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

POWER REQUIREMENT
This Video Copy Processor is designed for operation on 220-240V, 50Hz AC. Never connect to any outlet or power supply having a different voltage or frequency.

WARNING: THIS APPARATUS MUST BE EARTHED.

PROTECTIVE MEASURES

IF ABNORMALITIES ARISE, ... Use of the unit during emission of smoke or abnormal sounds (without adopting countermeasures) is a safety hazard and can cause extensive damage.
   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 the unit

DO NOT PLACE ANYTHING ON THE UNIT
Heavy objects placed on the unit can cause 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 carefully.
   Never put a heavy thing on the power cord. The power cord may be damaged causing a fire or electric shock.

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

INSTALLATION LOCATION

MAINTAIN GOOD VENTILATION
Ventilation slots and holes are provided on sides of the unit for cooling. Please ensure that at least 10cm from walls to ensure proper ventilation.

UNsuitable locations
Avoid shady 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 sales dealer to carry out internal parts.

VIEW FORMATION
If the unit is moved quickly from a colder place to a warmer one, dew is likely to condense on the print, printing is not possible.

TEMPERATURE RANGE
Temperature range is 5°C - 40°C.

DO PRINT PAPER EXIT SLOT
or any material into the paper exit slot, set the lever located on the right. If it is left at the PRINT position, contact with the rubber roller causing uneven printing.

DO BE EXTREMELY HOT
Do not place the unit on a flat plane of the unit in the state inclined ±20° in vertical or horizontal direction, or in an unstable place. It will disturb paper feeding or ventilation, or affects the set.

SET THE UNIT ON A FLAT PLACE
Do not use the unit in the state inclined ±20° in vertical or horizontal direction, or in an unstable place. It will disturb paper feeding or ventilation, or affects the set.
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 booklet 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 K5SHM (High-density synthetic paper for high quality printing) is available.
- One roll of K5SHM permits printing about 250 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 Printer 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, ether, 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 hands dust or oil.
- Avoid direct sunlight or a plane near a heater, and store the paper in a place with 30°C or lower temperature and 20-40% RH.
- When the paper is rapidly transferred form 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.
### FEATURES AND FUNCTIONS

#### Front Panel

1. **POWER switch**: Turns on/off the power.
2. **Indicator**: Displays standby, functions and error messages.
3. **Control tray**: 
4. **Set button**: Sets each function value
5. **Paper button**: Select paper type
6. **Function value change button (▼)**: Changes each function value
7. **Function button**: Select functions
8. **Function value change button (▲)**: Changes each function value
9. **FEED button**: Press this button to feed paper.
10. **PRINT button**: Press this button to print the picture memorized.
11. **Print exit/Cutter**: Printed paper will come out through this slot.
12. **Lever**: Front panel open-close/Thermal head up-down.

#### Rear Panel

- **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.

<table>
<thead>
<tr>
<th>Name</th>
<th>Function</th>
<th>Reference Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>① POWER switch</td>
<td>Turns on/off the power.</td>
<td>10</td>
</tr>
<tr>
<td>② Indicator</td>
<td>Displays standby, functions and error messages.</td>
<td>11-18</td>
</tr>
<tr>
<td>③ Control tray</td>
<td>[Diagram]</td>
<td></td>
</tr>
<tr>
<td>④ Set button</td>
<td>Sets each function value</td>
<td>13-17</td>
</tr>
<tr>
<td>⑤ Paper button</td>
<td>Select paper type</td>
<td>13</td>
</tr>
<tr>
<td>⑥ Function value change button (▼)</td>
<td>Changes each function value</td>
<td>14-17</td>
</tr>
<tr>
<td>⑦ Function button</td>
<td>Select functions</td>
<td>14-17</td>
</tr>
<tr>
<td>⑧ Function value change button (▲)</td>
<td>Changes each function value</td>
<td>14-17</td>
</tr>
<tr>
<td>⑨ FEED button</td>
<td>Press this button to feed paper.</td>
<td>19</td>
</tr>
<tr>
<td>⑩ PRINT button</td>
<td>Press this button to print the picture memorized.</td>
<td>10</td>
</tr>
<tr>
<td>⑪ Print exit/Cutter</td>
<td>Printed paper will come out through this slot.</td>
<td>10</td>
</tr>
<tr>
<td>⑫ Lever</td>
<td>Front panel open-close/Thermal head up-down.</td>
<td>7 • 10 • 19</td>
</tr>
<tr>
<td><strong>PARALLEL DATA IN connector</strong> (36 Pin connector) (CENTRONICS® STANDARD)</td>
<td>Parallel data interface</td>
<td>20-21</td>
</tr>
<tr>
<td>⑬ Potential equalization terminal</td>
<td>Makes the connected equipment potential equal.</td>
<td>9</td>
</tr>
<tr>
<td>⑭ Power terminal</td>
<td>Connect the power cord to this terminal.</td>
<td>9</td>
</tr>
</tbody>
</table>
4 INSTALLATION OF PAPER

Paper (High-density paper KG5HM)

- 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 fingerprint or dust on the paper surface.

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

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

3. Load the paper roll.
   - Enlarge the paper holder located on the left side leftward.

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

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

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.

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

<table>
<thead>
<tr>
<th>Do not use defective paper.</th>
<th>Do not use the bent or wrinkled paper.</th>
</tr>
</thead>
</table>

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.
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.

Personal Computer or Medical equipment

To PARALLEL DATA or PRINTER output terminal

To PARALLEL DATA IN connector

Rear panel

Power cord

To the Potential equalization terminal

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

6 SELF TEST PRINTING

1. Set the lever to the "PRINT" position.
   - The lever located on the left side to the "PRINT" position.

2. Push the PRINT button
   - By pushing the "PRINT" button, the self test pattern is printed out.

3. Turn on the power.
   - Push the "POWER" switch to turn on the power. Then the self test pattern is memorized automatically.

4. Cut the printed paper.
   - Cut the printed paper with the cutter by tearing off the paper in the upper right direction.

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

<table>
<thead>
<tr>
<th>Cause/Error display</th>
<th>Symptom/ Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> Dew</td>
<td>[Symptom]</td>
</tr>
<tr>
<td></td>
<td>- When dew is condensed in the set, it is warned by a alarm tone.</td>
</tr>
<tr>
<td></td>
<td>- When dew is condensed in the set with the lever at the “PRINT” position, it is warned by a continuous alarm tone.</td>
</tr>
<tr>
<td></td>
<td>- Printing is impossible.</td>
</tr>
<tr>
<td></td>
<td>[Remedy]</td>
</tr>
<tr>
<td></td>
<td>Take out the recording paper contaminated with dew and ventilate the set. When the set is restored and ready for printing, &quot;DD&quot; is displayed in the indicator. Use of dew contaminated paper cause a defect. Replace the paper with a brand-new roll.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cause/Error display</th>
<th>Symptom/ Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2</strong> No paper</td>
<td>[Symptom]</td>
</tr>
<tr>
<td></td>
<td>- When the paper runs out or the door opens during printing, printing becomes impossible and alarm tone is given.</td>
</tr>
<tr>
<td></td>
<td>- When the lever is at the “PRINT” position at this time, an alarm tone is repeated.</td>
</tr>
<tr>
<td></td>
<td>[Remedy]</td>
</tr>
<tr>
<td></td>
<td>Install a brand-new paper according to “4.INSTALLATION OF PAPER” on page 7.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cause/Error display</th>
<th>Symptom/ Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong> Overheat</td>
<td>[Symptom]</td>
</tr>
<tr>
<td></td>
<td>- When the print button is pressed with the head over-heated, an alarm tone is given and &quot;EX&quot; is displayed for 2 seconds in the indicator and then, printing occurs.</td>
</tr>
<tr>
<td></td>
<td>In this case, the print density is thin.</td>
</tr>
<tr>
<td></td>
<td>[Remedy]</td>
</tr>
<tr>
<td></td>
<td>Wait until the head is cooled down.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cause/Error display</th>
<th>Symptom/ Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>4</strong> Head left down</td>
<td>[Symptom]</td>
</tr>
<tr>
<td></td>
<td>- 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.</td>
</tr>
<tr>
<td></td>
<td>- &quot;EU&quot; is displayed in the indicator, and the buttons, except for the print button become invalid.</td>
</tr>
<tr>
<td></td>
<td>- 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.</td>
</tr>
<tr>
<td></td>
<td>[Remedy]</td>
</tr>
<tr>
<td></td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cause/Error display</th>
<th>Symptom/ Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5</strong> Lever operation error</td>
<td>[Symptom]</td>
</tr>
<tr>
<td></td>
<td>- Printing is impossible simply by pressing the “PRINT” button without setting the lever to the “PRINT” position.</td>
</tr>
<tr>
<td></td>
<td>- When the lever is moved during printing, printing is interrupted.</td>
</tr>
<tr>
<td></td>
<td>- &quot;EL&quot; is displayed for one second in the indicator, and the set goes into the stand by state.</td>
</tr>
<tr>
<td></td>
<td>[Remedy]</td>
</tr>
<tr>
<td></td>
<td>Re-set the lever to the “PRINT” position, and repeat printing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cause/Error display</th>
<th>Symptom/ Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>6</strong> Button input error</td>
<td>[Symptom]</td>
</tr>
<tr>
<td></td>
<td>- An alarm tone is given once in the following cases.</td>
</tr>
<tr>
<td></td>
<td>- &quot;EB&quot; is displayed for one second in the indicator, and this button operation is nullified.</td>
</tr>
<tr>
<td></td>
<td>The function value change button &quot;A&quot; or &quot;C&quot; is pressed exceeding the value during adjustment of density or copy number.</td>
</tr>
</tbody>
</table>
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 (K85HM) type

Super (K61S or K61B) type

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.

- Density adjust mode
- γ-curve set mode
- Edge enhance mode
- Image set mode
- Print direction set mode
- Copy number set mode
- Cumulative picture number print mode
- Buzzer set mode
- Standby
Adjust a numeric value by pressing "▲" or "▼" of the function value change button.

Adjustable items of each FUNCTION mode are as follows.

<table>
<thead>
<tr>
<th>Indicator/Adjustable item</th>
<th>Adjustment contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>□□ Density adjust</td>
<td>■ 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.</td>
</tr>
<tr>
<td></td>
<td>【-】 indicates &quot;-&quot; (minus).</td>
</tr>
<tr>
<td>53 γ-curve set mode</td>
<td>■ Mode to select the γ-curve (density gradation characteristic) to provide an optimum print to meet the connected unit. Select from four types to meet a printing picture. Select γ-curve &quot;4&quot; for video equipment. Select γ-curve &quot;1&quot;-&quot;3&quot; for ultrasonic diagnosis equipment. Especially &quot;3&quot; is suggested.</td>
</tr>
<tr>
<td></td>
<td>[Image of γ-curve characteristic (reference)]</td>
</tr>
<tr>
<td>□□ Edge enhance mode</td>
<td>■ Mode to enhance the printed picture contour. Setting range is 0-4. As the set value is larger, the enhancement effect is greater.</td>
</tr>
<tr>
<td>□□ Image set mode</td>
<td>■ Mode to print in negative.</td>
</tr>
<tr>
<td>P : A picture is printed in positive.</td>
<td></td>
</tr>
<tr>
<td>N : A picture is printed in negative.</td>
<td></td>
</tr>
<tr>
<td>□□ Print direction set mode</td>
<td>■ Mode to select the printing direction.</td>
</tr>
<tr>
<td>N : A picture is printed in the normal direction.</td>
<td></td>
</tr>
<tr>
<td>R : A picture is printed in the reverse direction.</td>
<td></td>
</tr>
<tr>
<td>S : A picture is printed in the side direction.</td>
<td></td>
</tr>
<tr>
<td>□□ Copy number set mode</td>
<td>■ Mode to set the number of copies. Setting range is 1-9.</td>
</tr>
<tr>
<td>When the &quot;PRINT&quot; button is pressed, a picture is printed by the number set by this function.</td>
<td></td>
</tr>
<tr>
<td>□□ Cumulative picture number print mode</td>
<td>■ By this setting, a cumulative picture number can be printed on the print. The specified number is printed at &quot;ON&quot; and not printed at &quot;OFF&quot;.</td>
</tr>
<tr>
<td>Selection</td>
<td>Indicator on right side</td>
</tr>
<tr>
<td>ON : 123 (Example of printing number)</td>
<td></td>
</tr>
<tr>
<td>OFF : Not printed</td>
<td></td>
</tr>
<tr>
<td>Printing area</td>
<td></td>
</tr>
</tbody>
</table>
10 STATUS AND MODES

<table>
<thead>
<tr>
<th>Indicator/Adjustable item</th>
<th>Adjustment contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buzzer set mode</td>
<td>● Mode to select whether or not to sound the buzzer at depression of buttons or at the end of printing.</td>
</tr>
<tr>
<td></td>
<td>○ : Buzzer sounds.</td>
</tr>
<tr>
<td></td>
<td>● : Buzzer does not sound. (Sounds at occurrence of error.)</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Set state/Mode</th>
<th>LED display</th>
<th>Contents of right side LED display</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power off</td>
<td></td>
<td>Power off</td>
</tr>
<tr>
<td>Standby</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Parallel Data receiving</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Print state</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Density set mode (Density)</td>
<td>d .8-9</td>
<td>Print density index</td>
</tr>
<tr>
<td>Image set mode</td>
<td>i P,n</td>
<td>Positive / Negative</td>
</tr>
<tr>
<td>Print direction set mode</td>
<td>0 r,n,5</td>
<td>Reverse / Normal / Side</td>
</tr>
<tr>
<td>Paper Select mode (Paper)</td>
<td>P K,5</td>
<td>HD paper / Super paper</td>
</tr>
<tr>
<td>γ-curve set mode (γ-curve)</td>
<td>G 1-4</td>
<td>γ-curve No.</td>
</tr>
<tr>
<td>Edge enhance mode (Edge)</td>
<td>G 0-4</td>
<td>Edge enhance index</td>
</tr>
<tr>
<td>Buzzer set mode (Buzzer)</td>
<td>B 0,1</td>
<td>Out / In (OFF / ON)</td>
</tr>
<tr>
<td>Copy number set mode (Copy)</td>
<td>C 1-9</td>
<td>Copy number</td>
</tr>
<tr>
<td>Cumulative picture number print mode</td>
<td>n 0,1</td>
<td>Out / In (OFF / ON)</td>
</tr>
<tr>
<td>Error detect state</td>
<td>E K, d P, U b, L</td>
<td>Overheat / Dew No paper / Head down Button input error / Lever operation error</td>
</tr>
</tbody>
</table>
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.

- **Turn on the power.**
  - Push the “POWER” switch to turn on the power.
- **Set the lever to the “PRINT” position.**
  - The lever located on the left side to “PRINT” position.
- **Open the door.**
  - Switch the left side lever to the “OPEN” position.
  - The door opens.
- **Press the “FEED” button.**
  - Press button while the cleaning paper comes out about 2 inches.
- **Insert the cleaning paper.**
  - Insert the cleaning paper end under the shaft in the set.
- **Take out the cleaning paper.**
  - Open the door.
  - Take out the cleaning paper.
  - Do not pull out the cleaning paper while the door is closed.
- **Close the door.**
  - Close the door without taking out the cleaning paper.
- **Install the paper roll.**
  - Install the paper. See “4 Installation of paper”.

**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)

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

2 PARALLEL INTERFACE

STANDARD PARALLEL INTERFACE
a) Input Connector
   Plug 57-30360(AMPHENOL Equivalent)
### 13 MULTI-USE CONTROL CODES

**Control Code**

<table>
<thead>
<tr>
<th>Code Name</th>
<th>Code</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BEL</td>
<td>&lt;07&gt;H</td>
</tr>
<tr>
<td>2</td>
<td>ESC Y</td>
<td>&lt;1B&gt;H&lt;56&gt;H</td>
</tr>
<tr>
<td>3</td>
<td>ESC E</td>
<td>&lt;1B&gt;H&lt;45&gt;H</td>
</tr>
<tr>
<td>4</td>
<td>ESC N</td>
<td>&lt;1B&gt;H&lt;4E&gt;H</td>
</tr>
<tr>
<td>5</td>
<td>ESC B</td>
<td>&lt;1B&gt;H&lt;42&gt;H</td>
</tr>
<tr>
<td>6</td>
<td>ESC C(m)</td>
<td>&lt;1B&gt;H&lt;43&gt;H&lt;00&gt;H</td>
</tr>
<tr>
<td>7</td>
<td>ESC S (2)</td>
<td>&lt;1B&gt;H&lt;53&gt;H</td>
</tr>
<tr>
<td>8</td>
<td>ESC F</td>
<td>&lt;1B&gt;H&lt;46&gt;H&lt;03&gt;H</td>
</tr>
</tbody>
</table>

### Input Connector Signal Assignment

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Signal</th>
<th>Signal Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>STROBE</td>
<td>Computer</td>
</tr>
<tr>
<td>20</td>
<td>DATA 1</td>
<td>Computer</td>
</tr>
<tr>
<td>21</td>
<td>DATA 2</td>
<td>Computer</td>
</tr>
<tr>
<td>22</td>
<td>DATA 3</td>
<td>Computer</td>
</tr>
<tr>
<td>23</td>
<td>DATA 4</td>
<td>Computer</td>
</tr>
<tr>
<td>24</td>
<td>DATA 5</td>
<td>Computer</td>
</tr>
<tr>
<td>25</td>
<td>DATA 6</td>
<td>Computer</td>
</tr>
<tr>
<td>26</td>
<td>DATA 7</td>
<td>Computer</td>
</tr>
<tr>
<td>27</td>
<td>DATA 8</td>
<td>Computer</td>
</tr>
<tr>
<td>28</td>
<td>ACK</td>
<td>Video Copy Processor</td>
</tr>
<tr>
<td>29</td>
<td>BUSY</td>
<td>Video Copy Processor</td>
</tr>
<tr>
<td>30</td>
<td>P-E</td>
<td>Video Copy Processor</td>
</tr>
<tr>
<td>31</td>
<td>SELECT</td>
<td>Video Copy Processor</td>
</tr>
<tr>
<td>32 - 33</td>
<td>NC</td>
<td>Unused</td>
</tr>
<tr>
<td>34 - 35</td>
<td>GND</td>
<td>Unused</td>
</tr>
<tr>
<td>36 - 37</td>
<td>NC</td>
<td>Unused</td>
</tr>
<tr>
<td>38 - 39</td>
<td>GND</td>
<td>Unused</td>
</tr>
<tr>
<td>40</td>
<td>ERROR</td>
<td>Video Copy Processor</td>
</tr>
</tbody>
</table>

**Function**

- **STROBE**: Strobe pulse for the data reading. Pulse width: over 0.5μs. Normal: "High". Data Reading: "Low".
- **DATA**: Each signal indicates the information of the parallel data from 1 bit till 8 bit. High: Data = 1. Low: Data = 0.
- **ACK**: Low indicates that the printer received the data and is ready to receive the next data.
- **BUSY**: 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.
- **P-E**: Paper supply LOW: available. HIGH: Not available.
- **SELECT**: While the Video Copy Processor is power on, this signal is "High".
- **NC**: Unused.
- **GND**: GND level signal for Twist Pair Return.
- **ERROR**: "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.
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:

   b7 b6 b5 b4 b3 b2 b1 b0

   PRINTING DIRECTION b1 b2
   FRAME/FIELD = 1/O 1
   CONTRAST 0 0
   NEGA/POS1 = 1/O

7. ESC S (2)
   1. Name: 64-gradation parallel data fixed mode.
   2. Code: \'<1B>H<53>H<02>H<H:L1>H<H:L2>H<H:SIZE>H
   \'<DATA1>H<DATA2> \ldots \ldots \ldots <DATA>n>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.

The order in transferring is

Note 3)

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.

   MSB LSB
   D5 D4 D3 D2 D1 D0 x x

* When the data is 8, for example:

   MSB LSB
   0 0 1 0 0 0 x x

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=P0+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 IF (INP(P1) AND &H80) = &H0 THEN 270:BUSY WAIT
220 IF (INP(P1) AND &H80) = &H0 THEN 270:BUSY WAIT
230 READ CODES:WORK = VAL("&H"+COD$)
240 GOSUB +CENTRO
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 0B", "53", "92":ESC S 2
340 DATA 00", "50":80 LINES
350 DATA 0C":12 mm SIZE

Printing result is 16 gray levels image as below.

640dots, 100mm

--- 25 ---
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

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