

# Automatic media take-up unit

**TU-400 \* TU-500**  
**TU-60 \* TU-70**

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## USER'S MANUAL •••••

ENGLISH



Page 1—18

Thank you very much for purchasing the automatic media take-up unit.

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

**This user's manual is a bilingual document for English-speaking users and Japanese-speaking users of the TU-400, TU-500, TU-60, or TU-70.**



**ROLAND DG CORPORATION**

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

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

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

**EC LOW VOLTAGE DIRECTIVE (73/23/EEC)**

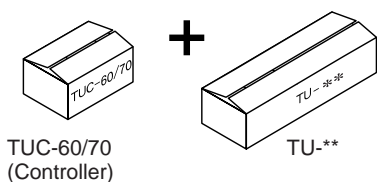
**EC ELECTROMAGNETIC COMPATIBILITY DIRECTIVE (89/336/EEC)**

# Table of Contents

|   |           |
|---|-----------|
| <b>To Ensure Safe Use</b> .....                   | <b>2</b>  |
| <b>About the Labels Affixed to the Unit</b> ..... | <b>4</b>  |
| <b>1. System Configuration</b> .....              | <b>5</b>  |
| <b>2. Confirmation of Included Items</b> .....    | <b>5</b>  |
| <b>3. Installation and Assembly</b> .....         | <b>6</b>  |
| <b>4. Operation Panel</b> .....                   | <b>9</b>  |
| <b>5. Adjusting the Sensor's Position</b> .....   | <b>9</b>  |
| <b>6. Operating Conditions for the TU</b> .....   | <b>10</b> |
| <b>7. Loading Material</b> .....                  | <b>11</b> |
| <b>8. Starting Operation</b> .....                | <b>14</b> |
| <b>9. Removing Material</b> .....                 | <b>15</b> |
| <b>10. Maintenance</b> .....                      | <b>15</b> |
| <b>11. What to Do If...</b> .....                 | <b>16</b> |
| <b>12. Specifications</b> .....                   | <b>17</b> |

**ENGLISH**

Automatic media take-up unit are packed separately in two boxes.



"TU-\*\*" includes four types: the TU-60, TU-70, TU-400, and TU-500. The combinations with the machine model you're using are as follows.

- Automatic media take-up unit for the FJ-50. .... The TU-70 and the TUC-60/70 make up a set. This manual refers to the TU-70 and the TUC-60/70 collectively as the "TU-70."
- Automatic media take-up unit for the FJ-40. .... The TU-60 and the TUC-60/70 make up a set. This manual refers to the TU-60 and the TUC-60/70 collectively as the "TU-60."
- Automatic media take-up unit for the CJ-500/FJ-50. .... The TU-500 and the TUC-60/70 make up a set. This manual refers to the TU-500 and the TUC-60/70 collectively as the "TU-500."
- Automatic media take-up unit for the CJ-400/FJ-40. .... The TU-400 and the TUC-60/70 make up a set. This manual refers to the TU-400 and the TUC-60/70 collectively as the "TU-400."

In this manual, the following conventions are used to refer to different models that have items in common.

|                  |                                     |             |                                 |
|------------------|-------------------------------------|-------------|---------------------------------|
| TU-60/70 .....   | TU-60 and TU-70                     | CJ .....    | CJ-500 and CJ-400               |
| TU-400/500 ..... | TU-400 and TU-500                   | FJ .....    | FJ-50 and FJ-40                 |
| TU .....         | TU-60, TU-70, TU-400 and TU-500     | CJ/FJ ..... | CJ-500, CJ-400, FJ-50 and FJ-40 |
| Stand .....      | PNS-50, PNS-40, PNS-501 and PNS-401 |             |                                 |



The figures in this manual depict mainly the CJ-500, PNS-501, and TU-500.

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# To Ensure Safe Use

## About ⚠️ WARNING and ⚠️ CAUTION Notices

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

## About the Symbols

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

## ⚠️ WARNING



**Do not disassemble, repair, or modify.**

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



**Do not use with any electrical power supply that does not meet the ratings displayed on the AC adapter.**

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



**Do not use with any power supply other than the dedicated AC adapter.**

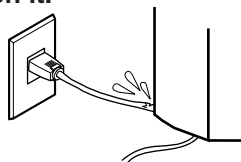
Use with any other power supply may lead to fire or electrocution.

## ⚠️ CAUTION



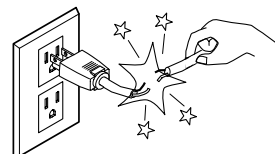
**Do not injure or modify the electrical power cord, nor subject it to excessive bends, twists, pulls, binding, or pinching, nor place any object of weight on it.**

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



**When unplugging the electrical AC adapter from a power outlet, grasp the plug, not the cord.**

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

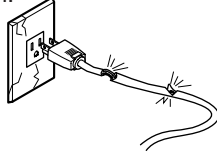


## CAUTION



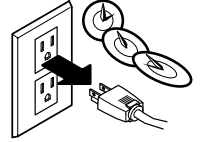
**Do not use with a damaged power cord or a power outlet that is loose when the AC adapter is plugged in.**

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



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

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



**Installation of the control box for the TU is a task which must be carried out by two or more persons.**

Injury may result if attempted by one person without assistance.



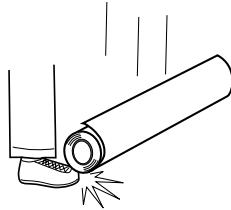
**To secure the part in place, use the bolt included with the unit.**

A loose bolt or use of other than the specified bolt may result in the falling of the part, leading to injury.



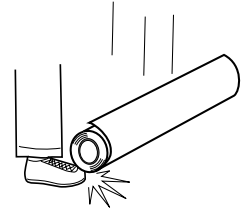
**Roll material must be placed at a predetermined shaft position.**

Failure to do so may allow the material to fall, leading to injury.



**Removal of taken-up roll material from the TU is a task which must be carried out by two or more persons.**

Injury may result if attempted by one person without assistance.



\* For detailed information on loading material, please refer to the CJ/FJ user's manual.



**Do not attempt to change a roll material while the power remains switched on.**

The take-up motor may be activated unexpectedly while changing the roll, leading to injury. The power must be switched off before attempting to change the material.



**Do not allow the hands or hair to touch the paper tube, flange, or sheet during take-up.**

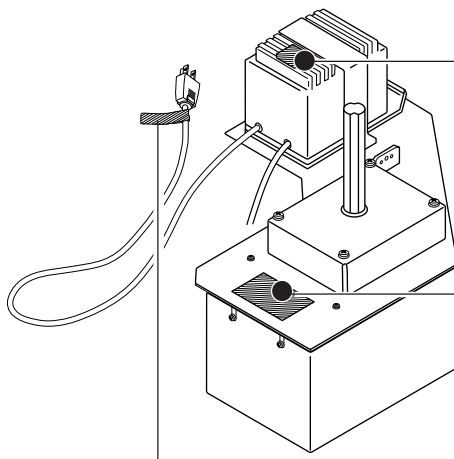
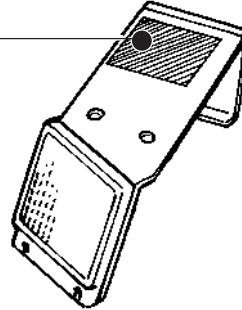
The hands or hair may become caught.

# About the Labels Affixed to the Unit

These labels are affixed to the parts shown below.  
The following figure describes the location.



Do not strike the mirror. Doing so may damage the mirror, resulting in incorrect operation.



**Rating label**

Use a rated power supply.

**Model name**

|   |   |
|---|---|
| <b>CAUTION</b> : The socket-outlet shall be installed near the AC-adaptor and shall be easily accessible.   |   |
| <b>ATTENTION</b> : Veillez à connecter l'adaptateur à une prise murale facilement accessible afin de pouvoir rapidement débrancher la prise de l'adaptateur en cas de besoin. | <b>ACHTUNG</b> : Schließen Sie das Netzteil an eine leicht erreichbare Steckdose an, damit Sie den Stecker im Notfall sofort ziehen können. |

Affixed to the 230 V/240 V adapter

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

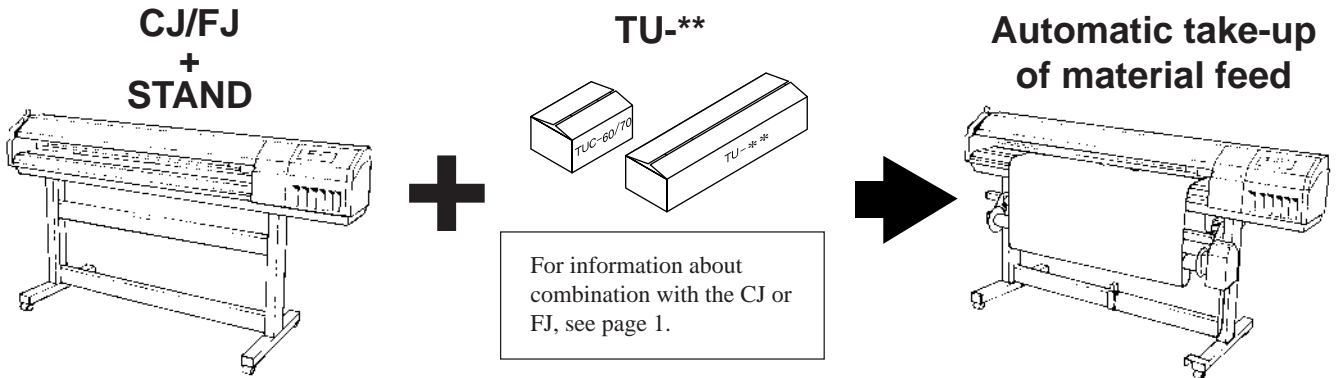
**NOTICE** : Indicates information to prevent machine breakdown or malfunction and ensure correct use.



: Indicates a handy tip or advice regarding use.

# 1. System Configuration

Use with the configuration shown below.



# 2. Confirmation of Included Items

The items are in the two packing cartons. Open both boxes and make sure all items are present.

| TU-60, TU-70       |                   | TU-400, TU-500     |                      |
|--------------------|-------------------|--------------------|----------------------|
| Rail slider: 1<br> | Paper tube: 1<br> | Rail slider: 1<br> | Paper tube: 1<br>    |
| Gauge: 1<br>       |                   | Gauge: 1<br>       | Dancer roller: 1<br> |

| TUC-60/70                                 |   |                           |  |
|---|---|---------------------------|--|
| Sensor: 1<br>                             | Control box (including the electrical adapter): 1<br> | Frame: 1<br>              | Arm: 1<br>   |
| Mirror:<br>                               | Mirror stopper: 1 set<br>                             | Flange: 2<br>             | Cable retainer (large): 1<br>Cable retainer (small): 5<br> |
| Hex wrench (large) / (small) : 1 each<br> | Cap screw (large): 8<br>                              | Cap screw (medium): 2<br> | Cap screw (small): 6<br>                                   |
| User's manual : 1<br>                     |   |                           |  |

# 3. Installation and Assembly

## ⚠ CAUTION



**Installation of the control box is a task which must be carried out by two or more persons.**

Injury may result if attempted by one person without assistance.



**To secure the part in place, use the bolt included with the unit.**

A loose bolt or use of other than the specified bolt may result in the falling of the part, leading to injury.

## NOTICE

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

- Do not install the unit on an unstable surface.
- Places with excessive electrical noise.
- Places with excessive humidity or dust.
- The unit and AC adapter become hot during use. Avoid installation in an area with poor heat-radiating characteristics (poor ventilation).
- Avoid subjecting the unit to severe vibration or shocks.
- Places exposed to strong illumination or direct sunlight.

Do not strike the mirror. Doing so may damage the mirror, resulting in incorrect operation.

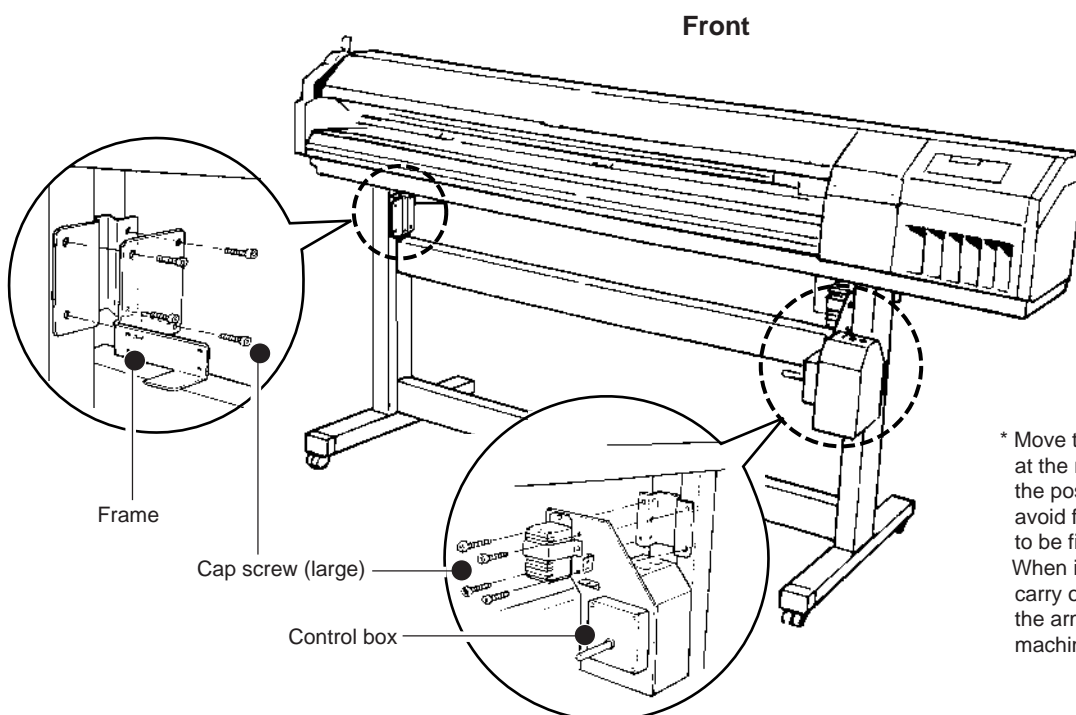
Be sure to connect the sensor cable securely so that it does not come loose or cause a poor connection during use. Failure to connect securely may cause faulty operation or breakdown.

Be sure to switch off the power to the TU before connecting the sensor cable.

Before affixing the cable retainer, make sure the surface where the retainer is to be attached is clean and free of dust or grime.

## ● Frame and Control Box Installation


| Required tool   |       |
|---|-------|
|  | Large |



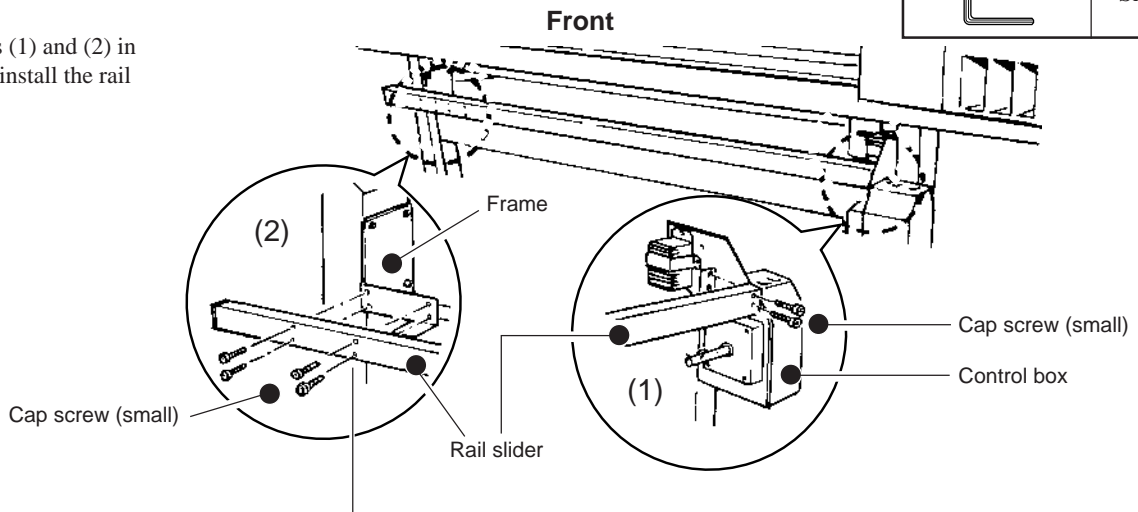
\* Move the media flange that is at the rear side of the FJ to the position where it doesn't avoid frame and controller box to be fixed. When installing on the CJ, carry out the installation with the arm on the back of the machine detached.



## ● Rail Slider Installation

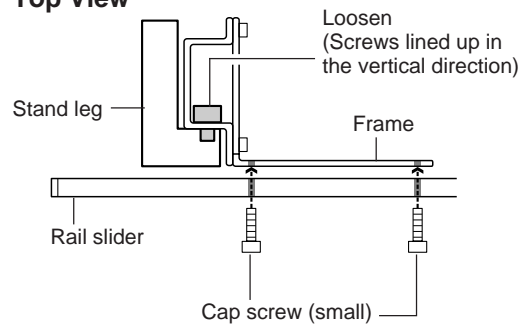
|   |       |
|---|-------|
| Required tool   | Small |
|  |       |

Follow steps (1) and (2) in sequence to install the rail slider.



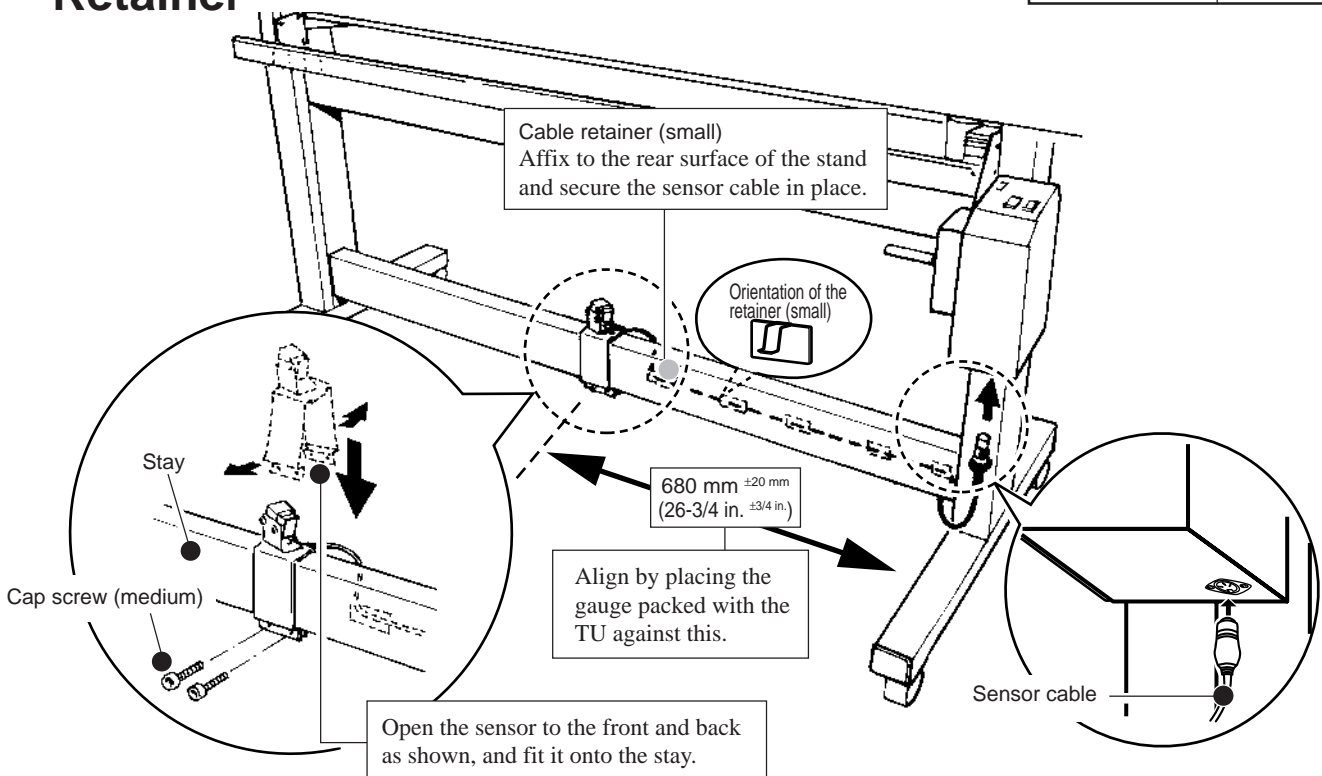
If the screw holes for the small cap screws do not line up, loosen all screws at the locations shown in the figure. While loosened, line up the screw holes and secure in place with the small cap screws, then tighten the loosened screws.

### Top View



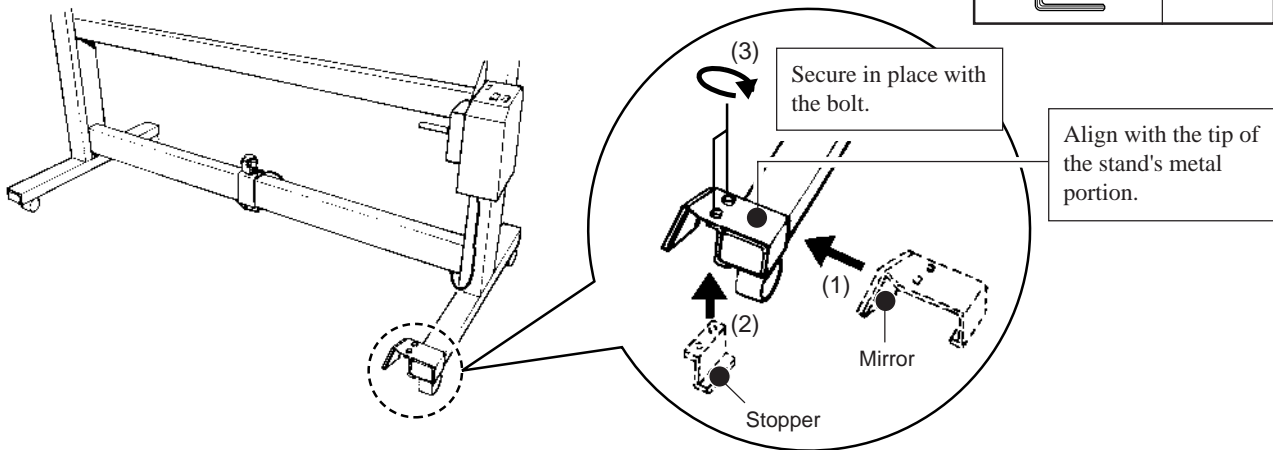
## ● Installing the Sensor and the Small Retainer

|   |       |
|---|-------|
| Required tool   | Small |
|  |       |



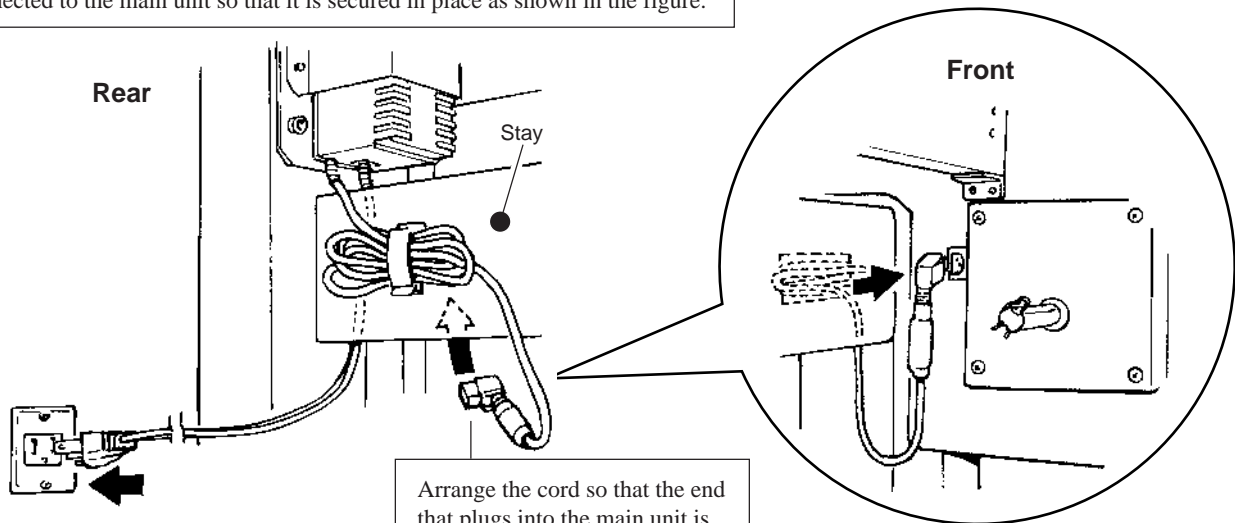
## ● Installing the Mirror

| Required tool   |       |
|---|-------|
|  | Small |



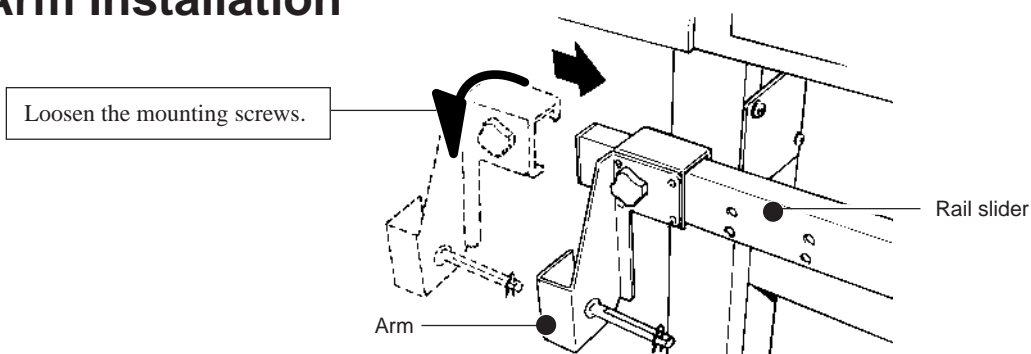
## ● Power Cord Connection and Large Retainer Installation

Attach the retainer (large) to the back of the stand, and arrange the cord connected to the main unit so that it is secured in place as shown in the figure.



The configuration of the AC adapter varies according to regional differences in voltage. Please note that the descriptions in this manual are for the 117 V adapter.

## ● Arm Installation



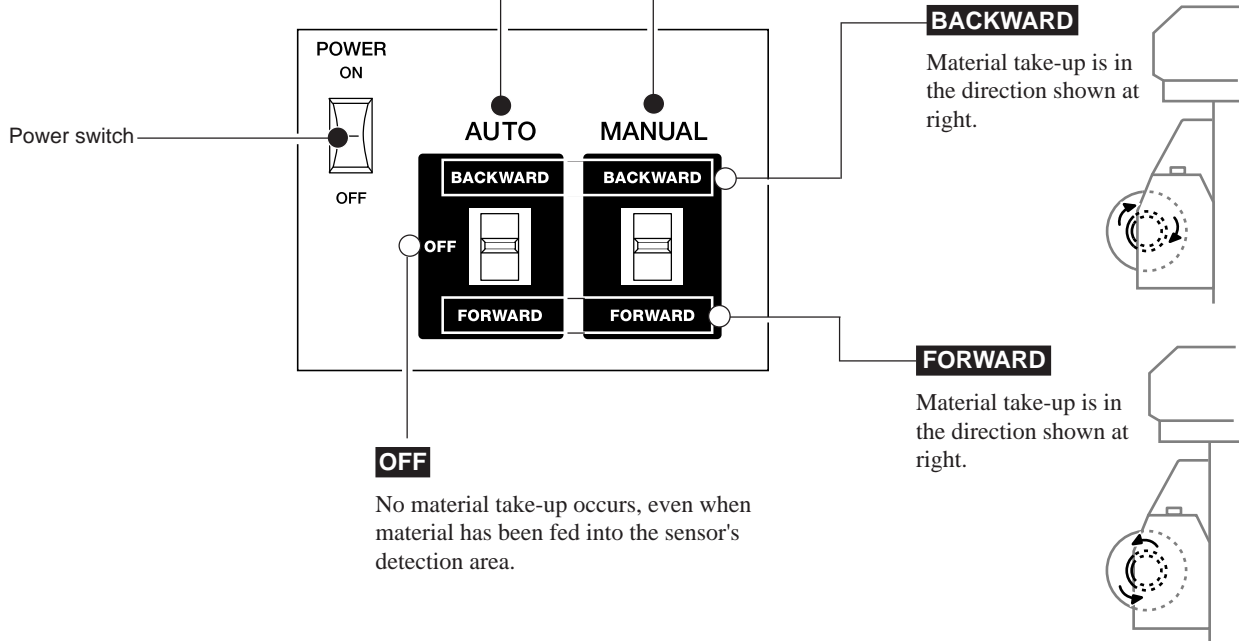
## 4. Operation Panel

### AUTO

Material is taken up automatically when material has been fed into the sensor's detection area.

### MANUAL

The material is taken up manually.

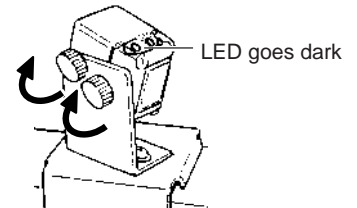
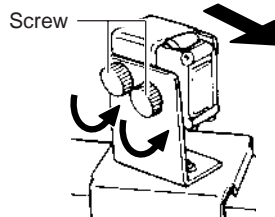
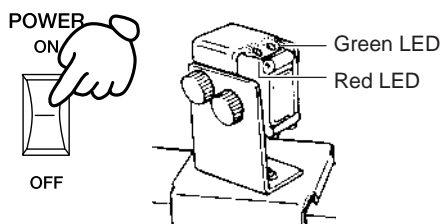



## 5. Adjusting the Sensor's Position

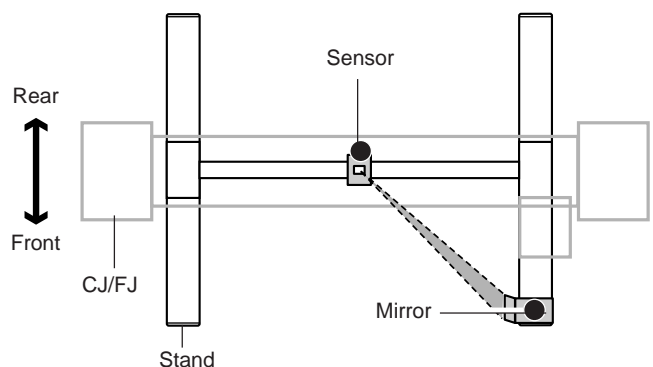
- 1 Turn on the power. Two LEDs (green and red) light up.

- 2 Loosen the screw as shown in the figure, and adjust the angle of the sensor so that it is aligned with the mirror.

- 3 Tighten the adjustment screw securely at the angle where the red LED has gone dark.



 Sensor detection area  
The TU performs material take-up when material is fed into this area.

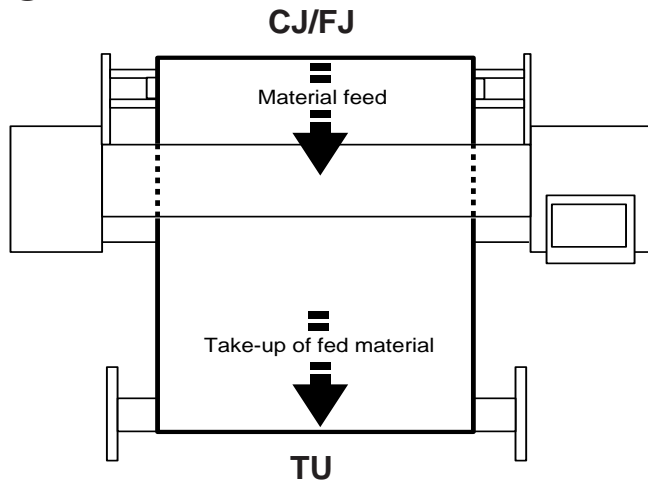


## 6. Operating Conditions for the TU

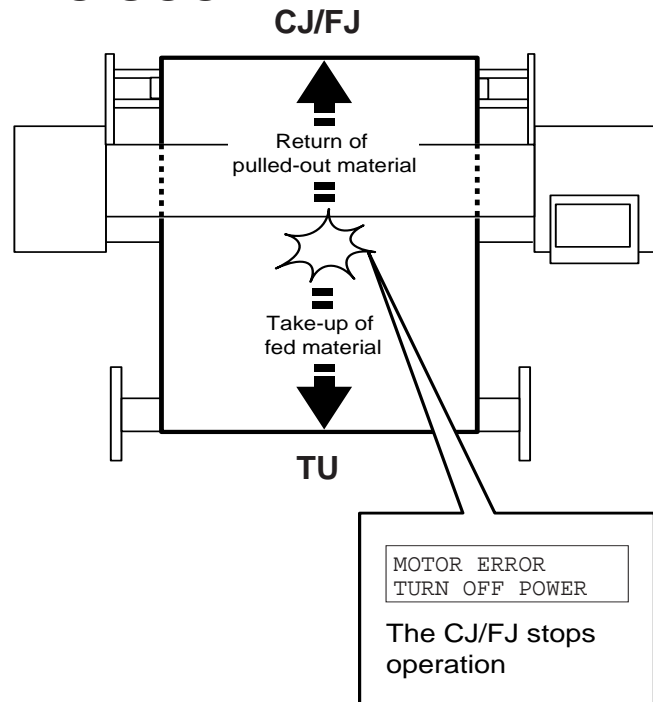
The TU takes up material fed from the CJ/FJ. Performing an operation to pull out material from the CJ/FJ generates corresponding force, and so the CJ/FJ displays the error message, and operation stops. When performing printing in particular, such a stop in operation may affect the printing extremely, such as misalignment of the printing location.

\*Material can not be taken up with TU when CJ performs cutting. TU can be used only when printing.

### OK





### NO GOOD



When using the TU, make the settings for the following conditions.

### For Both the CJ and the FJ

- At the display menu, set [AUTO SHEET CUT] to [DISABLE].
- Do not use the [SHEET CUT] key to separate the material.
- Do not use the  or  keys to return the material.

### For the CJ Only

- Turn off the cutting function on the program you're using.
- From the display menu, set [PREFEED] to [DISABLE].
- From the display menu, select something other than [ROLL] for the material.
- Do not perform automatic detection of the base point or align point when loading material.
- When loading material, use the right-hand grit roller (to ensure that the material overhangs the TU sensor area).

### For the FJ Only

- Load the material so that it is close to the right-hand side (to ensure that the material overhangs the TU sensor area).

# 7. Loading Material

## ⚠ CAUTION



**Do not attempt to change a roll material while the power remains switched on.**

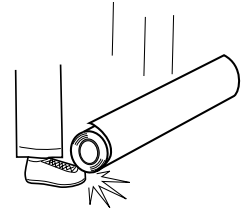
The take-up motor may be activated unexpectedly while changing the roll, leading to injury. The power must be switched off before attempting to change the material.



**Roll material must be placed at a predetermined shaft position.**

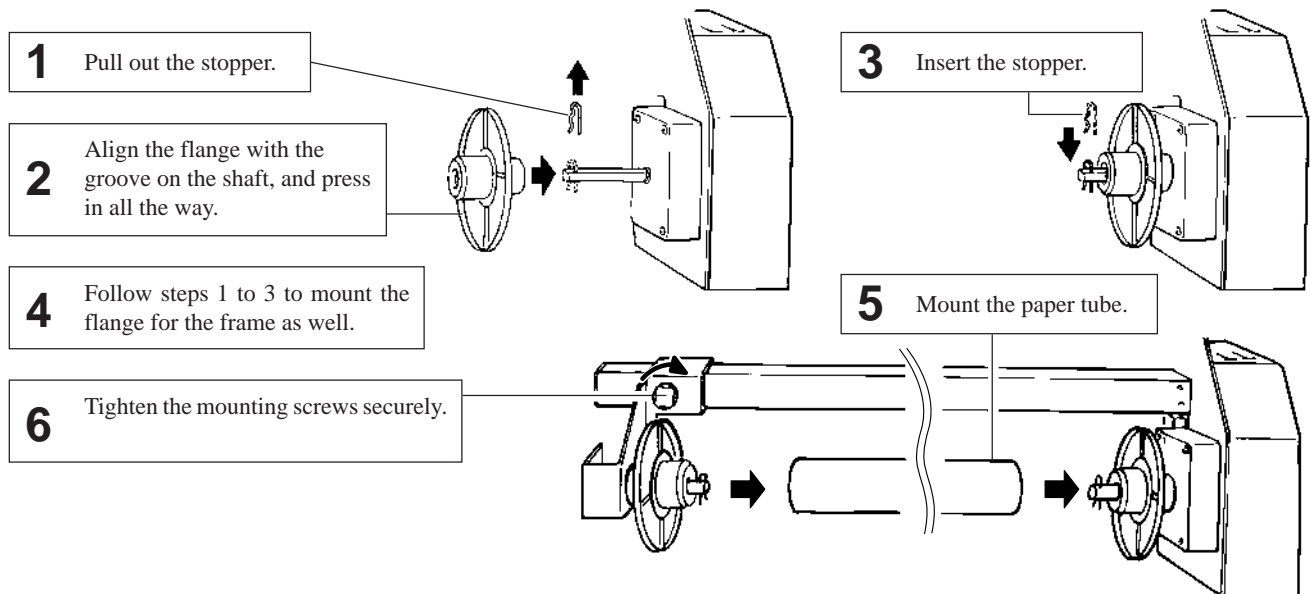
Failure to do so may allow the material to fall, leading to injury.

\* For detailed information on loading material, please refer to the CJ/FJ user's manual.



**NOTICE** When in the manual mode, make sure there is some slack in the material before attempting to perform take-up.

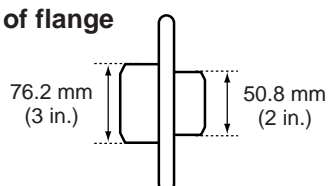
## ● Mounting the Flange and Paper Tube



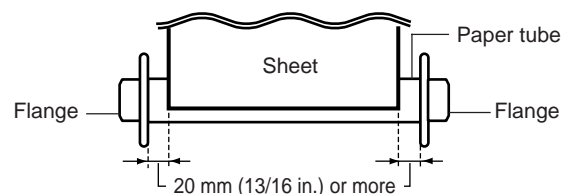
### When using the core from used-up rolled material as the paper tube

When mounting the paper tube on the flanges, make sure that the paper tube fits snugly. Attempting to take up material when the paper tube is not stable may cause problems such as the paper tube coming loose. The outer diameter of the flange portion where the paper tube is fitted is shown below.

Side view of flange



Make sure the margin described below is present between each flange and the edge of the material. Attempting to take up material when no margin is present may cause the material to touch the flange and result in faulty take-up.



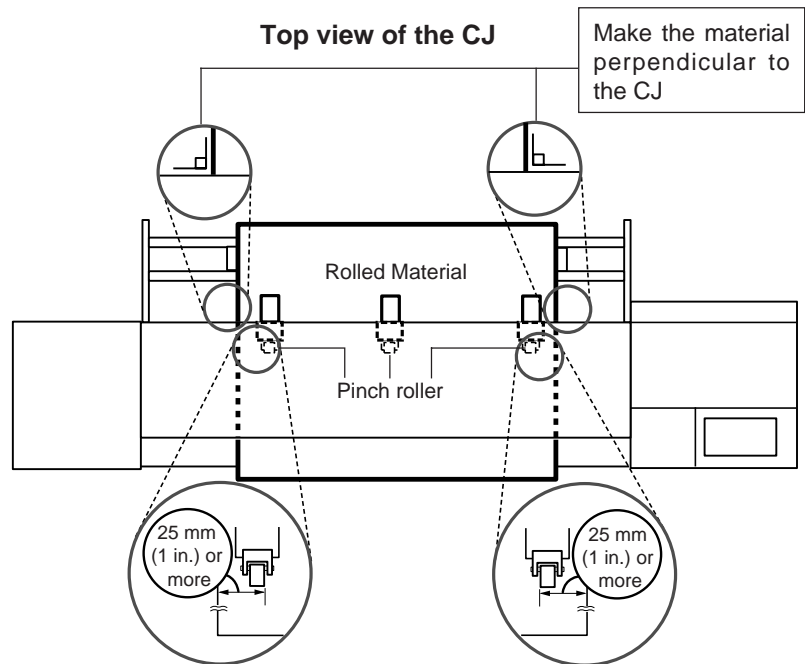
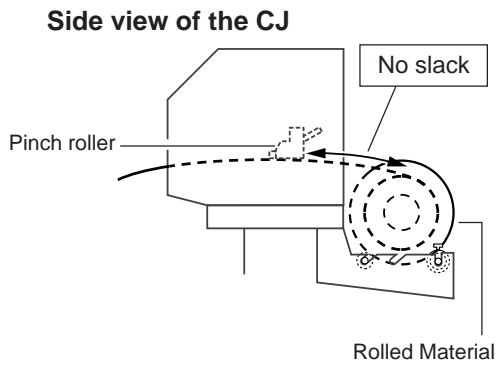
# ● Loading Rolled Material

\* For more information, see the user's manual for the CJ/FJ main unit.

## CJ

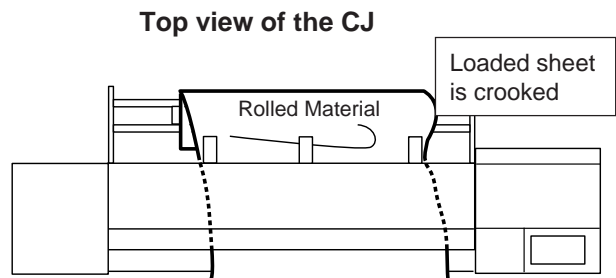
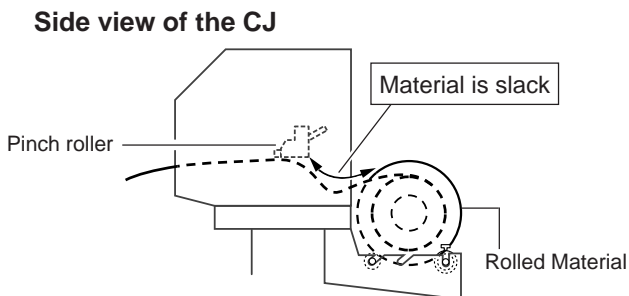
### [Correct]

Make sure the loaded material is straight and without slack so that it will not come loose from the pinch rollers during printing.



### [Incorrect]

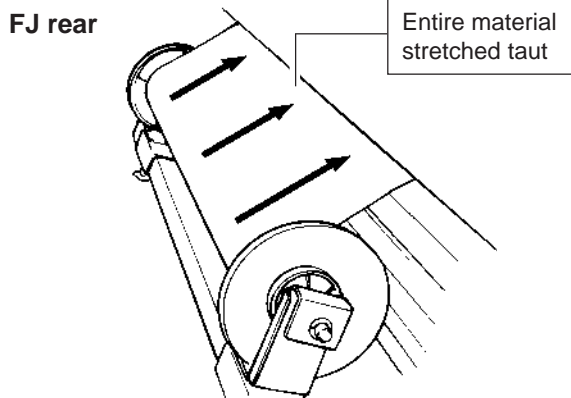
If the loaded material is crooked or slack in places, it may come loose from the pinch rollers during printing.



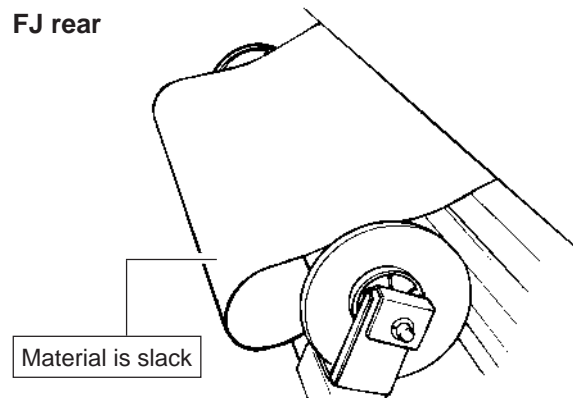
## FJ

To ensure correct feed, make sure the material pulled out from the roll is free of slack.

### [Correct]



### [Incorrect]

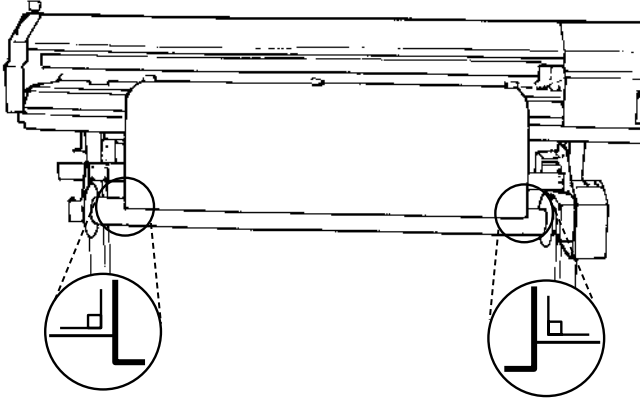


## ● Securing the Material in Place

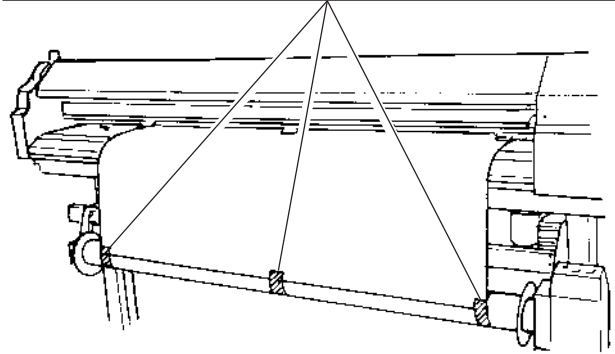
### Forward Take-up (FORWARD)

The printed surface is moved to the outer side and taken up

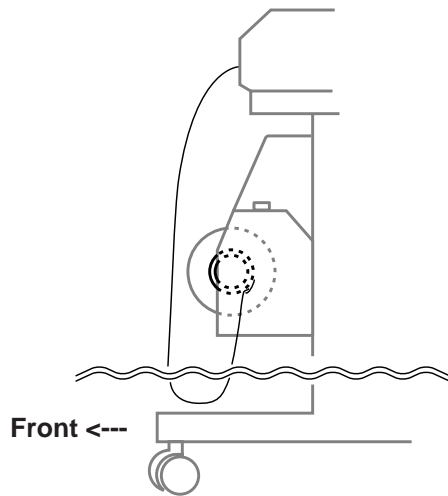
- 1 Pull out material so that it is perpendicular to the paper tube.



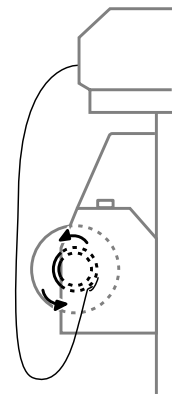
- 2 To prevent the pulled-out material from becoming crooked, secure with tape at the two edges and center, as shown in the figure.



- 3 Pull out the material and ensure a certain amount of slack, as shown in the figure. Move the sheet loading lever to secure the material in place.



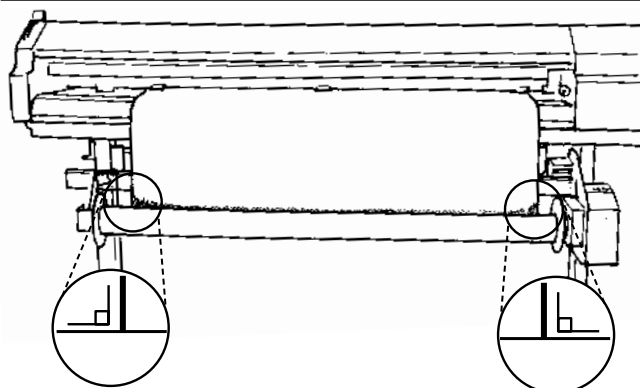
- 4 Move the [MANUAL] switch to the [FORWARD] setting and take up one turn's worth of material. After take-up, maintain slack as shown in the figure to keep the material from being drawn taut by take-up.



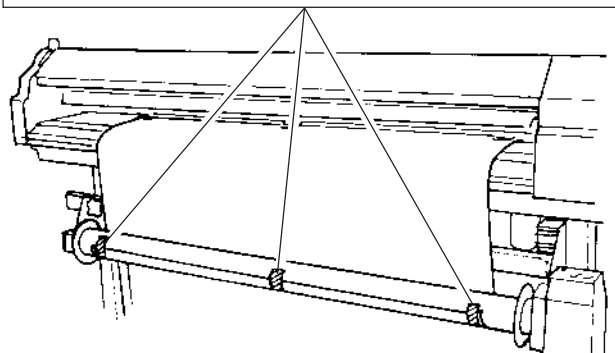
### Backward Take-up (BACKWARD)

The printed surface is moved to the inner side and taken up

- 1 Pull out material so that it is perpendicular to the paper tube.

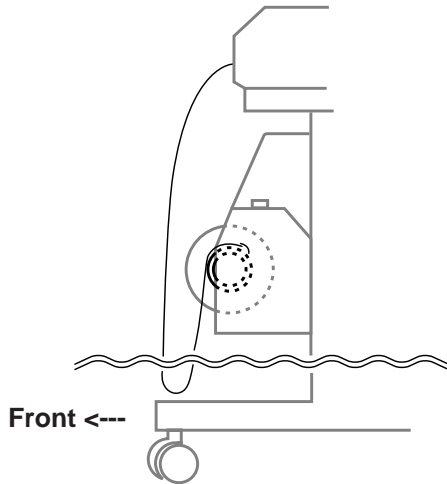


- 2 To prevent the pulled-out material from becoming crooked, secure with tape at the two edges and center, as shown in the figure.



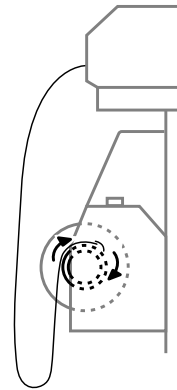
3

Pull out the material and ensure a certain amount of slack, as shown in the figure. Move the sheet loading lever to secure the material in place.



4

Move the [MANUAL] switch to the [BACKWARD] setting and take up one turn's worth of material. After take-up, maintain slack as shown in the figure to keep the material from being drawn taut by take-up.



## 8. Starting Operation

### ⚠ CAUTION



Do not allow the hands or hair to touch the paper tube, flange, or sheet during take-up.

The hands or hair may become caught.

### NOTICE

During operation, do not enter the sensor's detection area. Doing so will result in excessive take-up and cause printing to be interrupted.

When in the manual mode, make sure there is some slack in the material before attempting to perform take-up.

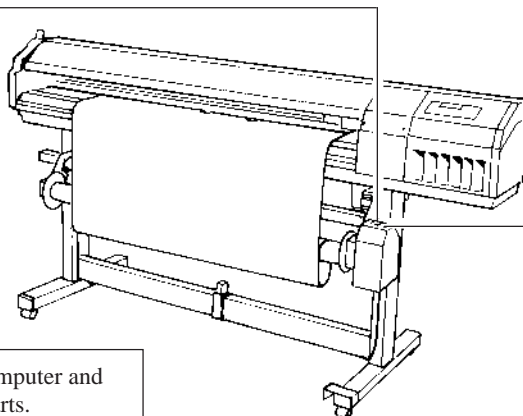
1 Turn on the power.

POWER

ON



OFF



2

Set the desired direction of take-up.

AUTO

BACKWARD

OFF

FORWARD

Forward  
Take-up

AUTO

BACKWARD

OFF

FORWARD

Backward  
Take-up

3

Data is sent from the computer and printing on the CJ/FJ starts.

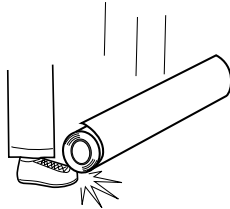


## 9. Removing Material

### ⚠ CAUTION



Removal of taken-up roll material from the TU is a task which must be carried out by two or more persons. Injury may result if attempted by one person without assistance.

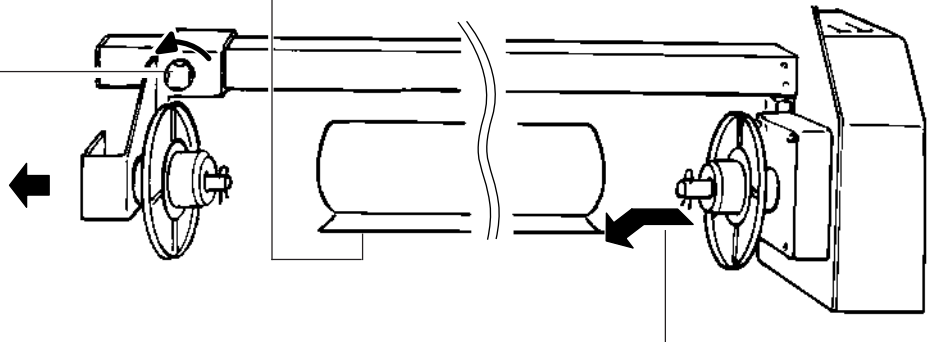


1 Turn off the power.

2 Cut off the piece of material from the roll.

3 Support the paper tube and material from underneath to prevent from falling.

4 The second person loosens the retaining screws and moves the arm.



5 Detach the paper tube and material from the flanges.

## 10. Maintenance

**NOTICE** Be sure to turn off the power to the TU before cleaning.

Never attempt to oil or lubricate the mechanism.

### Cleaning the Mirror and Sensor

Wipe clean with a dry cloth.

Grime on the mirror or sensor may cause material in the sensor's detection area not to be sensed correctly.

---

# 11. What to Do If...

## ● The CJ doesn't run

\* If a message like the one shown at right appears on the CJ

|                               |
|-------------------------------|
| MOTOR ERROR<br>TURN OFF POWER |
|-------------------------------|

Is the cutting function of the application software you're using not enabled?  
Do not use in such modes.

Has the prefeed function on the CJ been set to [ENABLE]?  
Change the setting to [DISABLE].

Have the control keys on the CJ been used to perform material return?  
Do not use the CJ's keys to perform feed or return of the material.

Is the material selection on the CJ set to [EDGE] or [PIECE]?  
Change the setting to [ROLL].

When loading the material, was automatic detection of the base point or align point performed?  
Do not use the function for automatic detection of the base point or align point.

## ● The FJ doesn't run

\* If a message like the one shown at right appears on the FJ

|                               |
|-------------------------------|
| MOTOR ERROR<br>TURN OFF POWER |
|-------------------------------|

Have the control keys on the FJ been used to perform material return?  
Do not use the FJ's keys to perform feed or return of the material.

## ● The TU doesn't take up material

Is the AUTO switch set to [OFF]?  
Set the AUTO switch to match the direction of take-up.

Is the material loaded correctly on the paper tube?  
Make sure the direction of material take-up matches the AUTO switch setting.

Is there some obstruction between the mirror and sensor?  
If no corrective action is taken when the sensor has detected an obstruction, take-up is automatically switched off. Once this has happened, no take-up is performed even if the obstruction is removed after feeding out the sheet from the sensor's detection area. To restore the previous state, switch off the power to the TU, remove the obstruction, then switch the power back on.

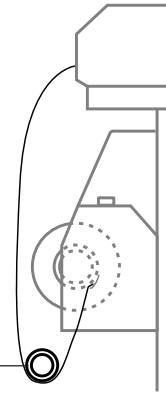
Is material cutting being performed automatically?  
At the display menu, set [AUTO SHEET CUT] to [DISABLE].

## ● Take-up of non-stiff material (such as synthetic paper, matte) is not straight

The problem is caused by wrinkling and slack in the material due to static electricity.

If you're using the TU-400/500, insert the included dancer roller at the area shown in the figure to maintain tension in the material.

If you're using the TU-60/70, insert the leftover core from used-up roll material or one of the shafts included with the stand for the FJ (the PNS-50/40).



Dancer roller (if using the TU-400/500)  
or roll-material core or shaft (if using the TU-60/70)

## 12. Specifications

|   |           | TU-60   | TU-70                             | TU-400  | TU-500                              |
|---|-----------|---|-----------------------------------|---|-------------------------------------|
| Acceptable media widths                       |           | 210—1050 mm<br>(8-1/4—41-5/16 in.)  | 210—1300 mm<br>(8-1/4—51-1/8 in.) | 210—1125 mm<br>(8-1/4—44-1/4 in.)                             | 210—1371 mm<br>(8-1/4—53-15/16 in.) |
| Material weight for which take-up is possible |           | 17 kg (37.4 lb.) or less  | 20 kg (44 lb.) or less            | 17 kg (37.4 lb.) or less                                      | 20 kg (44 lb.) or less              |
| Maximum material diameter after take-up       |           | 180 mm (7-1/16 in.)   |                                   |   |                                     |
| Speed during material take-up                 |           | AUTO: 39 rpm    MANUAL: 39 rpm  |                                   |   |                                     |
| Control switches                              |           | POWER, AUTO, MANUAL   |                                   |   |                                     |
| Power consumption                             |           | Exclusive AC adapter DC+9.7 V 0.7 A    +31 V 0.7 A  |                                   |   |                                     |
| Acoustic noise level                          |           | Take-up mode: 70 dB (A) or less    (According to ISO7779)   |                                   |   |                                     |
| Total weight of contents                      | TUC-60/70 | 6.5 kg (14.3 lb.)   |                                   |   |                                     |
|   | TU-**     | 2 kg (4.4 lb.)  | 2.5 kg (5.5 lb.)                  | 2.5 kg (5.5 lb.)  | 3.0 kg (6.6 lb.)                    |
| Operating temperature                         |           | 5—40°C (41—104°F)   |                                   |   |                                     |
| Operating humidity                            |           | 20—80% (non-condensing)   |                                   |   |                                     |
| Included items                                | TUC-60/70 | Frame x 1, Control box (including the electrical adapter) x 1, Flange x 2, Sensor x 1, Arm x 1, Mirror x 1, Mirror stopper x 1 set, Hex wrench (large) / (Small) 1 each, Cap screw (large) x 8, Cap screw (middle) x 2, Cap screw (middle) x 2, Cap screw (small) x 6, Cable retainer (large) x 1, Cable retainer (small) x 5, User's Manual x 1  |                                   |   |                                     |
|   | TU-**     | Rail slider x 1, Paper tube x 1, Gauge x 1  |                                   | Rail slider x 1, Paper tube x 1, Gauge x 1, Dancer Roller x 1 |                                     |
| Remarks                                       |           | <p>The automatic take-up function on the TU cannot be used when performing any of the following operations on the CJ/FJ.</p> <ul style="list-style-type: none"> <li>• Automatic separation of the material, and separation of the material by pressing the [SHEET CUT] key.</li> <li>• Return of the material using the  or  key.</li> <li>• There is no material at the TU's sensor detection area.</li> </ul> <p><b>[For the CJ only]</b></p> <ul style="list-style-type: none"> <li>• Setting the prefeed function to [ENABLE].</li> <li>• Enable the cutting function for the application software you're using.</li> <li>• From the display menu, select something other than [ROLL] for the material</li> <li>• When loading material, automatic detection of the base point or align point was performed.</li> </ul> |                                   |   |                                     |

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# MEMO



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