



CANNON JET
by ROLAND DIGITAL GROUP

CJ-70

CJ-60

USER'S MANUAL

* This User's Manual is intended for CJ-70 and CJ-60.

Thank you very much for purchasing the CJ-70/60.

- To ensure correct and safe usage with a full understanding of this product's performance, please be sure to read through this manual completely and store it in a safe location.
- Unauthorized copying or transferral, in whole or in part, of this manual is prohibited.
- The contents of this operation manual and the specifications of this product are subject to change without notice.
- The operation manual and the product have been prepared and tested as much as possible. If you find any misprint or error, please inform us.

For the USA

**FEDERAL COMMUNICATIONS COMMISSION
RADIO FREQUENCY INTERFERENCE
STATEMENT**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Unauthorized changes or modification to this system can void the users authority to operate this equipment.

The I/O cables between this equipment and the computing device must be shielded.

NOTICE

Grounding Instructions

Do not modify the plug provided - if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Check with qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.

Repair or replace damaged or worn out cord immediately.

Operating Instructions

KEEP WORK AREA CLEAN. Cluttered areas and benches invites accidents.

DON'T USE IN DANGEROUS ENVIRONMENT. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.

DISCONNECT TOOLS before servicing; when changing accessories, such as blades, bits, cutters, and like.

REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure the switch is in off position before plugging in.

USE RECOMMENDED ACCESSORIES. Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.

NEVER LEAVE TOOL RUNNING UNATTENDED.
TURN POWER OFF. Don't leave tool until it comes to a complete stop.

For Canada

CLASS A NOTICE

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

CLASSE A AVIS

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

CJ-70



ROLAND DG CORPORATION

1-6-4 Shinmiyakoda, Hamamatsu-shi, Shizuoka-ken, JAPAN 431-2103

MODEL NAME : See the MODEL given on the rating plate.

RELEVANT DIRECTIVE : EC MACHINERY DIRECTIVE (89/392/EEC)

EC LOW VOLTAGE DIRECTIVE (73/23/EEC)

EC ELECTROMAGNETIC COMPATIBILITY DIRECTIVE (89/336/EEC)

CJ-60



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1-6-4 Shinmiyakoda, Hamamatsu-shi, Shizuoka-ken, JAPAN 431-2103

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EC LOW VOLTAGE DIRECTIVE (73/23/EEC)

EC ELECTROMAGNETIC COMPATIBILITY DIRECTIVE (89/336/EEC)

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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To Ensure Safe Use

About ⚠️ WARNING and ⚠️ CAUTION Notices

 WARNING	Used for instructions intended to alert the user to the risk of death or severe injury should the unit be used improperly.
 CAUTION	Used for instructions intended to alert the user to the risk of injury or material damage should the unit be used improperly. * Material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

	The ⚠️ symbol alerts the user to important instructions or warnings. The specific meaning of the symbol is determined by the design contained within the triangle. The symbol at left means "danger of electrocution."
	The ⚡ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. The symbol at left means the unit must never be disassembled.
	The ● symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. The symbol at left means the power-cord plug must be unplugged from the outlet.

⚠️ WARNING



Do not disassemble, repair, or modify.

Doing so may lead to fire or abnormal operation resulting in injury.



Use only with a power supply of the same rating as indicated on the unit.

Use with any other power supply may lead to fire or electrocution.



Ground the unit with the ground wire.

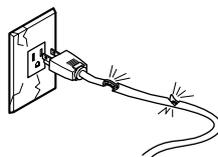
Failure to do so may result in risk of electrical shock in the event of a mechanical problem

⚠️ CAUTION



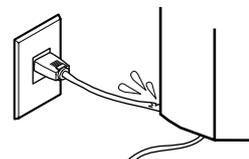
Do not use with a damaged power cord or plug, or with a loose electrical outlet.

Use with any other power supply may lead to fire or electrocution.



Do not injure or modify the electrical power cord, nor subject it to excessive bends, twists, pulls, binding, or pinching, nor place any object of weight on it.

Doing so may damage the electrical power cord, leading to electrocution or fire.

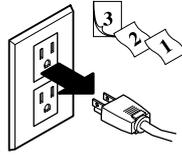


CAUTION



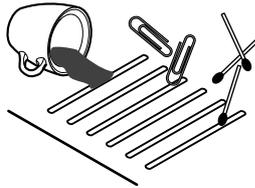
When not in use for extended periods, unplug the power cord from the electrical outlet.

Failure to do so may result in danger of shock, electrocution, or fire due to deterioration of the electrical insulation.



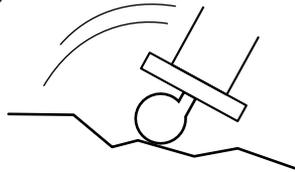
Do not allow liquids, metal objects or flammables inside the machine.

Such materials can cause fire.



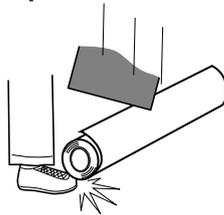
Install in a level and stable location.

Otherwise the unit may tip over and cause injury.



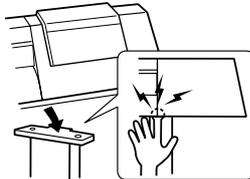
Roll material must be placed at a predetermined shaft position.

Failure to do so may result in falling of the roll, leading to injury.



Use care to avoid pinching the fingers when placing the unit on the stand.

Doing so may result in injury.



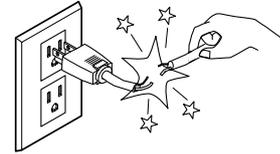
Do not touch the tip of the blade with your fingers.

Doing so may result in injury.



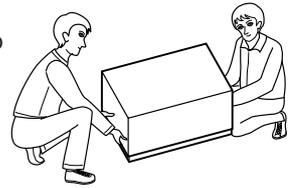
When unplugging the electrical power cord from the power outlet, grasp the plug, not the cord.

Unplugging by pulling the cord may damage it, leading to fire or electrocution.



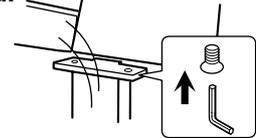
Unpacking, installation, and moving must be carried out by two or more persons.

Failure to do so may result in falling of the unit, leading to injury.



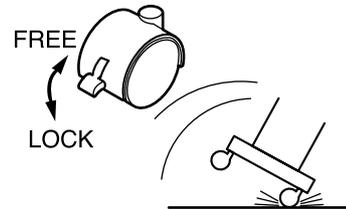
Use the joining screws to secure the unit to the stand.

Failure to do so may result in falling of the unit, leading to injury.



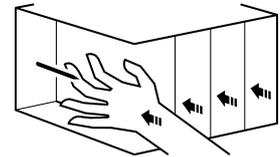
Release the caster locks for the stand before attempting to move.

Otherwise the unit may tip over and cause injury.



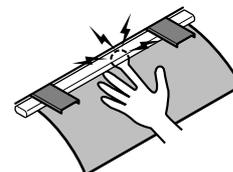
Do not insert your fingers in the ink cartridge ports.

Doing so may result in injury.



Do not place hands within the space to the front or rear of the unit while in operation.

Doing so may result in injury.

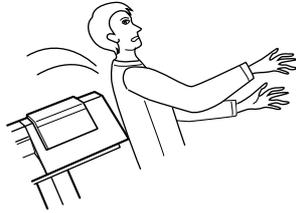


⚠ CAUTION



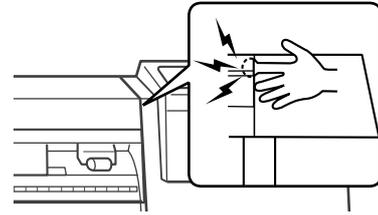
Do not lean on or place a heavy object on the unit.

Otherwise the unit may tip over and cause injury.

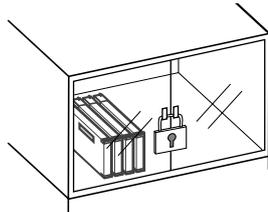


When closing the front cover, take care not to pinch the fingers.

Doing so may result in injury.



Store ink cartridges out of the reach of children.



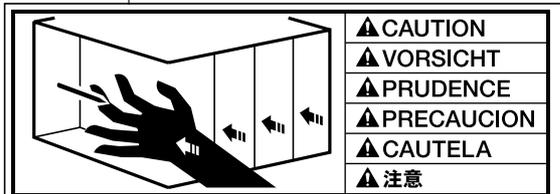
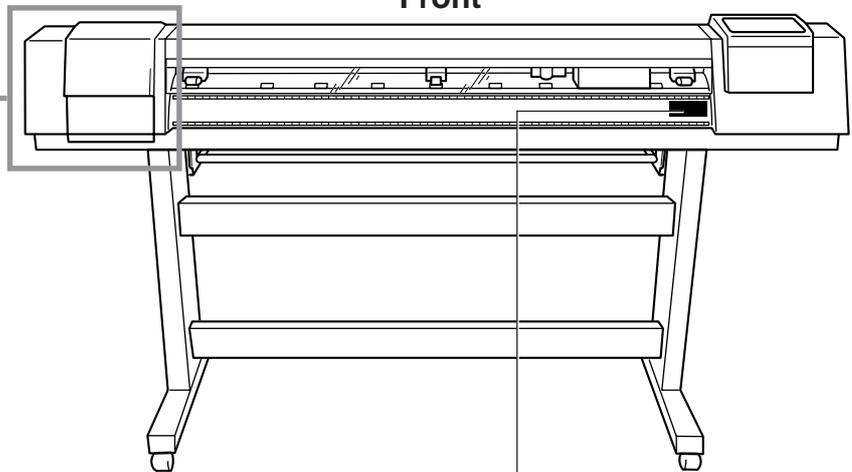
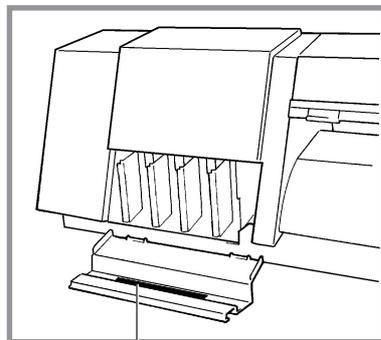
If ink contacts the eyes, flush immediately with water.



About the Labels Affixed to the Unit

These labels are affixed to the body of this product.

The following figure describes the location and content of these messages.



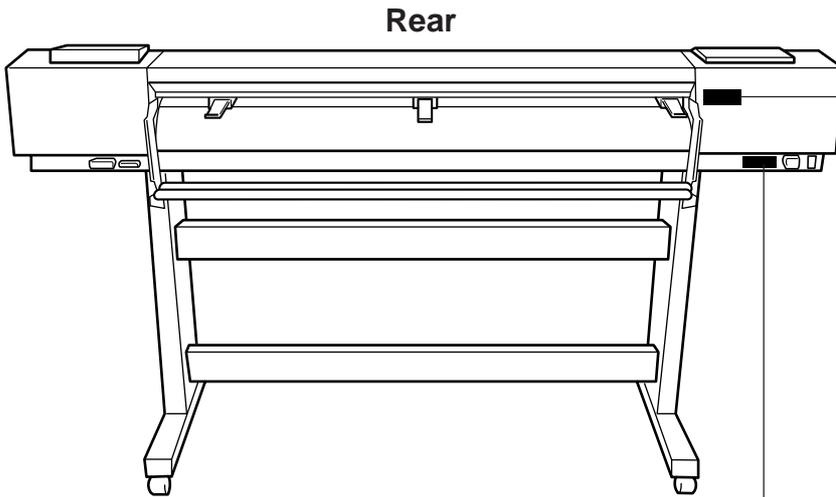
Do not insert your fingers in the ink cartridge ports.

Ne pas introduire les doigts dans les cassettes d' encre.

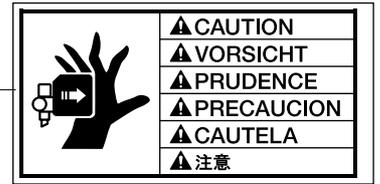


Do not allow the hands within the space to the front or rear of the unit while in operation.

Ne pas introduire les mains sur la partie frontale et postérieure de la machine pendant son utilisation.



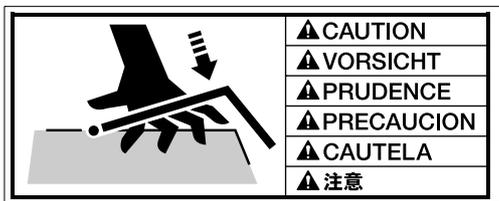
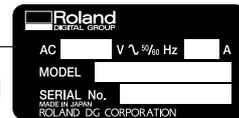
Rear



Do not allow the hands within the space to the front or rear of the unit while in operation.

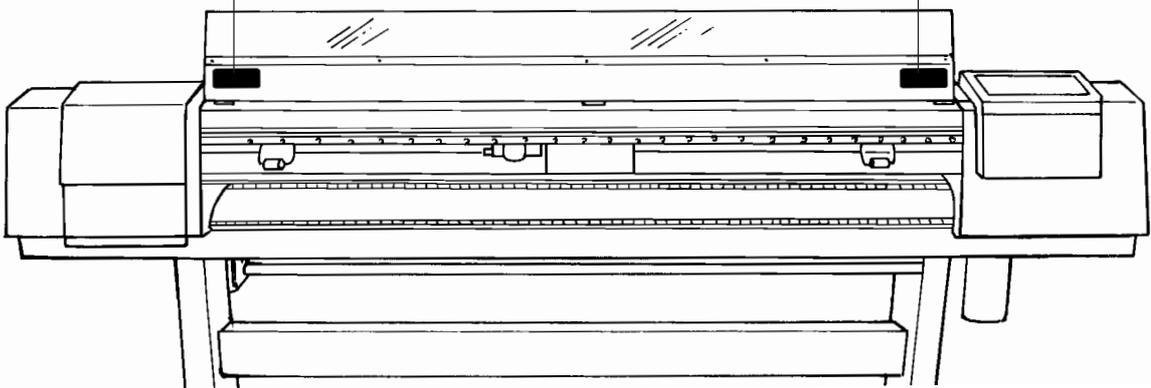
Ne pas introduire les mains sur la partie frontale et postérieure de la machine pendant son utilisation.

Rating label

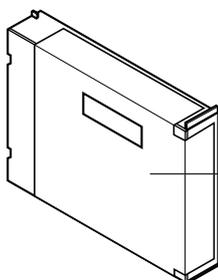


When closing the front cover, take care not to pinch the fingers.

Il faut faire attention à ne pas se pincer les doigts pendant la fermeture du couvercle frontal.



Ink cartridge



Do not dismantle the cartridge.
Keep out of reach of children.
Do not store the cartridge in high or freezing temperatures.

Ne pas démonter la cartouche.
Conserver hors de la portée des enfants.
Ne pas emmagasiner à des températures hautes ou basses.

In addition to the **▲ WARNING** and **▲ CAUTION** symbols, the symbols shown below are also used.

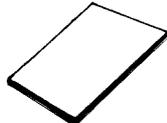
NOTICE : Indicates information to prevent machine breakdown or malfunction and ensure correct use.



: Indicates a handy tip or advice regarding use.

1 Checking Accessories

Check the following to make sure that you received all the items that were shipped along with the unit.

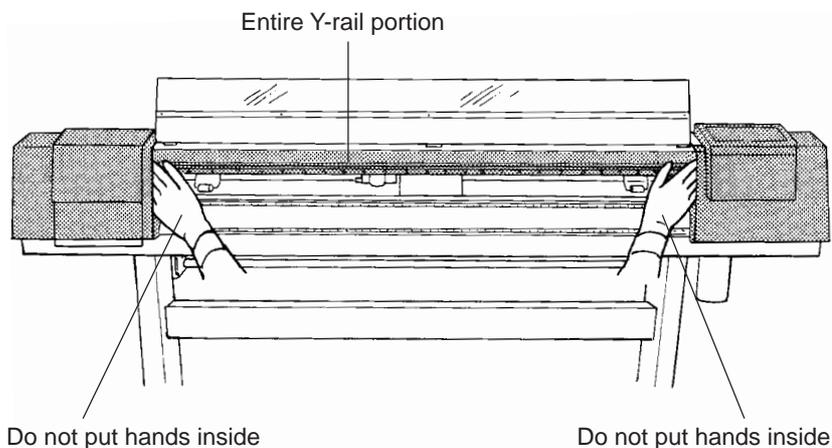
 <p>Power cord: 1</p>	 <p>Blade for sheets: 1</p>	 <p>Blade holder: 1</p>	 <p>Alignment tool: 1</p>	 <p>Drain tank: 1</p>
 <p>Quick Poster Disks: 2</p>	 <p>CAMM JET DRIVER for windows® 95 and windows® 3.1 Disk: 1</p>	 <p>User's manual: 1</p>		

2 Part Names and Functions

* In this manual, sections that explain common points for the CJ-70/60 use only illustrations of the CJ-70. Some details of the CJ-60 differ from the figure.

NOTICE

Do not touch the Y rail or the inner sides of the left and right covers. Touching the area shown may cause the fingers to be soiled by grease or ink, and may result in diminished image quality.



Front View

Front cover

If the cover is opened while the system is operating, it will execute an emergency stop.

Pinch roller (left)

This is positioned at the right-hand edge of the material.

Pinch roller (right)

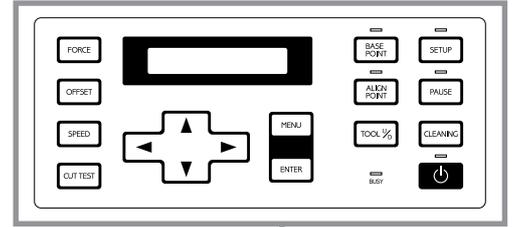
This is positioned at the left-hand edge of the material.

Pinch roller (middle)

This is positioned centrally between the left and right pinch rollers.

Operation panel

(See "22 Description of Keys and Display Menus")



Ink cartridge ports

Guide lines

These serve as a guide for aligning the material when loading it.

Platen

Drain tank

Printing carriage

Knife guide

Cutter protector

Grit roller

Cutting carriage

The cutting carriage is where the cutter is mounted.

Rear View

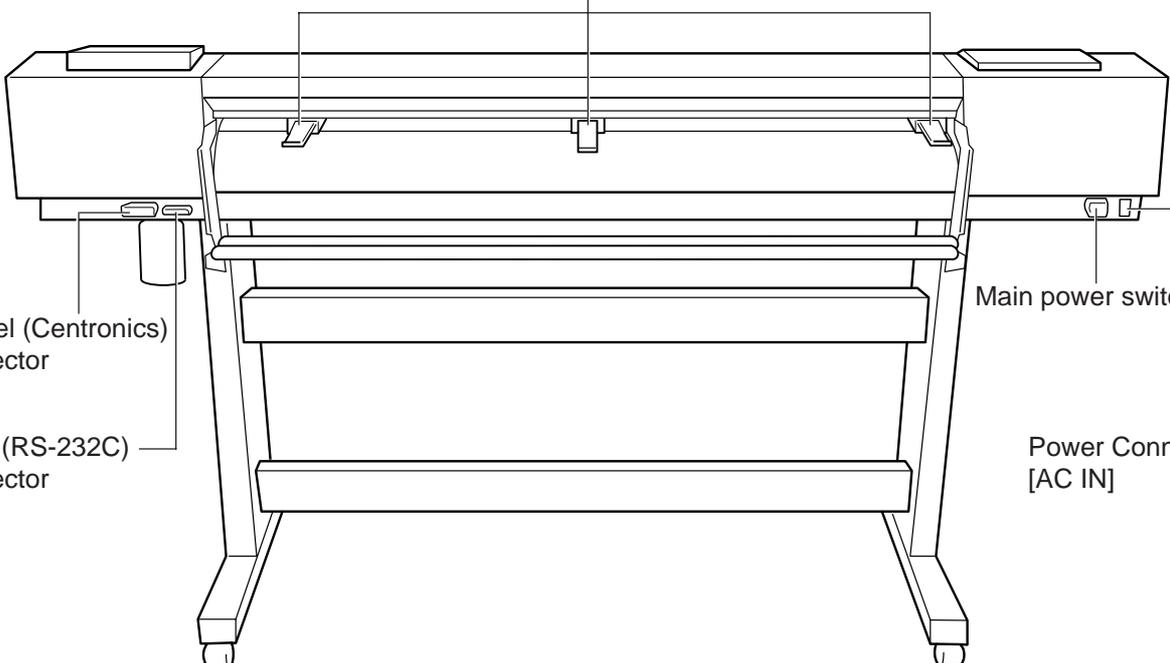
Sheet Loading Lever

Parallel (Centronics) Connector

Serial (RS-232C) Connector

Main power switch

Power Connector [AC IN]



3 Setting Up and Connection

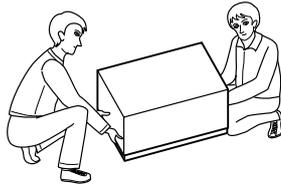
Setting up

⚠ CAUTION



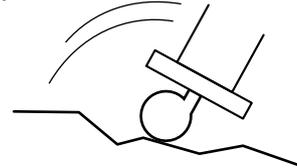
Unpacking, installation, and moving must be carried out by two or more persons.

Failure to do so may result in falling of the unit, leading to injury.



Install in a level and stable location.

Otherwise the unit may tip over and cause injury.



NOTICE

Be sure to install the drain tank before switching on the power.

Never install this unit in any of the following situations, as it could result in damage:

- Places where the installation surface is unstable or not level.
- Places with excessive electrical noise.
- Places with excessive humidity or dust.
- Places with poor ventilation, because the CJ-70/60 generates considerable heat during operation.
- Places with excessive vibration.
- Places exposed to strong illumination or direct sunlight.

For an explanation of how to assemble the unit and the stand (PNS-70/60), refer to the "ASSEMBLY INSTRUCTIONS" included with the stand.

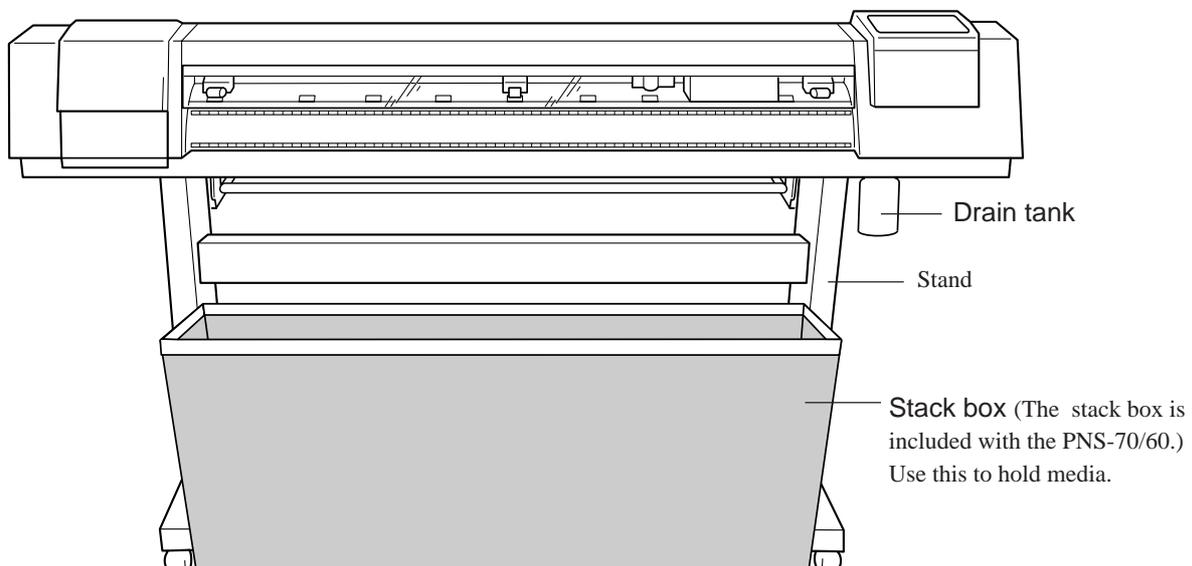
When using the unit while mounted on a stand, be sure to ensure a sufficient amount of installation space for the unit. The required installation spaces for each model are listed below.

CJ-70: 2500 mm (98-7/16") wide, 900 mm (35-7/16") depth, and 1500 mm (59-1/16") high

CJ-60: 2300 mm (90-9/16") wide, 900 mm (35-7/16") depth, and 1500 mm (59-1/16") high

The material moves while printing/cutting is in progress. Objects which may obstruct material movement must not be placed within 60 cm (23-5/8") to the front or rear of the unit.

Mount the stack box on the stand as indicated in the diagram.



Connection

WARNING



Use only with a power supply of the same rating as indicated on the unit.
Use with any other power supply may lead to fire or electrocution.



Ground the unit with the ground wire.

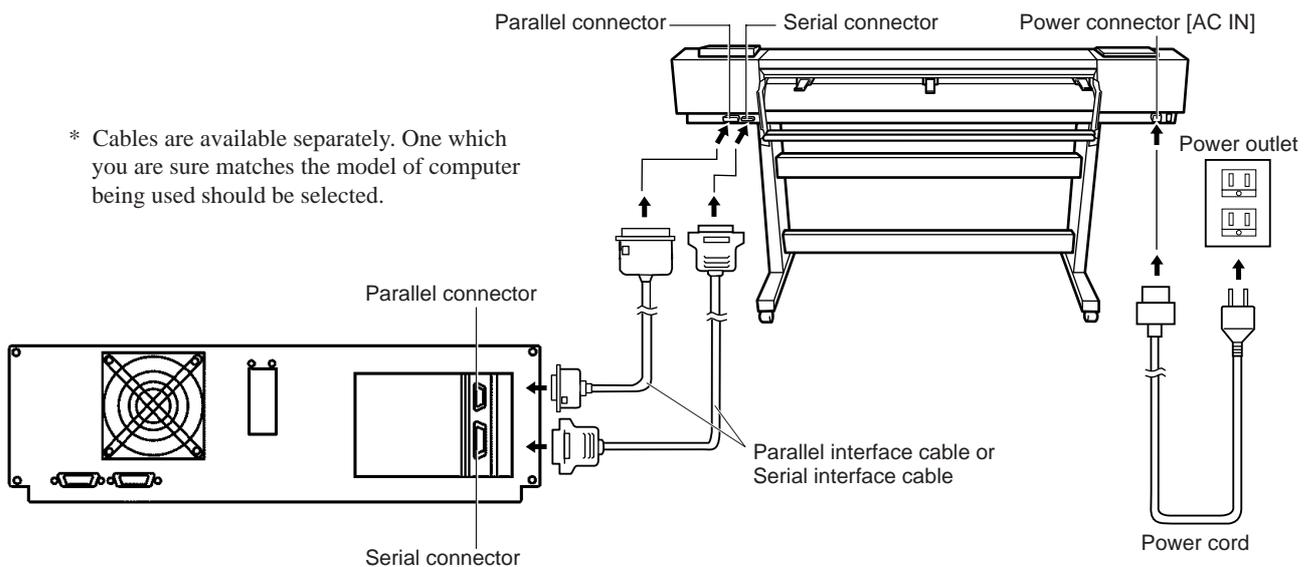
Failure to do so may result in risk of electrical shock in the even of a mechanical problem

NOTICE

Before connecting the cable, make sure the computer's power and the CJ-70/60's main power switch are switched off.

Securely connect the power cord, computer I/O cable and so on so that they will not be unplugged and cause failure during operation. Doing so may lead to faulty operation or breakdown.

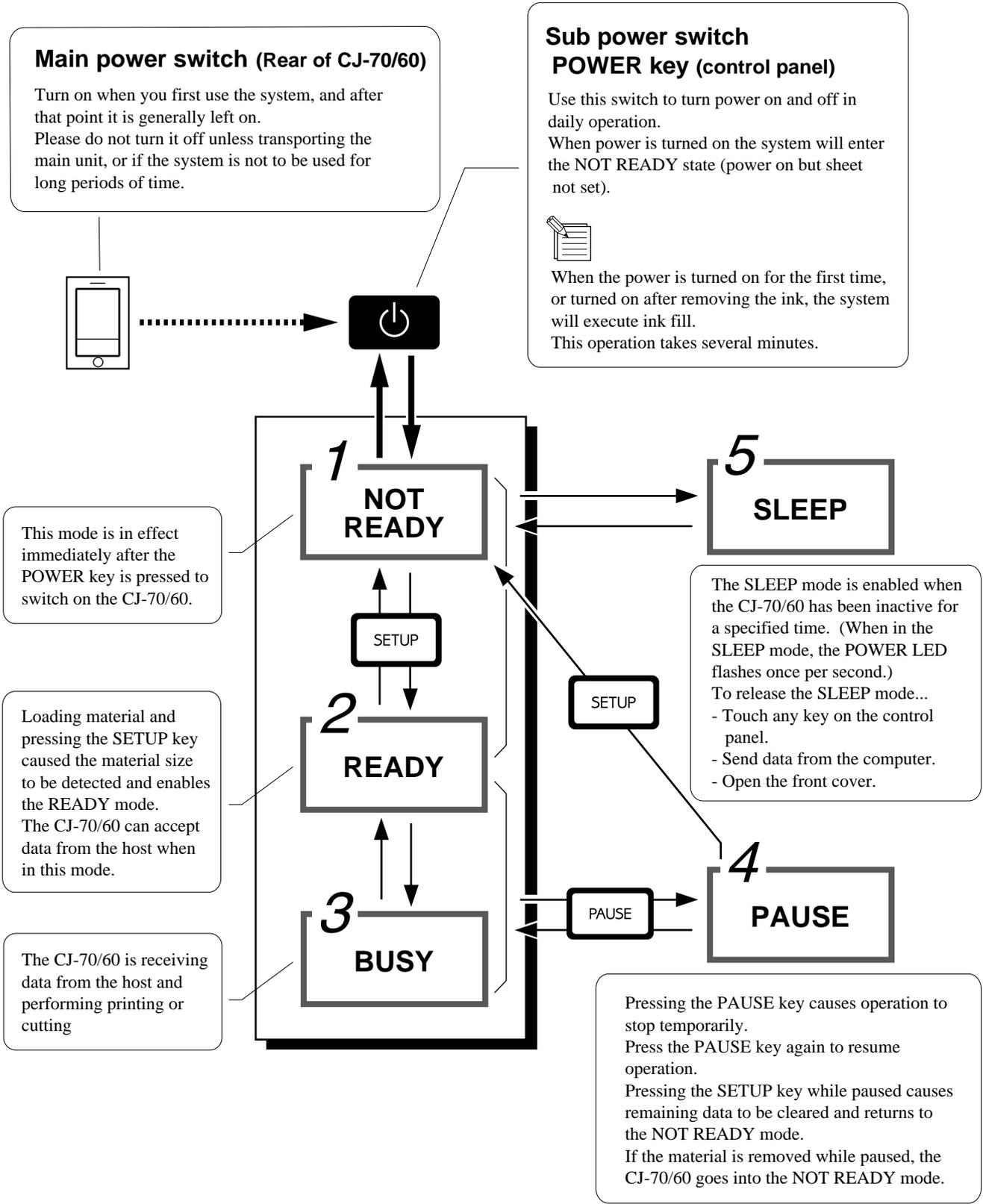
Arrange the power cord and interface connection cable to prevent tripping when moving around the unit.



The type of interface -- parallel (in compliance with specifications of Centronics) or serial (RS-232C) -- is automatically detected. If a serial (RS-232C) interface is used, the communication parameters are set using the LCD menu. Be sure that the settings you make match the communication-parameter settings that have been made on the computer (including the operating system, application software, and driver software). (See "21 Display Menu Flowchart".)

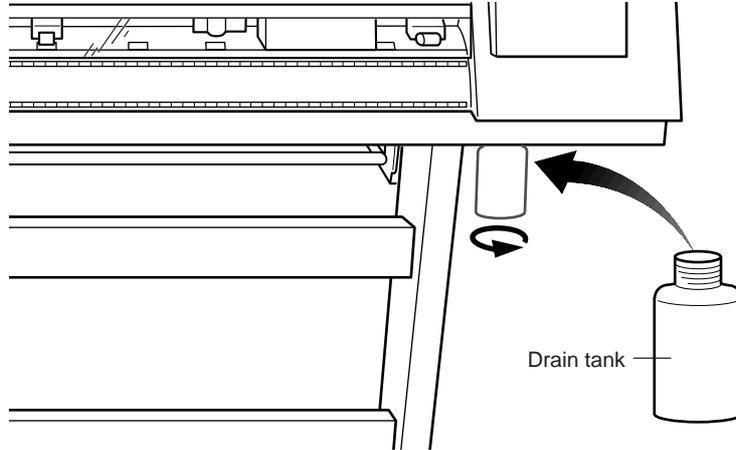
4 Five Modes

The CJ-70/60 has the following five modes (operating states).



5 For Details on the Drain Tank

The drain tank is mounted as shown in the figure. The bottom plug and the cap for the drain tank will be needed if you must repackage the product. Please do not throw them away.



1) Detach the bottom plug from the CJ-70/60.



2) Remove the cap for the drain tank and attach the drain tank to the unit by screwing it on in the direction of the arrow. Line up the threads on the drain tank with the threads on the unit, and screw on the tank without applying excessive force.

Leave this mounted unless transporting the main unit, or when it is full. Under normal use, only a small amount of ink should collect in this tank.

Dispose of ink in the drain tank as described below.

When preparing to move the unit, remove the drain tank and attach the bottom plug instead. Discard any ink that has collected in the drain tank and cap the tank securely.



If any ink gets on your hands or clothing, wash it off as soon as possible. Ink stains may become difficult to remove if allowed to stand.

1

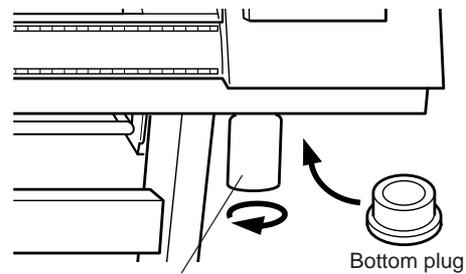
Press the  key to switch off the power.

POWER LED goes out



2

Remove the drain tank and attach the bottom plug instead.



3

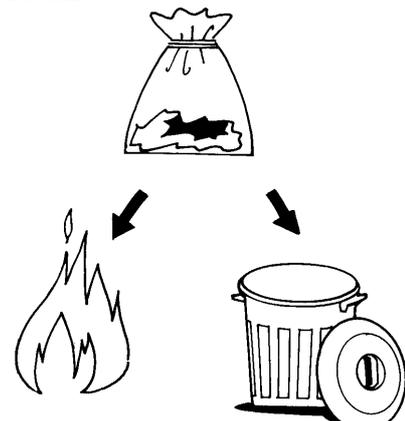
Put a water-absorbent, combustible material such as a sponge or cloth into the plastic bag, and soak up the ink.

Combustible material such as a sponge or cloth



4

Close the plastic bag, and dispose of it as combustible rubbish.



Incineration

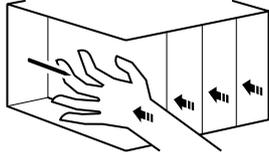
Combustibles

6 Installing Ink Cartridges

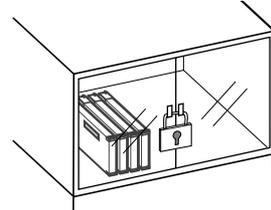
CAUTION



Do not insert your fingers in the ink cartridge ports.
Doing so may result in injury.



Store ink cartridges out of the reach of children.



If ink contacts the eyes, flush immediately with water.



NOTICE

Do not remove any ink cartridges except when shipping the CJ-70/60.

Use only the ink specified for the machine. Dye inks cannot be used on a CJ-70/60 unit for which pigment inks are specified, and pigment inks cannot be used on a CJ-70/60 unit for which dye inks are specified.

If ink runs out, replace immediately with an ink cartridge designed especially for the CJ-70/60. Do not attempt to refill and reuse an empty ink cartridge.

If an ink cartridge is removed, replace it immediately with a new one.

Do not attempt to disassemble an ink cartridge.

Unused ink cartridges should be stored unopened at a temperature of -20°C (-4°F) to 40°C (104°F). Do not store in a location subject to temperatures beyond this range.



If any ink gets on your hands or clothing, wash it off as soon as possible. Ink stains may become difficult to remove if allowed to stand.

Open the doors to the ink cartridge ports and insert the ink cartridges.

Black
Yellow
Cyan
Magenta

If the cartridge is marked with PIGMENT it contains pigment ink, otherwise dye ink.

Ink cartridge ports

PIGMENT Pigment ink specified
DYE Dye ink specified

Be sure to install only the dedicated ink cartridges that have been specified for the machine.
Dye inks cannot be used on a CJ-70/60 unit for which pigment inks are specified, and pigment inks cannot be used on a CJ-70/60 unit for which dye inks are specified.

When inserting the cartridge, make sure that it is inserted into the correct slot for that color.



When the power is turned on for the first time, or turned on after removing the ink, the system will execute ink fill. This operation takes several minutes.

7 Installing the Cutter

⚠ CAUTION



Do not touch the tip of the blade with your fingers.

Doing so may result in injury, and the cutting performance of the blade will be impaired.

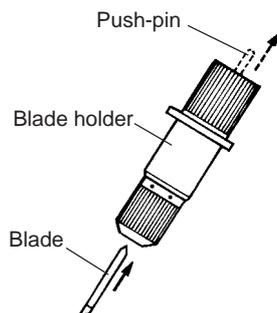


NOTICE

When cutting is performed after printing, the cap tip of the blade holder may scratch the printed surface. If this is the case, lengthen the cutter blade extension.

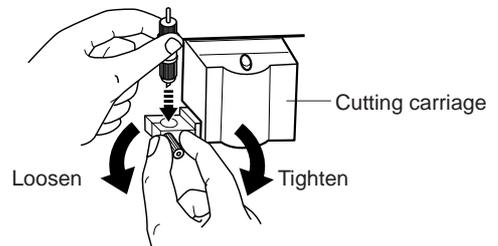
1

Insert a blade into the blade holder until it snaps into place with an audible click.



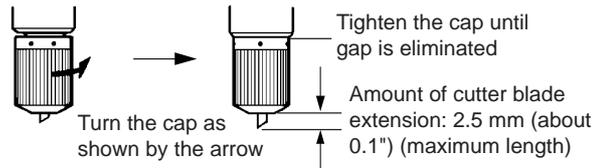
2

Loosen the tool securing screw on the tool carriage. Support the tool securing screw from below and install the blade holder. Insert the blade holder until the collar is flush with the carriage. Tighten the tool securing screw until the blade holder is secured in place.



Adjusting the Cutter Blade

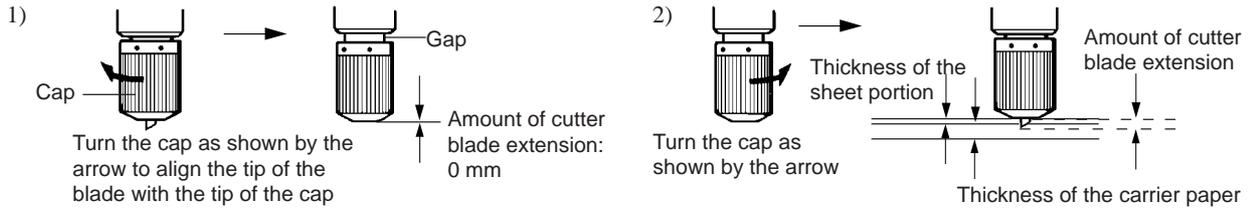
When stock vinyl film is to be cut, tighten the cap all the way (2.5 mm (about 0.1") of blade extension).



Blade adjustment may be necessary when:

- cutting material whose carrier paper is thinner than the material itself
- cutting material with no carrier paper

Each indicator tick corresponds to 0.1 mm (about 0.004"), and adjustment for 0.5 mm (about 0.02") can be made by rotating the cap one full turn.

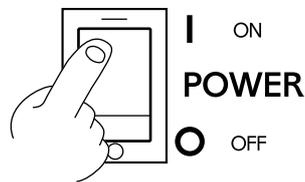


8 Powerup

Be sure to mount the drain tank before turning on the power. Refer to section "5 For Details on the Drain Tank".

1

When using for the first time turn on the main power switch on the rear of the unit.

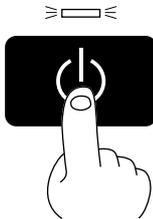


Leave the main power switch on, and turn the power off and on in daily use with the sub power switch.

2

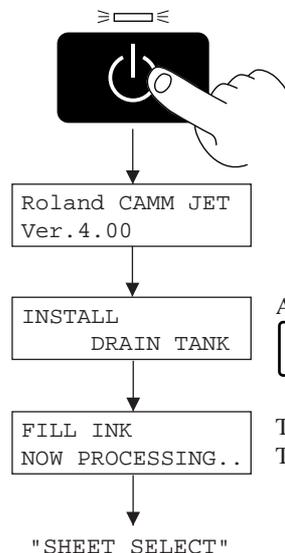
Press the  key.

The POWER LED lights up



When the power is turned on for the first time, or turned on after removing the ink

The POWER LED lights up



Attach the drain tank, and press  key.

The system will execute ink fill. This operation takes several minutes.

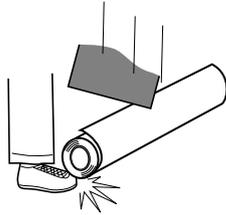
9 Loading the Material

⚠ CAUTION



Roll material must be placed at a predetermined shaft position.

Failure to do so may result in falling of the roll, leading to injury.

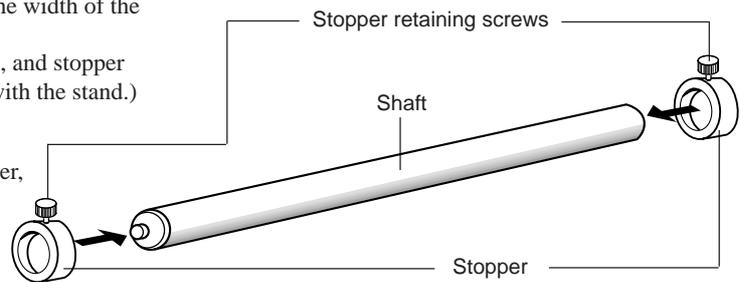


When using sheet material (standard-size sheets or sheet scraps), follow steps 2 and 3, and steps 5 and 6.

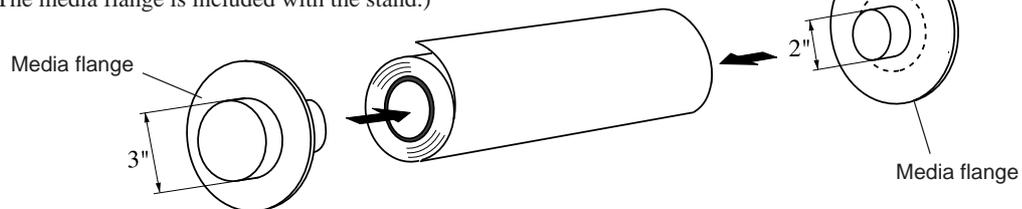
1

- 1) Pass the stopper onto the shaft to match the width of the roll material to be used.
(The shafts (2 pieces), stoppers (2 pieces), and stopper retaining screws (2 pieces) are included with the stand.)

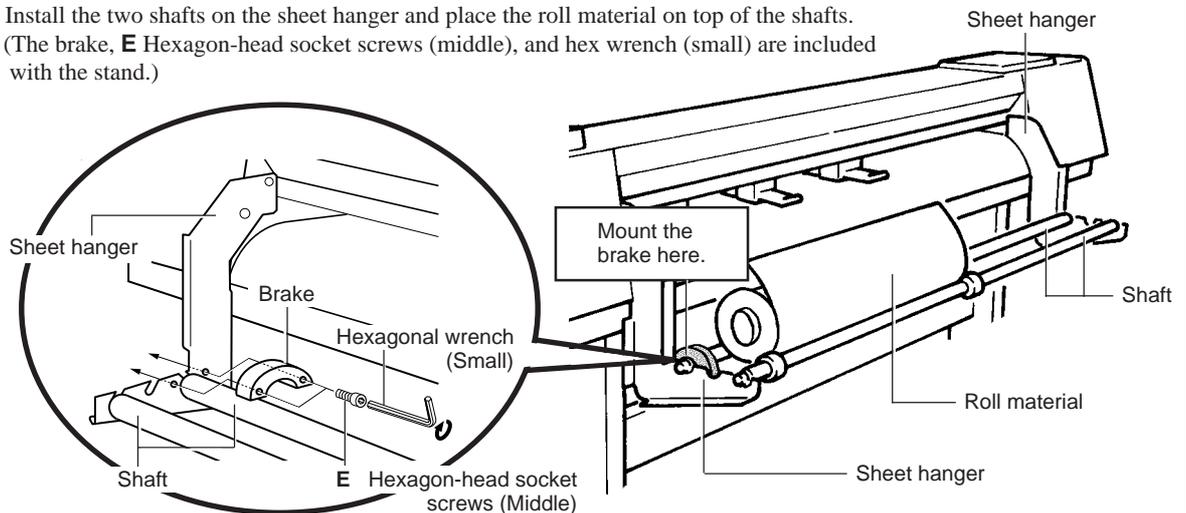
When passing the shaft through the stopper, be sure to loosen the mounting screws on the stopper first.



- 2) Align the media flange with the roll sheet edges, matching the roll sheet center ID.
(The media flange is included with the stand.)



- 3) Install the two shafts on the sheet hanger and place the roll material on top of the shafts.
(The brake, **E** Hexagon-head socket screws (middle), and hex wrench (small) are included with the stand.)



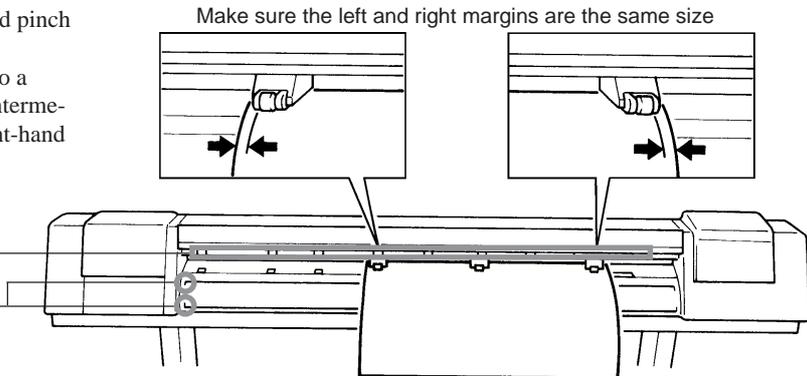
2

- 1) Position the right-hand edge of the material over the right-hand grit roller.
Move the material from side to side until the left-hand edge of the material is positioned over one of the short grit rollers.
Align the material with the guide lines so that it is loaded straight.

- 2) Position the left- and right-hand pinch rollers over the grit rollers.
Move the middle pinch roller to a position above the grit roller intermediate between the left- and right-hand pinch rollers.

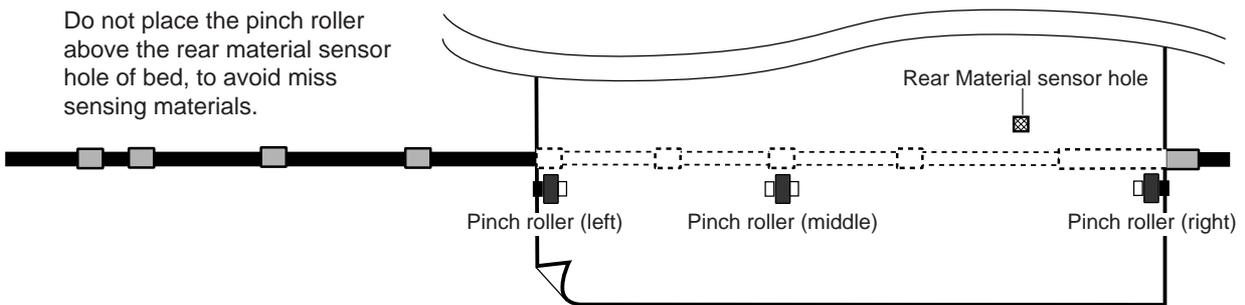
Stickers showing the locations of the grit rollers

Guide lines



Make sure the left and right margins are the same size

Do not place the pinch roller above the rear material sensor hole of bed, to avoid miss sensing materials.



Move the pinch rollers to inside the edges of the material

* These illustrations show the CJ-70. On the CJ-60, the positions of the grit rollers differ from those shown here.

Loading roll material

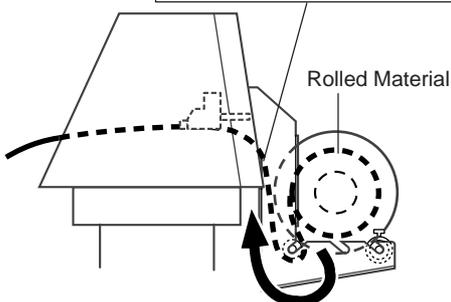
When the prefeed check function is enabled (i.e., set to "ENABLE")

* The prefeed check function is enabled as the factory default setting.

Correct

Side view

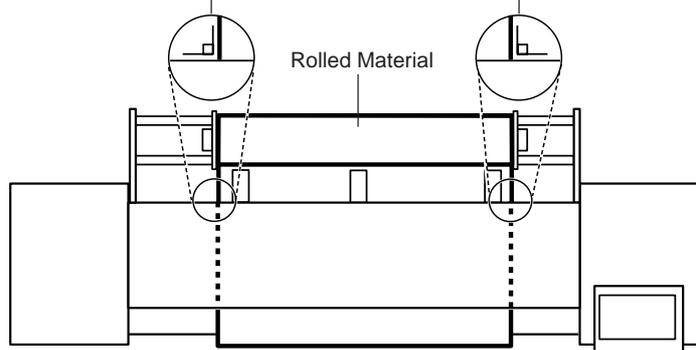
Do not allow any slack to form in the material until the pinch rollers are lowered and the material is secured in place.



Pass under the shaft and pull out over the platen

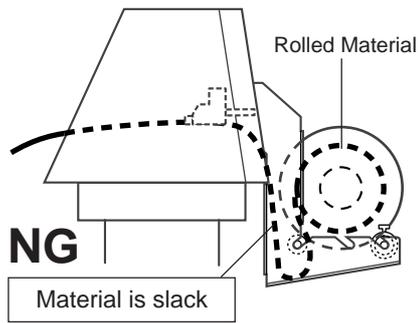
Top view

Make the material perpendicular to the CJ-70/60.

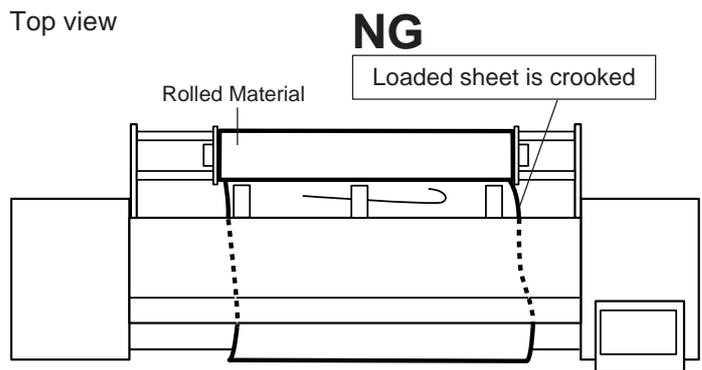


Incorrect

Side view



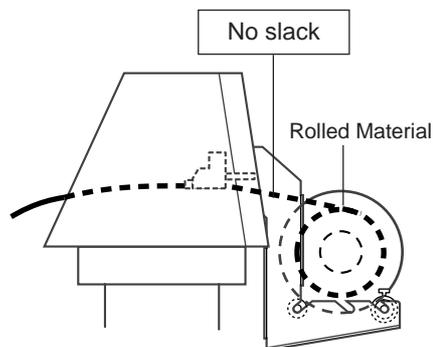
Top view



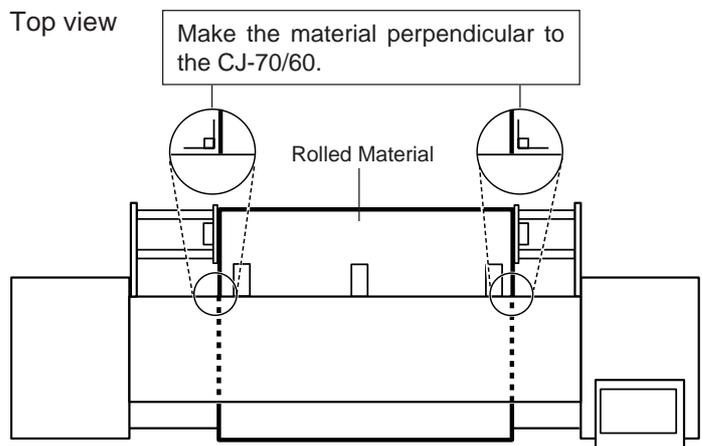
When the prefeed check function is disabled (i.e., set to "DISABLE")

Correct

Side view

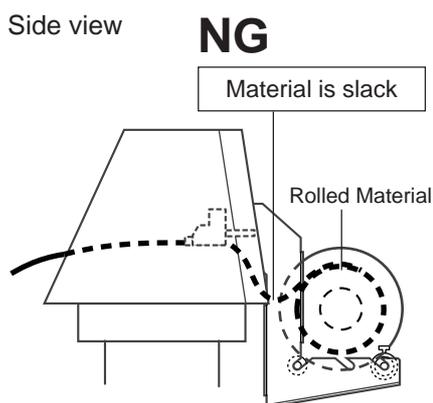


Top view

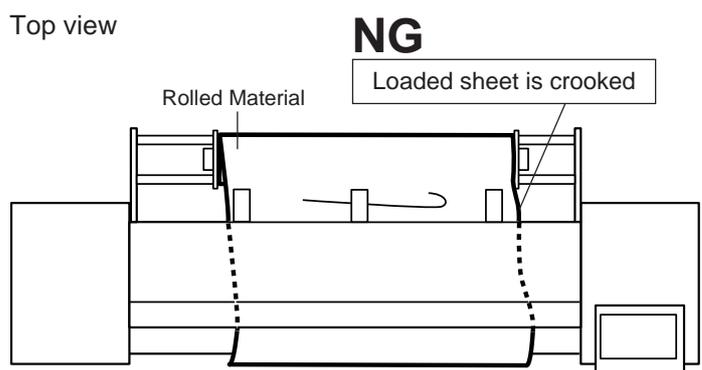


Incorrect

Side view



Top view



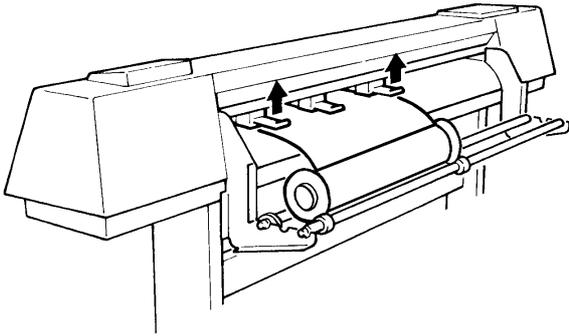
* Refer to "22 Description of Keys and Display Menus" on the prefeed check function.



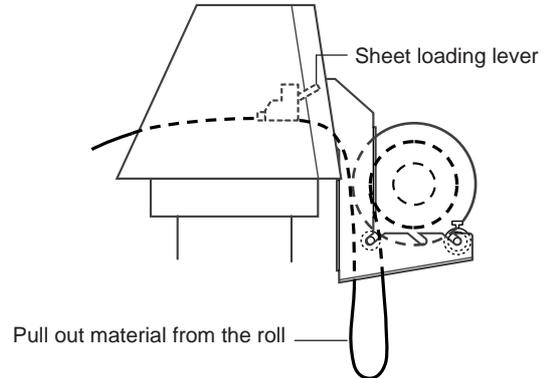
When using the optional TU-70/60 (automatic media take-up unit for the CAMM JET), set the prefeed function to "DISABLE" to disable this function.

3

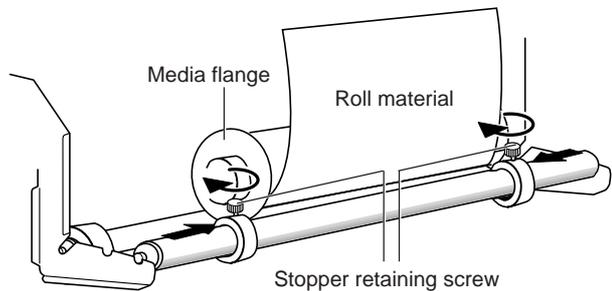
Raise the sheet loading levers to secure the material in place.



* If and only if the prefeed function is enabled (i.e., set to "ENABLE"), then after securing the material in place, pull out some material from the roll.

**4**

If using roll material, move the provisionally tightened stopper to match the width of the material, then securely tighten the stopper retaining screw.

**5**

Use the  and  keys to choose the material configuration.

SELECT SHEET
ROLL EDGE PIECE

ROLL: If roll material has been loaded, only the width of the material is detected.
EDGE: If roll material has been loaded, the width of the material and the position of the front edge are detected.
PIECE: If sheet material has been loaded, the width and length of the material are detected.

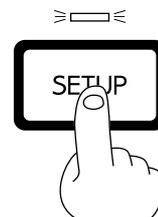
6

Press the  key.

The sheet size is detected, and the CJ-70/60 is ready for plotting or cutting.

* If "PREFEED" is set to "ENABLE," pressing the  key causes the sheet to be fed for the length that has been set. Changing the "PREFEED" setting to "ENABLE" is recommended when using rolled material. For more information, see "22 Description of Keys and Display Menus".

The SETUP LED lights up



When using sheet material

- If the material curls toward the material face (cut face), it will cause the material to slip when loaded onto the CJ-70/60, and may adversely affect printing/cutting. In this case pre-bend the material downward so that the material edge is not caught the front cover and guard bar during operation.
- If the material strikes the shaft that is installed on the stand, then remove the shaft.

10 Printing Test

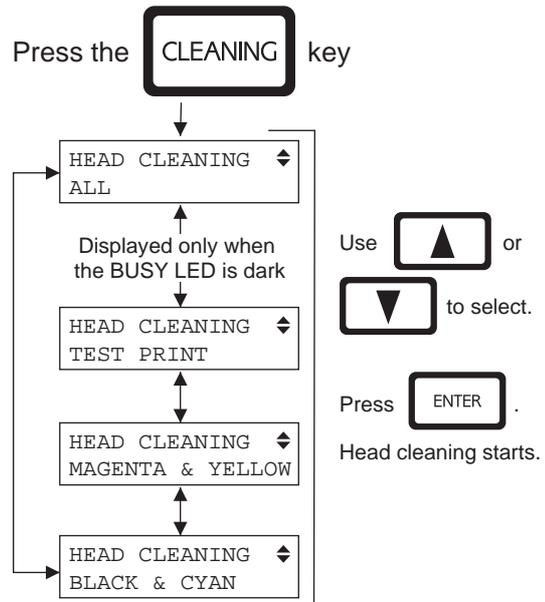
You can check the printing quality before actually starting to print.

1

Load a material, then close the front cover.

2

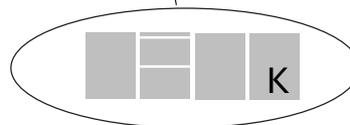
Press the **CLEANING** key to execute [TEST PRINT].



Cleaning corresponding Heads until you can't see any difference between four rectangle of each color.



If there are any missing dots or other evidence of a drop in printing quality, clean the head.



11 Cutting Test

For optimum performance, it is necessary to set cutting conditions that match the material, giving consideration to the material's thickness and type of material. The CJ-70/60 has an internal "cutting test" to check the cutting conditions. This "cutting test" allows you to determine settings for the cutting speed, blade force and the amount of offset.

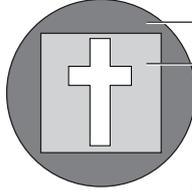
Experiment with different settings for different types of material and adjust the configuration accordingly.

1 Install a blade and load a material, then close the front cover.

2 Use the , ,  and  keys to move the tool carriage to the place where the cutting test is to be performed.

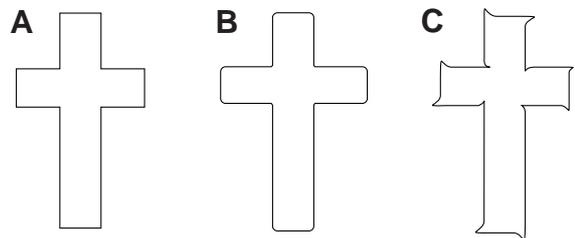
3 Press the  key. Cutting test starts.

4 Confirm the cutting speed and the blade force. Peel off the round section (marked by ). Confirm that you can peel off the square section (marked by ), but do not remove it. Also remove the square section (marked by ). If the blade leaves a slight trail on the carrier paper, you have achieved optimum cutting speed and blade force.



Peel off first
Then, peel this off
Origin (Position of the tool installed in step 2)

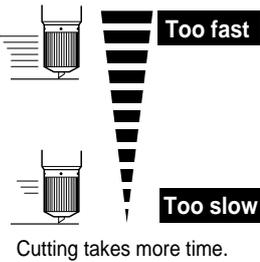
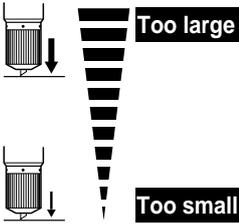
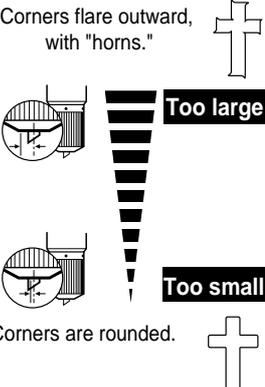
5 The remaining cross-shaped area is used to check whether the offset value is set correctly. When the offset value has been correctly set, the corners of the figure should appear cleanly cut as shown in **A** of the figure below. If the offset value is too small, the corners will appear slightly rounded as illustrated by **B**; an offset value which is too large will result in a cut figure similar to **C**.



If the material was not cut correctly in steps (1) through (5) of the cutting test, change the cutting conditions (see "21 Display Menus Flowchart").

Repeat the cutting test and adjustment until the optimal cutting speed, blade force, and blade compensation are found.

Incorrect cutting conditions may cause symptoms such as those described below. Take care to ensure that the cutting conditions are correct.

<p>Cutting speed</p> <p>Some parts of the sheet remain uncut.</p>  <p>Too fast Too slow Cutting takes more time.</p>	<p>Blade force</p> <ul style="list-style-type: none"> The sheet is easily torn. The cutter requires frequency replacement. Cutting extends through the base paper, and normal advancing of the sheet becomes impossible. The unit suffers damage.  <p>Too large Too small Some parts of the sheet remain uncut.</p>	<p>Blade compensation</p> <p>Corners flare outward, with "horns."</p>  <p>Too large Too small Corners are rounded.</p>
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For Materials with a Strong Adhesive Layer

If you are using a material with a strong adhesive layer, the adhesive layer may adhere to itself immediately when cut. This means that even though the material has actually been cut, it may appear as if it has not been cut, and blade force may mistakenly be set too high. If a cutting test shows that the material peels easily and the blade traces on the carrier paper are optimal, then the material is being cut. Take care not to set the blade force excessively high.

12 Downloading Printing/Cutting Data

NOTICE

Opening the front cover causes an emergency stop to occur, and printing may not be carried out correctly if operation is resumed.

To pause printing or cutting for any other reason than an emergency stop, press the **PAUSE** key.

Note pressing the **PAUSE** key to pause operation may result in differing image quality before and after the pause. It is a good idea to avoid pausing operation while printing is in progress whenever possible.

Allowing the printing carriage to stand for a long period after an emergency stop may result in clogging of the head and, in some cases, damage to the printing head.

Printing or cutting is started when data is sent.

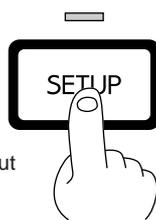
13 Ending Cutting and Printing Operations

1

Press the **SETUP** key.

The cutting carriage moves to the right.

The SETUP LED goes out

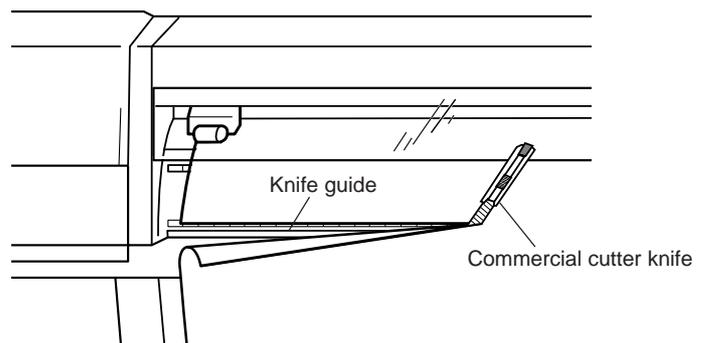


2

Press down the sheet loading levers and remove the material.

3

If you wish to cut off the piece of the rolled material containing the cut or printed area, place a commercially available cutter knife in the knife guide groove, and draw it along the groove to cut the material.



14 When Not in Use...

NOTICE

When not in use, leave the pinch rollers in the raised state. The pinch rollers may be deformed if allowed to remain in the lowered state.

After detaching the blade holder from the tool carriage, do not tighten the tool setscrew. Leave this screw loose. Tightening the screw makes the hole for inserting the holder to progressively smaller, which on turn makes it difficult to install the blade holder.

1

If the SETUP LED is lighted, press the **SETUP** key.

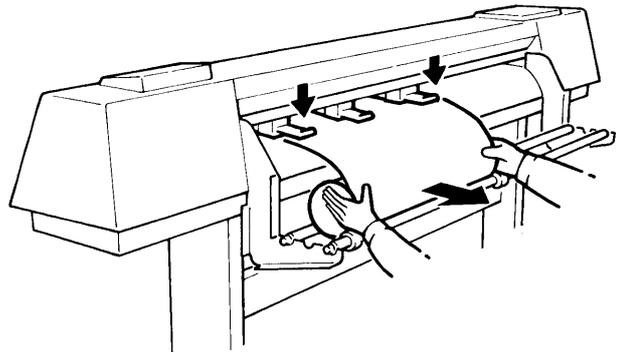
The carriage moves to the right.

The SETUP LED goes out



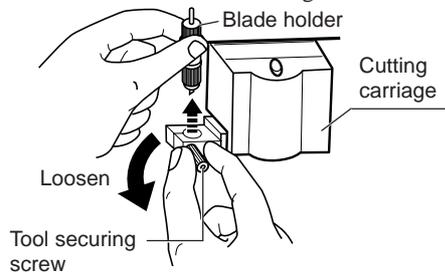
2

Lower the sheet loading levers and remove the material.



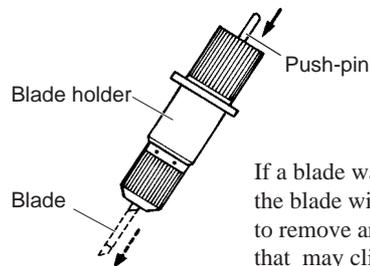
3

Loosen the tool securing screw on the tool carriage, then remove the blade holder from the tool carriage.



4

Press the push-pin and remove the blade from the blade holder.



If a blade was used, wipe the blade with a soft cloth to remove any material that may cling to it.

5

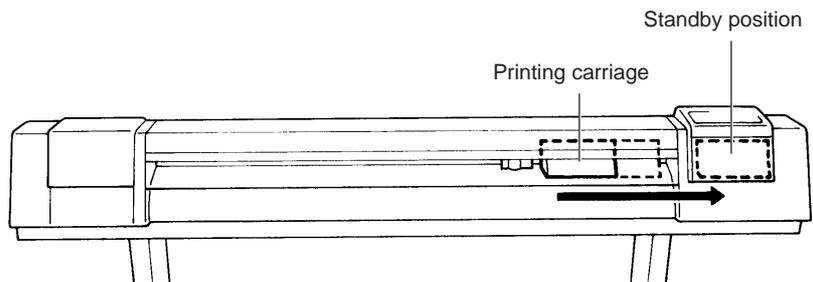
Press the **POWER** key to switch off the power.

The printing carriage moves to the standby position and the head is capped.

If the printing carriage is already at the standby position, no movement takes place.

There is no need to turn off the main power switch.

POWER LED goes out



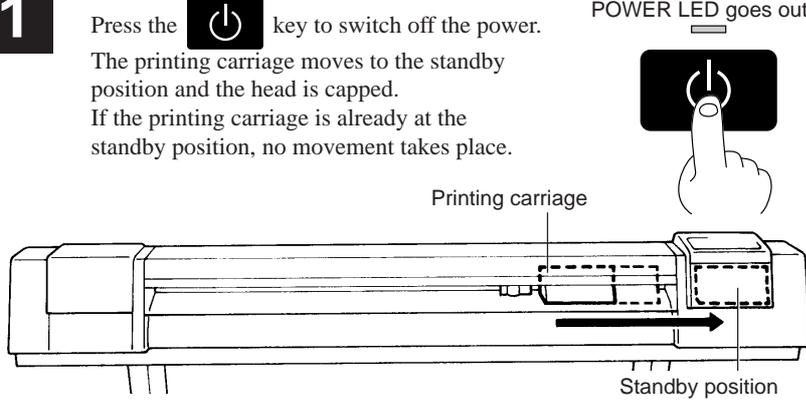
When Not in Use for a Prolonged Period...

NOTICE

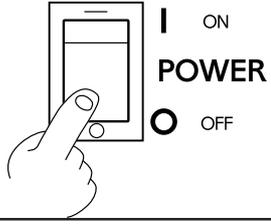
Do not switch off the main power with the ink head in an uncapped state (i.e., while the printing carriage is on the platen). If you leave the printing carriage uncapped for a long time, doing so may result in clogging of the ink head, making it unusable.

Before switching off the main power, be sure to press the  key to switch off the sub power for the CJ-70/60.

1 Press the  key to switch off the power. The printing carriage moves to the standby position and the head is capped. If the printing carriage is already at the standby position, no movement takes place.



2 Turn off the main power switch.



3 Unplug the power cord from the electrical outlet.

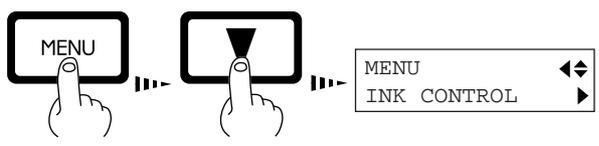
15 When Moving the Unit...

NOTICE

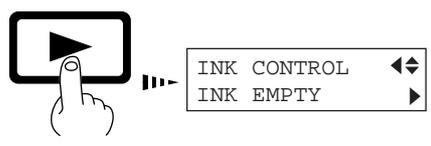
When moving the CJ-70/60, first remove any ink remaining in the unit and secure the printing head in place.

1 Remove the material, blade holder, and ink cartridge.

2 Press the **MENU** key and  key to make the following screen appear on the display.



3 Press the  key to make the following screen appear on the display.

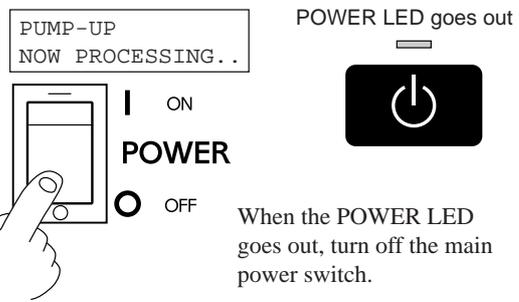


4 Use the  key to select "PUMP-UP," then press the **ENTER** key.



Ink discharge is carried out about ten minutes.

5 The following screen appears on the display, and the sub power is automatically switched off.



When the POWER LED goes out, turn off the main power switch.

6 Detach the power cord and the cable connecting the unit to the computer.

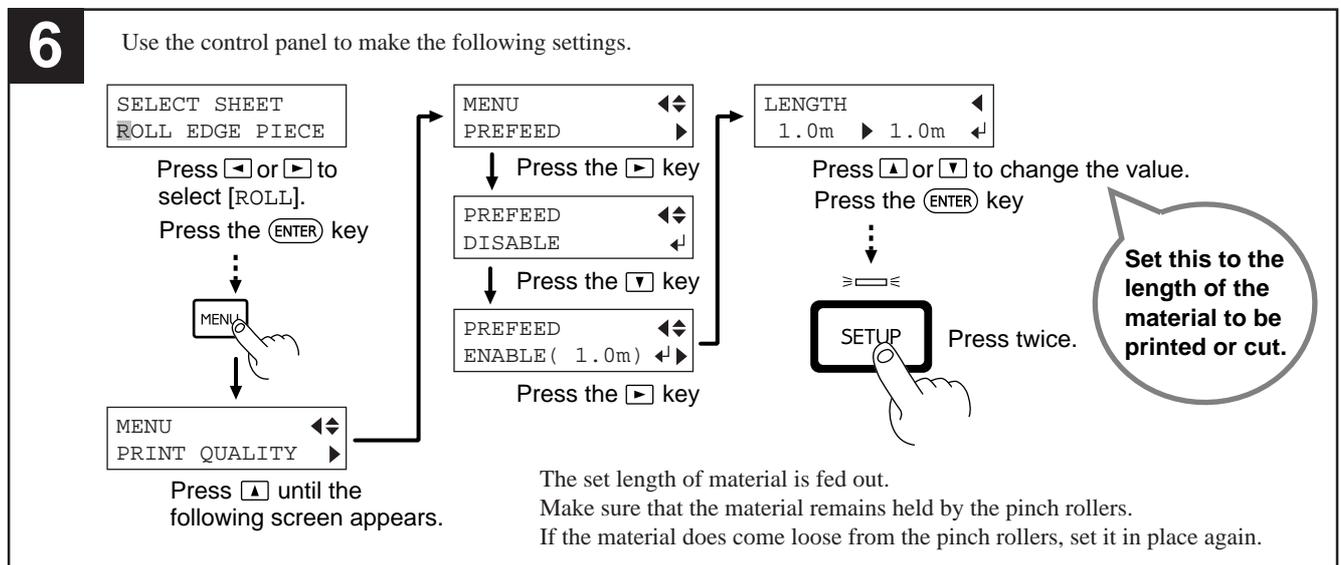
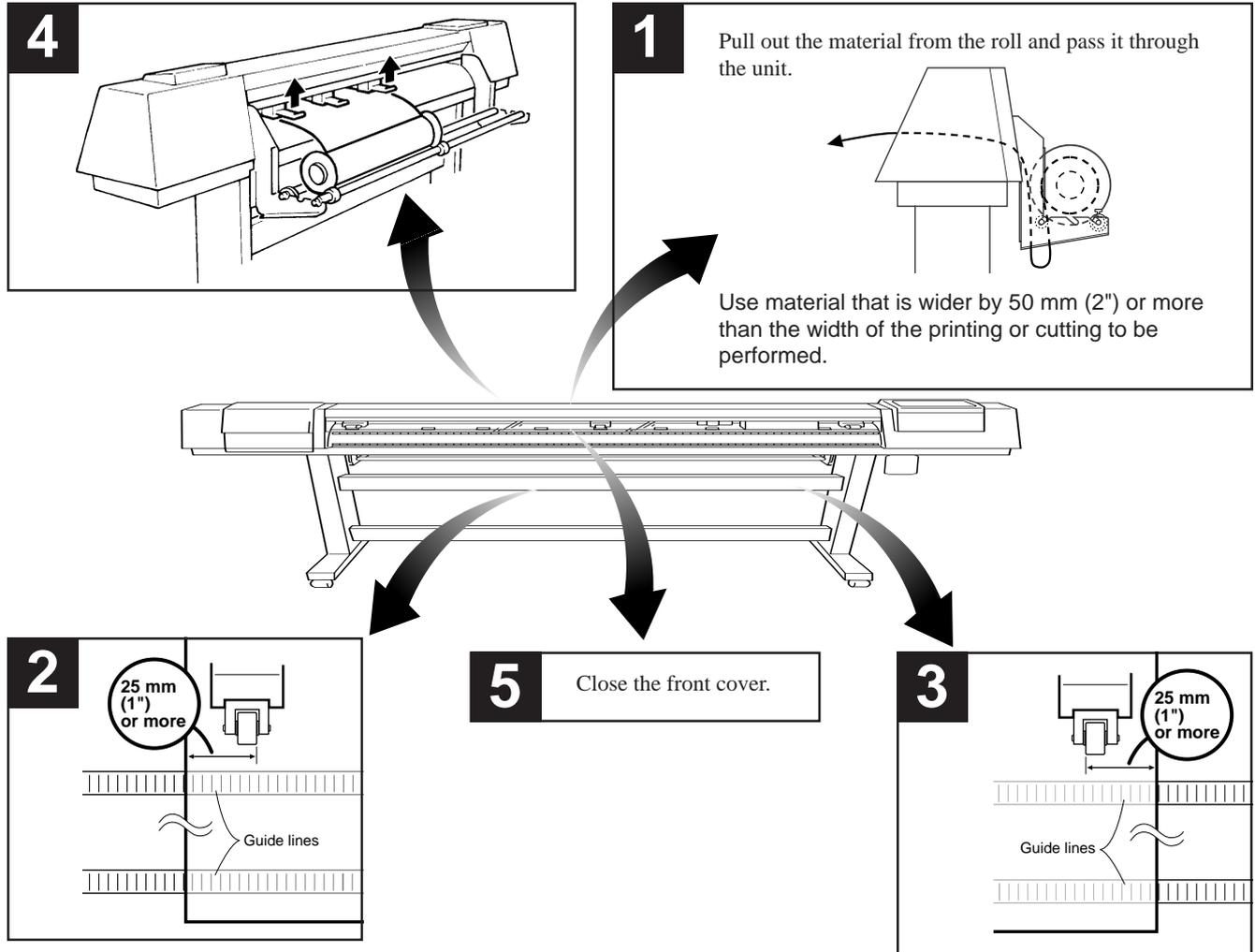
7 Remove the discharge tank. Refer to "5 For Details on the Drain Tank" for disposal of the ink within the tank.

8 Referring to "Unpacking and Repacking" on the packing carton, secure the printing head in place and pack the unit in the carton.

16 Other Functions

To Perform Long Printing/Cutting

When performing printing or cutting over a length of 1.5 m (60") or more, first feed out the required length of material. Then follow the steps below to load the material.



Remove the Printed Material, then Reload the Material and Perform Cutting

1 Press the **MENU** key and **▼** key to make the following screen appear on the display.

2 Press the **▶** key to make the following screen appear on the display.

3 Use the **▼** key to select "PRINT," then press the **ENTER** key.

4 Send the printing data from the computer. Three crop marks are automatically printed on the left and right areas at the front edge of the material.

5 When printing is finished press the **SETUP** key, remove the material and carry out lamination (or whatever further processing needs to be done). When done, reload the material in the same position used for printing, and press the **SETUP** key. (The **SETUP** LED lights up.)

6 Install the alignment tool on the cutting carriage.

7

1) Set the base point

Use the arrow keys to move the tip of the alignment tool to the square crop mark at the lower right area of the material, then press the **BASE POINT** key.

2) Set the align point

Use the arrow keys to move the tip of the alignment tool to the square crop mark at the lower left area or upper right area of the material, then press the **ALIGN POINT** key.

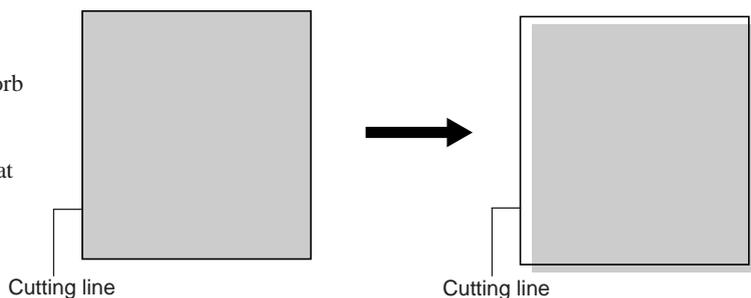
- The align point cannot be set to both the lower left and upper right points.
- The align point cannot be set if the angle between the base point and the align point is 5 degrees or more.
- Marks set with the application software (such as crop marks) cannot be used.

8 Remove the alignment tool from the cutting carriage and install the blade holder.

9 Send the cutting data from the computer.

Align the Printing and Cutting Positions

Materials expand and contract in response to absorbed ink and atmospheric humidity. The degree of size change depends on the material, backing material, and ambient temperature and humidity. In general, materials which absorb moisture easily expand and contract more easily. There is very little effect when only cutting or printing is used, but if printing is followed by cutting, it is possible that the cutting line may be offset from the printing line.



There are three ways to correct this offset.

1 CROP MARK

Material expansion/contraction before and after printing is corrected as it occurs. The offset value set for this method is deleted when new data is sent, or the material removed. This method is suitable when temperature and humidity are unstable, or differing materials are often used.

Corrections applying to all output should be set with "2 HEAD ADJUST" or "3 CALIBRATION".

1 Press the **MENU** key and **▼** key to make the following screen appear on the display.

2 Press the **▶** key to make the following screen appear on the display.

3 Use the **▼** key to select "ALIGN," then press the **ENTER** key.

4 Send the printing data from the computer. Crop mark is automatically printed on the right area at the front edge of the material.

5 When cutting data is sent after printing is finished, the carriage moves to the origin point and a message appears on the display.

6 Install the alignment tool on the cutting carriage.

7

Set the base point
Use the arrow keys to move the tip of the alignment tool to the square crop mark at the lower right area of the material.

The align point is set automatically, and correction is performed.

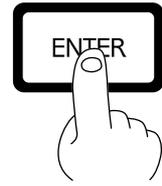
- The align point cannot be set if the angle between the base point and the align point is 5 degrees or more.

8

Without moving the cutting carriage, remove the alignment tool and attach the blade holder.

9

Press the **ENTER** key to start cutting.

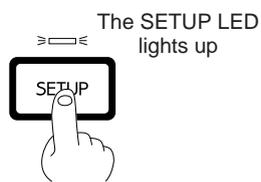


2 HEAD ADJUST

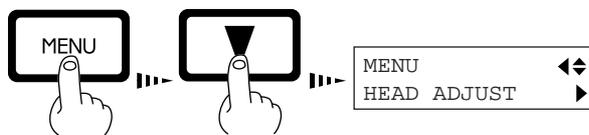
Mechanical deviation caused by temperature is corrected, and the correction value stored to the CJ-70/60. If the ambient temperature variation is low, this correction setting should not have to be changed. The setting will not be erased even if the power is turned off.

1

Load the material and press the **SETUP** key.

**2**

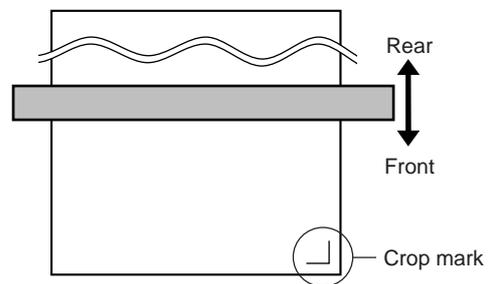
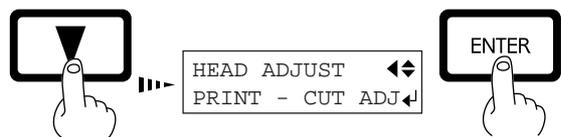
Press the **MENU** key and **▼** key to make the following screen appear on the display.

**3**

Press the **▶** key to make the following screen appear on the display.

**4**

Use the **▼** key to select "PRINT-CUT ADJ" then press the **ENTER** key.



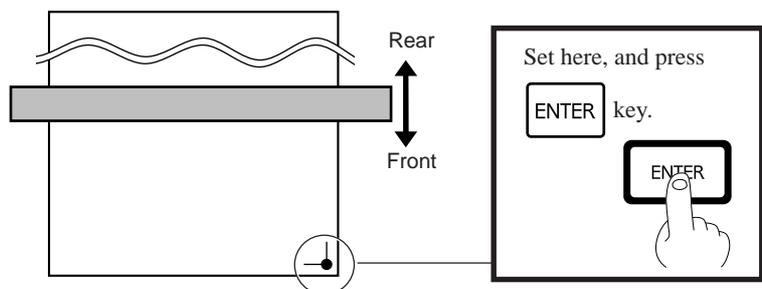
Crop mark is printed.

5

Install the alignment tool on the cutting carriage.

6

Use the arrow keys to move the tip of the alignment tool to the square crop mark at the lower right area of the material.



3 CALIBRATION

If correction with "2 HEAD ADJUST" is done and there is still an offset between the printing and cutting positions, use the following correction method.

Measure the sheet offset caused by expansion/contraction and store it in the CJ-70/60.

Because different sheet materials have different offsets, either reset the value when using a different sheet material, or use "1 CROP MARK" to make the adjustment.

This is suitable to places when variation in ambient temperature and humidity are low, and sheets of a single material are used. The setting will not be erased even if the power is turned off.

1 As shown in the example below, create data surrounding a printing area with cutting lines, and output the data to the CJ-70/60.

Example)

2 To calculate the correction value, measure the lengths of A, B, C and D in the following diagram.

3 Offset expressed as a percentage of total length.

$$\text{Correction value in Y direction.} = \frac{\text{A Offset in Y direction.}}{\text{B Offset of Y-direction data.}} \times 100$$

$$\text{Correction value in X direction.} = \frac{\text{C Offset in X direction.}}{\text{D Offset of X-direction data.}} \times 100$$

If the cutting line is in the + direction from the printing position, then input the correction as a -.
If the cutting line is in the - direction from the printing position, then input the correction as a +.

4 Press the **MENU** key and **▼** key to make the following screen appear on the display.

5 Press the **▶** key to make the following screen appear on the display.

6 Select the "X AXIS" or "Y AXIS" with the **▼** key, and press the **MENU** key .

7 Press the **▶** key to make the following screen appear on the display.

8

Input the correction value calculated in step (3).

Select the correction value with the   key,
and press the  key.



Performing Cutting or Printing at the Desired Location

The printing or cutting origin point should be set.

1

Install the alignment tool on the cutting carriage.

2

Use the arrow keys to move the tip of the alignment tool. Move the tip of the alignment tool to the point where the origin is to be set.

3

Press the  key.

 The PAUSE LED lights up



 The origin point is set.



When an align point has been set, it is released if the  key is pressed.

To release the origin point that has been set...

- Set a new origin point in a different location.
- Press the SETUP key (making the SETUP LED go out).

17 Maintenance

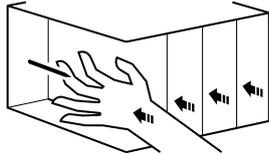
Replacing the Ink Cartridges

CAUTION

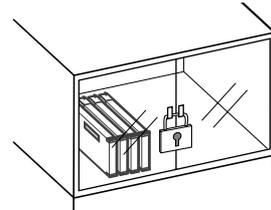


Do not insert your fingers in the ink cartridge ports.

Doing so may result in injury.



Store ink cartridges out of the reach of children.



If ink contacts the eyes, flush immediately with water.



NOTICE

Do not remove any ink cartridges except when shipping the CJ-70/60.

Use only the ink specified for the machine. Dye inks cannot be used on a CJ-70/60 unit for which pigment inks are specified, and pigment inks cannot be used on a CJ-70/60 unit for which dye inks are specified.

If ink runs out, replace immediately with an ink cartridge designed especially for the CJ-70/60. Do not attempt to refill and reuse an empty ink cartridge.

If an ink cartridge is removed, replace it immediately with a new one.

Do not attempt to disassemble an ink cartridge.

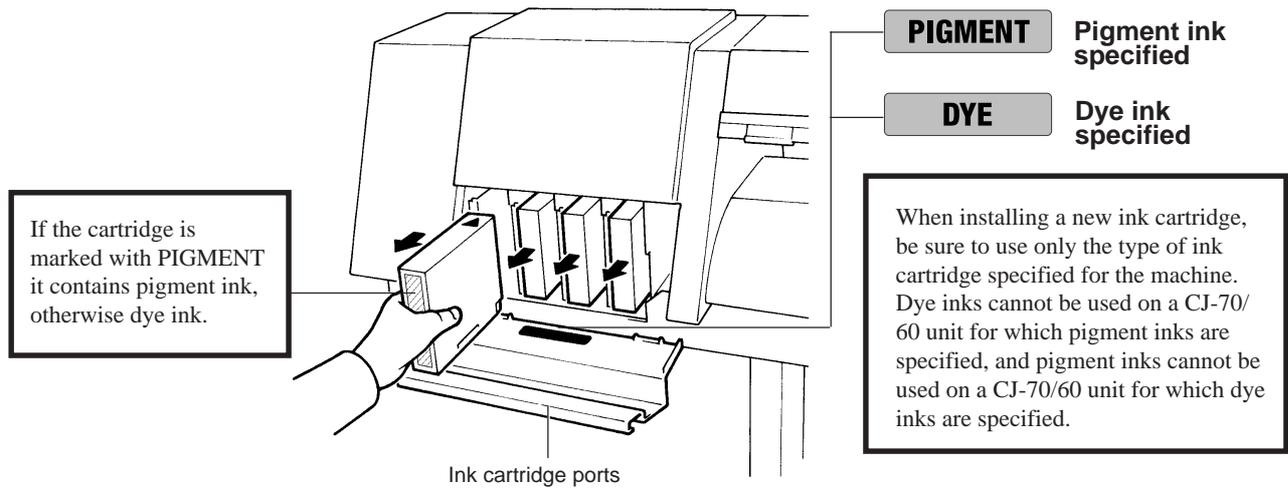
Unused ink cartridges should be stored unopened at a temperature of -20°C (-4°F) to 40°C (104°F). Do not store in a location subject to temperatures beyond this range.

When removing an ink cartridge, do not rush. Detach the cartridge gently. Sudden movement when detaching may cause ink to be spilled.



If any ink gets on your hands or clothing, wash it off as soon as possible. Ink stains may become difficult to remove if allowed to stand.

Open the ink cartridge port and remove the empty ink cartridge.



Insert new ink cartridge. (See "6 Installing Ink Cartridges" for an explanation of how to install a new ink cartridge.)

If the "INK EMPTY" message appears while printing

If it becomes necessary to replace the ink cartridge while printing is in progress, the following message is displayed and the buzzer sounds.

```

INK EMPTY
***** INK
    
```

The color of the ink that has run out is displayed.

The unit is almost out of ink. Please replace the ink cartridge.

If this message is ignored and printing is continued without replacing the ink cartridge, image quality may be adversely affected and exhibit faintness or other problems.

<p>1 Press the PAUSE key to pause printing.</p> <p>PAUSE LED lights up</p> <p>* When "INK EMPTY" is set to "PROMPT", the unit pauses automatically when this message is displayed.</p>	<p>2 Pull out the cartridge for the ink color that has run out, and replace with a new cartridge.</p>
<p>3 Press the key to resume printing.</p> <p>PAUSE LED goes out</p>	

If the "INK EMPTY" message appears during setup

A cartridge has run out of ink, and printing cannot be started.

If printing data is being sent, this message is displayed and the buzzer sounds. At the same time, operation is paused and the PAUSE LED flashes. Replace the empty cartridge with a new one and press the PAUSE key to start printing.

If the data being sent is cutting data only, the message is displayed and the bell sounds, but cutting is started.

Replacing the Blade

Refer to "14 When Not in Use..." to remove the blade.

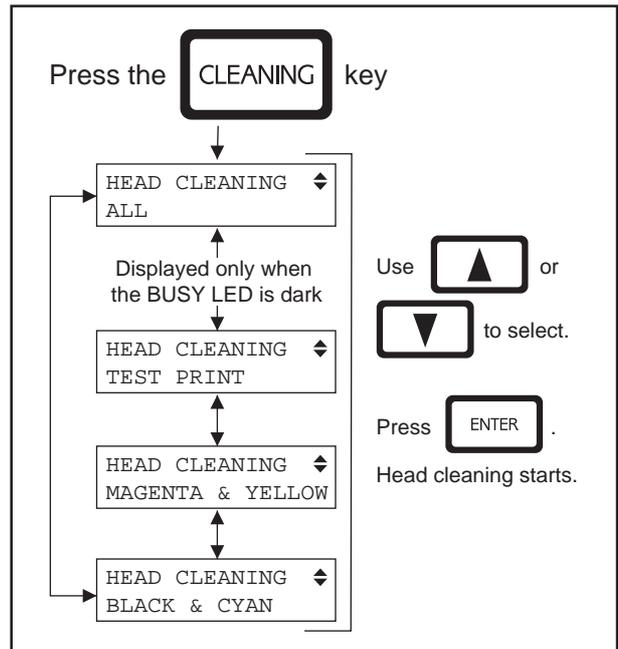
See "7 Installing the Cutter" for a description of how to install a blade.

Cleaning the Ink Heads

Maintenance operation is performed automatically when the  key is pressed to switch on the power, so normally there is no need to clean the unit.

If drop-out occurs with printed images, press the  key to clean the ink heads.

If this cleaning does not correct the drop-out problem, press the  key, then use the  key to display "HEAD CLEANING" and select "POWERFUL." If performing cleaning several times at the "POWERFUL" menu does not correct the drop-out problem, contact your authorized Roland dealer or service center to purchase a replacement head.



Cleaning

NOTICE

Before cleaning, press the  key to switch off the sub power for the CJ-70/60.

Never lubricate the mechanisms.

Use a small amount of water or alcohol for cleaning the covers. Never use solvents such as benzene or thinner can smooth out the material so that it sticks securely.

Periodically clean the platen. Attractive printing may become impossible if the platen is soiled.

Do not touch the ink heads or allow the ink heads to come in contact with anything except ink.

Cleaning the body

Use water or alcohol to clean, and wipe gently with a clean cloth. Wipe the operation panel and display gently with a clean, soft cloth.

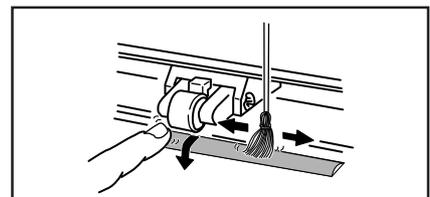
Cleaning the platen

If the platen is dirty clean with alcohol or water and wipe gently with a cloth.

Cleaning the grit rollers

Use a commercially available brush to remove dust and other detritus. Brush horizontally while rotating the grit rollers.

If dust builds up it may prevent the paper from being held securely, and degrade plot precision.



Cleaning the pinch rollers

Use a cloth moistened with water or alcohol and wipe gently to clean.

Cleaning the front cover

Use water or alcohol and clean with a soft cloth. If severe a neutral detergent may be used. Never use anything other than water, alcohol or a neutral detergent.

Cleaning the blade holder cap

Remove the cap, then remove the material debris.

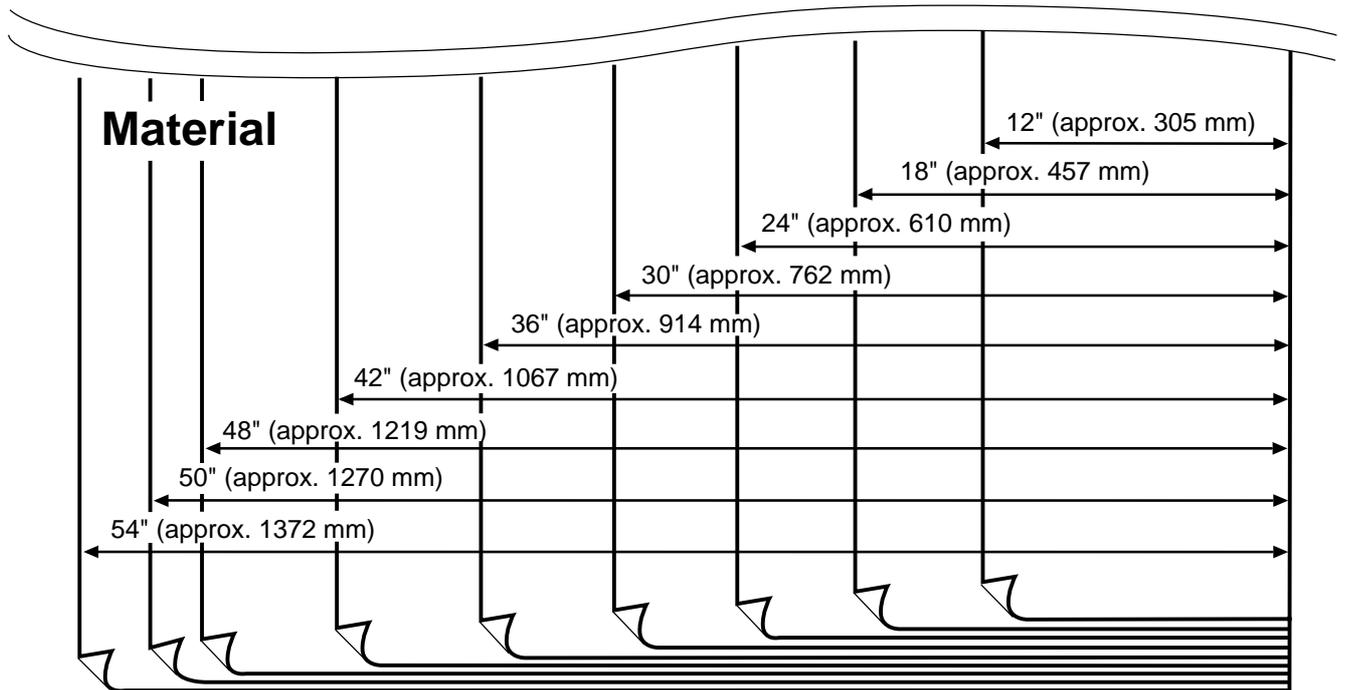
18 Acceptable Media Widths

CJ-70

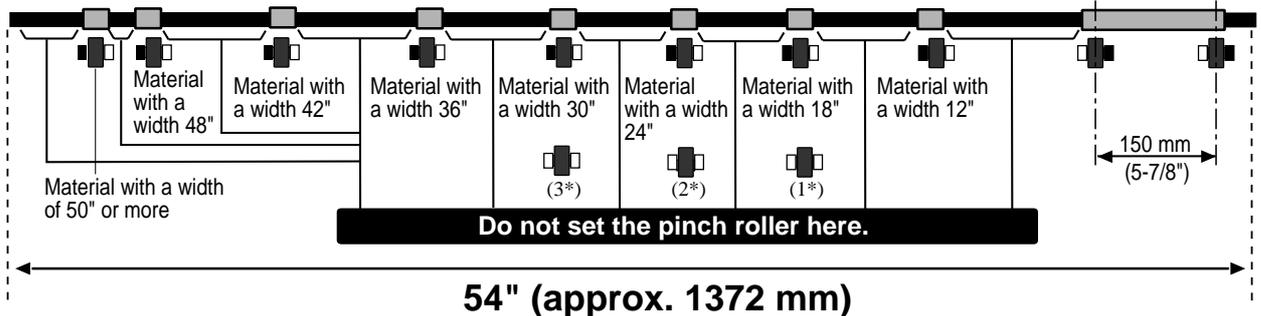
Acceptable media widths

Sheet material : 160 mm — 1372 mm (6-5/16" — 54")

Roll material : 160 mm — 1320 mm (6-5/16" — 52") (When using roll material, the loadable material width is narrower than for a flat sheet by an amount corresponding to the dimensions of the media flanges.)



The right-hand movable pinch roller can be moved within this range.  When loading material with a width other than one indicated above, move the right-hand movable pinch roller.



- (1*) Position of the pinch roller (middle) when using material with a width of 30"
- (2*) Position of the pinch roller (middle) when using material with a width of 36" or 42"
- (3*) Position of the pinch roller (middle) when using material with a width of 48", 50" or 54"

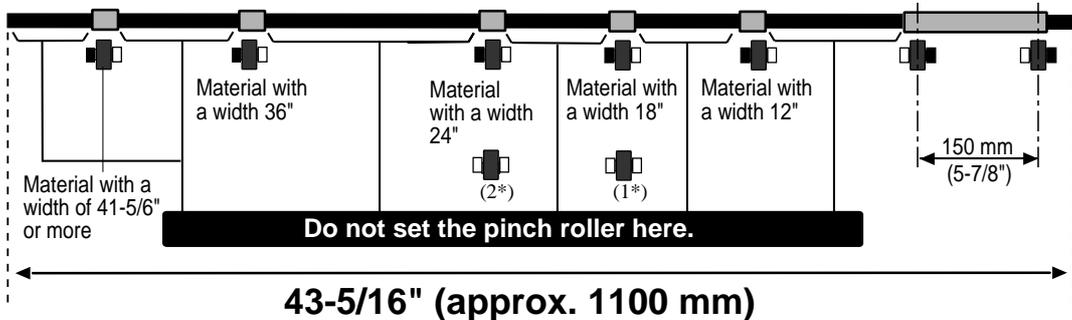
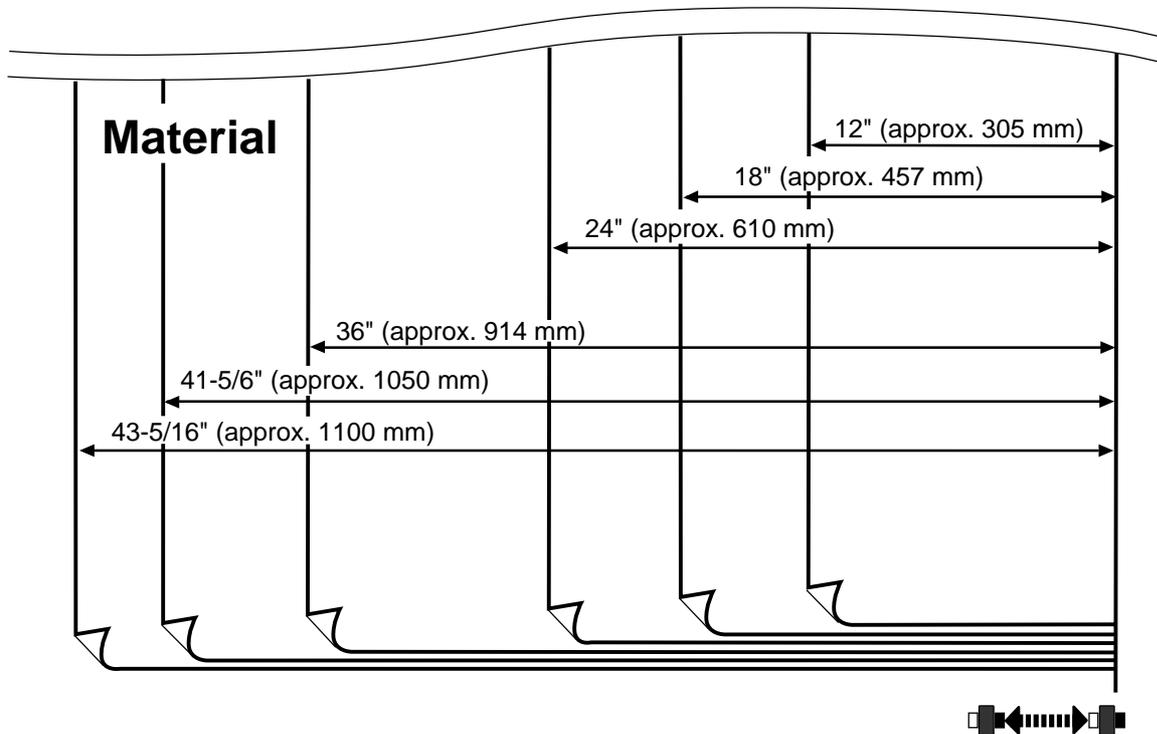
-  : Grit roller
-  : Pinch roller (middle)
-  : Pinch roller (left)
-  : Pinch roller (right)

CJ-60

Acceptable media widths

Sheet material : 160 mm — 1100 mm (6-5/16" — 43-5/16")

Roll material : 160 mm — 1050 mm (6-5/16" — 41-5/6") (When using roll material, the loadable material width is narrower than for a flat sheet by an amount corresponding to the dimensions of the media flanges.)



- (1*) Position of the pinch roller (middle) when using material with a width of 36"
- (2*) Position of the pinch roller (middle) when using material with a width of 41-5/6" or more

- : Grit roller
- : Pinch roller (middle)
- : Pinch roller (left)
- : Pinch roller (right)

19 Blades and Materials

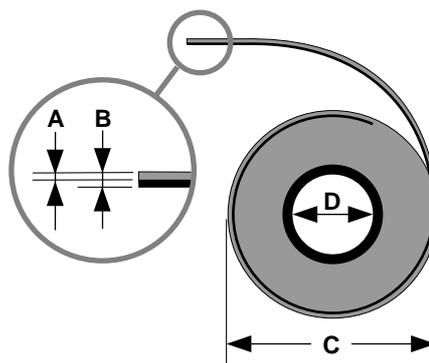
This section indicates the proper cutting conditions for various types of materials, as well as blade life spans. Cutting conditions and blade life vary according to the hardness of the material and the usage environment. Making the settings for the conditions described below does not automatically guarantee attractive cutting results in all situations. Before performing actual cutting, be sure to carry out a cutting test and make any necessary adjustments (see "11 Cutting Test"). If the material is not cut through completely even when the tool force is increased by 50 to 60 gf more than the tool force values shown below, it means that the useful life of the blade has ended. Replace with a new blade.

Blade	Material	Blade force	Cutting speed	Blade compensation	Life of a blade
ZEC-U1005	General signage vinyl	50—150 gf	85 cm/sec. (33.464"/sec.)	0.25 mm (0.00984")	8000 m (314960")
ZEC-U5025	General signage vinyl	30—100 gf	85 cm/sec. (33.464"/sec.)	0.25 mm (0.00984")	4000 m (157480")
	Reflective vinyl	120—200 gf			
	Fluorescent vinyl	100—200 gf			

* The values for life span are intended to serve as a general guide when cutting materials of identical type.

Conditions for Usable Materials

- A) Cuttable material thickness : 0.08 to 0.22 mm (0.00315" to 0.00866") (depending on material composition)
- B) Maximum material thickness, including base paper (peeled-off paper)
: 0.4 mm (0.0157")
- C) Maximum diameter for roll material : 180 mm (7-1/16") (surface to be printed or cut must face outward)
- D) Core inner diameter for roll material: 50.8 or 76.2 mm (2" or 3")
- E) Maximum weight for roll material : [CJ-70] 20 kg (44.1 lb.) [CJ-60] 17 kg (37.5 lb.)
- F) Roll material with a starting edge that is not taped down



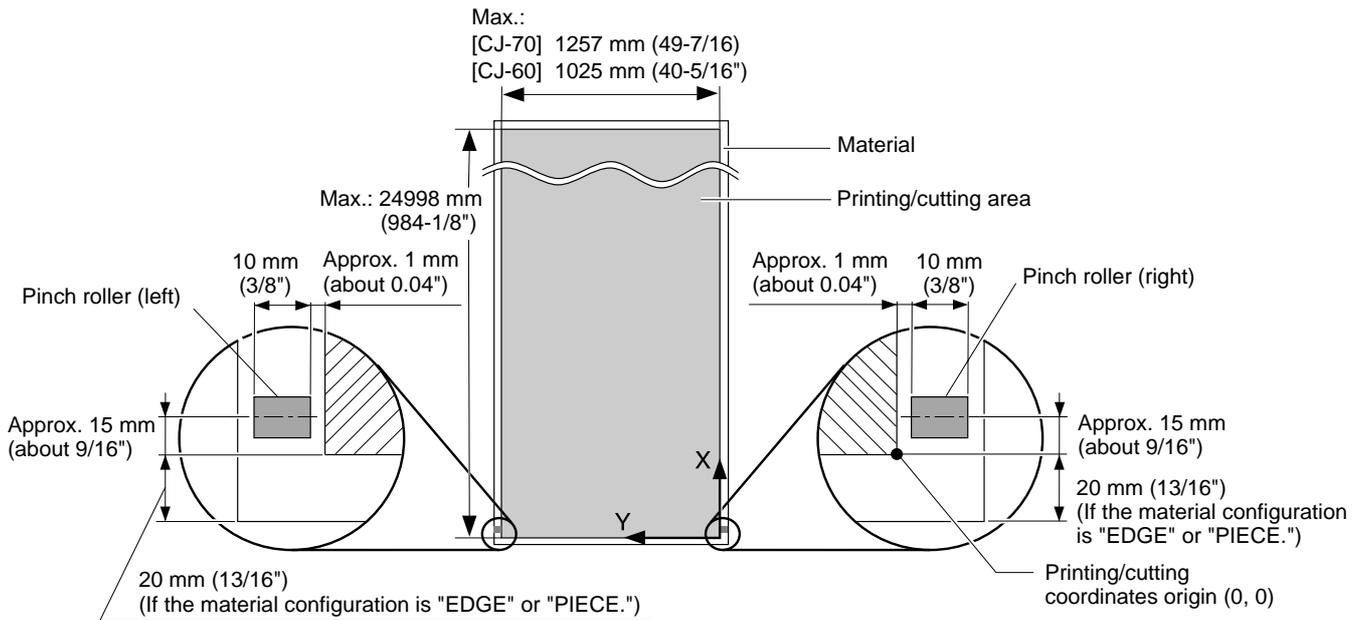
Side view of roll material

20 About the Printing/Cutting Area

The printing/cutting area along the horizontal plane (the direction in which the carriage moves) is determined by the position of the pinch rollers. The workable area spans the length between the two rollers, minus a margin of about 1 mm (about 0.04") on both sides.

If "PIECE" has been selected and material length (the distance in the X direction as shown in the figure) is 1,885 mm (74-3/16") (1,257 mm (49-7/16") x 1.5) on the CJ-70 or 1,537 mm (60-1/2") (1,025 mm (40-5/16") x 1.5) on the CJ-60, the area is the same as when "EDGE" has been chosen.

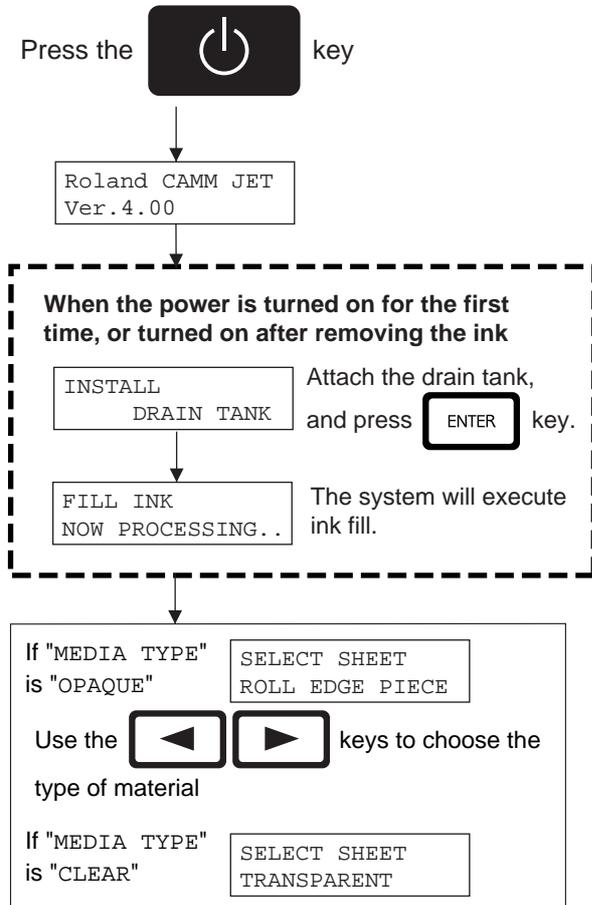
If "ROLL" or "EDGE" has been selected, the material length (the distance in the X direction as shown in the figure) is set to 24,998 mm (984-1/8").



* The arrows in the figure indicating the X and Y directions indicate respectively the positive directions of the X axis and Y axis.

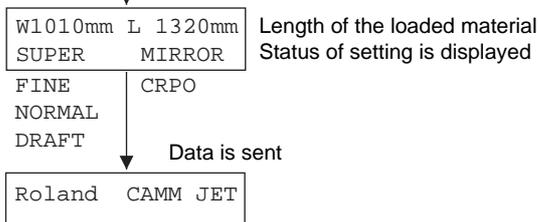
21 Display Menu Flowchart

For details about each of the menus, see the "22 Description of Keys and Display Menus."

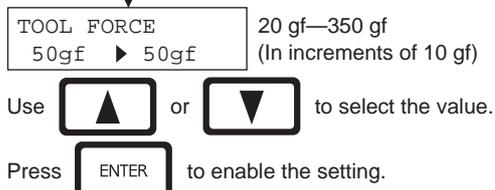


Load the material and press

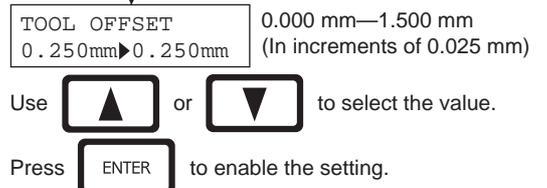
the  key



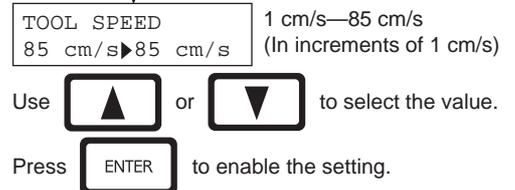
Press the  key



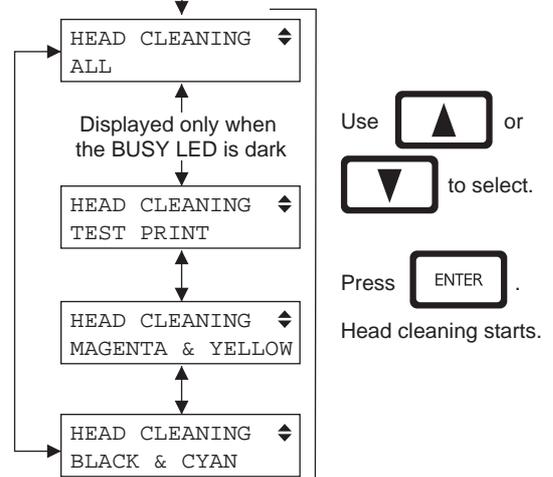
Press the  key



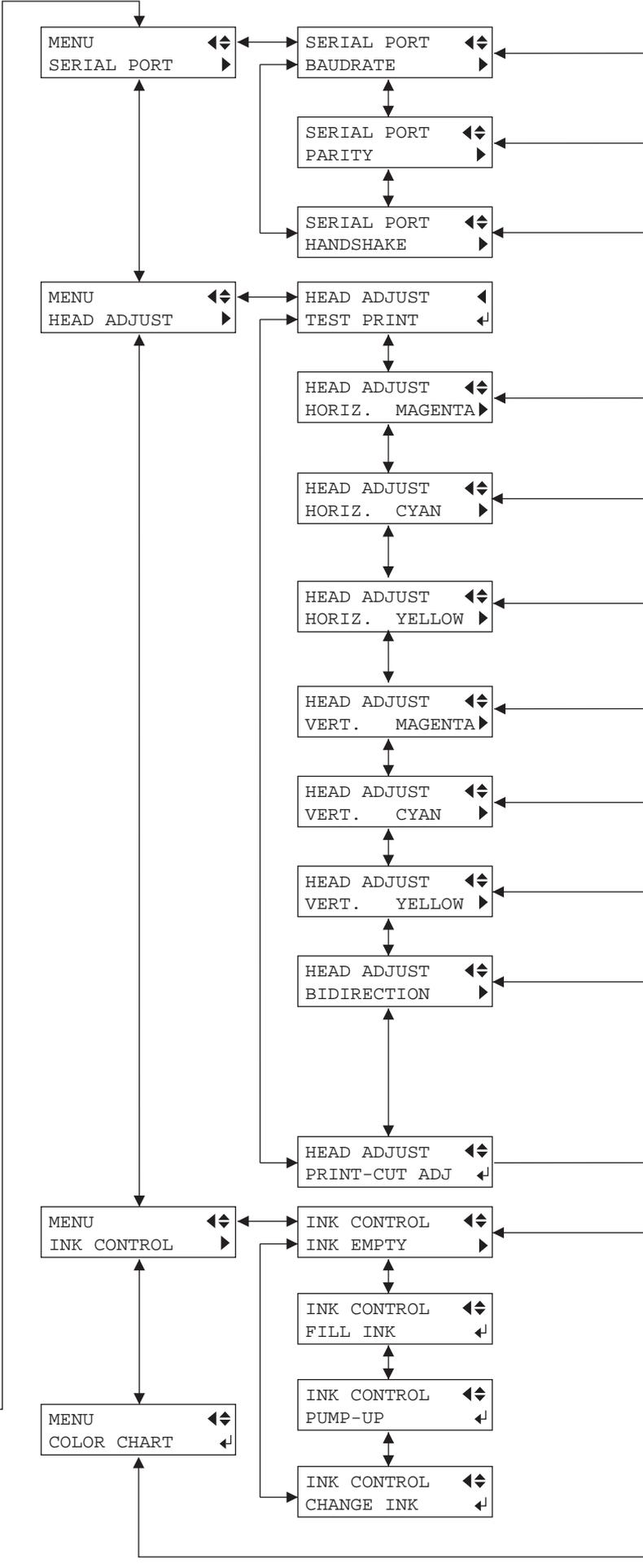
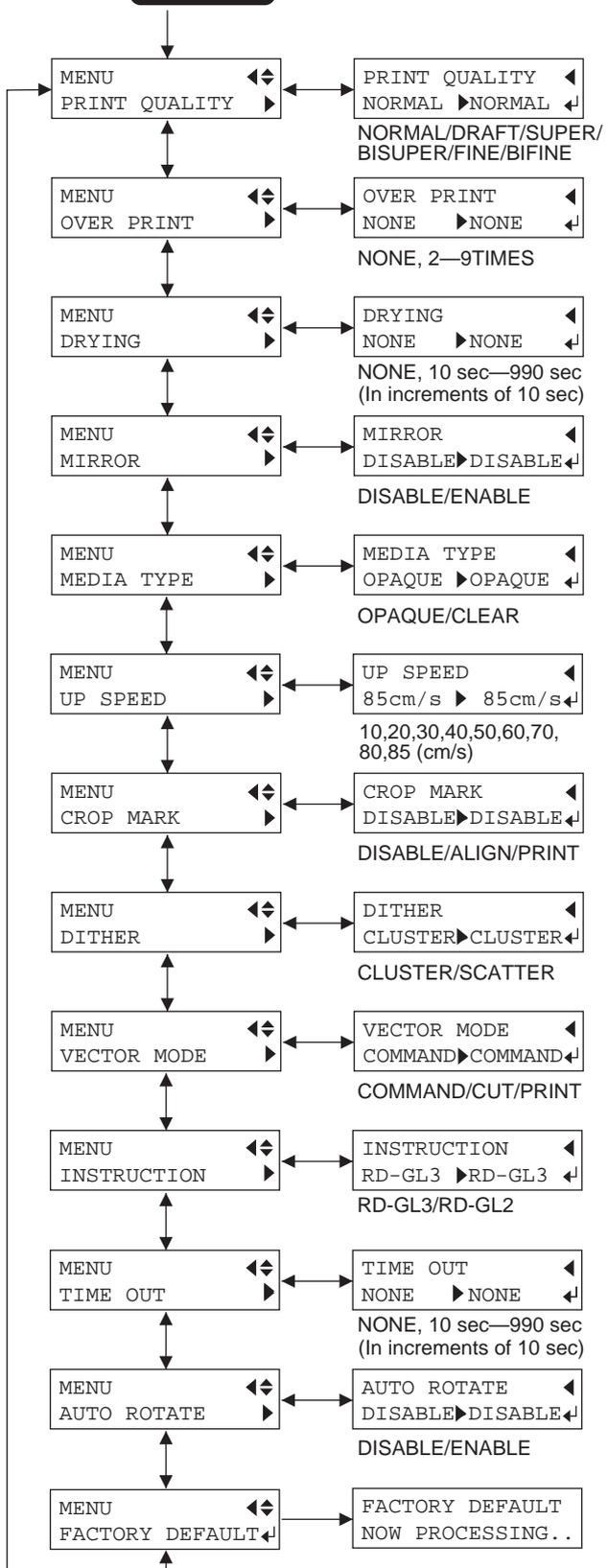
Press the  key

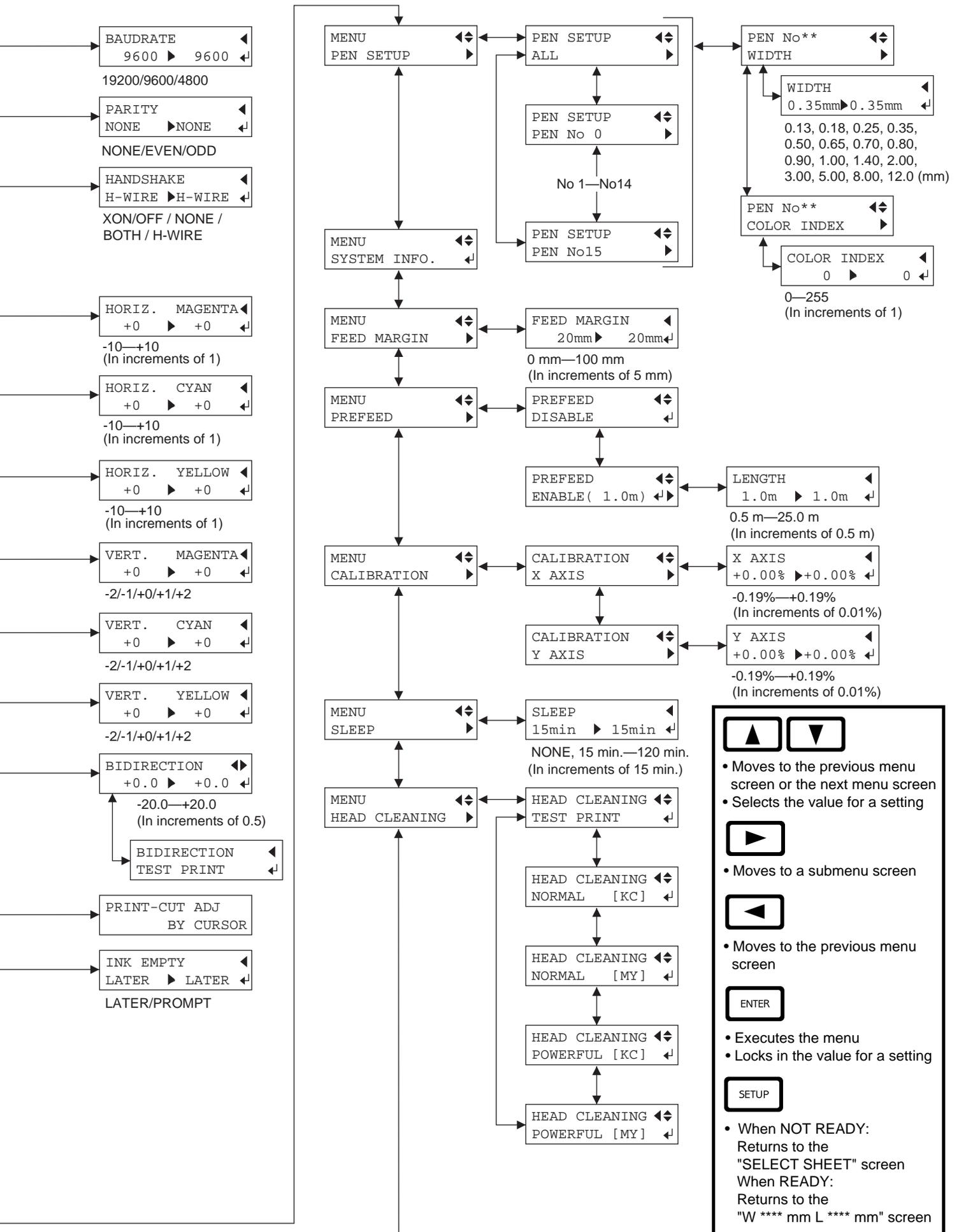


Press the  key

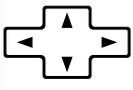


Press the **MENU** key





22 Description of Keys and Display Menus

Key	Top menu	Submenus	Function	Setting range	Default value
	CUTTER FORCE	—	This sets the blade force used for cutting. Perform a cutting test and set this to an appropriate value for the material and blade to be used.	20 gf to 350 gf (in increments of 10 gf)	30 gf
	CUTTER OFFSET	—	This sets the amount of offset for the blade shaft and the blade.	0.000 mm to 1.5000 mm (in increment of 0.025 mm)	0.250 mm
	CUTTER SPEED	—	This sets the speed used for cutting. Perform a cutting test and set this to an appropriate value for the material and blade to be used.	1 cm/s—85 cm/s (in increments of 1 cm/s)	50 cm/s
	—	—	This cuts a test pattern in a piece of material for adjusting the blade force, cutting speed, and blade compensation.	—	—
	—	—	When in the "READY" mode, these move the material and the cutting carriage. When a menu is displayed, these move among the menu items.	—	—
	—	—	This enters the menu mode. The  and  keys move to the next menu, the  moves to a submenu, and the  moves to the previous screen.	—	—
	—	—	This is used to accept, execute, or save the item shown on the display.	—	—
	—	—	This makes the present tool position the new origin point. This point is used as a reference for the align point. Any previously set align point is canceled.	—	—
	—	—	This sets the align point for canceling out any misalignment (tilting) of the material. The angle of the material, referenced from the base point, is stored in memory. Any angle of 5° or less may be set. This setting is valid only when cutting.	—	—
	—	—	This forces the tool to move up or down.	—	—
	—	—	This detects the size of the material and enters the READY mode, where printing or cutting are possible.	—	—
	—	—	In the READY mode or BUSY mode, this pauses operation. Pressing this key again cancels the paused state. Pressing the SETUP key while paused causes remaining data to be cleared and returns to the NOT READY mode. The unit goes into the NOT READY mode if the material is removed while paused.	—	—
	HEAD CLEANING	ALL TEST PRINT MAGENTA & YELLOW BLACK & CYAN	This performs cleaning of the ink head. Using the CLEANING key causes a certain amount of head wear and also consumes a certain amount of ink, so use of this key should be kept to a minimum. ALL: All four heads (magenta, yellow, black, and cyan) are cleaned. TEST PRINT: Test printing is performed in a range of approx. 130 mm x 15 mm (5-1/8" x 9/16"). If a problem in printing occurs, follow this by performing cleaning for the heads. MAGENTA & YELLOW: Only these two heads (magenta and yellow) are cleaned. BLACK & CYAN: Only these two heads (black and cyan) are cleaned.	—	—
	—	—	This switches on and off the power.	—	—

MENU

Top menu	Submenus	Function	Setting range	Default value
PRINT QUALITY	NORMAL DRAFT SUPER BISUPER FINE BIFINE	This selects the quality level for printing. The settings for print quality are, in order of increasing quality, DRAFT, NORMAL, BIFINE, FINE, BISUPER, and SUPER. Please note that printing times also grow longer as the quality level is increased. Printing is performed in one direction. Normally this setting is selected. High-speed, bidirectional printing is performed. Printing is performed in four passes per stroke. Printing is in one direction. Printing is performed in four passes per stroke. Printing is bidirectional. Printing is performed in two passes per stroke. Printing is in one direction. Printing is performed in two passes per stroke. Printing is bidirectional.	—	NORMAL
OVER PRINT	—	This sets the number of passes for overprinting. This setting is used when working with highly absorbent media with little shrinkage or expansion, such as fabrics, for which colors may not come out well with only a single printing. Depending on the medium used, overprinting may result in ink running or stretching of the material.	NONE, 2—9TIMES	NONE
DRYING	—	This sets the drying time for the ink. A long time should be set for low-absorbency, hard-to-dry materials. When printing is followed by cutting, the unit waits for the time set here until cutting begins.	NONE, 10 to 990 sec. (in increments of 10 sec.)	NONE
MIRROR	DISABLE ENABLE	This causes the image to be reversed from left to right. The image is not reversed from left to right. The output image is reversed from left to right. This setting is used when creating an image on the back of a piece of material.	—	DISABLE
MEDIA TYPE	OPAQUE CLEAR	This is used to select either transparent or opaque material. Select "OPAQUE" when the material loaded on the unit is not transparent. Select "CLEAR" when the material loaded on the unit is transparent. Only the horizontal width of the material is detected. (This is equivalent to selecting "ROLL" when set to "OPAQUE").	—	OPAQUE
UP SPEED	—	Sets the tool-up speed of movement during cutting.	10, 20 to 80, 85 cm/s	85 cm/s
CROP MARK	DISABLE ALIGN PRINT	Crop marks are not output. Crop marks are output. When printing is followed by cutting, distance adjustment and angle adjustment are performed for the material. Only crop marks are output (no adjustment is performed).	—	DISABLE
DITHER	SCATTER CLUSTER	This selects the dither pattern. The appropriate pattern may vary according to the image. This is a nonuniform pattern. This is a uniform pattern.	—	CLUSTER
VECTOR MODE	COMMAND CUT PRINT	This sets the processing method used for RD-GL III (vector) commands. Varies according to the commands received. Cutting is performed. Printing is performed.	—	COMMAND
INSTRUCTION	—	Selects the RD-GL II or RD-GL III instruction set.	RD-GL3, RD-GL2	RD-GL3
TIME OUT	—	When a certain amount of time passes with no data sent from the computer, the current output is considered to be finished. "TIME OUT" sets the time used for this determination.	NONE, 10 to 990 sec. (in increments of 10 sec.)	NONE
AUTO ROTATE	DISABLE ENABLE	This rotates the output image to match the direction of the material. The lengthwise direction of the material is automatically taken to be the X axis. Auto-rotate is not performed. Auto-rotate is performed.	—	DISABLE
FACTORY DEFAULT	—	This returns all menu settings to their original values when shipped from the factory.	—	—
SERIAL PORT	* 1 BAUDRATE PARITY HANDSHAKE	This sets the communication parameters for a serial connection. Sets the transmission speed. Makes the setting for parity checking. Makes the setting for handshaking.	19200, 9600, 4800 NONE, EVEN, ODD NONE, XON/OFF, H-WIRE, BOTH	9600 NONE H-WIRE
HEAD ADJUST	TEST PRINT HORIZ. MAGENTA HORIZ. CYAN HORIZ. YELLOW VERT. MAGENTA VERT. CYAN VERT. YELLOW BIDIRECTION PRINT-CUT ADJ	This adjusts the position of the heads, in 1-dot steps. The unit is set with a unique value at the factory, and the setting returns to this value when "FACTORY DEFAULT" is selected. This prints a test pattern for adjustment of the head positions. Adjusts the horizontal position of the magenta head. Adjusts the horizontal position of the cyan head. Adjusts the horizontal position of the yellow head. Adjusts the vertical position of the magenta head. Adjusts the vertical position of the cyan head. Adjusts the vertical position of the yellow head. Adjusts the position when bidirectional printing is performed in 0.5-dot steps. Adjusts the position when both printing and cutting are performed.	—	—

* 1: The settings for data length (8 bits) and the stop bit (1 bit) cannot be changed.

Top menu	Submenus	Function	Setting range	Default value																		
INK CONTROL	INK EMPTY	When replacement of the ink cartridge becomes necessary while printing is in progress, this setting determines whether printing continues or pauses. This setting is used when the ink cartridge cannot be changed immediately during printing, such as during unattended operation at night. "LATER" causes printing to continue without pause even if ink refilling becomes necessary. Printing continues with the small amount of ink remaining, so the printed image may become faint as the ink runs out. In general, it should be possible to perform about 1 m ² (10 ft ²) of printing once this message appears, although the actual varies widely according to the amount of ink needed for the particular image. Printing is continued only for the data currently being printed. Operation stops after one image is output. "PROMPT" causes operation to pause immediately when the ink cartridge needs to be changed. Printing is resumed by replacing the cartridge and pressing the PAUSE key. Please note, however, that the colors of an image in progress may no longer be perfectly matched if the unit is allowed to remain paused for two or three hours before resuming printing.	LATER, PROMPT	LATER																		
	FILL INK	Refills the printing heads with ink. Normally there is no need to do this, because refilling is automatic.																				
	PUMP-UP	Drains ink from the printing heads. Be sure to do this when moving the unit.																				
	CHANGE INK	Performs the "PUMP-UP" and "FILL INK" operations.																				
COLOR CHART	—	This outputs a color chart, allowing confirmation of how colors appear.	—	—																		
PEN SETUP	ALL PEN NO. 0, -, 15	This makes the settings for the pen when printing RD-GL III (vector) commands. WIDTH sets the pen width. COLOR INDEX sets the color numbers output with COLOR CHART. Settings are made for all pens. The setting is made for the corresponding pen from 0 to 15.	WIDTH = 0.13, 0.18, 0.25, 0.35, 0.50, 0.65, 0.70, 0.80, 0.90, 1.00, 1.40, 2.00, 3.00, 5.00, 8.00, 12.0 (mm) COLOR INDEX=0—255 (color ID.)	WIDTH = 0.35 mm <table border="1"> <thead> <tr> <th>PEN No.</th> <th>COLOR INDEX</th> </tr> </thead> <tbody> <tr><td>0-8</td><td>0-8</td></tr> <tr><td>9</td><td>12</td></tr> <tr><td>10</td><td>19</td></tr> <tr><td>11</td><td>27</td></tr> <tr><td>12</td><td>35</td></tr> <tr><td>13</td><td>68</td></tr> <tr><td>14</td><td>100</td></tr> <tr><td>15</td><td>110</td></tr> </tbody> </table>	PEN No.	COLOR INDEX	0-8	0-8	9	12	10	19	11	27	12	35	13	68	14	100	15	110
PEN No.	COLOR INDEX																					
0-8	0-8																					
9	12																					
10	19																					
11	27																					
12	35																					
13	68																					
14	100																					
15	110																					
SYSTEM INFO	—	This prints the current status of settings and other system information.	—	—																		
FEED MARGIN	—	This sets the distance (margin) for the interval after printing or cutting ends until the next printing or cutting operation begins.	0 mm to 100 mm (in increments of 5 mm)	20 mm																		
PREFEED	DISABLE ENABLE	When using roll material, this automatically feeds out a specified length and checks to make sure the material is gripped correctly. The prefeed check function is disabled. The prefeed check function is enabled. The length that is fed after loading the material is also set.	0.5 m (19-5/8") to 25.0 m (984-1/7") (in increments of 0.5 m (19-5/8"))	ENABLE																		
CALIBRATION	X AXIS Y AXIS	This compares the distance set using the application software with the actual output distance, and performs necessary calibration (for cutting only). Calibration is performed for the X axis. Calibration is performed for the Y axis.	-0.19% to +0.19% (in increments of 0.01%)	0.00% 0.00%																		
SLEEP	—	This sets the time that elapses before the unit enters the SLEEP mode.	NONE, 15 min to 120 min (in increments of 15 min)	15 min																		
HEAD CLEANING	TEST PRINT NORMAL [KC] NORMAL [MY] POWERFUL [KC] POWERFUL [MY]	This cleans the printing heads. This causes a certain amount of head wear and also consumes a certain amount of ink, so use should be kept to a minimum. POWERFUL results in faster head wear and also uses up much ink. Test printing is performed in a range of approx. 130 mm x 15 mm (5-1/8" x 9/16"). If a problem in printing occurs, follow this by performing cleaning for the heads. This performs cleaning for only two heads ("BLACK" and "CYAN"). This performs cleaning for only two heads ("MAGENTA" and "YELLOW"). This performs cleaning for only two heads ("BLACK" and "CYAN"). If the printing problem is not corrected after performing cleaning with "NORMAL" several times, select "POWERFUL." This performs cleaning for only two heads ("MAGENTA" and "YELLOW"). If the printing problem is not corrected after performing cleaning with "NORMAL" several times, select "POWERFUL."	—	—																		

23 What to Do If...

What to Do If...

If you want to completely stop the operation of the CJ-70/60, press the  key.

If the CJ-70/60 doesn't run...		
CJ-70/60	Is the CJ-70/60 power on?	Turn on the power. (See “8 Powerup” .)
	Is the unit in SETUP status (the SETUP LED is lit)?	If the SETUP LED is not illuminated, make sure the material is loaded correctly and press the  key to illuminate the SETUP LED.
	Is the PAUSE LED illuminated?	If the  key has been pressed and the PAUSE LED is lighted, the unit has been paused. To resume printing or cutting, press the  key again. The PAUSE LED is extinguished, and printing or cutting resumes. To terminate printing or cutting, first stop the transmission of printing or cutting instructions from the computer to the CJ-70/60. Then press the  key. This deletes the printing or cutting instructions that have already been sent from the computer to the CJ-70/60, and printing or cutting is stopped.
Computer	Is the computer set up correctly?	Check the following items: <ul style="list-style-type: none"> • DIP switches • Memory switches • Interface board • Communication parameters • Other settings Read the computer user's manual and set it up correctly.
Connection cable	Are the computer and the CJ-70/60 linked with the right cable?	The type of cable you need is determined by your computer and the software you are using. Even if the computer is the same, running different software may require a different cable. Use the cable specified in your software.
	Is the cable making a secure connection?	Connect securely. (See “3 Setting Up and Connection” .)
Software	Is the OS set up correctly?	Check the following items: <ul style="list-style-type: none"> • Output port selection • Output device selection • Output port open • Communication parameters • Other settings Check the OS user's manual and set it up correctly.
	Are the application software settings correct?	Check the following items: <ul style="list-style-type: none"> • Output device specifications (select a device name that matches the instruction system. If the wrong device is selected an incorrect instruction may be output, resulting in an error). • Communication parameters • Other settings Check the software user's manual and set it up correctly.
	Has the correct driver selection been made for the application software?	Select the appropriate CJ-70/60 driver.

Clean, attractive printing is impossible

<p>If drop-out occurs with printed images.</p>	<p>Press the CLEANING key to clean the ink heads (see "Cleaning the Ink Heads"). If this cleaning does not correct the drop-out problem, press the MENU key, then use the ▼ key to display "HEAD CLEANING" and select "POWERFUL." If performing cleaning several times at the "POWERFUL" menu does not correct the drop-out problem, contact your authorized Roland dealer or service center to purchase a replacement head.</p> <p>Also, the ink heads may be damaged if touched with the hands or allowed to contact anything other than ink.</p> <p>If an ink head appears to be damaged, contact your authorized Roland dealer or service center to purchase a replacement head.</p>
<p>Is the surface of the platen dirty or scratched?</p>	<p>Clean the platen (see "Cleaning the platen").</p>
<p>Is the material dirty?</p>	<p>Remove superficial soiling, then load the material.</p>
<p>Is the material damaged?</p>	<p>Clean, attractive printing is not possible if the material is damaged or warped. Use care to keep materials from being damaged while in storage.</p>
<p>During printing, was the front cover opened (executing an emergency stop) or the PAUSE key pressed?</p>	<p>If operation is stopped or paused while printing is in progress, the quality of the image before and after the interruption may differ. It is a good idea to avoid pausing operation while printing is in progress whenever possible.</p>

The Material is not cut properly

<p>Are the blade and blade holder installed correctly and securely?</p>	<p>Install these so that there is no looseness (see "7 Installing the Cutter").</p>
<p>Is the blade chipped?</p>	<p>If it is, replace it with a new one (see "7 Installing the Cutter").</p>
<p>Check if there are any dirty deposits on the blade.</p>	<p>If dirty, remove and clean the blade.</p>
<p>Make sure you are using an appropriate cutter force setting.</p>	<p>Perform a "cutting test," then adjust the cutter force slider as necessary to obtain the optimum cutter force (see "11 Cutting Test").</p>

The material slips away from the pinch rollers during operation

<p>Are the sheet loading levers on both the left and right sides raised?</p>	<p>If a sheet loading lever has not been raised, then the material has not been secured in place. Make sure that the pinch rollers on the left and right sides are within the boundaries of the material, and raise the sheet loading levers.</p>
<p>Make sure the material is parallel with the grit roller. If the front edge of the material rests at an angle, cut off the odd-shaped part to make it straight. Then align it so that it is parallel with the grit roller.</p>	
<p>If the material is to be advanced over a long distance, moving the movable pinch roller inward slightly can help prevent the material from becoming dislodged.</p>	

No output even when data is sent using the special CAMM JET driver

<p>Is the "AUTO ROTATE" setting set to "ENABLE?"</p>	<p>If set to "ENABLE," change the setting to "DISABLE."</p>
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Messages

Message	Meaning	Action
SELECT SHEET ROLL EDGE PIECE	Select the configuration of the material.	After loading the material, select the material type and press the SETUP key. ROLL: Select this when roll material is to be used continuously. Only the material width is detected. EDGE: Select this when using flat material. The material width and front edge are detected. PIECE: Select this when using flat material. The material width, front edge, and rear edge are detected.
INK EMPTY ***** INK	Ink has been used up. Ink is about to run out	Replace the empty ink cartridge.
CLOSE THE COVER	An operation command was given while the cover is open.	Close the cover.
TO CANCEL, PRESS SETUP KEY	Operation was paused by pressing the PAUSE key, but there is still some remaining data.	Pressing the PAUSE key again to resume operation. Pressing the SETUP key while paused causes remaining data to be cleared and returns to the NOT READY mode.
INSTALL CARTRIDGE	Initial ink filling or printing was attempted with no ink cartridges installed.	Install ink cartridges and try again.
MEDIA TOO SHORT	Material length is insufficient for printing	To cancel, press the "SETUP" key and load material that is long enough for printing. To continue, press the "PAUSE" key.
SHEET UNLOADED	Test printing or test cutting was attempted with no material loaded.	Load the material and try again. Press the ENTER key to continue.
INSTALL DRAIN TANK	Check that the drain tank is set in position when filling ink.	Set the drain tank in place.
NOW PROCESSING . .	Displayed during test printing.	—
NOW DRYING . . .	Displayed while ink is drying.	—
CANCELING . . .	Displayed when the output command was canceled.	—
SET BASE POINT	Displayed when a base point must be set for distance adjustment.	Set the base point.
NOW FILLING INK	Displayed during automatic ink filling at initial startup.	—

Message	Meaning	Action
INVALID SHEET SET SHEET AGAIN	The SETUP key was pressed with no material loaded. Material too small.	Load the material. Replace with loadable material.
SHEET TOO SMALL SET SHEET AGAIN	An attempt was made to load material that is too small.	Replace with material of loadable size.
INVALID POSITION SET SHEET AGAIN	A grit roller was set at a position other than a grit roller.	Set the pinch roller at the correct position.
BASE POINT ERROR	An attempt was made to set the base point at a position beyond the material.	Use the arrow keys to move the head to within the printing area and set the base point.
ALIGN ANGLE ERR	An attempt was made to set the align point with an angle of 5° or more.	Reload the material so that it is aligned straight.
ALIGN WIDTH ERR	An attempt was made to set the align point at the same position as the base point.	Set the base point and align point at correct positions.
MEMORY OVERFLOW	Insufficient internal memory for processing data.	Correct output is impossible. Break up the data into smaller chunks and send the data again.
TEMPERATURE IS TOO LOW	The air temperature where installed is lower than the ambient temperature at which the unit can operate (approx. 5°C (41°F) or more lower).	Recovery from this problem is impossible. Use the POWER key to switch the power off. First raise the temperature of the area where installed, then switch on the power.
FRAMING/ PARITY ERROR	A framing error, parity error, or overrun error occurred while receiving data via the serial interface.	Check all communication parameters for the host and the unit.
BUFFER OVERFLOW	I/O buffer overflow.	Check the "HANDSHAKE" setting.
INDETERMINATE	A communication error other than the two described above occurred.	Check the communication parameters, as well as making sure the connectors are properly connected and the cabling is free of broken wires.
MOTOR ERROR TURN OFF POWER	A servo error occurred.	Recovery from this problem is impossible. Use the POWER key to switch the power off and back on again.

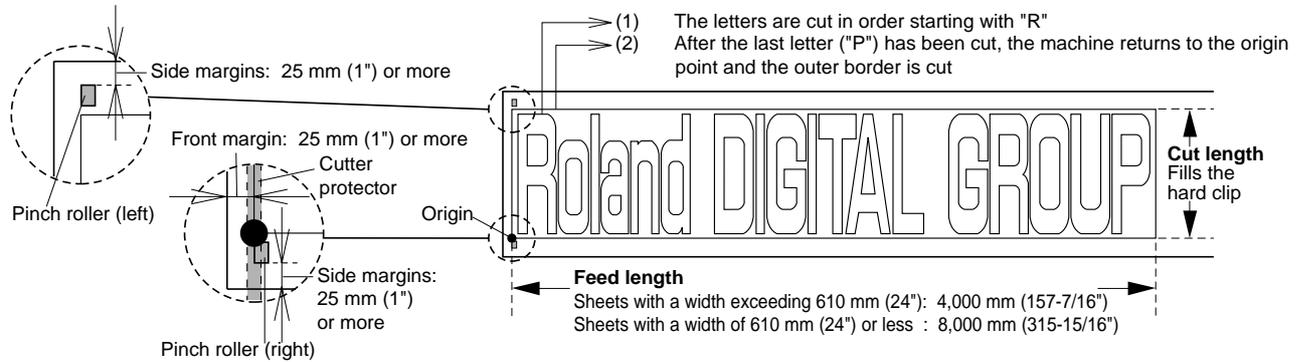
24 Specifications

		CJ-70	CJ-60
Printing/cutting method		4-head ink-jet method/media-moving method	
Maximum printing/cutting area		1257 mm x 24998 mm (49-7/16" x 984-1/8")	1025 mm x 24998 mm (40-5/16" x 984-1/8")
Acceptable media widths	Sheet material	160 mm to 1372 mm (6-5/16" to 54")	160 mm to 1100 mm (6-5/16" to 43-1/4")
	Roll material	160 mm to 1320 mm (6-5/16" to 52")	160 mm to 1050 mm (6-5/16" to 41-5/6")
Conditions for usable materials	Cutable material thickness	0.08 mm to 0.22 mm (0.00315" to 0.00866") (depending on material composition)	
	Maximum material thickness, including base paper (peeled-off paper)	0.4 mm (0.0157")	
	Maximum diameter for roll material	180 mm (7-1/16") (surface to be printed or cut must face outward)	
	Core inner diameter for roll material	50.8 mm or 76.2 mm (2" or 3")	
	Maximum weight for roll material	20 kg (44.1 lb.)	17 kg (37.5 lb.)
Ink cartridges	Dedicated pigment-ink machine	Use only pigment ink cartridge exclusively for use with the CAMM JET	
	Dedicated dye-ink machine	Use only dye ink cartridge exclusively for use with the CAMM JET	
	Colors	Magenta, cyan, yellow and black	
Acceptable tool		Cutter (blade and blade holder) : Special blade for CAMM-1 series	
Cutting speed		10 mm/s to 850 mm/s (0.393"/s to 33.464"/s) (in all directions)	
Blade force		20 gf to 350 gf	
Blade compensation		0.000 mm to 1.500 mm (0" to 0.0591")	
Software resolution		0.025 mm/step (0.000984"/step)	
Apparent colors (when printing)		16.7 million colors	
Printing resolution		360 dpi	
Distance accuracy (when cutting)		Error of less than +/- 0.4% of distance traveled, or +/- 0.2 mm (+/- 0.00788"), whichever is grater [When "CALIBRATION" is set properly] Error of less than +/- 0.2% of distance traveled, or +/- 0.1 mm (+/- 0.00394"), whichever is grater	
Repetition accuracy (when cutting)		+/- 0.2 mm (+/- 0.00788") or less (excluding stretching/contraction of the sheet) [Range for assured repetition accuracy] (*) For sheets with a width exceeding 610 mm (24") : Length 4000 mm (157-7/16") For sheets with a width of 610 mm (24") or less : Length 8000 mm (315-15/16")	
Registration between printing and cutting		+/- 0.5 mm (+/- 0.0197") max. at 25°C (excluding possible shift caused by expansion/contraction of the media and/or by reloading the media.)	
Ink-heads cleaning (when printing)		Automatic cleaning and forced cleaning (by pressing the CLEANING key)	
Interface		Parallel (Centronics), Serial (RS-232C) (The data received first after switching on the power is used to determine automatically whether the parallel or serial interface is being used.)	
Memory		4 Mbytes (expandable up to 32 Mbytes)	
Instruction system		RD-GL III, RD-RTL, RD-PJL	
Display		Liquid crystal display unit; 16-character by 2 lines	
Control switches		POWER, SETUP, PAUSE, CLEANING, BASE POINT, ALIGN POINT, TOOL U/D, FORCE, OFFSET, SPEED, CUT TEST, MENU, ENTER, ▲ ▼ ◀ ▶	
LED		POWER LED, SETUP LED, PAUSE LED, BASE POINT LED, ALIGN POINT LED, BUSY LED	
Power-saving function		Auto-sleep sleep timer setting: 15 min. to 120 min.	
Power consumption	Printing/Cutting mode	1.3A/117V, 0.6A/220—230V, 0.6A/230—240V	
	Standby mode	0.4A/117V, 0.2A/220—230V, 0.2A/230—240V	
Acoustic noise level	Printing/Cutting mode	68dB (A) or less	
	Standby mode	45dB (A) or less (According to ISO 7779)	
Dimensions	Main unit	2150 mm [W] x 350 mm [D] x 290 mm [H] (84-11/16" [W] x 13-13/16" [D] x 11-7/16" [H])	1925 mm [W] x 350 mm [D] x 290 mm [H] (75-13/16" [W] x 13-13/16" [D] x 11-7/16" [H])
	With stand	2150 mm [W] x 735 mm [D] x 1190 mm [H] (84-11/16" [W] x 28-15/16" [D] x 46-7/8" [H])	1925 mm [W] x 735 mm [D] x 1190 mm [H] (75-13/16" [W] x 28-15/16" [D] x 46-7/8" [H])
Weight	Main unit	65 kg (143.3 lb.)	49 kg (108 lb.)
	With stand	110 kg (242.5 lb.)	81 kg (178.6 lb.)
Environment	Power on	Temperature: 10°C to 35°C (50°F to 95°F), Humidity: 35%RH to 80%RH (non-condensing)	
	Power off	Temperature: 5°C to 40°C (41°F to 104°F), Humidity: 20%RH to 80%RH	
Accessories		Power cord: 1, Blade (ZEC-U5025) : 1, Blade Holder (XD-CH2) : 1, Alignment Tool : 1, Drain tank: 1, User's manual: 1, Quick Poster Disks : 2, CAMM JET DRIVER for windows® 95 and windows® 3.1 Disk: 1	

For items indicates by an asterisk "(*)", please see the following page.

(*) The following conditions must be satisfied:

- Material type: 3M Scotchcal Mastercut Film, ARLON Series 2100
- Special stand (a roll material must be set at the rear and on the inner sheet hanger)
- Side margins: 25 mm (1") or more for both the left and right margins
- Front margin: 25 mm (1") or more
- Use of the display menu's "PREFEED" function to perform feed of the material length plus 0.2 m (7-7/8") or more and set the material correctly
- Cutting of the following data one time



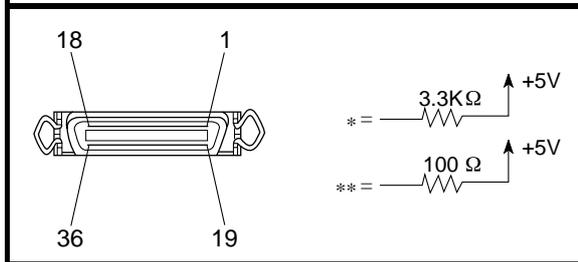
Interface Specifications

[Parallel] Standard Input signals Output signals Level of input output signals Transmission method	In compliance with the specifications of Centronics STROBE (1 BIT), DATA (8 BITS) BUSY (1 BIT), ACK (1 BIT) TTL level Asynchronous
[Serial] Standard Transmission method Transmission speed Parity check Data bits Stop bits	RS-232C specifications Asynchronous, duplex data transmission 4800, 9600, or 19200 (selected using operation panel) Odd, Even, or None (selected using operation panel) 8 bits 1 bit

Parallel Connector (in compliance with specifications of Centronics)

Signal number	Terminal Number		Signal number
(SLCT IN : not used)	36	18	HIGH**
HIGH*	35	17	GND
NC	34	16	GND
GND	33	15	NC
HIGH* (ERROR : not used)	32	14	(AUTO FEED : not used)
(INIT : not used)	31	13	HIGH* (SLCT : not used)
GND	30	12	LOW (PE : not used)
GND	29	11	BUSY
	28	10	ACK
	27	9	D7
	26	8	D6
	25	7	D5
	24	6	D4
	23	5	D3
	22	4	D2
	21	3	D1
	20	2	D0
19	1	STROBE	

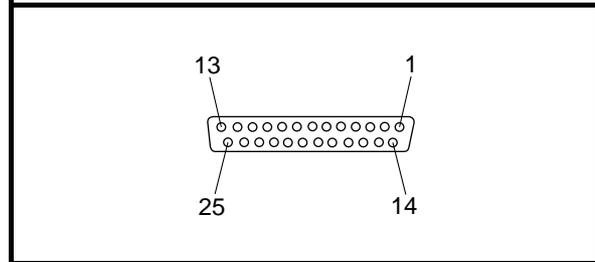
Pin Connection



Serial Connector (RS-232C)

Signal number	Terminal Number		Signal number
NC	25	13	NC
NC	24	12	NC
NC	23	11	NC
NC	22	10	NC
NC	21	9	NC
DTR	20	8	NC
NC	19	7	SG
NC	18	6	DSR
NC	17	5	CTS
NC	16	4	RTS
NC	15	3	RXD
NC	14	2	TXD
		1	FG

Pin Connection



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