8.)

Sample C

The point from which the cutter starts is this side (or far side) of the predetermined start position.
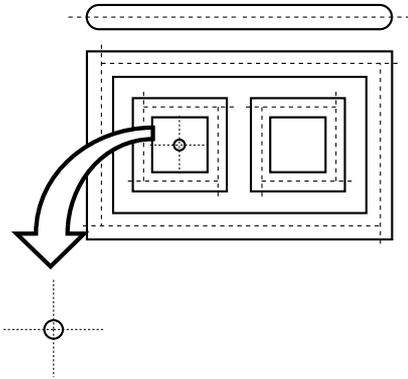
Corrective measure

Adjust the set value for the [START CORRECTION] in [CUTTING CONDITIONS] using the cutting condition setting functions. (See page 2.28.)
Adjust the pattern A for the "adjustment of the eccentricity" using the tool adjusting functions. (See page 3.6.)

Sample D

The point at which the cutter finishes cutting goes beyond (or does not reach) the predetermined end position.
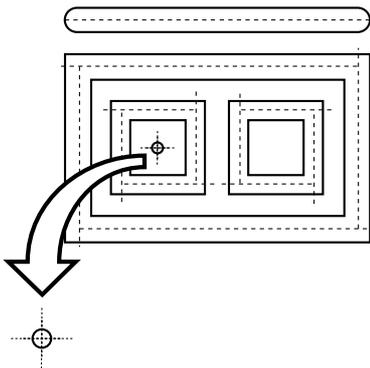
Corrective measure

Adjust the set value for the [END CORRECTION] in [CUTTING CONDITIONS] using the cutting condition setting functions. (See page 2.28.)
Adjust the pattern A for the "adjustment of the eccentricity" using the tool adjusting functions. (See page 3.6.)

Sample E

The tangential cutter shifts to the right from the correct position in terms of the advancing direction.
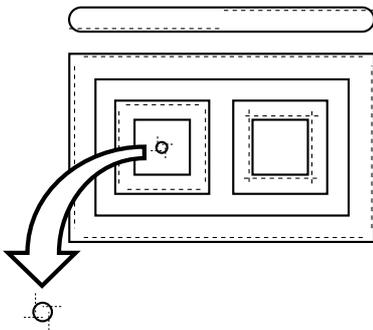
Corrective measure

Adjust the pattern A for the "adjustment of the eccentricity" using the tool adjusting functions. (See page 3.6.)

Sample F

The cutter rotates clockwise (or counterclockwise) and the point from which the cutter starts is this side (or far side) of the predetermined start position.
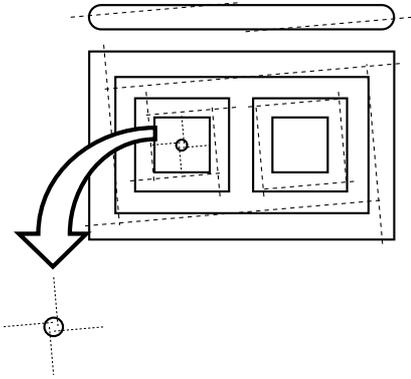
Corrective measure

Refer to the corrective measures for the samples B and C.

Sample G

The pattern is finished with rotated clockwise (or counterclockwise) and the tangential cutter shifts to the right (or left) from the correct position.
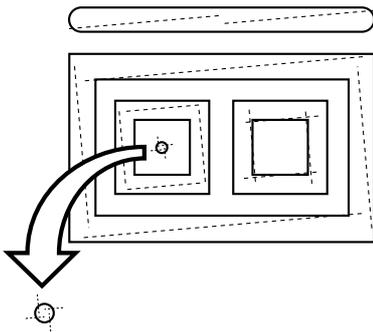
Corrective measure

Refer to the corrective measures for the samples B and E.

Sample H

The point from which the cutter starts is this side (or far side) of the predetermined start position, and the tangential cutter shifts to the right (or left) from the correct position.
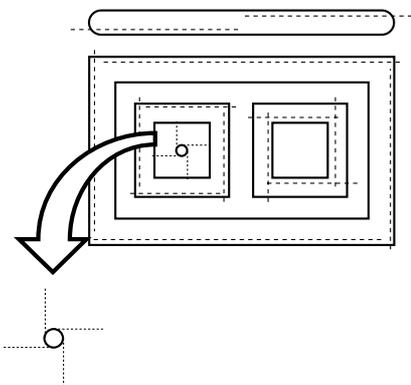
Corrective measure

Refer to the corrective measures for the samples C and E.

Sample I

The point at which the cutter finishes cutting goes beyond (or does not reach) the predetermined end position, and the tangential cutter shifts to the right (or left) from the correct position.
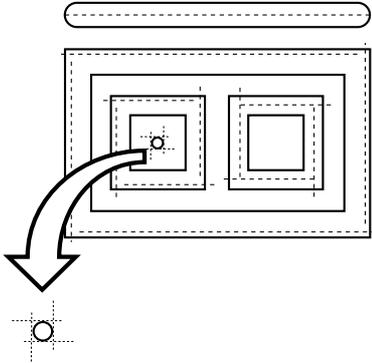
Corrective measure

Refer to the corrective measures for the samples D and E.

Sample J

The cutter rotates clockwise (or counterclockwise), the point at which the cutter finishes cutting goes beyond (or does not reach) the predetermined end position, and the tangential cutter shifts to the right (or left) from the correct position.
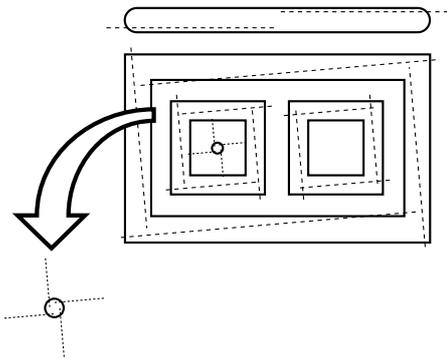
Corrective measure

Refer to the corrective measures for the samples B, D and E.

SETTING THE CUTTING AREA [CUT AREA]

The cutting area is maximized when turning on the power to the device. The cutting area can be adjusted to the size of works placed on the device or set to a desired size.

To specify a new cutting area, determine the lower left point (LL; Lower Left) and the upper right point (UR: Upper Right) of the area.

To clear the cutting area specified, re-turn on the power to the device. This will maximize the cutting area.

Upper right point (UR)

Cutting area

Lower left point (LL)

1

```
[ LOCAL ]              1 / 4
TOOL SELECT        ———>
CONDITION          ———>
TEST CUT           ———>
```
REMOTE/LOCAL
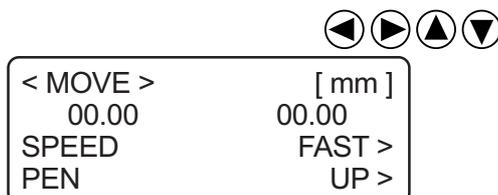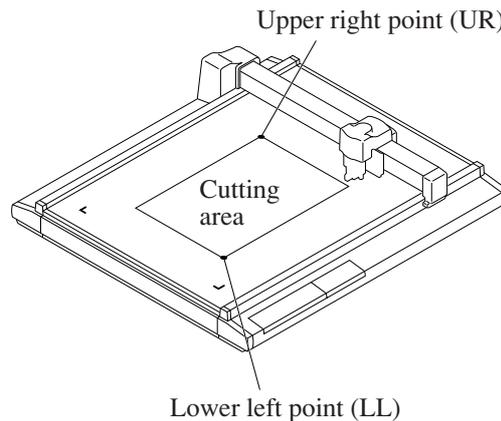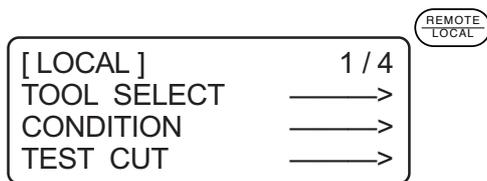
Invoke the LOCAL menu on the screen.

If the device is in the (REMOTE/LOCAL) mode, press the OO key to select the LOCAL mode.

2
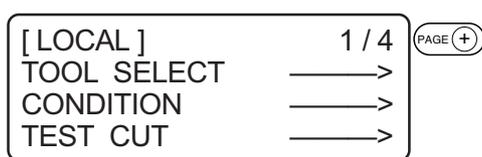
```
[ LOCAL ]              1 / 4
TOOL SELECT        ———>
CONDITION          ———>
TEST CUT           ———>
```
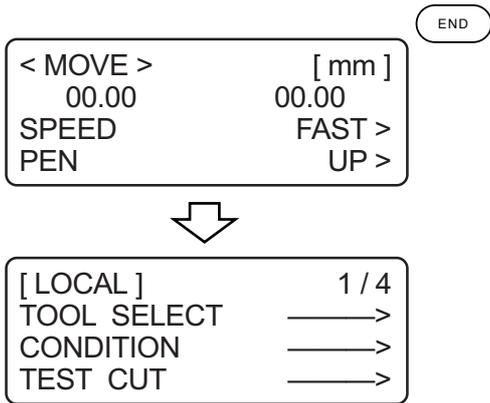PAGE +

Press the (PAGE +) key several times until the LCD indicates page 4 of the LOCAL MENU.

3

```
[ LOCAL ]              4 / 4
CUT AREA           ———>
AXIS ALIGN         ———>
TOOL SELECT        ———>
```
F1 +
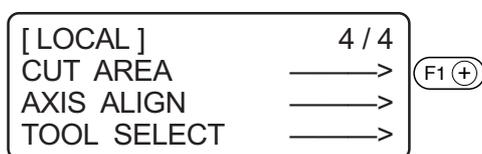
Select the [CUT AREA].

4

```
< CUT AREA >        [ mm ]
LOWER LEFT            →
```
F1 +
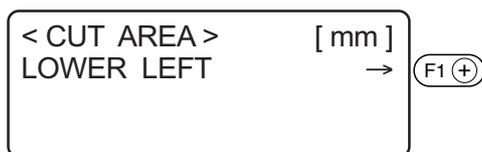
Move the tool to the current LL (lower left) point.

The coordinates of the LL point in terms of the command origin are shown on the LCD.

```
< AREA LL >         [ mm ]
  –600.0           –450.0
SPEED              FAST >
CUTTER               UP >
```
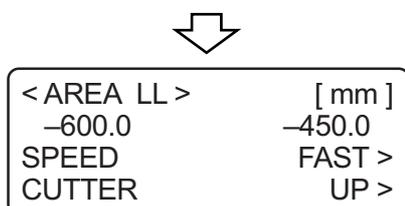
5

◀ ▶ ▲ ▼

```
< AREA LL >          [ mm ]
 –600.0             –450.0
SPEED               FAST >    F2 ⊕
CUTTER                UP >    F3 ⊕
```

Align the tip of the tool to the lower left point of the desired cutting area.

Move the tool using the jog keys until the tip of the tool meets the lower left point (LL) of the cutting area.

Change the head speed or lift/lower ther tool when necessary.

Lower left point (LL)

6

END

```
< AREA LL >          [ mm ]
 –450.0             –300.0
SPEED               FAST >
CUTTER                UP >
```

⇩

```
< CUT AREA >         [ mm ]
UPPER  RIGHT             →
```

Enter the LL point.

Press the END key to enter the input values. If you do not enter the input data, press the C E key.

The step of procedure 3 will be restored on the LCD.

7

```
< CUT AREA >         [ mm ]
UPPER  RIGHT             →    F1 ⊕
```

Move the tool to the current UR point (upper right).

The coordinates of the UR point in terms of the command origin are shown on the LCD.

8

◀ ▶ ▲ ▼

```
< AREA UR >        [ mm ]
  –600.0           –450.0
SPEED             FAST >    F2 ⊕
CUTTER              UP >    F3 ⊕
```

Align the tip of the tool to the upper right point of the desired cutting area.

Move the tool using the jog keys until the tip of the tool meets the upper right point (UR) of the cutting area.

Change the head speed or lift/lower the tool when necessary.

Upper right point (UR)
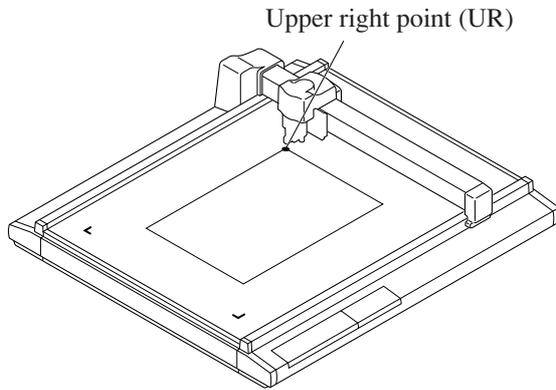
9

END

```
< AREA LL >        [ mm ]
  –380.0           –112.0
SPEED             FAST >
CUTTER              UP >
```

⬇

```
[ LOCAL ]              4 / 4
CUT  AREA          ——–>
AXIS  ALIGN        ——–>
TOOL  SELECT       ——–>
```

Enter the UR point.

Press the (END) key to enter the input values. If you do not enter the input data, press the (C E) key.

The step of procedure 4 will be restored on the LCD.

SETTING THE ORIGIN (ORIGIN FOR PLOTTING)

The origin is the reference point that is used for plotting, cutting and marking.

The plotting position can be moved by changing the location of the origin.

Coordinate of the origin are always (0,0). If the head is moved using the jog keys, the coordinates of the head as from the origin are indicated on the LCD.

Normally, the origin is established at the lower left of the max. effective cutting area.

When executing the sample cut function, each piece of data is cut (crease, plotted) near the origin.
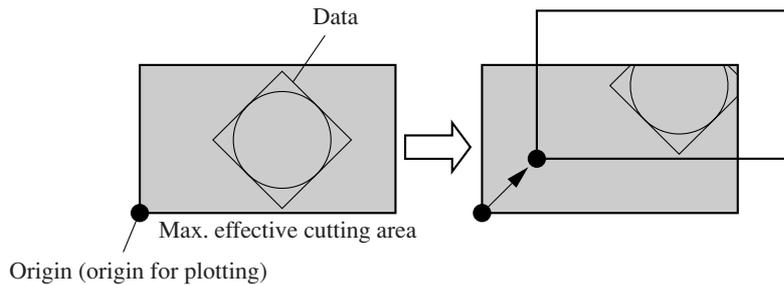
Data

Max. effective cutting area

Origin (origin for plotting)

1

```
[ LOCAL ]           1 / 4
TOOL  SELECT      ———>
CONDITION         ———>
TEST  CUT         ———>
```
(PAGE +)

Invoke the LOCAL menu on the screen.

If the device is in the REMOTE mode, press the (REMOTE/LOCAL) key to select the LOCAL mode.

You may open any page of the menu from among pages 1 to 4.

2

◄ ► ▲ ▼

```
< MOVE >          [ mm ]
   382.6           565.0
SPEED            FAST >
PEN                UP >
```
(F2 +)
(F3 +)

Move the head using the jog keys to the point at which the origin is to be set.

Coordinates of the tip of the tool currently selected are shown on the screen. Increase/decrease the speed and lift/lower the tip of the tool when necessary.

3

(ORIGIN)

```
< MOVE >          [ mm ]
     0.6            0.0
SPEED            FAST >
PEN                UP >
```

⇩

```
[ LOCAL ]           1 / 4
TOOL  SELECT      ———>
CONDITION         ———>
TEST  CUT         ———>
```

Set an origin to the desired point.

INTERRUPTION OF PROCESSING
(PLOTTING, CUTTING OR CREASING)

Under the REMOTE mode, processing can be interrupted due to some reason.
The following explains how to interrupt the process and the function that enables the settings to be changed after the interruption.

How to interrupt/resume the process

1

Press the $\boxed{\substack{\text{REMOTE}\\\text{LOCAL}}}$ key while the device is in operation.

> After a while, the device stops its performance and enters into the LOCAL mode.
> - If the device is processing a circle, it will stop after the completion of the processing of the circle. For other line segments, the device stops after processing them in vectors.

2

Press the $\boxed{\substack{\text{REMOTE}\\\text{LOCAL}}}$ key again.

> The device enters the REMOTE mode to resume processing.

Functions that can be specified after the interruption

The device is able to perform the following.
- Cutting conditions can be changed.
  - → "Setting cutting conditions [CONDITION]" See page 2.28.
- Data remaining in the data receiving buffer can be cleared.
  - → "Interruption of processing [DATA CLEAR]" See page 2.48.

Interruption of processing [DATA CLEAR]

Received data is cleared from the data receiving buffer.

Date described below can be cleared.

(1)   Processing has been interrupted. But, it is desired to abort the processing.

(2)   It is desired to clear data that has been already received but not yet processed.

(3)   In prior to the receipt of data to be copied using the copy function.

1
```
[ LOCAL ]          1 / 4
TOOL  SELECT    ———>
CONDITION       ———>
TEST  CUT       ———>
```
REMOTE/LOCAL

If the device is in the REMOTE mode, press the (REMOTE/LOCAL) **key to cause the device to enter the LOCAL mode.**

If some processing is being done, it will be interrupted.

2
```
[ LOCAL ]          2 / 4
DATA  CLEAR     ———>
COPY            ———>
VIEW            ———>
```
PAGE (+)

Press the (PAGE +) **key several times until the LCD indicates page 2 of the LOCAL MENU.**

3
```
[ LOCAL ]          2 / 4
DATA  CLEAR     ———>
COPY            ———>
VIEW            ———>
```
F1 (+)

Select the [DATA CLEAR].

Press the (F1 +) key.

4
END

```
< DATA CLEAR>      1 / 1
END  KEY to START
CE  KEY  to CANCEL
ORGkey to SC.CLR
```

⬇

```
[ LOCAL ]          2 / 4
DATA  CLEAR     ———>
COPY            ———>
VIEW            ———>
```

Execute the [DATA CLEAR].

To cancel the [DATA CLEAR], press the (C E) key. The step of procedure 2 will be restored on the screen.

CHAPTER 3

WHEN ABNORMAL CONDITIONS

ARE ENCOUNTERED

This chapter describes how to correct troubles in the event that desired cutting results are not obtained or a failure has occurred.

Table of Contents

IF ANY OF THE BELOW-STATED PHENOMENA TAKES PLACE

Cutting depth is insufficient [CONDITION] > [PRESS CORRECT]

If the cutter is lowered, the work may not be thoroughly cut out though the projecting amount of the blade tip is larger than the thickness of the work.

In this case, the work can be cut out without fail by increasing the pressure applied to the descending cutter. Set a pressure correction value to be added to the previously specified pressure value or set the pressure correction value to a larger value.

Refer to Chapter 2 "Setting cutting conditions" for how to set the pressure correction value. See Page 2.28.

In the case of a reciprocal head, a full cut may not be achieved if the head height is not correctly set. Turning the height adjustment knob to the left, slightly lower the head.

Head height adjustment may be necessary, depending on the hardness of the work.

The work remains uncut at the cutting start and end [CONDITION] > [START/END CORRECT]

The position where the cutter comes down or that where it goes up may remain uncut. If the start correction value is increased, the cutter will come down earlier. See page 2.28.

If the end correction value is increased, the cutter will go up later. See page 2.28.

[TOOL ADJUST] > [CIRCLE θ-ADJUST]

The end of a cut circle may not meet the start of the circle with respect to thickness and hardness of a work. A close-to- normal circle can be cut by correcting the deviation. Since the deviation varies depending on the size of a circle, this function is used to correct the deviation in terms of circles in five different radius.

    A circle of which radius is "R < 5"
    A circle of which radius is "5 ≤ R < 10."
    A circle of which radius is "10 ≤ R < 20."
    A circle of which radius is "20 ≤ R < 50."
    A circle of which radius is "50 ≤ R < 100."
    A circle of which radius is "R ≤ 100"

⚠ **CAUTION** • **Some CADs cannot conduct this correction.**

For a work that is comparatively soft, cut toward inside of a normal circle. For a work that is hard, cut toward outside of a normal circle.
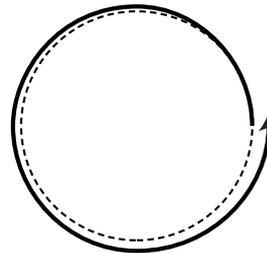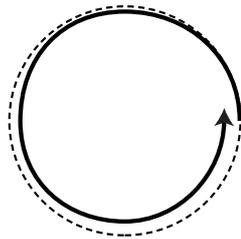
→ : **Direction of cutting**
···· : **Locus**

How to adjust:
Conduct the adjustment as given in the table below:

Pattern		
How to adjust	**Set a correction angle to the positive side.**	**Set a correction angle to the negative side.**

Corrugated board is cut out at flutes though creasing is performed [CONDITION] > [PRESS (Y)]

When marking corrugated board along with flutes of the corrugated board, the pressure specified in [CUTTING CONDITIONS] can be so high as to break the board.

How to adjust:
Follow the adjusting procedure described below.
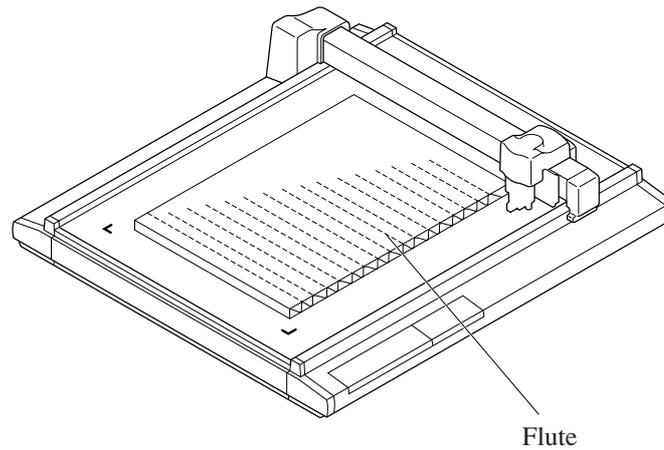
Flute

Place the corrugated board in such a way that its flutes are in parallel to the Y-axis of this device. To set a marking pressure in terms of the Y-axis direction, specify how far the pressure is reduced from the pressure value designated in the [CUTTING CONDITIONS]. See page 2.23.

Register Mark not detected [TOOL Adjust] > [LIGHT POINTER]

If a plotter fails to detect any registration mark properly, the possible cause is an error in the positional relationship between the mark sensor and the light pointer, or error in the setting of register mark detect. In this case, adjust the position of the light pointer.

1　　　　　　　　　　　　　　　　　　**Install a water-based ball-point pen(BK-70) in the ball-point pen holder. P.2-15**

2
```
[ LOCAL ]            1 / 4
TOOL  SELECT     ——>
CONDITION         ——>
TEST  CUT          ——>
```
(PAGE +)

Display [Local] menu page 4.
Press the (PAGE +) key several times.

3
```
[ LOCAL ]            4 / 4
CUT AREA           ——>
ALIGN               ——>
TOOL ADJUST      ——>
```
(F3 +)

Select [TOOL ADJUST]

4
```
[ TOOL ADJUST ]      1 / 2
B CUTTER ADJUST    —>
C ROLLER ADJUST    —>
CIRCLE θCOR         —>
```
(PAGE +)
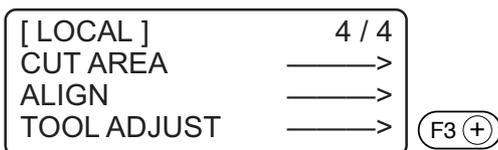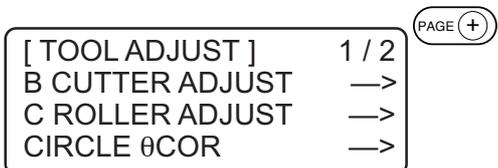
Display [TOOL ADJUST] menu page 2.
Press the (PAGE +) key one time.

5
```
[ TOOL ADJUST ]      2 / 2
LIGHT POINTEER      —>
```
(F1 +)

Select [LIGHT POINTER]

6
```
<POINTER OFS>       1 / 1
POINTER  X   +    0.0mm>
POINTER  Y   +    0.0mm>
TEST PATTERN       —>
```
(F3 +)
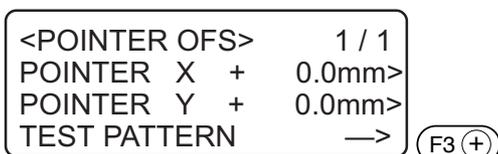
Select [TEST PATTERN]
Line length of 10mm cross-shape pattern is plotted.
Light pointer turns on, and move to the center of pattern.

7

```
┌─────────────────────────────┐
│ <POINTER OFS>        1 / 1  │
│ POINTER  X   +     1.5mm>   │
│ POINTER  Y   –     0.5mm>   │
│ TEST PATTERN         —>     │
└─────────────────────────────┘
```
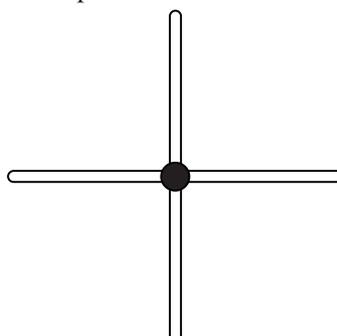
(F1 +) (F2 +)

Press (F1 +) (F2 +) key or Jog key, and the light pointer move to the center of pattern.

- 99.9mm to + 99.9mm (0.1mm pitch)

8

```
┌─────────────────────────────┐
│ <POINTER OFS>        1 / 1  │
│ POINTER  X   +     1.5mm>   │
│ POINTER  Y   –     0.5mm>   │
│ TEST PATTERN         —>     │
└─────────────────────────────┘
```

(END)

Press (END) key to register the adjusted value.

In case of not register the value, press (C E) key.

TOOLS ARE NOT ALIGNED TO EACH OTHER [TOOL SELECT]

If a plotting tool and a cutter or a plotting tool and a creasing roller fail to finish patterns that lack in overlapping, the deviation between the tools has to be adjusted.

To adjust the alignment of each tool, use "adjustment of the cutter" and "adjustment of the roller" among the "TOOL SELECT" functions.

To execute the tool adjusting function, set the speed and acceleration of each tool as described below. If the speed and acceleration are too high, adjustments cannot be carried out with accuracy.

     Speed .... 20 cm/s

     Acceleration .... 0.1 G

Flowchart of checking and adjusting procedures

Select cutter or roller.	Selecting a tool. (See page 2.14.)
Execute a pattern intended for the adjustment of the eccentricity.	Adjust the eccentricity. (See pages 3.6 and 3.10.)
Execute the eccentricity adjusting procedure.	Adjust the eccentricity. (See page 3.14.)
Execute a pattern intended for the adjustment of the θ.	Adjust the θ angle. (See pages 3.8 and 3.11.)
Execute the θ adjusting procedure.	Adjust the θ angle. (See page 3.14.)
Execute a pattern intended for the adjustment of the offset.	Adjsut the offset. (See pages 3.9 and 3.12.)
Execute the offset adjusting procedure.	Adjsut the offset. (See page 3.14.)

General explanation of the adjustment of tools

Tools are adjusted with respect to the below-stated three items.
(1) "Adjustment of the cutter" to adjust the low-pressure tangential cutter.
(2) "Adjustment of the roller" to adjust the rollers and "adjustment of the cutter" for the high-pressure tangential cutter
(3) "Adjustment of the circle θ" to adjust the tangential cutter to a plotted circle

Adjustment of the cutter

The cutter is adjusted in three different ways as described below.
(1) "Adjustment of the eccentricity" to adjust the eccentricity of the blade tip and tools
(2) "Adjustment of θ angle" to adjust the rotating angle of the cutter
(3) "Adjustment of the offset" to eliminate the deviation between the tangential cutter and the pen

Adjustment of the eccentricity

The blade tip or a tool may be off-center when it is replaced. The following indicates an example of the blade tip or tool that is off-center and how to adjust it.
Two different patterns for adjustment are simultaneously cut. Sizes of the patterns and the cutting order are shown below.
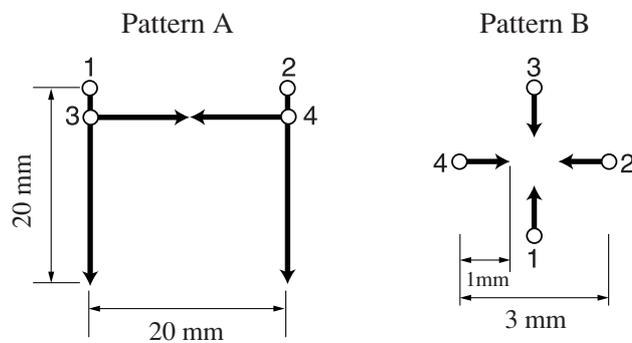
Pattern A   Pattern B

○ : Point from which cutting starts
→ : Direction of cutting

How to adjust:

Follow the adjusting procedure given below.

In pattern A, the center position is adjusted by checking and adjusting the relationship between the blade tip and the center of the cutter according to the target.

Normally, adjustment is performed so that the blade does not stick out too much and there is no gap. Adjust the back of the cutter to the center position, as shown in the following figure.
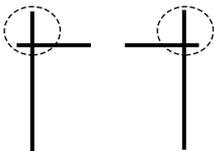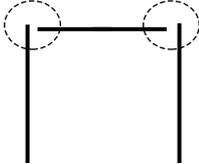
	Pattern A	
Sample pattern		
How to adjust	**Reducing value A reduces the amount of protrusion.**	**Increasing value A reduces the gap.**

Cutting direction

Place cutter back at center

In case of cabide blade 30° (SPB-0045)

In case of cabide blade 2° (SPB-0064)

In case of cabide blade 17° (SPB-0065)

In pattern B, the tool is installed with tilted.   Pattern B has to be adjusted so that horizontal lines and vertical lines are arranged in a straight line respectively along X- and Y-axes.

	Pattern B	
Sample pattern		
How to adjust	**Input a positive value as "B" that corresponds to a half of the distance between the two lines.**	**Input a negative value as "B" that corresponds to a half of the distance between the two lines.**

Adjustment of the θ angle

The rotating angle of the tangential cutter is adjusted.

Eliminate the difference in rotating angle between the plotted pattern and the cut pattern.

Two different patterns are used for adjustment. They are different only in size.

The illustration below indicates the size of the patterns and the cutting order. Dimensions shown in parentheses are the dimensions of pattern No. 2.

Pattern 1 (Pattern 2)

◯	: **Point from which cutting starts**
→	: **Direction of cutting**
◯	: **Pen**
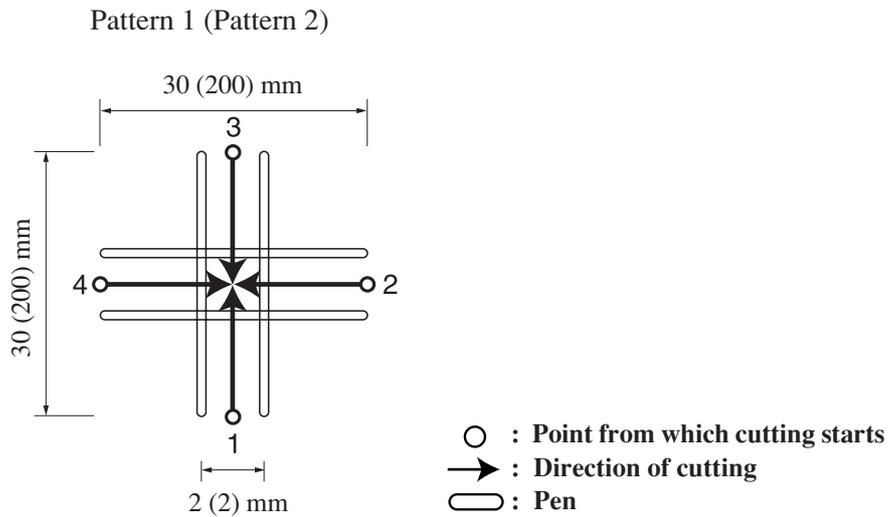
How to adjust:

Follow the adjusting procedure given below.

	Pattern 1 (Pattern 2)	
Sample pattern		
How to adjust	**If the cut pattern rotates clockwise as compared with the plotted pattern, decrease the θ value for the cutter.**	**If the cut pattern rotates clockwise as compared with the plotted pattern, increase the θ value for the cutter.**

Adjustment of the offset

Offset amount of the cut pattern as from the plotted pattern is adjusted in terms of the X- and Y-aes. One pattern is used for adjustment. The illustration below indicates the size of the patterns and the cutting order.

How to adjust:

Follow the adjusting procedure given below.

Sample pattern		
How to adjust	**If the cutter deviates to the right, increase the X value for the cutter.**	**If the cutter deviates to the left, decrease the X value for the cutter.**

Sample pattern		
How to adjust	**If the cutter deviates upward, increase the Y value for the cutter.**	**If the cutter deviates downward, decrease the Y value for the cutter.**

Adjustment of the roller

The roller is adjusted in three different ways as described below.
(1)   "Adjustment of the eccentricity" to adjust the eccentricity of the tools
(2)   "Adjustment of the q angle" to adjust the rotating angle of the roller
(3)   "Adjustment of the offset" to eliminate the deviation between the roller and the pen

Adjustment of the eccentricity

The tool may be off-center when it is replaced. The following indicates an example of the tool that is off-center and how to adjust it.
Two different patterns are used for adjustment. Pattern A is used for the adjustment of marking.
Pattern B is used for the adjustment of plotting and marking. Sizes of the patterns and the cutting order are shown below.
For pattern A, the marking roller, being different from the tangential cutter, goes beyond the cutting area even it is not off-center.
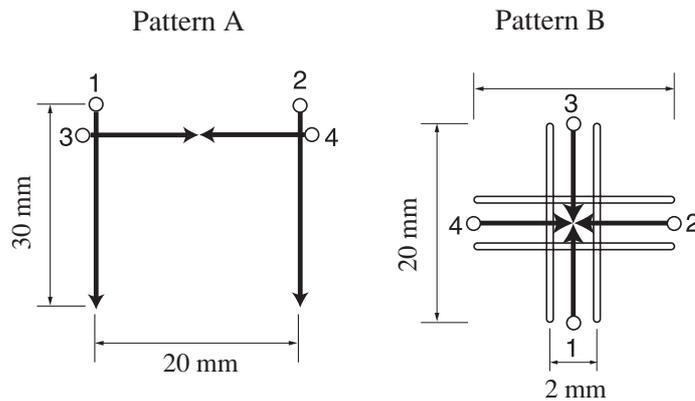
Pattern A   Pattern B

○ : Point from which creasing starts
→ : Direction of creasing
▭ : Pen

How to adjust:
Pattern A has to be adjusted to correct the problem where the blade tip is out of the center of the roller holder.

	Pattern A	
Sample pattern		
How to adjust	**Input a negative value as "A" that corresponds to the length of the line which goes beyond the vertical line.**	**Input a positive value as "A" that corresponds to the length to be plotted to reach the vertical line.**

In pattern B, the tool is installed with tilted.   Pattern B has to be adjusted so that horizontal lines and vertical lines are arranged in a straight line respectively along X- and Y-axes.

	Pattern B	
Sample pattern		
How to adjust	**Input a positive value as "B" that corresponds to a half of the distance between the two lines.**	**Input a negative value as "B" that corresponds to a half of the distance between the two lines.**
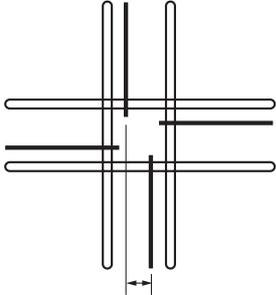
Adjustment of the θ angle

The rotating angle of the roller is adjusted.
Eliminate the difference in rotating angle between the plotted pattern and the marked pattern.
One pattern is used for adjustment.
The illustration below gives the size of the pattern and the cutting order.

Pattern 1

200 mm

200 mm

2 mm

○ : Point from which marking starts
→ : Direction of marking
⬭ : Pen

How to adjust:

Follow the adjusting procedure given below.

Sample pattern		
How to adjust	**If the cut pattern rotates clockwise as compared with the plotted pattern, decrease the θ value for the roller.**	**If the cut pattern rotates counter clockwise as compared with the plotted pattern, increase the θ value for the roller.**

Adjustment of the offset

Offset amount of the marked pattern as from the plotted pattern is adjusted in terms of the X- and Y-axes.

One pattern is used for adjustment.

The illustration below indicates the size of the pattern and the cutting order.

○ : **Point from which marking starts**
→ : **Direction of marking**
⬭ : **Pen**

How to adjust:

Follow the adjusting procedure given below.

Sample pattern		
How to adjust	**If the roller deviates to the right, increase the X value for the roller.**	**If the roller deviates to the left, decrease the X value for the roller.**

Sample pattern		
How to adjust	**If the roller deviates upward, increase the Y value for the roller.**	**If the roller deviates downward, decrease the Y value for the roller.**

How to adjust the tools

"TOOL SELECT" consists of two categories; i.e., the "adjustment of the cutter", the "adjustment of the roller" and "circle q adjust".

The tool adjusting procedure is described below taking the "adjustment of the cutter 1" as an example.

1　**Attach a pen and a tangential cutter to the head.**

　　See pages 2.18 and 2.19.

2
```
┌──────────────────────┐
│ [ LOCAL ]       1 / 4 │  (PAGE +)
│ TOOL  SELECT    ——>  │
│ CONDITION       ——>  │
│ TEST  CUT       ——>  │
└──────────────────────┘
```
Press the (PAGE +) key several times until the LCD indicates page 4 of the LOCAL MENU.

3
```
┌──────────────────────┐
│ [ LOCAL ]       4 / 4 │
│ CUT  AREA       ——>  │
│ AXIS  ALIGN     ——>  │
│ TOOL  ADJUST    ——>  │  (F3 +)
└──────────────────────┘
```
Select the [TOOL ADJSUT].
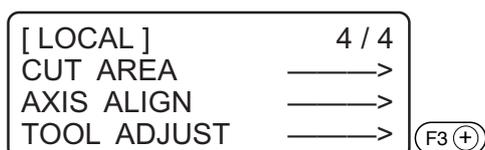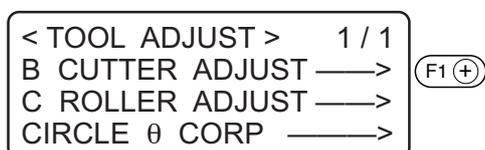
4
```
┌──────────────────────┐
│ < TOOL ADJUST >  1 / 1 │
│ B CUTTER ADJUST ——>  │  (F1 +)
│ C ROLLER ADJUST ——>  │
│ CIRCLE θ CORP   ——>  │
└──────────────────────┘
```
Select the [CUTTER ADJUST].

　　The menu changes to the eccentricity adjustment menu.

　　The illustration on the left is for when a roller is set to unit B, when a tangential cutter is set to the unit C.
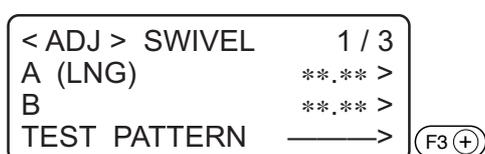
5
```
┌──────────────────────┐
│ < ADJ >  SWIVEL   1 / 3 │
│ A (LNG)       **.** >  │
│ B             **.** >  │
│ TEST  PATTERN   ——>  │  (F3 +)
└──────────────────────┘
```
To check for the eccentricity of the cutter, select the [TEST PATTERN] to cut patterns A and B.
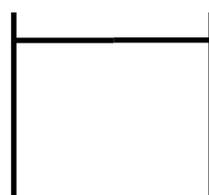
Normal pattern A　　Normal pattern B
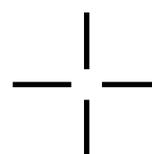
—— : **Cutter**

6

```
< ADJ > SWIVEL        1 / 3
A (LNG)             **.** >   [F1 (+)]
B                   **.** >   [F2 (+)]
TEST PATTERN        ———>
```

Input a value for each pattern.

For [A], input an adjustment value for pattern A.

For [B], input an adjustment value for pattern B.

7

Carry out steps of procedure 4 and 5 in repetition.

Repeat these steps of procedure until a normal pattern is obtained.

8

```
< ADJ > SWIVEL        1 / 3     [PAGE (+)]
A (LNG)             **.** >
B                   **.** >
TEST PATTERN        ———>
```

Invoke the 2nd page of the ADJUST-MENT menu.

Press the [PAGE (+)] key several times to call up the menu for the adjustment of the q angle.

9

```
< ADJUST > θ          2 / 3
CUTTER θ            **.** >
PATTERN No.           *1 >   [F2 (+)]
TEST PATTERN        ———>
```

Select the pattern for the adjustment.
1, 2

10

```
< ADJUST > θ          2 / 3
CUTTER θ            **.** >
PATTERN No.           *1 >
TEST PATTERN        ———>   [F3 (+)]
```

To check the θ angle, select the [TEST PATTERN].

Plot the pattern using the pen, then cut the pattern with the tangential cutter.

Normal pattern 1 (2)

⬭ : **Pen**
▬ : **Cutter**

11
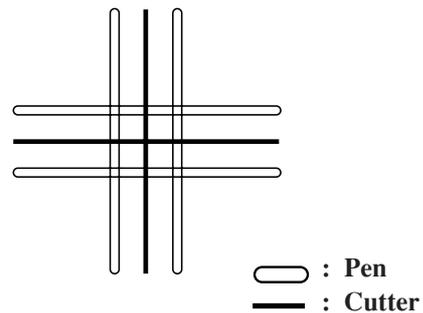
```
< ADJUST > θ          2 / 3
CUTTER θ            **.** >   [F1 (+)]
PATTERN No.           *1 >
TEST PATTERN        ———>
```

Input a value for the [CUTTER θ].

Increasing a value will rotate the pattern clockwise.

Decreasing a value will rotate the pattern counterclockwise.

12

Carry out steps of procedure 9 and 10 in repetition.

Repeat these steps of procedure until a normal pattern is obtained.

13

```
< ADJUST > θ        2 / 3    PAGE ⊕
CUTTER θ            ∗∗.∗∗ >
PATTERN No.           ∗1 >
TEST  PATTERN     ———>
```

Invoke the 3rd page of the ADJUST-MENT menu.

Press the PAGE ⊕ key several times to invoke the menu for the adjustment of the offset.

14

```
< ADJ > OFFSET     3 / 3
CUTTER  X          ∗∗.∗∗ >
CUTTER  Y          ∗∗.∗∗ >
TEST  PATTERN     ———>    F3 ⊕
```

To check the amount of deviation, select the [TEST PATTERN].

Plot the pattern using the pen, then cut the pattern with the tangential cutter.

Normal pattern
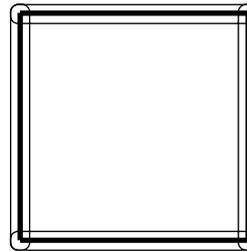
⊂⊃ **: Pen**

▬ **: Cutter**

15

```
< ADJ > OFFSET     3 / 3
CUTTER  X          ∗∗.∗∗ >
CUTTER  Y          ∗∗.∗∗ >    F1 ⊕
TEST  PATTERN     ———>    F2 ⊕
```

Input a value for each item.

Input the amount of deviation in the X-axis for the [CUTTER X].

Input the amount of deviation in the Y-axis for the [CUTTER Y].

16

Carry out steps of procedure 13 and 14 in repetition.

Repeat these steps of procedure until a normal pattern is obtained.

17

END

```
< ADJ > OFFSET     3 / 3
CUTTER  X          ∗∗.∗∗ >
CUTTER  Y          ∗∗.∗∗ >
TEST  PATTERN     ———>
```

Enter the adjustment value.

If the adjustment value is not entered, press the C E key.

IF THERE IS A SIGN OF FAILURE

Corrective measures against troubles in the case where no error message is given on the LCD are described in this section.

Refer to the description given in "Troubles for which error messages are given on the LCD" in Chapter 3 for a trouble that is not covered in this section and accompanied by the indication of an error message on the LCD.

See page 3.19.

The device not at all actuates even when the power to the device is turned on

Cause	Corrective measure	Reference page
Is the power cable securely connected to the device?	Properly connect the power cable to the device.	P. 1.14
Properly connect the power cable to the device.	Release the EMERGENCY switch from the pressed state.	P. 1.19

The device fails to actuate even when data is transmitted from CAD

Cause	Corrective measure	Reference page
Is the device set in the LOCAL mode?	Set the device to the REMOTE mode.	P. 1.20
Is the interface cable securely connected to the device?	Properly connect the interface cable to the device.	P. 1.13

Error arises when transmitting data

Cause	Corrective measure	Reference page
Do communication conditions match those on the computer?	Adjust the communication conditions to those on the computer.	P. 1.22
Do commands on the computer match those on the plotter?	Adjust the commands on the plotter to those on the computer.	P. 1.28

The tool drags on the sheet of paper

Cause	Corrective measure	Reference page
Is there any wrinkle or warpage on the sheet of paper?	Smooth down the sheet of paper to remove wrinkles and warpages.	P. 2.10
Is the height of the head excessively low?	Properly adjust the height of the head to the thickness of the work used.	P. 2.22
Is the lifting/lowering movement of the pen defective?	Turn the power off. Then, move the head A up and down. If the head fails to go up and come down normally, please contact your local dealer or MIMAKI office.	—

Dotted lines or blurred lines are plotted

Cause	Corrective measure	Reference page
Has the screw in head A loosened?	Firmly re-tighten the screw in the head A.	P. 2.18
Is the plotting speed too high?	Decrease the plotting speed.	P. 2.28
Is the plotting pressure insufficient?	Increase the plotting pressure.	P. 2.28
Has the pen run out of ink?	Replace the pen with a new one.	

There is no reciprocal vibration

Cause	Corrective measure	Reference page
Is the axis of reciprocal vibration sufficiently lubricated?	Apply a small amount of grease to the axis.	P. 16
Is vibration set to "OFF"?	Set vibration to a setting from 1 to 5. If recovery is not achieved, contact the store of purchase or a Mimaki sales office.	P. 2-28 to 30

TROUBLES FOR WHICH ERROR MESSAGES ARE GIVEN ON THE LCD

If something is wrong with the device, a corresponding error message is given on the LCD. Causes of and corrective measures against such errors are described below.

Errors that can be corrected by users

The table below gives the errors that can be corrected by users.

Error message	Cause	Corrective measure
ERROR 10 COMMAND ERROR 11 PARAMETER ERROR 12 DEVICE	Communication conditions on the device are different from those on the computer.	Adjust the communication conditions on the device to those on the computer. See page 1.22.
ERROR 13 POLYGON	Polygon buffer has overflown.	Divide first the polygon data, then transmit the divided polygon data.
ERROR 20 I/O	Communication conditions on the device are different from those on the computer.	Adjust the communication conditions on the device to those on the computer. See page 1.22.
	Power to the computer and that to the device are turned on in the wrong order.	Turn on the power to the computer first, then turn on the power to the device.
ERROR 27 BUFFER OVER	An abnormal condition has arisen in the serial interface.	Adjust the communication conditions on the device to those on the computer. See page 1.22.
ERROR 30 OPERATION	Improper key operation is carried out such as a change in the communication conditions while cutting or other performance of the device is interrupted.	Do not conduct any improper key operation.
	The effective area is smaller than A3 and ASCII damp is executed.	Set the effective area to A3 size (297 x 420 mm) or more. Then, execute ASCII damp.
	The origin is set to a position where the effective area of A3 size is not ensured, and ASCII damp is executed.	

Error message	Cause	Corrective measure
ERROR 31 NO DATA	Copy function is executed in the case where no data is received.	Transmit data to be copied from the computer to the device. Then cut a pattern according to the data. Then, execute the copy function. See page 4.4.
ERROR 32 DATA IS TOO LARGE	Size of data to be copied exceeds 1 MB.	Transmit data of which size is smaller than 1 MB.
ERROR 36 MARK DETECT	NO registration mark was detected.	Check the sheet for curling
		Check to see if the starting point to detect the registration mark has been set properly.
		Check to see if the black or white registration mark is printed .
		Check to see if there is no dust or dirt between the registration marks.
		Check to see if there is nmistake in registration mark settings.
		Confirm the status and the settings described above. If still no registration mark is detected, contact your distributor or a sales office of Mimaki.
ERROR 36 MARK DETECT Stop Data send & Exec.[DATACLEAR] - PUSH ANY Key -	NO registration mark was detected.	Stop data send and clear the data. (See page 2-42.) By pressing any keys, return to the Rocal mode.
ERROR 62 VACUUM	Overcurrent is fed to the blower.	Turn off the power to the plotter and blower. Then, wait for a while and re-turn on the power to them.
∗∗∗ OFF-SCALE ∗∗∗	Data exceeds the effective cutting area.	(1) Interrupt the process (see page 2.41) and clear the data. (2) Expand the effective cutting area, or place the data inside the effective cutting area.
ERROR 75 ReceCutter	(1) Are the cutting conditions suitable? (2) Is the blade worn out?	(1) Set the cutting conditions to suitable values. See page P. 2-28. (2) Replace the blade with a new one. See page P. 2-14.

Errors that cannot be corrected by users

If any of the errors described below has arisen, immediately turn of the power to the device.
Wait for a while and re-turn on the power to the device. If the same message appears on the LCD,
immediately turn the power off and contact your local dealer or MIMAKI office.

Error message	Error message
ERROR 00 MAIN ROM	**ERROR 42 X OVERCURRENT**
ERROR 01 SERVO ROM	**ERROR 43 Y OVERCURRENT**
ERROR 02 MAIN RAM	**ERROR 46 PEN SENSOR**
ERROR 03 SERVO RAM	**ERROR 50 X SENSOR**
ERROR 04 EEPROM	**ERROR 51 Y SENSOR**
ERROR 05 HANDSHAKE	**ERROR 52 θ ORIGIN**
ERROR 06 BUFFER	**ERROR 53 Z ORIGIN**
ERROR 08 POWER	**ERROR 70 θ OVERLOAD**
ERROR 12 DEVICE ERROR 20	**ERROR 71 θ OVERCURRENT**
ERROR 20 I/O	**ERROR 72 CUTTER Z LOAD**
ERROR 40 X OVERLOAD	**ERROR 73 ROLLER Z LOAD**
ERROR 41 Y OVERLOAD	**ERROR 90 F/W**

(*1) **" ERROR 70 θ OVERLOAD "** occurs when the head height is too excessive, and also when
θ rotation was performed without the tool of unit B reaching the work.
If **" ERROR 70 θ OVERLOAD "** occurs when the data is sent again after the tool is lowered
until it reaches the work, contact your local dealer or MIMAKI office.

CHAPTER 4

APPLICATION FUNCTIONS

This chapter describes helpful functions that facilitate operation.

Table of Contents

ASSIGNMENT OF PEN NUMBERS [MODE SET] > [PEN ASIGN]

Pen numbers included in data are assigned to tools of the device. As many as six pens can be assigned to the tools.

Operating procedure is described in this section using the example given below.

      Pen 1 (Pen number in data to be plotted) → Pen

      Pen 2 (Pen number in data to be cut) → Cutter 2

If the pen numbers are assigned as stated above, data on pen 1 and pen 2 an be plotted and cut at a time.

1
```
[ LOCAL ]              1 / 4
TOOL SELECT        ———>
CONDITION          ———>
TEST CUT           ———>
```
(PAGE +)

Invoke the LOCAL menu on the Press the (PAGE +) key several times until the LCD indicates page 3 of the LOCAL MENU.

2
```
[ LOCAL ]              3 / 4
INTERFACE          ———>
MODE SET           ———>
SELF TEST          ———>
```
(F2 +)

Select the [MODE SET].

3
```
< MODE SET >          1 / 6
Z STROKE          *7 mm >
MULTI–PASS         ———>
RESERVE
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 5 of the [MODE SET].

4
```
< MODE SET >          5 / 6
PEN ASIGN          ———>
RESERVE
UNIT               *mm >
```
(F1 +)

Select the [PEN ASIGN].

5
```
< PEN ASIGN >         1 / 6
PEN 1
HEAD                  *B >
TOOL        *RecCutter 1 >
```
(F2 +)

Change the head from [B] to [A].
   B, A

6
```
< PEN ASIGN >         1 / 6
PEN 1
HEAD                   A >
TOOL               *PEN >
```
(F3 +)

Set the tool to [PEN].
   Pen, Swivel blade

7

```
< PEN  ASIGN >        1 / 6
PEN  1
HEAD                    A >
TOOL                 ∗PEN >
```
PAGE (+)

Invoke the [PEN 2] setting menu.

8

```
< PEN  ASIGN >        2 / 6
PEN  2
HEAD                   ∗A >
TOOL       ∗RecCutter  1 >
```
F2 (+)

Change the head from [A] to [B].
   A, B

9

```
< PEN  ASIGN >        2 / 6
PEN  2
HEAD                    B >
TOOL       RecCutter  2 >
```
F3 (+)

Press the F3 (+) **key to set the tool to
[RecCutter 2].**
   RecCutter 1, RecCutter 2

10
              (END)

```
< PEN  ASIGN >        2 / 6
PEN  2
HEAD                    B >
TOOL       RecCutter  2 >
```

⇩

```
[ LOCAL ]             3 / 4
INTERFACE         ——>
MODE  SET          ——>
SELF  TEST          ——>
```

Enter the input value.

If you do not enter the input data, press
the (C E) key.

RE-CUT OF THE SAME DATA [COPY]

Data that has been already cut can be re-cut in the off-line state. This means that the same data need not be transmitted from the computer in repetition.

⚠ **CAUTION** • Be sure to execute the "DATA CLEAR" to clear data from the receiving buffer before transmitting data to be copied. If the "DATA CLEAR" is not executed, pieces of data other than the object data will be copied.

1

Execute the [DATA CLEAR].
See page 2.48.

Execute the data clear function immediately before receiving the object data to be copied.

2

Origin

Cut a pattern according to the object data.

3

REMOTE
LOCAL

```
[ LOCAL ]            1 / 4
TOOL  SELECT    ———>
CONDITION       ———>
TEST  CUT       ———>
```
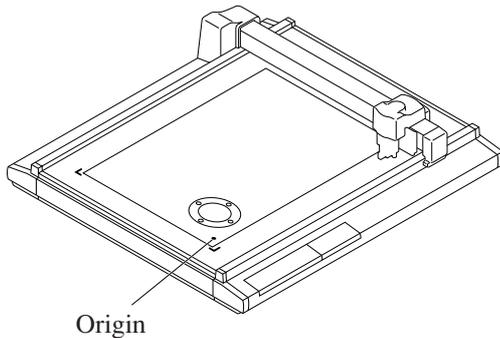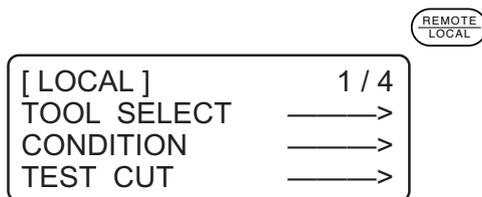
Cause the device to enter the LOCAL mode.

4

Newly specified origin

Shift the origin using the jog keys.
See page 2.46.

Re-set the origin to a position at which the object data is to be copied. If the origin is re-positioned, the device will perform cutting at the position same as the previous cutting.

5

```
[ LOCAL ]              1 / 4
TOOL  SELECT      ———>
CONDITION          ———>
TEST  CUT          ———>
```
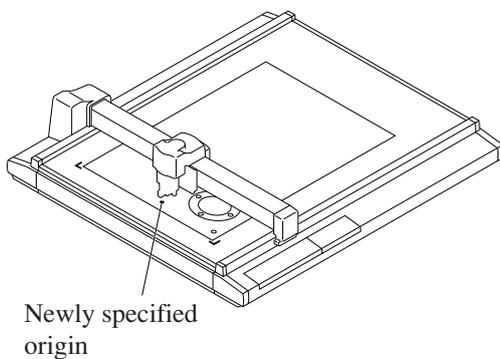
(PAGE +)

Invoke the 2nd page of the LOCAL menu on the screen.

6

```
[ LOCAL ]              2 / 4
DATA  CLEAR       ———>
COPY                ———>
VIEW                ———>
```

(F2 +)

Select the [COPY].

7

(END)

```
< COPY >               1 / 1
END  KEY  to  START
CE  KEY  to  CANCEL
```

⇩

```
[ LOCAL ]              2 / 4
DATA  CLEAR       ———>
COPY                ———>
VIEW                ———>
```

Execute the [COPY].

Press the (END) key to execute the copy function.

If you do not want to copy the object data, press the (C E) key.

If you want to perform cutting again, repeat the aforementioned steps of procedure from step 4.
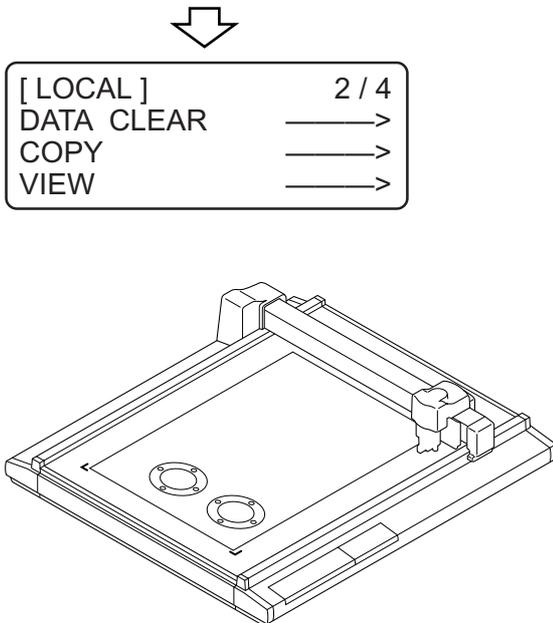
SETTING THE NUMBER CUT FUNCTION [MODE SET] > [MULTI-PASS]

The same data can be cut as many as five times by changing the pressure values. This allows the device to efficiently cut a work that cannot be thoroughly cut out by performing cutting once. However, the number cut function is disabled in unit B.
A period of time required to judge a separating point between pieces of data can also be specified. The device starts the multi-pass unless the device receives next piece of data within the specified period of time.

Set values

Period of time required for judgment: Off, 5, 15, 30, 45, 60 Sec
PRESS 1: Off, 500 to 5000 g (in increments of 50 g)
PRESS 2: Off, 500 to 5000 g (in increments of 50 g)
PRESS 3: Off, 500 to 5000 g (in increments of 50 g)
PRESS 4: Off, 500 to 5000 g (in increments of 50 g)
PRESS 5: Off, 500 to 5000 g (in increments of 50 g)

*1: In the RC model, 1000 g to 5000 g.
    In the RT model, 300 g to 1500 g.

If the PRESS 1 to PRESS 5 are set to "off," the device will not perform the multi-pass.

1
```
[ LOCAL ]          1 / 4
TOOL  SELECT    ——— >
CONDITION       ——— >
TEST  CUT       ——— >
```
(PAGE +)

Press the (PAGE +) **key several times until the LCD indicates page 3 of the LOCAL MENU.**

2
```
[ LOCAL ]          3 / 4
INTERFACE       ——— >
MODE  SET       ——— >
SELF  TEST      ——— >
```
(F2 +)

Select the [MODE SET].

3
```
< MODE  SET >      1 / 5
Z  STROKE       *7 mm >
MULTI–PASS      ——— >
RESERVE
```
(F2 +)

Select the [MULTI-PASS].

4
```
< MULTI–PASS >     1 / 2
JUDGMNT  TIME     15 >
PRESS  1        *OFF >
PRESS  2        *OFF >
```
(F1 +)

Establish the [JUDGMENT TIME].
   Off, 5, 15, 30, 45, 60 (s)

5

```
< MULTI–PASS >        1 / 2
JUDGMNT  TIME         15 >
PRESS  1           500 g >   (F2 +)
PRESS  2           500 g >   (F3 +)
```

Specify cutting pressure values for the first and second cutting operations.

6

```
< MULTI–PASS >        1 / 2   (PAGE +)
JUDGMNT  TIME         15 >
PRESS  1           500 g >
PRESS  2           500 g >
```

Press the (PAGE +) key several times to invoke the 2nd page of the [MULTI-PASS].

7

```
< MULTI–PASS >        2 / 2
PRESS  3           *OFF >   (F1 +)
PRESS  4           *OFF >   (F2 +)
PRESS  5           *OFF >   (F3 +)
```

Specify cutting pressure values for the third and fourth and fifth cutting operations.

8

(END)

```
< MULTI–PASS >        2 / 2
PRESS  3           700 g >
PRESS  4           900 g >
PRESS  5          1000 g >
```

⇩

```
[ LOCAL ]            3 / 4
INTERFACE         ———>
MODE  SET         ———>
SELF  TEST        ———>
```

Enter the input values.

Press the (END) key to enter the input values. If you do not enter the input data, press the (C E) key.

SETTING THE ONE-STROKE CUTTING [MODE SET] > [ONE STROKE]

Received data on non-connected line segments illustrated below can be cut in such a manner as a one-stroke brush.

Set values

    off :   Single-stroke cutting is not performed.
    on :   Single-stroke cutting is executed.
    sort : Single-stroke cutting is executed while taking a position that is situated closest to the
            tool as a start point.

: **Point from which cutting starts**
: **Direction of cutting**

1
```
[ LOCAL ]           1 / 4
TOOL  SELECT      ——>
CONDITION         ——>
TEST  CUT         ——>
```
PAGE(+)

Press the PAGE(+) **key several times until the LCD indicates page 3 of the LOCAL MENU.**

2
```
[ LOCAL ]           3 / 4
INTERFACE         ——>
MODE  SET         ——>
SELF  TEST        ——>
```
F2(+)

Select the [MODE SET].

3
```
< MODE  SET >       1 / 5
Z  STROKE        *7 mm >
MULTI–PASS        ——>
RESERVE
```
PAGE(+)

Press the PAGE(+) **key several times until the LCD indicates page 2 of the [MODE SET].**

4
```
< MODE  SET >       2 / 5
AUTO  VIEW        *1 s >
DUMMY  CUT        *OFF >
ONE  STROKE       *OFF >
```
F3(+)

Specify a setting for the [ONE STROKE] from among the following.
    on, off, sort

END

5
```
< MODE  SET >       2 / 5
AUTO  VIEW        *1 s >
DUMMY  CUT        *OFF >
ONE  STROKE       SORT >
```

Enter the input values.
    Press the END key to enter the input values. If you do not enter the input data, press the C E key.

SETTING THE DIRECTION OF ROTATION FOR THE COORDINATE AXIS [MODE SET] > [ROTATE]

In the case where the command origin is established at the lower left of the cutting area, it is necessary to specify the direction of rotation for the coordinate axis in accordance with your CAD.

Set values

+90°: Lower right of the maximum effective cutting area

−90°: Upper left of the maximum effective cutting area

Y-axis

Maximum effective
cutting area

X-axis

X-axis

Y-axis

X-axis

Maximum effective
cutting area

Maximum effective
cutting area

Y-axis

X-axis

Y-axis

In the case where the
command origin is set
to the lower left corner

In the case where the
direction of rotation is
set to 90°

In the case where the
direction of rotation is
set to -90°

1

```
[ LOCAL ]          1 / 4
TOOL  SELECT      ———>
CONDITION         ———>
TEST  CUT         ———>
```
PAGE +

Press the (PAGE +) **key several times until the LCD indicates page 3 of the LOCAL MENU.**

2

```
[ LOCAL ]          3 / 4
INTERFACE         ———>
MODE  SET         ———>
SELF  TEST        ———>
```
F2 +

Select the [MODE SET].

3

```
< MODE  SET >      1 / 5
Z  STROKE       *7 mm >
MULTI–PASS        ———>
RESERVE
```
PAGE +

Press the (PAGE +) **key several times until the LCD indicates page 3 of the [MODE SET].**

4

```
< MODE  SET >      3 / 5
ROTATE          −90° >
COMMAND           ———>
CMD  SW        *INVALID >
```
F1 +

Select one of the following as a setting for the [ROTATE].
+90°, −90°

5

END

```
< MODE  SET >      3 / 5
ROTATE          −90° >
COMMAND           ———>
CMD  SW        *INVALID >
```

Enter the input values.

Press the (END) key to enter the input values. If you do not enter the input data, press the (C E) key.

SETTING THE CUTTER STROKE [MODE SET] > [Z STROKE]

For data on a pattern that needs frequent lifting/lowering of the tangential cutter and the marking roller, the lifting amount of the tool should be shortened. This will reduce the total period of time required for cutting.

Set values

> 7 mm: The tool goes up 7 mm above the surface of a work.
> 4 mm: The tool goes up 4 mm above the surface of a work.

1

```
[ LOCAL ]          1 / 4
TOOL SELECT      ———>
CONDITION        ———>
TEST CUT         ———>
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 3 of the LOCAL MENU.

2

```
[ LOCAL ]          3 / 4
INTERFACE        ———>
MODE  SET        ———>
SELF  TEST       ———>
```
(F2 +)

Select the [MODE SET].

3

```
< MODE  SET >      1 / 5
Z  STROKE       *7 mm >
MULTI–PASS       ———>
RESERVE
```
(F2 +)

Select one of the following as a setting for the [Z STROKE].
   7 mm, 4 mm

4

(END)

```
< MODE  SET >      1 / 5
Z  STROKE        4 mm >
MULTI–PASS       ———>
RESERVE
```

⇩

```
[ LOCAL ]          3 / 4
INTERFACE        ———>
MODE  SET        ———>
SELF  TEST       ———>
```

Enter the input values.
   Press the (END) key to enter the input values. If you do not enter the input data, press the (C E) key.

SETTING THE UNIT TO BE USED FOR INDICATION
[MODE SET] > [UNIT]

The unit to be used when indicating numerics on the LCD is specified.

Set values

      mm: Numerics are indicated in millimeters.

      inch: Numerics are indicated in inches.

1
```
[ LOCAL ]              1 / 4
TOOL SELECT        ———>
CONDITION          ———>
TEST CUT           ———>
```
PAGE(+)

Press the (PAGE +) **key several times until the LCD indicates page 3 of the LOCAL MENU.**

2
```
[ LOCAL ]              3 / 4
INTERFACE          ———>
MODE SET           ———>
SELF TEST          ———>
```
F2(+)

Select the [MODE SET].

3
```
< MODE SET >           1 / 5
Z STROKE           *7 mm >
MULTI–PASS         ———>
RESERVE
```
PAGE(+)

Press the (PAGE +) **key several times until the LCD indicates page 5 of the [MODE SET].**

4
```
< MODE SET >           5 / 5
PEN ASIGN          ———>
RESERVE
UNIT               * mm >
```
F3(+)

Select one of the following as a setting for the [UNIT].

    mm, inch

5
END
```
< MODE SET >           5 / 5
PEN ASIGN          ———>
RESERVE
UNIT               inch >
```
⬇
```
[ LOCAL ]              3 / 4
INTERFACE          ———>
MODE SET           ———>
SELF TEST          ———>
```

Enter the input values.

    Press the (END) key to enter the input values. If you do not enter the input data, press the (C E) key.

SETTING THE DUMMY CUT OPERATION OF THE SWIVEL BLADE [MODE SET] > [DUMMY CUT]

In the case where the swivel cutter is selected for the tool, a cutting operation is performed outside the effective cutting area so as to orient the blade tip of the swivel cutter to the advancing direction.

Set values

on: Dummy cut is not performed.

off: Dummy cut is executed.

The illustration below gives the position at which dummy cut is performed and the size of dummy cut pattern.
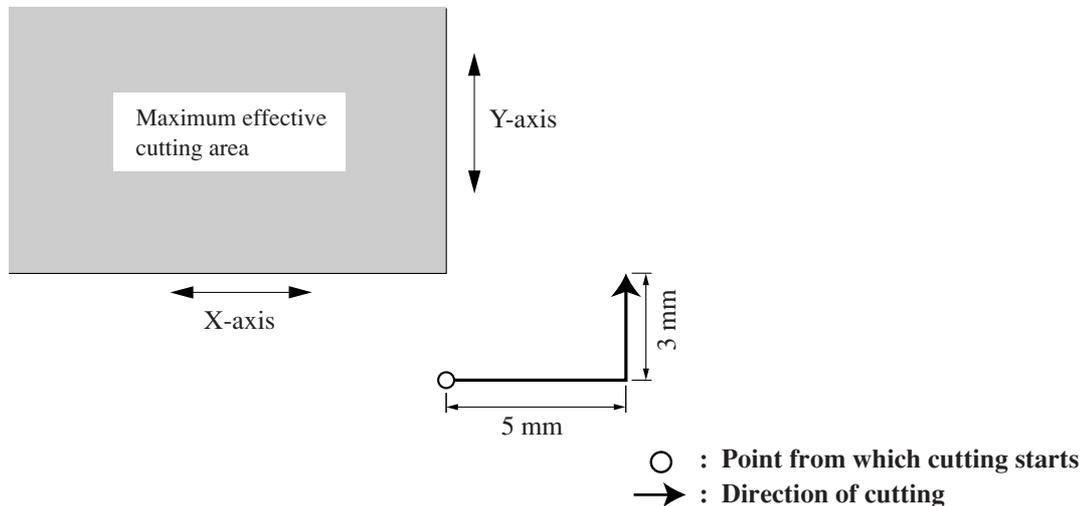
Maximum effective cutting area

Y-axis

X-axis

3 mm

5 mm

○ : Point from which cutting starts

→ : Direction of cutting

1

```
[ LOCAL ]              1 / 4
TOOL SELECT       ———>
CONDITION         ———>
TEST  CUT         ———>
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 3 of the LOCAL MENU.

2

```
[ LOCAL ]              3 / 4
INTERFACE         ———>
MODE  SET         ———>
SELF  TEST        ———>
```
(F2 +)

Select the [MODE SET].

3

```
< MODE  SET >         1 / 5
Z STROKE          *7 mm >
MULTI–PASS        ———>
RESERVE
```
(PAGE +)

Press the (PAGE +) key several times until the LCD indicates page 2 of the [MODE SET].

4

```
< MODE  SET >          2 / 5
AUTO  VIEW            *1 s >
DUMMY  CUT            ON >
ONE  STROKE          *OFF >
```
F2 (+)
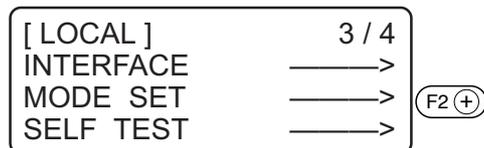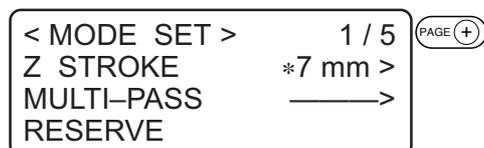
Select one of the following as a setting for the [DUMMY CUT].

off, on

5

(END)

```
< MODE  SET >          2 / 5
AUTO  VIEW            *1 s >
DUMMY  CUT            ON >
ONE  STROKE          *OFF >
```

⬇

```
[ LOCAL ]              3 / 4
INTERFACE            ———>
MODE  SET            ———>
SELF  TEST           ———>
```

Enter the input values.

Press the (END) key to enter the input values. If you do not enter the input data, press the (C E) key.

ALIGNMENT OF MECHANICAL AXES TO RULED LINES PRINTED [AXIS ALIGN]

If ruled lines such as scales are printed on a work, mechanical axes (X-axis, Y-axis) of the device need to be aligned to them.

To set the mechanical axes, firstly establish an origin at the leftmost ruled line printed on the work in terms of the X-axis direction. Secondly, enter the point (point A) of the rightmost ruled line to be used to enter the inclination of ruled lines.

Point A

1

```
┌─────────────────────────┐
│ [ LOCAL ]          1 / 4 │
│ TOOL  SELECT      ──────>│
│ CONDITION         ──────>│
│ TEST  CUT         ──────>│
└─────────────────────────┘
```
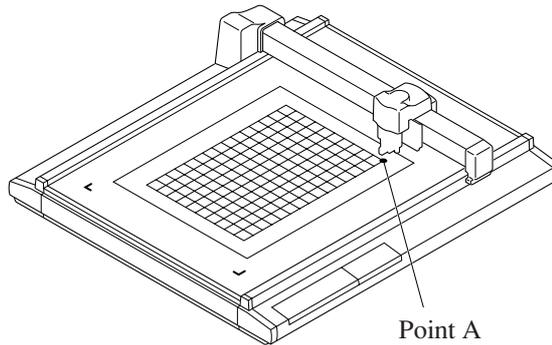
Cause the device to enter the LOCAL state.

> If the device is in the REMOTE state, press the [REMOTE/LOCAL] key.

2

Origin

Establish an origin at the leftmost one of the ruled lines printed on the work. See page 2.40.

3

```
┌─────────────────────────┐
│ [ LOCAL ]          1 / 4 │
│ TOOL  SELECT      ──────>│
│ CONDITION         ──────>│
│ TEST  CUT         ──────>│
└─────────────────────────┘
```

Press the [PAGE +] key several times until the LCD indicates page 3 of the LOCAL MENU.

— 4.14 —

4

```
[ LOCAL ]              4 / 4
CUT  AREA        ———>
AXIS  ALIGN      ———>   F2 ⊕
TOOL  SELECT     ———>
```

Select the [AXIS ALIGN].

5

◀ ▶ ▲ ▼

```
< AXIS  ALIGN >     [ mm ]
   00.00      00.00
SPEED            FAST >   F2 ⊕
CUTTER             UP >   F3 ⊕
```
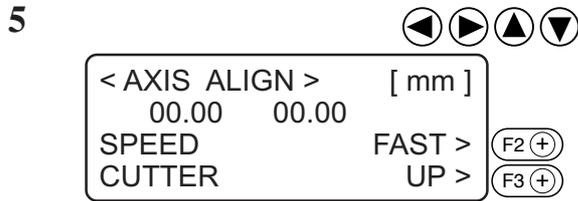
Align the tip of the tool to point A.

Operate the jog keys to align the tip of the tool to the rightmost one of the ruled lines on the work.

Increase/decrease the speed and lift/lower the tip of the tool when necessary until point A is reached.

Point A

6

END

```
< AXIS  ALIGN >     [ mm ]
   912.60     61.0
SPEED            FAST >
CUTTER             UP >
```
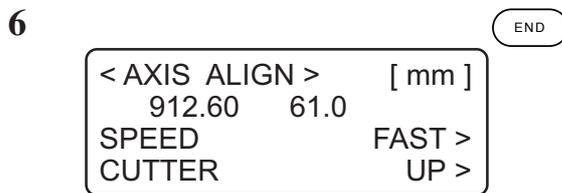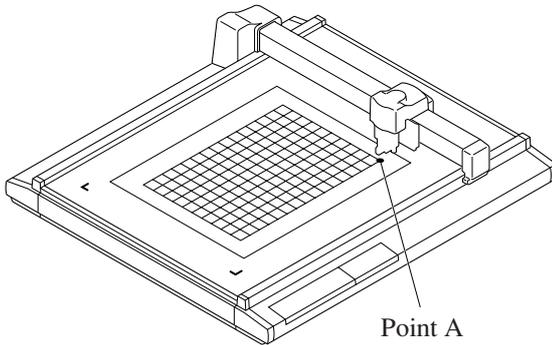
Enter point A.

Press the (END) key to enter the input values. If you do not enter the input data, press the (C E) key.

EXPAND THE CUTTING AREA [EXPANDS]

The Expand function expands the cutting area.

In case of Seneor equipped model, and not using Mark detect function, able to expand the cutting area 30mm.

This function only supports S (sensor equipped) model.

> • **To use the register mark detect function with the sensor equipped model, set to OFF.**

> ⚠ **CAUTION**
>
> • **When using a Y shaft work guide plate, and head B/C is selected , in the case of expand is set to ON, Y shaft work guide plate interrupt the cut area. To prevent hitting head B/C tool and work guide plate, not to use a work guide or use a pin.**

1

```
[ LOCAL ]          1 / 4
TOOL  SELECT    ———>
CONDITION       ———>
TEST  CUT       ———>
```
(PAGE +)
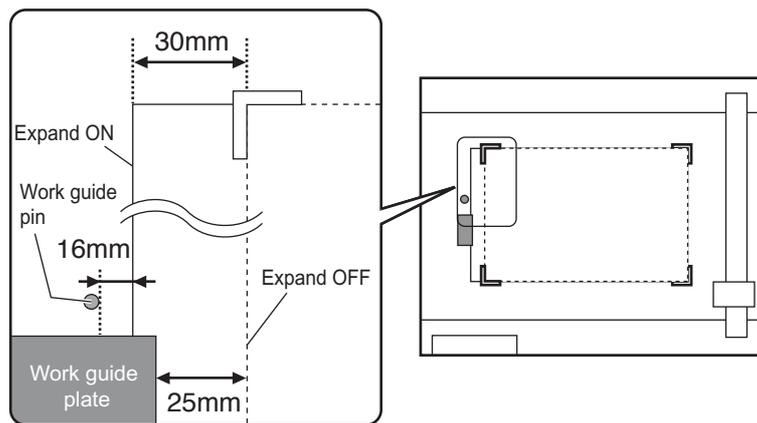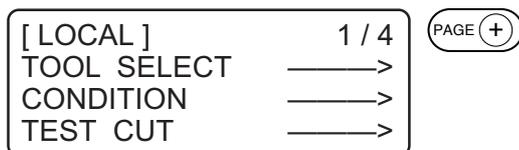
Display the LOCAL menu page3.
Press the (PAGE +) key several times .

2

```
[ LOCAL ]          3 / 4
INTERFACE       ———>
MODE  SET       ———>
SELF  TEST      ———>
```

Select [MODE SET]

3

```
< MODE  SET >      1 / 6
Z  STROKE      *7 mm >
MULTI–PASS      ———>
VACUUM       *AutoOFF >
```
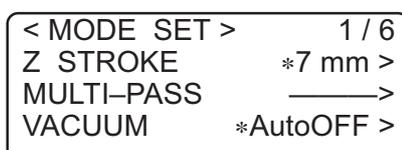
Display the MODE SET page 6.
Press the (PAGE +) key several times .

> • In the case of no sensor model, page 6 is not displayed.

4

```
< MODE  SET >        6 / 6
MARK SENSOR       ———>
EXPAND            OFF—>
RESERVE
```

Set the [Expand]
  OFF/ON

5

```
< MODE  SET >        6 / 6
MARK SENSOR       ———>
EXPAND            OFF—>
RESERVE
```
(END)

Register the value.
Press the (END) key to enter the value.
  If you do not enter the input data, press
  the (C E) key.

  Confirmation screen of head move is dis-
  played.

6

```
***     ! WARNING     ***
     HEAD will move
      for set of ORG.
    – PUSH END key –
```
(END)

⬇

```
[ LOCAL ]             3 / 4
INTERFACE         ———>
MODE  SET         ———>
SELF  TEST        ———>
```

Press the (END) key to start origin ini-
tialize operation.

💡 • Every time change the EX-
    PAND set ting, origin initial-
    ize operation executed

   • In the case of set to ON, mark
     detect set ting becomes OFF
     automatically.
     To use the mark sensor, set the
     EXPAND to OFF, then set the
     mark detect setting. See page
     5-2, 5-8.

CHAPTER 5

REGISTER MARK DETECT FUNCTION

This chapter describes "register mark detect" function.
Register mark detect function only supports S (sensor equipped) model.

Table of Contents

SETTING OF REGISTER MARK DETECT

This function detects a register mark automatically. Use this function to correct the inclination of the sheet loaded, the position of plotting origin, and the distance between register marks and then cut the contour of printed image.

If the firmware version is older than 2.50, the register mark is circular.
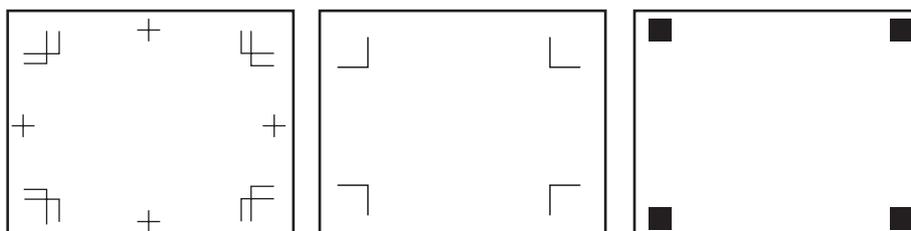
How to display the register mark setting on LCD

1

```
[ LOCAL ]          1/ 4
TOOL SELECT    ———>
CONDITION      ———>
TEST CUT       ———>
```

Display the LOCAL menu page 3

Press (PAGE +) key several times.

2

```
[ LOCAL ]          1/ 4
INTERFACE      ———>
MODE SET       ———>
SELF TEST      ———>
```

Select [MODE SET]

3

```
<MODE SET>         1/ 6
Z SIGN(ZM)      *7mm
MULTI-PASS     ———>
VACUUM         ———>
```

Display the MODE SET page 6

Press (PAGE +) key several times.

- In the case of no sensor model, page 6 is not displayed.

4

```
<MODE SET>         6/ 6
MARK SAENSOR   ———>
EXPAND         OFF>
RESERVE
```

⇩

```
<DETECT SET>       6/ 6
DETECT         OFF>
SIZE          10mm>
STYLE       Square>
```

Select [MARK SENSOR]

- If [expand] is set to ON, can not select Mark sensor. Change the setting to OFF. (see page 4.16.)

PRECAUTIONS IN PREPARING DATA WITH REGISTER MARK

There are some limitations on preparing data with register marks. In order to make full use of this function, read the following instruction carefully and prepare data with register mark.

> • **The register mark described here is intended to detect the sheet inclination and the lengths along the X and Y axes. It is not a mark for trimming.**

Size of the square mark

Each side of square mark must be in the range of 5 to 30mm (5mm increments).
Refer to [The size of, and the distance between, square marks] (see page 5.9.) for the relationship between the data and the length of one sided of a square mark.
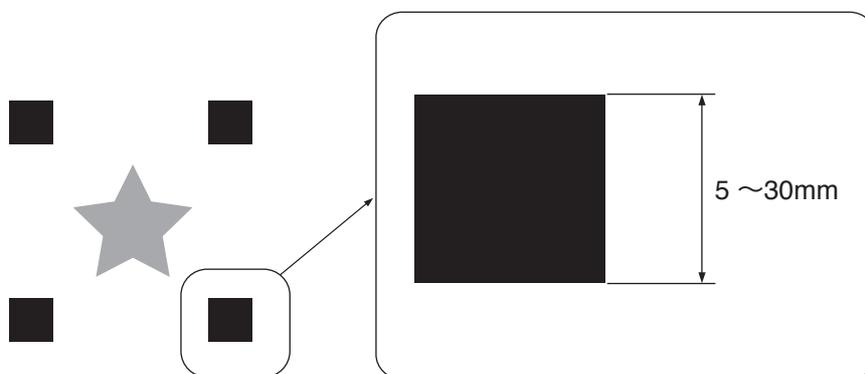
5 ～30mm

Size of the register mark

Each side of the single register mark must be 5 - 30mm.
Each side of the double register mark must be 10 - 30mm.
The line width of mark shall be equal to or more than 0.2 mm and equal to or less than 0.5 mm.

Refer to [The size of, and the distance between, register marks] (see page 5.9.) for the relationship between the data and the length of one sided of a register mark.

0.2 to 0.5mm

5 to 30mm

Single

10 to 30mm

3 to 10mm

0.2 to 0.5mm

Double
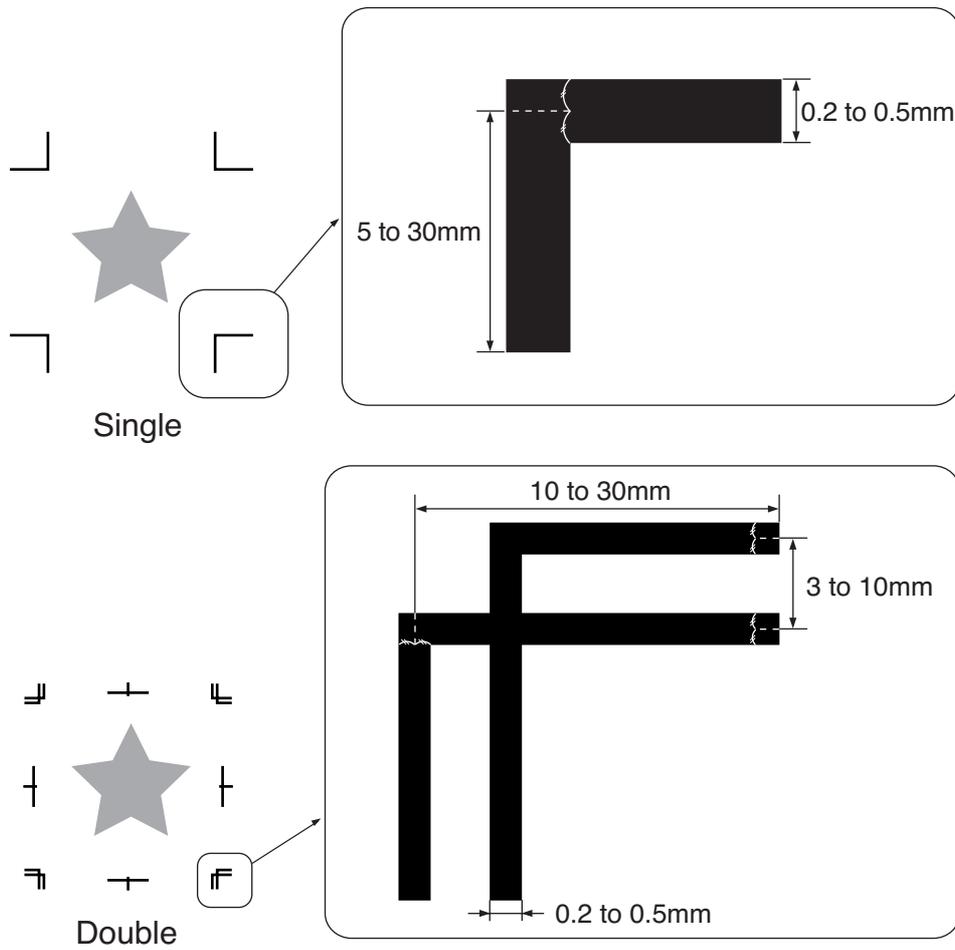
The area where register marks and designs can be arranged

The TP1 starting position must be 10mm or more away from the work left edge, and 30 mm or more away from the Available cutting area.
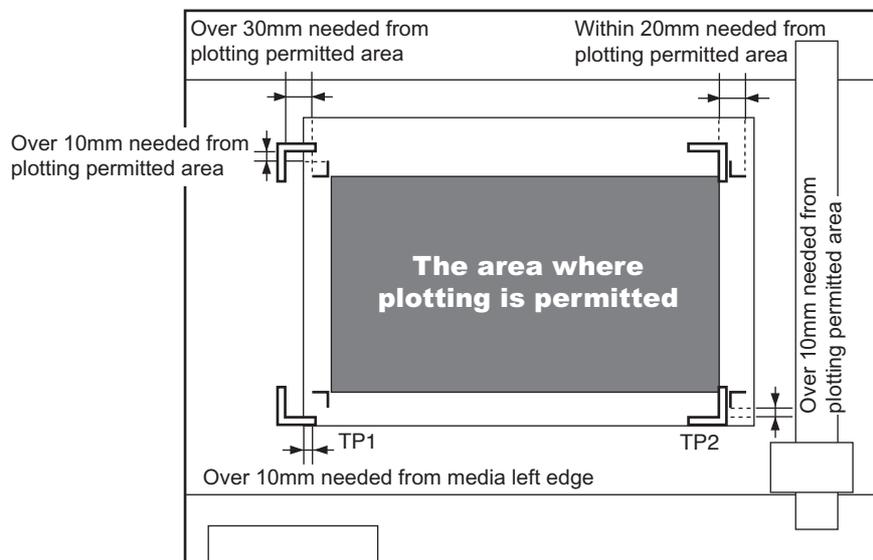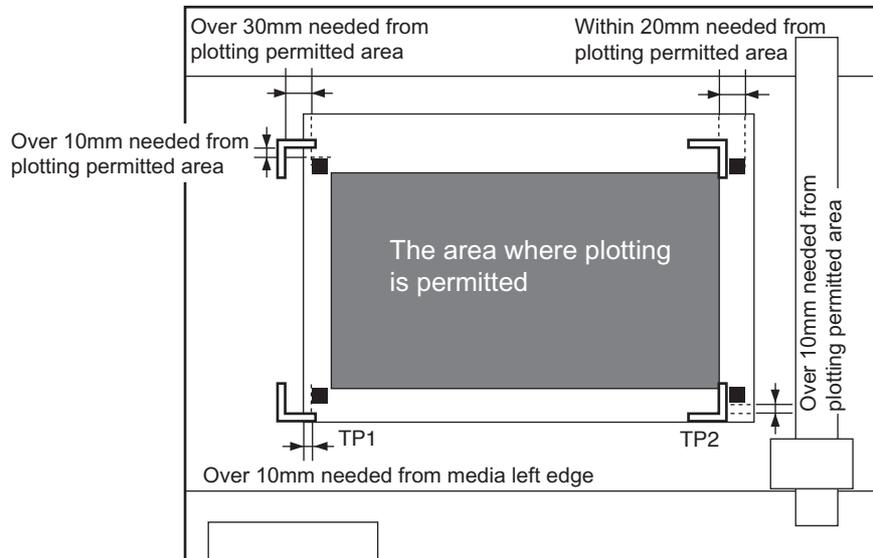
No-plotting area around the register marks

There must be no data or stain arround the register mark; otherwise a wrong origin may be detected or a mark read error can occur.

- **If a wrong mark origin is detected, the cutting will be performed in a wrong area.**

10mm   Square mark size (5 to 30mm)

Square Mark

10mm

No-plotting area   Square mark origin

Single   Double

Mark size

Mark Origin   **Mark Origin**   Mark size

Mark   No plotting area   Mark
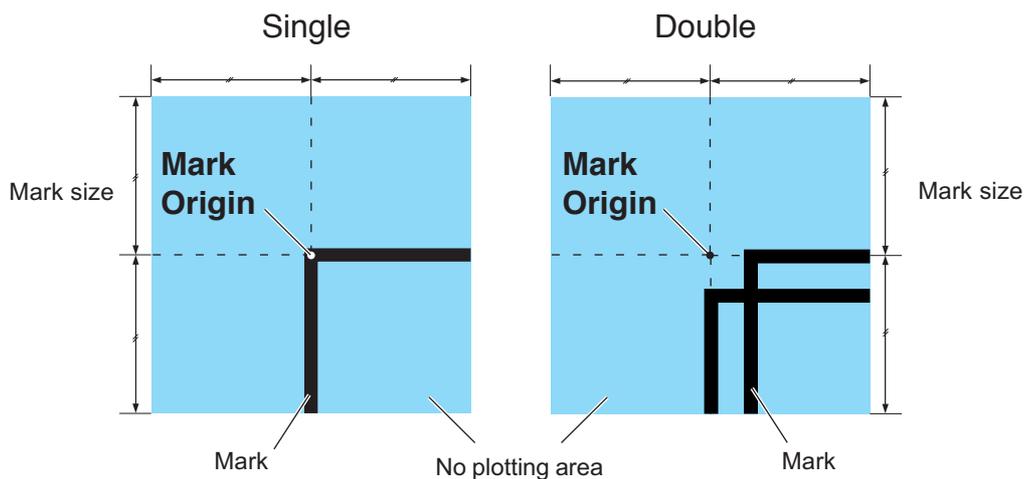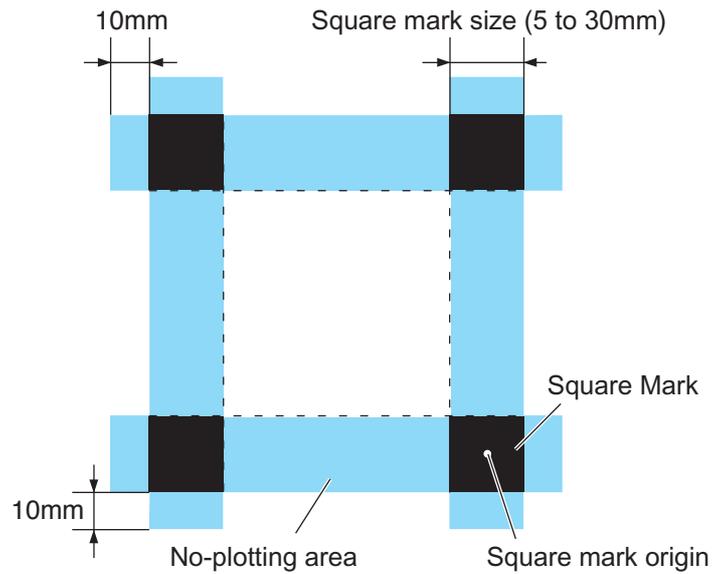
Example of cause of wrong detection1:

Layer of the offset printingis misaligned .

☼ • **When printing with offset, square mark is printed in one color.**
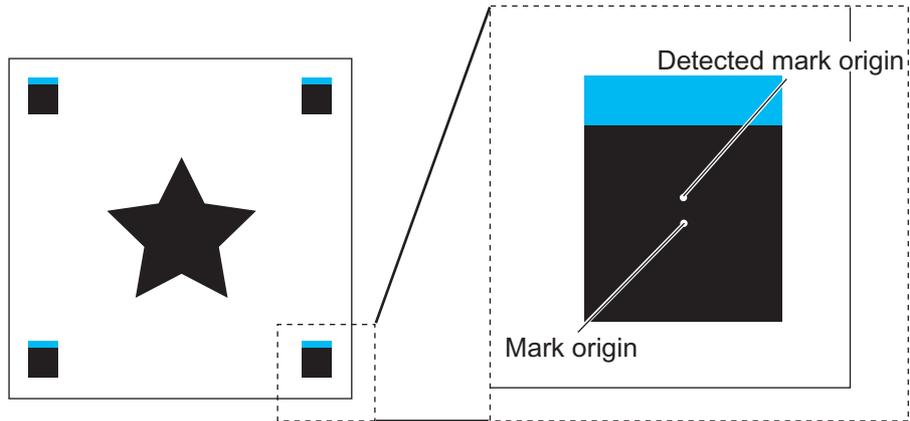
Example of cause of wrong detection2:

The diarnce between square marks (TP3 of pattern A and TP1 of pattern C, or TP2 of pattern A and TP1 of patternB) is less than 10mm.
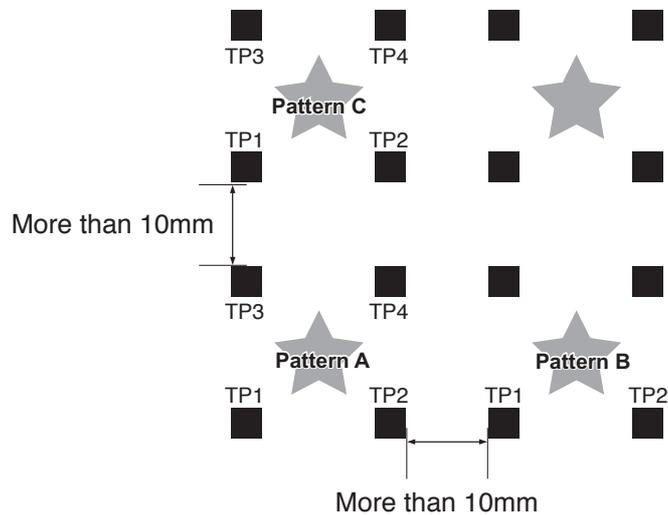
Example of cause of wrong detection3:

The distance between register marks(TP2&TP1, TP4&TP2) is smaller than the mark lengt.

No plotting area

Space larger than the mark length

No plotting area

Space larger than the mark length
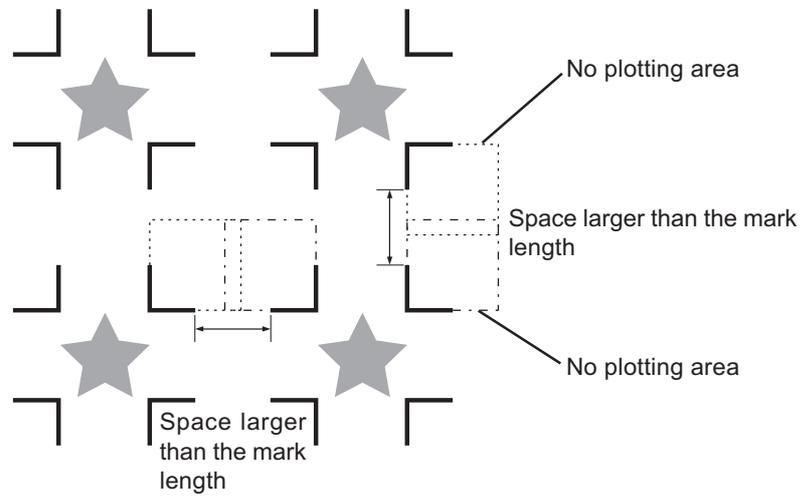
The size of, and the distance between, square marks

The size (B) of a register mark suited for the distance (A) between the mark is as shown below.
If the mark size (B) is too small relative to the distance (A), the marks may not be detected correctly.
Be sure to prepare the register marks with an appropriate size.
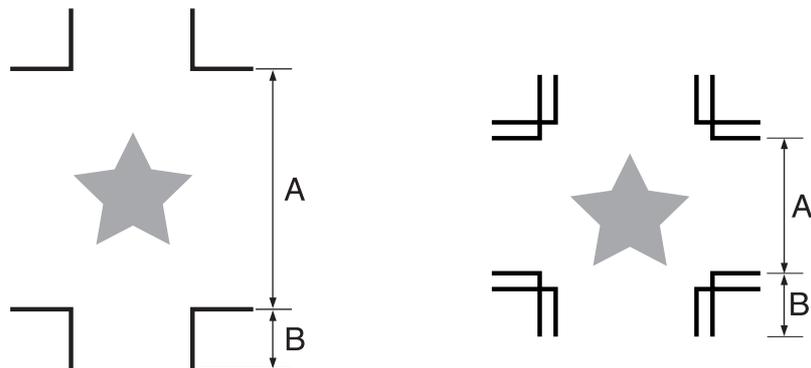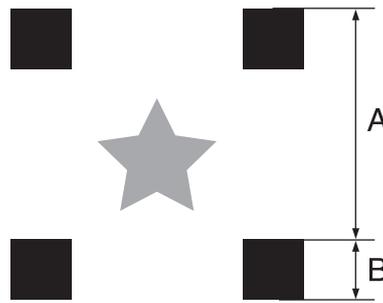
A	less than200	500	1000	1500 and more
B	10	15	20	30

(mm)

Color of Register mark

Black or white is recommended for the register mark color.
Other corlors can be detected. However make sure to not use the same color as media(work).
It is recommended to confirm ahead, either register mark is detectable.
The register mark will not be deteced correctly if there is a strong glossy, pattern (hair line) on the work, or depending on the media(work) color.

Black mark   White mark

Recommend

Media : Red
Mark : Red

NG

Media : Red
Mark : Blue

OK
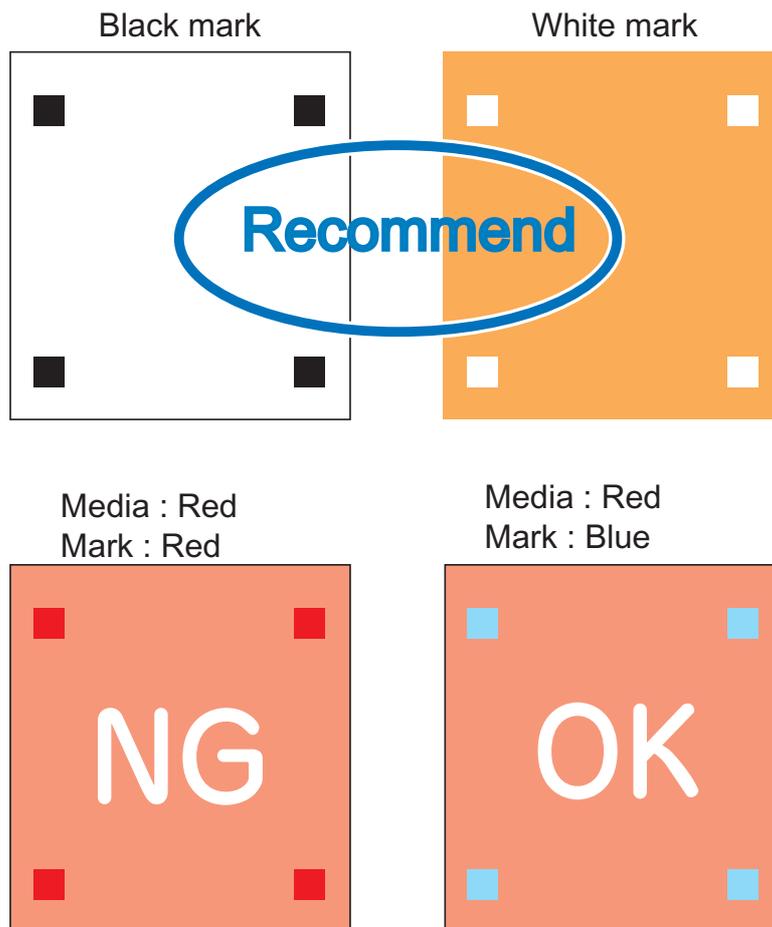
Register mark Blurred

If the mark is blurred, a wrong mark origin can be detected, thus resulting in edviated cutting.

SETTING OF REGISTER MARK DETECT OPERATION

Precautions on register mark detection

- To ensure that the distance between register marks is equal to the cutting length, input the distance between the printed marks found by the mark detecting function. (DIST.REVI see page 5.10.)
- Once the plotter detects marks, it will set the origin at the location of TP1. You can change the position of the origin to a different location using jog keys ; the origin at the new location supersedes the origin at TP1.
- The rotating function is rendered ineffective.
- The STROKE function is rendered ineffective.

How to display the register mark setting on LCD

1

```
<DETECT SET>      1/ 2
DETECT            OFF>
SIZE              10mm>
STYLE             Square>
```

Display the <DETECT SET>
   (see page 5.2,)

2

```
<DETECT SET>      1/ 2
DETECT            OFF>       F1 (+)
SIZE              10mm>      F2 (+)
STYLE             Square>    F3 (+)
```

Set the [DETECT], [Size], and [STYLE].
   (Settings for detection of marks see page 5.9.)

3

PAGE (+)

```
<DETECT SET>      1/ 2
DETECT            1pt>
SIZE              10mm>
STYLE             Square>
```

Press (PAGE (+)) key several times to display the <DETECT SET> menu page2.

4

```
<DETECT SET>      1/ 2
X COPY            1>         F1 (+)
Y COPY            1>         F2 (+)
SCALE             OFF>       F3 (+)
```

Set the [X COPY], [Y COPY], and [SCALE]
   (Settings for detection of marks see page 5.9.)

5

Press the (END) key to register the setting.
   If you do not want to register, press the (C E) key.

Settings for detection of marks

Make the settings of the following fuve functions to detect register mark.

Detect Register Mark : The higher the number of detected points, the higher the cutting accuracy.

Select "1pt" when using FuneCut.

Setting	Description
Off	Select this setting for cutting a normal sheet, not for cutting the outline. If set the Expand mode to valid, this setting is automatically set to OFF.
1pt	Detects the TP1. Sets only the origin.
2pt	Detects the two register marks TP1 and TP2. Performs the skew compensation and the scale compensation in the Y direction.
3pt	Detects the three register marks TP1,TP2, and TP3. Performs the skew compensation and the Yscale compensation in the work X direction and Y direction.
4pt	Detects the four register marks TP1,TP2, TP3, and TP4. Performs the skew compensation, and the scale compensation in four points.

Size :

Setting	Description
5 to30mm	Set the side length of register mark.

Shape :

Setting	Description
Square Single Double	Select the register mark shape from below 3 types.

X copy Ycopy :

Setting	Description
1 to 99	Effective when the same pattern is multi-printed at regular intervals. Cuts automatically the preset number of sheets while detecting register marks consecutively based on the first data. When the number of copies can be set on the application software, like on the supplied FineCut, set the value to [1]
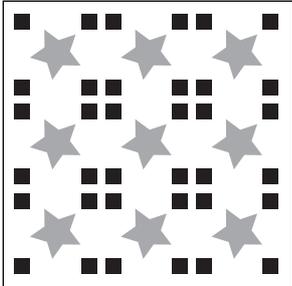
SCALE : Select "OFF" when using FineCut.

Setting	Description
OFF	The plotter will not perform scale compensation when detect the register mark.
AFTER	With this setting, enter the data X Y size after executing the register mark detection and perform scale compensation . (see page 5.12.) If Mark detect is set to "1pt", scale compensation is not executed.
BEFORE	With this setting, enter the data X Y size before executing the register mark detection and perform scale compensation . (see page 5.12.) If Mark detect is set to "1pt", scale compensation is not executed.

Settings for detect

Make sure that work is not curled.

When using a cuttting software having no mark function, use a work which has neither stains nor images in the area of TP1 - TP3 and TP1-TP2.

Check sheet skew with a light pointer

Press $\left(\dfrac{\text{REMOTE}}{\text{LOCAL}}\right)$ key on the jog mode, the light pointer will light up.

Move the carriage between TP1 and TP3 with a jog key to check the sheet skew against the line of the light pointer. Correct the sheet skew by aligning with the line.

TP2

TP1

Sheet skew

Moving line of the light pointer
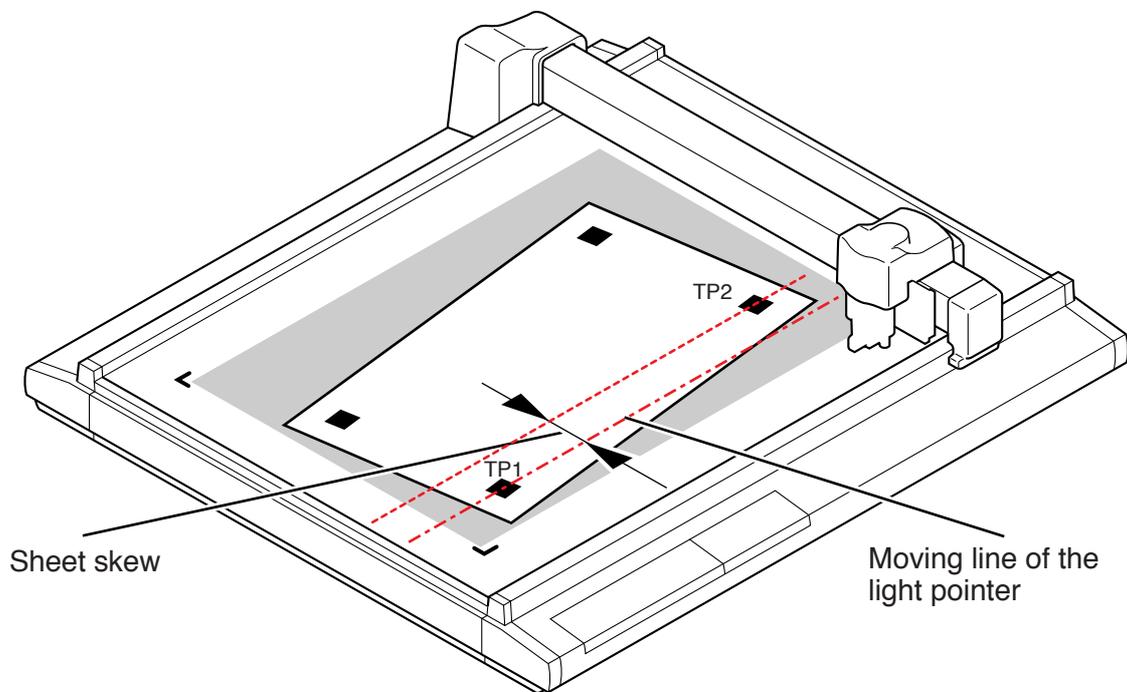
How to detect Register mark

1

Set the work to the plotter.

2

```
                                    END

[ LOCAL ]              1/ 4
TOOL SELECT       ———>
CONDITION          ———>
TEST CUT           ———>

            ⬇

<DETECT SET>
Set LED Pointer
SPEED                 AUTO>
LOWER LEFT              ->
```

Press `END` **key on the [Local] mode.**
Display changes to [DETECT] mark
mode

3

Around Center

TP1

Single   Double

LED detect point

Move and align the light pointer on the center of the TP1 vertical line precisely with jog key. In the case of square mark, move to around the center.
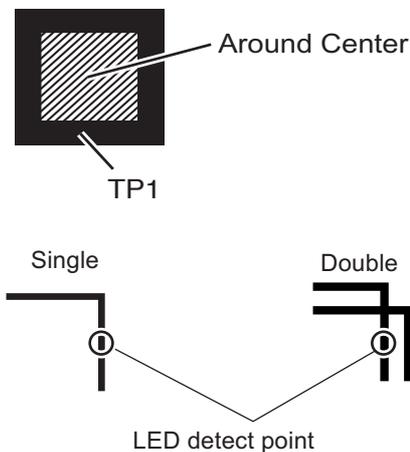
- If [SPEED] is set to AUTO,
  speed automatically changes
  while pressing the jog key.
- Press the `F3 +` key enables
  to move the head to LL
  (Lower-Left).

4

```
                                    END

<DETECT SET>
Set LED Pointer
SPEED                 AUTO>
LOWER LEFT              ->
```

Press `END` **key.**
Start detecting a register mark.

- When register mark detection
  failed, error is displayed. Re-
  set the work to the plotter.
- If [SCALE] is set to "BE-
  FORE", LCD of Step5 is dis-
  played before register mark de-
  tection.

5

```
<SCALE SET>
1-2 (X)            400.8>   (F1 +)
1-3 (Y)            149.1>   (F2 +)
```

Y=150.0

X=400.0
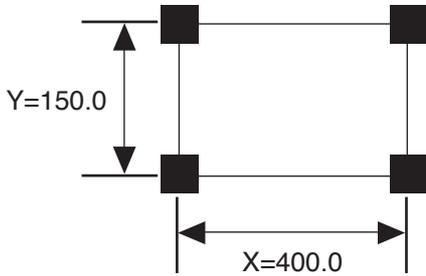
After detect the register mark, display changes to Scale compensation. If the data and detected length differs, set with (F1 +) (F2 +) key.

- If [Scale] is set to OFF, <SCALE SET> is not displayed.
- If [MARK DETECT] is set to 2Pt, X length is not displayed.
- If [MARK DETECT] is set to 1Pt, <SCALE SET> is not displayed.

(END)

6

```
<SCALE SET>
1-2 (X)            400.8>
1-3 (Y)            149.1>
```

Press (END) key.

Plotter return to Local mode.

If press the (CE), scale set is invalid.

- If [SCALE] is set to "BEFORE", Mark detect starts by pressing key.

CONTINUOUS CUT WITH REGISTER MARK

When using a cutting software "FineCut,", countinuous cut is available. Register mark on a printed data should be only one set.

1

Layout	Tiling	Register Mark

Exit Detection ☐ Size Adjust

▦ ▦ Repeat ⬍5

☐ Reverse Cut Mode

○ Surface Register Mark Cut
● Backside Data Cut

Search Position

⊡ ⊡ ⊡
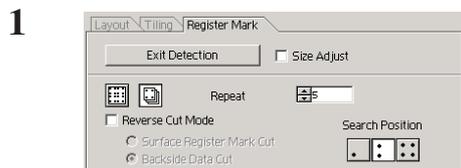
Configure the FineCut setting, and start plot.
>
> Select [Single mode] and set the number of Repeat.
>
> For more setting detail, refer to the FineCut operation manual.

2

```
[ REMOTE]
Exchange SHEET
   VAC  :    Resume
   CE   :    Abort
```
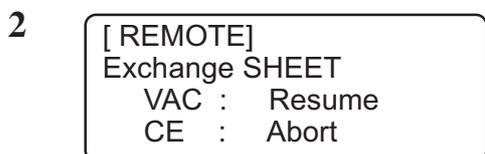
When cutting of first page finished, change the work and press (VACUUM).
>
> If press the (CE), continuous cut stops.

3

```
[ REMOTE]
Set LED Pointer
SPEED                AUTO>
Head Move to LL        ->
```

⬇

```
[ REMOTE]
∗ Auto Copy Mode∗
        2/3
         0
```
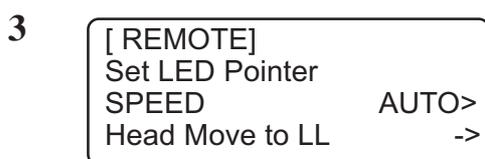
Detect the register mark.(see page 5.12.)
>
> Once register mark detect is done, copy is started. Repeat Step2 and 3 until the specified repeat number.

4

```
[ LOCAL ]              1/ 4
TOOL SELECT       ———>
CONDITION         ———>
TEST CUT          ———>
```
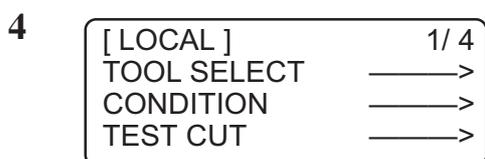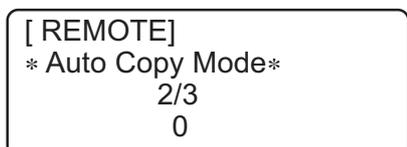
When cut is completed, head return to the home position automatically, and return to [Local mode]

INITIALIZE THE REGISTER MARK SCALE ADJUSTMENT [SC.CLR]

When using a cutting software other than "FineCut," need to initialize the adjustment value after cutting. [SC.CLR] initialize the shaft adjustment value and scale adjustment value.
If cut the data where no register mark positioned without initialize the adjustment value, cut may misaligned.

1

```
┌─────────────────────────┐
│ [ LOCAL ]          1/ 4 │
│ TOOL SELECT      ──────> │
│ CONDITION        ──────> │
│ TEST CUT         ──────> │
└─────────────────────────┘
```

If it is in the REMOTE mode, press
REMOTE/LOCAL **key to enter the ROCAL mode.**
  While processing, it will be interrupted.

2

```
┌─────────────────────────┐
│ [ LOCAL ]          2/ 4 │
│ DATA CLEAR       ──────> │
│ COPY             ──────> │
│ VIEW             ──────> │
└─────────────────────────┘
```
PAGE(+)

Display the ROCAL menu page 2.
  Press PAGE(+) key several time.

3

```
┌─────────────────────────┐
│ [ LOCAL ]          2/ 4 │
│ DATA CLEAR       ──────> │ F1(+)
│ COPY             ──────> │
│ VIEW             ──────> │
└─────────────────────────┘
```

Select [DATA CLEAR].
  press F1(+) key.

4

ORIGIN

```
┌─────────────────────────┐
│ <DATA CKEAR>       1 / 1 │
│ END  KEY  to  START     │
│ CE  KEY  to  CANCEL     │
│ ORGkey to SC.CLR        │
└─────────────────────────┘
```

⇩

```
┌─────────────────────────┐
│ [ LOCAL ]          2/ 4 │
│ DATA CLEAR       ──────> │
│ COPY             ──────> │
│ VIEW             ──────> │
└─────────────────────────┘
```

Execute [ORGkey to SC.CLR]
  To cancel the [SCALE CLEAR], press the ⟨ c e ⟩ key, it return to the step2,

CHAPTER 6

SELF-TEST

This chapter describes "self-test" function.

Table of Contents

CONFIRMATION OF CUTTING QUALITY ONLY BY THE SINGLE UNIT OF THE DEVICE [SELF TEST]

The "self-test" function is executed to determine where a trouble has occurred; i.e., either the command from the computer or the single unit of this device. The "self-test" function is used to conduct plotting, cutting and marking of eleven different kinds of samples independently by the single unit of this device without using any command from the computer. If cutting quality is poor, change the cutting conditions and adjust tools. If the cutting quality cannot be improved after the aforementioned adjustments, contact your local dealer or MIMAKI office.

* Refer to Appendix C for sample.

Self-test items	Description
CUT QUALITY 1	The device actuates using the tool selected by using the tool selecting function. The sample used is a family emblem consisting of various line segments.
CUT QUALITY 2	The sample used is a pattern intended for the apparel industry. The device first plots inner lines of the pattern. Then, it cuts outer lines of the pattern.
ASCII DUMP	The device plots data transmitted from the computer with the ASCII code. This is conducted to check for abnormal conditions of the data.
SAMPLE (COATED)[1]	This self-test is executed when creating a paper ware sample with coated board (approximately 0.5 mm thick). Firstly, the device conducts marking, then cuts the coated board along the outer shape of the pattern. To perform this test, coated board of which size is equal to or more than A4 size is required.
Sample (E CORRUGATED)[1]	This self-test is executed when creating a paper ware sample with E corrugated fiberboard (approximately 2 mm thick). Firstly, the device conducts marking, then cuts the coated board along the outer shape of the pattern. To perform this test, coated board of which size is equal to or more than A3 size is required.
Sample (B CORRUGATED)[1]	This self-test is executed when creating a paper ware sample with B corrugated fiberboard (approximately 3 mm thick). Firstly, the device conducts marking, then cuts the coated board along the outer shape of the pattern. To perform this test, coated board of which size is equal to or more than A2 size is required.
R=3	The device cuts a circle of which radius is 3 mm.
R=5	The device cuts a circle of which radius is 5 mm.
R=10	The device cuts a circle of which radius is 10 mm.
R=20	The device cuts a circle of which radius is 20 mm.
R=50	The device cuts a circle of which radius is 50 mm.
R=100	The device cuts a circle of which radius is 100 mm.
PARAMETER DUMP	The device plots a pattern according to the cutting conditions independently established on it.

[1]: Enabled in the RC model. Attach cutter holder 2N to unit B and use with vibration set to "OFF".

Cutting quality * / Sample *** / Circle cutting R = ***

The following describes how to execute the self-test functions.
When executing the cutting quality test and the sample test, the pen number assigning function will
be rendered effective. It is necessary, therefore, to set the related values to the initial ones.

Pen No.		RC model	RT model
1	Head	B	B
	Tool	Reciprocal cutter 1	Reciprocal cutter 1
2	Head	C	C
	Tool	Roller 1	R Cutter 1
3	Head	B	B
	Tool	Reciprocal cutter 2	Cutter 2
4	Head	C	C
	Tool	Roller 1	Cutter 2
5	Head	A	A
	Tool	Swievel cutter	Swievel cutter
6	Head	A	A
	Tool	Pen	Pen

1

Establish an origin at a location where the self-test is to be performed. (See page 2.46.)

2

```
[ LOCAL ]              1 / 4
TOOL  SELECT     ———>
CONDITION         ———>
TEST  CUT          ———>
```
(PAGE +)

Invoke the 3rd page of the LOCAL menu on the screen.

3

```
[ LOCAL ]              3 / 4
INTERFACE         ———>
MODE  SET         ———>
SELF  TEST        ———>
```
(F3 +)

Select the [SELF TEST].

4

```
< SELF  TEST >        1 / 5
PATTEN  CUT  1    ——>   F1 +
PATTEN  CUT  2    ——>   F2 +
DATA  DUMP
```

```
< SELF  TEST >        2 / 5
SAMPLE            ——>   F1 +
SAMPLE            ——>   F2 +
SAMPLE            ——>   F3 +
```

```
< SELF  TEST >        3 / 5
CIRC  CUT  R = 3   ——>   F1 +
CIRC  CUT  R = 5   ——>   F2 +
CIRC  CUT  R = 10  ——>   F3 +
```

```
< SELF  TEST >        4 / 5
CIRC  CUT  R = 20   ——>   F1 +
CIRC  CUT  R = 50   ——>   F2 +
CIRC  CUT  R = 100  ——>   F3 +
```

```
< SELF  TEST >        5 / 5
PARAMETER  DUMP  ——>   F2 +
```

Invoke the sample to be executed on the display.

Self-test screen consists of five pages. Press the (PAGE +) key to call a page that contains the sample to be executed on the LCD.

5

```
< PATTN  CUT  1 >     1 / 1
END  KEY  to  START
CE  KEY  to  CANCEL
```

Select the sample to be executed.

The illustrated LCD is given when the [PATTERN CUT 1] is selected.

6

END

```
< PATTN  CUT  1 >     1 / 1
END  KEY  to  START
CE  KEY  to  CANCEL
```

⬇

```
[ LOCAL ]             3 / 4
INTERFACE         ——>
MODE  SET         ——>
SELF  TEST        ——>
```

Execute the self-test.

Press the (END) key to execute the function. If you do not want to execute it, press the (C E) key.

DUMP TEST [SELF TEST]

Executing the data dump

Prepare a pen and a sheet of A3 size or larger paper.If the size of paper is smaller than A3 or smaller, the device will plot a pattern beyond the paper.
When this setting is selected, the tool will be automatically changed to a pen. Be sure to install a pen to the head A in prior.

1　　　　　　　　　　　　　　　　　　　　　　**Select a pen for the tool using the tool selecting function. (See page 2.26.)**
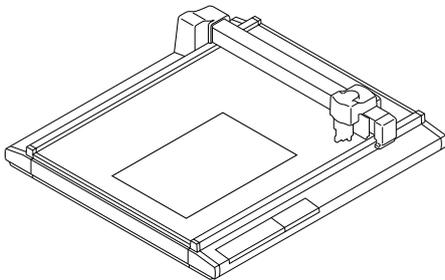
2　　　　　　　　　　　　　　　　　　　　　　**Place a sheet of A3 or larger paper in landscape orientation on the device.**
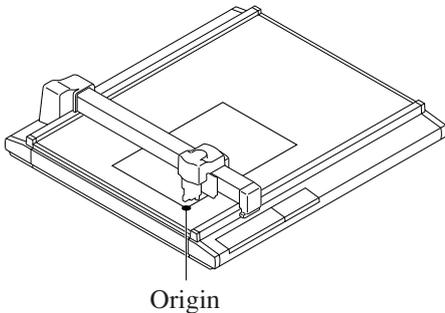
3　　　　　　　　　　　　　　　　　　　　　　**Establish an origin at the left corner of the paper.**

Origin

4

```
[ LOCAL ]              1 / 4      (PAGE +)
TOOL  SELECT      ———>
CONDITION         ———>
TEST  CUT         ———>
```

Invoke the 3rd page of the LOCAL menu on the screen.

5

```
[ LOCAL ]              3 / 4
INTERFACE         ———>
MODE  SET         ———>
SELF  TEST        ———>      (F3 +)
```
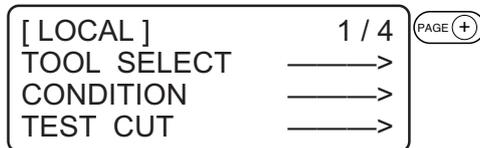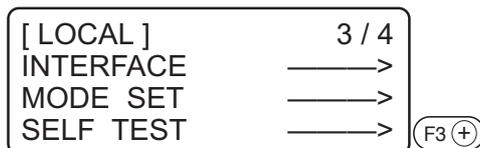
Select the [SELF TEST].

6

```
< SELF  TEST >        1 / 5
PATTEN  CUT  1    ——————>
PATTEN  CUT  2    ——————>      (F3 +)
DATA  DUMP
```

Select the [DATA DUMP].

7

(END)

```
< PATTN  CUT  1 >      1 / 1
END  KEY  to  START
CE  KEY  to  CANCEL
```

Execute the [DATA DUMP].
The tool travels to the upper left of the paper.
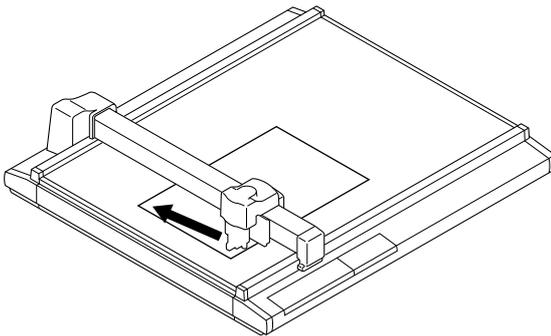
8

```
< DATA  DUMP >         1 / 1
A3  LOCAL  CONFIR    ——>
 *UPPER  LEFT  SET
 *MARGIN        10 * 10 mm
```

Check the position of the paper.
Check to be sure that the tip of the pen rests on the upper left of the paper.
If the tip of the pen is positioned any position other than the upper left of the paper, align the upper left of the paper to the tip of the pen.

9

```
< DATA  DUMP >         1 / 1
A3  LOCAL  CONFIR    ——>      (F1 +)
 *UPPER  LEFT  SET
 *MARGIN        10 * 10 mm
```

Execute the [DATA DUMP].
The machine plots communication conditions and stops.

10

Transmit data form the computer to the device.
The device plots data transmitted from the computer with the ASCII code.

- To abort, press the (REMOTE/LOCAL) key to temporarily interrupt the operation, then execute the data clear function.

Execution of the parameter dump

Prepare a pen and a sheet of A3 size or larger paper.

If the size of paper is smaller than A3 or smaller, the device will plot a pattern beyond the paper.

When this setting is selected, the tool will be automatically changed to a pen. Be sure to install a pen to the head A in prior.

1
       Select a pen for the tool using the tool selecting function. (See page 2.26.)

2
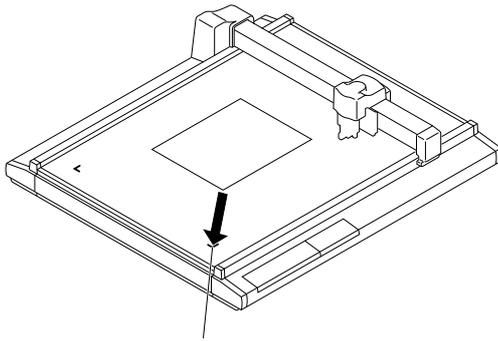
Origin marker label

       Place a sheet of A3 or larger paper in landscape orientation on the device while aligning the lower left corner of the paper to the origin marker label.

> Be sure to align the lower left corner of the paper to the origin marker label adhered to the lower left of the cutting panel.

3

```
[ LOCAL ]            1 / 4
TOOL  SELECT    ———>
CONDITION       ———>
TEST  CUT       ———>
```
(PAGE +)

       Invoke the 3rd page of the LOCAL menu on the screen.

4

```
[ LOCAL ]            3 / 4
INTERFACE       ———>
MODE  SET       ———>
SELF  TEST      ———>
```
(F3 +)

       Select the [SELF TEST].

5

```
< SELF  SET >       1 / 5
PATTN  CUT  1   ———>
PATTN  CUT  2   ———>
DATA  DUMP      ———>
```
(F3 +)
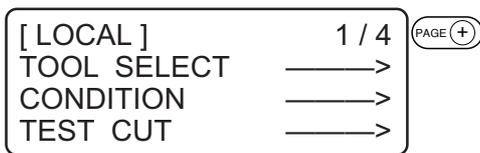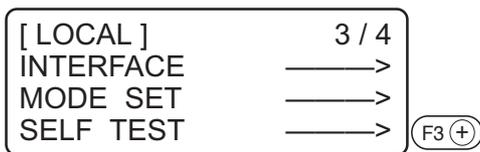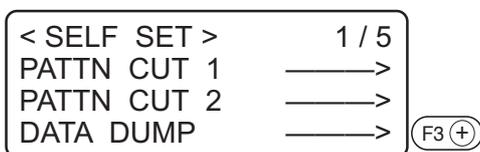
       Invoke the fifth page of the self-test screen on the LCD.

6

```
< SELF  SET >       5 / 5
PARAMTR  DUMP ———>
```
(F1 +)
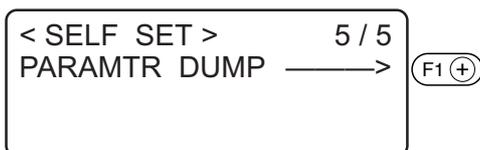
       Select the [PARAMETER DUMP].

7 **Execute the [PARAMETER DUMP].**

The head travels to the upper left of the paper to start plotting the parameters.

• To abort, press the $\left(\begin{smallmatrix} \text{REMOTE} \\ \text{LOCAL} \end{smallmatrix}\right)$ key to temporarily interrupt the operation, then execute the data clear function.

APPENDIX

This appendix describes the replacement of blades, menu structure and the patterns.

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A. REPLACING THE BLADE TIPS

The following describes how to replace the blade tips of the tangential cutter and swievel cutter.

Tangential cutter blade

The method to replace a carbide blade 45° (SPB-0045) is described below.

> ⚠️ **CAUTION** • **Keep your fingers away from the blade tip. Touching the blade tip can injure your fingers.**

Grind the blade tip and crest of the high-speed steel blade using a hand lapper supplied with the device as an accessory.
Ground crest will allow secure installation of the blade in the holder. Grinding the blade tip (to round it) will improve durability.

Round the blade tip.   Grind the sloping section.
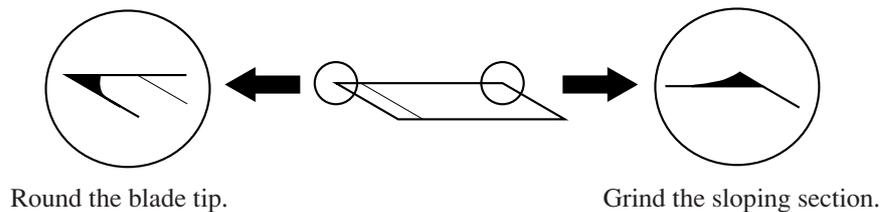
Gently rub the blade tip with the hand lapper while checking how far it is ground.

Hand lapper
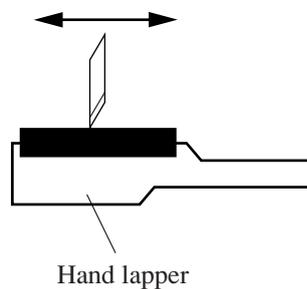
1   Cutter stopper

Loosen the cutter stopper.

Turn the cutter stopper counterclock-wise to loosen it.

2
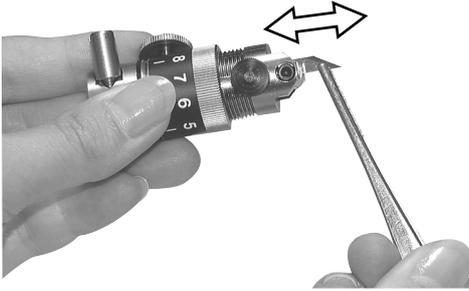
Replace the blade tip with a new one.

Hold the blade tip with a pair of twee-zers supplied with the device as an ac-cessory.

Insert the blade tip into the holder while carefully checking the orientation of the blade tip.
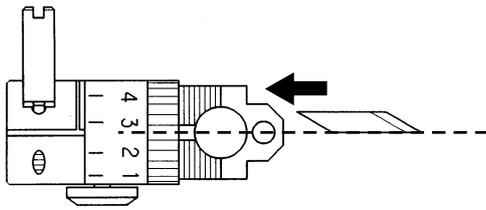
Insert the blade tip as illustrated in the sketch on the left.

3

Tighten the cutter stopper.

Turn the cutter stopper clockwise to tighten it.

4

Adjsut the projecting amount of the blade tip.

Refer to the explanation given in the "Adjusting the blade." See page 2.12.

Swivel blade

Follow the procedure given below to replace the blade tip of the swivel cutter.

1
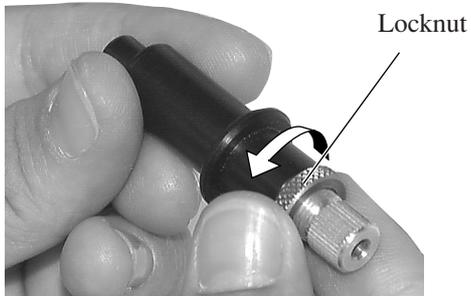
Locknut

Loosen the locknut.

    Turn the locknut counterclockwise to loosen it.

2

Holder A

Holder B
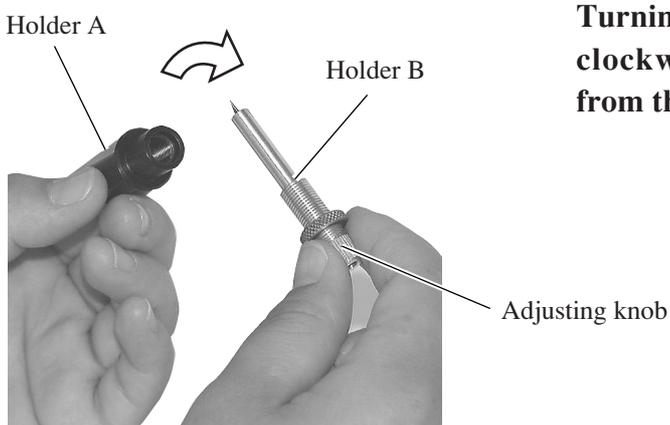
Adjusting knob

Turning the adjusting knob counter-clockwise, draw out the holder B from the holder A.

3
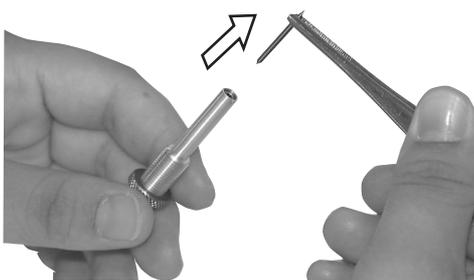
Replace the blade tip with a new one using a pair of tweezers.

4
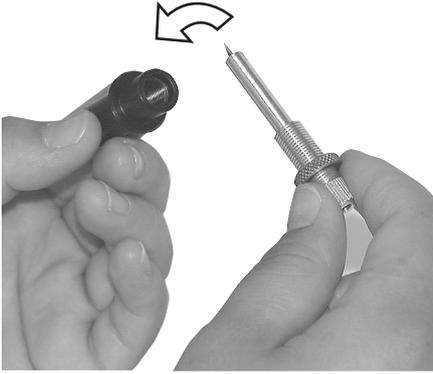
Turning the adjusting knob clockwise, put the holder B in the holder A.

5

Tighten the locknut.

Turn the locknut clockwise to tighten it. Refer to the explanation given in the "Adjusting the blade." See page 2.13.

B. LOCAL MENU STRUCTURE

RC-head model

```
                TOOL SELECT ──── HEAD A ──────── TOOL ─────────── PEN, SWIVEL

                             ─── HEAD B ──────── TOOL ─────────── RECCUTTER1, RECCUTTER2

                             ─── HEAD C ──────── TOOL ─────────── ROLLER 1,  ROLLER 2,  ROLLER 3,  ROLLER 4,
                                                                  R. CUTTER 1, R. CUTTER 2

1/4   CONDITION ──── PEN ───────────────────────── SPEED ───────────────── 2, 5, 10, 15, 20, 25, 30, 35,
                                                                            40, 45, 50 (cm/s)
                 ─── SWIVEL ──────────────────── PRESSURE ──────────────── 20 ~ 400 (g)
                                                 ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (g)
                 ─── RECCUTTER 1 ~ 2 ─────────── R5 SPEED ───────────────── OFF, 1, 2 (cm/s)
                                                 R10 SPEED ──────────────── OFF, 1, 2, 3, 4, 5 (cm/s)
                 ─── ROLLER 1 ~ 4 ─────────────── R15 SPEED ──────────────── OFF, 1, 2, 3, 4, 5, 10 (cm/s)
                                                 R20 SPEED ──────────────── OFF, 1, 2, 3, 4, 5, 10,
                 ─── R. CUTTER 1 ~ 2 ───────────                            15 (cm/s)
                                                 R30 SPEED ──────────────── OFF, 1, 2, 3, 4, 5, 10, 15,
      TEST CUT ───────── END, CE                                           20 (cm/s)
                                                 R40 SPEED ──────────────── OFF, 1, 2, 3, 4, 5, 10, 15, 20,
                                                                            25 (cm/s)
      DATA CLEAR ──────── END, CE, ORG           R50 SPEED ──────────────── OFF, 1, 2, 3, 4, 5, 10, 15, 20,
                                                                            25, 30 (cm/s)
2/4   SINGLE COPY ──────── END, CE               R100 SPEED ─────────────── OFF, 1, 2, 3, 4, 5, 10, 15, 20,
                                                                            25, 30, 35 (cm/s)
      VIEW ──────── LOWER RIGHT ─── END, CE
                    LOWER LEFT                    SPEED ───────────────── 2, 5, 10, 15, 20, 25, 30, 35,
                                                                         40, 45, 50 (cm/s)
                                                 PRESSURE ──────────────── 20 ~ 400 (g)
                                                 OFFSET ────────────────── 0.00 ~ 2.50 (mm)
            SPEED ───────────────── 2, 5, 10, 15, 20, 25, 30,   ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (g)
                                    35, 40, 45, 50 (cm/s)
            PRESSURE ──────────────── 1000 ~ 5000 (g)
            ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (g)            SPEED ───────────────── 2, 5, 10, 15, 20, 25, 30, 35,
            UP ANGLE ───────────────── 0 ~ 180 (°)                                      40, 45, 50 (cm/s)
            RING DISTANCE ─────────── 0.00 ~ 2.50 (mm)          PRESSURE ──────────────── 500 ~ 1500 (g)
            PRESS CORRECTION ───  0 ~ 1000 (g)                 ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (g)
            PRESSURE (Y) ──────────── –5000 ~ 5000 (g)         FRONT OFFSET ─────────── 0.00 ~ 2.50 (mm)
                                                               END OFFSET ───────────── 0.00 ~ 2.50 (mm)
                                                               UP ANGLE ───────────────── 0 ~ 180 (°)
            SPEED ───────────────── 2, 5, 10, 15, 20, 25, 30,  RING DISTANCE ─────────── 0.00 ~ 2.50 (mm)
                                    35, 40, 45, 50 (cm/s)       PRESS CORRECTION ───  0 ~ 500 (g)
            PRESSURE ──────────────── 1000 ~ 5000 (g)          VIBRATION ─────────────── 1 ~ 5, OR OFF
            ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (G)           R5 SPEED ───────────────── OFF, 0,5 (mm/s),
            FRONT OFFSET ─────────── 0.00 ~ 2.50 (mm)                                     0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
            END OFFSET ───────────── 0.00 ~ 2.50 (mm)          R10 SPEED ──────────────── OFF, 0.5 (mm/s),
            UP ANGLE ───────────────── 0 ~ 180 (°)                                        0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
            RING DISTANCE ─────────── 0.00 ~ 2.50 (mm)         R15 SPEED ──────────────── OFF, 0.5 (mm/s),
            PRESS CORRECTION ───  0 ~ 500 (g)                                             0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
            R5 SPEED ───────────────── OFF, 0,5 (mm/s),
                                      0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
            R10 SPEED ──────────────── OFF, 0.5 (mm/s),
                                      0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
            R15 SPEED ──────────────── OFF, 0.5 (mm/s),
                                      0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)


      INTERFACE ──── BAUD RATE ─────── 1200, 2400, 4800, 9600, 19200 (BPS)
3/4                  DATA BITS ─────── 7, 8 (bit)
                     PARITY ────────── NO PARITY, EVEN, ODD
                     STOP BITS ─────── 1, 2 (bit)
                     HANDSHAKE ─────── HARDWARE, X CODE, ENQ/ACK, SOFTWARE
```

```
                                                          ┌─ MULTI-PASS ── OFF, 5, 15, 30, 45, 60 (sec)
      ┌─ MODE SET ─┬─ Z STROKE ──────────── 7, 4 (mm)     ├─ PRESS 1st ──── OFF, 1000 ~ 5000 (g)
      │            │                                      ├─ PRESS 2nd ──── OFF, 1000 ~ 5000 (g)
      │            ├─ MULTI-PASS ─────────────────────────┤─ PRESS 3rd ──── OFF, 1000 ~ 5000 (g)
      │            │                                      ├─ PRESS 4th ──── OFF, 1000 ~ 5000 (g)
      │            ├─ VACUUM ──────────── Auto OFF, Panel OFF └─ PRESS 5th ── OFF, 1000 ~ 5000 (g)
      │            │
      │            ├─ AUTO VIEW ───────── OFF, 1s, 3s
      │            ├─ DUMMY CUT ───────── OFF, ON
      │            ├─ ONE-STROKE ──────── OFF, ON, SORT
      │            │
      │            ├─ ROTATE ──────────── +90, –90 (°)
      │            ├─ COMMAND ─────────── MGL-IIC3                       ┌─ TOOL ─┬ PEN
      │            ├─ CMD (COMMAND SW) ── VALID, INVALID    ┌─ PEN 1 ~ 6 ─┬─ HEAD A ┤        └ SWIVEL
3/4   │            │                                        │            │ └─ TOOL
      │            ├─ OH UNIT ─────────── INITIAL VALUE,     │            ├─ HEAD B ─ TOOL ─┬ RecCutter 1
      │            │                      SET VALUE          │            │                 RecCutter 2
      │            ├─ ORIGIN ──────────── CENTER,            │            └─ HEAD C ─ TOOL ─┬ ROLLER 1
      │            │                      LOWER LEFT         │                              ROLLER 2
      │            └─ GDP ─────────────── 0.025, 0.010 (mm)  │                              ROLLER 3
      │            ├─ PEN ASSIGN ─────────────────────────────┘                            ROLLER 4
      │            │                                                                     └─ R. CUTTER 1
      │            ├─ UNIT ────────────── MM, INCH                                          R. CUTTER 2
      │            │                                    ┌─ MARK DETECT ---- OFF, 1pt, 2pt, 3pt, 4pt,
      │            ├─ MARK SENSOR ────────────────────── ─ MARK SIZE --------- 5 to 30 mm,
      │            │  (Sensor equipped model only)      ├─ SHAPE --------------- Square, Single, Double
      │            └─ EXPAND ──────────── ON, OFF       ├─ X COPY ------------- 1 to 99
      │               (Sensor equipped model only)      ├─ Y COPY ------------- 1 to 99
      │                                                 └─ SCALE --------------- OFF, AFTER,
      │                                                                          BEFORE
      ├─ SELF TEST ─┬─ PATTERN CUT 1
      │             ├─ PATTERN CUT 2
      │             ├─ DATA DUMP (ASCII)               ┌─ A  LENG (LENGTH) ── –4.00 ~ +4.00
      │             ├─ SAMPLE  0.5 mm                  ├─ B ─────────────────  –4.00 ~ +4.00
      │             ├─ SAMPLE  1.0 mm                  ├─ TEST PATTERN
      │             ├─ SAMPLE  1.5 mm                  ├─ CUTTER θ ────────── –4500 ~ +4500
      │             ├─ CIRCLE R=3                      ├─ PATTERN NO. ─────── 1, 2 (ROLLER is only "1")
      │             ├─ CIRCLE R=5                      ├─ TEST PATTERN
      │             ├─ CIRCLE R=10                     ├─ CUTTER X ────────── +33.00 ~ +41.00
      │             ├─ CIRCLE R=20                     ├─ CUTTER Y ────────── +50.00 ~ +58.00 (B)
      │             ├─ CIRCLE R=50                     │                      +32.00 ~ +44.00 (C)
      │             ├─ CIRCLE R=100                    └─ TEST PATTERN
      │             └─ PARAMETER DUMP
      │
      ├─ CUT AREA ──── LL, UR                          ┌─ R < 5 ─────────── –20 ~ +20 (°)
      │                                                ├─ 5 <= R < 10 ────── –20 ~ +20 (°)
4/4   ├─ AXIS ALIGN                                    ├─ TEST PATTERN
      │                                                ├─ 10 <= R < 20 ───── –9.8 ~ +9.8 (°)
      └─ TOOL ─────┬─ B TOOL ADJUST ──────────────────┤─ 20 <= R < 50 ───── –9.8 ~ +9.8 (°)
        ADJUST     │                                   ├─ TEST PATTERN
                   ├─ ROLLER ADJUST ──────────────────┤─ 50 <= R < 100 ──── –9.8 ~ +9.8 (°)
                   │                                   ├─ R >= 100 ───────── –9.8 ~ +9.8 (°)
                   ├─ CIRCLE θ CORRECTION ── B, C      ├─ TEST PATTERN
                   │                                   └─ ARC θ ──────────── Enable, Disable
                   └─ LIGHT POINTER ─────────────────── ─ POINTER X ──────── -99.9 to +99.9 (mm)
                      (Sensor equipped model only)     ├─ POINTER Y ──────── -99.9 to +99.9 (mm)
                                                       └─ TEST PATTERN
```

RT-head model

```
          TOOL SELECT ──── HEAD A ──────── TOOL ----------- PEN, SWIVEL

                          ─ HEAD B ──────── TOOL ----------- RECCUTTER1, RECCUTTER2

                          ─ HEAD C ──────── TOOL ----------- θCUTTER 1, θCUTTER 2


1/4       CONDITION ──── PEN ──────────────── SPEED ---------------------- 2, 5, 10, 15, 20, 25, 30, 35,
                                                                           40, 45, 50 (cm/s)
                        ─ SWIVEL ──────────── PRESSURE ----------------- 20 ~ 400 (g)
                                              ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (g)
                        ─ RECCUTTER 1 ~ 2 ── R5 SPEED ------------------- OFF, 1, 2 (cm/s)
                                             R10 SPEED ----------------- OFF, 1, 2, 3, 4, 5 (cm/s)
                        ─ θ CUTTER 1 ~ 2 ─── R15 SPEED ----------------- OFF, 1, 2, 3, 4, 5, 10 (cm/s)
                                             R20 SPEED ----------------- OFF, 1, 2, 3, 4, 5, 10,
                                                                         15 (cm/s)
                                             R30 SPEED ----------------- OFF, 1, 2, 3, 4, 5, 10, 15,
                                                                         20 (cm/s)
          TEST CUT ──────── END, CE          R40 SPEED ----------------- OFF, 1, 2, 3, 4, 5, 10, 15, 20,
                                                                         25 (cm/s)
          DATA CLEAR ────── END, CE, ORG     R50 SPEED ----------------- OFF, 1, 2, 3, 4, 5, 10, 15, 20,
                                                                         25, 30 (cm/s)
2/4       SINGLE COPY ──── END, CE           R100 SPEED ---------------- OFF, 1, 2, 3, 4, 5, 10, 15, 20,
                                                                         25, 30, 35 (cm/s)
          VIEW ─────── LOWER RIGHT ── END, CE
                       LOWER LEFT            SPEED ---------------------- 2, 5, 10, 15, 20, 25, 30, 35,
                                                                         40, 45, 50 (cm/s)
                                             PRESSURE ----------------- 20 ~ 400 (g)
                                             OFFSET --------------------- 0.00 ~ 2.50 (mm)
                                             ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (g)

                                             SPEED ---------------------- 2, 5, 10, 15, 20, 25, 30, 35,
                                                                         40, 45, 50 (cm/s)
                                             PRESSURE ----------------- 300 ~ 1500, 500 ~ 1500 (g)
                                             ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (g)
                                             FRONT OFFSET ----------- 0.00 ~ 2.50 (mm)
                                             END OFFSET -------------- 0.00 ~ 2.50 (mm)
                                             UP ANGLE ----------------- 0 ~ 180 (°)
                                             RING DISTANCE --------- 0.00 ~ 2.50 (mm)
                                             PRESS CORRECTION --- 0 ~ 500 (g)
                                             VIBRATION --------------- 1 ~ 5, OR OFF
                                             R5 SPEED ------------------- OFF, 0,5 (mm/s),
                                                                         0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
                                             R10 SPEED ----------------- OFF, 0.5 (mm/s),
                                                                         0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
                                             R15 SPEED ----------------- OFF, 0.5 (mm/s),
                                                                         0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)


3/4       INTERFACE ──── BAUD RATE ──── 1200, 2400, 4800, 9600, 19200 (BPS)
                        ─ DATA BITS ──── 7, 8 (bit)
                        ─ PARITY ─────── NO PARITY, EVEN, ODD
                        ─ STOP BITS ──── 1, 2 (bit)
                        ─ HANDSHAKE ──── HARDWARE, X CODE, ENQ/ACK, SOFTWARE
```

3/4

MODE SET
- Z STROKE — 7, 4 (mm)
- MULTI-PASS
  - MULTI-PASS — OFF, 5, 15, 30, 45, 60 (Sec)
  - PRESS 1st — OFF, 500 ~ 1500 (g)
  - PRESS 2nd — OFF, 500 ~ 1500 (g)
  - PRESS 3rd — OFF, 500 ~ 1500 (g)
  - PRESS 4th — OFF, 500 ~ 1500 (g)
  - PRESS 5th — OFF, 500 ~ 1500 (g)
- VACUUM — Auto OFF, Panel OFF
- AUTO VIEW — OFF, 1s, 3s
- DUMMY CUT — OFF, ON
- ONE-STROKE — OFF, ON, SORT
- ROTATE — +90, –90 (°)
- COMMAND — MGL-IIC3
- CMD (COMMAND SW) — VALID, INVALID
- OH UNIT — INITIAL VALUE, SET VALUE
- ORIGIN — CENTER, LOWER LEFT
- GDP — 0.025, 0.010 (mm)
- PEN ASSIGN
  - PEN 1 ~ 6
    - HEAD A — TOOL — PEN
    - TOOL — SWIVEL
    - HEAD B — TOOL — RecCutter 1 / RecCutter 2
    - HEAD C — TOOL — θ CUTTER 1 / θ CUTTER 2
- UNIT — MM, INCH
- MARK SENSOR (Sensor equipped model only)
  - MARK DETECT ---- OFF, 1pt, 2pt, 3pt, 4pt,
  - MARK SIZE --------- 5 TO 30 (mm)
  - SHAPE ---------------- Square, Single, Double
  - X COPY -------------- 1 to 99
  - Y COPY -------------- 1 to 99
  - SCALE ---------------- OFF, AFTER, BEFORE
- EXPAND — ON, OFF (Sensor equipped model only)

SELF TEST
- PATTERN CUT 1
- PATTERN CUT 2
- DATA DUMP (ASCII)
- SAMPLE 0.5 mm
- SAMPLE 1.0 mm
- SAMPLE 1.5 mm
- CIRCLE R=3
- CIRCLE R=5
- CIRCLE R=10
- CIRCLE R=20
- CIRCLE R=50
- CIRCLE R=100
- PARAMETER DUMP

CUT AREA — LL, UR

4/4

AXIS ALIGN

TOOL ADJUST
- B TOOL ADJUST
  - A LENG (LENGTH) — –4.00 ~ +4.00
  - B — –4.00 ~ +4.00
  - TEST PATTERN
  - CUTTER θ — –4500 ~ +4500
  - PATTERN NO. — 1, 2
  - TEST PATTERN
  - CUTTER X — +33.00 ~ +41.00
  - CUTTER Y — +50.00 ~ +58.00 (B) / +32.00 ~ +44.00 (C)
  - TEST PATTERN
- TOOL ADJUST
- CIRCLE θ CORRECTION — B, C
  - R < 5 — –20 ~ +20 (°)
  - 5 <= R < 10 — –20 ~ +20 (°)
  - TEST PATTERN
  - 10 <= R < 20 — –9.8 ~ +9.8 (°)
  - 20 <= R < 50 — –9.8 ~ +9.8 (°)
  - TEST PATTERN
  - 50 <= R < 100 — –9.8 ~ +9.8 (°)
  - R >= 100 — –9.8 ~ +9.8 (°)
  - TEST PATTERN
  - ARC θ — Enable, Disable
- LIGHT POINTER (Sensor equipped model only)
  - POINTER X — -99.9 to +99.9 (mm)
  - POINTER Y — -99.9 to +99.9 (mm)
  - TEST PATTERN

R-head model

```
                ┌─ TOOL SELECT ──┬── HEAD ──────── TOOL ──── PEN, SWIVEL
                │                │
                │                └── HEAD ──────── TOOL ──── RECCUTTER 1, RECCUTTER 2
                │
        ┌── 1/4 ┼─ CONDITION ──┬── TOOL ──────────── SPEED ───────────────── 2, 5, 10, 15, 20, 25, 30, 35,
        │       │              │                                              40, 45, 50 (cm/s)
        │       │              ├── SWIVEL ────────── PRESSURE ──────────── 20 ~ 400 (g)
        │       │              │                     ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (g)
        │       │              └── RecCutter 1 ~ 2 ── R5 SPEED ─────────────── OFF, 1, 2 (cm/s)
        │       │                                     R10 SPEED ─────────────── OFF, 1, 2, 3, 4, 5 (cm/s)
        │       │                                     R15 SPEED ─────────────── OFF, 1, 2, 3, 4, 5, 10 (cm/s)
        │       │                                     R20 SPEED ─────────────── OFF, 1, 2, 3, 4, 5, 10,
        │       │                                                               15 (cm/s)
        │       │                                     R30 SPEED ─────────────── OFF, 1, 2, 3, 4, 5, 10, 15,
        │       │                                                               20 (cm/s)
        │       ├─ TEST CUT ──────── END, CE          R40 SPEED ─────────────── OFF, 1, 2, 3, 4, 5, 10, 15, 20,
        │       │                                                               25 (cm/s)
        │       ├─ DATA CLEAR ─────── END, CE, ORG     R50 SPEED ─────────────── OFF, 1, 2, 3, 4, 5, 10, 15, 20,
        │       │                                                               25, 30 (cm/s)
   ── ──┼── 2/4 ┼─ SINGLE COPY ────── END, CE          R100 SPEED ────────────── OFF, 1, 2, 3, 4, 5, 10, 15, 20,
        │       │                                                               25, 30, 35 (cm/s)
        │       └─ VIEW ──────── LOWER RIGHT ── END, CE    SPEED ───────────────── 2, 5, 10, 15, 20, 25, 30, 35,
        │                        LOWER LEFT                                        40, 45, 50 (cm/s)
        │                                                  PRESSURE ──────────── 20 ~ 400 (g)
        │                                                  OFFSET ──────────────── 0.00 ~ 2.50 (mm)
        │                                                  ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (g)
        │
        │                                                  SPEED ───────────────── 2, 5, 10, 15, 20, 25, 30, 35,
        │                                                                           40, 45, 50 (cm/s)
        │                                                  PRESSURE ──────────── 500 ~ 1500 (g)
        │                                                  ACCELE (ACCELERATION) ---- 0.1 ~ 0.5 (g)
        │                                                  FRONT OFFSET ─────────── 0.00 ~ 2.50 (mm)
        │                                                  END OFFSET ───────────── 0.00 ~ 2.50 (mm)
        │                                                  UP ANGLE ──────────────── 0 ~ 180 (°)
        │                                                  RING DISTANCE ────────── 0.00 ~ 2.50 (mm)
        │                                                  PRESS CORRECTION ─── 0 ~ 500 (g)
        │                                                  VIBRATION ─────────────── 1 ~ 5, OR OFF
        │                                                  R5 SPEED ─────────────── OFF, 0,5 (mm/s),
        │                                                                           0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
        │                                                  R10 SPEED ────────────── OFF, 0.5 (mm/s),
        │                                                                           0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
        │                                                  R15 SPEED ────────────── OFF, 0.5 (mm/s),
        │                                                                           0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
        │
        └── INTERFACE ──┬── BAUD RATE ────── 1200, 2400, 4800, 9600, 19200 (BPS)
           3/4          │
                        ├── DATA BITS ────── 7, 8 (BIT)
                        │
                        ├── PARITY ──────── NO PARITY, EVEN, ODD
                        │
                        ├── STOP BITS ────── 1, 2 (bit)
                        │
                        └── HANDSHAKE ───── HARDWARE, X CODE, ENQ/ACK, SOFTWARE
```

- MODE SET
  - Z STROKE ———— 7, 4 (mm)
  - MULTI-PASS ————
    - MULTI-PASS — OFF, 5, 15, 30, 45, 60 (Sec)
    - PRESS 1st —— OFF, 500 ~ 1500 (g)
    - PRESS 2nd —— OFF, 500 ~ 1500 (g)
    - PRESS 3rd —— OFF, 500 ~ 1500 (g)
    - PRESS 4th —— OFF, 500 ~ 1500 (g)
    - PRESS 5th —— OFF, 500 ~ 1500 (g)
  - VACUUM ———— Auto OFF, Panel OFF
  - AUTO VIEW ———— OFF, 1s, 3s
  - DUMMY CUT ———— OFF, ON
  - ONE-STROKE ———— OFF, ON, SORT
  - ROTATE ———— +90, –90 (°)
  - COMMAND ———— MGL-IIC3
  - CMD (COMMAND SW) —— VALID, INVALID
  - OH UNIT ———— INITIAL VALUE, SET VALUE
  - ORIGIN ———— CENTER, LOWER LEFT
  - GDP ———— 0.025, 0.010 (mm)
  - PEN ASSIGN ————
    - PEN 1 ~ 6 — HEAD A — TOOL — PEN
      - TOOL — SWIVEL
      - HEAD B — TOOL — RecCutter 1
        - RecCutter 2
  - UNIT ———— MM, INCH
  - MARK SENSOR (Sensor equipped model only)
    - MARK DETECT ---- OFF, 1pt, 2pt, 3pt, 4pt,
    - MARK SIZE --------- 5 to 30 (mm)
    - SHAPE ---------------- Square, Single, Double
    - X COPY -------------- 1 to 99
    - Y COPY -------------- 1 to 99
    - SCALE ---------------- OFF, AFTER, BEFORE
  - EXPAND ———— ON, OFF (Sensor equipped model only)

- SELF TEST
  - PATTERN CUT 1
  - PATTERN CUT 2
  - DATA DUMP (ASCII)
  - SAMPLE 0.5 mm
  - SAMPLE 1.0 mm
  - SAMPLE 1.5 mm
  - CIRCLE R=3
  - CIRCLE R=5
  - CIRCLE R=10
  - CIRCLE R=20
  - CIRCLE R=50
  - CIRCLE R=100
  - PARAMETER DUMP

- CUT AREA ———— LL, UR
- AXIS ALIGN
- TOOL ADJUST
  - B TOOL ADJUST
    - A LENG (LENGTH) —— –4.00 ~ +4.00
    - B ———— –4.00 ~ +4.00
    - TEST PATTERN
    - CUTTER θ ———— –4500 ~ +4500
    - PATTERN NO. ———— 1, 2
    - TEST PATTERN
    - CUTTER X ———— +33.00 ~ +41.00
    - CUTTER Y ———— +50.00 ~ +58.00
    - TEST PATTERN
  - CIRCLE θ CORRECTION — B —
    - R < 5 ———— –20 ~ +20 (°)
    - 5 <= R < 10 ———— –20 ~ +20 (°)
    - TEST PATTERN
    - 10 <= R < 20 ———— –9.8 ~ +9.8 (°)
    - 20 <= R < 50 ———— –9.8 ~ +9.8 (°)
    - TEST PATTERN
    - 50 <= R < 100 ———— –9.8 ~ +9.8 (°)
    - R >= 100 ———— –9.8 ~ +9.8 (°)
    - TEST PATTERN
    - ARC θ ———— Enable, Disable
  - LIGHT POINTER (Sensor equipped model only)
    - POINTER X ———— -99.9 to +99.9 (mm)
    - POINTER Y ———— -99.9 to +99.9 (mm)
    - TEST PATTERN

C. OUTPUT SAMPLES

Cutting quality 1

Cutting quality 2

ASCII dump list

```
<<アスキーダンプ>>
ボーレート=9600
データビット=8
パリティ=ナシ
ストップビット=1
ハンドシェイク=ハードウェア

OH; ODOaIP 0  0   28000   36000 ; ODOaSC0, 56000 ,0, 72000 ; ODOaSP1; ODOaPUPA 1400   1000 ; ODOaPD; AR-400 , 0, +360;
ODOaPUPA 2400    1000 ; ODOaPD; AR-360 , 0, +360; ODOaPUPA 3400    1000 ; ODOaPD; AR-320 , 0, +360; ODOaPUPA 4400    1000
ODOaPD; AR-280 , 0, +360; ODOaPUPA 5400    1000 ; ODOaPD; AR-240 , 0, +360; ODOaPUPA 6400    1000 ; ODOaPD; AR-200 , 0, +360
; ODOaPUPA 1400    2000 ; ODOaPD; AR-400 , 0, +360; ODOaPUPA 2400    2000 ; ODOaPD; AR-360 , 0, +360; ODOaPUPA 3400    2000
; ODOaPD; AR-320 , 0, +360; ODOaPUPA 4400    2000 ; ODOaPD; AR-280 , 0, +360; ODOaPUPA 5400    2000 ; ODOaPD; AR-240 , 0, +36
0; ODOaPUPA 6400    2000 ; ODOaPD; AR-200 , 0, +360; ODOaPUPA0, 0; ODOaPRPD 7000 ,  0 ; ODOaPRPD 0 ,  3000 ; ODOaPRPD-7000
, 0 ; ODOaPRPD 0 , -3000 ; ODOaPU0, 0; ODOa
```

Sample (coated)

Sample (E corrugated)

Sample (B corrugated)

Circle cutting R = 3/5/10/20/50/100

R=3 R=5 R=10

R=20

R=50

R=100

Parameter dump list

```
<<PARAMETER DUMP>>

[MODEL]                [VERSION]                    [SYSTEM PARAMETER]
   CF2/DC-0907-S          FV: 1.20                  No CONTENTS        ADJUST DEFAULT   No CONTENTS        ADJUST DEFAULT
                          MV: 1.00                  00 PEN PRESS         400    400      32 SENS OFS X          2      0
                          SV: 1.02                  01 S CURVE TIME      350    350      33 SENS OFS Y         -8      0
                                                    02 ACCELE             25     25      34 PointerOFS X       15      0
[CONDITION]                                         03 B ARC CORECT        1      0      35 PointerOFS Y       -5      0
               A (PEN)   A (SWIVEL)  B (CUTTER)  C (CUTTER)   04 C ARC CORECT   0      0      36 R  LANDING        200    200
SPEED      :   5000       5000       5000       5000         05 RADIUS OFS X     40     40      37 SAFETY SENS        1      1
PRESSURE   :     60        120        300        300         06 RADIUS OFS Y     50     50      38 X-Y UP VEL       5000   5000
ACCELE     :     50         50         50         50         07 VECTOR ANGLE      0      0      39 SERVO GAIN         0      0
F.OFFSET   :      0          0        160        160         08 RESERVE           0      0      40 ARC UP ANGLE       0      0
E.OFFSET   :      0          0        160        160         09 RESERVE           0      0      41 SCALE SET          0      0
UP ANGLE   :      0          0        300        300         10 RESERVE           0      0      42 POWER ON           0      0
RING DIS   :      0          0         96         96         11 SWIVEL PRESS      0      0      43 ORIGIN             0      0
PRESS COR  :      0          0          0          0         12 B LANDING       240    240      44 STROKE COUNT     800    800
PRESS COR (Y): 0             0          0          0         13 B PRESS 300      46     35      45 STROKE EQU        40     40
OFFSET     :      0         96          0          0         14 B PRESS 1500     80     80      46 R. WAIT TIME       0      1
R5 SPD     :      0          0          0          0         15 C LANDING       270    270      47 RESERVE            0      0
R10 SPD    :      0          0          0          0         16 C PRESS 1000     60     60      48 RESERVE            0      0
R15 SPD    :      0          0          0          0         17 C PRESS 5000    194    194      49 X SEAR RATIO       0      0
R20 SPD    :      0          0          0          0         18 B PRS OFFSET      0      0      50 MECA ORG X         1      0
R30 SPD    :      0          0          0          0         19 C PRS OFFSET      0      0      51 MECA ORS X        -1      0
R40 SPD    :      0          0          0          0         20 ARC CNV LENS      0      0      52 MAX AREA X       570    570
R50 SPD    :      0          0          0          0         21 TOOL ADJ ADD      1      1      53 MAX AREA Y       900    900
R100 SPD   :      0          0          0          0         22 B OFFSET X    11872   9600      54 DIST COMP Xu     128      0
                                                             23 B OFFSET Y    16768  17280      55 DIST COMP Xd     128      0
[INTERFACE]        [MULTI PASS]        [PEN ASSIGN]          24 C OFFSET X    11776  11840      56 DIST COMP Y       18      0
                                                             25 C OFFSET Y    11952  11520      57 AUTO CLEAR         0      0
BAUDRATE : 9600    CUT START:    0     PEN1:  2  1           26 B T ORIGIN     500      0      58 HASH PASS          0      0
DATA BIT : 8       PRESS.1st:    0     PEN2:  3  1           27 C T ORIGIN     300      0      59 MAINTENANCE        1      0
PARITY   : NON     PRESS.2nd:    0     PEN3:  2  1           28 B CENTER X     -48      0      60 LCD SWITCH         0      1
STOP BIT : 1       PRESS.3rd:    0     PEN4:  3  1           29 B CENTER Y      32      0      61 SYSTEM             5      1
HANDSHAKE: HARDWIRE PRESS.4th:   0     PEN5:  1  3           30 C CENTER X    -368      0      62 MODEL TYPE         4      4
                   PRESS.5th:    0     PEN6:  1  4           31 C CENTER Y       0      0      63 INITIAL            0      0

[MODE SET]              [CIRCLE CORRECT]     [PEN PRESS OFFSET]   [MARK SENSOR SET]

Z STROKE  : 7mm       R<5      :   0  0      0.0mm: 2022     DETECT : 1PT
AUTOVIEW  : OFF       5<R<10   :   0  0      0.8mm: 2040     SIZE   : 10mm
DUMMY CUT : OFF       10<R<20  :   0  0      1.6mm: 2075     STYLE  : CIRCLE
ONE STROKE: OFF       20<R<50  :   0  0      2.4mm: 2116     X COPY : 1
ROTATE    : +90       50<R<100 :   0  0      3.2mm: 2137     Y COPY : 1
CMD SW    : ENABLE    R>100    :   0  0      4.0mm: 2181     SCALE  : OFF
OH UNIT   : INITVAL                          4.8mm: 2204
ORIGIN    : CENTER    [COMMAND]              5.6mm: 2221
GDP       : 0.025mm                          6.4mm: 2239
Z SIGN    : P (+)     COMMAND:  MGL-IIC3     7.2mm: 2295
UNIT      : mm                               8.0mm: 2316
VACUUM    : Auto OFF                         8.8mm: 2380
EXPAND    : OFF
```
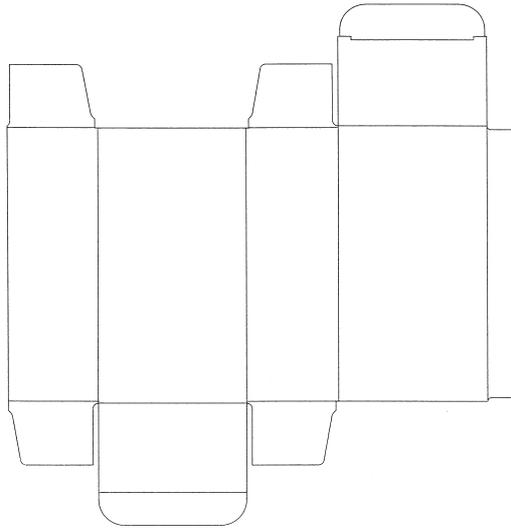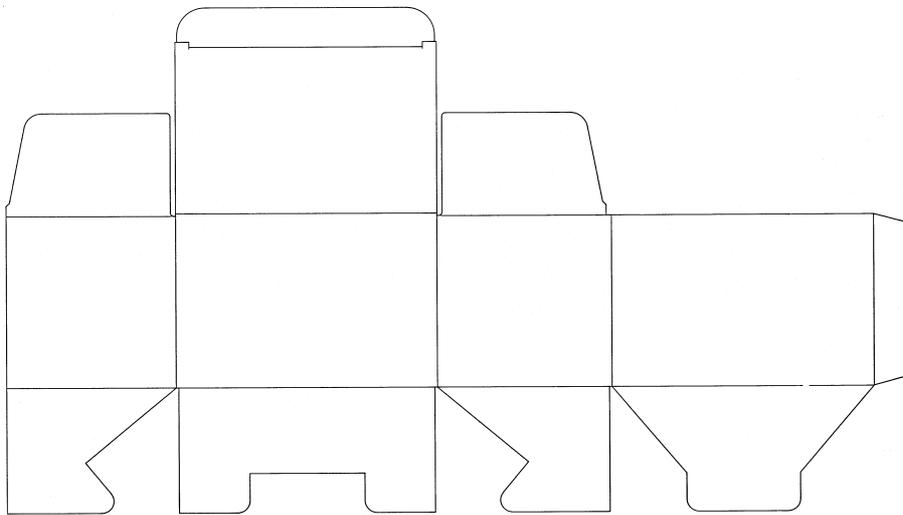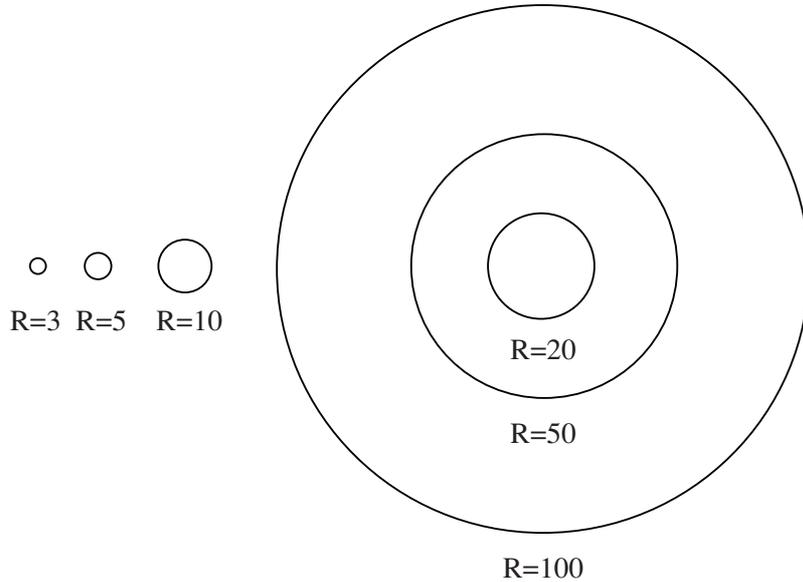
D. SPECIFICATIONS

Basic specifications

Type		CF2-0912	CF2-1215	CF2-1218
Effective stroke X axis		1200	1500	1800
Y axis		900	1200	
Driving method		X, Y, Z, θ 4-axis DC software servo		
Maximum speed		50 cm/s		
Maximum acceleration		0.5 G		
Mechanical resolution		X axis : 0.00234375 mm, Y axis : 0.003125 mm, θ axis : 0.05625°		
Command resolution		0.025 mm / 0.01 mm (switchable on operation panel)		
Static ac-curacy[*1]	Range accuracy	±0.1 mm or ±0.1% of travel distance, whichever is largest		
	Repeat accuracy	±0.1 mm		
	Origin reproducibility	±0.1 mm		
	Perpendicular accuracy	0.7 mm	0.9 mm	
Work securing method		Vacuum suction by blower		
Maximum set work thickness		20 mm[*2]		
Settable work weight		70 kg max. (point load)		
Receiving buffer capacity		1MB		
Command		MGL-IIc3 (MGL-IIc supported)[*3]		
Interface		RS-232C		
Packing configuration		Main unit and pedestal separated and packed in one box; blower packed in separate box		
External dimen-sions	Width	1757	2057	2357
	Depth	1595	1895	
	Height	1100 (except cable guide)		
	Cutting panel surface height	Approx. 770		
Main unit weight		140	165	180
Operating environment		5 to 40°C, 35 to 75% (Rh), no condensation		
Input power supply		Main unit : 50/60 Hz AC 100/120/220/240 V (tap changing)		
Power consumption		Main unit : 500VA Blower : Stated separately		

*1. This is the accuracy for pen writing with almost no load. The guaranteed temperature range is 20 to 25°C.

*2. This is the maximum thickness of works that can be set. This value differs from the maximum thickness that can be cut.

*3. This is a dedicated HP-GL command.

*4. A rush current flows when the blower is switched on. The capacitance is prescribed elsewhere.

Specifications for interface specifications

[Basic specifications]

Item	Specifications
Signal level standard	Conforms to EIA RS232C
Synchronous system	Asynchronous system
Communication system	Full-duplex
Logical requirements	EIA RS-232C, CCITT V.24, JIS x 5101
Electric properties	EIA RS-232C, CCITT V.24, JIS x 5101
Connector	D-SUB25 pin (female) conforming to JIS X 5101
Transmission speed (bps)	1200 / 2400 / 4800 / 9600 / 19200
Start bit length	1
Stop bit length	1 / 1.5 / 2
Parity bit	No parity / even number / odd number
Hand shake	Hard / X code

[Configuration of the connector and signal table]
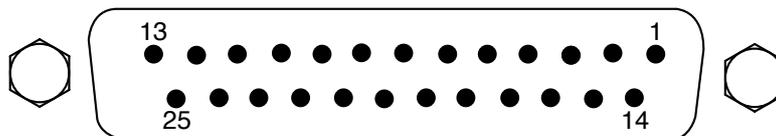
Pin No.	Abbreviation	Name of signal	Source of transmission
1	FG	Protective ground	—
2	SD	Transmitted data	This device
3	RD	Received data	Computer
4	RS	Request for transmission	This device
5	CS	Transmission possible	Computer
6	DR	Data set ready	Computer
7	SG	Signal ground	—
20	ER	Data terminal ready	This device

E. MAINTENANCE

To use the device comfortably for an extended period of time, it is recommended to perform periodical cleaning.

> ⚠️ **CAUTION** • **Use neither detergent containing abrasives nor thinner. Such materials can deform the cover and the cutting panel.**

Cutting panel surface

If any of the suction holes on the cutting panel is clogged, be sure to insert a thin wire into the clogged hole. The substance clogged in the hole will be discharged from the exhaust port of the blower.
If the cutting panel surface is slightly stained, clear stains with a piece of clean and dry cloth. If the cutting panel surface is heavily stained, impregnate a piece of clean and dry cloth with a little amount of alcohol and wipe the stained surface.

Unit B

The axis vibrating reciprocally may stop vibrating due to insufficient lubrication.
Before starting operation, wipe the axis with a clean and dry cloth. Then, using a brush, apply a small amount of the supplied grease to the axis.

Apply grease to this axis.
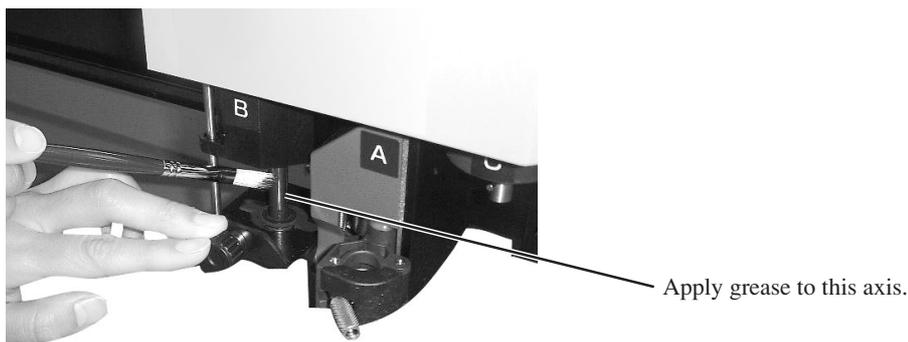
Cover

If the cover is slightly stained, clear stains with a piece of clean and dry cloth. If the cover is heavily stained, impregnate a piece of clean and dry cloth with a little amount of alcohol and wipe the stained surface.

F. OPTIONAL ACCESSORIES

Swivel cutter components

Name of product	Product No.	Specifications	Remarks
Swivel cutter holder	SPA-0001	One piece of holder without blade	
Swivel blade for vinyl sheet	SPB-0001	Package of three pieces of blades	Common blade for swivel cutter
Swivel blade for small letters	SPB-0003	Package of three pieces of blades	
Swivel blade for rubber sheet	SPB-0005	Package of three pieces of blades	
Swivel blade for reflecting sheet	SPB-0006	Package of three pieces of blades	
Swivel blade for fluorescent sheet	SPB-0007	Package of three pieces of blades	
Blade tip adjuster	OPT-C0066	Dial type	

Reciprocal Relationships

Name of product	Product No.	Type	Remarks
Cutter holder 4N	SPA-0053	A100503	For SPB-0013, 0044, 0045, 0046, 0047, 0008 (RC/RT)
Cutter holder 7N	SPA-0054	A100504	For SPB-0048 (RC/RT/R)
Cutter holder RN	SPA-0055	A100505	For SPB 0009 (for reflecting sheet) (RC/RT)
Cutter holder JN	SPA-0061	A100515	For SPB-0031 (RC/RT)
Cutter holder 10N	SPA-0077	A100567	For SPB-0051 (RC/RT)
Creasing roller DN	SPA-0056	A100506	Thick (for E corrugated fiberboard) (RC)
Creasing roller CN	SPA-0057	A100507	Medium (for coated board) (RC/R)
Creasing roller PN	SPA-0058	A100508	Fine (for coated board) (RC)
Crease plate EN	SPA-0067	A100545	For corrugated fiberboard (E board B board) (RC)
Crease plate AN	SPA-0103	A100891	For corrugated fiberboard (A corrugated fiberboard AB corrugated fiberboard) (RC/R)
Cutter holder 06	SPA-0099	A100887	For SPB-0064. For sponge 20 mm (RT)
Cutter holder 07	SPA-0114	A101211	For SPB-0055, 0065. Until AB corrugated fiberboard (RC)
Cutter holder 2N	SPA-0113	A101210	For SPB-0043, 0044, 0045, 0046, 0047, 0008. Up to 2-mm thick (RC/RT/R)
Titanium coated blade 45°	SPB-0008	A100106	SPA-0053 holder use. SPA-0113 use.
Titanium coated both blades	SPB-0009	A100128	SPA-0055 holder use
Carbide both blades	SPB-0031	A100372	SPA-0061 use
High-speed steel blade 30°	SPB-0043	A100509	SPA-0053 use. SPA-0113 use.
High-speed steel blade 45°	SPB-0044	A100510	SPA-0053 use. SPA-0113 use.
Carbide blade 30°	SPB-0045	A100528	SPA-0053 use. SPA-0113 use.
Carbide blade 45°	SPB-0046	A100529	SPA-0053 use. SPA-0113 use.
Titanium-coated blade 30°ã	SPB-0047	A100530	SPA-0053 use. SPA-0113 use
High-speed steel blade 30° 7 mm	SPB-0048	A100531	SPA-0054 use
Carbide design blade 30°	SPB-0051	A100561	SPA-0077 use
20 mm blade	SPB-0055	A100883	Additionally processed Olfa-made commercially available blade (SK2). For cutting works with a thickness of up to 15 mm. SPA-011 use.
Carbide blade 17°	SPB-0065	A101227	For corrugated fiberboard. SPA-0114 use.
Carbide blade 2°	SPB-0064	A101209	For sponge 20 mm. SPA-0099 use.
Blade tip adjuster (dial)	OPT-C0030	A100068	For SPA-0053
Roll hanger	OPT-C0120	A100537	under 150, length 1080 or less, weight 30 kg or less
Vacuum unit	OPT-C0129	A100568	120 V, 0.51/0.7 kw filter separately available (OPT-0165)
Vacuum unit	OPT-C0130	A100569	220 V, 0.51/0.7 kw filter separately available (OPT-0165)
Vacuum unit	OPT-C0131	A100570	240 V, 0.51/0.7 kw filter separately available (OPT-0165)
Vacuum unit	OPT-C0193	A101709	120 V, 0.51 kw filter separately available (OPT-0164)
Vacuum unit	OPT-C0194	A101710	220 V, 0.25/0.38 kw filter separately available (OPT-0164)
Vacuum unit	OPT-C0195	A101711	240 V, 0.25/0.38 kw filter separately available (OPT-0164)

Name of product	Product No.	Type	Remarks
Filter	OPT-C0164	A100839	For OPT-C0193, OPT-C0194, OPT-C0195
Filter	OPT-C0165	A100840	For OPT-C0129, OPT-C0130, OPT-C0131
Commercially available pen holder	SPA-0073	A100563	Supports specific commercially available ballpoint pens
Felt mat	———	——	Reciprocal cutter blade receiver, 4 types
Filter element	SPC-0226	A100851	For blower filter

Mimaki