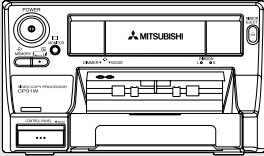




COLOR VIDEO COPY PROCESSOR
MODEL

CP31W

OPERATION MANUAL



THIS OPERATION MANUAL IS IMPORTANT
TO YOU.
PLEASE READ IT BEFORE USING YOUR
COLOR VIDEO COPY PROCESSOR.



COLOR VIDEO COPY PROCESSOR

ENGLISH
DEUTSCH
FRANÇAIS

WARNING:

In the USA or Canada, use the AC power cord according to the recommendation as below, in order to comply with UL60601-1 and CAN/CSA C22.2 No. 601.1.

Case 1. Connect to the 120V receptacle of the room or the host equipment.

Use the attached AC power cord.

The AC power cord should be UL or CSA approved and consist of type SJT, size 16AWG, length 2.5m or shorter cord with IEC60320-1/C13 type, 125V 13A or higher rating connector and NEMA 5-15 type, 125V 13A or higher rating, Hospital Grade plug.

Case 2. Connect to the 230V receptacle of the room or the host equipment.

The AC power cord should be UL or CSA approved and consist of type SJT, size 16AWG, length 2.5m or shorter cord with IEC60320-1/C13 type, 250V 13A or higher rating connector and NEMA 5-15 type, 250V 13A or higher rating, Hospital Grade plug.

CAUTION:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE:

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 or her own expense.

Information:

This class A digital apparatus complies with Canadian ICES-003.

"CLASSIFIED BY UNDERWRITERS LABORATORIES INC.®
WITH RESPECT TO ELECTRIC SHOCK, FIRE AND MECHANICAL HAZARDS ONLY IN ACCORDANCE WITH UL60601-1 AND CAN/CSA C22.2 No. 601.1."

Indications according to IEC60601-1

1. Functions and intended usage of this product

This product receives signals from diagnostic imaging equipment or various signal equipment, and automatically prints and ejects the received image data on the paper.

2. Classification of this product

- According to the type of protection against electric shock: Equipment energized from an external electrical power source, Class I equipment
- According to the degree of protection of the applied part against electric shock: - (No applied part)
- According to the degree of protection against harmful ingress of water: Ordinary equipment (Enclosed equipment without protection against ingress of water)
- According to the degree of safety of application in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide: Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide
- According to the mode of operation: Continuous operation with intermittent loading

3. 

CAUTION: Do not put your hand inside the product from the paper cassette loading slot or ribbon cartridge loading slot. This product has mechanical parts (switches and rollers) and parts that are heated to a very high temperature or sensitive to static electricity.

4. 

CAUTION: There are no user or field serviceable components. Do not open covers under any circumstances.

5. **CAUTION:** Use screws 5-mm long for main body installation.

6. Follow the applicable laws and regulations in your country or region or the hospital rules when disposing of this product or the accessories or consumables thereof.

CAUTION:



RISK OF ELECTRIC SHOCK DO NOT OPEN.



TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



The "Caution, hot surface" symbol indicates that the marked item may be hot and should not be touched.



The "Electro Static Discharge (ESD) warning" symbol indicates that trouble (including equipment malfunction) due to static electricity may occur in certain conditions.



This symbol indicates the possibility that the user may get his/her fingers caught in the door, slot, or other mechanism.



This symbol indicates the possibility that the user may get injured when he/she touches certain areas of the product.



The "Nonionizing radiation" symbol



The "ON/OFF" symbol indicates connection to or disconnection from the mains, at least for mains switches.



The "Equipotentiality" symbol identifies the terminals connected each other. The potential of various parts of equipment or of a system is equalized.



The "Alternating current" symbol indicates that the equipment is suitable for alternating current only.

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WARNING:

Install and use this appliance in accordance with the operation manual for safety and EMC (Electromagnetic Compatibility). If it is not installed and used in accordance with the operation manual, it may cause interference to other equipment and/or other risk.

To prevent fire or shock hazard, do not expose this appliance to rain or moisture.

This appliance must be earthed.

In Europe, use the attached AC power cord according to the recommendations as below. Connect to the 230 V receptacle of the room or the host equipment.

The AC power cord should be VDE approved and consist of core size 0.75 mm² or bigger, length 2.0 m or shorter cord with IEC60320-1/C13 type, 250 V 10 A or higher rating connector and CEE(7)VII type, 250 V 10 A or higher rating plug.

Use the video cable and/or S-video cable according to the recommendations as below, in order to comply with safety and EMC standards.

The video cable shall be 2 m long or shorter, 75 Ω coaxial, 3C-2VT or equivalent one, with BNC plug at each end.

The S-video cable shall be 1.5 m long or shorter, shielded wire or equivalent one, with DIN 4P plug at each end.

This product is to be employed with medical equipment, just for reference purpose, not for medical diagnostic purpose.



WARNING:

The socket outlet shall be installed near the equipment and shall be easily accessible.

Note: This symbol mark is for EU countries only.

This symbol mark is according to the directive 2002/96/EC Article 10 Information for users and Annex IV.



Your MITSUBISHI ELECTRIC product is designed and manufactured with high quality materials and components which can be recycled and reused. This symbol means that electrical and electronic equipment, at their end-of-life, should be disposed of separately from your household waste. Please, dispose of this equipment at your local community waste collection/recycling centre.

In the European Union there are separate collection systems for used electrical and electronic product.

Please, help us to conserve the environment we live in!



: Manufactured on : to be combined with date code YYYY-MM



: Manufacturers Identification (name address)

SN

: Serial number



: Authorised representative in the European Community


INSTRUCTIONS FOR MEDICAL USE

<according to the Medical Safety/EMC standard EN 60601-1-2>

MEDICAL ELECTRICAL EQUIPMENT needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the ACCOMPANYING DOCUMENTS.

Portable and mobile RF communications equipment can affect MEDICAL ELECTRICAL EQUIPMENT.

Electro Static Discharge (ESD)

- 1 Electro Static Discharge (ESD) warning symbol 
- 2 The areas identified with this symbol should not be touched as much as possible because they are sensitive to ESD and may cause equipment malfunction and failure due to ESD. When it is inevitable to touch these areas in installation, maintenance, or inspection, the following ESD precautionary procedure should be used.
- 3 ESD precautionary procedure
 - (1) The power plug should be disconnected for safety's sake first.
 - (2) The worker should wear an antistatic strap and attach it to the ground pin of the power plug or the metal sheet on the bottom surface of the product. This eliminates the potential difference between the product and the worker to prevent electro static discharge. (When no antistatic strap is available, the worker may work while touching the ground pin of the power plug or the metal sheet on the bottom surface of the product with one hand.)
 - (3) The necessary work for installation, maintenance, or inspection should be performed under the above-mentioned conditions.
- 4 It is recommended that all staff involved in the work in which they may touch the areas identified with the ESD warning symbol should receive an explanation of the ESD warning symbol and training on the ESD precautionary procedures.
- 5 Required minimum contents in the explanation and training on the ESD precautionary procedures
 - (1) Explanation on the principle of occurrence of static electricity and the ESD precautionary procedures should be provided.
 - (2) Training on the ESD precautionary procedures using the actual product should be provided.

Technical description

List of all cables and maximum length of the cable and other ACCESSORIES

	Maximum length	Reference page in this operation manual
AC power cord	2 m	This page, the previous pages for safety and page 53 for accessories
Video cable	2 m	This page, the previous pages for safety
S-video cable	1.5 m	This page, the previous pages for safety
PAPER/INK RIBBON SET		Page 19 and 54 for PAPER/INK RIBBON SET

WARNING:

The use of ACCESSORIES and cables other than those specified, with the exception of cables sold by the manufacturer of the Model CP31W as replacement parts for internal components, may result in increased EMISSIONS or decreased IMMUNITY of the Model CP31W.

WARNING:

The Model CP31W should not be used adjacent to or stacked with other equipment and that if adjacent or stacked use is necessary, the Model CP31W should be observed to verify normal operation in the configuration in which it will be used.

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Compliance with the following EMC guidance is assured only for the use in Europe (220 - 240 V).

Guidance and manufacturer's declaration - electromagnetic emissions		
The Model CP31W is intended for use in the electromagnetic environment specified below. The customer or user of the Model CP31W should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions EN 55011	Group 1	The Model CP31W uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause interference in nearby electronic equipment.
RF emissions EN 55011	Class B	The Model CP31W is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions EN 61000-3-2	Class A	
Voltage fluctuations / flicker emissions EN 61000-3-3	Complies	

Guidance and manufacturer's declaration - electromagnetic immunity			
The Model CP31W is intended for use in the electromagnetic environment specified below. The customer or user of the Model CP31W should assure that it is used in such an environment.			
Immunity test	EN 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) EN 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst EN 61000-4-4	±2 kV for power supply lines ±1 kV for input /output lines	±2 kV for power supply lines ±1 kV for input /output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge EN 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to earth	±1 kV line(s) to line(s) ±2 kV line(s) to earth	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines EN 61000-4-11	< 5% U_T (> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (> 95% dip in U_T) for 5 sec.	< 5% U_T (> 95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles < 5% U_T (> 95% dip in U_T) for 5 sec.	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Model CP31W requires continued operation during power mains interruptions, it is recommended that the Model CP31W be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field EN 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and manufacturer's declaration - electromagnetic immunity

The Model CP31W is intended for use in the electromagnetic environment specified below. The customer or user of the Model CP31W should assure that it is used in such an environment.

Immunity test	EN 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF EN 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	<p>Portable and mobile RF communications equipment should be used no closer to any part of the Model CP31W, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance $d=1.2\sqrt{P}$</p>
Radiated RF EN 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	<p> $d=1.2\sqrt{P}$ 80 MHz to 800 MHz $d=2.3\sqrt{P}$ 800 MHz to 2.5 GHz </p> <p>where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey,^a should be less than the compliance level in each frequency range.^b</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 

NOTE1. At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE2. These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

^a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Model CP31W is used exceeds the applicable RF compliance level above, the Model CP31W should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Model CP31W.

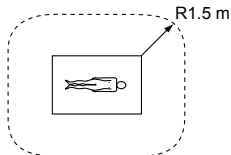
^b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the Model CP31W			
The Model CP31W is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Model CP31W can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Model CP31W as recommended below, according to the maximum output power of the communications equipment.			
Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d=1.2\sqrt{P}$	80 MHz to 800 MHz $d=1.2\sqrt{P}$	800 MHz to 2.5 GHz $d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
NOTE1. At 80 MHz and 800 MHz, the separation distance for higher frequency range applies.			
NOTE2. These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

Safety Notices for use in combination with other devices

1. All the equipments connected to this unit shall be certified according to Standard IEC60601-1, IEC60950-1, IEC60065 or other IEC/ISO Standards applicable to the equipments.
2. When this unit is used together with other equipment in the patient area*, the equipment shall be either powered by an isolation transformer or connected via an additional protective earth terminal to system ground unless it is certified according to Standard IEC60601-1.

* Patient Area



3. The leakage current could increase when connected to other equipment.

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SAFETY PRECAUTIONS

In the interest of safety, please observe the following precautions:

POWER REQUIREMENT

This product is designed to operate at 120/220-240 V AC 50/60 Hz in the U.S.A. and Canada, and 220-240 V AC 50/60 Hz in Europe. Never connect to any outlet or power supply having a different voltage or frequency.

WARNING: THIS APPARATUS MUST BE EARTHED.

This equipment is classified as class I, according to the type of protection against electric shock.

PROTECTIVE MEASURES

IF ABNORMALITIES ARISE

If the printer emits smoke or abnormal sounds, immediately unplug the power cord from the printer or power outlet. Continued use may be dangerous. Contact your dealer about having the printer checked and serviced.

NEVER INSERT ANY OBJECT INTO THE UNIT

Nothing other than supplies for this printer should ever be inserted into the printer. Other items can cause a safety hazard and extensive damage to the mechanism and electronics.

DO NOT SET HEAVY OBJECTS ON TOP OF THE UNIT

Heavy objects can damage the unit and/or cause malfunction.

AVOID DAMAGING THE POWER CORD

Do not set anything heavy on the power cord nor allow it to become pinched, or cut. If the power cord becomes damaged, replace it immediately to avoid shock hazard or electrical fire. When the power cord is replaced, use the same type as originally supplied, it is designed to reduce interference to radio & TV reception.

When unplugging the power cord, hold the plug, and remove it carefully.

KEEP THE UNIT DRY - DO NOT PLACE WATER OR OTHER LIQUID CONTAINERS ON TOP OF THE UNIT

Liquids which get into the unit can cause serious damage to the unit and potential shock or fire danger. If liquid is spilled into or seeps into the unit, unplug the Power Cord immediately and seek service as soon as possible to avoid additional or possible damage due to corrosion.

"In the interest of safety, avoid handling of liquids near the unit."

DO NOT REMOVE THE CABINET. THERE ARE NO USER SERVICEABLE PARTS INSIDE AND YOU WILL EXPOSE YOURSELF TO HAZARDOUS VOLTAGES AND/OR YOU MAY CAUSE DAMAGE TO THE UNIT.

Touching internal parts is dangerous, and may cause a malfunction. Contact your dealer to carry out internal checks and adjustments. Disconnect the power cord before opening the cover to clear a paper jam, etc.

DO NOT USE THIS UNIT WHEN DROPPED OR DAMAGED THE CABINET

Using a unit dropped or damaged its cabinet may cause fire or electric hazard.

UNPLUG THE POWER CORD DURING A LONG ABSENCE OR DURING AN ELECTRICAL STORM

Turn off the Main Power switch and unplug the power cord during a long absence or during an electrical storm.

WHEN TRANSPORTING THE UNIT

When transporting the unit, remove the ribbon cartridge and paper. Make sure to unplug the power cord and other cables.

BE CAREFUL AROUND PAPER CASSETTE LOADING SLOT, RIBBON CARTRIDGE LOADING SLOT AND PRINT OUTLET

Do not insert your fingers or any object into the paper cassette loading slot, ribbon cartridge loading slot and print outlet during printing.

Do not touch the rubber roller and sensors inside. It can cause injury, damage on the parts, and malfunction caused by static electricity.

DO NOT PLUG OR UNPLUG POWER CORD BY WET HAND

It may cause shock hazard.

DO NOT TOUCH THE THERMAL HEAD AND METAL PARTS

It becomes hot during printing and may remain hot for a time, causing injury. Oils, salts and moisture from your hands will contaminate the head and may spoil the prints.

CONNECTING CABLES

Use the power cord supplied with the printer.

INSTALLATION LOCATIONS

MAINTAIN GOOD VENTILATION

Ventilation slots and holes are provided on the rear, sides and bottom of this unit. Place the unit on a hard and level surface and keep a space between the unit and the walls to ensure proper ventilation. When installing the unit in a system rack, leave space between the unit and the back of the rack.

SUITABLE LOCATIONS

Avoid installing the printer in unstable locations with high vibration or in hot-springs areas where hydrogen sulfide and acidic ions are likely to be generated.

AVOID PLACES WITH HIGH HUMIDITY AND DUST

Do not place the unit in locations with high humidity and dust, as this can cause extensive damage. Avoid places where unit is likely to be exposed to oily fumes and vapors.

AVOID PLACES LIKELY TO BE EXTREMELY HOT

Places exposed to direct sunlight, or near heating appliances can attain extremely high temperatures which may deform the cabinet, or cause other damage.

PLACE THE UNIT ON A HORIZONTAL SURFACE

The operation of the unit is likely to be affected if it is tilted, inclined or in unstable places.

SAFETY PRECAUTIONS

PROTECT AGAINST DEW FORMATION

When the unit is moved from a cold area into a warm area, moisture can condense inside the unit and prevent operation. Allow the temperature to stabilize before use.

When print paper and ribbon cartridge are loaded, remove them.

Replace the wet print paper and ribbon cartridge with new ones.

OPERATING AMBIENT TEMPERATURE RANGE

The operating temperature range is 41°F - 104°F (5°C to 40°C) and humidity of 30 - 80% RH. When using the unit in a system rack, make sure that the temperature inside the rack does not exceed this range.

FOR LONG OPERATING LIFE

UNSUITABLE MATERIALS FOR THE PRINTER

Paint coat flaking and plastic deformation are likely to occur if the unit is wiped with chemical dusters, benzene, thinner or any other solvent, if rubber or PVC items are left in contact with the unit for an extended period, or if the unit is sprayed with insecticide.

CARE OF THE CABINET

Unplug and clean with a soft cloth slightly moistened with a mild soap and water solution. Allow to dry completely before operating. Never use petroleum based solutions or abrasive cleaners.

HEAD ABRASION

The thermal print head, like a video head, wears out. When it is worn, it becomes hard to print out fine details of the picture. If it occurs, consult your dealer about having the head replaced.

CONNECTING DEVICES

Read thoroughly the Safety Notices, Cautions and Operating Precautions of the instruction booklets for the other devices connected with the unit.

CAUTION ON RELOCATING

When transporting the unit, make sure it is not likely to be subjected to impacts. This can be a primary cause for damage. Before moving the unit, make sure to disconnect the power cord from the power outlet, and the cables from the connected devices.

SAFETY TECHNICAL CHECKS

Periods: According to the recommendations of the manufacturer of medical device.

Scope: a) Visual inspection

Housing, leads, controls, displays, labels/ markings, accessories, operation manual.

b) Functionality test

Testing of functions (according to operation manual) as well as compatibility and usability of device and accessories.

c) Electrical test

Testing of electrical safety of the system according to EN60601-1.

High humidity or dust

Avoid locations with high humidity and dust in order to avoid malfunction.

Also avoid locations subject to corrosive gasses and smoke.

Heat

Direct sunlight, heaters or other heat sources may deform the housing and subsequently cause malfunctioning.

TECHNICAL DESCRIPTION

The supplier will make available on request such circuit diagrams, component part lists, descriptions, calibration instructions or other information which will assist the User's appropriately qualified technical personnel to repair those parts of the EQUIPMENT which are classified by the manufacturer as repairable.

The use of ACCESSORY equipment not complying with the equivalent safety requirements of this equipment may lead to a reduced level of safety of the resulting system. Consideration relating to the choice shall include:

- use of the accessory in the PATIENT VICINITY
- evidence that the safety certification of the ACCESSORY has been performed in accordance to the appropriate EN60601-1 and/or EN60601-1-1 harmonized national standard.

The transportation and storage environmental conditions are:

- Temperature : -20°C - +60°C (-4°F - +140°F)
- Humidity : 30%-80% RH
- Atmospheric pressure : 50 kPa - 106 kPa

Note : The above transportation environmental conditions indicate the storage environmental conditions during transport.

OTHER CAUTIONS

Dust or other foreign matter adhering to the print paper or the ink ribbon, or deformation resulting from exposure to extremely low or high temperatures could cause loss of color, uneven color or lines, or wrinkles in the print images.

Turn off the power of this unit after completing auto loading/ejecting of the ribbon cartridge.

NOTE:

MEMORIZED IMAGES ARE STORED IN VOLATILE MEMORY AND MAY BE LOST IN THE EVENT OF POWER FLUCTUATION OR MALFUNCTION.

SPECIAL FEATURES

SPECIAL FEATURES

EASY LOADING AND UNLOADING

You can load a ribbon cartridge just by inserting it into the ribbon cartridge loading slot (auto-loading), and can unload it by pressing the RIBBON EJECT button only (auto-ejecting).

HIGH SPEED PRINTING

Printing speed is approx. 16 seconds per sheet (in S size print, without surface lamination).

HIGH QUALITY PRINTING

High quality print is available in dye sublimation mode. It also employs 256 gradients in each YMC and about 16,700,000 colors in total.

423 DPI HIGH RESOLUTION

423 DPI (Dots per Inch) high resolution gives precise illustrations and sharp photo images.

AVAILABLE IN VARIOUS MEDICAL FIELDS, INCLUDING ENDOSCOPY DIAGNOSIS

Several colouring characteristics (gamma curve) are employed, which are the best for medical diagnostic devices, including endoscope requiring precise images and ultrasound diagnostic equipment etc. The colour is reproducible for each diagnostic equipment with easy operation. Each gamma curve is adjustable for each user flexibly.

2 PRINT SIZES ARE AVAILABLE ACCORDING TO THE PURPOSE

2 printing sizes, L size (max.100 x 148 mm) and S size (max.100 x 94 mm), are selectable.

MULTI PRINT FUNCTION BY THE CAPACIOUS FRAME MEMORY

As this unit has 8 frame memories, it can store an image during its printing. So the time of diagnosis will be shorten remarkably.

MULTI PRINT FOR VARIOUS DEMANDINGS

2 and 4 images of multi print are available. Several multi print modes are selectable according to demanding.

WIDE COMPATIBILITY WITH A VARIETY OF INTERFACE AND SYSTEMS

- (1) Input and output control signals from RS-232C/Rear remote interfaces
- (2) Stroboscope sync. function responding to fundus camera system
- (3) Image adjusting function such as contrast, brightness, etc. of printing image
- (4) Capable of storing 3 kinds of setting and adjustment according to each using condition.

PRODUCT OUTLINE

The color video copy processor CP31W uses the thermal dye sublimation printing system. This printer is able to print color images on the paper. This printer is connected to various signal equipment via video and S-video interface. Color images such as CT, MRI, ultrasound, and CR images transmitted from the various signal equipment are printed via video and S-video interface.

This printer creates prints electronically (mainly in image processing and printing processing), not optically or chemically.

INTENDED USE

The color video copy processor CP31W is intended for use as a hard copy device for an image generated by a diagnostic imaging equipment.

This product is intended to be used together with medical equipment and to be used for reference purpose, not for diagnostic purpose.

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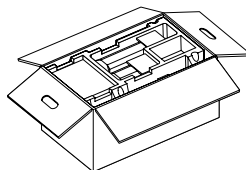
OTHERS

UNPACKING

UNPACKING

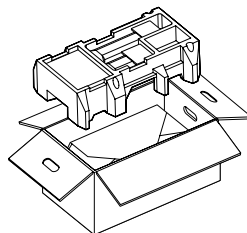
Take the unit out of the box by the following procedures. Be sure to check the accessories.

- 1 **Open the box.**



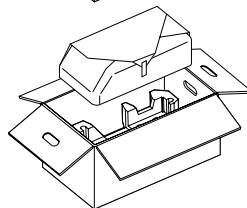
- 2 **Remove the packing cushion containing the accessories out of the box.**

Be careful not to drop the accessories.



- 3 **Carefully take the unit out of the box.**

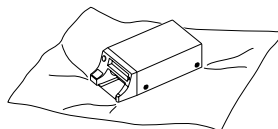
Lift the printer from the box.



- 4 **Unwrap the packing.**

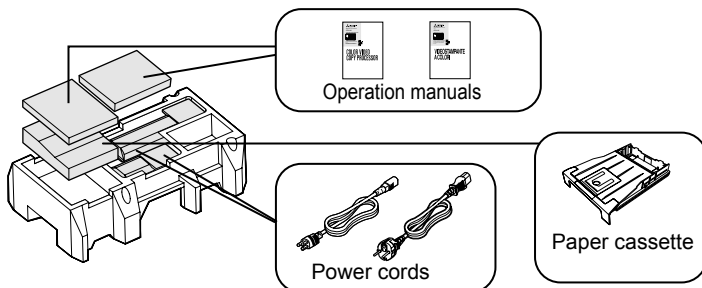
NOTE

When you lift up this unit, do not insert your hand to the print outlet.



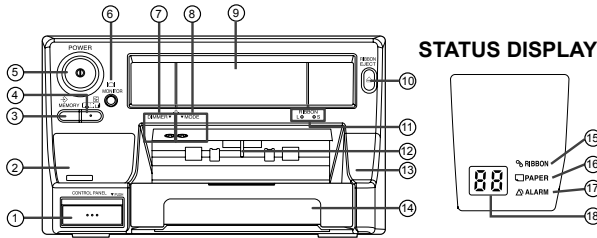
CONTENTS

Accessories are packed on the cushion. Verify content and report any missing items.



FEATURES & FUNCTIONS

FRONT PANEL



① CONTROL PANEL

Use this panel to set the input signal and functions. When the center of this panel is pressed, this panel comes out.

② STATUS DISPLAY

The status display indicates current printer condition.

③ MEMORY BUTTON (⇨)

Press to memorize the image to be printed. When signal is not inputted, memory is not available.

④ PRINT BUTTON (⊞)

Press to print the image memorized by the MEMORY button. When image is not memorized, printing is not available.

⑤ POWER BUTTON (⏻)

Press to turn on and off the power. Each time this button is pressed, ON/OFF is switched.

⑥ MONITOR BUTTON (⏏)

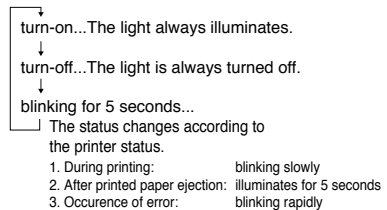
Switches the display on the monitor. When this button is pressed, the picture on the monitor screen switches between the picture of the input signal (source image) and the memorized image.

⑦ DIMMER BUTTON (☀)

This button controls the brightness of the print outlet illumination that is lit on the photo; the button also controls the brightness of the print status indicator. When this button is pushed and held, the remaining amount of ink ribbon on the status indicator display is reset.

⑧ MODE BUTTON (⚙)

Each time this button is pushed, the light of the print outlet switches as follows:



⑨ RIBBON CARTRIDGE LOADING SLOT

A flap (cover) to protect inside of the unit is attached.

⑩ RIBBON EJECT BUTTON (▲)

Press to eject the ribbon cartridge.

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FEATURES & FUNCTIONS

⑪ RIBBON SIZE INDICATOR

This indicator shows the size of the ink ribbon being loaded. It blinks during loading or ejection of the ribbon cartridge.

⑫ PRINT STACK SENSOR

When printed paper exceeds stack level, this sensor will detect it and an alarm sounds. Printing will become unavailable if you touch this sensor. When you remove the printed paper stacked on the print outlet during continuous printing, take care not to touch the printed paper to this sensor.

⑬ ACCESS COVER

Open cover only when a paper jam occurs. Turn dial knob towards arrow to clear paper jam.

⑭ PAPER CASSETTE LOADING SLOT/PRINT OUTLET

Paper cassette loading area. Prints are released on the upper part of the paper cassette.

STATUS DISPLAY

⑮ RIBBON INDICATOR (Ⓢ)

This indicator illuminates for ink ribbon notification. See page 46.

⑯ PAPER INDICATOR (□)

This indicator illuminates or blinks for paper notification. See page 46.

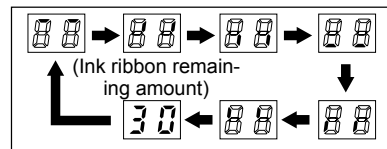
⑰ ALARM INDICATOR (△)

This indicator illuminates for error conditions. See page 46.

⑱ STATUS INDICATOR

This indicator shows the remaining amount of the ink ribbon, error status, and print status.

It illuminates during printing as shown below.

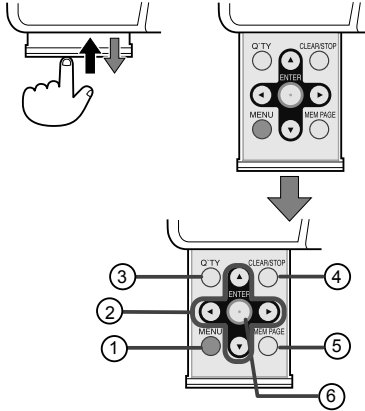


Each time a ribbon cartridge is ejected or loaded, the counter of the ink ribbon remaining amount on the status indicator is set to the initial value. For error indications, see page 46.

When the temperature of the thermal head gets high, this indicator (— —) keeps blinking slowly until the temperature drops to a level where printing becomes available.

CONTROL PANEL

Press the center of the control panel, and it comes out slightly. Pull it out completely to use. After use, press the center again to close the panel.



① MENU BUTTON

Press this button to display menus and set various functions. When this button is pressed during displaying menu, the menu is closed. See page 30.

② ▲, ▼, ◀, ▶ BUTTONS

Use to set the menu. Values are increased/decreased and the cursor position is changed with these four buttons. These buttons are also used to select one of memorized images.

③ Q'TY BUTTON

Use to set the number of copies to be printed. The set number of copies is displayed on the monitor. When this button is pressed, the number of prints changes 1, 2 ...to 5.

When the ◀ or ▶ button is pressed after pressing this button, the number to be printed can be decreased or increased. See page 27.

④ CLEAR/STOP BUTTON

Press this button for more than 1 second to clear the memorized image. When this button is pressed during printing, the number to be printed will be reset to 1 and the continuous printing will be cancelled.

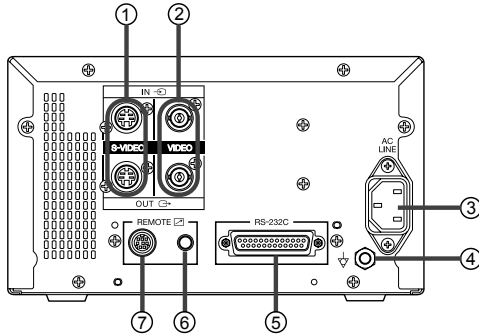
⑤ MEM PAGE BUTTON

Use to select the image memorized. The memory page is switched every time this button is pressed.

⑥ ENTER BUTTON

When this button is pressed, the set values will be memorized or the setting conditions will be carried out.

REAR PANEL



① S-VIDEO INPUT/OUTPUT TERMINALS

Use these terminals to connect to S-VIDEO signal equipment. See pages 14, 15.

② VIDEO SIGNAL INPUT/OUTPUT TERMINALS

Use these terminals to connect this unit to VIDEO signal equipment. See pages 14, 15.

③ AC LINE SOCKET

Connects to the provided power cord. Insert the cord firmly.

④ POTENTIAL EQUALIZATION CONNECTOR (▽)

Connect this terminal and that of the connected device.

This terminal is used to equalize the potential of the device connected to the unit.

Be sure to make this connection for safety purpose.

⑤ RS-232C PORT

Use these terminals to connect this unit to a device equipped with RS-232C interface. See pages 16-17.

⑥ REMOTE TERMINAL 1 (STEREO JACK) (▢)

Memorizing images is available by the remote signal inputted through this terminal. It is necessary to make a circuit for remote control unit to use the function. See page 28.

⑦ REMOTE TERMINAL 2 (MINI DIN 8 PIN) (▢)

Memorizing images and printing is available by the remote signal inputted through this terminal. It is necessary to make a circuit for remote control unit to use the function. See page 29.

CONNECTIONS

The functions of this unit can be set by the menu screens displayed on the monitor.

- Connection with a monitor
- Connection with VIDEO/S-VIDEO signal equipment
- Connection with RS-232C equipment

Connect this unit with a monitor to check the images to be printed and the images stored in memory.

The following examples show the connections with a video signal, S-video signal, and RS-232C equipment.

Connect with the necessary signal equipment.

NOTE

Cables for connection are not supplied with this unit. Use video cable of 2 m or less, or S-video cable of 1.5 m or less in length.

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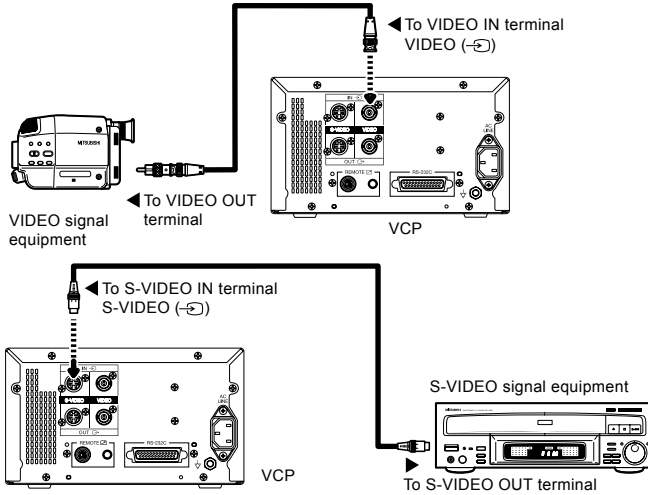
TROUBLE-
SHOOTING

OTHERS

CONNECTION WITH VIDEO OR S-VIDEO SIGNAL EQUIPMENT

Make sure to turn off the power before connecting.

example)



Some settings have to be made. See "INPUT" of the INPUT menu on page 33.

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CONNECTIONS

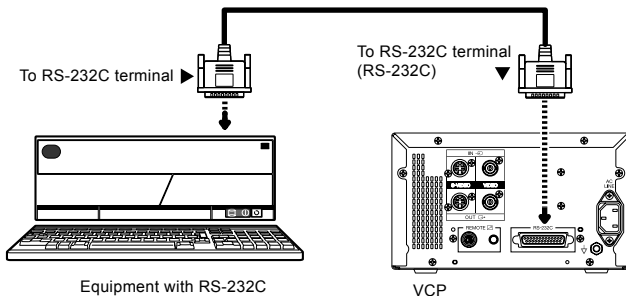
CONNECTION WITH RS-232C EQUIPMENT

This unit can be controlled through a RS-232C port with custom software. (Image data can not be input.)

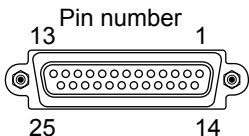
For the protocol, consult your dealer.

Make sure to turn off the power before connecting.

example)



■ RS-232C TERMINAL SIGNAL



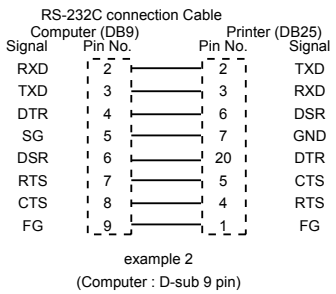
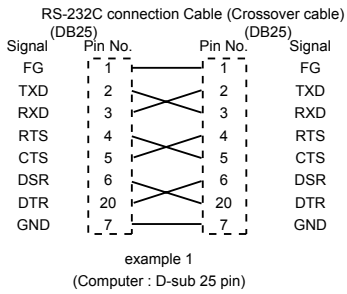
Pin No.	Signal line name	Description	Directions
1	FG	Protective	Earth
2	TXD	Transmitted data	Output
3	RXD	Received data	Input
4	RTS	Request to send	Output
5	CTS	Clear to send	Input
6	DSR	Data set ready	Input
7	GND	Signal ground	Earth
20	DTR	Data terminal ready	Output

1 Connect this unit and RS-232C equipment with a crossover cable.

2 Select the baud rate and the command type according to the equipment to be connected.
See "BAUD RATE" and "COMMAND TYPE" of RS-232C SET menu in the SETUP menu. (page 40)

3 Set the communication format of the computer with a computer connected.

- Synchronizing system : Asynchronous communication
- Data bit length : 8 bits
- Parity bit : Nothing
- Stop bit length : 1
- Transmission order : Sent from LSB
- Baud rate (bit/sec.) : 1200, 2400, 4800, 9600, 19200



BEFORE OPERATION

Before printing,

1. Turn on the power of this unit.
2. Load print paper into the paper cassette.
3. Load the paper cassette with print paper into the unit.
4. Load a ribbon cartridge to the unit. (page 21)

PAPER/INK RIBBON SET

Make sure to use the following types of paper sheet and ink ribbon set.

PAPER/INK RIBBON SET

Model	Size	No. of prints	Usage	Remarks
CK30S	S size	80	Color print	3 packs contained
CK30L	L size	50	Color print	4 packs contained
CK30S4P	S size	60	Color print (with surface lamination)	3 packs contained
CK30L4P	L size	40	Color print (with surface lamination)	4 packs contained

LOADING PRINT PAPER

Adjust the paper cassette to the size of the paper to be loaded. Do not force paper that is too long or too wide into the paper cassette.

NOTE

- Use the paper cassette designed for this unit only.

1 Remove the tray (cover) of the paper cassette.

2 Adjust the paper cassette to secure the paper.

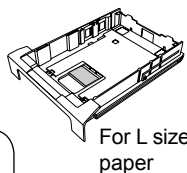
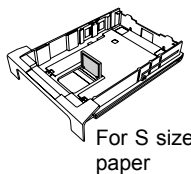
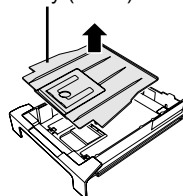
Raise the plate in the cassette to use S-size paper.
Keep the plate laid flat to use L-size paper.

3 Take the print paper out of the packaging together with the protection sheet.

NOTE

- The paper may be stuck together. Loosen it well before unpacking.
- The protection sheet is placed on the top of the print paper to protect the printing surface. Hold the print paper together with the protection sheet so that you do not touch the printing surface. Fingerprints or dust on the paper's surface may degrade the print quality.

Tray (cover)



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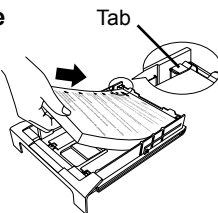
TROUBLE-SHOOTING

OTHERS

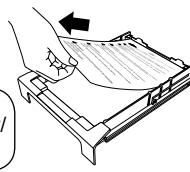
BEFORE OPERATION

- 4 Place the paper in the paper cassette together with the protection sheet on the top.

Make sure that the front corners of the stack are under the metal tabs.



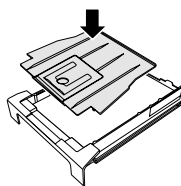
- 5 Remove the protection sheet placed on the top of the paper.



NOTE

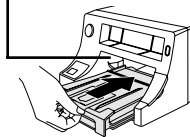
- You can load only one package of print paper supplied as paper/ink ribbon set.

- 6 Set the tray (cover) onto the paper cassette.



- 7 Load the paper cassette in the printer.

 Roller, sensors
(inside, bottom)

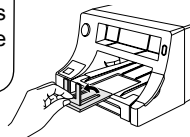


- 8 When using L-size paper, raise the stopper on the tray (cover).

CAUTION



Do not put your hand inside the product from the paper cassette loading slot or ribbon cartridge loading slot. This product has mechanical parts (switches and rollers) and parts that are sensitive to static electricity.

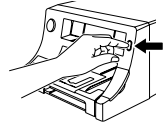


LOADING RIBBON CARTRIDGE

Be sure to turn on the power of this unit before loading a ribbon cartridge.

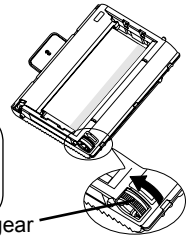
- 1 **When you change the ribbon cartridge, remove the ribbon cartridge in this unit by pressing the RIBBON EJECT button.**

When you use the unit for the first time, this operation is not required.



- 2 **Remove slack in the ink ribbon.**

Turn the gear in the direction of the arrow (backside of the ribbon cartridge) to remove slack.



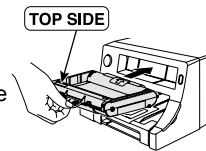
NOTE

- If slack is left, the ink ribbon may be damaged when loaded.
- Do not turn the gear of the side without the arrow. Turning it may cause slack in the ink ribbon.

(backside of the ribbon cartridge)

- 3 **Insert the ribbon cartridge into the ribbon cartridge loading slot.**

- Be sure to hold the handle.
- Insert the ribbon cartridge in the direction of the arrow with the marking of "TOP SIDE" up.



The installation of print paper and ribbon cartridge is completed.



NOTE

- Do not leave more than 15 sheets of print paper on the print outlet.
- Be sure to install the paper cassette properly. If it is not installed properly, a paper jam may occur.
- Replace print paper and ribbon cartridge at the same time.

CAUTION



Do not put your hand inside the product from the paper cassette loading slot or ribbon cartridge loading slot. This product has mechanical parts (switches and rollers) and parts that are heated to a very high temperature or sensitive to static electricity.

BEFORE OPERATION

USAGE AND STORAGE OF PAPER/INK RIBBON SET

BEFORE PRINTING

- Fingerprints or dust on the paper's surface may degrade the print quality and cause paper jams.
- When print paper is transferred from a cool place to a hot place, vapor or dew will be generated on the paper's surface causing paper jams or degraded print quality. Leave the print paper in the room to stabilize its temperature before use.
- When print paper or ink ribbon runs out during printing, the printing operation stops and the RIBBON/PAPER indicator lights or blinks. Set new ribbon cartridge and print paper.
- Do not use wet or damaged paper. It may cause a malfunction.
- Avoid touching or pulling the ink ribbon with your fingers. It may degrade the print quality.
- When the ink ribbon is exhausted, replace it with a new one. A used ribbon cartridge is not reusable.
- Do not unpack the print paper and ribbon cartridge unless you are ready to use them.
- The paper/ink ribbon set is a combination of ribbon cartridge and print paper. Use the combination as provided in the box. Use of wrong combination may cause malfunction.

AFTER PRINTING

- When the printed paper is touched with a wet hand, the print may be discolored.
- Fading may occur if the print-face is exposed to organic chemical agents which may affect print paper (e.g. alcohol, ester, ketene based).
- Fading will be accelerated upon contact with PVC-based materials (e.g. adhesive tapes, rubber erasers, etc.).
- Do not put a print back into the paper cassette. Doing so can cause jams and loss of completed prints.
- Store prints in a cool, dry environment free of chemical contamination. Avoid exposure to high intensity light sources, particularly fluorescent light and sunlight, which are high in ultraviolet radiation.

STORAGE OF PAPER/INK RIBBON SET

- Leaving the print paper in contact with PVC-based materials causes the print paper to discolor or become stained.
- Never store paper/ink ribbon set close to heaters or in hot, humid or dusty places. Keep paper/ink ribbon set in a place where:

Temperature	: -4°F - 86°F (-20°C - 30°C)
Humidity	: 20% - 80% RH

DISPOSAL OF PAPER/INK RIBBON SET

- Print paper and ribbon cartridge are made of plastic products. Each region or country has different disposal rules and it is recommended to follow your local disposal guideline.

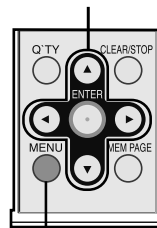
PRINTING

BEFORE PRINTING

SELECTING FIELD/FRAME

- Select "FRAME" for a high resolution still image printing. Select "FIELD" for a picture of quickly moving objects.
- When "FIELD" is selected, the print image will be lower in resolution. The selected mode is displayed on the monitor screen.
- A video picture is normally composed of two slightly lower resolution images (FIELD images) to form a single image (FRAME image).

▲, ▼, ◀, ▶ buttons



MENU button

- 1 Press the **MENU** button on the control panel. A menu is displayed.

- 2 Press the **◀** or **▶** button to display the **INPUT** menu.

PRG	INPUT	LAY	PRN	COL	OUT	SETUP
	INPUT					S-VIDEO
	BRIGHTNESS					-10
	CONTRAST					0
	COLOR					-11
	HUE					-16
	SHARPNESS					0
	FRAME/FIELD					FRAME
	SIGNAL TYPE					AUTO
	CANCEL					[ENTER]
						[MENU]:RETURN

- 3 Press the **▲** or **▼** button to select the **FRAME/FIELD**.

PRG	INPUT	LAY	PRN	COL	OUT	SETUP
	INPUT					S-VIDEO
	BRIGHTNESS					-10
	CONTRAST					0
	COLOR					-11
	HUE					-16
	SHARPNESS					0
	FRAME/FIELD					FRAME
	SIGNAL TYPE					FRAME/FIELD
	CANCEL					[ENTER]
						[MENU]:RETURN

- 4 Press the **◀** or **▶** button to select **FRAME** or **FIELD**.

- 5 Press the **MENU** button. The setting is memorized and the source image is displayed.

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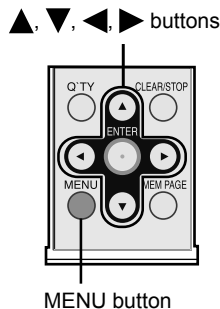
TROUBLE-SHOOTING

OTHERS

PRINTING

SELECTING INPUT SIGNAL

- Select VIDEO or S-VIDEO according to the input signal.
- The input signal can be set on the menu displayed on the monitor screen.
- Unless the input signal is changed, it is not necessary to select the input signal every time.



1 Press the **MENU** button on the control panel.
A menu is displayed.

2 Press the **◀** or **▶** button to display the **INPUT** menu.

PRG	INPUT	LAV	PRN	COL	OUT	SETUP
	INPUT					S-VIDEO
	BRIGHTNESS					-10
	CONTRAST					0
	COLOR					-11
	HUE					-16
	SHARPNESS					0
	FRAME/FIELD					FRAME
	SIGNAL TYPE					AUTO
	CANCEL					[ENTER]
						[MENU]:RETURN

3 Press the **▲** or **▼** button to select the **INPUT**.

4 Press the **◀** or **▶** button to select **VIDEO** or **S-VIDEO**.

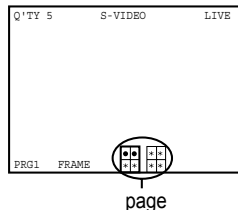
PRG	INPUT	LAV	PRN	COL	OUT	SETUP
	INPUT					VIDEO ▶
	BRIGHTNESS					VIDEO/S-VIDEO
	CONTRAST					0
	COLOR					-11
	HUE					-16
	SHARPNESS					0
	FRAME/FIELD					FRAME
	SIGNAL TYPE					AUTO
	CANCEL					[ENTER]
						[MENU]:RETURN

5 Press the **MENU** button.
The setting is memorized and the source image is displayed.

MEMORY PRINT / MULTI-IMAGE SETTING

As this unit has 8 frames to memory images, the following functions are available.

- Memory pages are shown as squares at the lower part of the monitor screen. Memory status is shown as ● or *.
- The page being selected is indicated by a double line.
- The frame being selected is shown in green. The frame in which the next image will be memorized is shown in orange. When the frame being selected and the frame to be memorized next are same, the frame is shown in orange.
- The image will be stored when MEMORY button is pressed.
- Press the MEM PAGE button to select the page to memorize an image.
- When pressing MONITOR button, the image of the page which is currently selected is displayed on the monitor.
When displaying a memorized image, "MEMORY" is shown on the monitor. When displaying the image from the connected equipment, "LIVE" is shown.
- An image can be stored into memory while printing, but not in the memory page currently being printed.



The double line shows the page being selected.
(● : image memorized,
* : empty frame)
(When MULTI IMAGE is set to 4)

MEMORIZING AND PRINTING AN IMAGE

- 1 **Display the image which you wish to print.**
- 2 **Press the MEM PAGE button on the control panel to select a page to memorize an image.**
- 3 **Press the MEMORY button.**
The image will be memorized in the frame indicated in orange. When pressing the MONITOR button to show "MEMORY" on monitor display, the image in the selected memory page will be displayed on monitor.
- 4 **Press the PRINT button.**
The image displayed on the monitor will be printed. The memory page which is print stand-by is shown with a green frame, and it goes on and off during printing.

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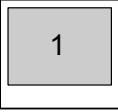

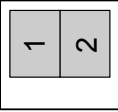
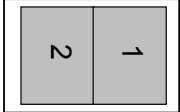
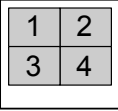
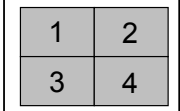
ADJUSTMENTS

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PRINTING

NUMBER OF MEMORY PAGES

MULTI	Number of pages	Indication on the monitor screen	Print example	
			S	L
1	8	* * * * * * * *		
2	4	* * * * * * * *		
4	2	* * * * * * * *		

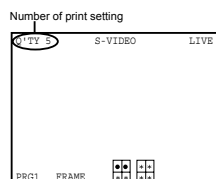
MULTI PRINT

MULTI PRINT is the function of 2- or 4-image print on a sheet. Use LAYOUT menu for setting. See the above table for the print examples. For the setting, see page 34.

CONTINUOUS PRINTING

Continuous printing of a memorized image can be made by setting the number of prints to more than one. The print quantity can be set for up to 5 prints. Continuous printing can be cancelled if needed.

- 1 **Press the Q'TY button on the control panel.**
The print quantity is displayed upper left of the monitor screen.



- 2 **Press the Q'TY button or ◀ or ▶ button to set the number of continuous printing.**
 - The number increases by pressing the Q'TY button or ▶ button and decreases by pressing the ◀ button.
 - The number switches in the order of 1, 2, 3, 4, and 5.

- 3 **Press the PRINT button.**
 - The number of prints you set is printed.
 - During continuous printing, the set number on the monitor will be counted down every time one sheet is printed. When printing is completed, the counter will be reset to the original set number. This will not reset when turning off the power (It will not be reset to 1.)
 - If you wish to stop printing after completing the current printing, press the CLEAR/STOP button. After the counter is reset to 1 and the print of the current page is completed, the continuous printing will be cancelled.

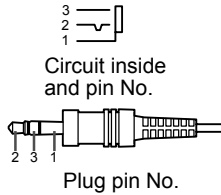
NOTE

If a blackish image is continuously printed, the internal temperature may rise and cause the unit to switch to a stand-by condition during printing. In this case, -- is displayed on the status indicator. Wait until the indication goes off. When temperature drops and the indication goes off, printing resumes.

EXTERNAL REMOTE TERMINAL 1

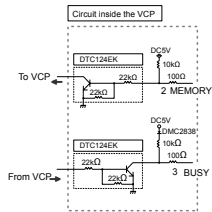
The image can be stored in memory by sending the remote signal through the external remote terminal on the rear panel. When the MEMORY & PRINT function is set to ON, the image will be printed after being stored in memory.

Make out the necessary circuit to use this function by referring to the following.



EXTERNAL REMOTE TERMINAL SIGNAL ALLOCATION (STEREO JACK)

Pin No.	Function	Description
1	Ground	Earth
2	MEMORY	Memory : When the signal becomes "LOW" from "HIGH", the image is stored in memory. (When the signal has been "LOW" for 15 ms or more, the image is stored in memory.) See page 40.
3	BUSY1	Refer to the BUSY LEVEL setting and BUSY 1&2 SELECT setting of REMOTE SET menu. See pages 42-44.



When the signal from BUSY terminal is received with TTL level, keep the following.

$$|I_{OL}| = 2 \text{ mA or less, } |I_{OH}| = 1 \text{ mA or less}$$

$|I_{OL}|$ means the current flowing into the unit at Low output,

$|I_{OH}|$ means the current flowing out of the unit at High output.

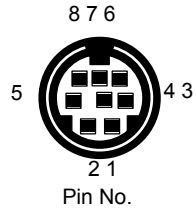
Just after completing printing, there is a period that memory signal is not accepted.

EXTERNAL REMOTE TERMINAL 2

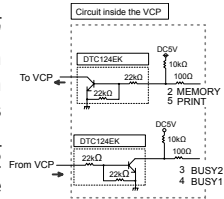
The image can be stored in memory and printed by sending the remote signal through the external remote terminal on the rear panel.

Make out the necessary circuit to use this function by referring to the following.

■ EXTERNAL REMOTE TERMINAL SIGNAL ALLOCATION (MINI DIN 8 PIN)



Pin No.	Function	Description
1	Ground	Earth
2	MEMORY	Memory : When the signal becomes "LOW" from "HIGH", the image is stored in memory. (When the signal has been "LOW" for 15 ms or more, the image is stored in memory.) See page 40.
3	BUSY2	Refer to the BUSY LEVEL setting and BUSY 1&2 SELECT setting of REMOTE SET menu. See pages 42-44.
4	BUSY1	Refer to the BUSY LEVEL setting and BUSY 1&2 SELECT setting of REMOTE SET menu. See pages 42-44.
5	PRINT	Print : When the signal becomes "LOW" from "HIGH", the stored image is printed. (When the signal has been "LOW" for 15 ms or more, the image is printed.)
6	Unused	
7	Unused	
8	DC5V	Power supply DC 1 mA Max.



When the signal from BUSY terminal is received with TTL level, keep the following.

$$|I_{OL}| = 2 \text{ mA or less, } |I_{OH}| = 1 \text{ mA or less}$$

$|I_{OL}|$ means the current flowing into the unit at Low output,

$|I_{OH}|$ means the current flowing out of the unit at High output.

Just after completing printing, there is a period that memory signal and print signal are not accepted.

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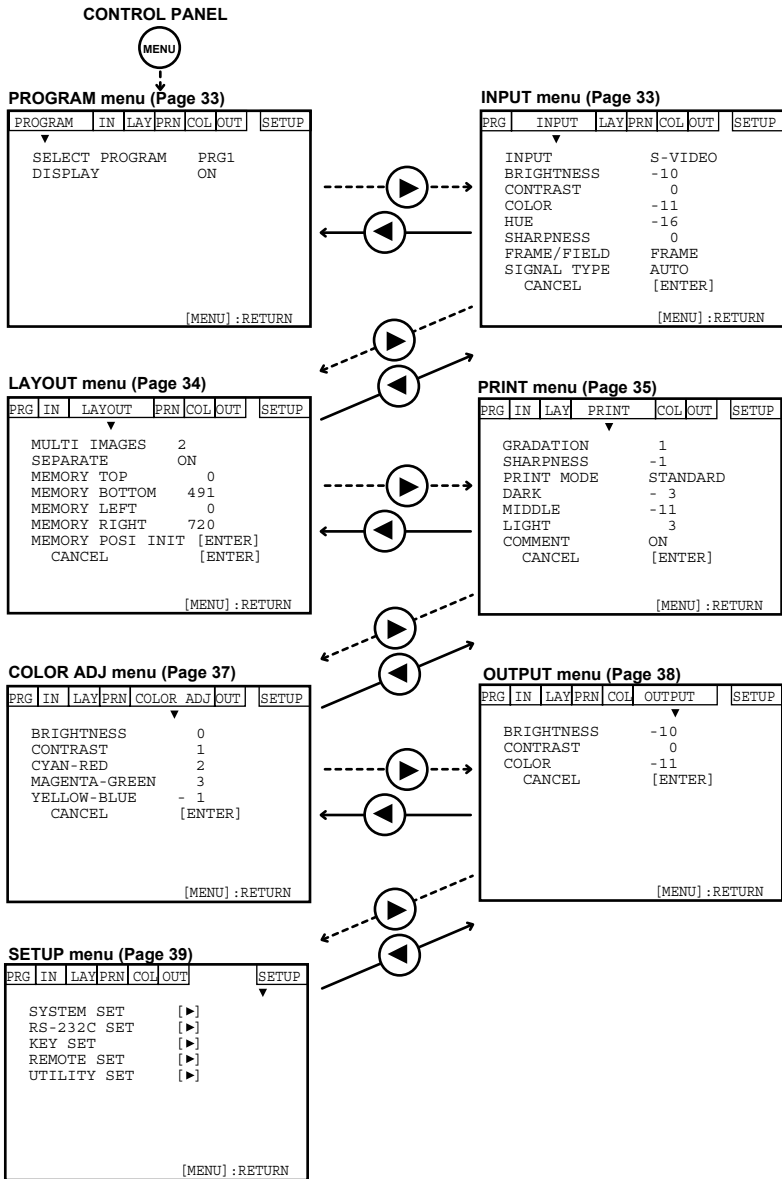
ADJUSTMENTS

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■ MENU CHART (MONITOR)



To the next page

Press the MENU button to exit the menu.

SETUP menu (Page 39)

PRG	IN	LAY	PRN	COL	OUT	SETUP
						▼
SYSTEM SET						[▶]
RS-232C SET						[▶]
KEY SET						[▶]
REMOTE SET						[▶]
UTILITY SET						[▶]
						[MENU]:RETURN

SYSTEM SET menu (Page 39)

PRG	IN	LAY	PRN	COL	OUT	SETUP
◀SYSTEM SET						
						▼
REMAINING NOTICE ON						
REMAINING Q/ TY					10	
RESUME					ON	
REMAINING RESET MODE1						
COPY PROGRAM TO PRG1						
INITIALIZE PRG					ALL	
						[MENU]:RETURN

RS-232C SET menu (Page 40)

PRG	IN	LAY	PRN	COL	OUT	SETUP
◀RS-232C SET						
						▼
BAUD RATE					9600	
COMMAND TYPE					A	
RESPONSE					OFF	
ERROR RESPONSE					ILLEGAL	
						[MENU]:RETURN

KEY SET menu (Page 40)

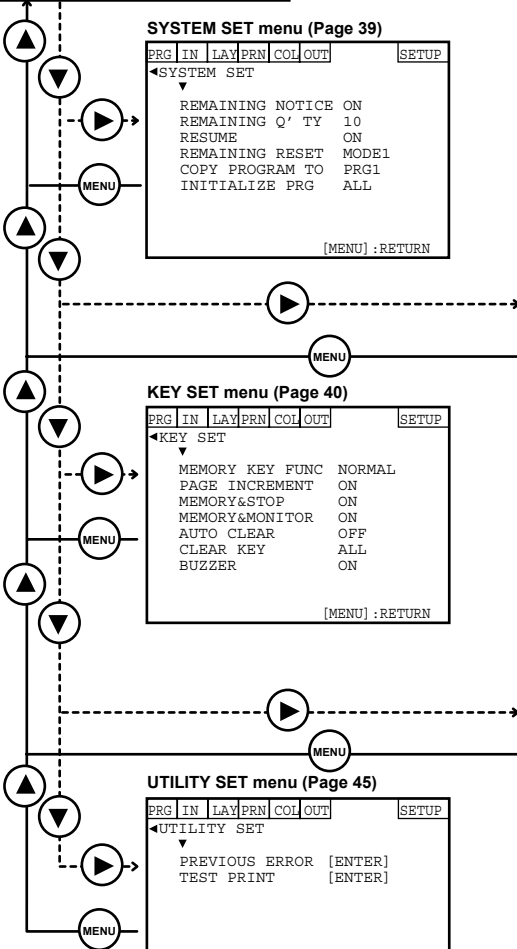
PRG	IN	LAY	PRN	COL	OUT	SETUP
◀KEY SET						
						▼
MEMORY KEY FUNC					NORMAL	
PAGE INCREMENT					ON	
MEMORY&STOP					ON	
MEMORY&MONITOR					ON	
AUTO CLEAR					OFF	
CLEAR KEY					ALL	
BUZZER					ON	
						[MENU]:RETURN

REMOTE SET menu (Page 42)

PRG	IN	LAY	PRN	COL	OUT	SETUP
◀REMOTE SET						
						▼
BUSY LEVEL					LOW	
BUSY 1&2 SELECT						
PRINT BUSY					BUSY1	
ERROR BUSY					OFF	
MEMORY BUSY					OFF	
STROBE1					BUSY1	
STROBE2					BUSY2	
REMAINING					BUSY1&2	
						[MENU]:RETURN

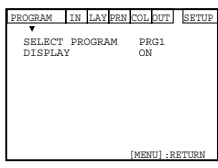
UTILITY SET menu (Page 45)

PRG	IN	LAY	PRN	COL	OUT	SETUP
◀UTILITY SET						
						▼
PREVIOUS ERROR					[ENTER]	
TEST PRINT					[ENTER]	
						[MENU]:RETURN



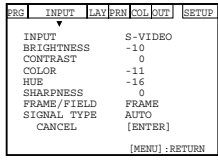
PROGRAM MENU

- SELECT PROGRAM** Selects a program to be used among PRG1, PRG2 and PRG3.
- DISPLAY** Selects whether to display the setting information such as the number of prints on the monitor or not.
 - OFF** The setting information is not displayed.
 - ON** The setting information is displayed.



INPUT MENU

- INPUT** Selects VIDEO or S-VIDEO according to the input signal.
- BRIGHTNESS** Adjusts brightness of the printing image. (The whole image will be adjusted.)
- CONTRAST** Adjusts contrast of the printing image. (The image will be adjusted based on the black level.)
- COLOR** Adjusts density of the printing image. The colour of the image gets deeper with ► and lighter with ◀.
- HUE** Adjusts the hue of the printing image.
- SHARPNESS** Controls apertures and reinforces or softens the contour of image. (Adjustment for input signal)
 - The value gets smaller, the contour gets softer.
 - The value gets larger, the contour gets reinforced.
- FRAME/FIELD** Select FRAME for normal use. Select FIELD for a picture of quickly moving objects. When FIELD is selected, the print image will be lower in resolution.
- SIGNAL TYPE** Detects NTSC signal and PAL signal.
 - AUTO** This unit automatically detects NTSC signal or PAL signal.
 - NTSC** Select NTSC when an image of NTSC signal is not displayed correctly.
 - PAL** Select PAL when an image of PAL signal is not displayed correctly.
- CANCEL** When the ENTER button is pressed while CANCEL is selected, the settings in the INPUT menu are return to those before change. The changes are not saved.



SETTING THE FUNCTIONS

LAYOUT MENU

- MULTI IMAGES** Selects the the number of prints on one sheet.
- 1** 1 image on a sheet
 - 2** 2 images on a sheet
 - 4** 4 images on a sheet
- SEPARATE** Selects whether a white frame is added to each print or not.
- OFF** Prints without white frame.
 - ON** Prints with white frame.
- MEMORY TOP** Changes the start position of the horizontal importing of the input signal.
- MEMORY BOTTOM** Changes the end position of the horizontal importing of the input signal.
- MEMORY LEFT** Changes the start position of the vertical importing of the input signal.
- MEMORY RIGHT** Changes the end position of the vertical importing of the input signal.
- MEMORY POSI INIT** The values of MEMORY TOP, MEMORY BOTTOM, MEMORY LEFT and MEMORY RIGHT are reset.
- CANCEL** When the ENTER button is pressed while CANCEL is selected, the settings in the LAYOUT menu are return to those before change. The changes are not saved.

PRG	IN	LAYOUT	PRN	COL	OUT	SETUP
		▼				
MULTI IMAGES			2			
SEPARATE			ON			
MEMORY TOP			0			
MEMORY BOTTOM			491			
MEMORY LEFT			0			
MEMORY RIGHT			720			
MEMORY POSI INIT						[ENTER]
CANCEL						[ENTER]
						[MENU] : RETURN

PRINT MENU

GRADATION

Adjusts the gamma curve of the images.
Selects the gamma curve among 5 kinds of the settings.

1,3

Mainly when connecting to ultrasound diagnostic equipment

2

Mainly when connecting to endoscope

4,5

Mainly when connecting to other equipment

SHARPNESS

Controls apertures and reinforces or softens the contour of image. (Adjustment for print image)

-3 - +3

The value gets smaller, the contour gets softer.

The value gets larger, the contour gets reinforced.

PRINT MODE

STANDARD

Sets the printing speed.

POWER SAVE

High speed, high quality print

Power-saving mode print

DARK

Adjusts the dark part of the printing image.
The value gets smaller, the image gets darker. The value gets larger, the image gets lighter.

MIDDLE

Adjusts the grey level part of the printing image. The value gets smaller, the image gets darker. The value gets larger, the image gets lighter.

LIGHT

Adjusts the bright part of the printing image.
The value gets smaller, the image gets darker. The value gets larger, the image gets lighter.

COMMENT

OFF

Selects to display the comment or not.

ON

Does not print a comment.

Prints a comment. When the ENTER button is pressed while selecting ON, the menu to make a comment is shown.

ADJUST

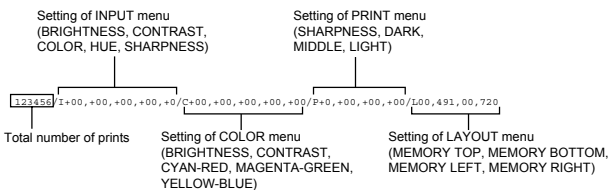
The total number of prints, settings, image size and other settings are printed.

CANCEL

When the ENTER button is pressed while CANCEL is selected, the settings in the PRINT menu are return to those before change. The changes are not saved.

PRG IN	LAN	PRINT	COL OUT	SETUP
		▼		
GRADATION			1	
SHARPNESS			-1	
PRINT MODE			STANDARD	
DARK			-3	
MIDDLE			-11	
LIGHT			3	
COMMENT			ON	
CANCEL			[ENTER]	
				[MENU] : RETURN

Printing example of COMMENT:ADJUST



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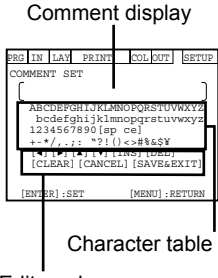
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■ Making a comment

You can make a comment with this menu. The menu as shown right is displayed by pressing the ENTER button while selecting ON in the COMMENT menu. Up to 64 letters (32 letters x 2 lines) are available to input.



Comment display The comment is shown in this part. Up to 64 letters (32 letters x 2 lines) are available to input. Select the position to input the letter with the ▲, ▼, ◀, ▶ in the edit mode.

Character table Selects the character to input with the ▲, ▼, ◀, ▶ buttons on the control panel.

Edit mode Edits the letter and inputting position with the ▲, ▼, ◀, ▶ buttons on the control panel.

INS Select INS and press the ENTER button to insert a space. When the cursor is on a letter, a space is inserted at the cursor position and the letters shift to right.

DEL Select DEL and press the ENTER button to delete the selected letter. The letters shift to left.

CLEAR Select CLEAR and press the ENTER button to clear the comment.

CANCEL Select CANCEL and press the ENTER button to go back to the previous comment which has been memorized.

SAVE&EXIT Select SAVE&EXIT and press the ENTER button to memorize the comment and exit this menu.

1 Select a letter to input.
Select a letter with the ▲, ▼, ◀, ▶ buttons on the control panel.
The color of the selected letter will change.

2 Press the ENTER button.
The selected letter is input into the comment display block.
The cursor in the comment display block will move to right.

3 Repeat steps 1 and 2 to complete a comment.

COLOR ADJ MENU

- BRIGHTNESS** Adjusts the brightness of the printing image.
- CONTRAST** Adjusts the contrast of the printing image.
- CYAN-RED** Adjusts red-subcontrast of the printing image. Red is added with ► and cyan is added with ◀.
- MAGENTA-GREEN** Adjusts green-subcontrast of the printing image. Green is added with ► and magenta is added with ◀.
- YELLOW-BLUE** Adjusts blue-subcontrast of the printing image. Blue is added with ► and yellow is added with ◀.
- CANCEL** When the ENTER button is pressed while CANCEL is selected, the settings in the COLOR ADJ menu are return to those before change. The changes are not saved.

PRE	IN	LAMP	COLOR ADJ	OUT	SETUP
			▼		
			BRIGHTNESS	0	
			CONTRAST	1	
			CYAN-RED	2	
			MAGENTA-GREEN	3	
			YELLOW-BLUE	- 1	
			CANCEL	[ENTER]	
					[MENU] : RETURN

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OUTPUT MENU

- BRIGHTNESS** Adjusts the brightness of the image on the monitor. (The whole image will be adjusted.)
- CONTRAST** Adjusts the contrast of the image on the monitor. (The image will be adjusted based on the black level.)
- The settings of BRIGHTNESS and CONTRAST are applied only to the image on the monitor. They are not applied to the printed images.
- COLOR** Adjusts density of the image on the monitor. The colour of the image gets deeper with ► and lighter with ◀.
- CANCEL** When the ENTER button is pressed while CANCEL is selected, the settings in the OUTPUT menu are return to those before change. The changes are not saved.

PRE	IN	LAN	PRN	COL	OUTPUT	SETUP
					▼	
					BRIGHTNESS	-10
					CONTRAST	0
					COLOR	-11
					CANCEL	[ENTER]
						[MENU] : RETURN

SETUP MENU

SYSTEM SET Sets buzzer, notification of ink ribbon quantity, etc.

REMAINING NOTICE Sets whether the remaining of the ink ribbon is noticed or not.

OFF This unit does not inform the ink ribbon remaining.

ON When the remaining of the ink ribbon reaches to the value set by the REMAINING Q'TY menu, this unit informs it.

REMAINING Q'TY Sets the number of ink ribbon to inform the remaining. The setting range is 1 to 20.

RESUME Selects the operation of this unit after resolving an error occurred during printing.

OFF After the error is resolved, this unit gets in the stand-by status.

ON After the error is resolved, this units resumes printing automatically.

REMAINING RESET Sets the timing of resetting the indication of the ink ribbon remaining.

MODE1 When a ribbon cartridge is loaded, the indication is reset to the initial value.

MODE2 When a ribbon cartridge is loaded after the indication becomes to 00, the indication is reset to the initial value.

COPY PROGRAM TO The settings of the currently used program are copied to other program by selecting other program and then pressing the ENTER button.

- When CANCEL is selected after selecting the program number, the program is not copied even if the ENTER button is pressed.

INITIALIZE PRG Initializes the settings. When the ENTER button is pressed, the initialization starts.

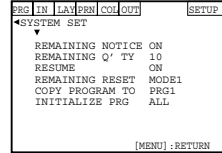
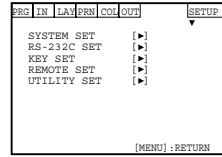
PRG1 Initializes the settings of the program 1.

PRG2 Initializes the settings of the program 2.

PRG3 Initializes the settings of the program 3.

ALL Initializes the settings of all programs.

- When CANCEL is selected after selecting the program number, the program is not initialized even if the ENTER button is pressed.



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RS-232C SET Selects the baud rate and command type, etc.

BAUD RATE Sets data transmission rate (baud rate) of the serial communication. Select a proper baud rate for the connected device.

COMMAND TYPE Selects RS-232C command type.

- Select A for normal setting. Depending on the connected equipment, select B.

RESPONSE Selects whether this unit sends RS-232C response to the host computer or not.

OFF Does not send response.

ON Sends normal response.

ERROR RESPONSE Selects the response code when an error occurs.

NORMAL Sends the regular response.

ILLEGAL Sends "job end" even if ILLEGAL error occurs.

INVALID Sends "job end" even if INVALID error occurs.

ALL Sends "job end" when any error occurs.

REG	IN	LA	PRN	COL	OUT	SETUP
RS-232C	SET					
	BAUD RATE				9600	
	COMMAND TYPE				A	
	RESPONSE				OFF	
	ERROR RESPONSE				ILLEGAL	
						[MENU] : RETURN

KEY SET Sets the button functions, remote terminal functions, etc.

MEMORY KEY FUNC

NORMAL The MEMORY button functions individually. The image is memorized without printing.

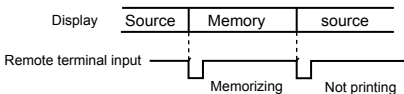
MEMORY&PRINT Automatically prints after memorizing. Do not change the setting of MULTI IMAGE after memorizing an image.

R1 When a signal inputted through a memory key (pin No.2) of the remote terminal on the rear panel is switched to "low" level from "high" or the MEMORY button on the front panel is pressed for the first time, a memory image is displayed. Then at the second time, a source image is displayed without printing the memory image.

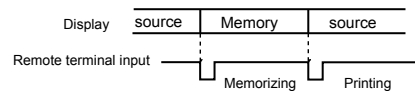
R2 When a signal inputted through a memory key (pin No.2) of the remote terminal on the rear panel is switched to "low" level from "high" or the MEMORY button on the front panel is pressed for the first time, a memory image is displayed. Then at the second time, a source image is displayed and the memory image is printed.

REG	IN	LA	PRN	COL	OUT	SETUP
KEY	SET					
	MEMORY KEY FUNC				NORMAL	
	PAGE INCREMENT				ON	
	MEMORY&STOP				ON	
	MEMORY&MONITOR				ON	
	AUTO CLEAR				OFF	
	CLEAR KEY				ALL	
	BUEZZER				ON	
						[MENU] : RETURN

R1



R2



PAGE INCREMENT

OFF When images are memorized in all frames in a page, the cursor does not move to the next page automatically.

ON When images are memorized in all frames in a page, the cursor automatically moves to the next page.

MEMORY&STOP

OFF The image is overlaid on the first frame.

ON The next image can not be overlaid in the memory page when the selected page becomes full. To overlay a new image, print the memorized image.

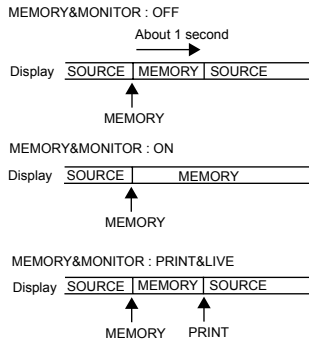
- When PAGE INCREMENT is set to ON, the cursor moves to the next page when images are memorized in all frames in a page.

MEMORY&MONITOR Switches the monitor display between the source image and memory image after memorizing.

OFF The memorized image is displayed for about 1 second after memorizing, then the source image is displayed.

ON The memorized image is displayed after memorizing.

PRINT&LIVE The memorized image is displayed after memorizing. The source image is displayed after starting printing.



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AUTO CLEAR

- OFF** The printed memory image is not cleared.
- ON** The printed memory image is cleared after completing printing.

CLEAR KEY

- PART** When the CLEAR/STOP button is pressed, an image of currently selected frame of a multi-image page will be cleared.

- PAGE** When the CLEAR/STOP button is pressed, all images of currently selected page will be cleared.

- ALL** When the CLEAR/STOP button is pressed, all memorized images will be cleared.

- This function is carried out when the CLEAR/STOP button is pressed for one second or more during stand-by mode.

BUZZER

- OFF** Does not sound the buzzer.
- ON** Sounds the buzzer.

REMOTE SET

- BUSY LEVEL** Selects the level of BUSY signal from the remote terminals 1 and 2 on the rear panel.

- LOW** This unit cannot accept the remote input signal when the signal is "LOW".

- HIGH** This unit cannot accept the remote input signal when the signal is "HIGH".

- The default setting is "HIGH".

- BUSY 1&2 SELECT** Selects when the BUSY signal is outputted from the remote terminals 1 and 2 on the rear panel.

PRINT BUSY

- OFF** This unit does not output the BUSY signal regarding printing.

- BUSY1** This unit outputs BUSY1 signal during printing.

- BUSY2** This unit outputs BUSY2 signal during printing.

- BUSY1&2** This unit outputs BUSY1 and BUSY2 signals during printing.

REC	IN	LAY	PRN	COL	OUT	SETUP
◀REMOTE SET						
▼						
BUSY LEVEL		LOW				
BUSY 1&2 SELECT		LOW				
PRINT BUSY		BUSY1				
ERROR BUSY		OFF				
MEMORY BUSY		OFF				
STROBE1		BUSY1				
STROBE2		BUSY2				
REMAINING		BUSY1&2				
[MENU] : RETURN						

ERROR BUSY

OFF This unit does not output the BUSY signal regarding error.

BUSY1 When an error occurs, or during loading or ejecting an ink ribbon, this unit outputs BUSY1 signal.

BUSY2 When an error occurs, or during loading or ejecting an ink ribbon, this unit outputs BUSY2 signal.

BUSY1&2 When an error occurs, or during loading or ejecting an ink ribbon, this unit outputs BUSY1 and BUSY2 signals.

MEMORY BUSY

OFF This unit does not output the BUSY signal regarding memorizing.

BUSY1 When memorizing is not available, this unit outputs BUSY1 signal.

BUSY2 When memorizing is not available, this unit outputs BUSY2 signal.

BUSY1&2 When memorizing is not available, this unit outputs BUSY1 and BUSY2 signals.

STROBE1

OFF This unit does not output a trigger signal for strobe.

BUSY1 When memorizing an image, this unit outputs a trigger signal 1 for strobe through BUSY1.

BUSY2 When memorizing an image, this unit outputs a trigger signal 1 for strobe through BUSY2.

BUSY1&2 When memorizing an image, this unit outputs a trigger signal 1 for strobe through BUSY1 and BUSY2.

STROBE2

OFF This unit does not output a trigger signal for strobe.

BUSY1 When memorizing an image, this unit outputs a trigger signal 2 for strobe through BUSY1.

BUSY2 When memorizing an image, this unit outputs a trigger signal 2 for strobe through BUSY2.

BUSY1&2 When memorizing an image, this unit outputs a trigger signal 2 for strobe through BUSY1 and BUSY2.

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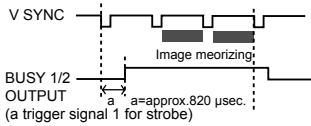
SETTING THE FUNCTIONS

REMAINING

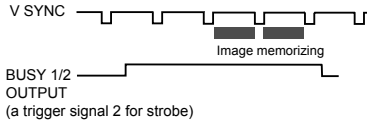
- OFF** When the remaining amount of the ink ribbon reaches to the value set by the REMAINING Q'TY menu, this unit does not output the BUSY signal.
- BUSY1** When the remaining amount of the ink ribbon reaches to the value set by the REMAINING Q'TY menu, this unit outputs the BUSY1 signal to inform the remaining of ink ribbon.
- BUSY2** When the remaining amount of the ink ribbon reaches to the value set by the REMAINING Q'TY menu, this unit outputs the BUSY2 signal.
- BUSY1&2** When the remaining amount of the ink ribbon reaches to the value set by the REMAINING Q'TY menu, this unit outputs the BUSY 1 and BUSY2 signals.

■ SYNCHRONOUS SETTING FOR MEMORY

STROBE1



STROBE2



(The numbers in the above figures are just references. The timing may be different according to the setting.)

UTILITY SET

PREVIOUS ERROR This function displays the most recent types of error.

TEST PRINT A test printing is carried out.

ERR	IN	LA	PRN	COL	OUT	SETUP
y						UTILITY SET
						PREVIOUS ERROR [ENTER]
						TEST PRINT [ENTER]
[MENU] : RETURN						

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




TROUBLESHOOTING

INDICATION ON THE STATUS DISPLAY & COUNTERMEASURES

If printing is not possible or error occurs during printing for some reason, the indicators on the front panel will be lit. An error message will be displayed on the monitor.

In this case, follow the procedure described below. When an error occurs during printing, printing automatically resumes after resolving the error if the power of this unit is not turned off.

○ : lit ☀ : blinks ● : not lit


Status indicator	RIBBON	PAPER	ALARM	Error messages
	○	●	●	<ul style="list-style-type: none"> The ribbon cartridge is not loaded. Ink ribbon has run out.
 (Remaining amount of ink ribbon)	●	○	●	<ul style="list-style-type: none"> The paper cassette is not loaded.
	●	☀	●	<ul style="list-style-type: none"> Paper has run out.
 Blinking	●	○	●	<ul style="list-style-type: none"> Remove paper from the printer outlet.
	●	●	○	<ul style="list-style-type: none"> Flap is open.
	●	○	○	<ul style="list-style-type: none"> Access cover is open.
	○	●	●	<ul style="list-style-type: none"> Wrong type of ribbon cartridge.
	○	○	●	<ul style="list-style-type: none"> Wrong size of paper type.
 Blinking	●	●	○	<ul style="list-style-type: none"> Remove the paper cassette, check the paper.
 Blinking	●	●	○	<ul style="list-style-type: none"> Paper jam.
 Blinking	●	●	○	<ul style="list-style-type: none"> Access cover is open.
	●	●	○	<ul style="list-style-type: none"> Paper jam/Mechanical error.
 Blinking	●	●	○	<ul style="list-style-type: none"> Back-cover is open. Mechanical error. Printer error

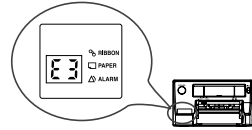
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	Causes/Countermeasures	Page
	A ribbon cartridge is not loaded. A ribbon cartridge runs out. • Load a new ribbon cartridge.	21
	A paper cassette is not loaded. • Load a paper cassette with paper.	19
	Print paper is used up. • Load new print paper.	19
	Printed paper is stacked at the paper outlet. • Remove the paper.	9-10
	Flap is open. • Close the flap.	9
	The access cover is open. • Close the access cover.	9-10
	Improper ribbon cartridge is loaded. • Load a proper ribbon cartridge.	19,21,54
	Print paper of wrong size is loaded. • Use the ribbon cartridge and print paper supplied in the same package.	19-20
	Paper misfeed • Unload the paper cassette and load it again.	19-20
	Paper jam occurs. • Refer to "OVERCOMING PAPER JAMS" .	48
	The access cover opens during printing. • Turn off the power, close the access cover and then turn on the power again.	9-10
	Paper jam occurs. / A mechanical error occurs. • Turn off the power and then turn it on again.	9
	Other defects (mechanical error, system error) • Turn off the power and contact your dealer.	-

TROUBLESHOOTING

OVERCOMING PAPER JAMS

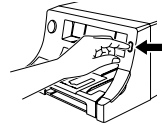
- 1 Check the error display on the status indicator.

When  is displayed, go to step 2.



- 2 Eject the ribbon cartridge by pressing the RIBBON EJECT button.




When the ribbon cartridge can not be ejected by pressing the RIBBON EJECT button, turn off the power and turn it on again. If the ribbon cartridge is not ejected, contact your dealer.



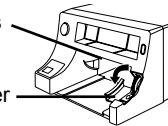
- 3 Unload the paper cassette.



- 4 Flip open the access cover.

  
Roller, sensors
(inside, bottom)

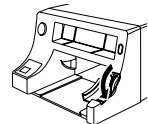
Access cover



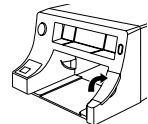
- 5 Turn the dial inside the access cover to remove the jammed paper.

NOTE

Turn the dial in the direction of the arrow. Never turn it in the opposite direction. It may cause malfunction. Contact your dealer if you can not clear the paper jam per above instruction.



- 6 Close the access cover.



- 7 Load the paper cassette.



- 8 Load the ribbon cartridge.

Remove slack the ink ribbon. Hold the handle to load the cartridge.

CAUTION



Do not put your hand inside the product from the paper cassette loading slot or ribbon cartridge loading slot. This product has mechanical parts (switches and rollers) and parts that are heated to a very high temperature or sensitive to static electricity.



BEFORE CALLING FOR SERVICE

- Use the troubleshooting chart to resolve problem in operation. If you are unable to resolve the problem, unplug the power cord and contact your dealer.

Symptom	Check and Remedy
The power is not turned on.	Is the power cord plug disconnected from the outlet? → Connect the power cord plug to the outlet firmly. After tuning the power off, wait for approx. 2 minutes. Then turn on the power.
No image appears on the monitor.	Is the video signal inputted to this unit? → Check the connection. Refer to pages 14-17. Is the input signal (INPUT : VIDEO, S-VIDEO) selected on the menu screen correctly? → Check the current setting. Refer to page 33. Is the image stored in memory displayed on the monitor screen? → Press the MONITOR button to display the source image (LIVE).
The image is not stored in memory.	Are the images being printed with full memorized memory page? → Press the CLEAR/STOP button on the control panel after completing printing. Then, store the image in the memory again. Is the memory full in the status of PAGE INCREMENT : OFF or AUTO CLEAR : OFF? → Store the image in the memory after pressing the CLEAR/STOP button on the control panel. (According to the setting conditions, the image can be stored in the memory by setting PAGE INCREMENT to ON, AUTO CLEAR to ON or pressing the PRINT button.) Is the memory full in the status of MEMORY&STOP : ON? → Press CLEAR/STOP button on the control panel, and store the image again.

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
OTHERS

TROUBLESHOOTING

The image is not printed.

Is the image data stored in this unit?
Is the ribbon cartridge or print paper exhausted?
→ Check the status.

Is the paper cassette loaded correctly?
→ Check the status display. Refer to
“INDICATION ON THE STATUS DISPLAY &
COUNTERMEASURES”. (page 46)

Is the status indicator blinking?
→ When the status indicator () keeps blinking slowly, the temperature of the thermal head may get high. Wait until the temperature drops to a level where printing becomes available.

The ribbon cartridge can not be unloaded.

→ Turn off the power of this unit, then turn it on again and press the RIBBON EJECT button. If this error is not solved, contact your dealer.

The ribbon cartridge can not be loaded.

Is the power of this unit turned on?
Is another ribbon cartridge already loaded in this unit?
→ Check the status.

The colour or picture quality is different between the memorized image and the printed image.

Is the colour of the image stored in the memory adjusted?
→ Adjust the colour of the image stored in the memory with COLOR ADJ menu. Refer to page 37.

The picture quality is different between the image on the monitor screen and the printed image. (When the colour and picture quality are same between the image stored in the memory and the printed image.)

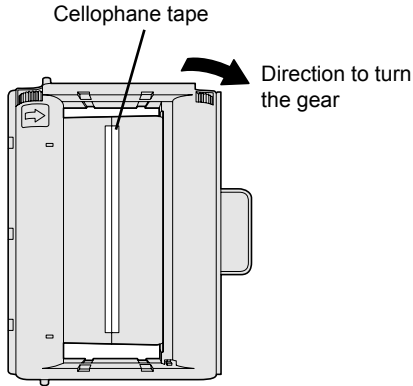
Is the image on the monitor screen adjusted?
→ Adjust the image on the monitor screen with COLOR, BRIGHTNESS and CONTRAST in the OUTPUT menu.
Refer to page 38.

The set comments do not appear on the print paper.

Is the COMMENT set to OFF?
→ Set COMMENT to ON. Refer to page 35.
Is the comment inputted?
→ Input the comment on the menu. Refer to page 36.

REPAIRING A TORN INK RIBBON

- 1 Position the ribbon cartridge with the torn ink ribbon on a flat, clean surface.
- 2 Place a piece of transparent adhesive cellophane tape on the center of the ink ribbon.



- 3 Wind the gear in the direction of the arrow so that the cellophane tape is not seen and the ink ribbon is stretched taut.
- 4 Install the repaired ribbon cartridge in the printer.

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CLEANING

CLEANING

Clean the thermal head using the cleaning kit for CP31 (option: Model CS30) to maintain stable printer operation and extend the printer's life.

Please ask your dealer about the cleaning kit.

SPEC & OPTIONS

SPECIFICATIONS

Product name	Color Video Copy Processor	
Model	CP31W	
Printing method	Thermal dye sublimation 3-color faces progressive printing (yellow, magenta and cyan)	
Print quality	S size 1600 x 1200 dots L size 2100 x 1600 dots	
Dot resolution	423 DPI	DPI : Dots per Inch
Number of grades	256 (8 bits) for each color (About 16.7 million colors)	
Printing time	S size Approx. 16 sec./sheet (without surface lamination) L size Approx. 25 sec./sheet (without surface lamination)	
Ink ribbon	Special cartridge method	
Print paper	Special paper S size 100 x 94mm Printing area 96 x 72mm L size 148 x 100mm Printing area 126 x 96mm	
Paper supply method	Automatic	
Input terminal	Composite video (1 BNC type connectors) S-video (1 S-video terminal)	
Output terminal	Composite video (1 BNC type connectors) S-video (1 S-video terminal)	
Input/Output terminal	RS-232C (D-SUB 25 pin) Remote terminal (Mini Din 8 pin, stereo mini jack)	
Input frequency	H frequency 15.734 kHz, V frequency 60 Hz (NTSC) H frequency 15.625 kHz, V frequency 50 Hz (PAL)	
Power supply	120/220-240 V ~, 50/60 Hz	
Power consumption	1.7 A (AC120 V, 50/60 Hz) during printing (0.3 A when not printing) 1.0 A (AC220-240 V, 50/60 Hz) during printing (0.3 A when not printing)	
Operating conditions	Temperature : 5°C - 40°C (41°F - 104°F) Humidity : 30% - 80% RH (No dewing) Atmospheric pressure : 70 kPa - 106 kPa	
Transportation and storage conditions	Temperature : -20°C - 60°C Humidity : 30% - 80% RH (No dewing) Atmospheric pressure : 50 kPa - 106 kPa	
Operation altitude	Within horizontal $\pm 5^\circ$	
Outside dimensions	212(W) x 125(H) x 425(D) mm	
Weight	Approx. 7.6 kg	
Accessories	Power cords (2), Operation manuals (2), Paper cassette (1)	

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OPTIONS

■ PAPER/INK RIBBON SET

Model	Size	No. of prints	Usage	Remarks
CK30S	S size	80	Color print	3 packs contained
CK30L	L size	50	Color print	4 packs contained
CK30S4P	S size	60	Color print (with surface lamination)	3 packs contained
CK30L4P	L size	40	Color print (with surface lamination)	4 packs contained

■ CLEANING KIT FOR CP31

Model
CS30

SERVICE INFORMATION

Before requesting service please review this operation manual to correct minor complaints. If you are unable to correct the problem, consult your MITSUBISHI Dealer or MITSUBISHI Service Department.

DO NOT ADJUST ANY CONTROLS NOT DESCRIBED IN THIS OPERATION MANUAL.
DO NOT REMOVE THE PROTECTIVE ENCLOSURE OF THIS UNIT.