Mimaki

FLAT BED CUTTING PLOTTER

CF Series

CF-0907 CF-0912 CF-1215 CF-1218

P model
T model
TD model
TF model
TT model

INSTRUCTION MANUAL

D200256

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 Instruction 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 Instruction 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.

CAUTION
- MIMAKI ENGINEERING CO., LTD. shall have no liability for any damage of any kind (including but not limited to unearned profits, indirect damages, special losses and other debts) caused by the use of malfunction of the product unless otherwise specified in MIMAKI warranty provisions. The same applies to any case where MIMAKI ENGINEERING CO., LTD. has been informed of the possible risk of such damages in prior.
  For example, MIMAKI shall not be liable to any damage to media (works) due to the use of the product or any indirect damage that is caused by a product that is manufactured with damaged media.
- Reproduction of this manual in whole or in part is strictly prohibited.

FOREWORD

Congratulations on your purchase of a "CF-Pro Series" of flat bed cutting plotter.

This Instruction Manual is intended for T-head model, TD-head model, TF-head model, TT-head model and P-head model under the "CF-Pro Series."
Any function for which no head name is designated is common to all models of heads.

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

NOTES
- Make arrangements to deliver this Instruction Manual to the person in charge of the operation of this device.
- This Instruction 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 Instruction Manual are subject to change without notice.
- In the case where this Instruction Manual should be illegible due to destruction by fire or breakage, purchase another copy of the Instruction Manual from our office.

FOR SAFE OPERATION

Pictorial signs

Pictorial signs are used in this Instruction 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.

Precautions in installation

⚠ **CAUTION**

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:
    5 to 40°C
    35 to 75% (Rh)

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

🚫 Cutting quality could be adversely affected.

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.

For safe operation

⚠ **CAUTION**

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 serviceman only.

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

HOW TO READ THIS INSTRUCTION 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
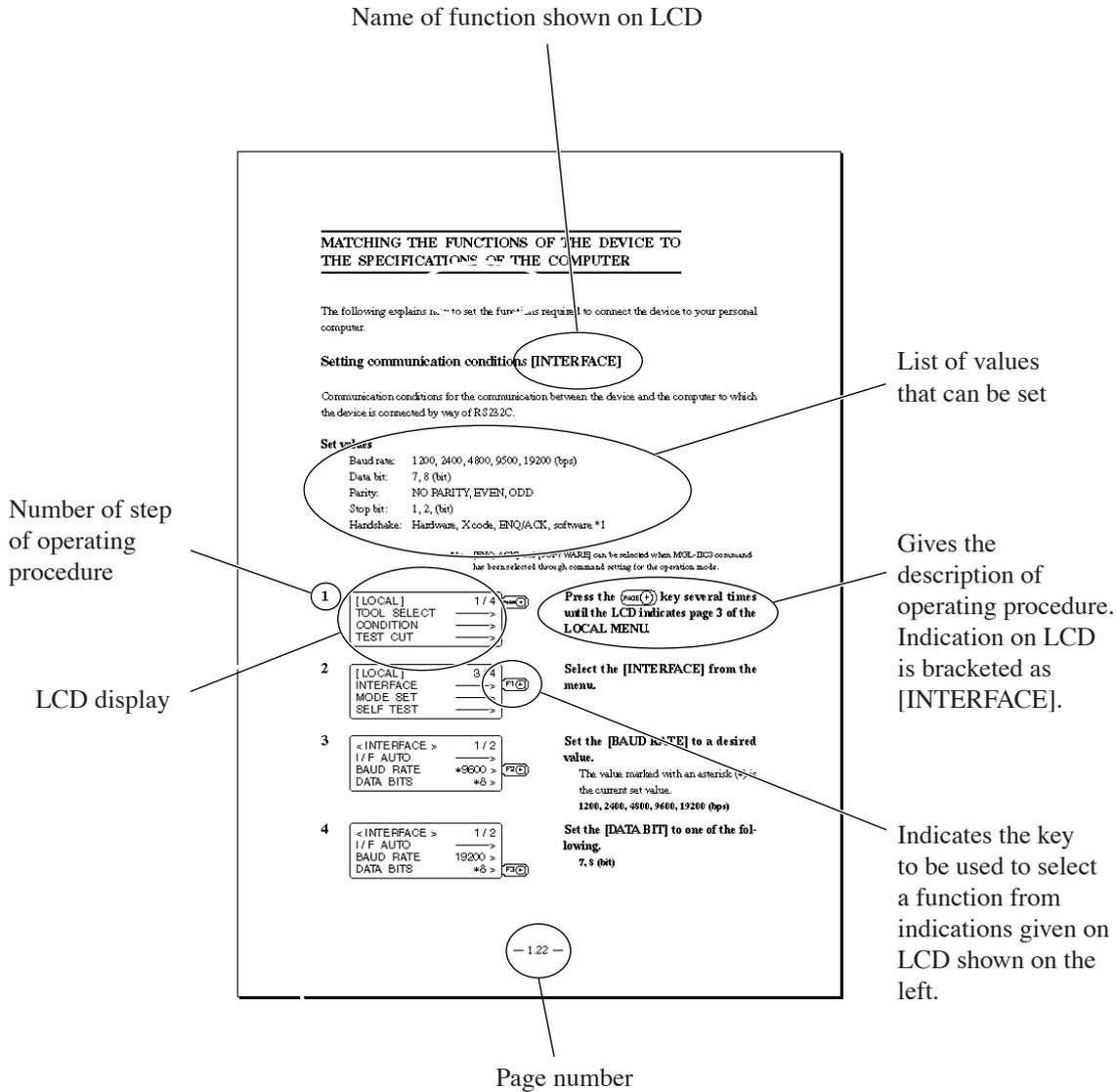
Structure of this Instruction Manual

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　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 heavy-weight materials and solid materials.

The device performs high-pressure cutting to permit the maximum cutting weight of 1.5 kg (5.0 kg for TD- and TF-heads). It also permits the setting of heavy-weight materials as heavy as 25 mm. With its tangential control that demonstrates its capability particularly when cutting hard materials, the device is able to cut, as desied, many different kinds of materials such as high-intensity reflective sheet, sand blast rubber, industrial sheet rubber and corrugated board.

Heads corresponding to materials are prepared

User-replaceable heads are lined up. Selection can be made according to applcations.

P-head: Pen/swievel cutter
T-head: Tangential cutter + Pen/swievel cutter
TD-head: Tangential cutter + Creasing roller + Pen/swievel cutter
TF-head: Tangential cutter + High-pressure tangential cutter + Pen/swievel cutter
TT-head: Tangential cutter + Tangential cutter + Pen/swievel cutter

Applicable materials

P-head	T(TT)-head	TD-head	TF-head

Vinyl chloride sheet for signboard	• Vinyl chloride sheet for signboard
	• Reflecting sheet
	• Vinyl chloride for interior/ exterior decoration
	• Sand-blast rubber
	• Industrial sheet rubber (Thickness: 3.0 mm or less)
	• Wood rack
	• Coated board No. 10
	• Synthetic leather
		• Materials applicable to T-head
		    +
		• Corrugated fiberboard (E to A corrugation)
		• Plastic corrugated fiberboard, etc.
			• Materials that are applicable to T-head
			    +
			• Industrial sheet rubber Nitril rubber (Thickness : 0.5 to 7.0 mm) Silicon rubber (Thickness : 0.5 to 7.0 mm) Fluoro rubber (Thickness : 0.5 to 7.0 mm) Urethane rubber (Thickness : 0.5 to 3.0 mm) Cloth-inserted rubber sheet (Thickness : 0.5 to 5.0 mm)
			• Joint sheet (Thickness : 0.4 to 3.0 mm)
			• Teflon (Thickness : 1.0 to 3.0 mm)
			• Soft vinyl chloride (Thickness : 0.5 to 7.0 mm)
			• Rigid vinyl chloride (Thickness : 0.5 to 3.0 mm), etc.

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 stainless belt 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 secured. 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. In addition, a roll hanger and an automatic roller feeding/winding device are optionally available. With these options, the device allows rolled materials to be set.

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.

Cutting conditions for two or more tools can be entered.
Cutting conditions such as pressure, speed, start/end point correction, circle θ correction and offset 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 compared with the former models.

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CHAPTER 2 BASIC OPERATION 1

CHAPTER 3 WHEN ABNORMAL CONDITIONS ARE ENCOUNTERED 1

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.

Installation area (CF-0907)
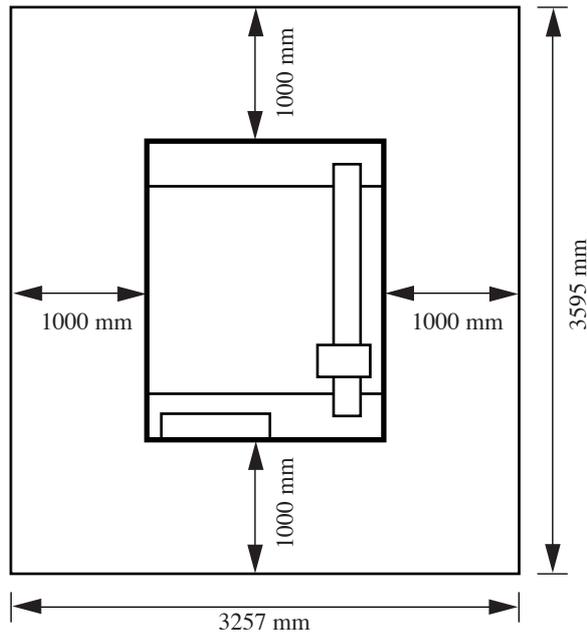
1000 mm
1000 mm
1000 mm
1000 mm
3595 mm
3257 mm

Installation area (CF-0912)

1000 mm
1000 mm
1000 mm
1000 mm
3595 mm
3757 mm

Installation area (CF-1215)

1000 mm

1000 mm

1000 mm

1000 mm

3895 mm

4057 mm

Installation area (CF-1218)

1000 mm

1000 mm

1000 mm

1000 mm

3895 mm

4357 mm
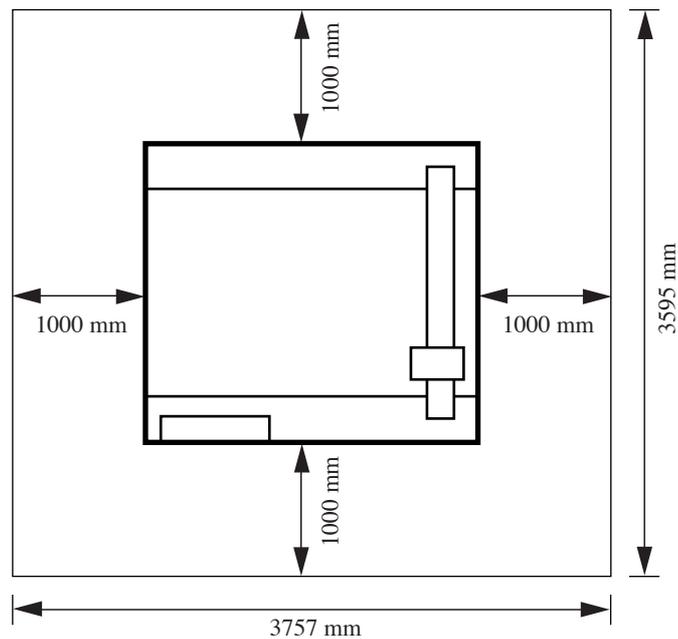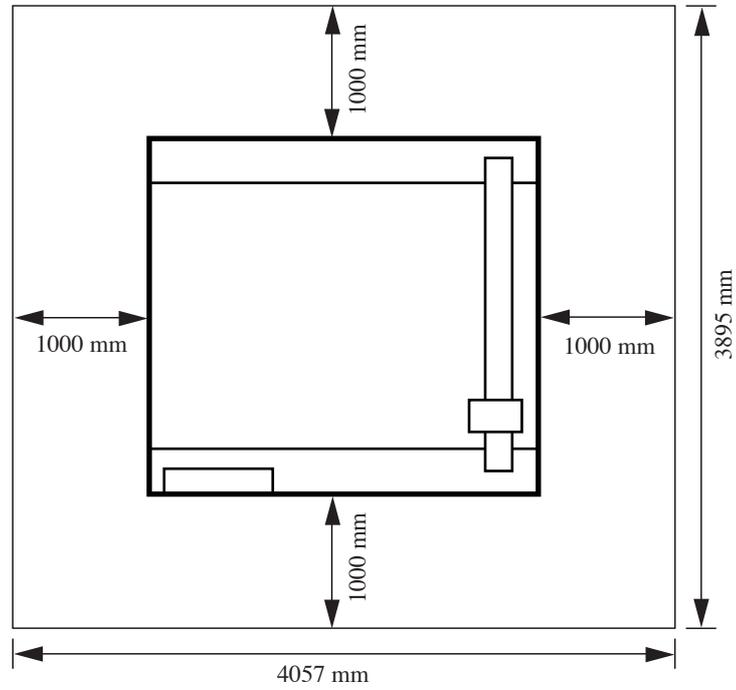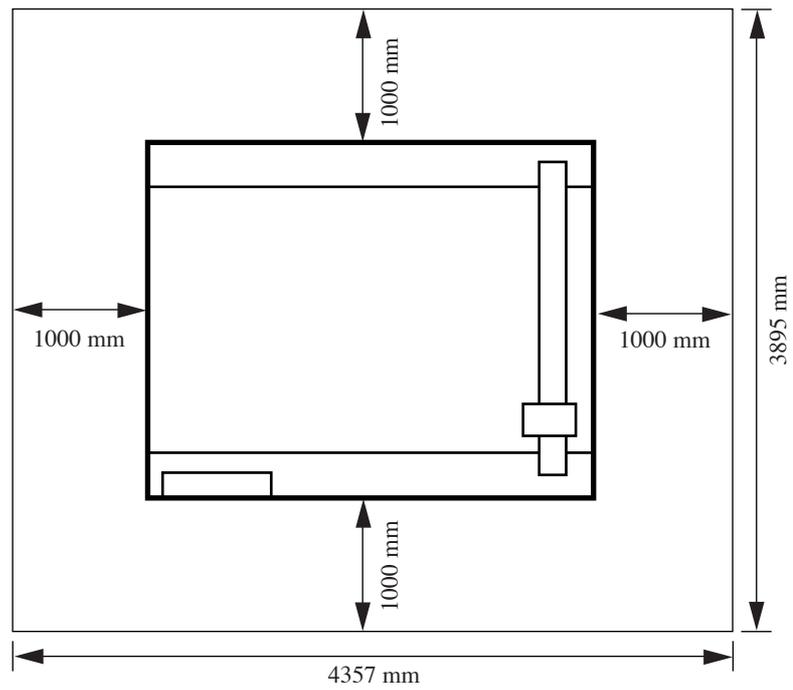
CHECKING THE ACCESSORIES

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.

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 (T-head, TD-head, TF-head, TT-head and P-head)
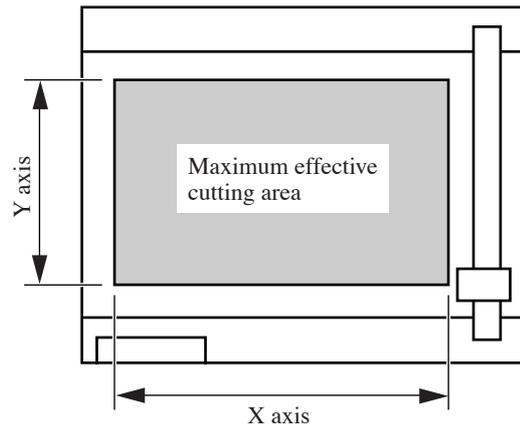
Model name	X axis (mm)	Y axis (mm)
CF-1218	1800	1200
CF-1215	1500	1200
CF-0912	1200	900
CF-0907	700	900

CONFIGURATION AND FUNCTION

Main unit
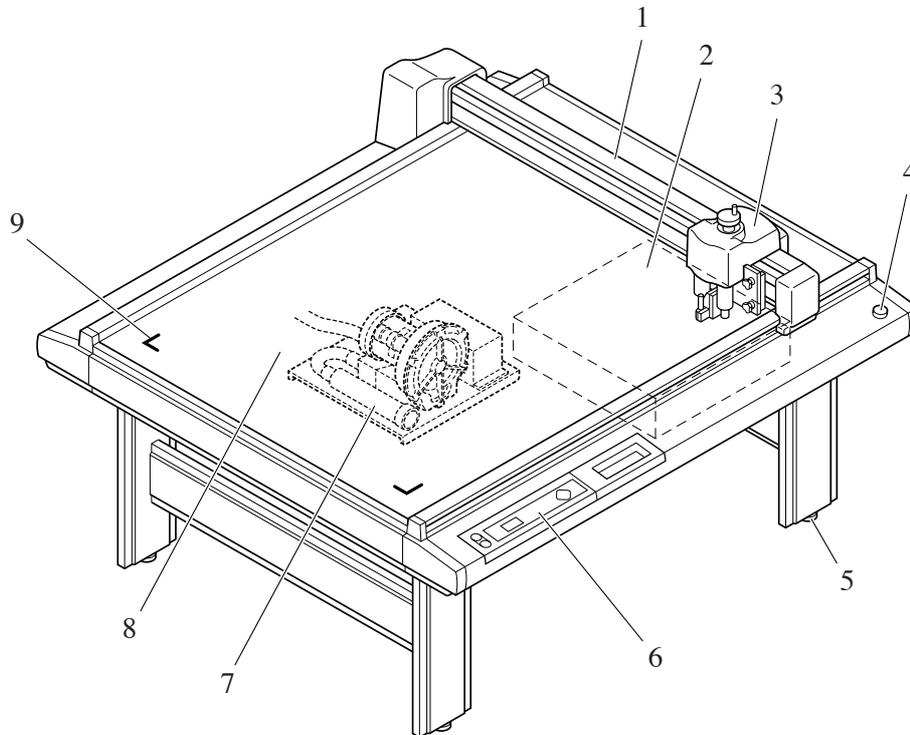
Illustration: CF-0912 (TD, TF, TT)

	Name	Function
1	Y bar	Moves the head in Y direction
2	Electrical box	PCBs or the like are built in this box.
3	Head	Tools are attached to the head. Tools that can be set to the head differs with the models of heads.
4	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.
5	Adjuster foot	Adjusts the height of foot and keeps the cut panel surface leveled.
6	Operation panel	Data required for the operation of the device are specified on this panel.
7	Blower unit	This allows a work to be pneumatically picked on the cut panel.
8	Cut panel	A board to which a work is attached. Air-suction small holes are arranged regularly on it.
9	Origin marker label	Indicates the maximum effective cutting area.

Right-hand side face of the electrical box
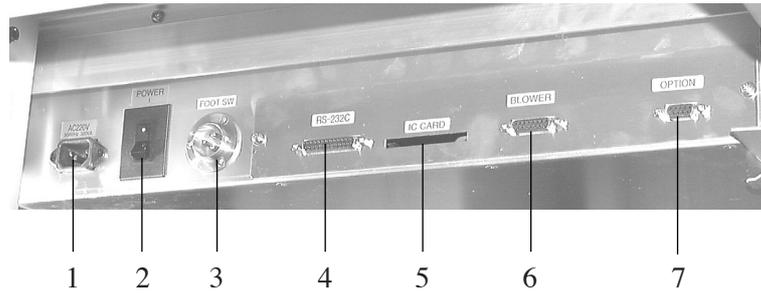
	Name	Function
1	Power connector	To be connected to the power cable of the plotter.
2	Main power switch	Used to turn on/off the main power of this device. Normally set it to the on state. Set it to the off state when conducting maintenance works.
3	Foot switch connector	Foot switch for vacuum is connected to this connector. (Optional)
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 using a signal wire.
7	Optional connector	An optional device is connected to this connector.

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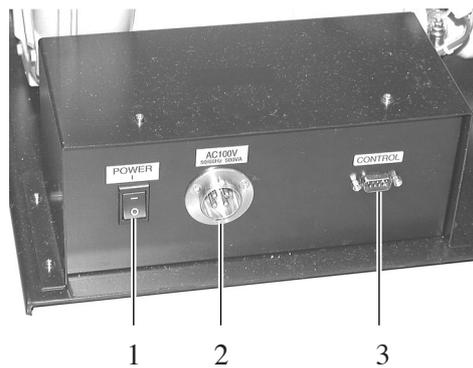
	Name	Function
1	Power switch	Used to turn on/off the power to the blower unit. Normally, it is set to the on position. Turn it off when conducting maintenance works.
2	Signal wire connector	To be connected, using a signal wire, to the signal wire connector for the blower on the electrical box.
3	Power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

Head

Front face
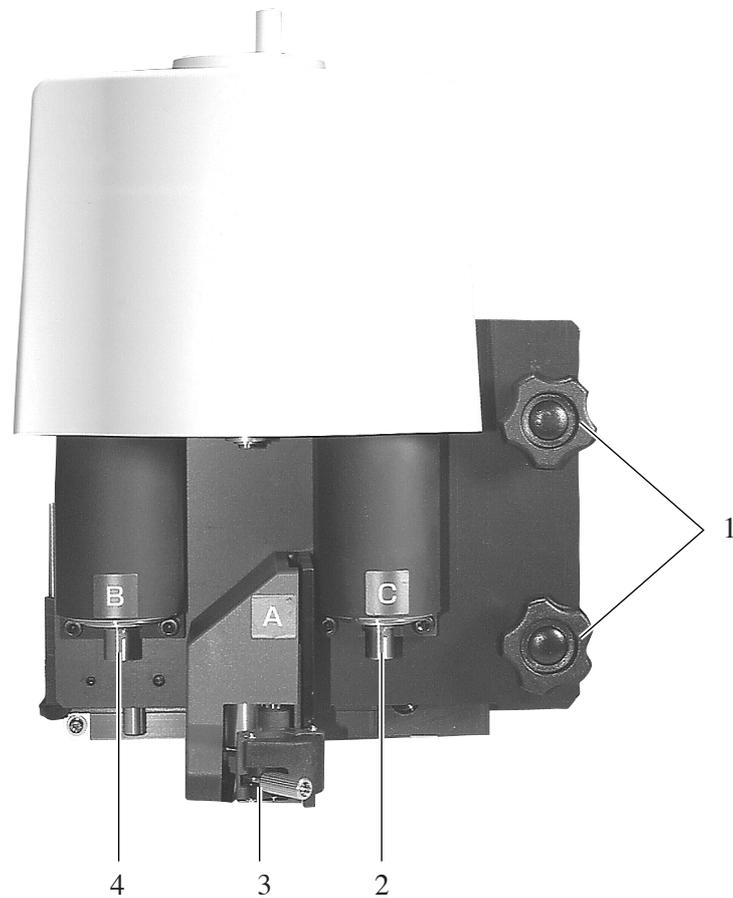
	Name	Function
1	Head securing screw	Used to fix the head on the Y bar. Loosen it when adjusting the height of the head or removing the head.
2	Head C	A marking roller or a high-pressure cutter is attached to the head C. (Only for TD-head) A high-pressure cutter is attached to the head C. (Only to TD- /TF-head) A low-pressure cutter is attached to the head C. (Only for TT-head)
3	Head A	A pen or eccentric cutter (optional) is attached to the head C.
4	Head B	A low-pressure cutter is attached to the head B. (Heads excluding the P-head)

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.

Operation panel
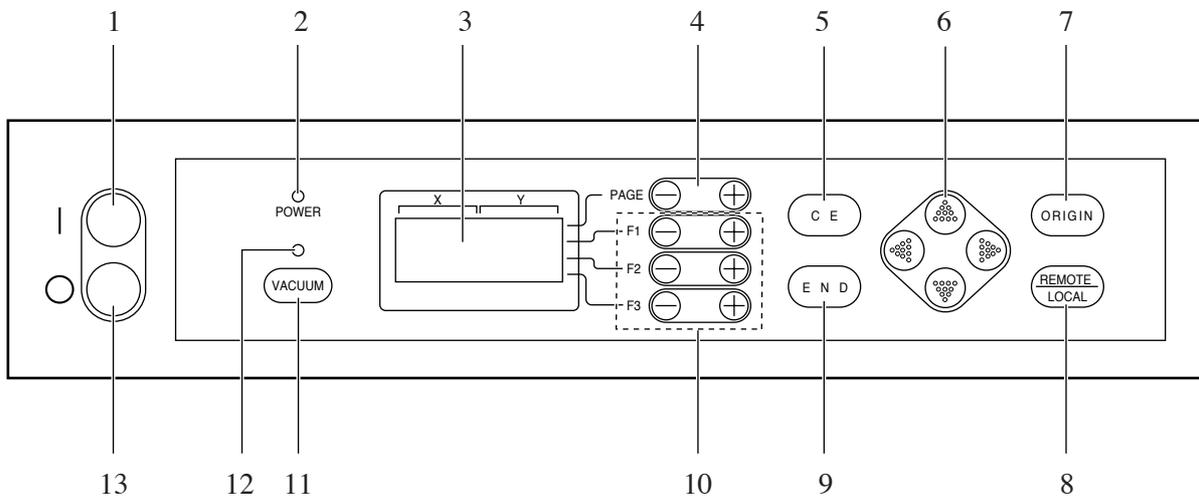
Name	Representation	Function
1　POWER ON switch	⎉	Used to turn ON the power to the device.
2　POWER lamp		Lights up (in green) when the power to the device is turned on.
3　LCD	[LOCAL] 1 / 4 TOOL SELECT − − −> CONDITION − − −> TEST CUT − − −>	LCD indicates states of the device and specified menus on its 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 1/4 to 4/4) 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.
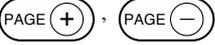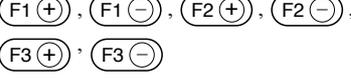
CONNECTING THE CABLES

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
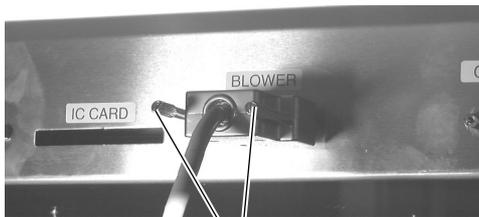
Screws

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.

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
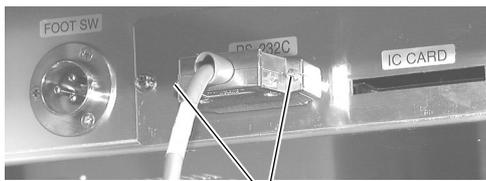
Screws

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%	100 VAC ±10% / 220 VAC ±10%
Frequency	50/60 HZ ±1%	50/60 HZ ±1%
Capacity	500W or more (10A or more)	1000W or more (15A or more)

1

Press the POWER OFF switch (○).

2

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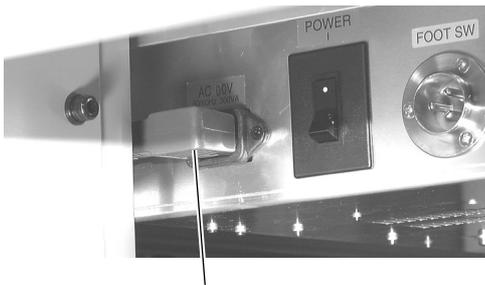
Insert the power cable for the plotter into the AC inlet of the electrical box.

3
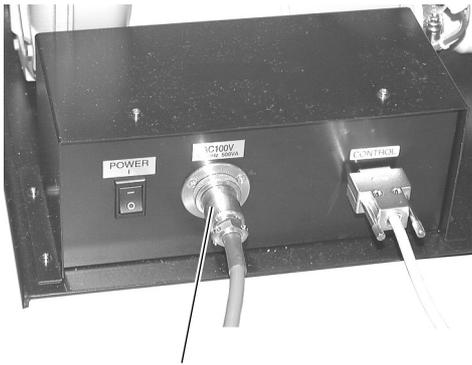
Power cable for the blower

Insert the power cable for the blower into the AC inlet of the blower unit.

Turn the ring clockwise to fix the cable.

4
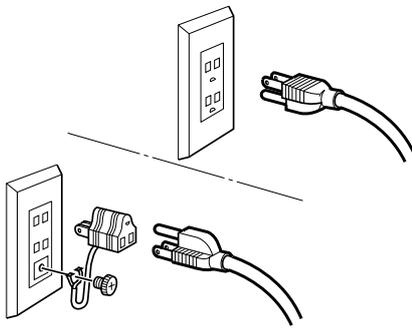
Insert the other end of the power cable into the 3P receptacle.

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.

⚠ **CAUTION**
- 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

Check to be sure that 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 (REMOTE/LOCAL) 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 (REMOTE/LOCAL) key to cause the device to enter the LOCAL mode, then execute the "data clear" function. (See page 2.42).

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

2

⬇

```
POWER  DOWN  WAIT
```

Press the POWER OFF switch ⊚ .
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

- 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.

1

Turn the EMERGENCY button clockwise for unlocking.

2

Press the POWER ON switch ⊘ .

The device will start up.

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.
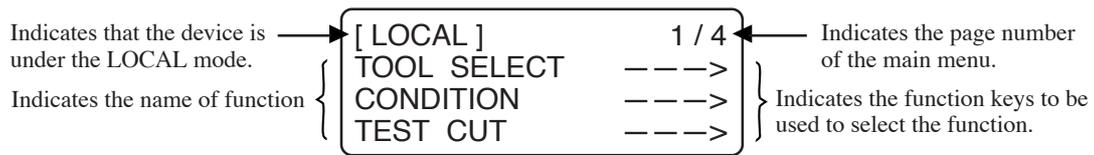
Sub menu 1: Set value inputting screen

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   I / F AUTO   ———>   of the sub menu.
selected.   BAUD RATE   * 9600 > } Indicates the function keys to be
                           DATA BITS   * 8 >   used to select the function.
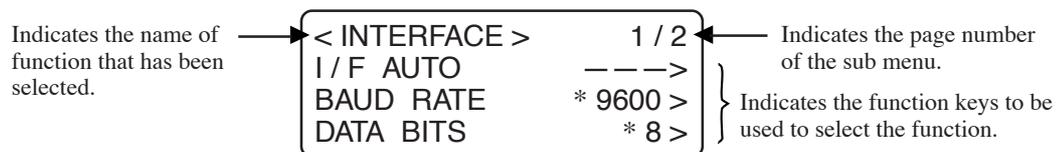
Sub menu 2: Function executing screen

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.
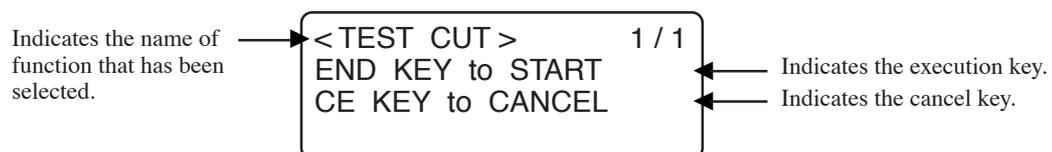
REMOTE mode and the indications on the LCD

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: B] 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
SWIEVEL  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, ENQ/ACK, software *1

*1 : [ENQ-ACK] and [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          – – –>
```
(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
I / F  AUTO        – – –>
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
I / F  AUTO        – – –>
BAUD  RATE        19200 >
DATA  BITS          *8 >
```
(F3 +)

Set the [DATA BIT] to one of the following.

7, 8 (bit)

5

```
< INTERFACE >        1 / 2
I / F  AUTO          ———>
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 BIT] to one of the following.

   1, 1.5, 2 bit

8

```
< INTERFACE >        2 / 2
PARITY              ODD >
STOP  BITS             1 >
HANDSHAKE         *HARD >
```
F3 ⊕

Set the [HAND SHAKE] to one of the following.

   Hardware, X code, ENQ/ACK, 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.

Setting the commands to be used [MODE SET] > [COMMAND]

Specify commands that are used by CAD.

Commands that can be selected are MGL-IIC3 and four different G codes command resolutions.

If the G command (to G (M)_0.001, G(M)_1.0, G(I)_0.0001 or G(I)_1.0) code is selected, four different kinds of G codes have to be specified.

Set values

        Command: MGL-IIC3, G(M)_0.001, G(M)_1.0, G(I)_0.0001, G(I)_1.0

        G codes: ASCII, ISO, EIA, Auto

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            *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 / 5
ROTATE              *+90° >
COMMAND            — — — >
CMD  SW         *INVALID >
```
(F2 +)

Select the [COMMAND].

5

```
< COMMAND >           1 / 1
                  *MGL-IIC3 >
```
(F2 +)

Set the [COMMAND] to one of the following.

    MGL-IIC3, G(M)_0.001, G(M)1.0, G(I)_0.0001, G(I)_1.0

    If the G-code resolution is specified, G-code command systems will appear on the screen.

6

```
< COMMAND >           1 / 1
             G (M) _ 0.001 >
G  CODE          *ASCII >
```
(F2 +)

Set a G-code command system from the following.

   ASCII, ISO, EIA, AUTO

(END)

7

```
< COMMAND >           1 / 1
             G (M) _ 0.001 >
G  CODE             ISO >
```

⬇

```
[ 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] > [COMMAND SW]

The set values (commands) that are rendered effective are specified either those set on the operation panel or those set on the CAD.
If the G code has been selected, this function is rendered ineffective. See page 1.24.

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 / 5
Z  STROKE          *7mm >
MULTI-PASS          ——— >
VACUUM            *AutoOFF>
```
(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 >
```
(F3 +)

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

5

(END)
```
< MODE  SET >        3 / 5
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.
If the G code has been selected, this function is rendered ineffective. See page 1.24.

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 2.37).

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           *7mm >
MULTI–PASS        — — — >
VACUUM         *AutoOFF>
```
(PAGE +)

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

4
```
< MODE  SET >        4 / 5
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 / 5
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 Instruction Manual for your CAD for the position of the command origin supported by the CAD.

If the G code has been selected, this function is rendered ineffective. See page 1.24.

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 / 5
Z  STROKE           *7mm >
MULTI–PASS         — — — >
VACUUM          *AutoOFF>
```
(PAGE +)

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

4

```
< MODE  SET >          4 / 5
OH  UNIT          *INIT val >
ORIGIN             *CENTER >
GDP               *0.025 mm >
```
(F2 +)

Set the [ORIGIN].

    Press the (F2 +) key to change the selected item alternately.

    LOWER LEFT, CENTER

5

(END)

```
< MODE  SET >          4 / 5
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 instruction manual for your CAD for the resolution supported by the CAD.

GDP: Graphic Display Pitch

If the G code has been selected, this funciton is rendered ineffective. See page 1.24.

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 / 5
Z  STROKE         *7mm >
MULTI–PASS        ——— >
VACUUM          *AutoOFF>
```
PAGE(+)

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

4
```
< MODE  SET >       4 / 5
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.

5
END
```
< MODE  SET >       4 / 5
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.

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).

Retracted position
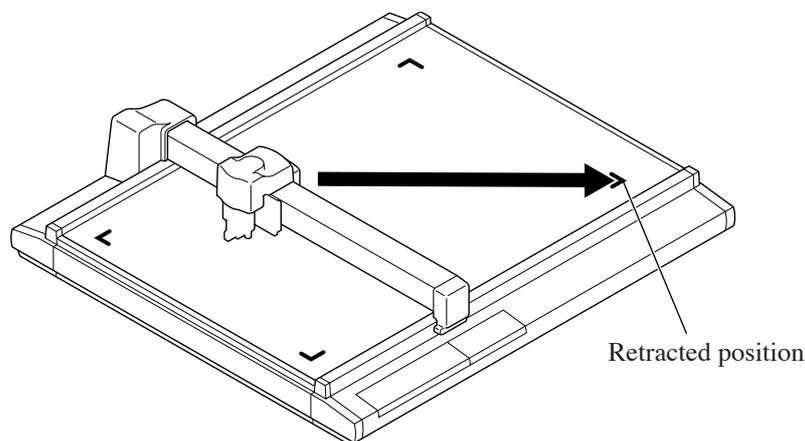
Set values

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 / 5
Z  STROKE          *7 mm >
MULTI–PASS          ———>
VACUUM             *AutoOFF>
```
PAGE +

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

4
```
< MODE SET >           2 / 5
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 / 5   │
│ 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.
Copy function and number cut function will turn the vacuum off automatically, regardless of the automatic head retraction function.

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 / 5
Z  STROKE        *7 mm >
MULTI–PASS        ———>
VACUUM           *AutoOFF>
```
(F3 +)

Select[VACUUM].
    Auto OFF, Panel OFF

4

(END)

```
< MODE SET >        1 / 5
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
COPY	Cutting is performed again in accordance with the data that have been once received.	P. 4.4
VIEW	The head is moved to the head retracting position located at the lower right of the cutting area or to the lower left of the cutting area.	P. 2.7
INTERFACE	Communication conditions for the serial port that matches the personal computer to be used are established.	P. 1.22 P. 4.14
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. 5.2
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.	P. 3.5

MODE SET menu

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

Function	Description	Reference page
COMMAND	Commands and input codes for your CAD are established.	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.	P. 1.30
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. 1.28
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. 1.27
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. 1.26
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. 1-32

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 >
```

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 (+)

PAGE (–)

Sub menu for [DATA CLEAR]

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

F1 (+)

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

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 (+)

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 (REMOTE/LOCAL) key to set the device in the LOCAL mode.

(2) Advance the LOCAL menu pages.

Each press on the (PAGE +) key will advance the page one by one.
Each press on the (PAGE −) key will return the page one by one.

(3) Select the setting item.

Select the setting item using the six function keys, ((F1 +) or (F1 −), (F2 +) or (F2 −), (F3 +) or (F3 −)). The corresponding sub menu appears on the LCD. The + keys ((F1 +), (F2 +) and (F3 +) 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 (F1 +), (F2 +) or (F3 +) key is pressed, the next value will appear on the screen.
If the (F1 −), (F2 −) or (F3 −) key is pressed, the previous value will appear on the screen.

(5) Save the set values.

Press the (END) key, and the LOCAL menu will be restored on the screen.

To cancel the set values:

Press the (C E) 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. 2.14)
⬇	
Adjust the height of the head.	Adjusting the height of the head (Refer to P. 2.18)
⬇	
Select a tool to be used.	Selecting a tool (Refer to P. 2.20)
⬇	
Set cutting conditions for the tool.	Check the cutting conditions for the tool (Refer to P. 2.22)
⬇	
Set cutting conditions	Check the cutting conditions (Refer to P. 2.29)
⬇	
Set a cutting area.	Setting a cutting area (Refer to P. 2.37)
⬇	
Set an origin for plotting.	Setting an origin (Refer to P. 2.40)
⬇	
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 left point or the retracting point (lower 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.
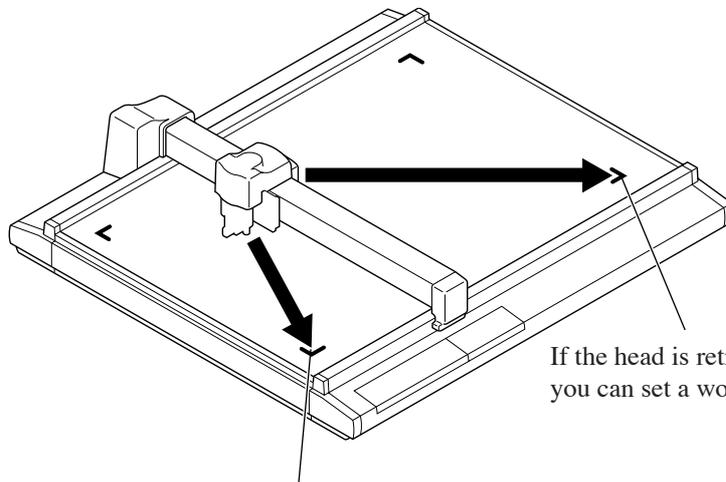
If the head is retracted to this point, you can set a tool with ease.

> 💡 • If the "VIEW" (see page 1.30) 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 (REMOTE/LOCAL) key several times until the LCD indicates page 3 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 retract point at the lower left of the cutting area.

Press the [F2 +] key to move the head to the retract point at the lower 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.
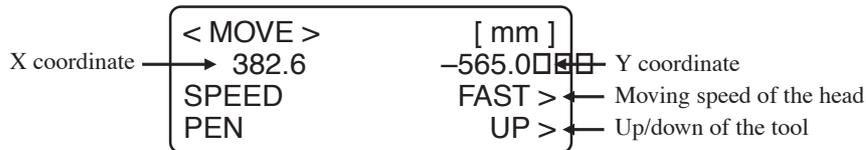
```
< MOVE >              [ mm ]
X coordinate ──→ 382.6      −565.0  ←── Y coordinate
                 SPEED        FAST > ←── Moving speed of the head
                 PEN           UP > ←── Up/down of the tool
```

1
```
[ LOCAL ]          1 / 4   PAGE +
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.

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

◀ ▶ ▲ ▼
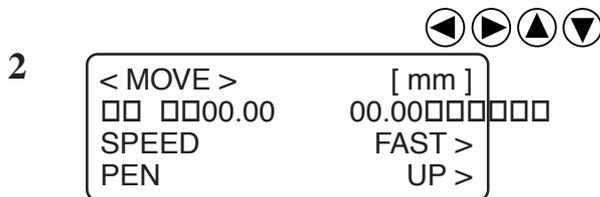
2
```
< MOVE >          [ mm ]
        00.00     00.00
SPEED            FAST >
PEN               UP >
```
Press one of the jog keys once.

The device enters the travel mode.

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

◀ ▶ ▲ ▼
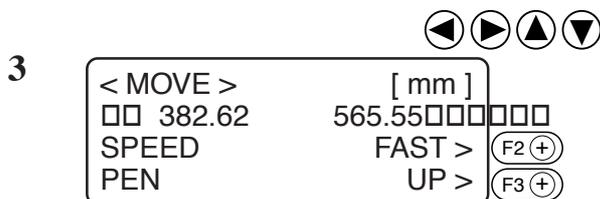
3
```
< MOVE >          [ mm ]
     382.62    565.55
SPEED            FAST >   F2 +
PEN               UP >    F3 +
```
Move the head by the jog keys.

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.

END
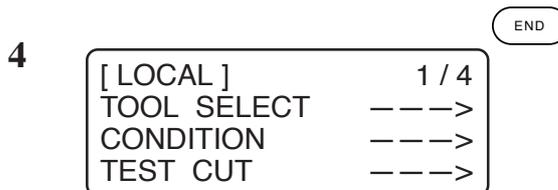
4
```
[ LOCAL ]          1 / 4
TOOL  SELECT    — — —>
CONDITION       — — —>
TEST  CUT       — — —>
```
Exit from the travel mode.

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 25 mm.

Four area marker labels are adhered on the cutting panel. 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.
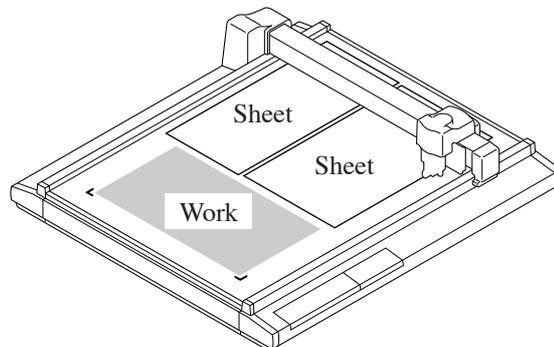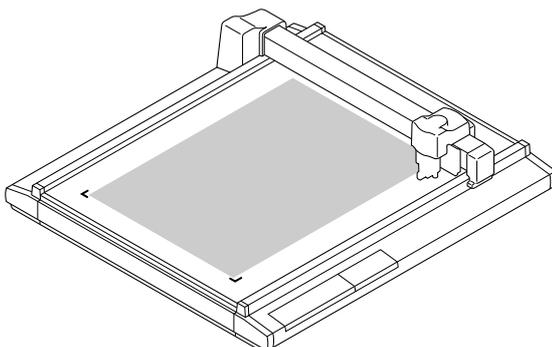
1   **Place a work on the cutting panel.**

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.
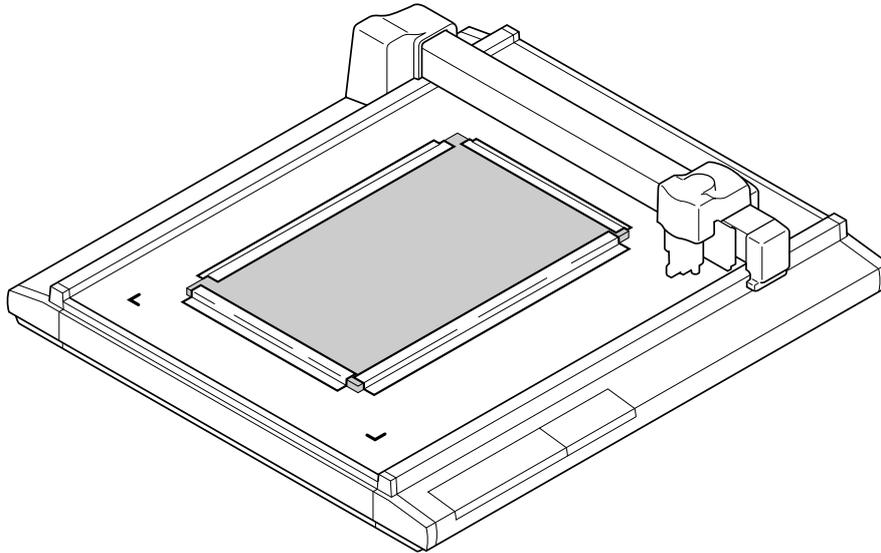
ADJUSTING THE BLADE

Adjusting procedure for the blade of the tangential cutter and the swievel cutter is given below.

Tangential cutter

Follow the procedure described below when projecting the blade tip of carbide blade 30° and high-speed steel blade 30°.

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
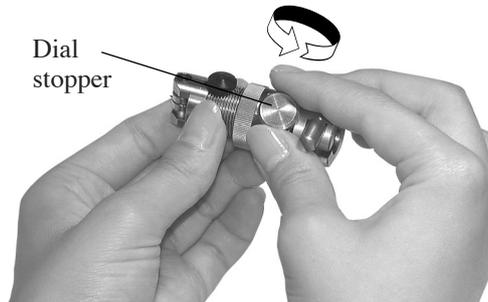
Dial stopper

Loosen the dial stopper.

Loosen the dial stopper counterclockwise to loosen it.

2
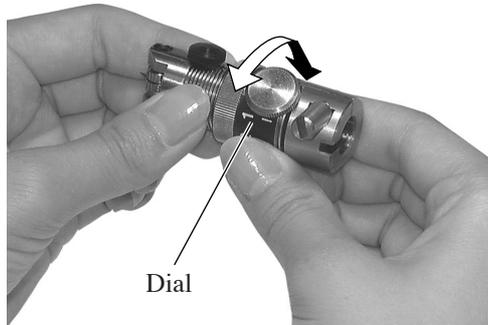
Dial

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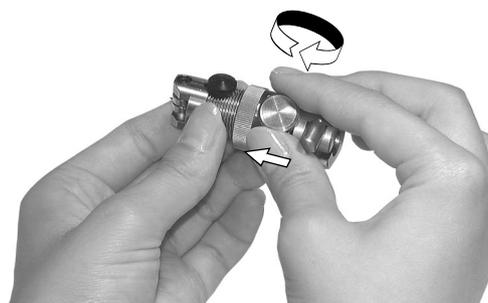
Pressing the dial in the direction of the arrow, tighten the dial stopper.

⚠ **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.

Swievel blade (optional)

Follow the procedure described below when projecting the blade tip of the swievel cutter that is optionally available.

- Special blades for the optional swievel cutters are prepared in accordance with works. Please contact your local dealer or MIMAKI office for details.

1
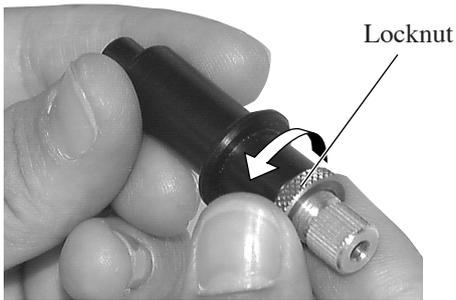
Locknut

Loosen the locknut.

Loosen the locknut counterclockwise to loosen it.

2
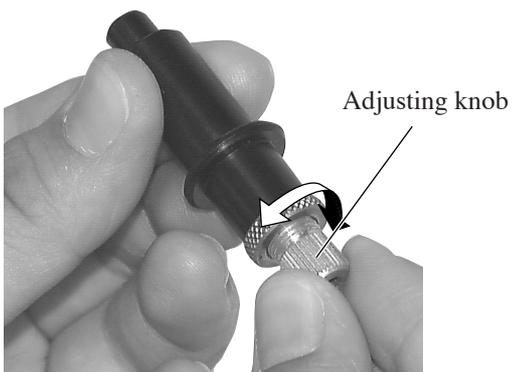
Adjusting knob

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

Turn the adjusting knob clockwise to project the blade tip.
Turn the adjusting knob counterclockwise to retract it into the holder.

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

Thickness of work + Thickness of base sheet/2

3
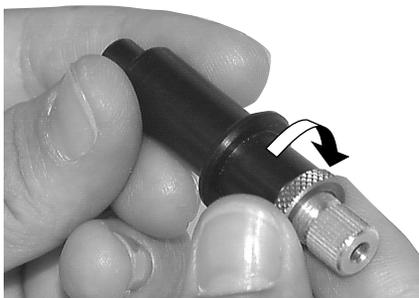
Taking care not to allow the adjusting knob to turn, tighten the locknut.

Turn the locknut clockwise to tighten it.

ATTACHING THE TOOLS

The table below gives the heads (A, B and C) to which tools are attached with respect to the head models.

This picture shows TD-head model.

Tool \ Head model name	T-head	TD-head	(TF-head)	(TT-head)	(P-head)
Pen			A		
Swievel blade			A		
Low-pressure tangential cutter	B	B	B	B, C	—
High-pressure tangential cutter	—	C	C	—	—
Creasing roller	—	C	—	—	—

Attaching the pen and the swievel 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
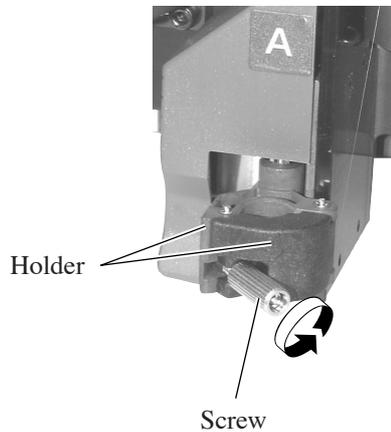
Holder

Screw

Loosen the screw in head A.

Turn the screw A counterclockwise to loosen it.

2

Groove in the holder
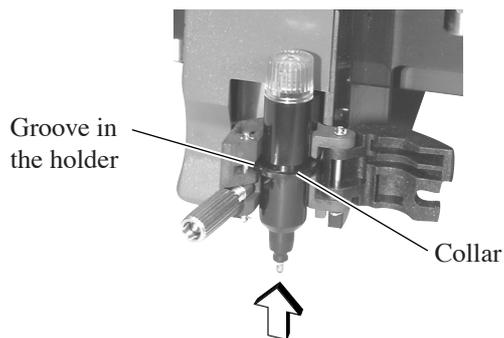
Collar

Insert the plotter pen or the swievel blacde in head A.

Fit the collar of the pen or the swievel blade in the groove in the holder.

3

Tighten the screw in head A.

Close the holders and turn the screw clockwise.

If the screw is securely tightened, normal product quality cannot be obtained.

Attaching the tangential cutter

Tangential cutter can be used with the head models excluding the P-head model.
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 2.18.)

1

Stopper screw

Loosen the stopper screw in the tangential cutter.

> Turn the stopper screw counterclockwise to loosen it.

2

Pin
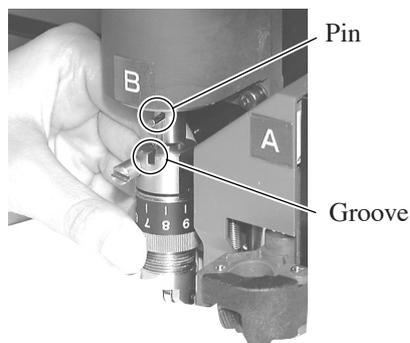
Groove

Insert the pin of head B 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.

> Securely fix the cutter holder.
> If it is not securely fixed, normal product quality cannot be achieved.

Installing the crease roller

The creasing roller can be installed on the head models excluding the P- and T-head models.
The crease roller is attached to C of the TD-head model. The high-pressure tangential cutter can also be attached to it.
If the head is in the lower position and the crease roller cannot be installed, lift the head. ("Adjusting the height of the tool" See page 2.18.)
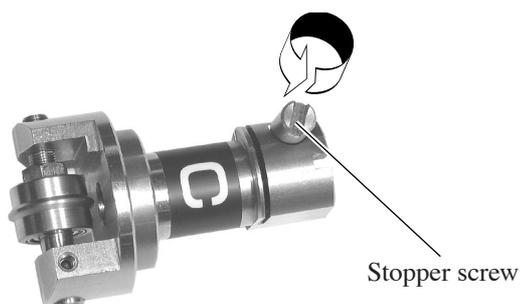
1 **Loosen the stopper screw in the crease roller.**

Turn the stopper screw counterclockwise to loosen it.
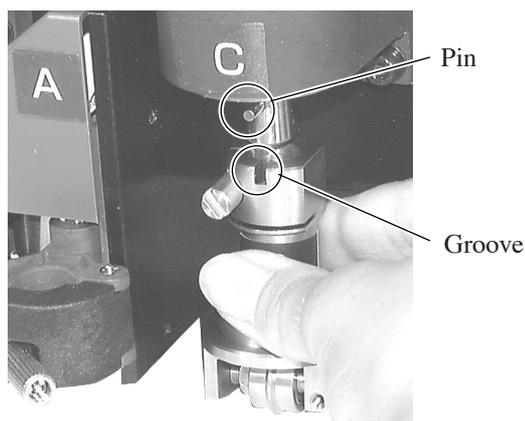
Stopper screw

2 **Insert the pin of head C into the marking roller while fitting the pin in the groove on the roller.**
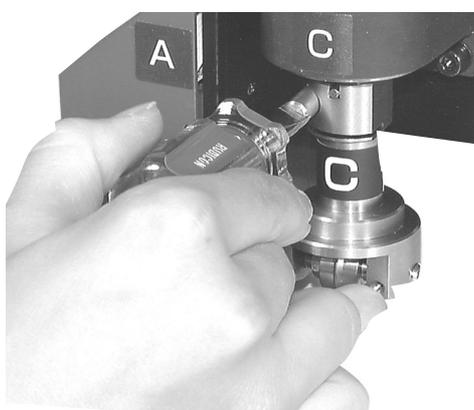
Pin

Groove

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

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

After a work and the tools have been properly attached in position, adjust the height of the head in accordance with thickness of the work.

Be sure to adjust the height of the head whenever you have changed a work to be used.

⚠ **CAUTION**
- When lifting the head, be sure to support the head base by hand. If lifting the head only by the height adjusting knob, the height adjusting knob can break.
- Be sure to tight the both fixing screws alternately. If not, the fixing screws may be broken.

1
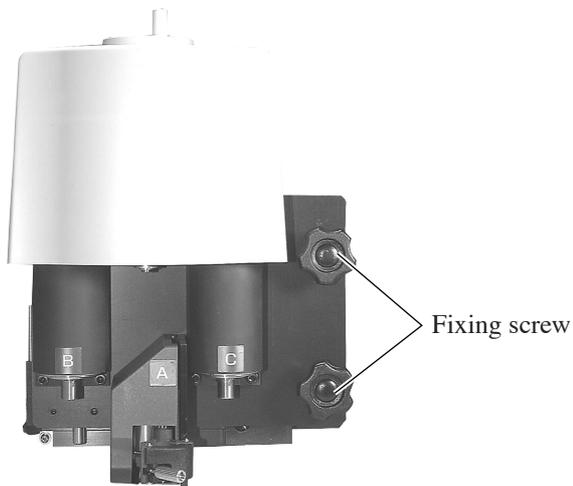
Fixing screw

Loosen two fixing screws in the head.

Turn the fixing screws counterclockwise to loosen them.

2
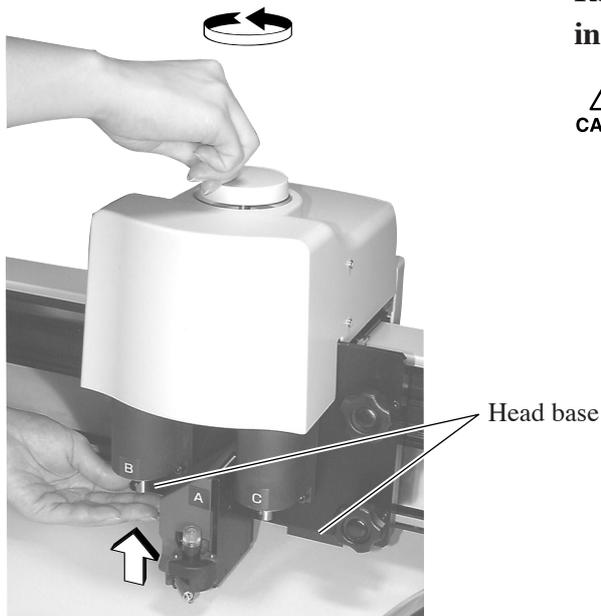
Head base

Raise the head using the height adjusting knob.

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

Turn the height adjusting knob counterclockwise to lift the head.

3
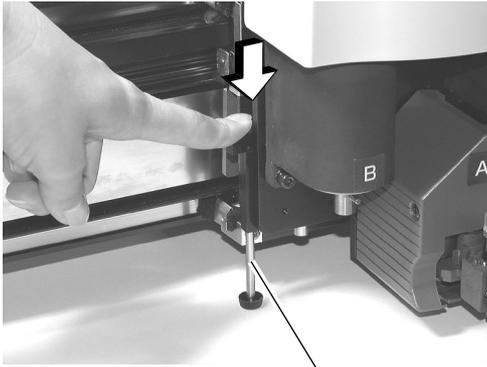
Height adjusting bar

Pressing down the height adjusting bar, turn the height adjusting knob 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

Fixing screw

Tight the both fixing screws on the head alternately.

Turn the fixing screws clockwise to tighten them.

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 [COMMAND SW] is set to "invalid" in the OPERATION mode

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

Head Tool Model name	A Pen / Swievel blade	B Cutters 1 to 2	C Rollers 1 to 4 / R. cutters 1 to 2	C Cutters 1 to 2
T-head model	O	O	—	—
TD-head model	O	O	O	—
TF-head model	O	O	O *1	—
TT-head model	O	O	—	O
P-head model	O	—	—	—

*1 : The TF-head model is not supplied with a crease roller. So, do not select any of rollers 1 to 4 for the TF-head model. R. cutters 1 and 2 are intended for high pressure.

The following describes how to set the head from pen A to cutter 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 LOCAL 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           CUTTER 1 >
```
(F2 ⊕)

Select the tool to be used.

　Cutter 1, Cutter 2

(END)

5

```
< TOOL  SELECT >      1 / 1
HEAD                      B >
TOOL           CUTTER 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 (CE) 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.

Setting item	Description	Pen	Tangential cutter	Crease roller	Swievel 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 swievel 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. Work Increase the cutting depth ← → Decrease the cutting depth Cutting start position in terms of data		O		
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		

Setting item	Description	Pen	Tangential cutter	Crease roller	Swievel blade
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	
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	
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	
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			

Setting item	Description	Pen	Tangential cutter	Crease roller	Swievel blade
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			

Set values

Plotting conditions for pens

Set values for plotting conditions are given below.

Set values

Speed:	2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (cm/s)
Pressure:	20 to 100 (in increments of 5 g)
	100 to 200 (n increments of 10 g)
Acceleration:	0.1 to 0.5 (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

The tangential cutter is applicable to the head models excluding the P-head. Set values for the tangential cutter are given below. The tangential cutter comes in two different types; the low-pressure cutter to be installed on head B and the high-pressure cutter to be installed on head C.

Set values

Speed:	2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (cm/s)
Pressure:	300 to 1500 (in increments of 100 g) Low-pressure cutter
	1000 to 5000 (in increments of 100 g) High-pressure 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)
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:	2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (cm/s)
Pressure:	1000 to 5000 (in increments of 100 g)
Acceleration:	0.1 to 0.5 (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 swievel blade

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

Set values

Speed:	2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (cm/s)
Pressure:	20 to 100 (in increments of 5 g)
	100 to 200 (in increments of 10 g)
Offset:	0.00 to 2.50 (in increments of 0.05 mm)
Acceleration:	0.1 to 0.5 (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 2.29.)

1

Select the head and the tool in the [TOOL SELECT]. (See page 2.20.)

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 >
RESERVE
```
F1 (+)
F2 (+)

Set the RING DISTANCE and PRESS CORRECTION to adequate value.

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

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

- **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 >
RESERVE
```
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 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.**

11

END

```
< 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 2.31).

    (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 2.22.)

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
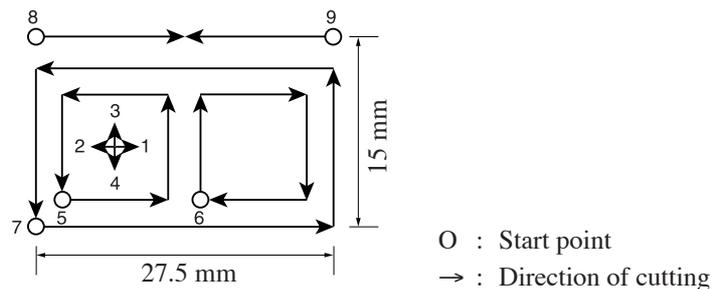
1   **Select a tool to be used for test cut using the [TOOL SELECT] function. Call up the first page of the LOCAL menu to the screen. See page 2.20.**

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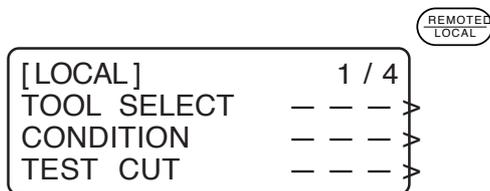
```
[LOCAL]            1 / 4
TOOL  SELECT    — — —>
CONDITION       — — —>
TEST  CUT       — — —>
```

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.

1

```
< MOVE >          [ mm ]
    00.00           0000
SPEED            FAST >
PEN                UP >
```
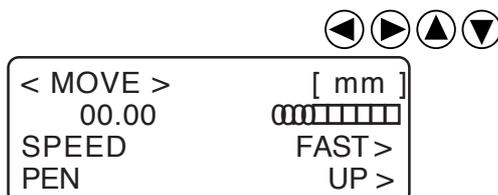
Move the head to a position where test cut is to be performed.

Press the jog keys to move the head.

4

```
< MOVE >            [ mm ]
     00.00          0000
SPEED              FAST >
PEN                  UP >
```

⬇

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

END
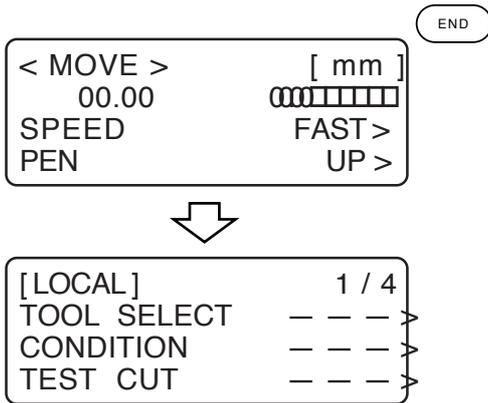
Exit from the MOVE mode.

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

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

⬇

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

END
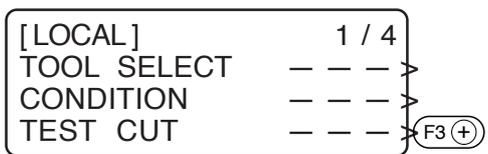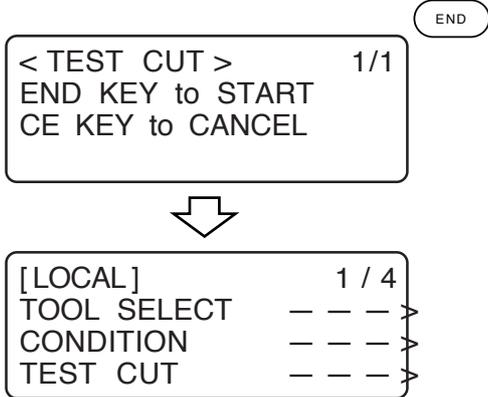
Execute the [TEST CUT].

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.
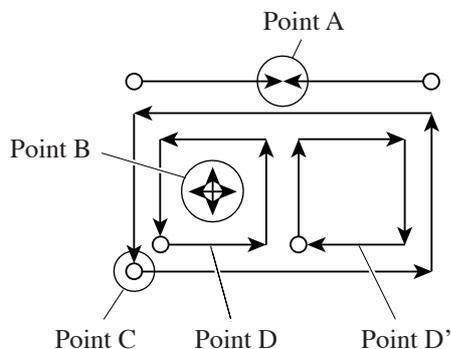
Pen

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 2.15.
Dots or thin spots are made.	Ink has run out.	Replace the pen with a new one.	See page 2.15.
	The pressure is insufficient.	Increase the speed.	See page 2.22.
	The speed is so high that the pen rises above the work.	Decrease the speed.	See page 2.22.

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 2.23.
	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 2.22.
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 2.22

— 2.31 —

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 2.22.
	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 eccenticity" 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 the 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 2.22.
	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 CONDI-TIONS] specified using the cutting condition setting functions is too large.	Place the corrugated fiber-board 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 2.23.

Swievel 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 2.15.
	The speed is too low.	Increase the speed.	See page 2.22.
	The pressure is insufficient.	Increase the pressure.	See page 2.22.
Corners are cut round.	The projecting amount of the blade tip is insufficient.	Increase the projecting amount of the blade tip.	See page 2.13.
	The offset value is too small.	Increase the offset value.	See page 2.22.

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.
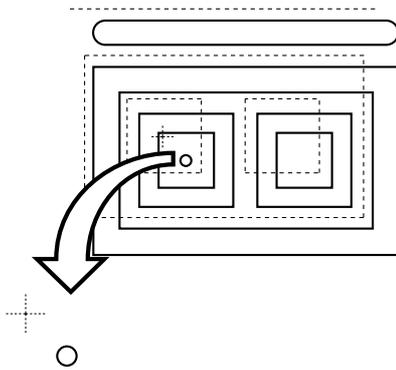
Corrective measure

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).
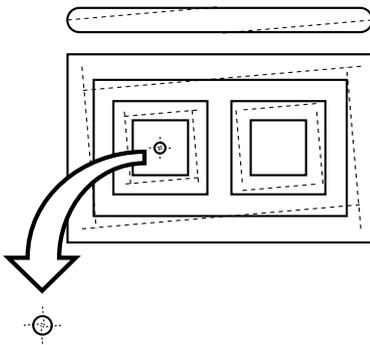
Corrective measure

Conduct the θ 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.
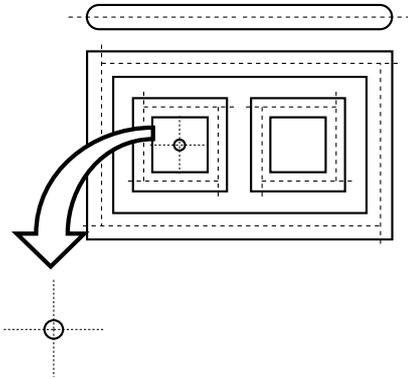
Corrective measure

Adjust the set value for the [START CORRECTION] in [CUTTING CONDI-TIONS] using the cutting condition set-ting functions. (See page 2.22.)

Adjust the pattern A for the "adjustment of the eccentricity" using the tool adjust-ing 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.
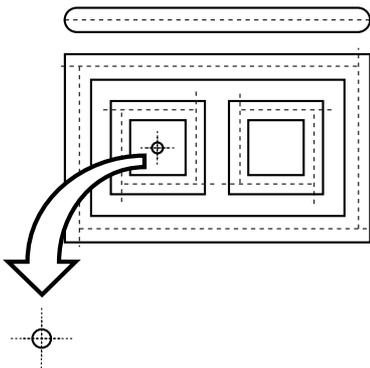
Corrective measure

Adjust the set value for the [END COR-RECTION] in [CUTTING CONDI-TIONS] using the cutting condition set-ting functions. (See page 2.23.)

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

Sample E

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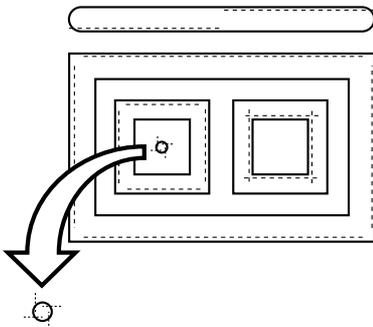
Corrective measure

Adjust the pattern A for the "adjustment of the eccentricity" using the tool adjust-ing 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.
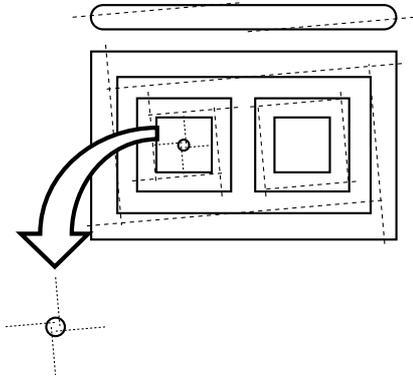
Corrective measure

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.
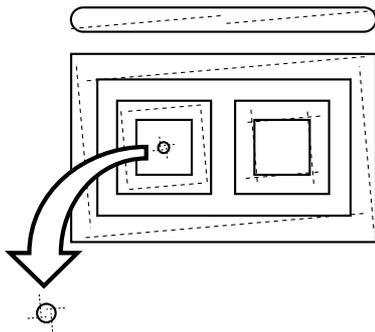
Corrective measure

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.
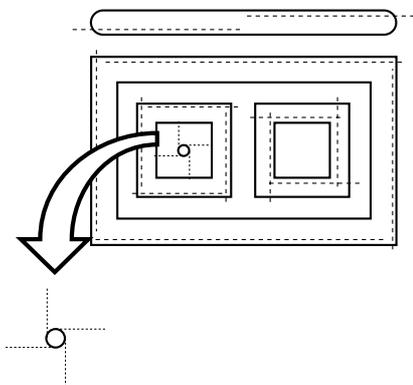
Corrective measure

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.
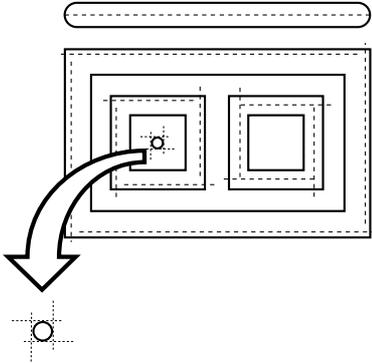
Corrective measure

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.
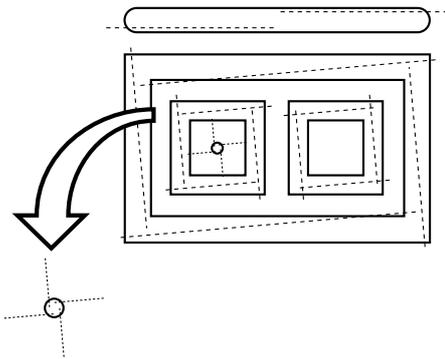
Corrective measure

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
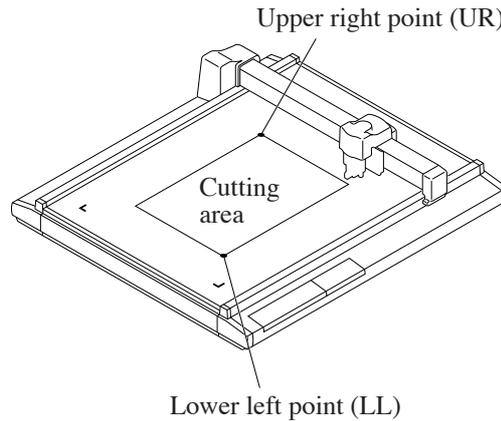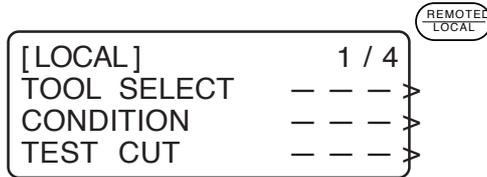
Invoke the LOCAL menu on the screen.

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

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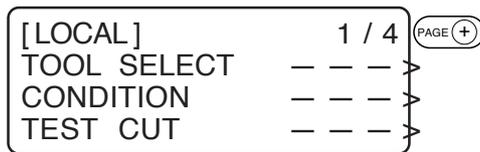
```
[LOCAL]            1 / 4
TOOL SELECT      — — — >
CONDITION        — — — >
TEST  CUT        — — — >
```
PAGE (+)

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 (+)

⇩

```
< AREA  LL >       [ mm ]
  −600.0          −450.0
SPEED             FAST >
CUTTER              UP >
```
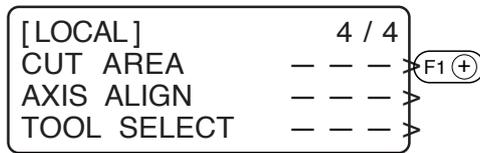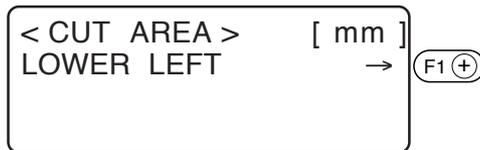
Move the tool to the current LL (lower left) point.

The coordinates of the LL point in terms of the command origin are shown on the LCD.
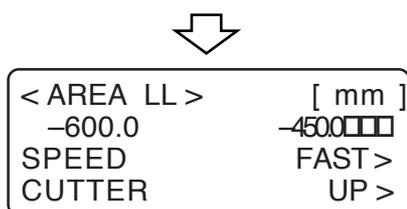
5

◀ ▶ ▲ ▼

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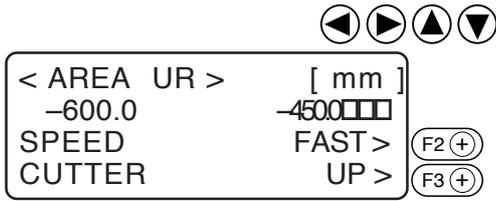
Align the tip of the tool to the upper right point of the desired cutting area.

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          −1120
SPEED             FAST >
CUTTER              UP >
```

⇩

```
[ LOCAL ]              4 / 4
CUT  AREA          − − − >
AXIS  ALIGN        − − − >
TOOL  SELECT       − − − >
```
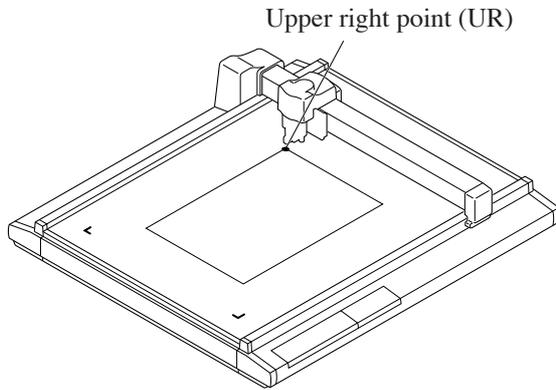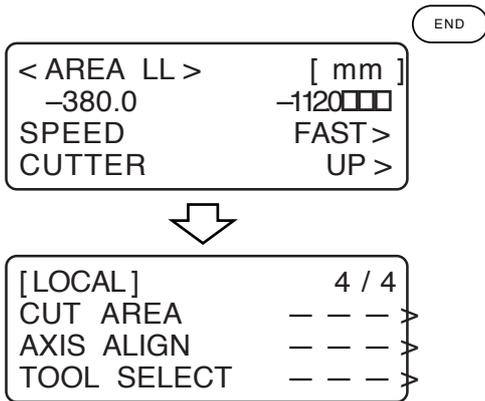
Enter the UR point.

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.
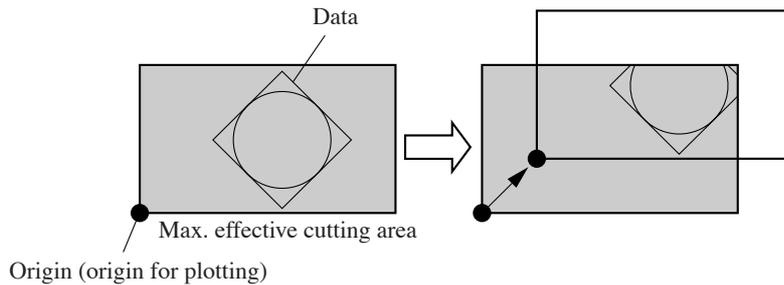
Data

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 LO-CAL 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 (REMOTE/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 (REMOTE/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 2.22.
• Data remaining in the data receiving buffer can be cleared.
   → "Interruption of processing [DATA CLEAR]" See page 2.42.

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           ———>
```

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                  ———>
```

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

3
```
[ LOCAL ]            2 / 4
DATA  CLEAR       ———>
COPY                 ———>
VIEW                  ———>
```

Select the [DATA CLEAR].

Press the (F1 +) key.

4
```
< TEST  CUT >      1 / 1
END  KEY  to  START
CE  KEY  to  CANCEL
```

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.

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

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 2.22

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 2.22.

If the end correction value is increased, the cutter will go up later. See page 2.23.

[TOOL ADJUST] > [CIRCLE q-CORRECT]

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.
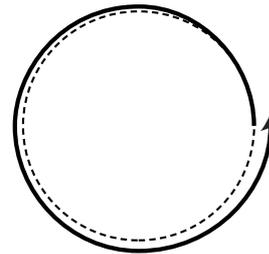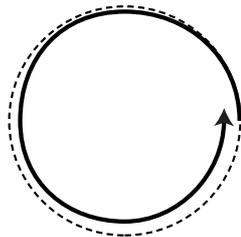
→ **: Direction of cutting**
---- **: Locus**

How to adjust:

Conduct the adjustment as given in the table below:
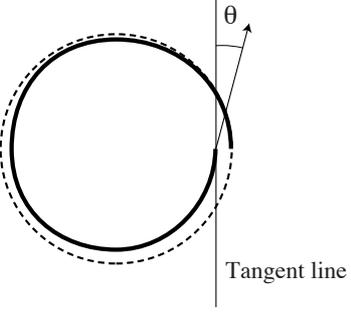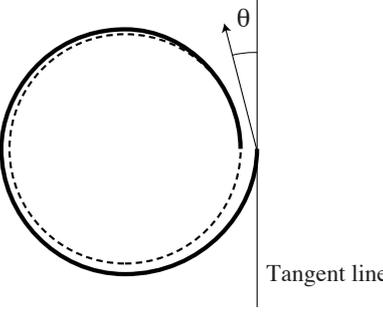
Pattern	Tangent line	Tangent line
How to adjust	**Set a correction angle to the positive side.**	**Set a correction angle to the negative side.**

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.
Place the corrugated board in such a way that its flutes are in parallel to the Y-axis of this device.

Flute
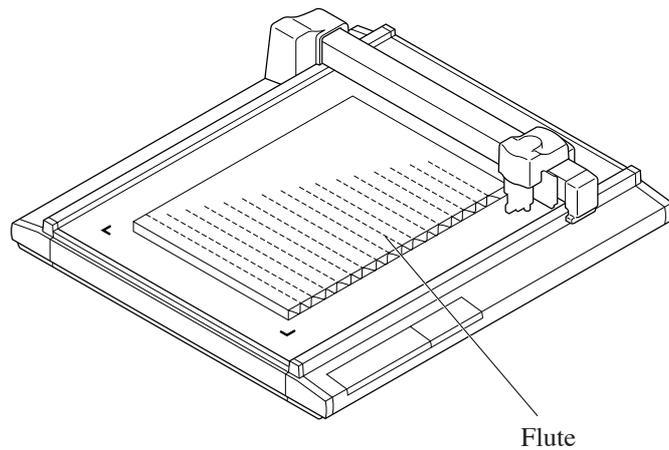
To set a marking pressure in terms of the Y-axis direction, specify how far the pressure is reduced from the pressure value designated in the [CUTTING CONDITIONS]. See page 2.23.

TOOLS ARE NOT ALIGNED TO EACH OTHER. [TOOL SELECT]

If a plotting tool and a cutter or a plotting tool and a marking roller fail to finish patterns that lack in overlapping, the deviation between the tools has to be adjusted. This adjustment targets the tool that is selected by "Tool select" function.

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 the tool required for adjustment.	Selecting a tool. (See page 2.20.)
⬇	
Select the sort of tool or circle θ adjustment.	Local menu. Adjustment tools. (See pages 2.2 and 3.6.) Circle θ-adjust. (See page 3.3.)
⬇	
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.)

Concerning how to adjust, refer to 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.
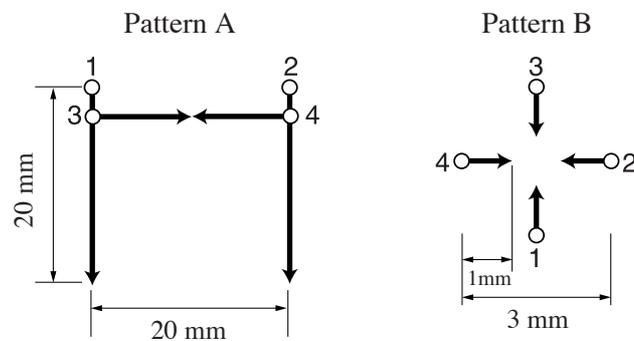
Pattern A   Pattern B

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

How to adjust:

Follow the adjusting procedure given below.

Pattern A has to be adjusted to correct the problem where the blade tip is out of the center of the cutter 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 q 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
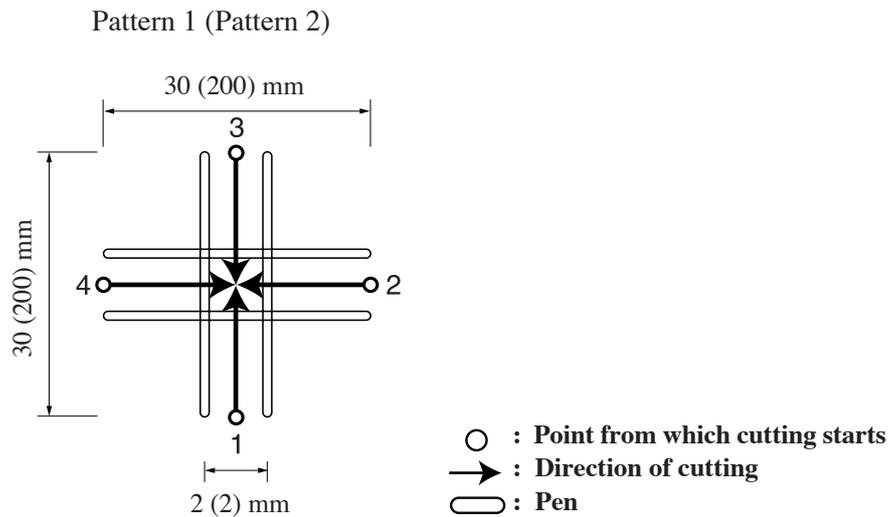
How to adjust:
Follow the adjusting procedure given below.

	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 θ 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.
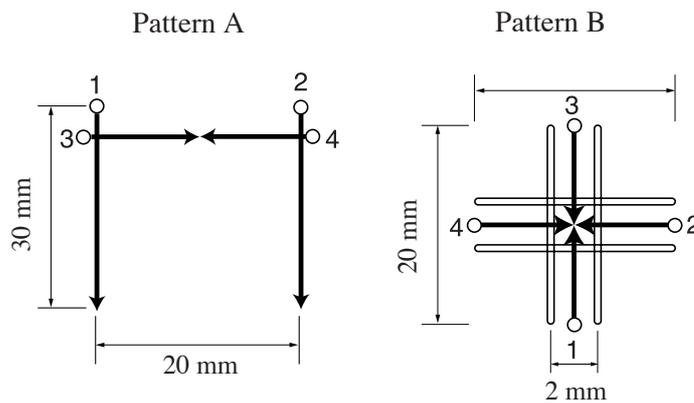
Pattern A   Pattern B

○ : 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

○ : **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**

30 mm

30 mm

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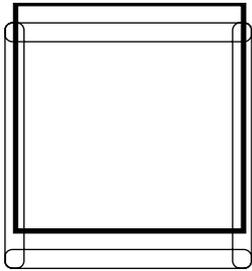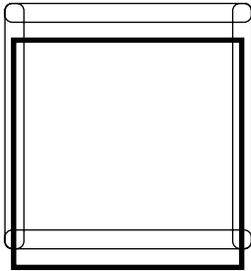
Sample pattern		
How to adjust	**If the roller deviates upward, increase the Y value for the roller.**	**If the roller deviates downward, decrease the Y value for the roller.**

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 θ 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 2.15 and 2.16.

2
```
[ CUTTER 1 ]          1 / 4
SPEED            *40 cm/s >
PRESSURE         *400 g >
ACCELE           *0.4 G >
```
(PAGE +)
The tool of the cutter 1 is chosen.
See page 2.20.

3
```
[ 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.

4
```
[ LOCAL ]             4 / 4
CUT  AREA          – – –>
AXIS  ALIGN        – – –>
TOOL  ADJUST       – – –>
```
(F3 +)
Select the [TOOL ADJSUT].

5
```
< TOOL  ADJUST >      1 / 1
B CUTTER  ADJUST – –>
C ROLLER  ADJUST – –>
CIRCLE θ CORP   – – –>
```
(F1 +)
Select the [CUTTER ADJUST].

6
```
< ADJ > SWIEVEL       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.
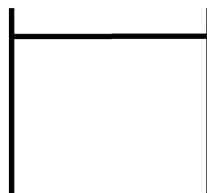
Normal pattern A   Normal pattern B
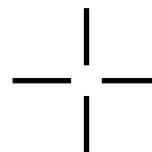
⎯⎯ : **Cutter**

7

```
< ADJ >  SWIEVEL      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.

8

**Carry out steps of procedure 6 and 7
in repetition.**

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

9

```
< ADJ >  SWIEVEL      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 θ angle.

10

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

Select the pattern for the adjustment.

1, 2

11

```
< 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**

12
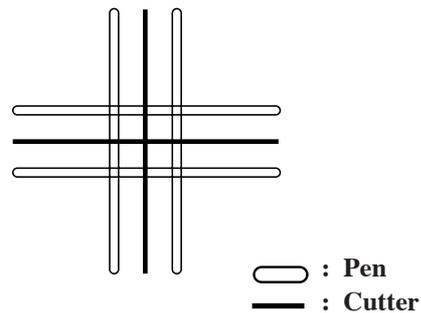
```
< ADJUST >  θ         2 / 3
CUTTER θ            ∗∗.∗∗ >   [F1 (+)]
PATTERN  No.          ∗1 >
TEST  PATTERN       — — —>
```

Input a value for the [CUTTER θ].

Increasing a value will rotate the pattern
clockwise.

Decreasing a value will rotate the pat-
tern counterclockwise.

13

Carry out steps of procedure 11 and 12 in repetition.

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

14

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

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.

15

```
< 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
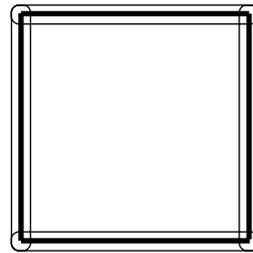
           ⬭ **: Pen**
           ▬ **: Cutter**

16

```
< ADJ > OFFSET        3 / 3
CUTTER X           **.** >
CUTTER Y           **.** >
TEST  PATTERN      ———>
```
(F1 +)
(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].

17

Carry out steps of procedure 15 and 16 in repetition.

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

18

(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.

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. 1.18

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. 1.24

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. 2.18
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. 2.15
Is the plotting speed too high?	Decrease the plotting speed.	P. 2.22
Is the plotting pressure insufficient?	Increase the plotting pressure.	P. 2.22
Has the pen run out of ink?	Replace the pen with a new one.	P. 2.15

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 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.

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

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. If G code is selected, this function will be rendered ineffective. See page 1.24. 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 / 5
Z STROKE          *7 mm >
MULTI–PASS        – – –>
VACUUM            *AutoOFF >
```
(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 >
```
(F1 +)

Select the [PEN ASSIGN].

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

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

9

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

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

10   END

```
< PEN  ASIGN >        2 / 6
PEN  2
HEAD                     B >
TOOL        CUTTER  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 2.42.

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

2

Origin

Cut a pattern according to the object data.
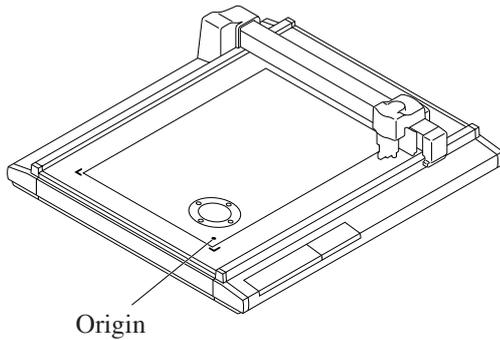
REMOTE
LOCAL

3

```
[ 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 2.40.

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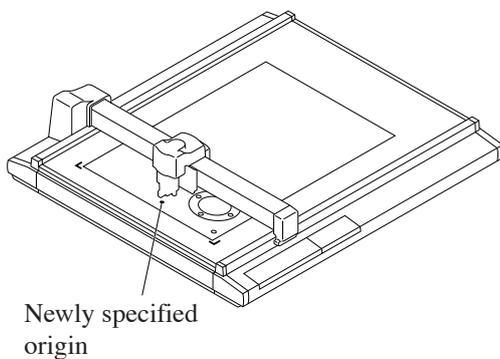
Invoke the 2nd page of the LOCAL menu on the screen.

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.
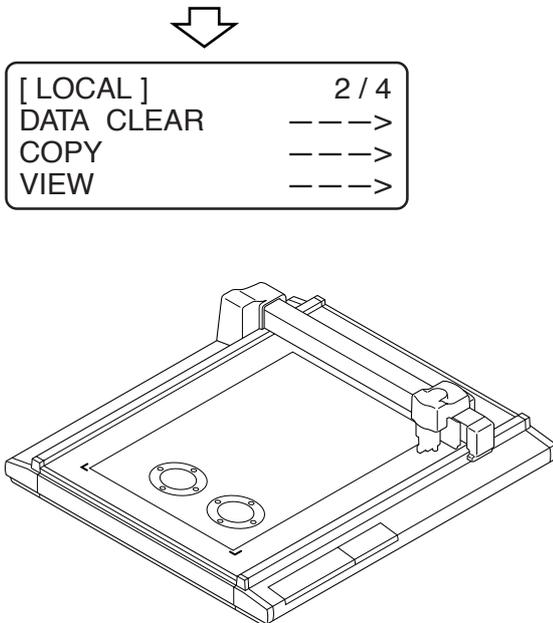
SETTING THE NUMBER CUT FUNCTION
[MODE SET] > [MULTI-PASS]

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.
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, 300 to 1000 g (in increments of 50 g)

      PRESS 2: Off, 300 to 1000 g (in increments of 50 g)

      PRESS 3: Off, 300 to 1000 g (in increments of 50 g)

      PRESS 4: Off, 300 to 1000 g (in increments of 50 g)

      PRESS 5: Off, 300 to 1000 g (in increments of 50 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       ———>
VACUUM        *AutoOFF >
```
(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            300 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            300 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.
If G code is selected, this function will be rendered ineffective. See page 1.24.

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        – – –>
VACUUM         *AutoOFF >
```
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 (CE) 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.
If G code is selected, this function will be rendered ineffective. See page 1.24.

Set values

  +90°: Lower right of the maximum effective cutting area
  −90°: Upper left of the maximum effective cutting area
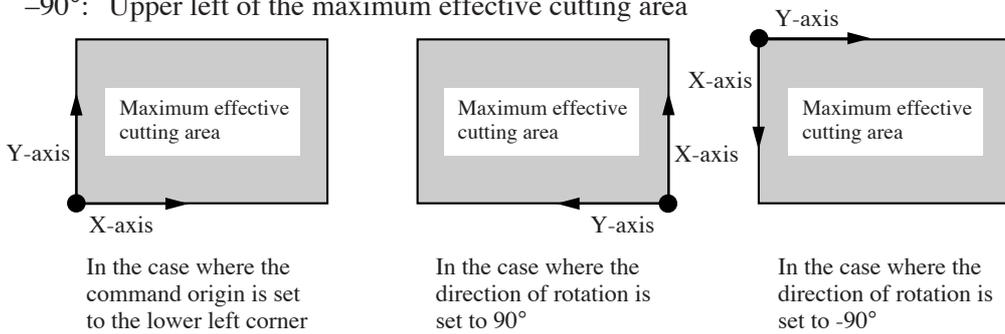
In the case where the command origin is set to the lower left corner	In the case where the direction of rotation is set to 90°	In the case where the direction of rotation is set to -90°

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        − − −>
VACUUM         ∗AutoOFF >
```
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    (PAGE +)
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          ———>   (F2 +)
SELF  TEST          ———>
```

Select the [MODE SET].

3

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

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          ———>
VACUUM           *AutoOFF >
```

⬇

```
[ 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       ———>
VACUUM        *AutoOFF >
```
(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 SWIEVEL BLADE [MODE SET] > [DUMMY CUT]

In the case where the swievel 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 swievel 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.

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

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 [MODE SET].

3

```
< MODE  SET >       1 / 5
Z  STROKE        *7 mm >
MULTI–PASS        – – –>
VACUUM         *AutoOFF >
```

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.

INTERFACE OF COMMUNICATION CONDITIONS [INTEFACE]

The device receives data from the computer, automatically acknowledges communication conditions and establishes them.

At this time, the device is not capable of conducting cutting (plotting).

∗ Some data may not permit automatic judgment. In this case, manually establish communication conditions. See page 1.22.

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].

3

```
< INTERFACE >          1 / 2
I / F  AUTO      ———>
BAUD  RATGE      ∗9600 >
DATA  BIT        ∗8 >
```
(F1 +)

Select the [I/F AUTO].

4
(END)

```
< I / F  AUTO >        1 / 1
END  KEY  to  START
CE  KEY  to  CANCEL
```

⬇

```
< I / F  AUTO >        1 / 1
· · Excuting
```

Execute the [I/F AUTO].

To cancel the automatic judgment function, press the (CE) key. The step of procedure 2 will be restored on the screen.

5

```
< I / F  AUTO >        1 / 1
· ·  Excuting
```

Transmit data from the computer to the device.

6

```
< I / F  AUTO >        1 / 1
· ·  Result
              XXXX  XX  XXX
                    SET >
```
F3 (+)

Enter the judgment result.
   If the interface are successfully judged, the interface are given on the LCD.
   Press the (F3 (+)) key to enter the interface.

```
< I / F  AUTO >        1 / 1
· ·  Impossible

Press  END  key
```

   If the interface are no successfully judged, the following indication will be shown on the LCD.
   Press the (END) key to restore the step of procedure 3 on the screen.
   Now, re-execute the I/F Auto or manually establish the interface. See page 1.22.

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         – – –>
```
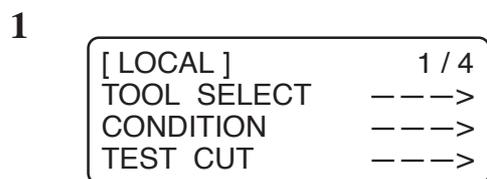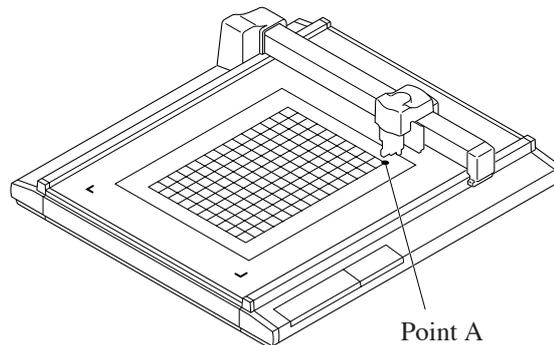
REMOTE/LOCAL

Cause the device to enter the LOCAL state.

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

2
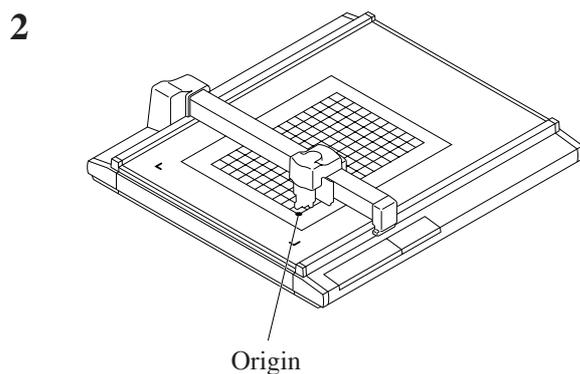
Origin

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         – – –>
```

PAGE +

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

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 (+)
```


Point A

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.
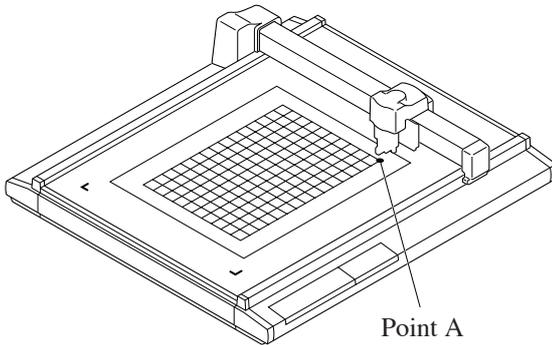
6

(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.

CHAPTER 5

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. (Effective for the head models excluding the P-head model)
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)	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. (Effective only for the TD model)
Sample (E CORRUGATED)	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. (Effective only for the TD model)
Sample (B CORRUGATED)	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. (Effective only for the TD model)
R=3	The device cuts a circle of which radius is 3 mm. (Effective for the head models excluding the P-head model)
R=5	The device cuts a circle of which radius is 5 mm. (Effective for the head models excluding the P-head model)
R=10	The device cuts a circle of which radius is 10 mm. (Effective for the head models excluding the P-head model)
R=20	The device cuts a circle of which radius is 20 mm. (Effective for the head models excluding the P-head model)
R=50	The device cuts a circle of which radius is 50 mm. (Effective for the head models excluding the P-head model)
R=100	The device cuts a circle of which radius is 100 mm. (Effective for the head models excluding the P-head model)
PARAMETER DUMP	The device plots a pattern according to the cutting conditions independently established on it.

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.	T	TD/(TF)	(TT)	(P)
1	Head	B	B	B	A
	Tool	Cutter 1	Cutter 1	Cutter 1	Swievel cutter
2	Head	B	C	C	A
	Tool	Cutter 1	Roller 1	Cutter 1	Pen
3	Head	B	B	B	A
	Tool	Cutter 1	Cutter 1	Cutter 1	Swievel cutter
4	Head	A	C	C	A
	Tool	Cutter 1	Roller 1	Cutter 1	Pen
5	Head	A	A	A	A
	Tool	Swievel cutter	Swievel cutter	Swievel cutter	Swievel cutter
6	Head	A	A	A	A
	Tool	Pen	Pen	Pen	Pen

1 **Establish an origin at a location where the self-test is to be performed. (See page 2.40.)**

2
```
[ LOCAL ]           1 / 4   (PAGE +)
TOOL  SELECT     ———>
CONDITION        ———>
TEST  CUT        ———>
```
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 2.20.)**
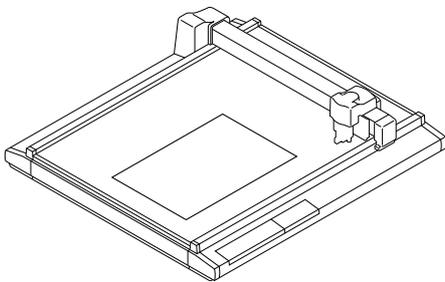
2   **Place a sheet of A3 or larger paper in landscape orientation on the device.**
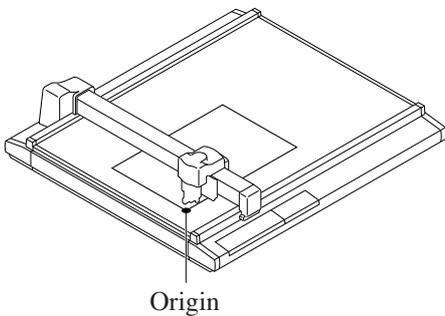
3   **Establish an origin at the left corner of the paper.**

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 +)
```
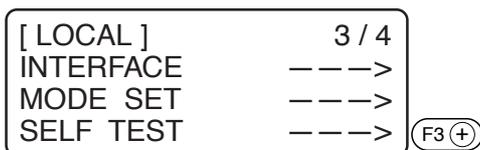
Select the [SELF TEST].

6

```
< SELF  TEST >          1 / 5
PATTEN  CUT  1     ———>
PATTEN  CUT  2     ———>   F3 ⊕
DATA  DUMP
```

Select the [DATA DUMP].

7

F3 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.
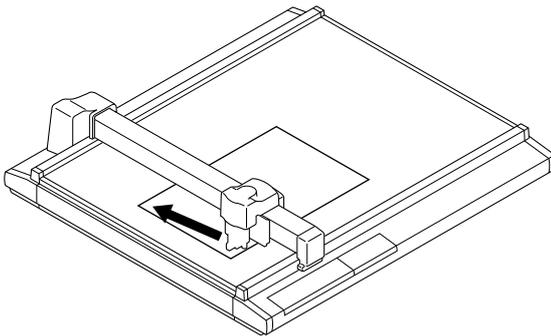
8

```
< 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 2.20.)

2
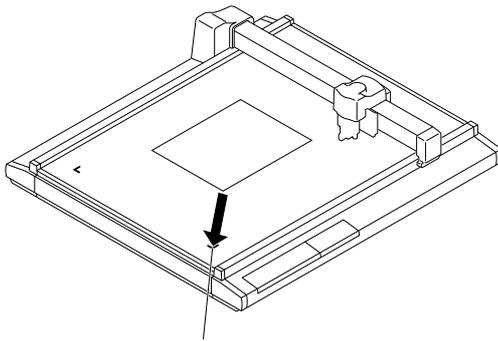
Origin marker label

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      PAGE +
TOOL  SELECT      ———>
CONDITION         ———>
TEST  CUT         ———>
```

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 +
```
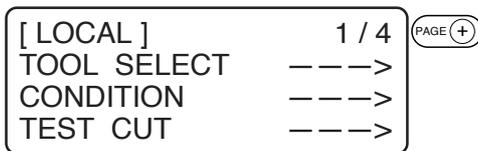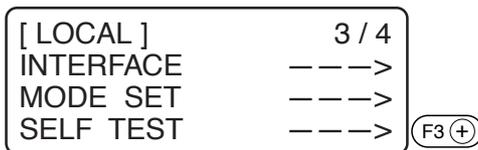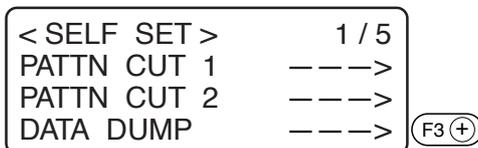
Invoke the fifth page of the self-test screen on the LCD.

6

```
< SELF  SET >        5 / 5
PARAMTR  DUMP  ———>   F1 +
```
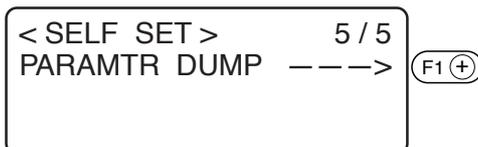
Select the [PARAMETER DUMP].

7   **Execute the [PARAMETER DUMP].**

The head travels to the upper left of the
paper to start plotting the parameters.

☀ • To abort, press the (REMOTE/LOCAL) key to
temporarily interrupt the opera-
tion, then execute the data clear
function.

APPENDIX

This appendix describes the replacement of blades, menu structure and the patterns.

Table of contents

A. REPLACING THE BLADE TIPS

The following describes how to replace the blade tips of the tangential cutter and swievel cutter.

Tangential cutter blade

Follow the procedure described below to change the special blade and the high-speed steel blade.

⚠ **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.
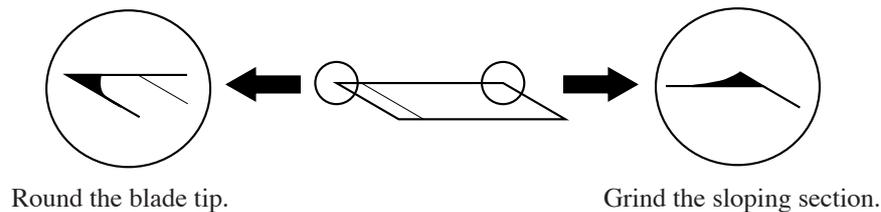
Gently rub the blade tip with the hand lapper while checking how far it is ground.

Hand lapper
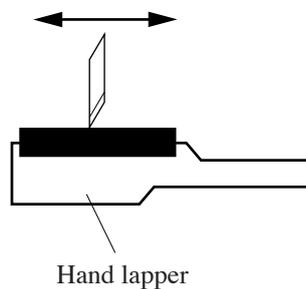
1   Cutter stopper

Loosen the cutter stopper.

Turn the cutter stopper counterclockwise to loosen it.

2
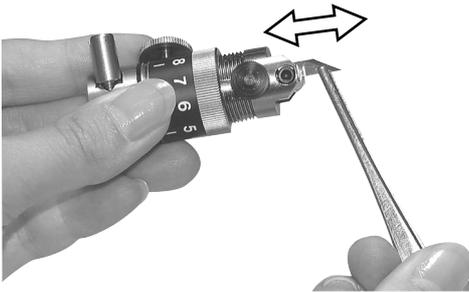
Replace the blade tip with a new one.

Hold the blade tip with a pair of tweezers supplied with the device as an accessory.

Insert the blade tip into the holder while carefully checking the orientation of the blade tip.
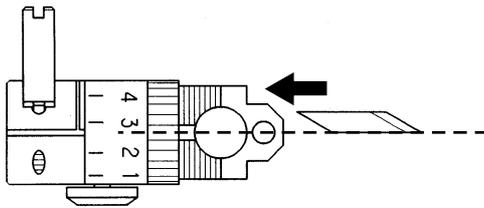
Insert the blade tip as illustrated in the sketch on the left.

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.

Swievel blade

Follow the procedure given below to replace the blade tip of the swievel cutter.

1
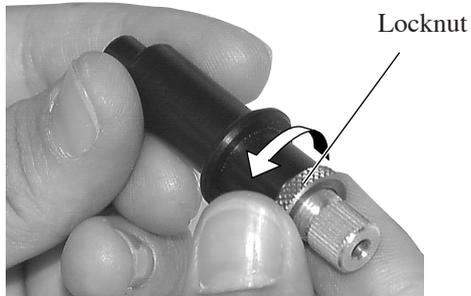
Locknut

Loosen the locknut.

Turn the locknut counterclockwise to loosen it.

2

Holder A

Holder B
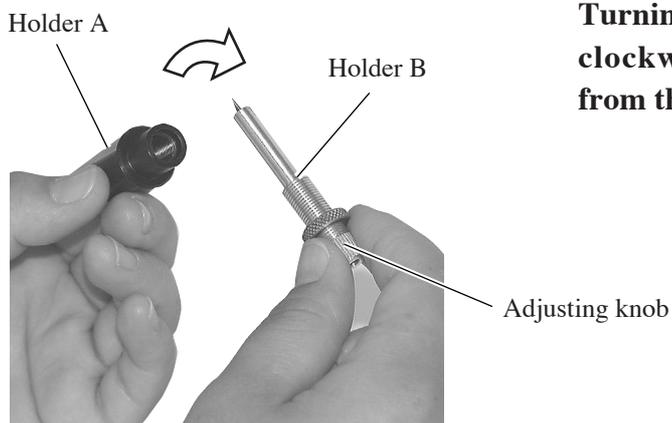
Adjusting knob

Turning the adjusting knob counter-clockwise, draw out the holder B from the holder A.

3
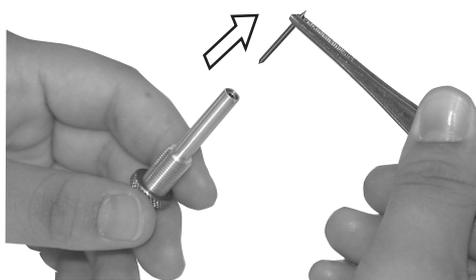
Replace the blade tip with a new one using a pair of tweezers.

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

T-head model

```
TOOL SELECT ─── HEAD ─── TOOL ─── PEN
                    │     TOOL ─── SWIEVEL
                    └─ HEAD ─── TOOL ─── θ CUTTER 1, θ CUTTER 2
```

1/4	CONDITION ─── TOOL	SPEED	2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (cm/s)
	─── SWIEVEL	PRESSURE	20 ~ 200 (g)
	─── θ CUTTER 1 ~ 2	ACCELE (ACCELERATION)	0.1 ~ 0.5 (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, 35 (cm/s)

```
TEST CUT ─── END, CE
```

2/4	DATA CLEAR ─── END, CE	SPEED	2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (cm/s)
	SINGLE COPY ─── END, CE	PRESSURE	20 ~ 200 (g)
		OFFSET	0.00 ~ 2.50 (mm)
	VIEW ─── LOWER RIGHT	ACCELE (ACCELERATION)	0.1 ~ 0.5 (G)
	LOWER LEFT		
		SPEED	2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (cm/s)
		PRESSURE	300 ~ 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)
		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 ─── I/F AUTO ─── END, CE		
	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		

MODE SET
- Z STROKE — 7, 4 (mm)
- MULTI-PASS
  - MULTI-PASS — OFF, 5, 15, 30, 45, 60 (Sec)
  - PRESS 1st — OFF, 300 ~ 1000 (g)
  - PRESS 2nd — OFF, 300 ~ 1000 (g)
  - PRESS 3rd — OFF, 300 ~ 1000 (g)
  - PRESS 4th — OFF, 300 ~ 1000 (g)
  - PRESS 5th — OFF, 300 ~ 1000 (g)
- VACUUM — AutoOFF, Panel OFF
- AUTO VIEW — OFF, 1s, 3s
- DUMMY CUT — OFF, ON
- ONE-STROKE — OFF, ON, SORT
- ROTATE — +90, –90 (°)
- COMMAND
  - MGL-IIC3
  - G (M)_0.001 — G CODE
  - G (M)_1.0
  - G (I)_0.001
  - G (I)_1.0
- 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 — TOOL — PEN / TOOL — SWIEVEL
- UNIT — MM, INCH — HEAD — TOOL — θ CUTTER 1, θ CUTTER 2

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
- RESERVE
- CIRCLE θ CORRECTION
  - 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

TD / (TF)-head model

```
1/4 ─┬─ TOOL SELECT ─┬─ HEAD ──── TOOL ──── PEN, SWIEVEL
     │               │
     │               ├─ HEAD ──── TOOL ──── θ CUTTER 1, θ CUTTER 2
     │               │
     │               └─ HEAD ──── TOOL ──── ROLLER 1, ROLLER 2, ROLLER 3, ROLLER 4,
     │                                      R. CUTTER 1, R. CUTTER 2
     │
     ├─ CONDITION ──┬─ TOOL ─────────────── SPEED                    2, 5, 10, 15, 20, 25, 30, 35,
     │              │                                                40, 45, 50 (cm/s)
     │              ├─ SWIEVEL ──────────── PRESSURE                 20 ~ 200 (g)
     │              │                       ACCELE (ACCELERATION)    0.1 ~ 0.5 (G)
     │              ├─ θ CUTTER 1 ~ 2 ────── R5 SPEED                OFF, 1, 2 (cm/s)
     │              │                        R10 SPEED               OFF, 1, 2, 3, 4, 5 (cm/s)
     │              ├─ θ CUTTER 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,
     │                                                               20 (cm/s)
     │                                       R40 SPEED               OFF, 1, 2, 3, 4, 5, 10, 15, 20,
     ├─ TEST CUT ─────── END, CE                                     25 (cm/s)
     │                                       R50 SPEED               OFF, 1, 2, 3, 4, 5, 10, 15, 20,
2/4  │                                                               25, 30 (cm/s)
     ├─ DATA CLEAR ───── END, CE             R100 SPEED              OFF, 1, 2, 3, 4, 5, 10, 15, 20,
     │                                                               25, 30, 35 (cm/s)
     ├─ SINGLE COPY ──── END, CE
     │                                       SPEED                   2, 5, 10, 15, 20, 25, 30, 35,
     ├─ VIEW ─────────── LOWER RIGHT,                                40, 45, 50 (cm/s)
     │                   LOWER LEFT          PRESSURE                20 ~ 200 (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                 1000 ~ 5000 (g)         SPEED                   2, 5, 10, 15, 20, 25, 30, 35,
     │              ACCELE (ACCELERATION)    0.1 ~ 0.5 (G)                                   40, 45, 50 (cm/s)
     │              UP ANGLE                 0 ~ 180 (°)             PRESSURE                300 ~ 1500 (g)
     │              RING DISTANCE            0.00 ~ 2.50 (mm)        ACCELE (ACCELERATION)   0.1 ~ 0.5 (G)
     │              PRESS CORRECTION         0 ~ 1000 (g)            FRONT OFFSET            0.00 ~ 2.50 (mm)
     │              PRESSURE (Y)             –5000 ~ 5000 (g)        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)        R5 SPEED                OFF, 0,5 (mm/s),
     │              ACCELE (ACCELERATION)    0.1 ~ 0.5 (G)                                   0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
     │              FRONT OFFSET             0.00 ~ 2.50 (mm)       R10 SPEED               OFF, 0.5 (mm/s),
     │              END OFFSET               0.00 ~ 2.50 (mm)                                0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
     │              UP ANGLE                 0 ~ 180 (°)            R15 SPEED               OFF, 0.5 (mm/s),
     │              RING DISTANCE            0.00 ~ 2.50 (mm)                                0.1, 0.2, 0.5, 1.0, 2.0 (cm/s)
     │              PRESS CORRECTION         0 ~ 500 (g)
     │              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 ──┬─ I/F AUTO ──────────── END, CE
3/4                 │
                    ├─ 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
```

```
         ┌─ MODE SET ──┬─ Z STROKE ──────────────── 7, 4 (mm)                        ┌─ MULTI-PASS ─ OFF, 5, 15, 30, 45, 60 (Sec)
         │             │                                                             ├─ PRESS 1st ── OFF, 300 ~ 1000 (g)
         │             ├─ MULTI-PASS ──────────────────────────────────             ├─ PRESS 2nd ── OFF, 300 ~ 1000 (g)
         │             │                                                             ├─ PRESS 3rd ── OFF, 300 ~ 1000 (g)
         │             ├─ VACUUM ───────────── AutoOFF, PanelOFF                     ├─ PRESS 4th ── OFF, 300 ~ 1000 (g)
         │             │                                                             └─ PRESS 5th ── OFF, 300 ~ 1000 (g)
         │             ├─ AUTO VIEW ────────── OFF, 1s, 3s
         │             │
         │             ├─ DUMMY CUT ───────── OFF, ON
         │             │
         │             ├─ ONE-STROKE ──────── OFF, ON, SORT
         │             │
         │             ├─ ROTATE ──────────── +90, –90 (°)                    ┌─ MGL-IIC3
         │             │                                                      ├─ G (M)_0.001 ─┐ G CODE
         │             ├─ COMMAND ──────────────────────────────             ├─ G (M)_1.0    │
3/4      │             │                                                      ├─ G (I)_0.001 ─┘
         │             ├─ CMD (COMMAND SW) ── VALID, INVALID                  └─ G (I)_1.0
         │             │
         │             ├─ OH UNIT ──────────── INITIAL VALUE,
         │             │                       SET VALUE
         │             │
         │             ├─ ORIGIN ───────────── CENTER,
         │             │                       LOWER LEFT
         │             ├─ GDP ──────────────── 0.025, 0.010 (mm)
         │             │                                                                           ┌─ TOOL ─ PEN
         │             ├─ PEN ASSIGN ─────────────────────────── PEN 1 ~ 6 ─┬─ HEAD ─┬─ TOOL ─┴─ TOOL ─ SWIEVEL
         │             │                                                    │        │
         │             └─ UNIT ──────────────── MM, INCH                    ├─ HEAD ─┴─ TOOL ─┬─ θ CUTTER 1
         │                                                                  │                 └─ θ CUTTER 2
         │                                                                  └─ HEAD ── TOOL ─┬─ ROLLER 1
         ├─ SELF TEST ──┬─ PATTERN CUT 1                                                     ├─ ROLLER 2
         │              ├─ PATTERN CUT 2                                                      ├─ ROLLER 3
         │              ├─ DATA DUMP (ASCII)                                                  ├─ ROLLER 4
         │              ├─ SAMPLE  0.5 mm                                                     ├─ R. CUTTER 1
         │              ├─ SAMPLE  1.0 mm                                                     └─ R. CUTTER 2
         │              ├─ SAMPLE  1.5 mm
         │              ├─ CIRCLE R=3                               ┌─ A  LENG (LENGTH) ── –4.00 ~ +4.00
         │              ├─ CIRCLE R=5                               ├─ B ───────────────── –4.00 ~ +4.00
         │              ├─ CIRCLE R=10                              ├─ TEST PATTERN
         │              ├─ CIRCLE R=20                              ├─ CUTTER θ ────────── –4500 ~ +4500
         │              ├─ CIRCLE R=50                              ├─ PATTERN NO. ─────── 1, 2
         │              ├─ CIRCLE R=100                             ├─ TEST PATTERN
         │              └─ PARAMETER DUMP                           ├─ CUTTER X ────────── +33.00 ~ –41.00
         │                                                          ├─ CUTTER Y ────────── +50.00 ~ +58.00
         ├─ CUT AREA ──── LL, UR                                    └─ TEST PATTERN
4/4 ─┬─ AXIS ALIGN
     │                                                             ┌─ A  LENG (LENGTH) ── –4.00 ~ +4.00
     └─ TOOL ──┬─ B TOOL ADJUST ──────────────────────            ├─ B ───────────────── –4.00 ~ +4.00
        ADJUST │                                                   ├─ TEST PATTERN
               │                                                   ├─ ROLLER θ ────────── –4500 ~ +4500
               ├─ ROLLER ADJUST ───────────────────────           ├─ PATTERN NO. ─────── 1
               │                                                   ├─ TEST PATTERN
               └─ CIRCLE θ CORRECTION ──────────────────          ├─ ROLLER X ────────── +33.00 ~ –41.00
                                                                   ├─ ROLLER Y ────────── +32.00 ~ +44.00
                                                                   └─ TEST PATTERN

                                                                   ┌─ 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
```

TT-head model

```
                TOOL SELECT ──────── HEAD ──────── TOOL ──────── PEN, SWIEVEL

                                     HEAD ──────── TOOL ──────── θ CUTTER 1, θ CUTTER 2

                                     HEAD ──────── TOOL ──────── θ CUTTER 1, θ CUTTER 2


       1/4      CONDITION ────────── TOOL ─────────────────── SPEED           2, 5, 10, 15, 20, 25, 30, 35,
                                                                              40, 45, 50 (cm/s)
                                     SWIEVEL ─────────────── PRESSURE          20 ~ 200 (g)
                                                            ACCELE (ACCELERATION) 0.1 ~ 0.5 (G)
                                     θ CUTTER 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                 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             SPEED             2, 5, 10, 15, 20, 25, 30, 35,
                                     LOWER LEFT                                40, 45, 50 (cm/s)
                                                            PRESSURE          20 ~ 200 (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 (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)
                                                            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 ────────── I/F AUTO ──────────── END, CE


                                     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
```

```
3/4 ─┬─ MODE SET ──┬─ Z STROKE ──────────────── 7, 4 (mm)
     │             │                                                  ┌─ MULTI-PASS ─ OFF, 5, 15, 30, 45, 60 (Sec)
     │             ├─ MULTI-PASS ──────────────────────────────────── ├─ PRESS 1st ── OFF, 300 ~ 1000 (g)
     │             │                                                  ├─ PRESS 2nd ── OFF, 300 ~ 1000 (g)
     │             ├─ VACUUM ──────────── AutoOFF, PanelOFF           ├─ PRESS 3rd ── OFF, 300 ~ 1000 (g)
     │             │                                                  ├─ PRESS 4th ── OFF, 300 ~ 1000 (g)
     │             ├─ AUTO VIEW ───────── OFF, 1s, 3s                 └─ PRESS 5th ── OFF, 300 ~ 1000 (g)
     │             │
     │             ├─ DUMMY CUT ───────── OFF, ON
     │             │
     │             ├─ ONE-STROKE ──────── OFF, ON, SORT
     │             │                                          ┌─ MGL-IIC3
     │             ├─ ROTATE ──────────── +90, –90 (°)        ├─ G (M)_0.001 ─┬─ G CODE
     │             ├─ COMMAND ───────────                     ├─ G (M)_1.0 ──┤
     │             │                                          ├─ G (I)_0.001 ─┤
     │             ├─ CMD (COMMAND SW) ── VALID, INVALID       └─ G (I)_1.0 ──┘
     │             │
     │             ├─ OH UNIT ─────────── INITIAL VALUE,
     │             │                      SET VALUE
     │             │
     │             ├─ ORIGIN ──────────── CENTER,
     │             │                      LOWER LEFT
     │             ├─ GDP ─────────────── 0.025, 0.010 (mm)
     │             │                                                  ┌─ HEAD ─┬─ TOOL ─ PEN
     │             ├─ PEN ASSIGN ──────────────────────── PEN 1 ~ 6 ─┤        └─ TOOL ─ SWIEVEL
     │             │                                                  ├─ HEAD ── TOOL ─ θ CUTTER 1
     │             └─ UNIT ────────────── MM, INCH                    │                 θ CUTTER 2
     │                                                                └─ HEAD ── TOOL ─ θ CUTTER 1
     │                                                                                  θ CUTTER 2
     ├─ SELF TEST ─┬─ PATTERN CUT 1
     │             ├─ PATTERN CUT 2
     │             ├─ DATA DUMP (ASCII)
     │             ├─ SAMPLE  0.5 mm
     │             ├─ SAMPLE  1.0 mm                            ┌─ A  LENG (LENGTH) ── –4.00 ~ +4.00
     │             ├─ SAMPLE  1.5 mm                            ├─ B ───────────────── –4.00 ~ +4.00
     │             ├─ CIRCLE  R=3                               ├─ TEST PATTERN
     │             ├─ CIRCLE  R=5                               ├─ CUTTER θ ────────── –4500 ~ +4500
     │             ├─ CIRCLE  R=10                              ├─ PATTERN NO. ─────── 1, 2
     │             ├─ CIRCLE  R=20                              ├─ TEST PATTERN
     │             ├─ CIRCLE  R=50                              ├─ CUTTER X ────────── +33.00 ~ –41.00
     │             ├─ CIRCLE  R=100                             ├─ CUTTER Y ────────── +50.00 ~ +58.00
     │             └─ PARAMETER DUM                             └─ TEST PATTERN
     │
     ├─ CUT AREA ─── LL, UR
4/4 ─┤                                                          ┌─ A  LENG (LENGTH) ── –4.00 ~ +4.00
     ├─ AXIS ALIGN                                              ├─ B ───────────────── –4.00 ~ +4.00
     │                                                          ├─ TEST PATTERN
     └─ TOOL ─────┬─ B TOOL ADJUST ──────────                   ├─ ROLLER θ ────────── –4500 ~ +4500
       ADJUST     │                                             ├─ PATTERN NO. ─────── 1, 2
                  ├─ TOOL ADJUST ───────────                    ├─ TEST PATTERN
                  │                                             ├─ ROLLER X ────────── +33.00 ~ –41.00
                  └─ CIRCLE θ CORRECTION ───                    ├─ ROLLER Y ────────── +50.00 ~ +58.00
                                                                └─ TEST PATTERN

                                                                ┌─ 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
```

P-head model

TOOL SELECT —— HEAD —— TOOL —— PEN, SWIEVEL

1/4

CONDITION —— TOOL —— SPEED 2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (cm/s)

SWIEVEL

PRESSURE 20 ~ 200 (g)
ACCELE (ACCELERATION) 0.1 ~ 0.5 (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, 35 (cm/s)

TEST CUT —— END, CE

2/4

DATA CLEAR —— END, CE

SINGLE COPY —— END, CE

VIEW —— LOWER RIGHT
         LOWER LEFT

SPEED 2, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 (cm/s)
PRESSURE 20 ~ 200 (g)
OFFSET 0.00 ~ 2.50 (mm)
ACCELE (ACCELERATION) 0.1 ~ 0.5 (G)

3/4

INTERFACE —— I/F AUTO —— END, CE

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

```
          ┌─ MODE SET ──┬─ RESERVE
          │             │
          │             ├─ RESERVE
          │             │
          │             ├─ AUTO VIEW ──────── OFF, 1s, 3s
          │             │
          │             ├─ DUMMY CUT ──────── OFF, ON
          │             │
          │             ├─ RESERVE
          │             │
          │             ├─ RESERVE
          │             │                                    ┌─ MGL-IIC3
          │             ├─ COMMAND ──────────────────────────┤─ G (M)_0.001 ──── G CODE
    3/4 ──┤             │                                    ├─ G (M)_1.0
          │             ├─ RESERVE                           ├─ G (I)_0.001
          │             │                                    └─ G (I)_1.0
          │             ├─ RESERVE
          │             │
          │             ├─ RESERVE
          │             │
          │             ├─ RESERVE
          │             │
          │             ├─ RESERVE
          │             │
          │             └─ UNIT ───────────── MM, INCH
          │
          │
          ├─ SELF TEST ──┬─ PATTERN CUT 1
          │              ├─ PATTERN CUT 2
          │              ├─ DATA DUMP (ASCII)
          │              ├─ RESERVE
          │              ├─ RESERVE
          │              ├─ RESERVE
          │              ├─ RESERVE
          │              ├─ RESERVE
          │              ├─ RESERVE
          │              ├─ RESERVE
          │              ├─ RESERVE
          │              ├─ RESERVE
          │              └─ RE-PARAMETER DUMP
          │
          ├─ CUT AREA ──────── LL, UR
    4/4 ──┼─ AXIS ALIGN
          └─ RESERVE
```

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; □□□aIP 0  0  28000  36000 ; □□□aSC0, 56000 , 0, 72000 ; □□□aSP1; □□□aPUPA 1400  1000 ; □□□aPD; AR-400 , 0, +360;
□□□aPUPA 2400  1000 ; □□□aPD; AR-360 , 0, +360; □□□aPUPA 3400  1000 ; □□□aPD; AR-320 , 0, +360; □□□aPUPA 4400  1000
□□□aPD; AR-280 , 0, +360; □□□aPUPA 5400  1000 ; □□□aPD; AR-240 , 0, +360; □□□aPUPA 6400  1000 ; □□□aPD; AR-200 , 0, +360
; □□□aPUPA 1400  2000 ; □□□aPD; AR-400 , 0, +360; □□□aPUPA 2400  2000 ; □□□aPD; AR-360 , 0, +360; □□□aPUPA 3400  2000
; □□□aPD; AR-320 , 0, +360; □□□aPUPA 4400  2000 ; □□□aPD; AR-280 , 0, +360; □□□aPUPA 5400  2000 ; □□□aPD; AR-240 , 0, +36
0; □□□aPUPA 6400  2000 ; □□□aPD; AR-200 , 0, +360; □□□aPUPA0, 0; □□□aPRPD 7000 , 0 ; □□□aPRPD 0 , 3000 ; □□□aPRPD-7000
, 0 ; □□□aPRPD 0 , -3000 ; □□□aPU0, 0; □□□a
```
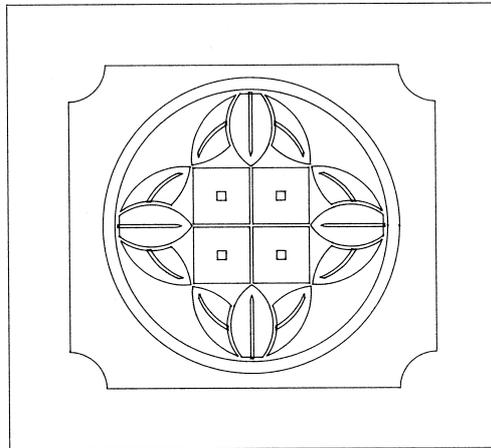
Sample (coated)

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>>

[CONDITION]                                         [SYSTEM PARAMETER]

SPEED        :   1000    1000    1000    00:   200  16:    36  32:    0  48:  1500
PRESSURE     :     75      65     300    01:    52  17:   194  33:    0  49:     0
ACCELE       :     10      30      10    02:   254  18:     0  34:    0  50:     0
F.OFFSET     :      0       0       0    03:    60  19:     0  35:    0  51:     0
E.OFFSET     :      0       0       0    04:     0  20:     0  36:    0  52:  1500
UP ANGLE     :      0       0     300    05:     0  21:     0  37:    0  53:  1200
RING DIS     :      0       0      96    06:     0  22: 11840  38:    0  54:     0
PRESS COR    :      0       0       0    07:     0  23: 17280  39:    0  55:     0
PRESS COR(Y) :      0       0       0    08:     0  24:     0  40:    0  56:     0
OFFSET       :      0      96       0    09:     0  25:     0  41:    0  57:     0
R5 SPD       :      0       0       0    10:     0  26:     0  42:    0  58:     1
R10 SPD      :      0       0     100    11:     0  27:     0  43:    0  59:     1
R15 SPD      :      0       0     100    12:    50  28:   -32  44:  800  60:     0
R20 SPD      :      0       0       0    13:    36  29:     0  45:   40  61:     1
R30 SPD      :      0       0       0    14:    91  30:     0  46:    0  62:     4
R40 SPD      :      0       0       0    15:    50  31:     0  47:  500  63:     0
R50 SPD      :      0       0       0
R100 SPD     :      0       0       0


[INTERFACE]              [MULTI PASS]              [PEN ASSIGN]       [PEN PRESS OFFSET]

BAUDRATE : 9600          CUT START.    0           PEN1:  2   1        00:  2120
DATA BIT : 8             PRESS.1st.    0           PEN2:  2   1        01:  2133
PARITY   : NON           PRESS.2nd:    0           PEN3:  2   1        02:  2150
STOP BIT : 1             PRESS.3rd:    0           PEN4:  2   1        03:  2168
HANDSHAKE: HARDWIRE      PRESS.4th:    0           PEN5:  2   1        04:  2200
                         PRESS.5th:    0           PEN6:  1   4        05:  2228
                                                                      06:  2268
[MODE SET]              [CIRCLE CORRECT]                               07:  2318
                                                                      08:  2382
Z STROKE  : 7mm         R<5         :   0                             09:  2452
AUTOVIEW  : OFF         5<R<10      :   0                             10:  2550
DUMMY CUT : OFF         10<R<20     :   0                             11:  2697
ONE STROKE: OFF         20<R<50     :   0
ROTATE    : +90         50<R<100    :   0
CMD SW    : ENABLE      R>100       :   0
OH UNIT   : INITVAL
ORIGIN    : LOW-LEFT
GDP       : 0.010mm    [COMMAND]
Z SIGN    : P(+)
UNIT      : mm         COMMAND: HP-GL
                       G CODE : ASCII
```

D. SPECIFICATIONS

Basic specifications

| Type			CF-1218	CF-1215	CF-0912	(CF-0907)
Head	T					
	TD					
	(P, TF, TT)					
Effective cutting/plotting area		X	1800 mm (70.87")	1500 mm (59.1")	1200 mm (47.24")	700 mm (27.56")
Maximum size of work that can be placed on the device		Y	1200 mm (47.24")		900 mm (35.4")	
		X	2045 mm (80.5")	1745 mm (68.7")	1445 mm (56.9")	945 mm (37.2")
		Y	1500 mm (59")		1200 mm (47.2")	
Driving method			By 4-axis (X, Y, Z, θ) DC software servo			
Max. speed			50 cm/s (20 ips)			
Max. acceleration			0.5G			
Mechanical resolution		X, Y	0.003125 mm			
		θ	0.05625° (1/17.18°)			
Command resolution			0.025 mm/0.01 mm (changed over on the operation panel)			
Repeatability			±0.1 mm			
Range accuracy			Whichever the larger one either ±0.1 mm or ±0.1% of the traveling distance			
Origin reproducibility			0.1 mm			
Specifications for head	Pen		Ceramic pen, oil ball-point pen and water ball-point pen			
	Cutter		Tangential cutter, swievel blade and creasing roller			
	Max. pressure, number of responses	Pen (pen/swievel blade)	200 g 20/sec			
		T (low-pressure tangential cutter)	1500 g 8/sec			
		F (high-pressure tangential cutter)	5000 g 8/sec			
		D (crease roller)	5000 g 8/sec			
	Height adjusting range		0 ~ 25 mm (0 ~ 1")			
Max. thickness of work that can be placed on the device			25 mm (1")			
Work securing method			Vacuum suction by blower			
Receiving buffer capacity			1MB			
Command			MGL-IIc			
Interface			RS-232C			
Outside dimensions	Width		2357 mm (92.8")	2057 mm (81")	1757 mm (67.2")	1257 mm (49.5")
	Depth		1895 mm (74.6")	1895 mm (74.6")	1595 mm (62.8")	1595 mm (62.8")
	Height		1075 mm (42.3")	1075 mm (42.3")	1075 mm (42.3")	1075 mm (42.3")
	Weight (main unit)		180 kg 397 lbs	165 k 364 lbs	140 kg 308 lbs	120 kg 264 lbs
Operating environment			5 to 40°C 35 to 75% (Rh) With no dew condensation			
Power supply capacity			50/60 Hz AC100/120/220/240 V			
Power consumption			Main unit: 500 VA Blower: 850 VA			

: Standard modem in stock (Standard model in stock)

: Model to be made to order

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]
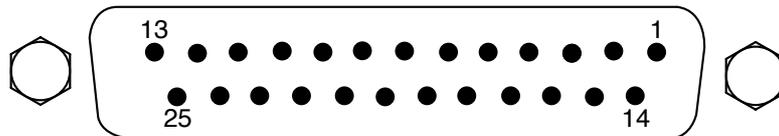
Pin No.	Abbreviation	Name of signal	Source of transmission
1	FG	Protective ground	
2	SD	Transmitted data	This device
3	RD	Received data	Computer
4	RS	Request for transmission	This device
5	CS	Transmission possible	Computer
6	DR	Data set ready	Computer
7	SG	Signal ground	—
20	ER	Data terminal ready	This device

E. MAINTENANCE

To use the device comfortably for an extended period of time, it is recommended to perform periodical cleaning.

∗ 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.
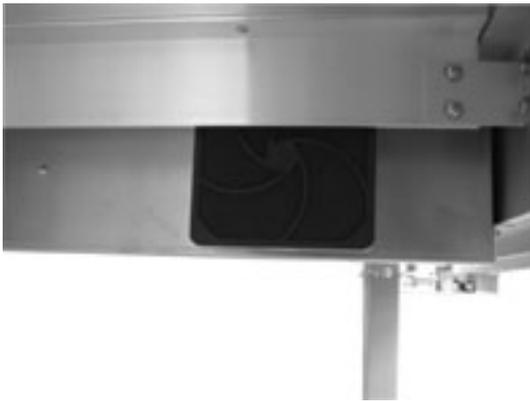
Cover

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.

Filter unit

The media inside the filter unit is removable, and needs to be cleaned at a regular intervals.
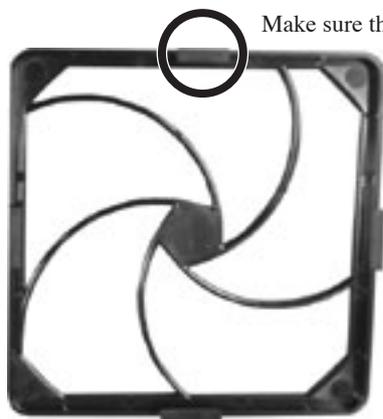
1.   Remove the filter unit by holding both sides.

2. Separate the filter cover and the media.

3.   **Vacuum the dust from the media.**

4.   **Put the media back in place.**

Make sure the shorter projection comes at the top.

F. OPTIONAL ACCESSORIES

Swievel cutter components

Name of product	Product No.	Specifications	Remarks
Swievel cutter holder	SPA-0001	One piece of holder without blade	
Swievel blade for vinyl sheet	SPB-0001	Package of three pieces of blades	Common blade for swievel cutter
Swivel blade for small letters	SPB-0003	Package of three pieces of blades	
Swievel blade for rubber sheet	SPB-0005	Package of three pieces of blades	
Swievel blade for reflecting sheet	SPB-0006	Package of three pieces of blades	
Swievel blade for fluorescent sheet	SPB-0007	Package of three pieces of blades	
Blade tip adjuster	OPT-C0066	Dial type	

Tangential cutter components

Name of product	Product No.	Specifications	Remarks
Cutter holder, 4N model	SPA-0053	For works of which thickness is 5 mm or less, with one piece of blade	
Cutter holder, 7N model	SPA-0054	For works of which thickness is 7 mm or less, with one piece of blade	
Cutter holder, RN model	SPA-0055	For reflecting sheet, with one piece of blade	
Cutter holder, JN model	SPA-0061	For joint sheet, with one piece of blade	
Tangential cutter blade	SPB-0008	For works of which thickness is 2 mm or less, with one piece of blade	Adaptable to SPA-0053 holder
	SPB-0009	For reflecting sheet, with one piece of blade	Adaptable to SPA-0055 holder
	SPB-0031	For joint sheet, with two pieces of blades	Adaptable to SPA-0061 holder
	SPB-0043	For works of which thickness is 5 mm or less, 5 cases of 40 pieces of blades each	Adaptable to SPA-0053 holder
	SPB-0044	For works of which thickness is 5 mm or less, 5 cases of 40 pieces of blades each	
	SPB-0045	For works of which thickness is 5 mm or less, 3 cases of one piece of blades each	
	SPB-0046	For works of which thickness is 2 mm or less, 3 cases of one piece of blades each	
	SPB-0047	For works of which thickness is 5 mm or less, with one piece of blade	
	SPB-0048	For works of which thickness is 7 mm or less, 5 cases of 15 pieces of blades each	Adaptable to SPA-0054 holder
	SPB-0051	For works of which thickness is 7 mm or less, one cases of 3 pieces of blades each	Adaptable to SPA-0077 holder
Blade tip adjuster	OPT-C0030	Dial type	Adaptable to SPA-0053 holder

Creasing roller components

Name of product	Product No.	Specifications	Remarks
Creasing roller, DN model	SPA-0056	For corrugated fiberboard (E corrugated fiberboard)	For TD-head
Creasing roller, CN model	SPA-0057	For coated board	For TD-head
Creasing roller, PN model	SPA-0058	For pleated works	TD-head

Pen components

Name of product	Product No.	Specifications	Remarks
Water ball-point pen	P-HB3M-R	0.3 mm, Package of four red ones	
	P-HB3M-L	0.3 mm, Package of four blue ones	
	P-HB3M-G	0.3 mm, Package of four green ones	
	P-HB3M-B	0.3 mm, Package of four black ones	
	P-HB3M-SA	0.3 mm, one each of red, blue, green and black ball-point pens	
Oil ball-point pen	P-ME-2D1-4B	Package of four black ones (with a holder)	
	P-ME-2D1-4SI	One each of red, blue, green and black ball-point pens (with a holder)	
	P-PBS-B	Package of four black ones (spare ink cartridges)	
	P-PBS-R	Package of four red ones (spare ink cartridges)	
	P-PBS-L	Package of four blue ones (spare ink cartridges)	
	P-PBS-G	Package of four green ones (spare ink cartridges)	
	HPB-H2	Holder for drawing bold lines, one piece	
	PAB-3-BK-120	Holder for drawing black bold lines, package of five ones	
Ceramic pen	P-HC35-B	0.35 mm, Package of four black ones	
	P-HC5-B	0.350 mm, Package of four black ones	
	P-HC7-B	0.70 mm, Package of four black ones	

Optional products

Name of product	Product No.	Specifications	Remarks
TD-head kit	OPT-C0015		
TF-head kit	OPT-C0016		
(TT-head kit)	OPT-C0017		
Interface cable for PC (5 m)	RSC-02-05	For 25PIN on PC-98 Series	Male/female types
Interface cable for DOS/V (3 m)	RSC-32-05	For 9PIN on DOS/V personal computers	9PIN male type and 25PIN female type
Interface cable for Macintosh (3 m)	OPT-SS019	For Macintosh	9PIN male type and 25PIN female type
Caster unit	OPT-C0111	Optional casters to be made ready for your plant, package of 4 units	For CD-0907/0912/ 1215/1218

G. STANDARD ACCESSORIES

TD Head model

After unpacking, please check if all items in this standard accessories list are enclosed.
If you find any items missing, please contact to the local distributor. Specification is subject to change without any prior notice.

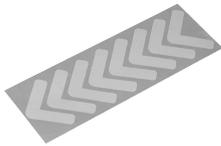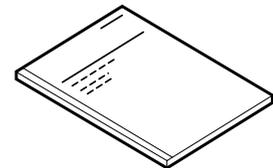|				
Hand lapper	Tweezer	Screw driver	Spanner	Hex wrench
Origin sticker	Power cable (For main body)	Power cable (For vacuum blower)		Connector
Signal cable for vacuum blower	Cutter holder 4N	High speed steel blade 30° (SPB-0043)		Carbide blade 30° (SPB-0045)
Ball point pen	Creasing roller DN	Creasing roller CN		Operation manual

Item	Qty	Detail	Item	Qty	Detail
Hand lapper	1	For unsharping blade	Signal cable for vacuum blower	1	To connect blower and plotter
Tweezer	1	For replacement of blade	Cutter holder 4N	1	For high speed steel blade 30° For carbide blade 30°
Screw driver	1	For replacement of tool holder	High speed steel 30°	1	40 pcs/set For less than 5 mm thickness
Hex wrench	1	For assembling stand unit	Carbide blade 30°	1	3 pcs/set For less than 5 mm thickness
Origin sticker	8	For replacement of origin sticker	Oil based ball pen	1	Black 4 pcs/set
Power cable	1 1	For main body For blower	Creasing roller DN	1	For corrugated board
Connector	2	For power cable of main body For power cable of blower	Creasing roller CN	1	For coart ball
			Operation manual	1	

T Head model

After unpacking, please check if all items in this standard accessories list are enclosed.
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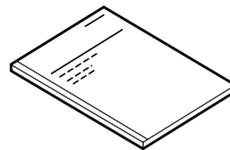|			
Power cable (For main body)	Power cable (For vacuum blower)	Connector	Signal cable for vacuum blower
Cutter holder 4N	High speed steel blade 30 degrees (SPB-0043)	Carbide blade 30 degrees (SPB-0045)	Ball point pen holder
Ball point pen	Hand lapper	Tweezer	Screw driver	Origin sticker
Spanner	Hex wrench	Operation manual	Eccentric cutter holder	Eccentric blade (SPB-0001)

Item	Qty	Detail	Item	Qty	Detail
Power cable	1 1	For main body For blower	Tweezer	1	For replacement of blade
Cpmmectpr	2	For power cable of main body For power cable of blower	Screw driver	1	For replacement of tool holder
Signal cable for vacuum blower	1	To connect blower and plotter	Hex wrench	1	For assembling stand unit
Cutter holder 4N	1	For high speed steel blade 30° For carbide blade 30°	Origin sticker	8	For replacement of origin sticker
High speed steel 30°	1	40 pcs/set For less than 5 mm thickness	Operation manual	1	
Carbide blade 30°	1	3 pcs/set For less than 5 mm thickness	Swivel cutter holder SPA-0001	1	For SPB-0001 blade
Oil based ball pen	1	Black 4 pcs/set	Blade (SPB-0001)	1	1 set = 3 pcs
Hand lapper	1	For unsharping blade			

Mimaki