

66 DE

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

220-240V, 50Hz AC.  
Never connect to any outlet or power supply having a different voltage or frequency.  
**WARNING : THIS APPARATUS MUST BE EARTHED.**

**POWER REQUIREMENT**  
This Video Copy Processor is designed for operation on

**PROTECTIVE MEASURES**

**IF ABNORMALITIES ARISE, ...**  
Use of the unit during emission of smoke or abnormal sounds (without adopting countermeasures) is dangerous. In such a case, unplug the power cord from the outlet immediately, and request maintenance from the sales dealer.

**NEVER INSERT ANY OBJECT INTO THE UNIT**  
Foreign objects of any kind inserted into this unit are a safety hazard and can cause extensive damage. An object should be inserted into the unit, unplug the power cord, then contact the sales dealer.

**DO NOT PLACE ANYTHING ON THE UNIT**  
Heavy objects placed on the unit can cause it to obstruct proper ventilation.

**PROTECT THE POWER CORD**  
Damage to the power cord may cause fire or shock. When unplugging, hold by the plug only and unplug carefully. Never put a heavy thing on the power cord. The cord may be damaged causing a fire or electric shock.

**DO NOT PLACE WATER CONTAINERS ON THE UNIT**  
Do not place flower vases, and other water containers on the unit. If, for some reason, water is spilled inside the unit, unplug the power cord from the source outlet, and contact the sales dealer. If you take corrective measures, the unit may be damaged.

**INSTALLATION LOCATION**

**MAINTAIN GOOD VENTILATION**  
Ventilation slots and holes are provided on sides. Place the unit on a hard and level surface and at least 10cm from walls to ensure proper ventilation.

**UNSUITABLE LOCATIONS**  
Avoid shaky places or hot-springs areas where hydrogen sulfide and acidic ions are likely to be generated.

**PLACES WITH HIGH HUMIDITY AND DUST**  
Do not place the unit at locations with high humidity and/or dust. They can cause extensive damage. Avoid places where the unit is likely to contact oily fumes and vapours.

**DO NOT REMOVE THE CABINET**  
Touching internal parts is dangerous, besides, it may lead to electric shock. Contact the sales dealer to carry out internal maintenance. Do not attempt to eliminate a jammed paper, or to disconnect the power cord plug.  
**A HORIZONTAL LEVEL**  
The unit is affected if it is placed in slanted places.

**TEMPERATURE RANGE**  
The unit is affected, if the unit is moved quickly from a cold to a warmer one, dew is likely to be formed, printing is not possible.

**TEMPERATURE RANGE**  
The operating temperature range is 5°C-40°C.

**DO NOT PRINT PAPER EXIT SLOT**  
Do not put any material into the paper exit slot.

When printing, set the lever located on the side to the PRINT position. If it is left at the COPY position, contact with the rubber roller may cause uneven printing.

P-66 DE

## FOR LONG OPERATING LIFE

### UNSUITABLE MATERIALS FOR THE UNIT

Many plastic components are used in the back-side. Coat flaking and deformation are likely to occur if the unit is wiped with chemical dusters, benzine, thinner or any other solvent, if rubbers or PVC items are left in contact with the unit for extended duration, 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 base solutions or abrasive cleaners.

### HEAD ABRASION

The thermal head, like the video head, wears out. When it is abraded, it becomes hard to print out fine details of the picture. In such a case, it is necessary to replace the thermal head. Consult with the sales dealer for replacing the head.

### WHEN A DEFECT IS FOUND

When you detect smoke or smell from the unit, disconnect immediately the power cord plug from a wall socket and ask the agent for repair. Dangerous if the unit is operated in that state.

### CONNECTION DEVICES

Read thoroughly "Operating Precautions" of the instruction booklets for the devices connected with the Video Copy Processor.

Do not disconnect the power cord during printing.

### CAUTION ON RELOCATING

When transporting this unit, make sure it is not likely to be subjected to impacts. They can be a prime cause for damage. Further, make sure to disconnect the power cord from the power outlet, and the cables from the connected devices.

### UNPLUG THE POWER CORD DURING A LONG

### ABSENCE

Turn off the MAIN power switch and unplug the power cord during a long absence.

## THERMAL PAPER

- Thermal paper K65HM (High-density synthetic paper for high quality printing) is available.
- One roll of K65HM permits printing about 260 pictures.
- When the remaining length of the paper is about 40cm, a color belt appears at the paper end. Prepare for replacement of the paper. If the remaining paper length is less than 40cm, printing becomes uneven due to the uneven paper core surface.
- When the Printed paper is touched by wet hand, the print may be discolored.
- When the paper runs out during printing, the printing operation stops and "EP" is displayed by the indicator on the front panel. Install new paper at this time.
- Store the printed paper in a place with low humidity free from a direct sunlight.
- If the paper absorbs non-volatile organic solvents (alcohol, ester, ketone, etc.) the print may be discolored. Particularly, if the paper comes in contact with soft vinyl chloride such as a transparent tape, it quickens discoloration.
- Do not use paper other than the specified one.
- Immediately after the paper is replaced, 2-3 images may be printed with a blank part due to hand's dust or oil.
- Avoid a direct sunlight or a plane near a heater, and store the paper in a place with 30°C or lower temperature and 20-80% RH.
- When the paper is rapidly transferred from a cool place to a hot place, a vapor or a dew is generated on the paper surface causing paper jam or degraded printing quality. Leave the paper in a room to familiarize with the temperature before using it.
- A finger print or dust on the paper surface may degrade the printing quality.

### Note:

Mitsubishi brand thermal paper is specially treated with an anti-static coating against thermal head damage caused by static-electricity discharge. The use of non-treated paper may cause premature head failure in your product.

## SAFETY TECHNICAL CHECKS

Terms: The safety test has to be done, according to the specified terms of 11 chp. 1 MedGV mentioned in the certificate acc. 22 chp. 1, 22 chp. 2 or acc. to the type approval 5 MedGV or according to the recommendation of the medical set manufacturer.

- Items
- a) Visual check  
Housing, cables, operator controls, readout device (displays, LED etc.), labels, accessories, instruction manual.
  - b) Function test  
Performance check acc. instruction manual, also unity and applicability of set and accessory test.
  - c) Electrical check  
Safety electrical test of the configuration in accordance with VDE 0751.

"In the interest of safety, avoid the handling of liquids beside the set."

## RESPONSIBILITY OF THE MANUFACTURER

The manufacturer, assembler, installer or importer considers himself responsible for the effects on safety, reliability and performance of the EQUIPMENT only if ;

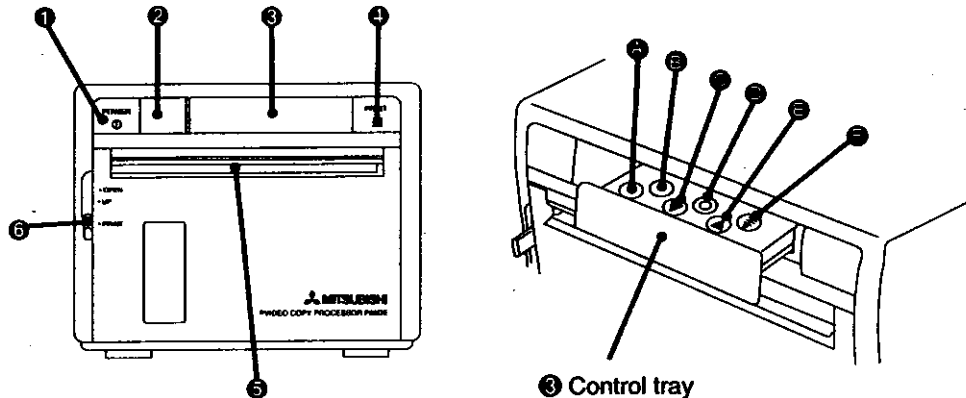
- assembly operations, extensions, re-adjustments, modifications or repairs are carried out by persons authorized by him, and
- the electrical installation of the relevant room complies with the IEC requirements
- the EQUIPMENT is used in accordance with the instructions for use.

## TECHNICAL DESCRIPTION

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

# 3 FEATURES AND FUNCTIONS

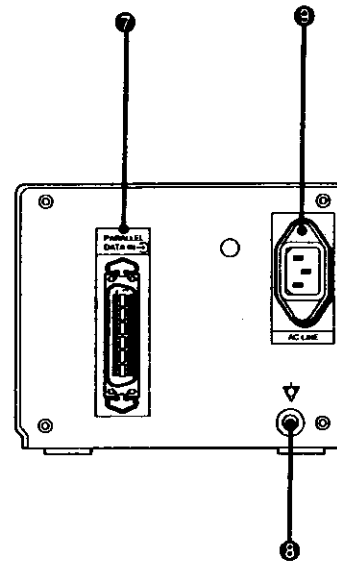
## Front Panel



③ Control tray

	Name	Function	Reference Page
①	POWER switch	Turns on/off the power.	10
②	Indicator	Displays stand by, functions and error messages.	11-18
③	Control tray		
	Ⓐ Set button	Sets each function value	13•17
	Ⓑ Paper button	Select paper type	13
	Ⓒ Function value change button (▼)	Changes each function value	14-17
	Ⓓ Function button	Select functions	14-17
	Ⓔ Function value change button(▲)	Changes each function value	14-17
	Ⓕ FEED button	Press this button to feed paper.	19
④	PRINT button	Press this button to print the picture memorized.	10
⑤	Print exit/Cutter	Printed paper will come out through this slot.	10
⑥	Lever	Front panel open-close/Thermal head up-down.	7•10•19

## Rear Panel



\* TYPE CF EQUIPMENT  
Class I or II EQUIPMENT of EQUIPMENT with an INTERNAL ELECTRICAL POWER SOURCE, providing a high degree of protection against electric shock particularly regarding allowable LEAKAGE CURRENTS, and having an F-TYPE ISOLATED (FLOATING) APPLIED PART. TYPE CF EQUIPMENT is primarily intended for DIRECT CARDIAC APPLICATION.

**Potential equalization terminal**  
This is used to equalize the potential of the equipment connected to this unit. In medical rooms, when CF-type equipment is connected, it is necessary to equalize the potential of both units. For details, refer to the installation instruction of the equipment to be connected.

	Name	Function	Reference Page
⑦	PARALLEL DATA IN connector (36 Pin connector)	Parallel data interface (CENTRONICS® STANDARD)	20-21
⑧	Potential equalization terminal	Makes the connected equipment potential equal.	9
⑨	Power terminal	Connect the power cord to this terminal.	9

# 4 INSTALLATION OF PAPER

## Paper (High-density paper K65HM)

- Moisture, fingerprint or dust on the paper surface may cause a noise at printing or deterioration in print quality. Set the paper in the following procedure to prevent adhesion of finger-print or dust on the paper surface.

**1** Paper roll paper holder

- Set the paper roll first on the left side paper holder.
- Set the paper roll on the right side paper holder.

**2** Open the door.

- Switch the lever located on the left side to the "OPEN" position.
- The door opens.

**3** Close the door. Pull out the paper end.

- Pull out the touched paper end (about 15 - 20cm), and close the door.

**4** Load the paper roll.

**4** Paper holder

- Enlarge the paper holder located on the left side leftward.

**5** Cut the paper end.

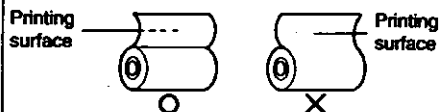
**6**

- Hold the paper holder with your fingers, and load the paper roll.

- Switch the lever to the "PRINT" position.
- Cut the paper end with the cutter just like tearing off the paper.

**7** Flip up the lever.

- Switch the lever to the "UP" position if printing is not to begin right away.



**Note:** The printing surface is the outside. Set the paper roll as shown in the illustration marked "O".

- When setting the paper, observe the following precautions to prevent paper jam.

**Do not use defective paper.**

- Do not use the bent or wrinkled paper.

**Adjust the paper position correctly.**

- When the paper is fed out skewed from the print exit, adjust the paper position so that it is fed out straight.

### CAUTION

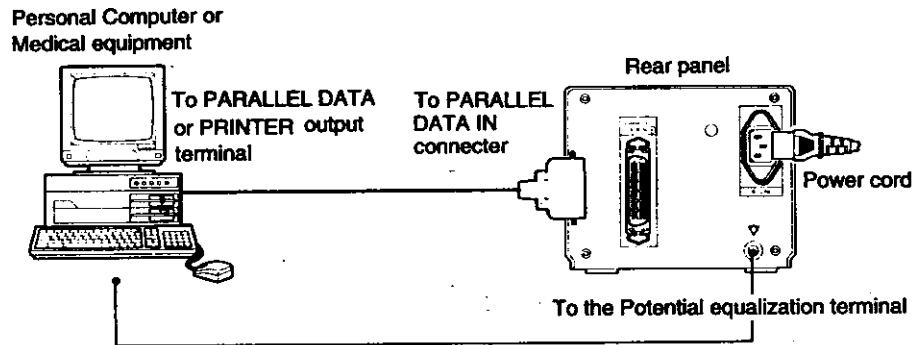
- Keep the high-density paper away from fingerprint, dust or moisture when storing it.
- Do not touch the rubber roller. Do not stain or damage the roller surface.
- Do not touch your hand to the thermal head (located behind the cutter).
- The thermal head is heated to high temperature.
- Do not touch the cutter blade.
- Do not switch the lever to the "PRINT" position without loading paper.

## 5 EXAMPLE OF CONNECTION

Connectable to various equipments with parallel data interface such as medical equipment and personal computer.

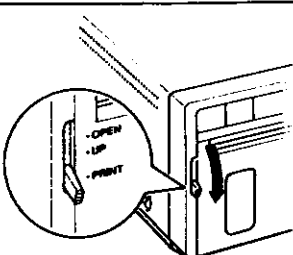
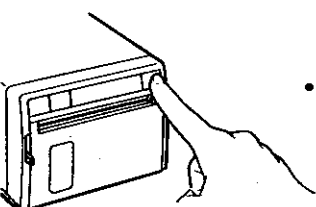
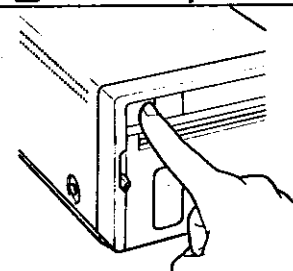
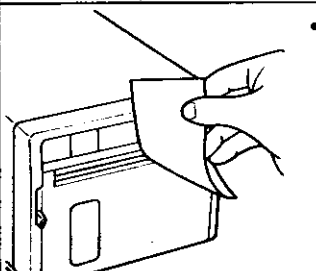
### Connection

- ① Turn off the power switches of the Video copy processor and the connected equipment.
- ② Connect the PARALLEL DATA IN terminal of the video copy processor with the PARALLEL DATA or PRINTER terminal of the connected equipment.



When connecting with a medical equipment, use the equipotential grounding cable for safety. (Refer to page 6.)

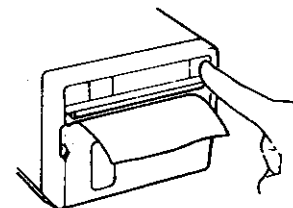
## 6 SELF TEST PRINTING

<p>1 Set the lever to the "PRINT" position.</p>  <ul style="list-style-type: none"> <li>The lever located on the left side to the "PRINT" position.</li> </ul>	<p>3 Push the PRINT button</p>  <ul style="list-style-type: none"> <li>By pushing the "PRINT" button, the self test pattern is printed out.</li> </ul>
<p>2 Turn on the power.</p>  <ul style="list-style-type: none"> <li>Push the "POWER" switch to turn on the power. Then the self test pattern is memorized automatically.</li> </ul>	<p>4 Cut the printed paper.</p>  <ul style="list-style-type: none"> <li>Cut the printed paper with the cutter by tearing off the paper in the upper right direction.</li> </ul>

- When printing ends, switch the lever to the "UP" position.

### Copy Printing

- By pressing the "PRINT" button you can copy the same picture as many times you desire until the new image data can be memorized by parallel data interface ESC S(2).





### Precautions on Printing


- If printing is continued with a very black picture, the printer may become over heated, causing failure of normal printing. ("EH" is indicated, and the print density becomes thin.)
- In this case, wait for a while until the unit is cooled down. Avoid pulling out or holding the recording paper during printing or copying. It can cause paper jam. Do not touch the paper until printing of copying ends.


# 7 ERROR DISPLAY


When an error in operation occurs it is warned by an audible alarm and a visible error display in the indicator.


Cause/Error display	Symptom/ Remedy
① Dew  	[Symptom] <ul style="list-style-type: none"> <li>• When dew is condensed in the set, it is warned by a alarm tone.</li> <li>• When dew is condensed in the set with the lever at the "PRINT" position, it is warned by a continuous alarm tone.</li> <li>• Printing is impossible.</li> </ul>
	[Remedy] Take out the recording paper contaminated with dew and ventilate the set. When the set is restored and ready for printing, "GG" is displayed in the indicator. Use of dew contaminated paper cause a defect. Replace the paper with a brand-new roll.

Cause/Error display	Symptom/ Remedy
② No paper  	[Symptom] <ul style="list-style-type: none"> <li>• When the paper runs out or the door opens during printing, printing becomes impossible and alarm tone is given.</li> <li>• When the lever is at the "PRINT" position at this time, an alarm tone is repeated.</li> </ul>
	[Remedy] Install a brand-new paper according to "4.INSTALLATION OF PAPER" on page 7.

Cause/Error display	Symptom/ Remedy
③ Overheat  	[Symptom] <ul style="list-style-type: none"> <li>• When the print button is pressed with the head over-heated, an alarm tone is given and "EH" is displayed for 2 seconds in the indicator and then, printing occurs. In this case, the print density is thin.</li> </ul>
	[Remedy] Wait until the head is cooled down.

Cause/Error display	Symptom/ Remedy
④ Head left down  	[Symptom] <ul style="list-style-type: none"> <li>• When the print button is not pressed for over 30 minutes with the lever set to the "PRINT" position, an alarm tone is given once.</li> <li>• "EU" is displayed in the indicator, and the buttons, except for the print button become invalid.</li> <li>• If the set is left in this state, an alarm tone is given every 30 minutes and the paper is automatically fed about 0.5 mm, to prevent roller damage.</li> </ul>
	[Remedy] When the unit is not used, set the lever located on the left side to the UP position. If it is left at the "PRINT" position, the head is left contact with the rubber roller damaging the roller or causing uneven printing.

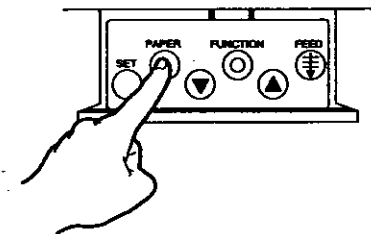
Cause/Error display	Symptom/ Remedy
⑤ Lever operation error  	[Symptom] <ul style="list-style-type: none"> <li>• Printing is impossible simply by pressing the "PRINT" button without setting the lever to the "PRINT" position.</li> <li>• When the lever is moved during printing, printing is interrupted.</li> <li>• "EL" is displayed for one second in the indicator, and the set goes into the stand by state.</li> </ul>
	[Remedy] Re-set the lever to the "PRINT" position, and repeat printing.

Cause/Error display	Symptom/ Remedy
⑥ Button input error  	<ul style="list-style-type: none"> <li>• An alarm tone is given once in the following cases. "Eb" is displayed for one second in the indicator, and this button operation is nullified.</li> </ul> <p>The function value change button "▲" or "▼" is pressed exceeding the value during adjustment of density or copy number.</p>

## 8 SETTING OF PAPER TYPE

Set the paper type as follows to suit the recording paper.

- 1 Select the paper type as by pressing the **PAPER** button .

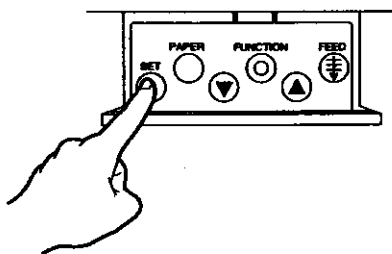


Each time the **PAPER** button is pressed, the appropriate paper type is switched as shown below.

HD(K65HM)type  
↓  
Super(K61S or K61B)type

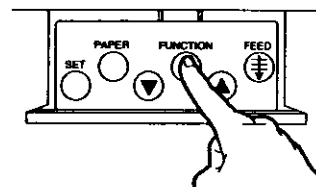
PH  
PS

- 2 When the paper type is selected, press the **SET** button.

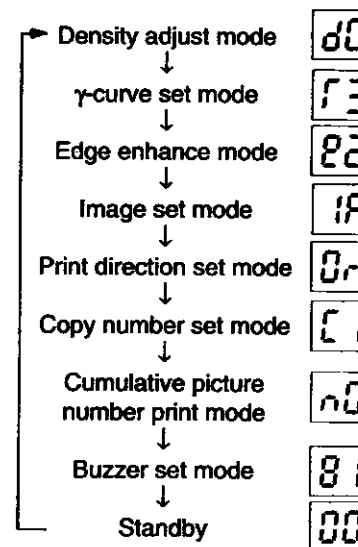


## 9 SETTING OF FUNCTION MODE

- 1 Select a function mode by pressing the **FUNCTION** button.

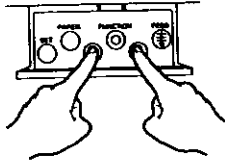


Each time the **FUNCTION** button is pressed, the mode is switched as shown below.



② Adjust a numeric value by pressing "▲" or "▼" of the function value change button.

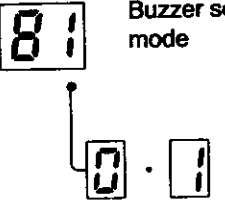
Adjustable items of each FUNCTION mode are as follows.



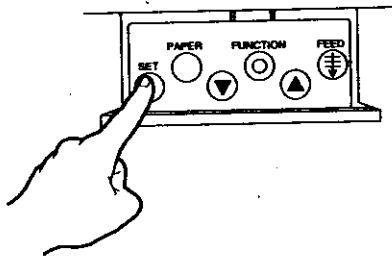
Indicator/Adjustable item	Adjustment contents
<p><b>00</b> Density adjust</p> <p>Adjust range</p> <p>* indicates "-" (minus).</p>	<p>■ Mode to adjust the printed picture density. Density is thin with a smaller set number, and thick with a larger number. Setting range is -9 to +9.</p>
<p><b>13</b> <math>\gamma</math>-curve set mode</p>	<p>■ Mode to select the <math>\gamma</math>-curve (density gradation characteristic) to provide an optimum print to meet the connected unit. Select from four types to meet a printing picture. Select <math>\gamma</math>-curve "4" for video equipment. Select <math>\gamma</math>-curve "1"- "3" for ultrasonic diagnosis equipment. Especially "3" is suggested.</p> <p>Density</p> <p>Gradation</p>
<p><b>22</b> Edge enhance mode</p>	<p>■ Mode to enhance the printed picture contour.</p> <p>Setting range is 0-4. As the set value is larger, the enhancement effect is greater.</p>

Indicator/Adjustable item	Adjustment contents						
<p><b>1P</b> Image set mode</p>	<p>■ Mode to print in negative .</p> <p>P : A picture is printed in positive.</p> <p>n : A picture is printed in negative.</p>						
<p><b>0r</b> Print direction set mode</p>	<p>■ Mode to select the printing direction.</p> <p>n : A picture is printed in the normal direction.</p> <p>r : A picture is printed in the reverse direction.</p> <p>S : A picture is printed in the side direction.</p>						
<p><b>01</b> Copy number set mode</p>	<p>■ Mode to set the number of copies. Setting range is 1-9.</p> <p>■ When the "PRINT" button is pressed, a picture is printed by the number set by this function.</p>						
<p><b>n0</b> Cumulative picture number print mode</p>	<p>■ By this setting, a cumulative picture number can be printed on the print. The specified number is printed at "ON" and not printed at "OFF".</p> <table border="1"> <thead> <tr> <th>Selection</th> <th>Indicator on right side</th> </tr> </thead> <tbody> <tr> <td>ON</td> <td>1</td> </tr> <tr> <td>OFF</td> <td>0</td> </tr> </tbody> </table> <p>ON: 123 (Example of printing number) OFF: Not printed</p> <p>Printing area</p>	Selection	Indicator on right side	ON	1	OFF	0
Selection	Indicator on right side						
ON	1						
OFF	0						



Indicator/Adjustable item	Adjustment contents
 <p>Buzzer set mode</p>	<p>■ Mode to select whether or not to sound the buzzer at depression of buttons or at the end of printing.</p> <p>0 : Buzzer sounds.</p> <p>1 : Buzzer does not sound.(Sounds at occurrence of error.)</p>

Ⓢ When adjustment of function mode is accomplished press the "SET" button.

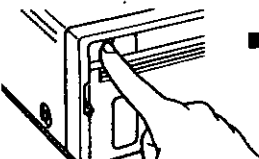
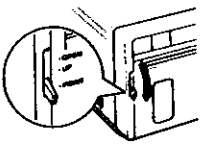
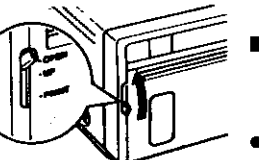
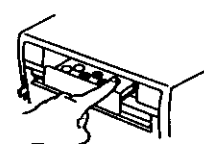
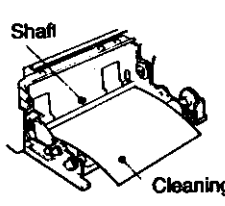
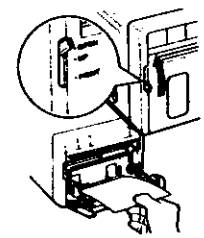
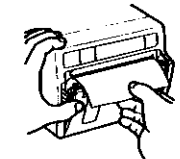
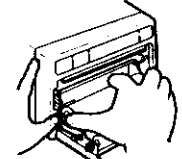


## 10 STATUS AND MODES

Set state/Mode	LED display		Contents of right side LED display
	Left	Point and right	
Power off			Power off
Standby	0	0	
Parallel Data receiving	o	o	
Print state	-	-	Print state
Density set mode (Density)	d	9-9	Print density index
Image set mode	i	P,n	Positive / Negative
Print direction set mode	0	r,n,S	Reverse / Normal / Side
Paper Select mode (Paper)	P	X,S	HD paper / Super paper
$\gamma$ -curve set mode ( $\gamma$ -curve)	r	1-4	$\gamma$ -curve No.
Edge enhance mode (Edge)	e	0-4	Edge enhance index
Buzzer set mode (Buzzer)	8	0,1	Out / In (OFF / ON)
Copy number set mode ( Copy )	C	1-9	Copy number
Cumulative picture number print mode	n	0,1	Out / In (OFF / ON)
Error detect state	E	X, d P, U b, L	Overheat / Dew No paper / Head down Button input error / Lever operation error

# 11 USE OF CLEANING PAPER

When the thermal head is dirty with dust and perspiration, etc., white spots or stripes may appear on the print. In this case, clean the thermal head in the following procedure by using the supplied cleaning paper.

<p><b>1 Turn on the power.</b></p>  <p>■ Push the "POWER" switch to turn on the power.</p>	<p><b>2 Set the lever to the "PRINT" position.</b></p>  <p>■ The lever located on the left side to "PRINT" position.</p>
<p><b>2 Open the door.</b></p>  <p>■ Switch the left side lever to the "OPEN" position.</p> <ul style="list-style-type: none"> <li>• The door opens.</li> </ul>	<p><b>3 Press the "FEED" button.</b></p>  <p>■ Press the button while the cleaning paper come out about 2 inch.</p>
<p><b>3 Insert the cleaning paper.</b></p>  <p>■ Insert the cleaning paper end under the shaft in the set.</p> <p>Shaft Cleaning paper</p>	<p><b>4 Take out the cleaning paper.</b></p>  <p>■ Open the door.</p> <p>■ Take out the cleaning paper.</p> <p>■ Do not pull out the cleaning paper while the door is closed.</p>
<p><b>4 Close the door.</b></p>  <p>■ Close the door without taking out the cleaning paper.</p>	<p><b>5 Repeat the steps 3 - 4 by 1 or 2 times, and print 2-3 sheets to verify the cleaning effect.</b></p>
	<p><b>6 Install the paper roll.</b></p>  <p>■ Install the paper. See "4 installation of paper".</p>

### CAUTION

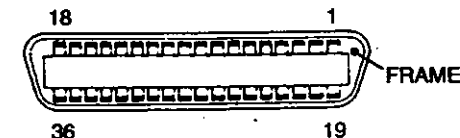
- Using the cleaning paper too many times may affect the thermal head. Once after printing 10 roles of paper is a standard period of using the cleaning paper.
- If the symptom of the dirty head is not corrected even after cleaning, your set needs repairing. Contact your dealer.
- Do not pull out the sheet and the cleaning paper while the door is closed.
- Never use other cleaning papers. It may cause damage to the thermal head.

# 12 SPECIFICATIONS FOR PARALLEL DATA INTERFACE

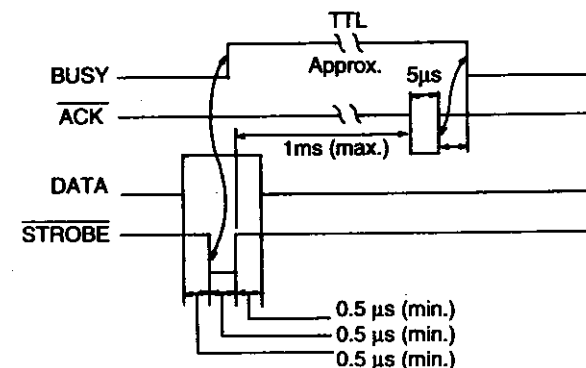
## 1 PARALLEL DATA SIGNAL

(According to CENTRONICS® Interface)

- Input Level: TTL
- Connector: JD-36SL or equivalent



## 2 PARALLEL INTERFACE



### STANDARD PARALLEL INTERFACE

- Input Connector  
Plug 57-30360(AMPHENOL Equivalent)

b) Input Connector Signal Assignment

Pin No.	Pin No. Return Side	Signal	Signal Source	Function
①	19	<u>STROBE</u>	Computer	Strobe pulse for the data reading. Pulse width : over 0.5μs Normal : "High" Data Reading : "Low"
②	20	DATA 1	Computer	Each signal indicates the information of the parallel data from 1 bit till 8 bit High- Data : 1 Low- Data : 0
③	21	DATA 2	Computer	
④	22	DATA 3	Computer	
⑤	23	DATA 4	Computer	
⑥	24	DATA 5	Computer	
⑦	25	DATA 6	Computer	
⑧	26	DATA 7	Computer	
⑨	27	DATA 8	Computer	
⑩	28	<u>ACK</u>	Video Copy Processor	Low indicates that the printer received the data and is ready to receive the next data.
⑪	29	BUSY	Video Copy Processor	High signifies that the Video Copy Processor can not accept the data. Low indicates that the Video Copy Processor can accept the data. In the next case, this signal will be changed to High. 1 While the data is entered. 2 While printing is on. 3 While paper is being fed. 4 PE is "HIGH" condition. 5 While ERROR is "LOW" condition.
⑫		P-E	Video Copy Processor	Paper supply LOW: available HIGH: Not available
⑬		SELECT	Video Copy Processor	While the Video Copy Processor is power on, this signal is "High"
⑭ ~ ⑮		NC		Unused
⑯ ~ ⑰		GND		GND
⑱		NC		Unused
⑲ ~ ⑳		GND		GND level signal for Twist Pair Return.
㉑		NC		Unused
㉒		<u>ERROR</u>	Video Copy Processor	"LOW": when the Video Copy Processor is at "ERROR" due to the following: <1> No-paper conditions <2> Off-line conditions <3> Over-heat or humidity accumulation on the Thermal-Head
㉓		GND		GND level signal for Twist Pair Return
㉔ ~ ㉕		NC		Unused

# 13 MULTI-USE CONTROL CODES

Control Code

	Code Name	Code	Function
①	BEL	<07>H	Buzzer for 1 second
②	ESC Y	<1B>H<59>H	Copy
③	ESC E	<1B>H<45>H	Feed
④	ESC N	<1B>H<4E>H	Comment printing on/off
⑤	ESC B	<1B>H<42>H	Buzzer on/off
⑥	ESC C(m)	<1B>H<43>H <m>H	Print set
⑦	ESC S (2)	<1B>H<53>H <02>H <L1>H<L2>H <SIZE> H <DATA1>H<DATA2> H .....	64-gradation parallel data fixed mode
⑧	ESC F	<1B>H<46>H<03>H <00>H<N>H<DATA1>H <DATA2> .....	Comment letters set

## DESCRIPTION OF MULTI-USE CONTROL CODES

### ① BEL

1. Name: Bell
2. Code: <07> H
3. Function: With the BEL code entered, the buzzer sounds for 1 second.

### ② ESC Y

1. Name: Copy
2. Code: <1B>H<59>H
3. Function: A printed screen is copied.

### ③ ESC E

1. Name: Feed
2. Code: <1B>H<45>H
3. Function: With the ESC E code entered, the paper is fed about 25mm.

### ④ ESC N

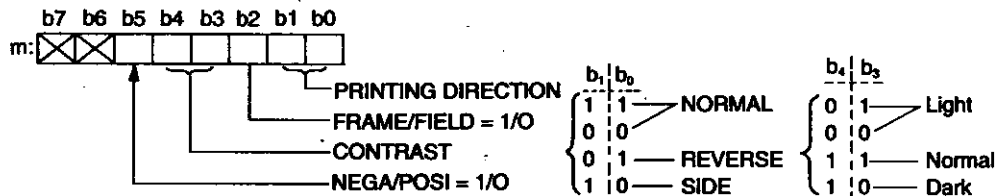
1. Name: Comment
2. Code: <1B>H<4E>H
3. Function: With the ESC N code entered, ON/OFF of comment is switched.

### ⑤ ESC B

1. Name: Buzzer
2. Code: <1B>H<42>H
3. Function: With the ESC B code entered, ON/OFF of buzzer sound before and after PRINT is switched.

### ⑥ ESC C(m)

1. Name: Print set
2. Code: <1B>H<43>H <m>H
3. Function:



### ⑦ ESC S (2)

1. Name: 64-gradation parallel data fixed mode.
2. Code: <1B> H<53>H<02> H<L1>H<L2> H<SIZE>H  
<DATA1> H<DATA2> .....<DATAn>H
3. Function: With the ESC S (2) code entered, the 64-gradation parallel data fixed mode is executed.  
The number of picture elements per horizontal line is fixed at 640 dots.  
The number of transferred lines can be specified with <L1>, <L2>, and the vertical print size can be specified with <SIZE>. With the subsequent <DATA>, the picture element data are sent.

Note 1)

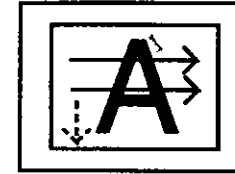
Max. 640 lines.

Note 2)

When the specified range is filled with line, the data is printed out.

Note3)

The order in transferring is



Note 4)

Draw one line by one line from upper left to lower right.

L1 : The high order byte expressing the number of lines in hexadecimal.

L2 : The low order byte expressing the number of lines in hexadecimal.

SIZE : Set the vertical length (print-size) with one byte in hexadecimal by mm.

The length range is minimum 0.08mm/line x the number of lines,  
maximum 0.2mm/line x the number of lines.

Note 5)

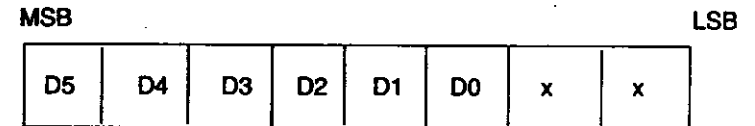
The color turns gradually from black to white as <00>H advances to <3F>H.

Note 6)

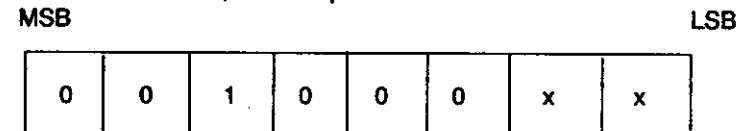
One dot is expressed by 6 bits.

#### • Composing the data

The high order 6 bits of data are valid and the low order 2 bits are invalid as shown below.



#### • When the data is 8, for example:



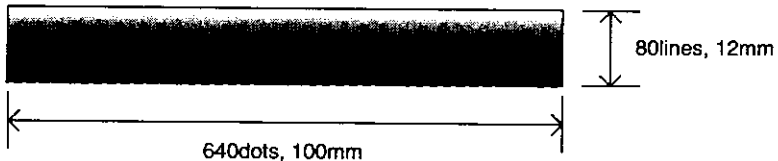
The set data is <20>H.

**Sample program of parallel data fixed writing mode**

```

10 '*****ESC S(2) PROGRAM*****
20 PO=&H3BC          :DATA OUT PORT ADDRESS
30 '*Note;PO=&H278 or & H378 or & H3BC
40 P1=PO+1          :BUSY IN PORT ADDRESS
50 P2=PO+2          :STROBE OUT PORT ADDRESS
60 GOSUB *CODEOUT   :ESC F 2 0 CONTROL CODE OUT
70 WORK=0
80 FOR L=1 TO 16     :BLOCK COUNT
90 GOSUB *BLOCK     :1 BLOCK DATA SEND
100 WORK =WORK+ 8   :GRAY LEVEL CODE INCREASE
110 NEXT L
120 END
130 *BLOCK
140 FOR X=1 TO 5     :1 BLOCK = 5 LINES
150 FOR Y=1 TO 640   :1 LINES = 640 DOTS
160 GOSUB *CENTRO   :1 DOT DATA SEND
170 NEXT Y
180 NEXT X
190 RETURN
200 *CODEOUT
210 FOR COD= 1 TO 6
220 READ COD$:WORK = VAL("&H"+COD$)
230 GOSUB *CENTRO
240 NEXT COD
250 RETURN
260 *CENTRO
270 IF (INP(P1)AND &H80) = &H0 THEN 270:'BUSY WAIT
280 OUT P0, WORK     :DATA OUT
290 OUT P2, &HF      :STROBE LOW OUT
300 OUT P2, &HE      :STROBE HIGH OUT
310 RETURN
320 '***** Control Code Data Table *****
330 DATA "1B", "53", "02" :ESC S 2
340 DATA "00", "50"      :80 LINES
350 DATA "0C"           :12 mm SIZE
    
```

Printing result is 16 gray levels image as below.



**ESC F**

1. Name: Comment letters set
2. Code: <1B>H<46>H<03>H<00>H<N>H<DATA1>H<DATA2>H.....<DATAn>H
3. Function: Set the number of letters and the character codes of letters.  
 N: the number of letters expressed in hexadecimal  
 DATA 1: The character code of 1st letter  
 DATA 2: The character code of 2nd letter  
 DATA n: The character code of n-th letter  
 (n: the number of letters expressed in decimal, 62 maximum)

**CHARACTER CODES**

LOWER 4 BIT	UPPER 4 BIT															
	FUNCTION		CHARACTERS													
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			0	@	P	'	p									
1			!	1	A	O	a	q								
2			"	2	B	R	b	r								
3			#	3	C	S	c	s								
4			\$	4	D	T	d	t								
5			%	5	E	U	e	u								
6			&	6	F	V	f	v								
7	BEL		.	7	G	W	g	w								
8			(	8	H	X	h	x								
9			)	9	I	Y	i	y								
A			*	:	J	Z	j	z								
B		ESC	+	;	K	[	k	{								
C			.	<	L	\	l	:								
D			-	=	M	]	m	}								
E			,	>	N	^	n	~								
F			/	?	O	_	o									

A blank or function code is regarded as a space for data of letters.

# 14 MAINTENANCE

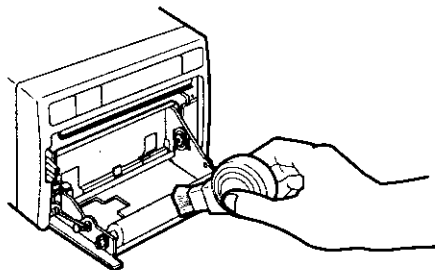
**Turn off the power for maintenance.**

## Maintenance of Main Unit

Wipe off stains of the front panel with a soft cloth.  
When the panel is heavily stained, wipe off with the cloth moistened with neutral cleanser diluted by water and finish with a dry cloth.

## Maintenance of Rubber Roller

When the rubber roller is dirty with dust, etc. a blank spot may appear on the print.  
In this case, eliminate the dust on to the rubber roller with a blower or a brush.



## Cleaning of Thermal Head

When the thermal head is dirty with dust, etc., white spots of stripes may appear on the print.  
In this case, clean the thermal head according to "11. USE OF CLEANING PAPER".

# 15 SPECIFICATIONS

<b>Type:</b>	Video Copy Processor
<b>Model:</b>	P66DE
<b>Power supply:</b>	220-240V AC 50Hz
<b>Power consumption:</b>	1.0A
<b>Connection terminals:</b>	Parallel data interface (36 PIN connector)
<b>Resolution:</b>	Horizontal 640 dots x Vertical 640 lines (max.)
<b>Gradation:</b>	64 gradations
<b>Printing speed:</b>	10m sec/line
<b>Print size:</b>	Horizontal 100mm x Vertical 40~110mm (at 512 lines)
<b>Operating conditions:</b>	Temperature 5-40°C Humidity 20-80% RH (No dewing)
<b>Outside dimensions:</b>	154(W) x 125 (H) x 314 (D) mm
<b>Weight:</b>	3.9 kg
<b>Standard accessories:</b>	AC power cord ..... 1 piece Thermal paper K65HM ..... 1 roll Cleaning paper ..... 1 sheet
<b>Optional accessory:</b>	Thermal paper K65HM(High Density) K61S(Standard) K61B(Standard, Blue)

### CALLING FOR SERVICE

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.