

# SHARP®

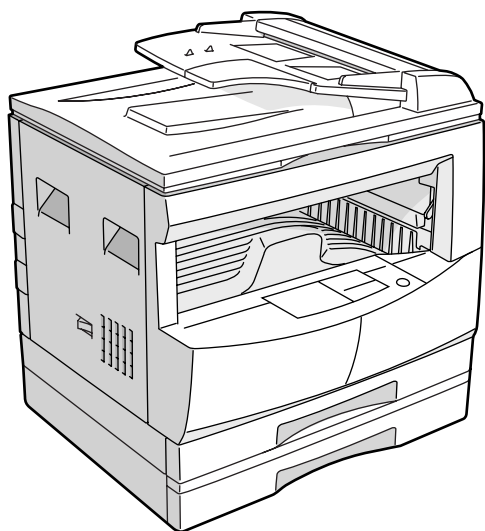
MODEL

# AL-1670

**DIGITAL LASER COPIER/PRINTER**

**COPIER OPERATION MANUAL**

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**FOR YOUR PROTECTION...**

To aid in reporting this compact copier in case of loss or theft, please record below the serial number located on the back of the unit. We also suggest you record all the information listed and retain for future reference.

MODEL NUMBER AL-1670 SERIAL NUMBER \_\_\_\_\_

DATE OF PURCHASE \_\_\_\_\_

Dealer \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_ Telephone \_\_\_\_\_

Service Station \_\_\_\_\_


Address \_\_\_\_\_ City \_\_\_\_\_

State \_\_\_\_\_ Zip \_\_\_\_\_ Telephone \_\_\_\_\_

For location of the nearest Sharp Authorized Service, or to obtain product literature, accessories, or supplies,

please call **1-(630)378-3590**

For customer assistance, please visit <http://www.sharp-usa.com> on the World Wide Web or call **1-(630)378-3590**.



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## INTRODUCTION

This copier has been designed to provide convenient copying features in a minimum amount of office space and with maximum operational ease. To get full use of all copier features, be sure to familiarize yourself with this manual and the copier.

For quick reference during copier use, keep this manual in a handy location.



Note

This copier can be used as a laser printer. However, this manual describes only the copier features. For description of the printer features, see the printer manual.

## Conventions used in this manual

In this manual, the following icons are used to provide the user with information pertinent to the use of the copier.



Warning

Warns the user that injury to the user or damage to the copier may result if the contents of the warning are not properly followed.



Caution

Cautions the user that damage to the copier or one of its components may result if the contents of the caution are not properly followed.




Note

Notes provide information relevant to the copier regarding specifications, functions, performance, operation and such, that may be useful to the user.



Indicates a letter displayed in the copy quantity display.

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GETTING STARTED

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STATUS INDICATORS

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GENERAL INFORMATION

# CAUTIONS

Follow the cautions below when using this copier.



- The fusing area is hot. Exercise care in this area when removing misfed paper.
- Do not look directly at the light source. Doing so may damage your eyes.



- The socket-outlet shall be installed near the equipment and shall be easily accessible.
- Place the copier on a firm, level surface.
- Do not install the copier in a humid or dusty location.
- When the copier is not used for a long time, for example, during prolonged holidays, turn the power switch off and remove the power cord from the outlet.
- When moving the copier, be sure to turn the power switch off and remove the power cord from the outlet.
- Do not cover the copier with a dust cover, cloth or plastic film while the power is on. Doing so may prevent heat dissipation, damaging the copier.

## SAFETY PRECAUTIONS

This Digital Copier is rated Class 1 and complies with 21 CFR 1040.10 and 1040.11 of the CDRH standards. This means that the copier does not produce hazardous laser radiation. For your safety, observe the precautions below.

- Do not remove the cabinet, operation panel or any other covers.
- The copier's exterior covers contain several safety interlock switches. Do not bypass any safety interlock by inserting wedges or other items into switch slots.



Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous laser radiation exposure.

# MAIN FEATURES

- ① **High-speed laser copying**
  - First-copy time is only 7.2 seconds (except in a power save mode or immediately after power on).
  - Copying speed is 16 copies/min., which adapts to business use, allowing improvement of working efficiency.
- ② **High-quality digital image**
  - High-quality copying at 600 dpi is performed.
  - In addition to the automatic exposure mode, the manual exposure can be adjusted in five steps.
  - The photo mode copying function allows clear copying of delicate halftone original images such as monochrome photos and color photos. Photo mode is adjustable in five steps.
- ③ **Substantial copying features**
  - Zoom copying from 50% to 200% in 1% increments can be performed.
  - Continuous copying of maximum 99 sheets can also be performed.
  - Multiple sets of copies can be sorted without the aid of a sorter and each set can be offset from the previous set.
  - Toner save mode reduces toner consumption by approximately 10%.
  - Useful special features such as the 2 in 1 and 4 in 1, erase, and margin shift are available.
- ④ **Scan once/ Print many**
  - The copier is equipped with a 1-page memory buffer. This memory allows the copier to scan an original 1 time only and make up to 99 copies. This feature allows for improved workflow, reduced operating noise from the copier and reduced wear and tear on the scanning mechanism, which provides for a higher reliability.
- ⑤ **Printer features**
  - This copier can be used as a PCL6 laser printer with the printing speed of 16 prints/min.
  - Prints on paper sizes up to 11" x 17".
  - 1200 dpi quality with smoothing.
  - Supports Microsoft Windows 3.1, 95, 98 and NT 4.0.
  - Network capable, external print server required.
- ⑥ **Environmentally friendly design**
  - Paper output tray is housed in the copier for space saving.
  - Preheat mode and auto power shut-off mode are provided to reduce power consumption.



As an ENERGY STAR® Partner, SHARP has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

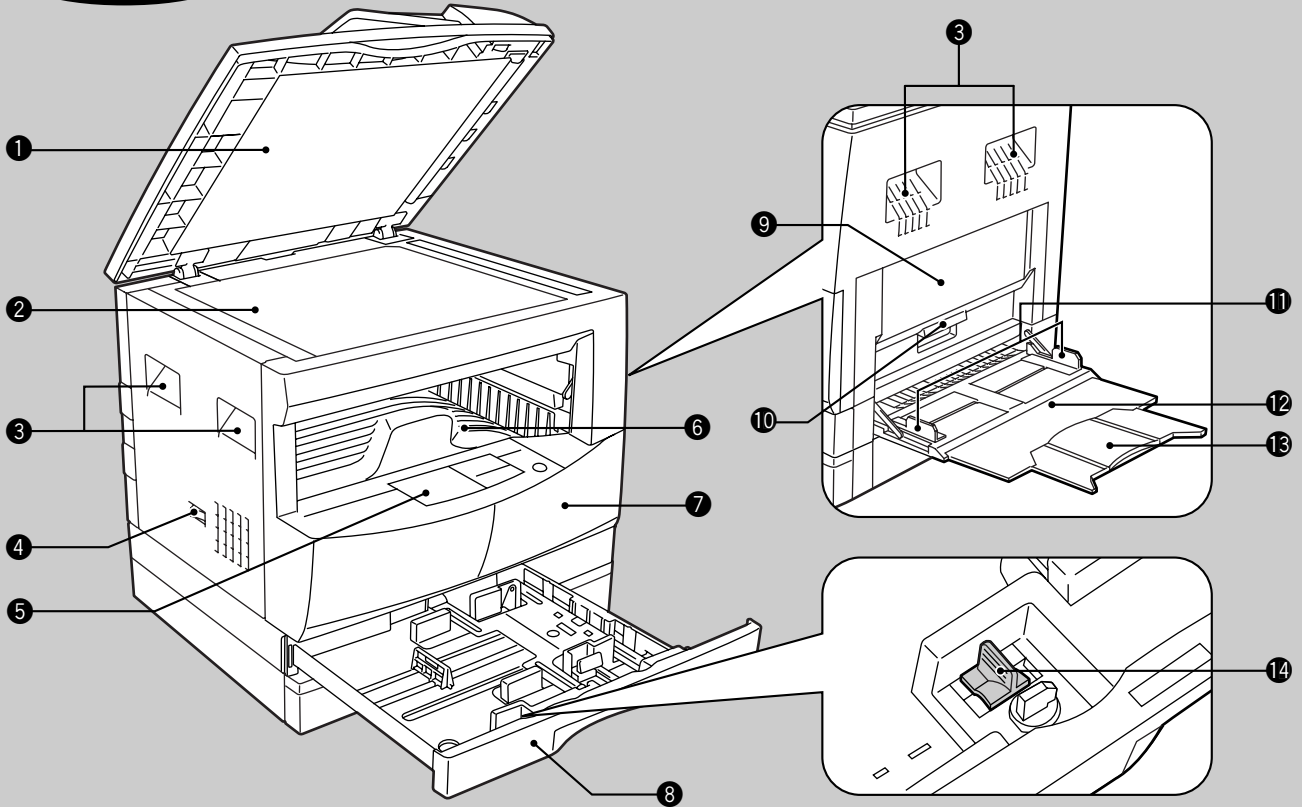


Note

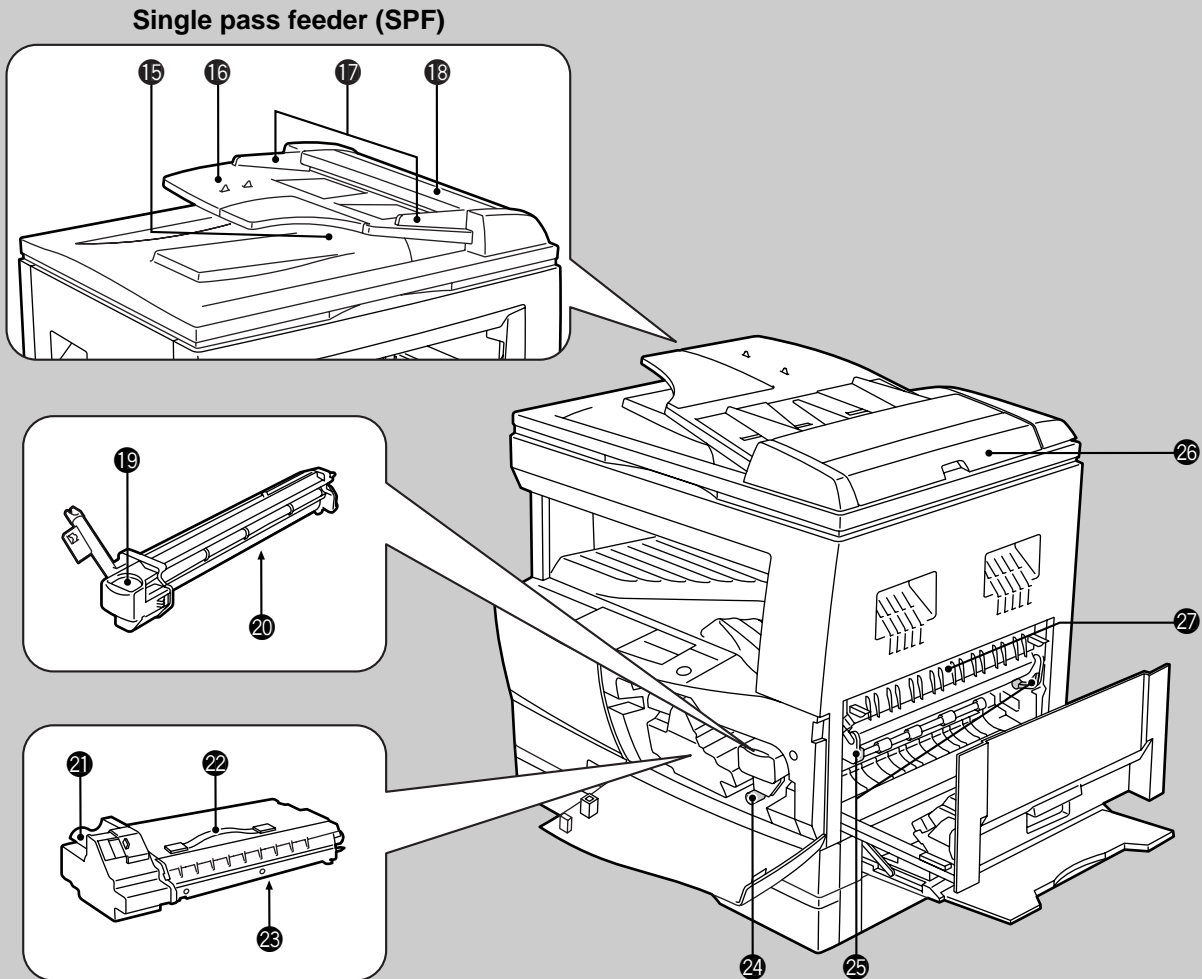
This copier does not have an internal calendar or clock.  
This copier will not be affected by the year 2000.

# PART NAMES AND FUNCTIONS

## Overall layout



- 1 Document feeder cover**  
Open to make copies from the original table.
- 2 Original table**  
All originals which cannot be copied from the SPF must be copied here.
- 3 Handles**  
Use to move the copier.
- 4 Power switch**  
Press to turn copier power on and off.
- 5 Operation panel**  
All copier controls are located here for easy operation.
- 6 Paper output tray**  
Finished copies are deposited in the paper output tray.
- 7 Front cover**  
Open to remove misfeeds and for copier servicing.
- 8 Paper tray**  
Each tray holds 250 sheets of copy paper.
- 9 Side cover**  
Open to remove misfeeds and to service the copier.
- 10 Side cover handle**  
Lift and pull to open the side cover.
- 11 Bypass tray guides**  
Adjust to the width of the copy paper.
- 12 Bypass tray**  
Special papers (including transparency film) and copy paper can be fed from the bypass tray.
- 13 Bypass tray extension**  
Pull out when feeding large paper such as 8-1/2" x 14" and 11" x 17".
- 14 Charger cleaner**  
Use to clean the transfer charger.



**15 SPF exit area**  
Finished originals are output here.

**16 Document feeder tray**  
Holds up to 30 originals.

**17 Original guides**  
Adjust to the size of the originals.

**18 Feeding roller cover**  
Open to remove misfed originals.

**19 Drum cartridge handle**  
Hold to pull out the drum cartridge.

**20 Drum cartridge**  
Copy images are formed on the photoconductive drum.


**21 TD cartridge lock release lever**  
Use to unlock the TD cartridge.

**22 TD cartridge strap**  
Lift to remove the TD cartridge.

**23 TD cartridge**  
Contains toner.

**24 Roller rotating knob**  
Turn to remove misfed paper.

**25 Fusing unit release levers**  
Lower to remove misfed paper.

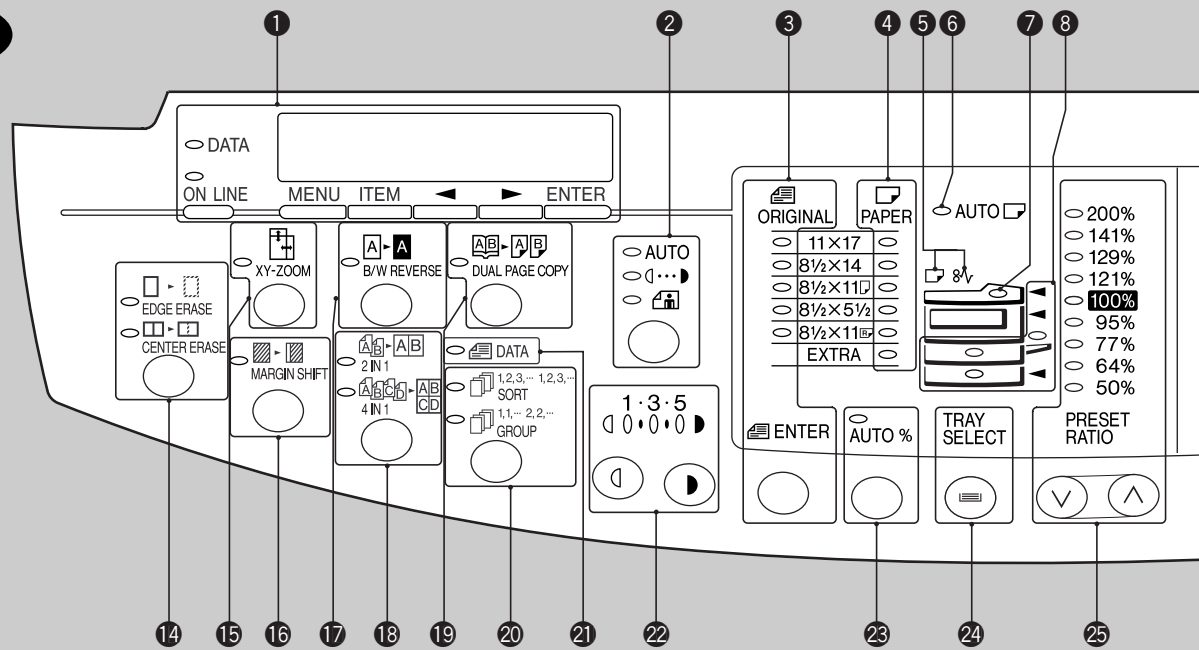
 **Warning** The fusing unit is hot.  
Take care in removing paper.

**26 Right side cover**  
Open to remove misfed originals.

**27 Paper guide**  
Open to remove misfed paper.

Accessories	
Operation manual . . . . .	2
TD cartridge . . . . .	1
Charger cleaner . . . . .	1
CD-ROM (Printer driver) . . . . .	1

## Operation panel



### 1 Operation panel and keys for printer features

See the printer manual.

### 2 AUTO/MANUAL/PHOTO ( / / ) key and indicators (p. 16)

Use to sequentially select the exposure modes: AUTO, MANUAL ( ), or PHOTO ( ).

### 3 ORIGINAL SIZE ENTER ( ) key and indicators (p. 18, 20)

Use to input the original size.

### 4 PAPER SIZE indicators

Light up to show the selected copy paper size.

### 5 Alarm indicators

: Paper required indicator (p.13)

: Misfeed indicator (p.43)

: TD cartridge replacement required indicator (p.39)

: Drum replacement required indicator (p.41)

### 6 AUTO PAPER SELECT ( ) indicator

Paper of the proper size will be automatically selected depending on the original size and selected copy ratio when this indicator is on.

### 7 SPF indicator (p. 16)

Lights up when originals are set in the document feeder tray.

### 8 Paper feed location/misfeed location indicators (p. 43)

The selected paper feed location is shown by a lit indicator ( ).

The general location of misfed paper is shown by a blinking red indicator ( ).

### 9 INTERRUPT key and indicator (p. 27)

Interrupts a copy run.

### 10 PAPER SIZE ENTER ( ) key (p. 15)

Use to set the paper size in a tray.

### 11 Copy quantity display

Displays the specified copy quantity during the ready condition and displays the copy countdown as copies are made. Also see items **28** and **30**.

### 12 CLEAR ALL ( ) key

Clears all selected settings and returns the copier to the initial settings.

### 13 POWER SAVE ( ) indicator (p. 52)

Lights up when the copier is in the power save mode.

### 14 ERASE ( / ) key and indicators (p. 37)

Press to select the edge erase and/or the center erase mode.

### 15 XY-ZOOM ( ) key and indicator (p. 30)

Use to change the horizontal and vertical copy ratios independently.

### 16 MARGIN SHIFT ( ) key and indicator (p. 38)

Shifts text or image on the copy to leave a binding margin on the left side of the copy.

### 17 B/W REVERSE ( ) key and indicator (p. 32)

Press to reverse the black and white areas.

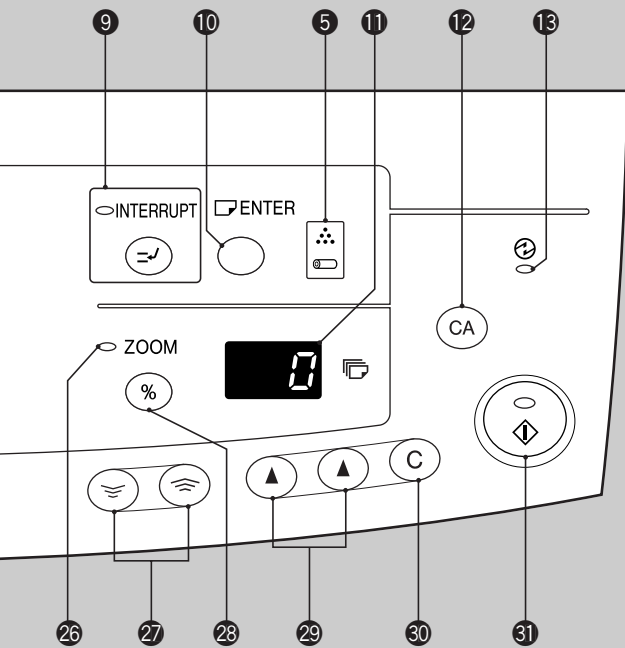
### 18 2 IN 1 / 4 IN 1 ( / ) key and indicators (p. 35)



Press to select the 2 in 1 or 4 in 1 mode.

### 19 DUAL PAGE COPY ( ) key and indicator (p. 33)

Use to make individual copies of two originals placed side by side on the original table.







**20 SORT/GROUP (  /  ) key and indicators**  
(p. 25)

Press to select the sort or group mode.

**21 ORIGINAL DATA (  DATA ) indicator**

Blinks when the memory becomes full of scanned original image data.

**22 Light (  ) and dark (  ) keys and indicators**  
(p. 17)

Use to adjust the MANUAL (  ) or PHOTO (  ) exposure level.

**23 AUTO IMAGE ( AUTO % ) key and indicator** (p. 20)

Press for automatic copy ratio selection.

**24 TRAY SELECT (  ) key** (p. 16)

Use to manually select a paper tray.

**25 PRESET RATIO selector keys and indicators**  
(p. 21)

Use to sequentially select preset reduction/enlargement copy ratios: 50%, 64%, 77%, 95%, 100%, 121%, 129%, 141%, 200%.

**26 ZOOM indicator** (p. 21)

Lights up when a zoom ratio is set.

**27 Zoom keys** (p. 21)

Use to select any reduction or enlargement copy ratio from 50% to 200% in 1% increments.

**28 Copy ratio display (  ) key** (p. 21)

Press and hold down during standby to display the copy ratio in the copy quantity display.

**29 Copy quantity keys**

Use to select the desired copy quantity or to make user program entries.

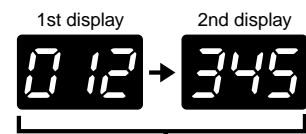
**30 CLEAR (  ) key**

Clears the copy quantity display or terminates a copy run.

Press during standby to display the total number of copies made to date.




Press and hold down the key.



12,345 sheets output


**Note:** 11" x 17" size copies are counted as two copies.

**31 START (  ) key and indicator**

Copying is possible when the indicator is on.

Press to start copying.

**Initial settings**

The copier assumes the initial settings when it is first turned on, when the CLEAR ALL (  ) key is pressed, or approximately one minute\* after the last copy is made in any mode.

- Copy ratio: 100%
- Exposure: Automatic
- All special copier modes: Off
- Auto paper selection: On
- Copy quantity: 0
- Paper feed station: Previously selected paper tray

\* This time (auto clear time) can be changed. See page 49, USER PROGRAMS.

# COPIER INSTALLATION

Improper installation may damage the copier. Please note the following during initial installation and whenever the copier is moved.

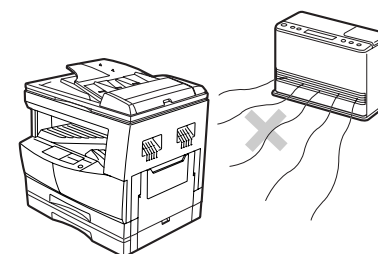
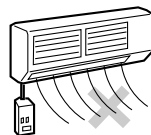
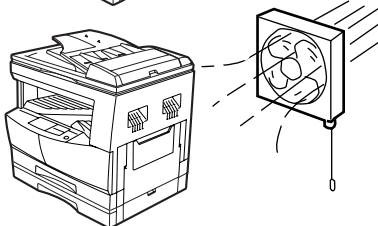
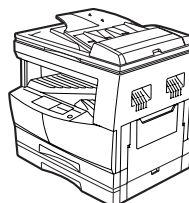
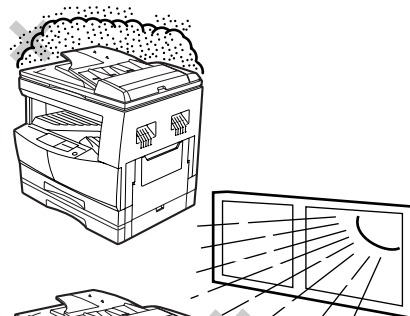


Caution

If the copier is moved from a cool place to a warm place, condensation may form inside the copier. Operation in this condition will cause poor copy quality and malfunctions. Leave the copier at room temperature for at least 2 hours before use.

**Do not install your copier in areas that are:**

- damp, humid, or very dusty
- exposed to direct sunlight
- poorly ventilated
- subject to extreme temperature or humidity changes, e.g., near an air conditioner or heater.



**The copier should be installed near an accessible power outlet for easy connection.**

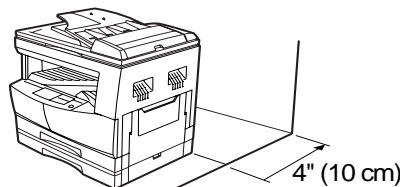
**Be sure to connect the power cord only to a power outlet that meets the specified voltage and current requirements.**

**Also make certain the outlet is properly grounded.**



Note

Connect the copier to a power outlet which is not used for other electric appliances. If a lighting fixture is connected to the same outlet, the light may flicker.



**Be sure to allow the required space around the machine for servicing and proper ventilation.**

A small amount of ozone is produced within the copier during operation. The emission level is insufficient to cause any health hazard.

**NOTE:**

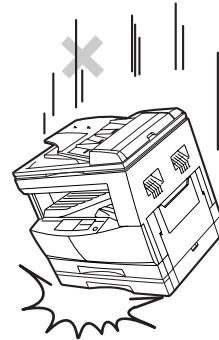
The present recommended long term exposure limit for ozone is 0.1 ppm (0.2 mg/m<sup>3</sup>) calculated as an 8 hr. time-weighted average concentration.

However, since the small amount that is emitted may have an objectionable odor, it is advisable to place the copier in a ventilated area.

# CAUTIONS ON HANDLING

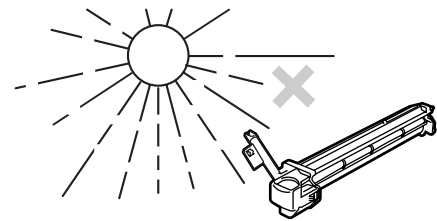
Be careful in handling the copier as follows to maintain the performance of this copier.

**Do not drop the copier, subject it to shock or strike it against any object.**



**Do not expose the drum cartridge to direct sunlight.**

Doing so will damage the surface (green portion) of the drum cartridge, causing poor copy quality.



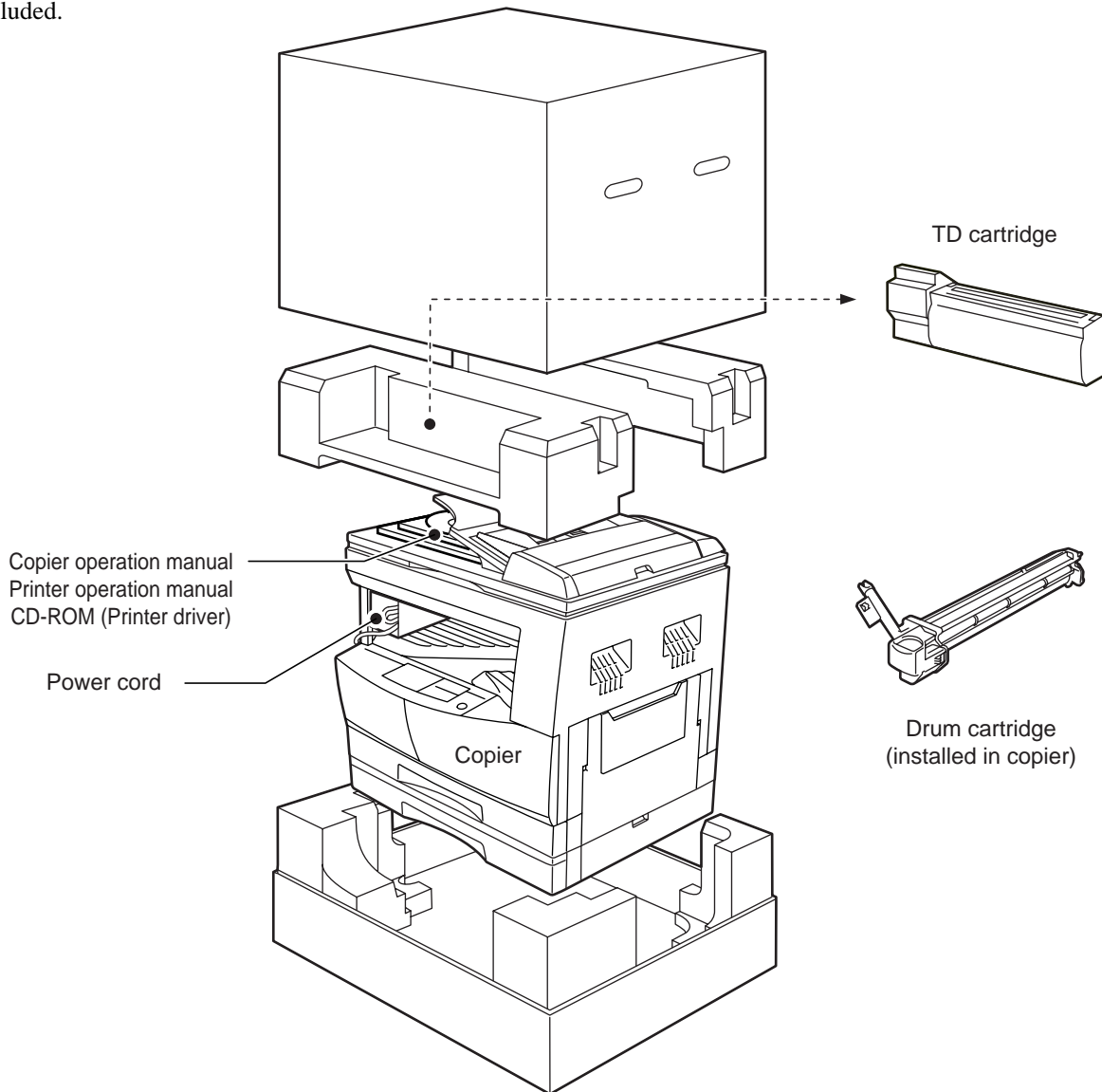
**Store spare supplies such as drum cartridges and TD cartridges in a dark place without removing from the package before use.** If they are exposed to direct sunlight, poor copies may result.

**Do not touch the surface (green portion) of the drum cartridge.**

Doing so will damage the surface of the cartridge, causing smudges on copies.

# CHECKING PACKED COMPONENTS AND ACCESSORIES

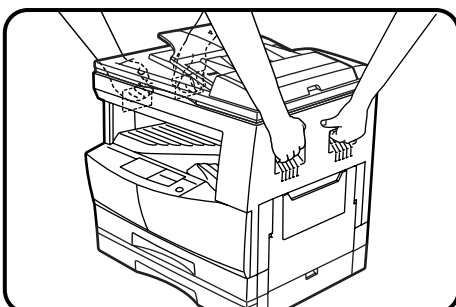
Open the carton and check to ensure that the following components and accessories are included.



Note

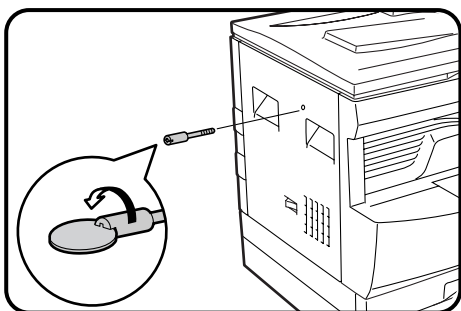
- If anything is not included or is damaged, contact our Technical Assistance Department at 1-(630)378-3590.
- Save the carton and packing materials. These can be re-used for transporting the machine, should it be necessary.

## Unpacking



Be sure to lift by the handles on both sides of the copier by two persons to unpack the copier and carry it to the installation location.

# SET-UP



- 1** Remove all pieces of tape, then open the document feeder cover and remove the protective material.
- 2** Use a coin (or other suitable object) to remove the screw.

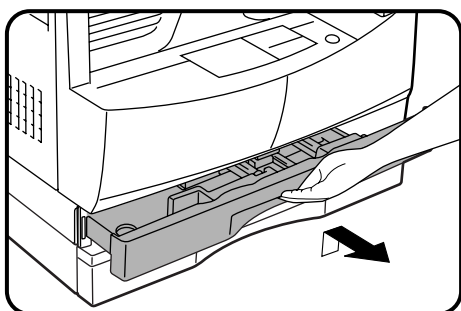


Caution

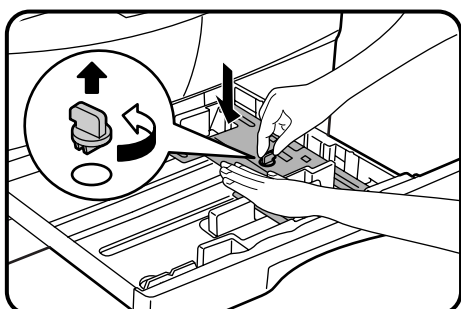
Store the screw in the paper tray as described in step 6 because it must be used if the copier has to be moved. (p. 60)

- 3** Install the TD cartridge.

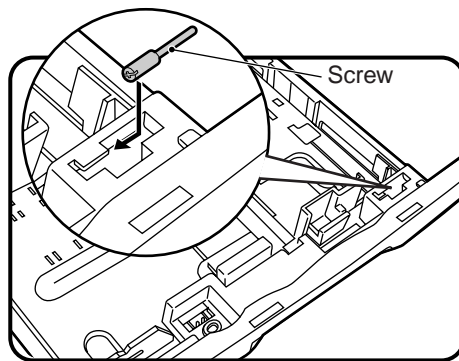
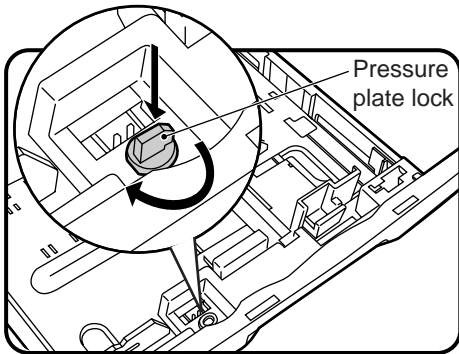
- For installation of the TD cartridge, see steps 1 and 2 and steps 4 to 7 of TD CARTRIDGE REPLACEMENT on pages 39 and 40.



- 4** Gently lift and pull out the paper tray until it stops.



- 5** Remove the pressure plate lock. Rotate the pressure plate lock in the direction of the arrow to remove it while pressing down the pressure plate of the paper tray.



**6 Store the pressure plate lock which has been removed in step 5 and the screw which has been removed in step 2 in the front of the paper tray.**

- To store the pressure plate lock, rotate the lock to fix it on the relevant location.
- Follow steps 4 to 6 for both the upper and lower trays except for storage of the screw.

**7 Ensure that the power switch of the copier is in the OFF position. Plug the power cord into the nearest outlet.**



Warning

If you use the copier in a country other than the country where the copier was purchased, you will need to make sure that your local power supply is compatible with your model. If you plug the copier into an incompatible power supply, irreparable damage to the copier will result.



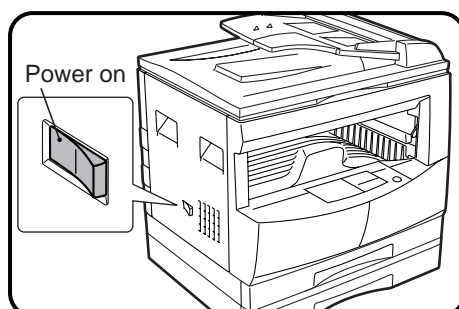
Caution

Only insert the power cord into a properly grounded wall socket. Do not use extension cords or power strips.



Note

Connect the copier to a power outlet which is not used for other electric appliances. If a lighting fixture is connected to the same outlet, the light may flicker.



**8 Turn the power switch on.**

**9 Load copy paper.**

- When loading copy paper for the first time, be sure to turn the power switch on in advance.
- For loading copy paper, see steps 2 to 4 of LOADING COPY PAPER on page 13. If you use copy paper other than 8-1/2" x 11" (default size), see pages 14 and 15.



# LOADING COPY PAPER

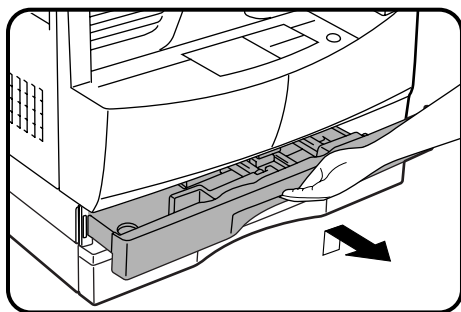
To save space, this copier has been designed with two adjustable front-loading trays, which are easily opened for paper loading. For best results, use only SHARP recommended paper. (See page 58.)

The paper required ( ) indicator will light up when there is no copy paper in the selected paper feed station, or when the selected paper tray is not installed or is improperly installed.

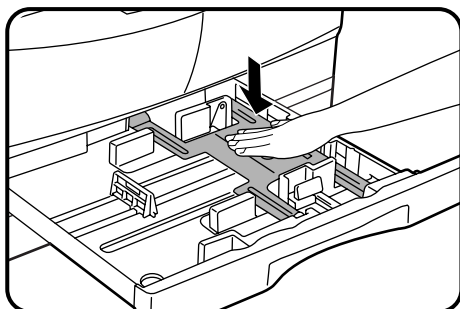


Note

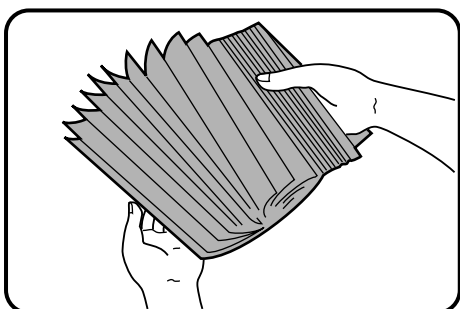
When the paper size is changed in a paper tray, the size of the paper must be entered by steps 8 through 11 on page 15. If not, the edges of copies may become smudged with toner. Also, the AUTO PAPER SELECT and the AUTO IMAGE features will not function properly.



**1** Gently lift and pull out the paper tray until it stops.

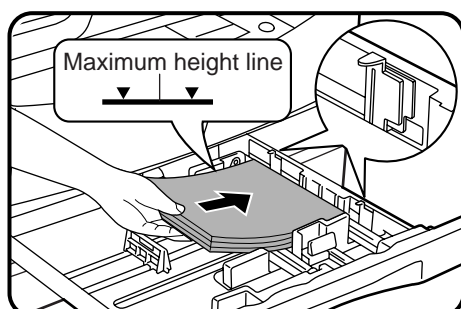


**2** Push the pressure plate down until it locks in place.



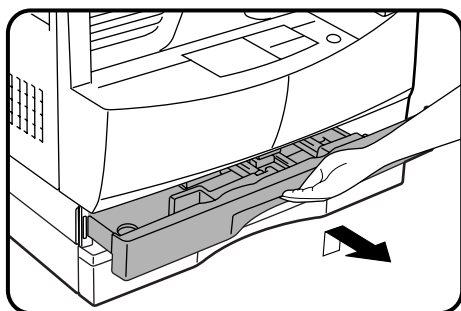
**3** Fan the copy paper and insert it into the tray. Make sure the edges go under the corner hooks.

- If you change to a different size of copy paper, the tray must be adjusted. See the next page.



- Set the paper along the guides.
- The tray holds up to 250 sheets of 21 lb. bond paper. Do not load paper above the maximum height line.

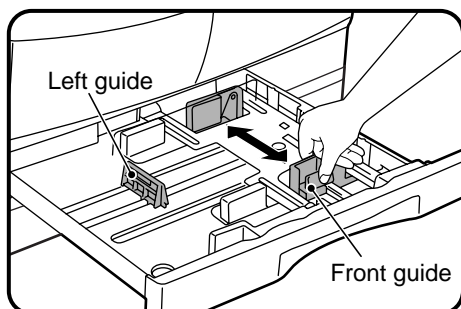
**4** Push the paper tray firmly back into the copier.



## Changing the copy paper size in the tray

**1** Gently lift and pull out the paper tray until it stops.

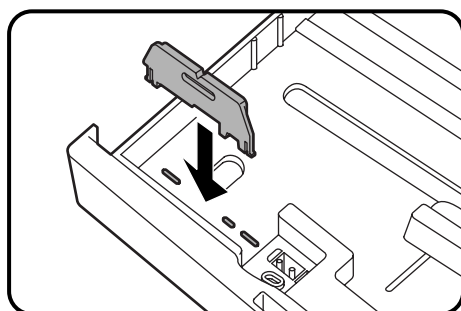
**2** Push the pressure plate down until it locks in place.



**3** Squeeze the lock lever of the front guide and slide the front guide to match the width of the paper.

**4** Move the left guide to the appropriate slot as marked on the tray.

- When using 5-1/2" x 8-1/2" copy paper, load it into the upper paper tray. If the lower tray is used, paper misfeeds may occur.
- When using 11" x 17" copy paper, store the left guide in the slot at the left front of the paper tray.

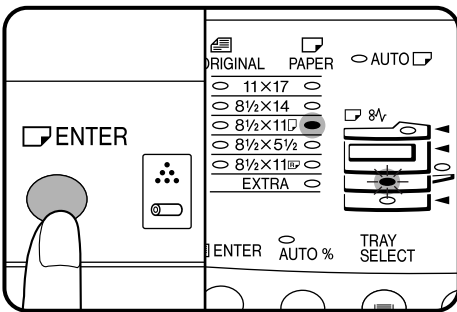


**5** Load copy paper into the tray.

**6** Place the appropriate label to indicate the selected paper size into the recess on the right front side of the paper tray.

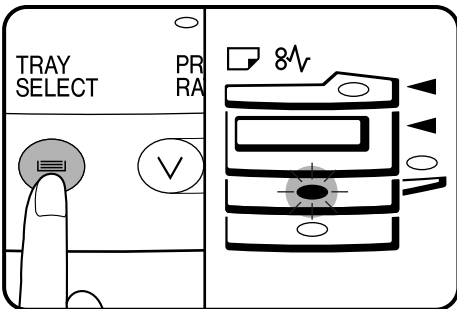
**7** Push the paper tray firmly back into the copier.





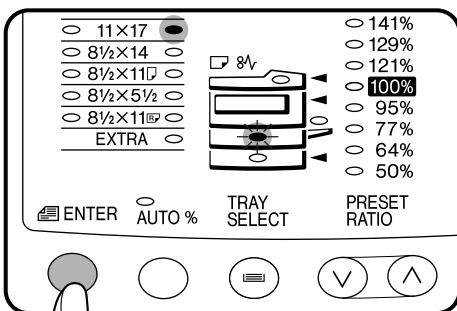
**8 To set the selected paper size, press the PAPER SIZE ENTER (ENTER) key.**

- The selected paper feed location indicator will blink and the corresponding paper size (which is currently set) indicator will light up steadily. All other indicators will go out.



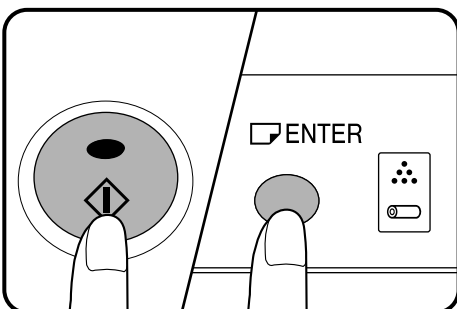
**9 Use the TRAY SELECT (TRAY SELECT) key to select the paper tray of which the paper size has been changed.**

- Each time the TRAY SELECT (TRAY SELECT) key is pressed, a paper tray will be indicated with a blinking paper feed location indicator.



**10 Use the ORIGINAL SIZE ENTER (ORIGINAL SIZE ENTER) key to select the paper size which is set.**

- Each time the ORIGINAL SIZE ENTER (ORIGINAL SIZE ENTER) key is pressed, a paper size will be indicated with a paper size indicator.



**11 Press the START (START) key and then the PAPER SIZE ENTER (ENTER) key.**

- To change the paper size setting of the other tray, repeat steps 9 to 10 after pressing the START (START) key.

# NORMAL COPYING


This copier has two document input stations — a single pass feeder (SPF) for automatic document feeding and an original table for manual handling of bound documents. The SPF is designed to hold up to 30 originals measuring from 5-1/2" x 8-1/2" to 11" x 17" and in the weight range of 15 to 24 lbs.

- Before loading originals into the SPF, be sure to remove any staples or paper clips from them.

- Damaged or crumpled originals may misfeed in the SPF. It is recommended that these originals be copied from the original table.
- Special originals such as transparency film and tracing paper should not be fed from the SPF, but should be placed directly on the original table.
- Image loss (max. 5/32" (4 mm)) can occur at the leading edge of the copies. It can be 15/64" (6 mm) at the trailing edge of the copies which are made using the SPF. Also image loss (max. 5/32" (4 mm) in total) can occur along the other edges of the copies.

## Using the SPF



### 1 Turn the power switch on.

- It will take about 35 seconds for the copier to warm up. However, you can make desired settings and press the START (  ) key during warm-up. Copying will start after warm-up.
- If the power is already on and all indicators except the POWER SAVE indicator are off, the copier is in the auto power shut-off mode. Press the START key in this case. See page 52, POWER SAVE MODES.



### 2 Ensure that no original is left on the original table.

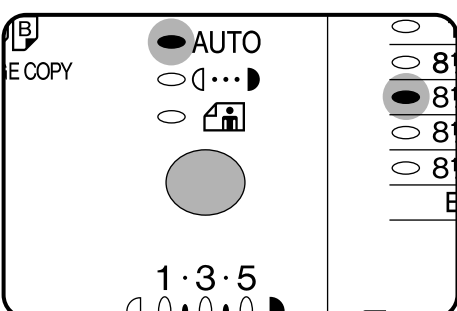
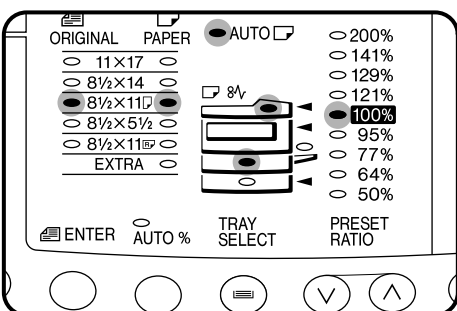
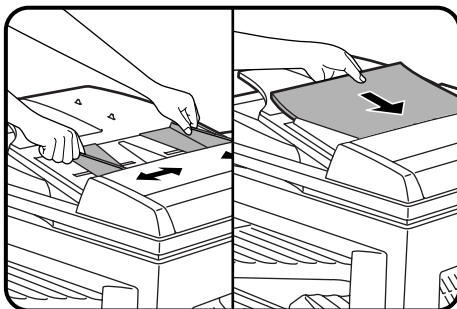
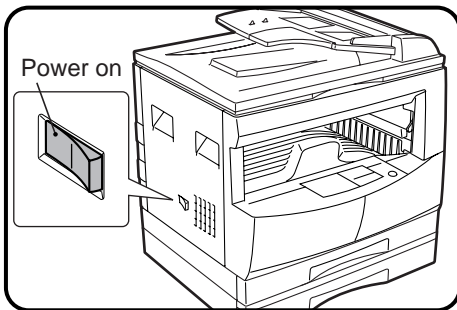
### 3 Adjust the original guides to the size of the originals.

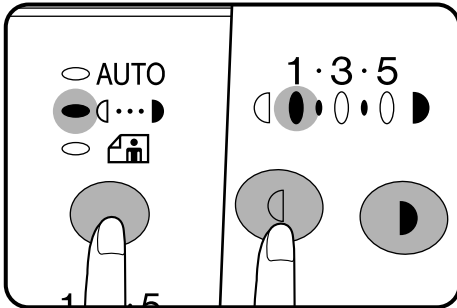
### 4 Set the originals face up in the document feeder tray.

- The SPF indicator will light up. If this indicator does not light up, the originals are not properly set or the SPF is not properly closed.
- The ORIGINAL SIZE indicator for the detected original size will light up, and the paper tray with the corresponding paper size will be automatically selected if that paper size is available.
- The auto paper select function can be disabled using user program No. 8. If this function has been disabled, use the TRAY SELECT (  ) key to select the desired paper tray. See page 49, USER PROGRAMS.
- To copy onto a different size paper, use the TRAY SELECT (  ) key to make the selection.
- The bypass tray cannot be automatically selected.

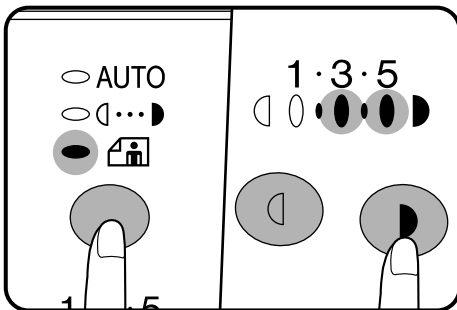
### 5 Adjust the copy density.

- This copier has three exposure modes to choose from — AUTOMATIC ( **AUTO** ), MANUAL (  ), and PHOTO (  ).
- Automatic exposure is the standard initial setting for this copier. In this mode, the characteristics of the original are “read” by the exposure system and adjustments are automatically made. This optimizes the contrast of the copied images by reducing the effect of colored or shaded background areas. See page 28 to adjust the automatic exposure level.

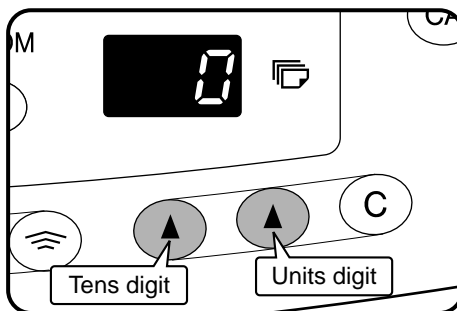




- For manual copy density adjustment, press the AUTO/MANUAL/PHOTO ( **AUTO** / **1·3·5** / **PHOTO** ) key to select MANUAL ( **1·3·5** ) and adjust with the light ( **☺** ) and dark ( **☹** ) keys as desired.

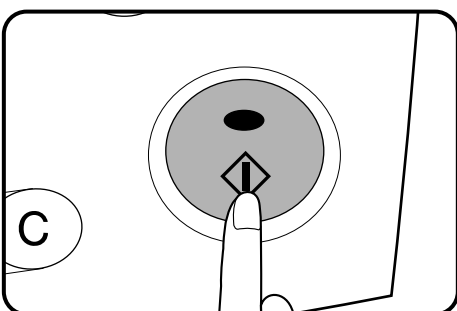


- For photographs, select PHOTO ( **PHOTO** ) and then adjust with the light ( **☺** ) and dark ( **☹** ) keys as desired.
- There are 5 exposure steps indicated by 3 indicator lights. (The indicators light up one or two at a time.)  
If exposure level 2 is selected, the two left-handmost indicators for that level will light up simultaneously. Also, if level 4 is selected, the two right-handmost indicators for that level will light up simultaneously.



## 6 Set the number of copies using the two copy quantity ( **▲** , **▲** ) keys.

- Press the right copy quantity key to set the units digit from 0 to 9. This key will not change the tens digit.
- Press the left copy quantity key to set the tens digit from 1 to 9.
- A single copy can be made with the initial setting, i.e., when “0” is displayed.
- Press the CLEAR ( **C** ) key to clear an entry if a mistake is made.



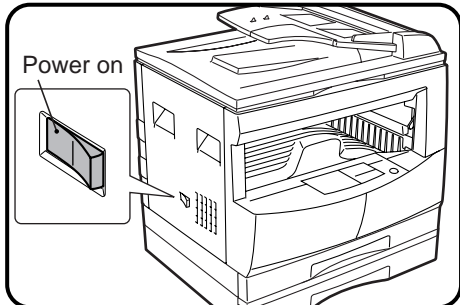
## 7 Press the START ( **▶** ) key.

- The number in the copy quantity display will decrease by 1 each time a copy is made.
- Press the CLEAR ( **C** ) key to stop copying in the middle of a run.

### Stream feeding mode

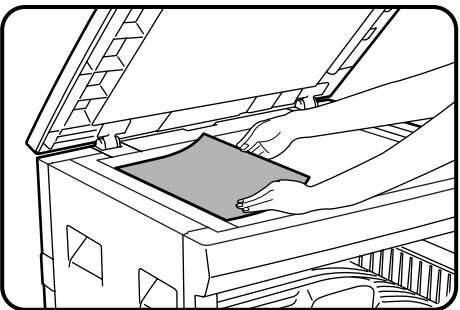
If the stream feeding mode has been enabled using user program No. 4, the SPF indicator will continue to blink for approximately 5 seconds after feeding of all originals is completed. While this indicator is blinking, any new originals placed in the SPF will be fed and copied automatically. See page 49, USER PROGRAMS.

## Using the original table

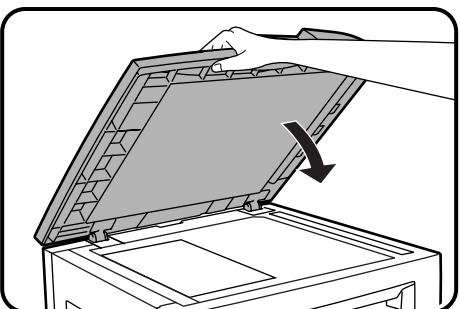


### 1 Turn the power switch on.

- It will take about 35 seconds for the copier to warm up. However, you can make desired settings and press the START (⊕) key during warm-up. Copying will start after warm-up.
- If the power is already on and all indicators except the POWER SAVE indicator are off, the copier is in the auto power shut-off mode. Press the START key in this case. See page 52, POWER SAVE MODES.



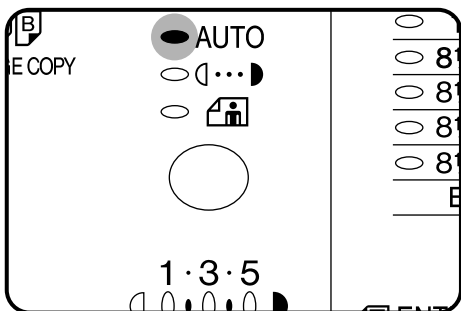
### 2 Place an original face down on the original table, and align it with the original size scale.



### 3 Close the document feeder cover.

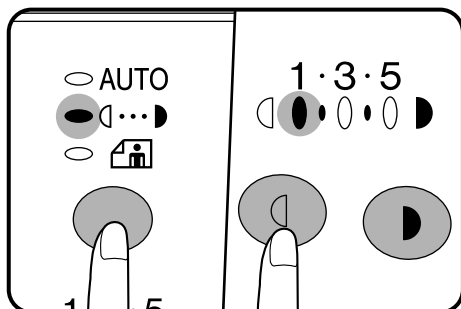
### 4 Ensure that the copy paper size in a paper tray is the same size as the original.

- Use the ORIGINAL SIZE ENTER (≡ ENTER) key to select the original size. Copy paper of the same size as the original will be automatically selected. If desired, the other paper tray can be selected by pressing the TRAY SELECT (≡) key.
- If no tray contains the required paper size, place the required paper into the bypass tray and use the TRAY SELECT (≡) key to select the bypass tray.
- The bypass tray cannot be selected automatically.

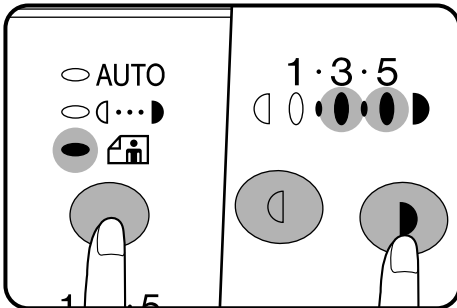





### 5 Adjust the copy density.

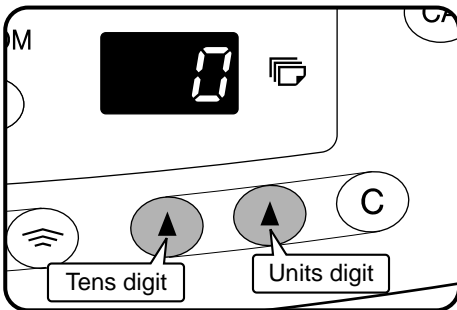
- This copier has three exposure modes to choose from — AUTOMATIC (AUTO), MANUAL (1...3...5), and PHOTO (⊕).
- Automatic exposure is the standard initial setting for this copier. In this mode, the characteristics of the original are “read” by the exposure system and adjustments are automatically made. This optimizes the contrast of the copied images by reducing the effect of colored or shaded background areas. See page 28 to adjust the automatic exposure level.




- For manual copy density adjustment, press the AUTO/MANUAL/PHOTO (AUTO / 1...3...5 / ⊕) key to select MANUAL (1...3...5) and adjust with the light (⊕) and dark (⊖) keys as desired.

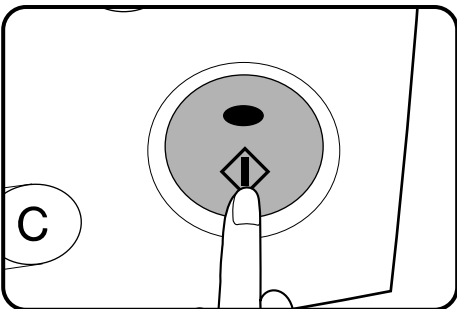


- For photographs, select PHOTO (  ) and then adjust with the light (  ) and dark (  ) keys as desired.
- There are 5 exposure steps indicated by 3 indicator lights. (The indicators light up one or two at a time.)  
If exposure level 2 is selected, the two left-handmost indicators for that level will light up simultaneously. Also, if level 4 is selected, the two right-handmost indicators for that level will light up simultaneously.





## 6 Set the number of copies using the two copy quantity ( , ) keys.

- Press the right copy quantity key to set the units digit from 0 to 9. This key will not change the tens digit.
- Press the left copy quantity key to set the tens digit from 1 to 9.
- A single copy can be made with the initial setting, i.e., when “0” is displayed.
- Press the CLEAR (  ) key to clear an entry if a mistake is made.



## 7 Press the START ( ) key.

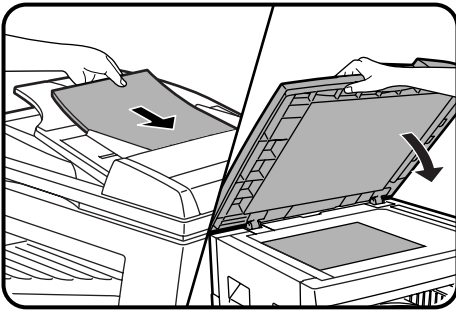
- The number in the copy quantity display will decrease by 1 each time a copy is made.
- Press the CLEAR (  ) key to stop copying in the middle of a run.
- To repeat the same copy sequence for a different original, simply replace the original and press the START (  ) key.

# REDUCTION/ENLARGEMENT/ZOOM

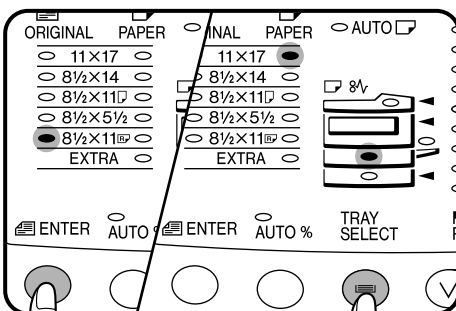
Reduction and enlargement ratios can be selected either automatically with the AUTO IMAGE (AUTO %) key or manually with the PRESET RATIO selector (⏴, ⏵) keys and/or the zoom (⏴, ⏵) keys. The zoom function enables precise copy ratio selection from 50% to 200% in 1% increments.

## Automatic

**1** Place the original in the document feeder tray or on the original table.



**2** When using the original table, press the ORIGINAL SIZE ENTER (≡) key until the indicator for the size of the original on the original table lights up.

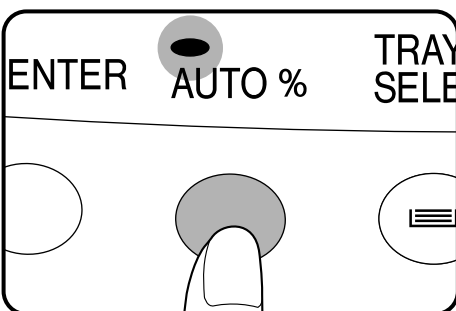


**3** Use the TRAY SELECT (⊖) key to select the paper tray with the desired paper size.

- This feature will not work when copy paper of non-standard size is used or the bypass tray is used.

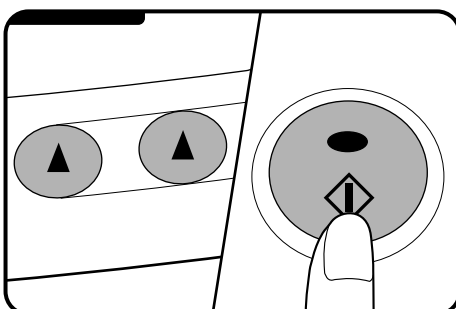
**4** Press the AUTO IMAGE (AUTO %) key.

- The copy ratio will be automatically set.
- If the size and orientation of the original do not correspond to standard reduction/enlargement ratios for the selected paper tray, then the ORIGINAL SIZE indicator will blink.
- If a PRESET RATIO indicator is blinking, part of the original image may not be copied.



**5** Enter the number of copies.

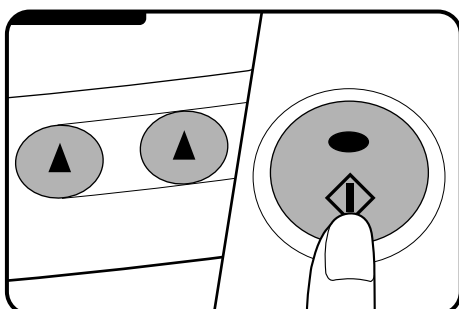
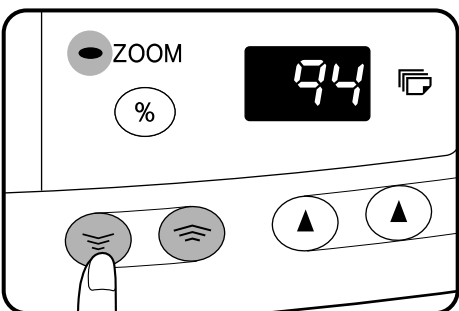
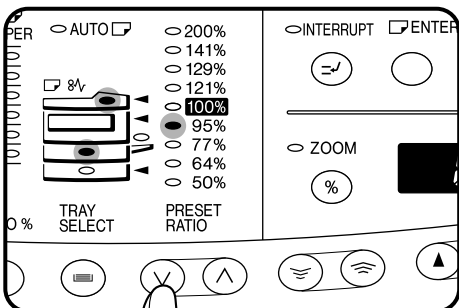
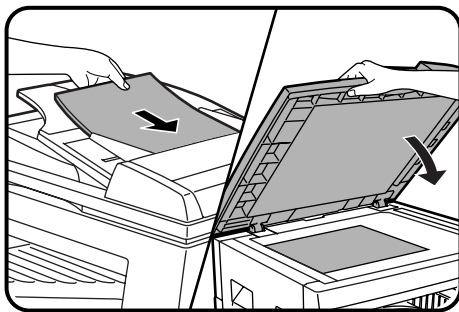
**6** Press the START (⏻) key.



Note

- To cancel the automatic reduction/enlargement mode, press the AUTO IMAGE (AUTO %) key again.
- When copying from the SPF with this feature, the automatic reduction/enlargement mode will be automatically canceled after copying is complete.

Manual



**1** Place the original in the document feeder tray or on the original table.

**2** Use the PRESET RATIO selector (  $\downarrow$  ,  $\uparrow$  ) keys and the zoom (  $\ominus$  ,  $\oplus$  ) keys to select the desired copy ratio.

- To select a preset reduction or enlargement copy ratio, press the  $\downarrow$  or  $\uparrow$  key repeatedly until the indicator for the desired copy ratio is lit.

- A. Preset reduction ratios are: 95%, 77%, 64%, and 50% .
- B. Preset enlargement ratios are: 121%, 129%, 141%, and 200%.
- C. Zoom ratios: Any ratio from 50% to 200% can be set, in 1% increments. Press the  $\downarrow$  or  $\uparrow$  key to set the approximate ratio, then press the  $\ominus$  key to decrease the ratio or the  $\oplus$  key to increase the ratio.

- When a zoom (  $\ominus$  ,  $\oplus$  ) key is pressed, the ZOOM indicator will light up and the zoom ratio will be displayed in the copy quantity display for at least two seconds.
- To verify a zoom setting without changing the zoom ratio, press and hold down the copy ratio display (  $\%$  ) key. When the key is released, the display will return to the copy quantity display.
- To decrease or increase the zoom ratio rapidly, press and hold down the  $\ominus$  or  $\oplus$  key. However the value will stop at the preset reduction or enlargement ratios. To move beyond these ratios, release the key and then press and hold it down again.

- D. Same-size reset: Press the  $\downarrow$  or  $\uparrow$  key repeatedly until the copy ratio returns to 100%.

**3** Ensure that copy paper of the desired size is installed in the paper tray.

- If you have placed the original on the original table, use the ORIGINAL SIZE ENTER (  $\equiv$  ENTER ) key to select the original size. Copy paper of the appropriate paper size will be automatically selected depending on the original size and copy ratio. If the selected PRESET RATIO indicator or the ZOOM indicator blinks, the selected copy image is too large for the copy paper size. The desired paper tray can also be selected by pressing the TRAY SELECT (  $\equiv$  ) key.

**4** Set the number of copies and press the START (  $\odot$  ) key.

# BYPASS FEED (special paper)

The bypass tray is used to copy onto transparency film, labels, and other special purpose papers. Up to 100 sheets of standard copy paper can be set in the bypass tray.

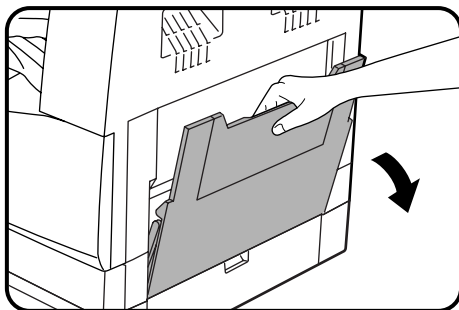


Note

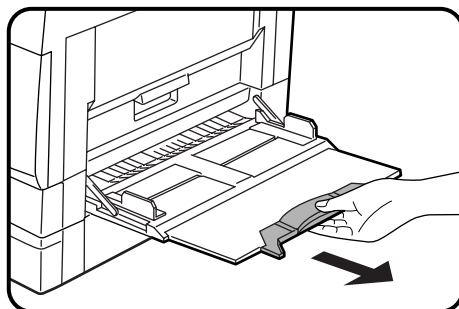
For special purpose papers, the original image must be smaller than the paper or media for copying.

If the original image is bigger than the paper or media, this may cause smudges on the edges of the copies.

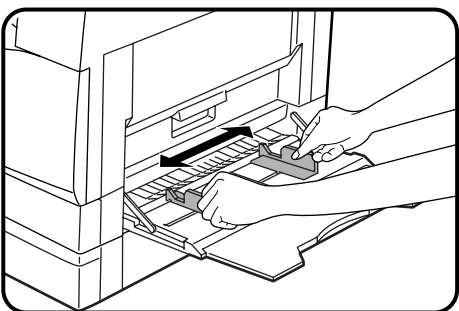
Also for standard copy paper, smudges may appear if the copy paper is not at least as large as the original image.



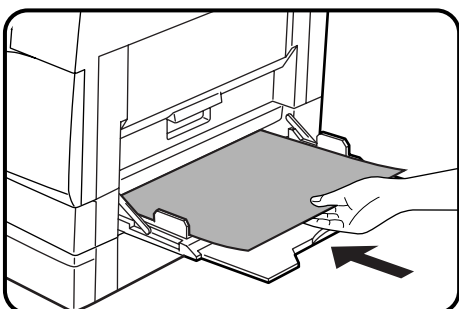
## 1 Unfold the bypass tray.



- When feeding 8-1/2" x 14" or 11" x 17" sized paper, extend the bypass tray.



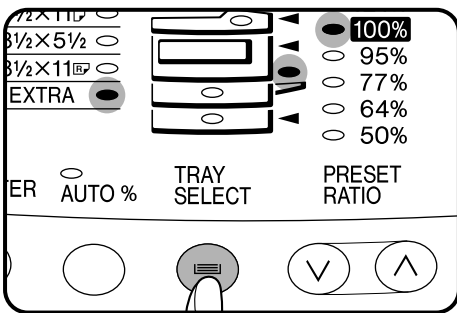
## 2 Set the paper guides to the copy paper width.




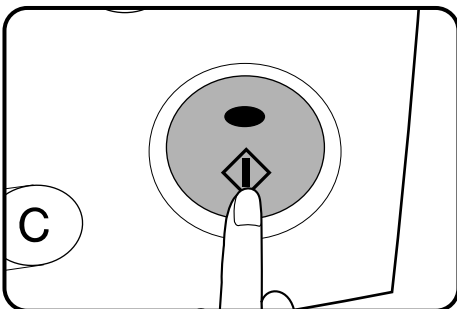
## 3 Insert the copy paper (print face down) all the way into the bypass tray.

- Up to 100 sheets of standard copy paper measuring from 5-1/2" x 8-1/2" to 11" x 17" can be loaded in the bypass tray.
- Transparency film, labels, and other special purpose papers (except envelopes) must be fed individually. Up to 10 envelopes can be set.
- When adding paper, first remove remaining paper, combine it with the paper to be added and then reload as a single stack.
- When loading envelopes, make sure that they are straight and flat.





**4** Press the TRAY SELECT (  ) key to select the bypass tray.

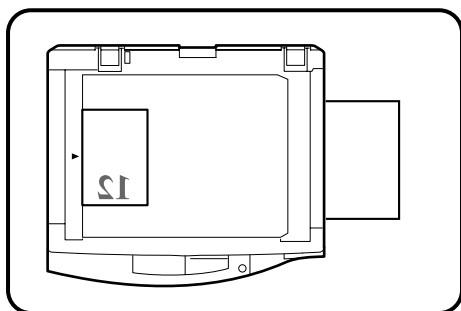


**5** Leave the copy quantity at 0 if using special papers. Set the number of copies if using standard copy paper or envelopes.

**6** Press the START (  ) key.

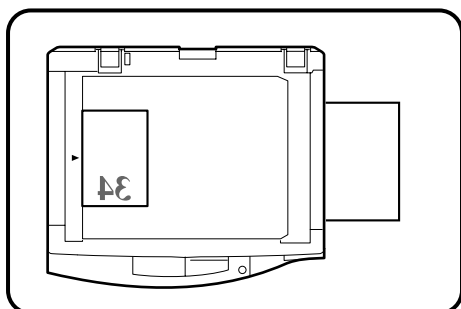
# TWO-SIDED COPYING

Two-sided copies can be made on this copier using the bypass tray.



**1** Place the first original on the original table and make a copy.

- The first copy can be made using any of the paper feed stations.



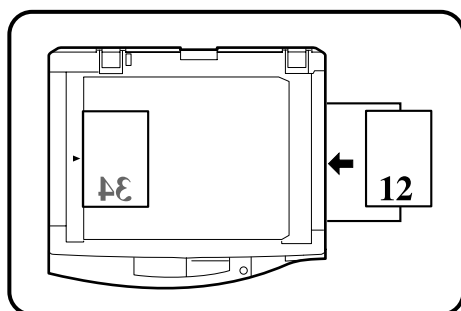
**2** Replace the first original with the second original and close the document feeder cover.

- Make sure that the first and second originals are oriented in the same way on the original table.
- When the originals are placed horizontally, make sure that the first and second originals are oriented in the reverse way on the original table.



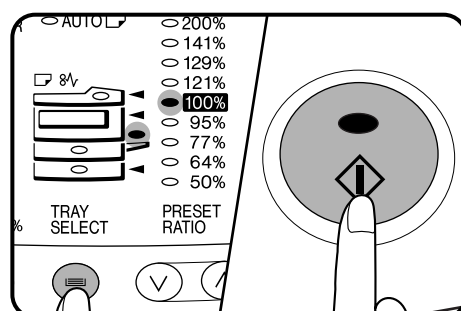
Note

Both the first and second originals can be set in the SPF but they must be set separately. If the stream feeding mode for the SPF has been enabled, set the second original after the SPF (○) indicator goes out. See page 17.



**3** Turn the first copy over left to right and place it into the bypass tray.

- Be sure to feed the copies one sheet at a time.



**4** Use the TRAY SELECT ( ) key to select the bypass tray.

**5** Press the START ( ) key.

# SORT/GROUP

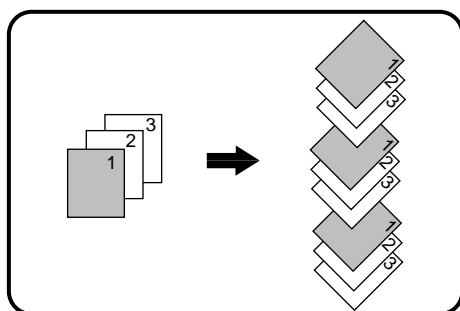
This copier has two sorter modes for different copying jobs: one sorts copies into sets matching the sequence of the originals and the second groups copies by originals.

The sort/group feature cannot be used with the dual page copy feature.

To change the SORT/GROUP mode, press the SORT/GROUP key to select the desired mode.

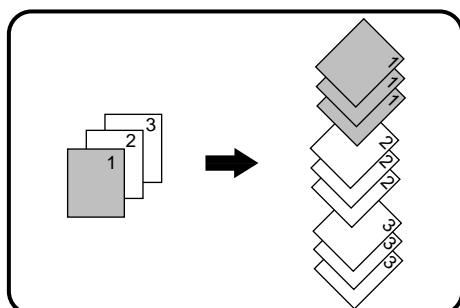
- The capacity of the paper output tray is 250 sheets. When the number of copies output reaches this limit in a sort or a group copy run, copying will stop and the START (⊕) key indicator will blink.

Remove the copies from the paper output tray and press the START (⊕) key to resume copying.



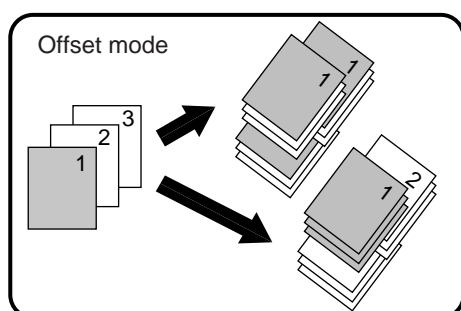
## Sort mode

Each set of copies will be sequentially delivered to the paper output tray.



## Group mode

All copies of the same originals will be grouped in the paper output tray.

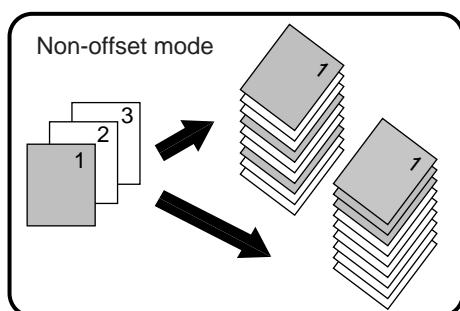


## Offset stack

If the offset stack mode is enabled using user program No. 19, each copy will be offset by approximately 1 inch (25 mm). When copying in the sort mode, each collated set of copies will be stacked offset from the previous set. When copying in the group mode, copies will be offset and stacked in groups of multiple copies from the same original.

If the offset stack mode is disabled, copies will not be offset.

The offset stack mode is enabled in the factory default setting.



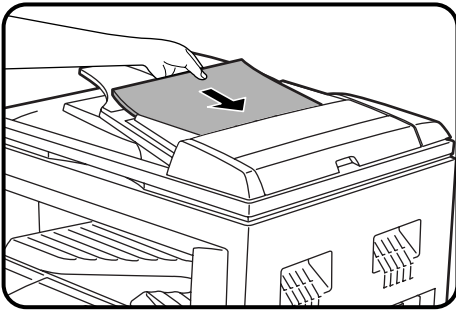
## Non-offset mode

## Copying in the sort mode

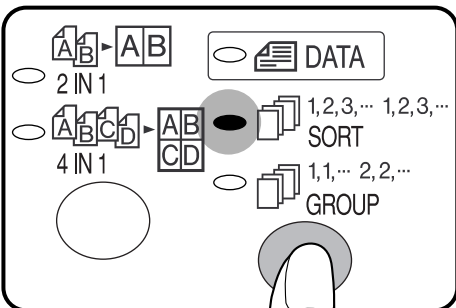
When copying in the sort mode, the original image will be stored in the copier memory each time an original is scanned and copying will start after all originals have been scanned.

MAKING COPIES

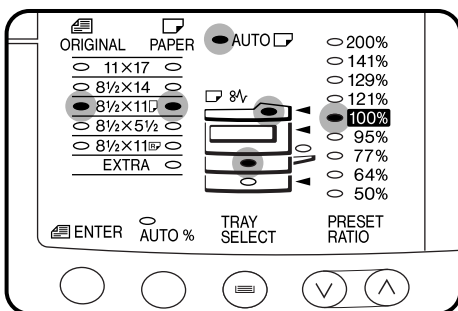
Sort/group



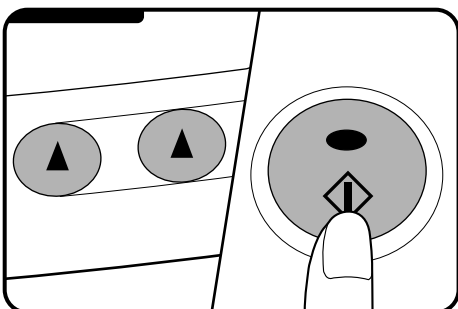
- 1 Set the originals face up in the document feeder tray.
  - The original table cannot be used for sort copying.



- 2 Press the SORT/GROUP key to select the SORT mode.



- 3 Ensure that the desired copy paper size is selected.

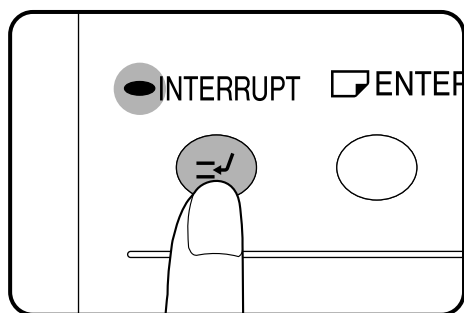


- 4 Set the number of copies and press the START (Ⓢ) key.
  - Copying will start after the originals have been scanned. Up to 30 sheets of originals can be scanned. (If originals are fed continuously using the stream feeding mode, up to approximately 60 sheets of 8-1/2" x 11" originals can be scanned. However, when copying originals which require more memory such as photographs, the number of originals which can be scanned will be less.) When the memory becomes full of scanned original image data, the ORIGINAL DATA indicator will blink. When the ORIGINAL DATA indicator blinks, the copier will stop scanning. To start copying of scanned originals, press the START key. To cancel copying, press the CLEAR or CLEAR ALL key.

# INTERRUPTING A COPY RUN

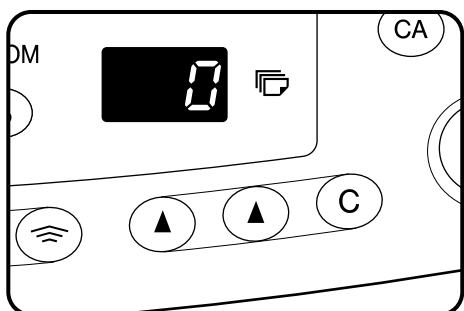
INTERRUPT is used to interrupt a long copy run so that another job can be done.

- SORT or GROUP cannot be selected during interrupt copying.



## 1 Press the INTERRUPT (☐) key.

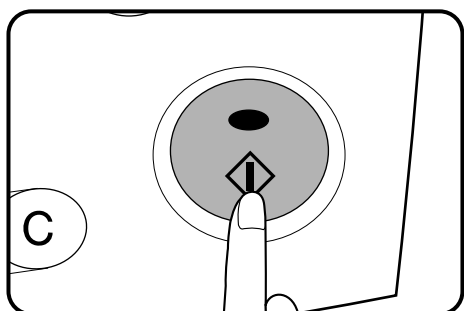
- The copier will return to the initial settings.
- When the SPF is being used, the copier will stop after completing copying of the original which has been fed into the SPF.



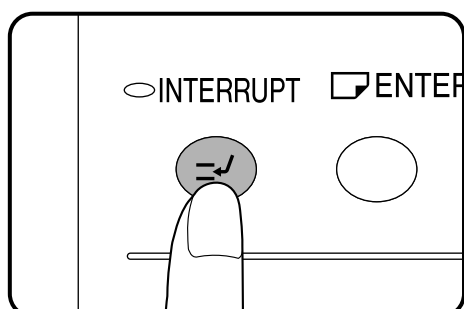
## 2 When the copier stops, remove the original(s) and set the original(s) for interrupt copying.

## 3 Select the desired available copier functions.

## 4 Set the number of copies.



## 5 Press the START (◇) key.



## 6 When all INTERRUPT copies are finished, press the INTERRUPT (☐) key again to cancel the INTERRUPT mode, and remove the original used for interrupt copying.

- The previous copy quantity, copy ratio, copy density, and paper size will be automatically restored.

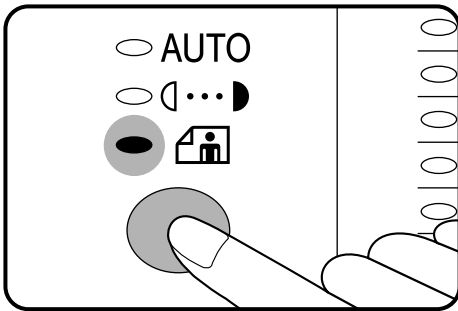
## 7 Replace the original for the interrupted job and press the START (◇) key to resume copying.

# AUTOMATIC EXPOSURE ADJUSTMENT

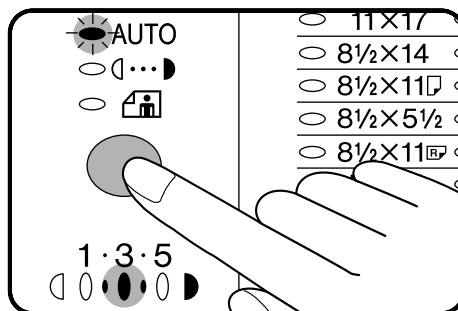
The automatic exposure level can be adjusted to suit your copying needs. This level is set for copying from the original table and copying from the SPF respectively. To set the level for the SPF, place an original in the document feeder tray and make sure that the SPF indicator lights up before proceeding to step 1. To set the level for the original table, ensure that the SPF indicator does not light up.

MAKING COPIES

Automatic exposure adjustment

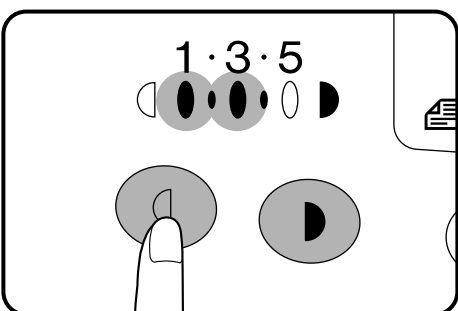


**1** Press the AUTO/MANUAL/PHOTO ( AUTO / D...D / PHOTO ) key to select the PHOTO ( PHOTO ) mode.

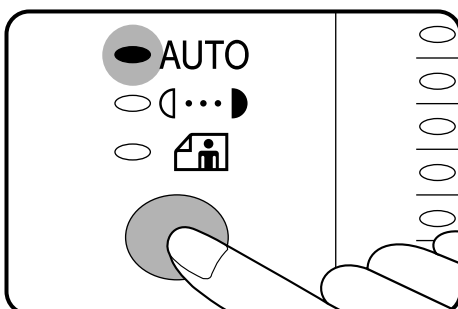


**2** Press and hold down the AUTO/MANUAL/PHOTO ( AUTO / D...D / PHOTO ) key for approximately 5 seconds.

- The PHOTO ( PHOTO ) indicator will go out and the AUTO indicator will begin to blink.
- One or two exposure indicators corresponding to the current automatic exposure level will light up. The factory default setting is level “3”.




**3** Press the light ( LIGHT ) or dark ( DARK ) key to lighten or darken the automatic exposure level as desired.

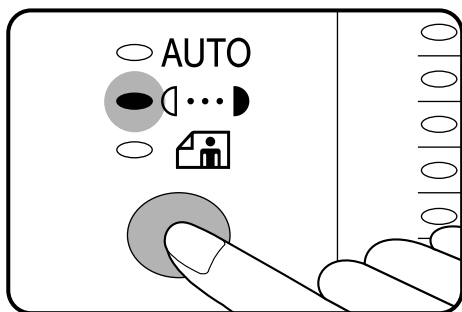





**4** Press the AUTO/MANUAL/PHOTO ( AUTO / D...D / PHOTO ) key.

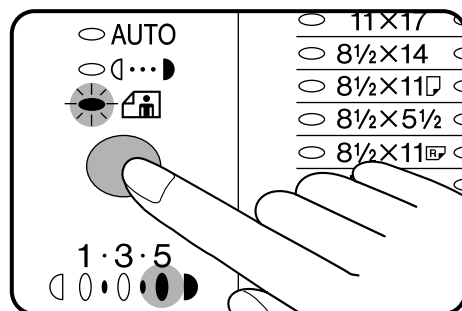
- The AUTO indicator will stop blinking and will light up steadily.
- This automatic exposure level will remain in effect until you change it again by this procedure.

# TONER SAVE MODE



This mode reduces toner consumption by approximately 10% in the automatic and manual exposure modes. Copies will be lighter but still adequate for general use. Selection of this mode does not affect the PHOTO (  ) mode. Follow the procedure below for setting the toning level.

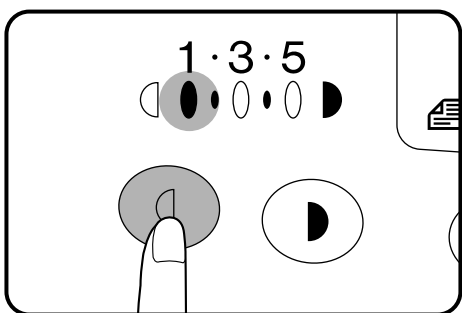


- 1 Press the AUTO/MANUAL/PHOTO ( AUTO / (  ) /  ) key to select the MANUAL (  ) mode.**



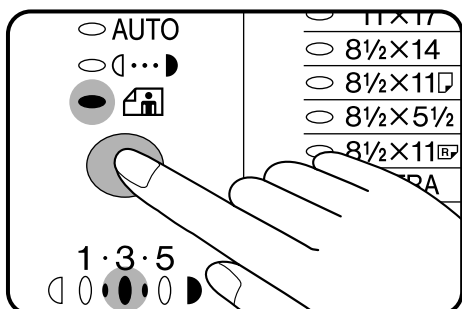
- 2 Press and hold down the AUTO/MANUAL/PHOTO ( AUTO / (  ) /  ) key for approximately 5 seconds.**

- The MANUAL (  ) indicator will go out and the PHOTO (  ) indicator will begin to blink.
- The exposure indicator marked “5” will light up, indicating that the standard toner mode is active.





- 3 To enter the toner save mode, press the light (  ) key.**

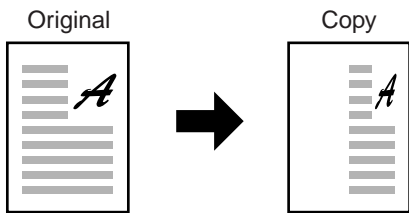
- The exposure indicator marked “1” will light up, indicating that the toner save mode is selected.



- 4 Press the AUTO/MANUAL/PHOTO ( AUTO / (  ) /  ) key.**

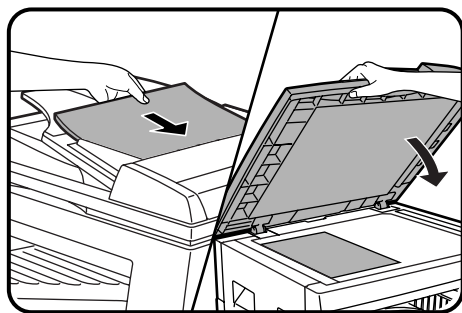
- The PHOTO (  ) indicator will stop blinking and will light up steadily. The toner save mode is now active.
- To return to the standard mode, repeat the procedure but use the dark (  ) key to select exposure level “5” in step 3.

# XY ZOOM

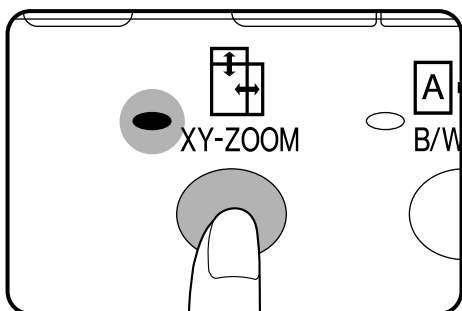


The XY ZOOM feature allows the horizontal and vertical copy ratios to be changed independently.

To use the XY ZOOM feature with the DUAL PAGE COPY feature, set the DUAL PAGE COPY feature first and then the XY ZOOM feature. (Enlargement cannot be set.)

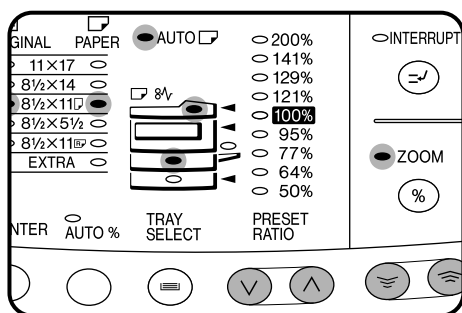


**1** Place the original in the document feeder tray or on the original table.



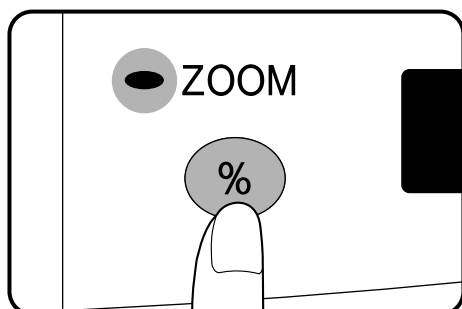
**2** Press the XY-ZOOM (⊕) key.

- The current value for the vertical direction will be displayed in the copy quantity display.



**3** Use the PRESET RATIO selector (⏴, ⏵) keys and zoom (⏴, ⏵) keys to change the copy ratio in the vertical direction.

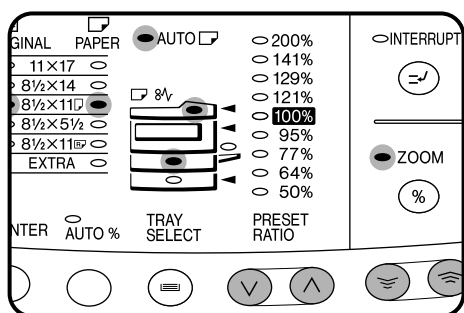
- Press a PRESET RATIO selector (⏴ or ⏵) key to set an approximate ratio, then press the ⏴ key to decrease the ratio or ⏵ key to increase the ratio. The copy ratio will be displayed in the copy quantity display.



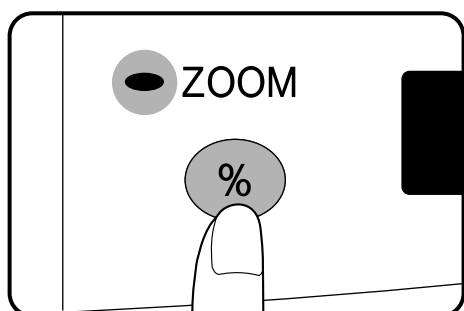
**4** Press the copy ratio display (Ⓢ) key.

- The selected ratio for the vertical direction will be entered and the current value for the horizontal direction will be displayed in the copy quantity display.



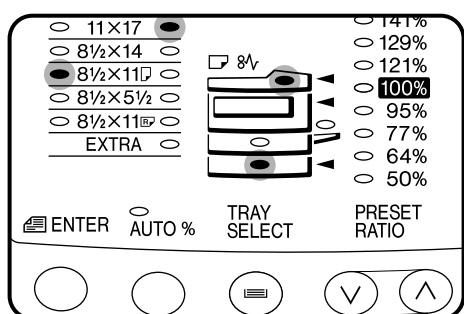


**5** Use the PRESET RATIO selector (  $\downarrow$  ,  $\uparrow$  ) keys and zoom (  $\leftarrow$  ,  $\rightarrow$  ) keys to change the copy ratio in the horizontal direction in a similar manner as for the vertical direction.



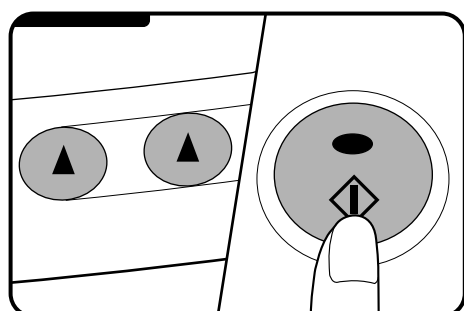
**6** Press the copy ratio display (  $\%$  ) key.

- The selected ratio for the horizontal direction will be entered and the display will change to the copy quantity display.
- To verify the copy ratios, press and hold down the copy ratio display (  $\%$  ) key. The vertical and horizontal ratios will be alternately displayed.



**7** Ensure that copy paper of the desired size is installed in the paper tray.

- If you have placed the original in the document feeder tray, copy paper of the appropriate paper size will be automatically selected depending on the original size and copy ratios. If you have placed the original on the original table, use the ORIGINAL SIZE ENTER (  $\leftarrow$  ENTER ) key to select the original size. Copy paper will be automatically selected. If desired, another paper tray can be selected by pressing the TRAY SELECT (  $\equiv$  ) key.



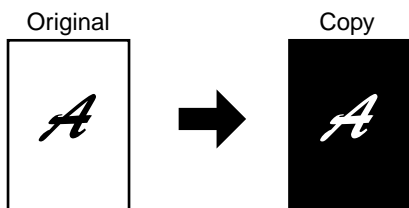
**8** Set the number of copies and press the START (  $\rightarrow$  ) key.



Note

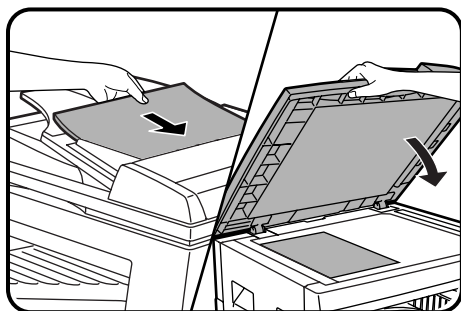
- To change the copy ratios again, press a PRESET RATIO selector (  $\downarrow$  ,  $\uparrow$  ) key or a zoom (  $\leftarrow$  ,  $\rightarrow$  ) key. Then, perform step 3 and the succeeding steps.
- To cancel this function, press the XY-ZOOM (  $\boxplus$  ) key again.

# B/W REVERSE

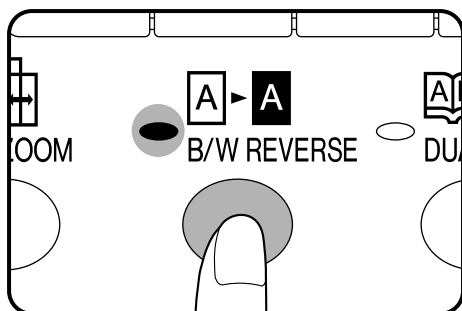


The B/W REVERSE feature is used to reverse black and white areas.

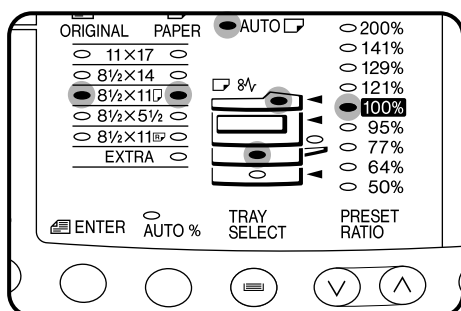
- When the B/W REVERSE feature is selected, the exposure mode will be automatically set to the MANUAL mode. Other exposure modes cannot be selected.  
Even if this feature is canceled, the MANUAL mode will not automatically be canceled.



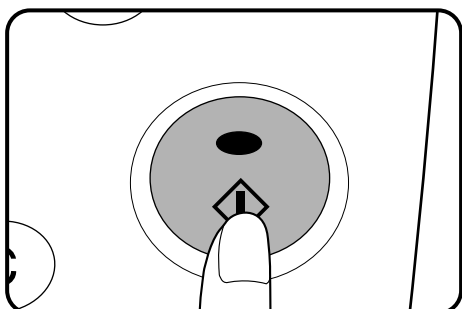
- 1 Place the original in the document feeder tray or on the original table.**



- 2 Press the B/W REVERSE (A-A) key.**

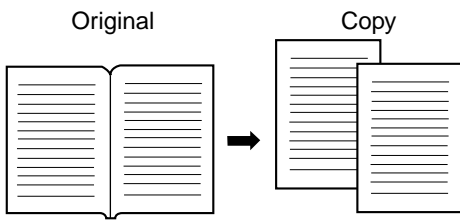


- 3 Check the copy paper size.**
  - If you have placed the original on the original table, use the ORIGINAL SIZE ENTER (ENTER) key to select the original size. Copy paper of the same size as the original will be automatically selected. If desired, another paper tray can be selected by pressing the TRAY SELECT (TRAY SELECT) key.



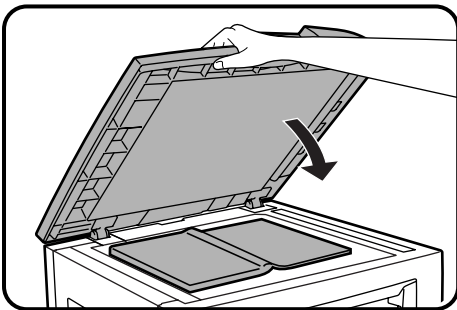
- 4 Make all other desired copier selections and press the START (START) key.**

# DUAL PAGE COPY



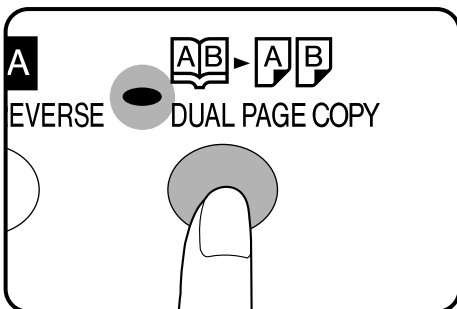
The DUAL PAGE COPY feature produces individual copies of two documents placed side by side on the original table. It is especially useful when copying books and other bound documents. If the AUTO IMAGE feature has been selected, this feature cannot be selected.

To use the DUAL PAGE COPY feature with the XY ZOOM feature, set the DUAL PAGE COPY feature first and then the XY ZOOM feature. (Enlargement cannot be set.)



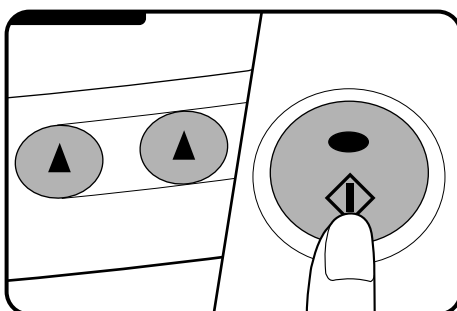
- 1 Place the originals on the original table with the center of the two pages aligned with the paper size index (8 1/2"). Close the document feeder cover.**

- Set the page to be copied first to the right of the paper size index mark.



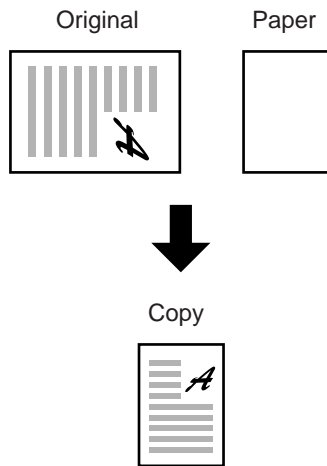
- 2 Press the DUAL PAGE COPY (AB-AB) key.**

- Check to be sure that 8-1/2" x 11" size copy paper is selected.



- 3 Set the number of copies and press the START ( ) key.**

# ROTATION COPYING



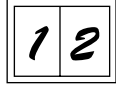
If user program No. 7 is set, the image of the original will rotate when the orientation of the original does not match that of the copy paper. Rotation copying will function only if the auto paper select mode or auto copy ratio mode has been selected. Even if user program No. 7 is not set, rotation copying will function when the 2 in 1 or 4 in 1 function is selected. See page 49.

- If enlargement copying onto a paper size larger than 8-1/2" x 11" is performed, the image cannot be rotated. When this occurs, the detected size and orientation of the original will be indicated by a steadily lighted indicator and a flashing indicator will show the required orientation of the original. The original must be rotated 90° to match the flashing indicator to prevent image loss on the copies.

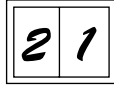
Example: Copying from an 11" x 17" original  
onto 8-1/2" x 11" paper

# 2 IN 1 OR 4 IN 1

## 2 in 1 copying



Pattern ①



Pattern ②

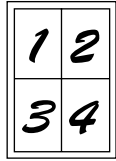


Pattern ①

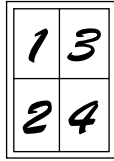


Pattern ②

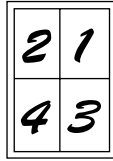
## 4 in 1 copying



Pattern ①



Pattern ②



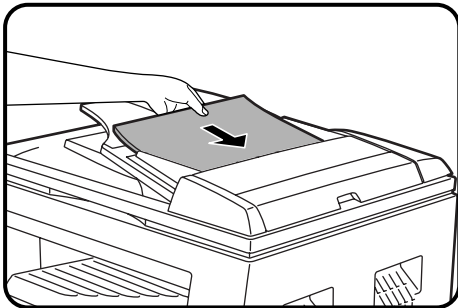
Pattern ③



Pattern ④

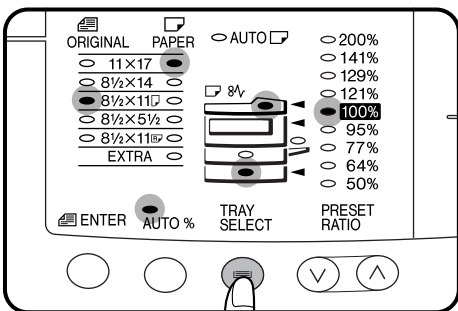
The 2 in 1 or 4 in 1 feature is used to copy 2 or 4 originals, collectively in a specified order, onto one sheet.

- These features cannot be used with the dual page copying, XY zoom, erase, or margin shift features.
- Copies can be made with or without the border lines shown in the illustration. See user program No. 6 on page 49.
- The order of originals which will be arranged on the copies can be selected by user programs. There are two patterns of layout for 2 in 1 copying and four patterns of layout for 4 in 1 copying. See user program No. 17 and 18 on page 49.
- The 2 in 1 or 4 in 1 feature operates only in the sort or group mode. If the 2 in 1 or 4 in 1 feature is selected when either the sort or group mode has not been selected, the group mode will be automatically selected.



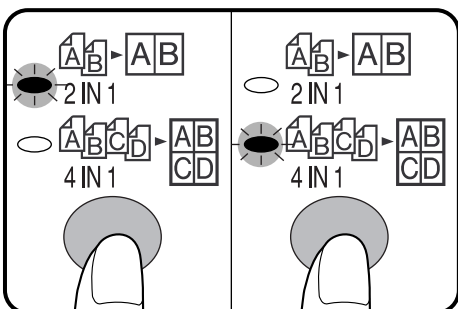
## 1 Set the originals face up in the document feeder tray.

- The original table cannot be used for the 2 in 1 or 4 in 1 feature.



## 2 Use the TRAY SELECT key to select the paper tray with the desired paper size.

- The bypass tray and any tray with non-standard size paper cannot be used with the 2 in 1 or 4 in 1 feature.

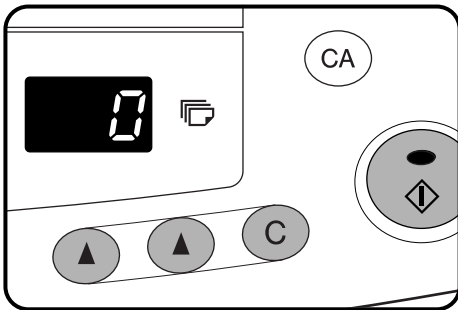


## 3 To confirm or set the layout pattern for 2 in 1 copying, first ensure that both the 2 IN 1 and 4 IN 1 indicators are not lit then press and hold the 2 IN 1 / 4 IN 1 key for more than 5 seconds.

- The 2 IN 1 indicator will blink and the currently selected layout pattern number will blink in the copy quantity display.

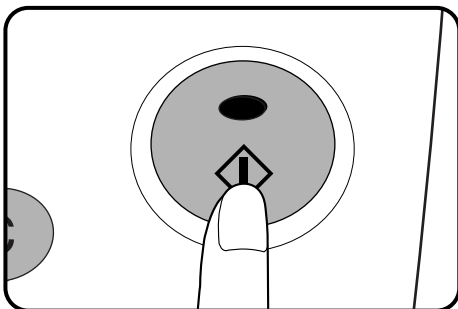
To confirm or set the layout pattern for 4 in 1 copying, use the 2 IN 1 / 4 IN 1 key to light the 2 IN 1 indicator then press and hold the 2 IN 1 / 4 IN 1 key for more than 5 seconds.

- The 4 IN 1 indicator will blink and the currently selected layout pattern number will blink in the copy quantity display.



## 4 Select the desired pattern number using copy quantity keys.

- The selected number will blink in the copy quantity display. For layout pattern numbers, see the previous page.

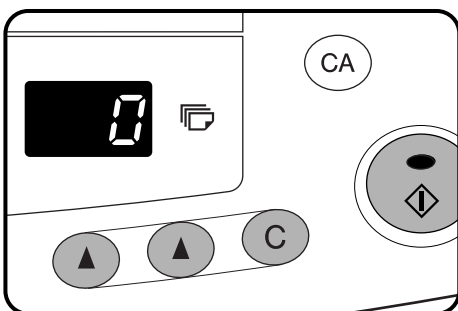


## 5 Press the START key.

- The selected number will light up steadily.

## 6 Press the 2 IN 1 / 4 IN 1 key to complete the selection.

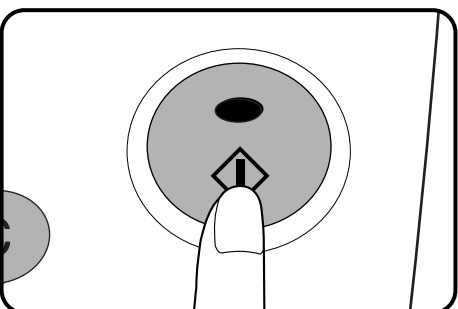
- The copy ratio will be calculated automatically. If the calculated copy ratio is less than 50%, part of original image may not be copied because the smallest copy ratio is 50%.



## 7 Set the number of copies and press the START ( ) key.

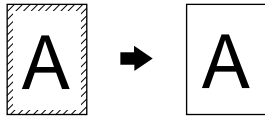
- Copying will start after the originals have been scanned. Up to 30 sheets of originals can be scanned. (If originals are fed continuously using the stream feeding mode, up to approximately 60 sheets of 8-1/2" x 11" originals can be scanned. However, when copying originals which require more memory such as photographs, the number of originals which can be scanned is less.) When the memory becomes full of scanned original image data, the ORIGINAL DATA indicator will blink.

When the ORIGINAL DATA indicator blinks, the copier will stop scanning. To start copying of scanned originals, press the START key. To cancel copying, press the CLEAR or CLEAR ALL key.

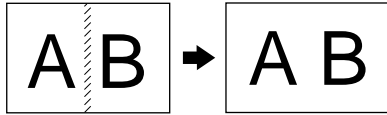


# ERASE

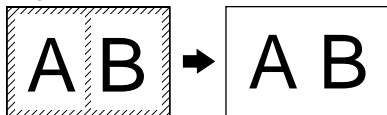
Edge erase



Center erase

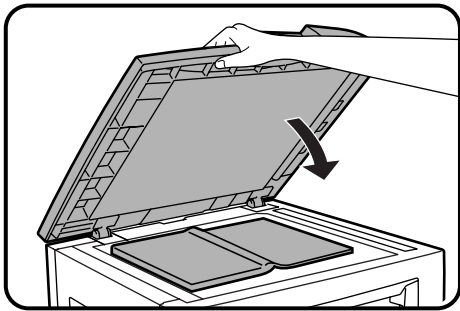


Edge + Center erase



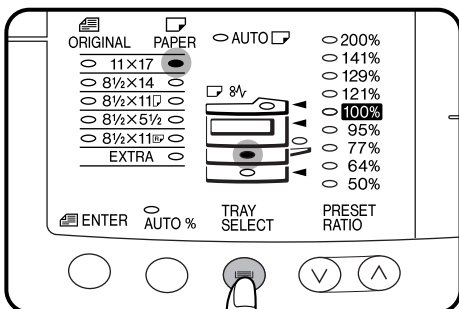
This copier has an edge erase mode and a center erase mode.

- Edge erase can be used to eliminate shadow lines around the edges of copies caused when thick paper or a book is used as an original.
- Center erase can be used to eliminate the shadow produced by the bindings of bound documents.
- Edge + center erase can be used to eliminate shadow lines around the edges of copies and to eliminate the shadow at the center of copies.
- The erase width can be set from 0" to 1" in five steps using user program No. 16. See page 49.
- This feature cannot be used with the 2 in 1 or 4 in 1 feature.



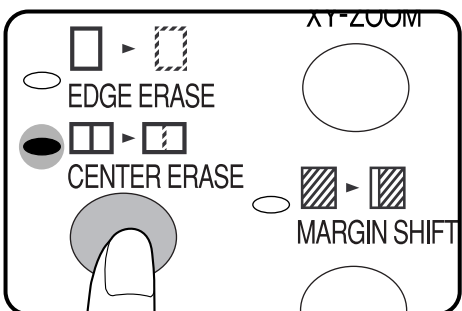
**1** Place the original on the original table and close the document feeder cover.

- The SPF can also be used for this feature.



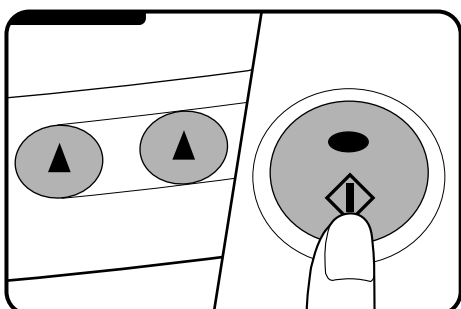
**2** Use the TRAY SELECT (  ) key to select the paper tray with the desired paper size.

- The bypass tray and any tray with non-standard size paper cannot be used for this feature.



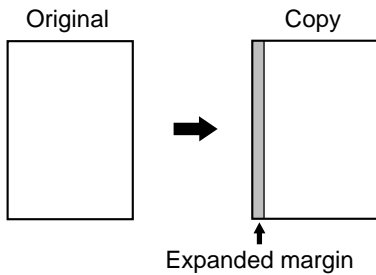
**3** Press the ERASE key to select the desired erase mode.

- To select the EDGE + CENTER ERASE mode, press the ERASE key until both the EDGE and CENTER indicators light up.



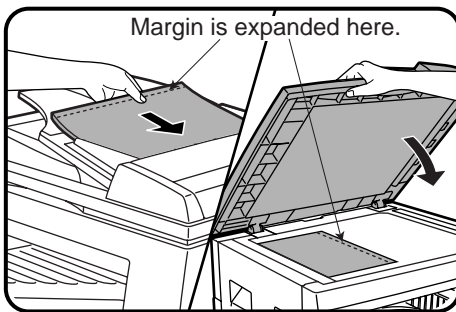
**4** Set the number of copies and press the START (  ) key.

# MARGIN SHIFT



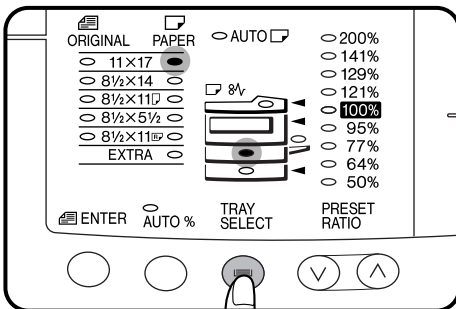
The MARGIN SHIFT feature automatically shifts the text or image to the right to increase the left margin by approximately 1/4".

- This feature cannot be used with the 2 in 1 or 4 in 1 feature.

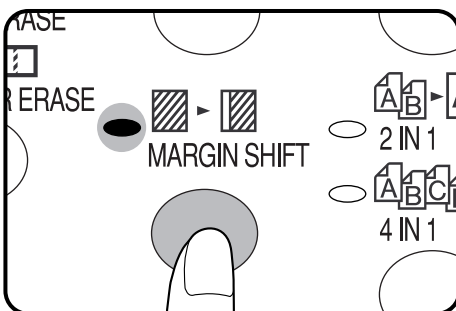


**1** Place the original in the document feeder tray or on the original table.

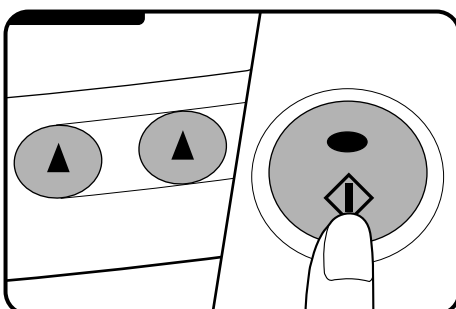
- When using the SPF, set the originals so that the margin side is positioned at the left side.



**2** Use the TRAY SELECT (  ) key to select the paper tray with the desired paper size.

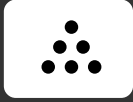


**3** Press the MARGIN SHIFT key.



**4** Set the number of copies and press the START (  ) key.

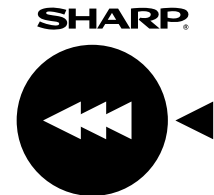




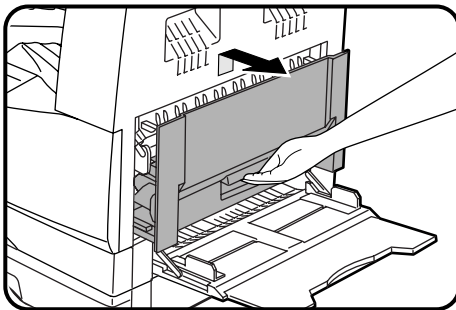
# TD CARTRIDGE REPLACEMENT

If the machine detects an insufficient amount of toner available, copying will stop and the machine will add toner. During this time the TD cartridge replacement required (⋯) indicator will blink. When sufficient toner has been added the indicator will go out indicating that copying can be resumed. However, if toner addition continues for a maximum of two minutes, the TD cartridge replacement required (⋯) indicator will light up in addition to the START (Ⓢ) key being lighted steadily. This indicates that the toner supply is low and a new cartridge will be needed soon. If copying is continued, the copies will gradually become lighter until the copier stops and the TD cartridge replacement required (⋯) indicator begins to blink, indicating that the cartridge must be replaced. Replace the TD cartridge by following the procedure below.

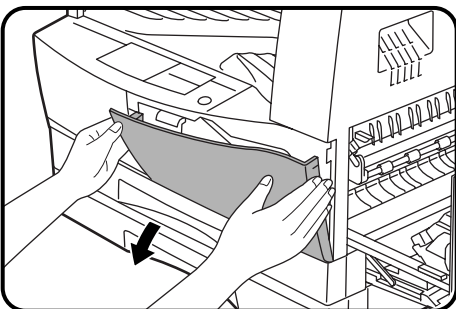
For best copying results, be sure to use only SHARP Genuine Supplies which are designed, engineered and tested to maximize the life and performance of SHARP copiers. Look for the Genuine Supplies label on the toner package.



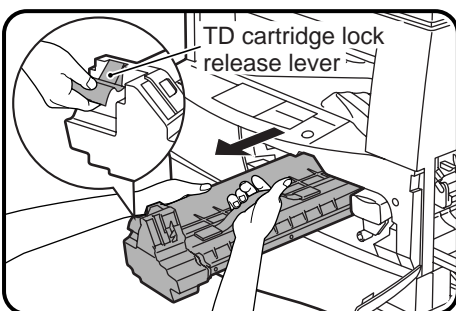
GENUINE SUPPLIES



- 1** Open the bypass tray. Lift slightly on the side cover and slide the cover out until it stops.

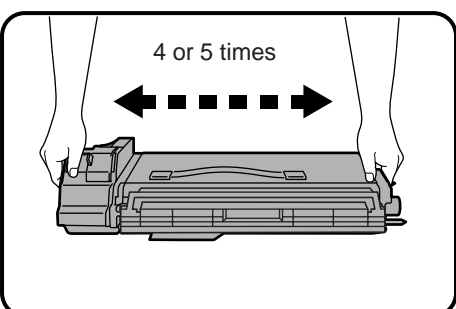


- 2** Push gently the right side of the front cover to open the cover.

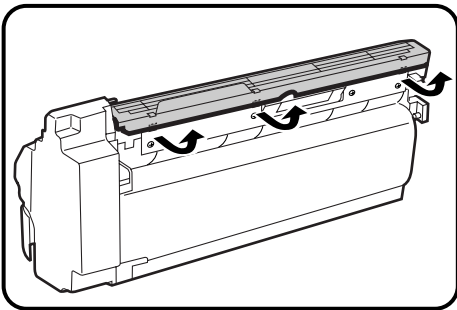


- 3** Lift the TD cartridge lock release lever and pull the cartridge out until the green strap handle can be grasped by the right hand. Lift the cartridge by the handle while supporting it with the left hand at the green label position to remove it.

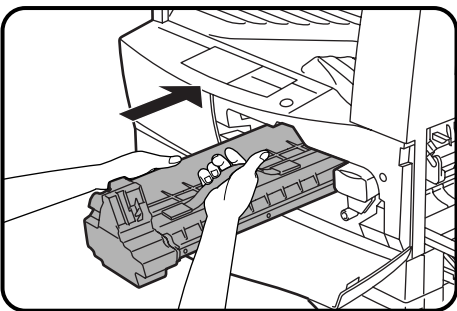
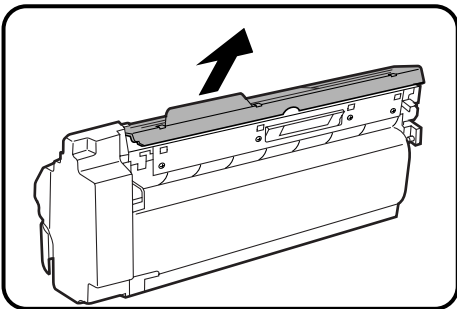
- Dispose of the old TD cartridge in accordance with local regulations.



- 4** Remove the new TD cartridge from the bag. Hold the cartridge on both sides and shake it horizontally four or five times.



**5** Remove the protective cover from the TD cartridge by unlatching three cover hooks from the holes on the cartridge and then pulling the cover in the direction indicated by the arrow in the illustration.

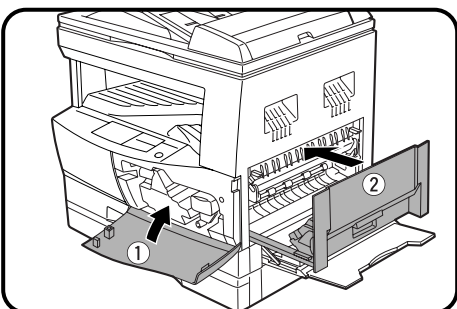


**6** Gently insert the TD cartridge along the guides until it locks in place.



Note

If dirt or dust is adhered to the TD cartridge, remove it before installing the cartridge.



**7** Close the front cover by pushing both sides with your hands and then close the side cover by pressing the handle on the cover. The ⋯ indicator will go out .



Caution

When closing the covers, be sure to close the front cover securely and then close the side cover. If the covers are closed in the wrong order, the covers may be damaged.



# DRUM CARTRIDGE REPLACEMENT

The useful life of the drum cartridge is approximately 30,000 copies. When the internal counter reaches approximately 29,000 copies, the drum replacement required (🔍) indicator will light up indicating that replacement of the drum cartridge will be needed soon. When the indicator begins to blink, replace the drum cartridge by following the procedure given below.

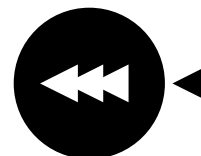
For best copying results, be sure to use only SHARP Genuine Supplies which are designed, engineered and tested to maximize the life and performance of SHARP copiers. Look for the Genuine Supplies label on the drum package.



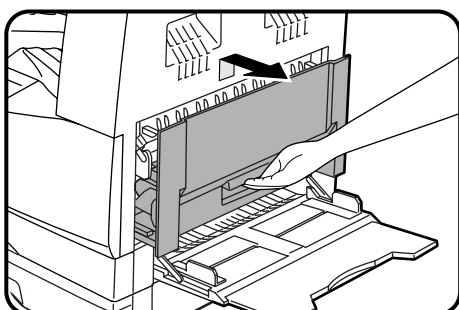
Caution

Do not remove the protective cover on the drum portion (black paper) of a new drum cartridge before use. The cover protects the drum against external light.

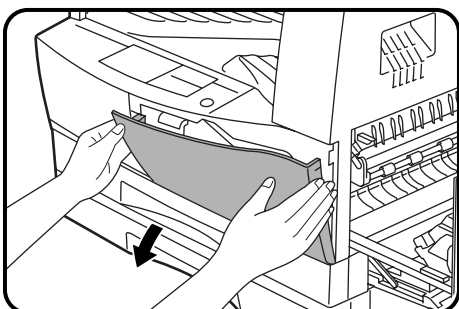
SHARP®



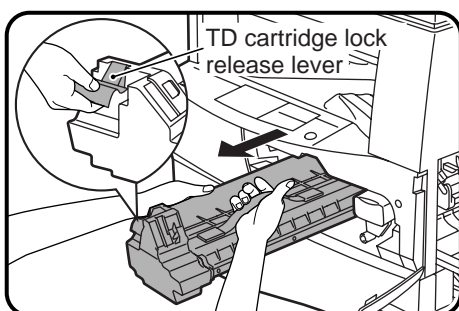
GENUINE SUPPLIES



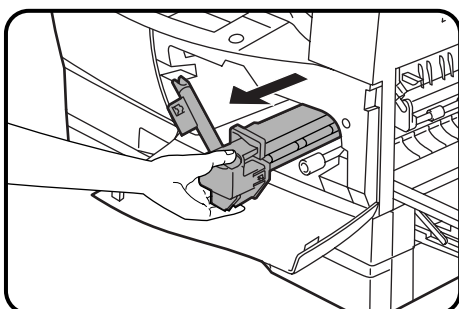
- 1** Open the bypass tray. Lift slightly on the side cover and slide the cover out until it stops.



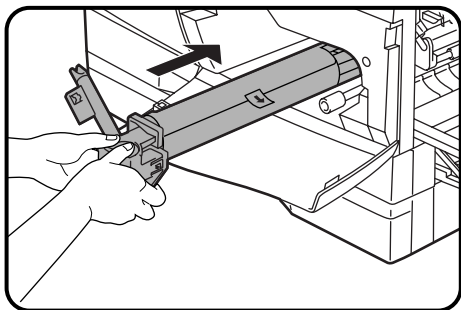
- 2** Push gently the right side of the front cover to open the cover.



- 3** Lift the TD cartridge lock release lever and pull the cartridge out until the green strap handle can be grasped by the right hand. Lift the cartridge by the handle while supporting it with the left hand at the green label position to remove it.



- 4** Grasp the handle of the drum cartridge and gently pull the cartridge out.
  - Dispose of the old drum cartridge in accordance with local regulations.

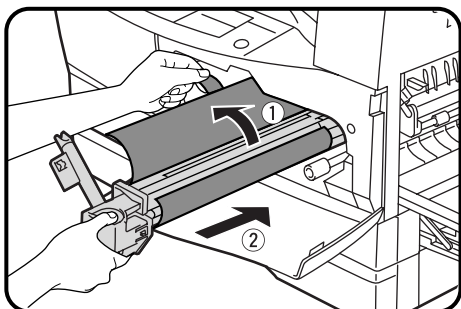


**5** Remove the new drum cartridge from the protective bag and gently insert the lead end of the drum cartridge along the guides.

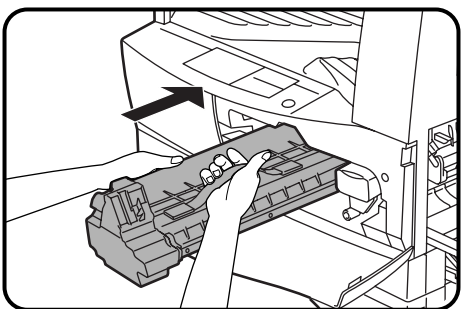


Caution

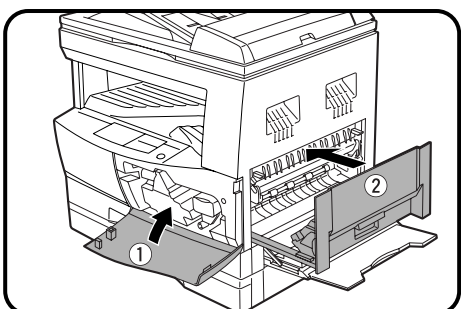
Do not touch the surface of the drum (green portion) of the cartridge. Doing so may cause smudges on the copies.



**6** Remove the protective cover from the drum cartridge and then push the cartridge all the way into the copier.



**7** Gently install the TD cartridge. To install the TD cartridge, see page 39, TD CARTRIDGE REPLACEMENT.



**8** Close the front cover by pushing both sides with your hands and then close the side cover by pressing the handle on the cover. The drum replacement required (☺) indicator will go out.



Caution

When closing the covers, be sure to close the front cover securely and then close the side cover. If the covers are closed in the wrong order, the covers may be damaged.

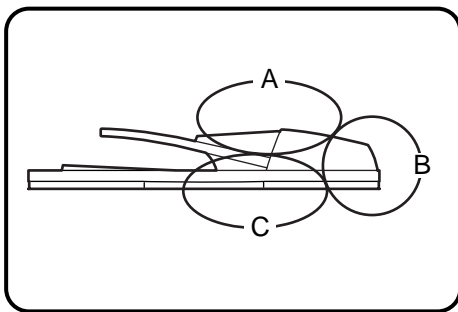
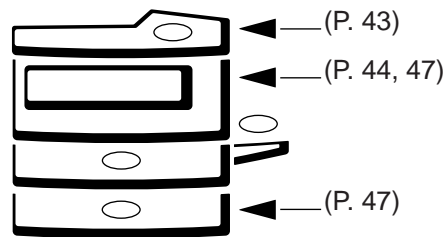


# MISFEED REMOVAL

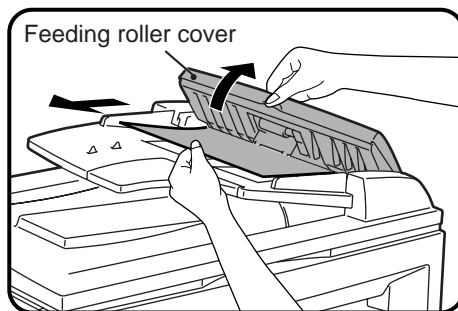
The copier will stop when a misfeed occurs. The misfeed (8✓) indicator will blink and blinking red misfeed location indicators will indicate the approximate misfeed location.

If paper is accidentally torn during removal, be sure to remove all pieces. Be careful not to damage the photoconductive drum.

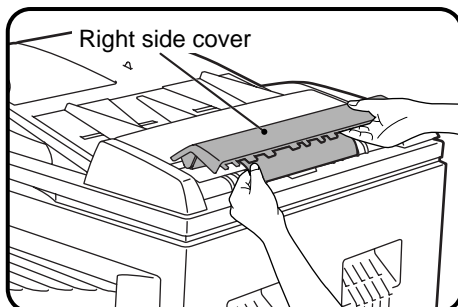
**First confirm the misfeed location.**



Location A



Location B

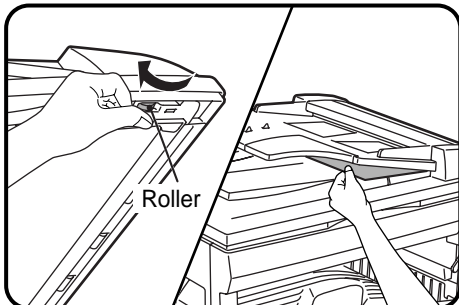


## Misfeed in the SPF

If an original misfeed occurs in the SPF, the copier will stop and the red indicator which indicates an original misfeed will blink.

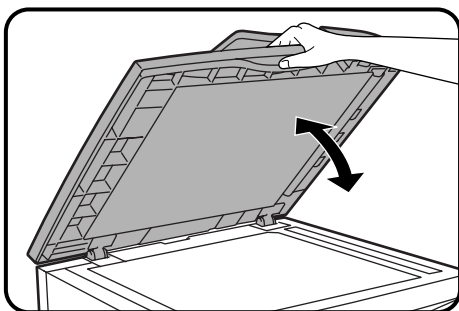
- 1** Open the feeding roller cover and pull the original gently to the left and out from the document feeder tray. Close the feeding roller cover.
- 2** If the misfed original cannot be removed in step 1, open the right side cover and remove the misfed original. Close the right side cover.

Location C



**3** If the misfed original cannot be removed in steps 1 and 2, remove the misfed original from the exit area. Open the document feeder cover and rotate the roller in the direction indicated by the arrow if needed.

If the misfed original cannot be easily removed from the exit area, open the front part of the document feeder tray to remove the original.



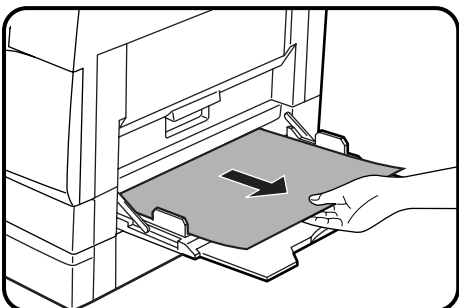
**4** Open and close the document feeder cover to cancel the misfeed location indicator.



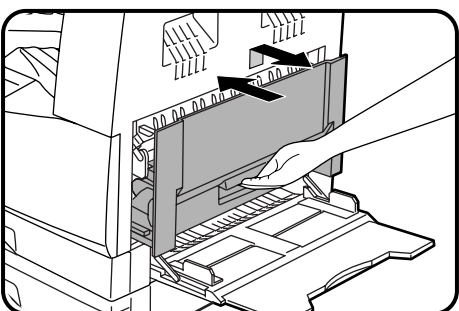
Note

After misfed originals are removed, a number may appear in the copy quantity display, indicating the number of originals that must be returned to the document feeder tray. Return the originals and press the START (⏻) key to resume copying.

## Misfeed in the bypass tray

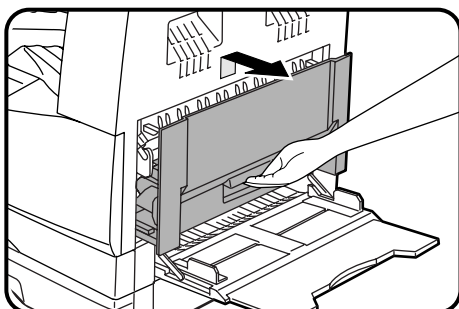


**1** Gently pull the misfed paper out.



**2** Lift slightly on the side cover and slide the cover out until it stops. Close the side cover by pressing the handle on the cover.

- The misfeed (⌘) indicator will go out.



## Misfeed in the copier

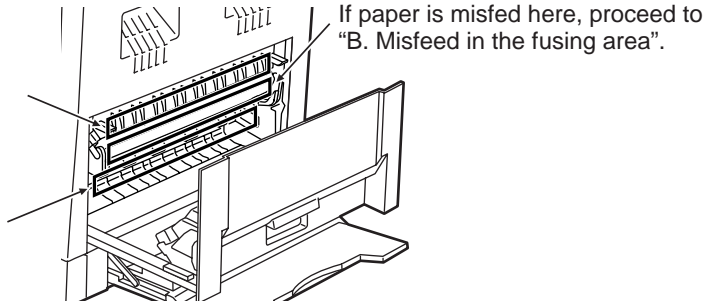
**1** Open the bypass tray. Lift slightly on the side cover and slide the cover out until it stops.



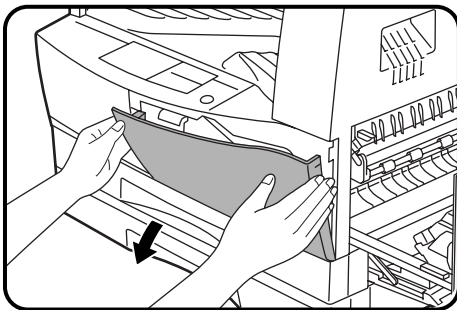
**2** Check the misfeed location. Remove the misfed paper following the instructions for each location in the illustration below.

If the misfed paper is seen from this side, proceed to "C. Misfeed in the transport area".

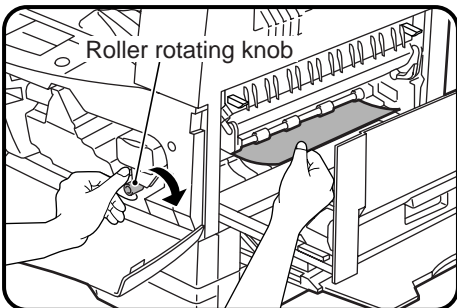
If paper is misfed here, proceed to "A. Misfeed in the paper feed area".



**A. Misfeed in the paper feed area**



**1** Push gently the right side of the front cover to open the cover.



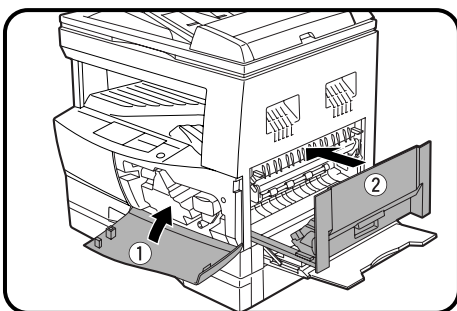
**2** Carefully remove the misfed paper. Turn the roller rotating knob in the direction of the arrow to assist in removing it.



The fusing unit is hot. Take care in removing paper.



Do not touch the surface of the drum (green portion) of the drum cartridge when removing the misfed paper. Doing so may damage the drum and cause smudges on copies.



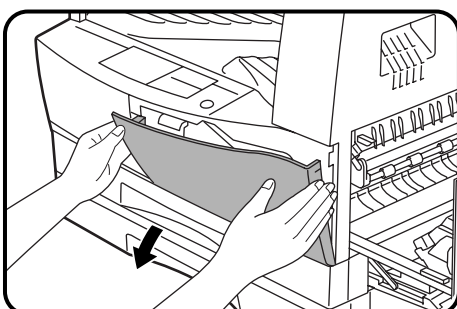
**3** Close the front cover by pushing both sides with your hands and then close the side cover by pressing the handle on the cover.

- The misfeed ( ⌘ ) indicator will go out.

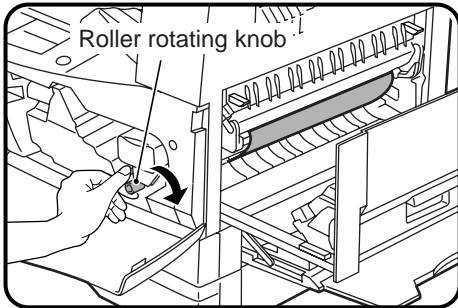


When closing the covers, be sure to close the front cover securely and then close the side cover. If the covers are closed in the wrong order, the covers may be damaged.

**B. Misfeed in the fusing area**



**1** Push gently the right side of the front cover to open the cover.



**2** Turn the roller rotating knob in the direction of the arrow.



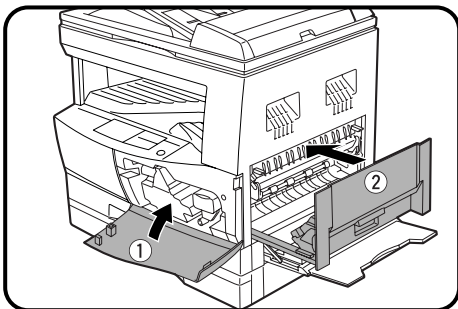
**3** Carefully remove the misfed paper. Lower the fusing unit release levers to allow easier removal. Return the release levers to their operating positions.



The fusing unit is hot. Take care in removing paper.



- Do not touch the surface of the drum (green portion) of the drum cartridge when removing the misfed paper. Doing so may damage the drum and cause smudges on copies.
- Be careful about unfixed toner on the misfed paper not to soil your hands or clothes.

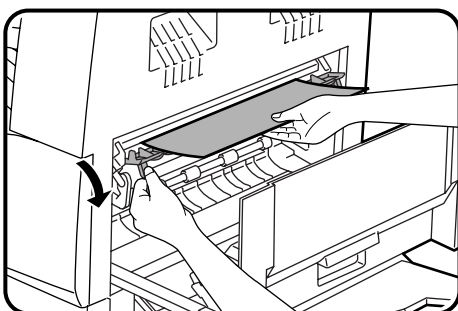


**4** Close the front cover by pushing both sides with your hands and then close the side cover by pressing the handle on the cover.

- The misfeed (8Λ) indicator will go out.



When closing the covers, be sure to close the front cover securely and then close the side cover. If the covers are closed in the wrong order, the covers may be damaged.

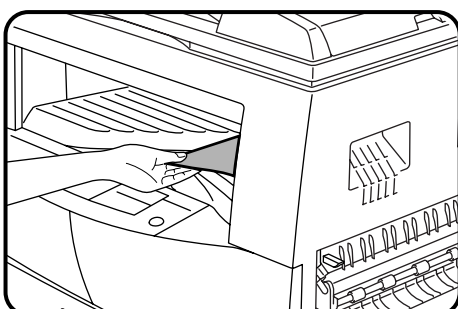


**C. Misfeed in the transport area**

**1** Open the paper guide by pressing down the projection on either side of the guide and remove the misfed paper.

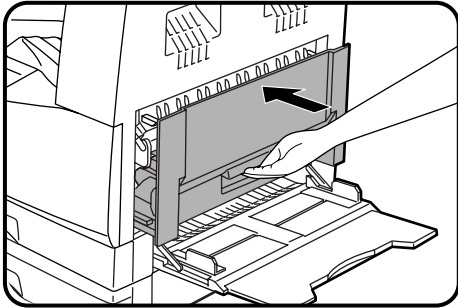


The fusing unit is hot. Take care in removing paper.

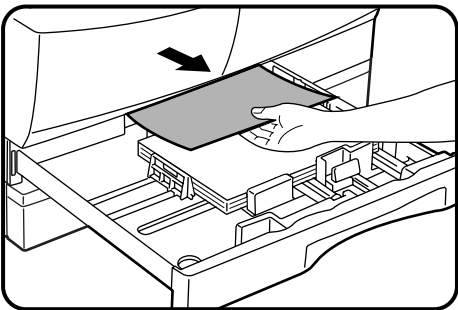


**2** If the misfed paper cannot be removed by the previous step but is visible in the paper output area, remove the paper by pulling it into the paper output area.





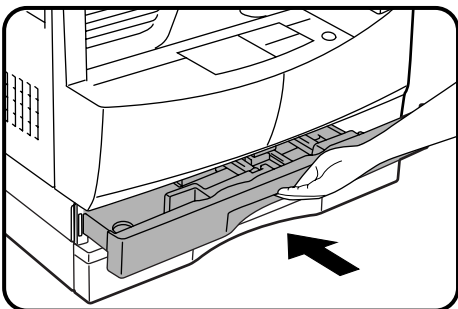
- 3** Close the side cover by pressing the handle on the cover.
  - The misfeed (8V) indicator will go out.



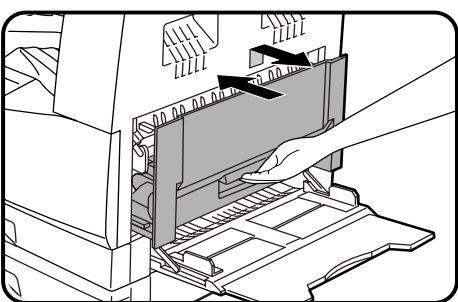
## Misfeed in the upper paper tray

Before opening the paper tray, be sure to open the bypass tray, lift slightly on the side cover and slide the cover out until it stops, and then perform steps 1 to 3 described in the “A. Misfeed in the paper feed area” section.

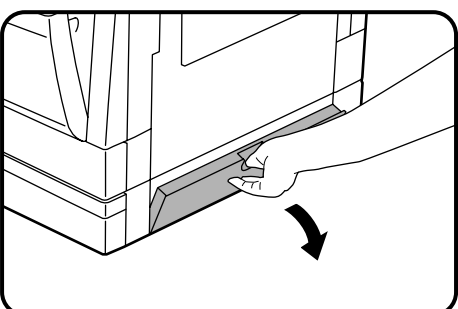
- 1** Gently lift and pull out the paper tray and remove the misfed paper.



- 2** Close the paper tray.



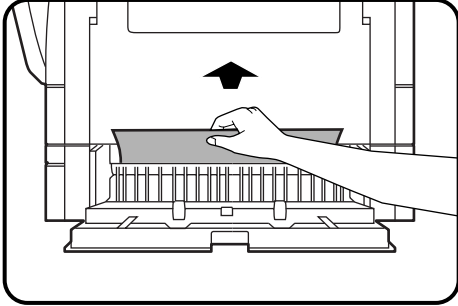
- 3** Lift slightly on the side cover and slide the cover out until it stops. Close the side cover by pressing the handle on the cover.
  - The misfeed (8V) indicator will go out.



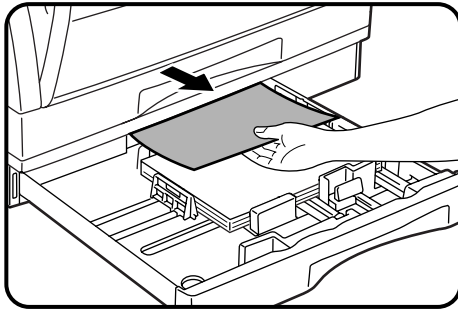
## Misfeed in the lower paper tray

- 1** Grasp the handle of the lower side cover and gently open the cover.

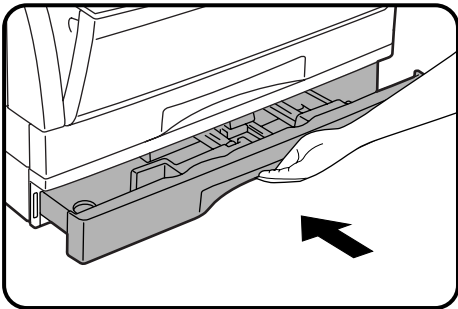
# MISFEED REMOVAL



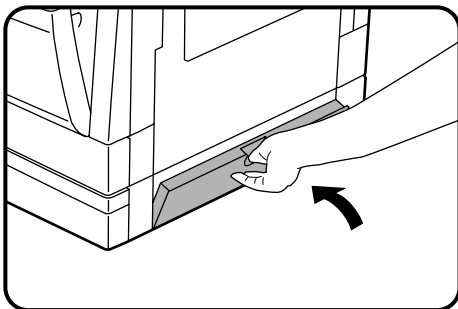
- 2 Remove the misfed paper.**
- Be careful not to tear the misfed paper during removal.




- 3 If the misfed paper is not seen in step 2, gently lift and pull out the lower paper tray and remove the misfed paper.**
- Be careful not to tear the misfed paper during removal.



- 4 Close the paper tray.**



- 5 Close the lower side cover.**
- The misfeed (  ) indicator will go out.

# USER PROGRAMS

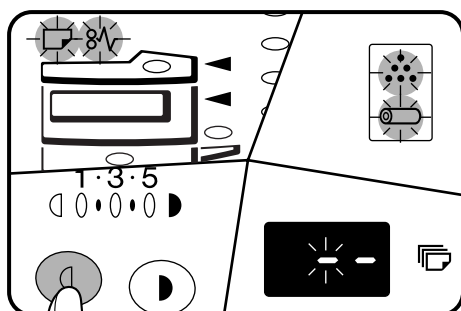
The user programs allow the parameters of certain functions to be set, changed, or canceled as desired.






## List of user programs

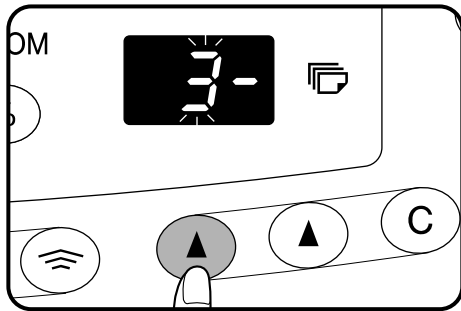
This copier has the following user programs.

Program No.	Program name	Description
1	Auto clear time	Sets the auto clear time. The copier returns to the initial settings when the auto clear time elapses after the last copy is made.
2	Preheat mode	Sets the time that elapses before the copier enters the preheat mode after any operation is made. See page 52.
3	Auto power shut-off timer	Sets the time that elapses before the copier enters the auto power shut-off mode after any operation is made. See page 52.
4	Stream feeding mode	Enables or disables the stream feeding mode. For description of the stream feeding mode, see page 17.
5	Auto power shut-off setting	Enables or disables the auto power shut-off mode. See page 52.
6	Border line for 2 in 1 or 4 in 1	Enables or disables the border line which is printed in 2 in 1 or 4 in 1 copying. See page 35.
7	Rotation copy	Enables or disables rotation of original images. See page 34.
8	Auto paper select mode	Enables or disables the auto paper selection. See page 16.
9	Auto tray switching	Enables or disables the automatic tray switching which occurs when paper in a tray runs out. (This switching cannot switch to the bypass tray.)
16	Erase width adjustment	Sets the amount of the edge erase and center erase areas. See page 37.
17	Layout in 2 in 1 copy	Selects a pattern for 2 in 1 copying. See page 35.
18	Layout in 4 in 1 copy	Selects a pattern for 4 in 1 copying. See page 35.
19	Offset of paper output tray	Enables or disables the offset function of the paper output tray. See page 25.

## Setting the user programs

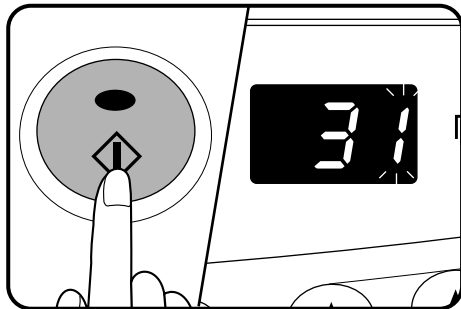


- 1 Press and hold the light (  ) key for more than 5 seconds until all the alarm indicators ( , , , and  ) blink and “--” appears in the copy quantity display.



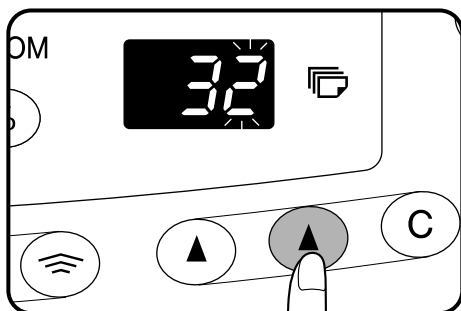
## 2 Enter a program number using the left copy quantity (▲) key.

- The selected program number will blink in the copy quantity display.
- If a mistake is made in steps 2 to 4, press the CLEAR (Ⓢ) key. The copier will return to step 2.
- The program numbers are shown in the table on the previous page.  
For example, to change the setting of the auto power shut-off timer, enter 3.



## 3 Press the START (Ⓢ) key.

- The entered program number will be steadily lit on the left side of the copy quantity display and the currently selected parameter number for the program will blink on the right side.



## 4 Select the desired parameter using the right copy quantity (▲) key.

- The entered parameter number will blink on the right side of the copy quantity display.
- The parameters are shown in the table below.  
For example, to change the setting of the auto power shut-off timer to 60 min., enter 2.

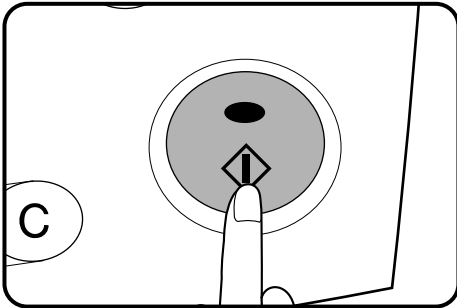
Program name	Parameters				
Auto clear time	0 ⇨ OFF 5 ⇨ 10 sec.	1 ⇨ 30 sec.	* 2 ⇨ 60 sec.	3 ⇨ 90 sec.	4 ⇨ 120 sec.
Preheat mode	0 ⇨ OFF	1 ⇨ 30 sec.	2 ⇨ 60 sec.	* 3 ⇨ 90 sec.	4 ⇨ 120 sec.
Auto power shut-off timer	* 1 ⇨ 30 min.	2 ⇨ 60 min.	3 ⇨ 90 min.	4 ⇨ 120 min.	5 ⇨ 240 min.
Stream feeding mode	* 0 ⇨ OFF	1 ⇨ ON			
Auto power shut-off setting	0 ⇨ OFF	* 1 ⇨ ON			
Border line for 2 in 1 or 4 in 1	* 0 ⇨ OFF	1 ⇨ ON			
Rotation copy	0 ⇨ OFF	* 1 ⇨ ON			
Auto paper select mode	0 ⇨ OFF	* 1 ⇨ ON			
Auto tray switching	0 ⇨ OFF	* 1 ⇨ ON			
Erase width adjustment	0 ⇨ 0"	1 ⇨ 1/4"	* 2 ⇨ 1/2"	3 ⇨ 3/4"	4 ⇨ 1"
Layout in 2 in 1 copy	* 1 ⇨ Pattern 1	2 ⇨ Pattern 2			
Layout in 4 in 1 copy	* 1 ⇨ Pattern 1	2 ⇨ Pattern 2	3 ⇨ Pattern 3	4 ⇨ Pattern 4	
Offset of paper output tray	0 ⇨ OFF	* 1 ⇨ ON			

Factory default settings are indicated with an asterisk (\*).



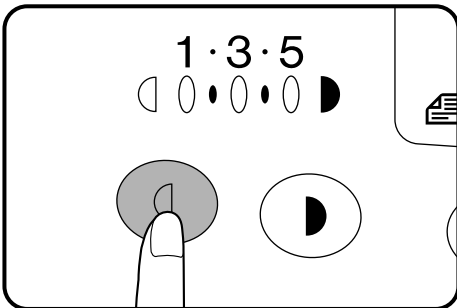
If you select "0" (OFF) in a program, the corresponding function will be disabled.

Note



**5** Press the START (Ⓢ) key.

- The right-hand number in the copy quantity display will be steadily lit and the entered value will be stored.



**6** To continue with other user programs, press the CLEAR (ⓐ) key and then repeat steps 2 to 5. To exit the user program mode, press the light (Ⓛ) key.

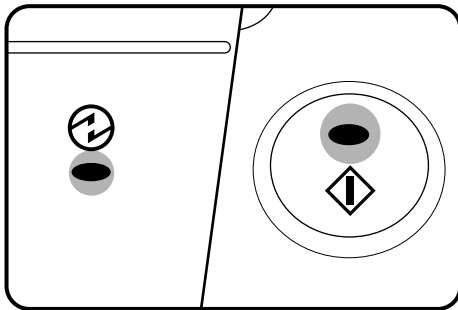
- All the alarm indicators will go out.

# POWER SAVE MODES

The copier has two power save modes to reduce overall power consumption thereby reducing the cost of operation. In addition, these modes conserve natural resources and help reduce environmental pollution. The two power save modes are preheat mode and auto power shut-off mode.

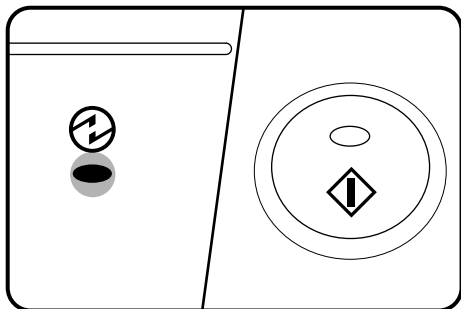
- User programs

The preheat activation time and the auto power shut-off time have been preset at the factory to 90 sec. for preheat mode and 30 min. for auto power shut-off mode. These times can be changed using user programs. It is suggested that you set appropriate times according to the actual usage of the copier. (See page 49.)



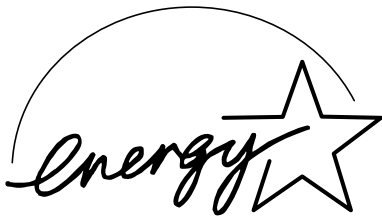
### Preheat mode

When the copier enters the preheat mode, the POWER SAVE (⚡) indicator will light up and other indicators will remain on or off as before. In this condition, the fuser in the copier is maintained at a lower heat level, thereby saving power. The preheat level is, however, high enough to allow the copier to come to a ready condition or begin copying within 10 seconds after any key input or copier operation such as paper tray operation is performed.



### Auto power shut-off mode

When the copier enters the auto power shut-off mode, the POWER SAVE indicator will light up and all other indicators will go out. The auto power shut-off mode saves more power but requires a longer time to warm up before copying can begin.

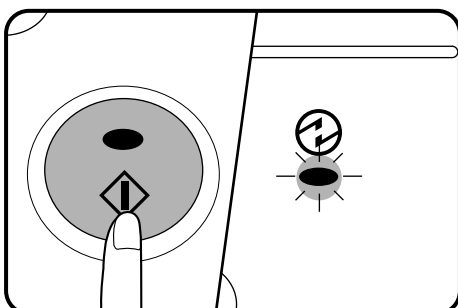
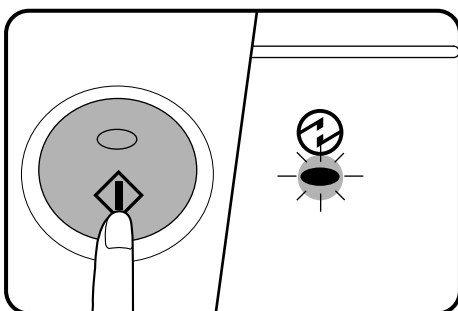
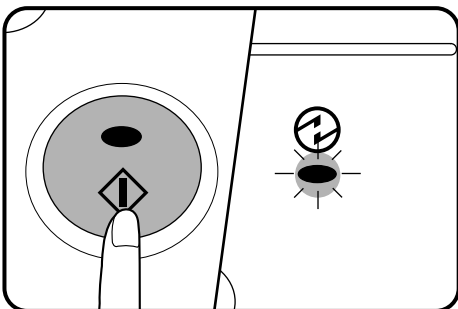


As an ENERGY STAR® Partner, SHARP has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

## Setting the power save modes

The time that elapses before the copier enters a power save mode after any operation is made can be set manually. This time is set with user program No. 2 for the preheat mode and user program No. 3 for the auto power shut-off mode. For these settings, see page 49.

- The copier will enter the preheat mode first and then the auto power shut-off mode after a preset time has elapsed when no copier operation has been made.
- If conflicting settings are made with user programs No. 3 and No.5, the last program set will have priority.



## Copying from the preheat mode

**Make desired copier selections and press the START (⚡) key using the normal copying procedure.**

- When any key input is made or any other copier operation is made, the POWER SAVE indicator will start to blink.
- When the START key is pressed, the START key indicator will go out and copying will start within 10 seconds. The POWER SAVE indicator will go out when copying starts.

## Copying from the auto power shut-off mode

### 1 Press the START (⚡) key.

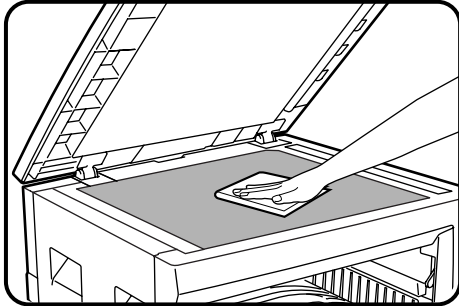
- The copier will exit the auto power shut-off mode and the POWER SAVE indicator will start to blink.

### 2 Make desired copier selections and press the START (⚡) key using the normal copying procedure.

- It will take approximately 35 seconds for the copier to start copying. However, you can make desired settings and press the START key during warm-up. Copying will start after warm-up is finished.

# USER MAINTENANCE

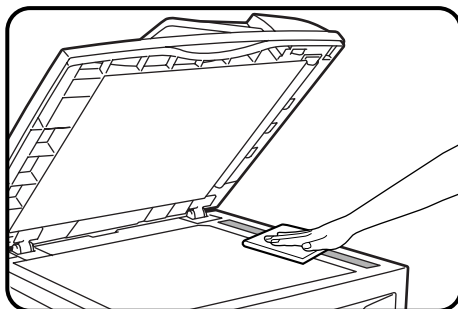
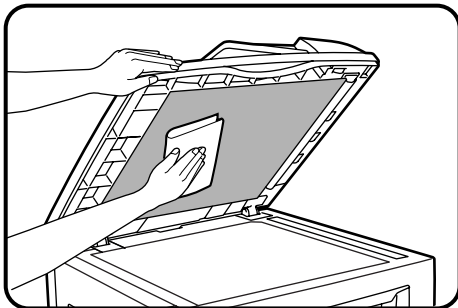
Proper care is essential for clean, sharp copies. Please take a few minutes to regularly clean your copier.



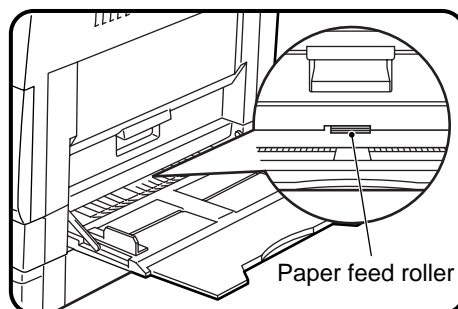
## Original table and document feeder cover

Stains or dirt on the original table or document feeder cover will also be copied. Wipe the original table and document feeder cover with a soft, clean cloth.

- If necessary, dampen the cloth with water. Do not use thinner, benzene, or similar volatile cleaning agents.



- Also wipe the scanning window on the original table.



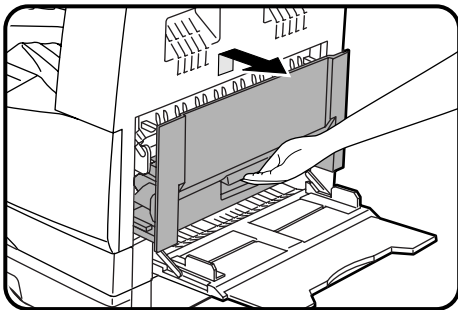
## Bypass tray paper feed roller

If misfeeds occur frequently when feeding postcards, envelopes, thick paper, etc. through the bypass tray, wipe the blue paper feed roller at the feed slot of the bypass tray with a soft, clean cloth dampened with alcohol or water.

## Transfer charger

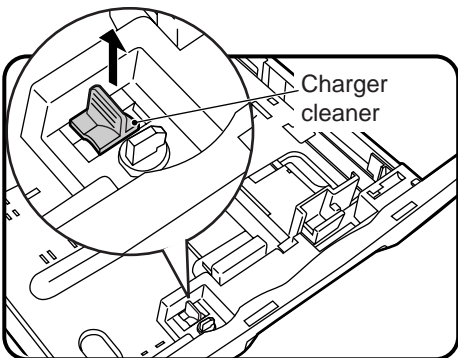
If copies start becoming streaky or blotchy, the transfer charger may be dirty. Clean the charger. The cleaning method is described on the next page.



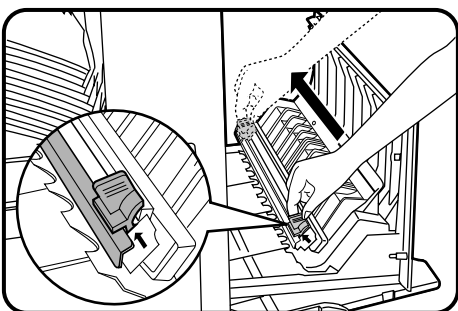


**1** Turn the power switch off.

**2** Open the bypass tray. Lift slightly on the side cover and slide the cover out until it stops.



**3** Gently lift and pull out the upper paper tray and take the charger cleaner out by holding the tab.



**4** Set the charger cleaner onto the transfer charger and gently slide the cleaner in the direction indicated by the arrow two or three times.



Caution

Slide the charger cleaner from one end to the other end along the groove of the transfer charger. If the cleaner is stopped on the way, smudges on copies may occur.






- If the white sheet metal is smudged with toner, wipe it with a soft, clean cloth.


**5** Return the charger cleaner to its original position. Close the paper tray. Close the side cover by pressing the handle on the cover.

**6** Turn the power switch on.

# COPIER TROUBLE?

Problem	Solution	
Copier does not operate.	● Copier plugged in?	Plug the copier into a grounded outlet. See page 8.
	● Power switch ON?	Turn the power switch ON. See page 16.
Copies are too dark or too light.	● Copy density properly adjusted?	See pages 16 and 28.
Blank copies	● Is the original placed face down on the original table or face up in the SPF?	Place the original face down on the original table or face up in the SPF.
Copies smear if rubbed.	● Paper too heavy?	Use copy paper within the specified range. See page 58.
	● Paper damp?	Replace with dry copy paper. Be sure to store copy paper in a dry location. See page 59.
Striped copies	● Is transfer charger clean?	Clean the transfer charger. See page 55.
Paper misfeeds frequently.	● Non-standard paper used?	Use standard paper. If using special paper, feed the paper through the bypass tray. See pages 22 and 58.
	● Paper properly installed?	Make sure the paper is properly installed. See pages 13 and 22.
	● Pieces of paper inside copier?	Remove all pieces of misfed paper. See page 43.
	● Paper curled or damp?	Store copy paper flat in the wrapper in a dry location. See page 59.
Copies are smudged or dirty.	● Original table or document feeder cover dirty?	Clean regularly. See page 54.
	● Original smudged or blotchy?	Use a clean original.

Problem	Solution	
Power is on but copying is not possible.	<ul style="list-style-type: none"> <li>Is the POWER SAVE (⏻) indicator blinking?</li> </ul>	Wait until warm-up is complete. Warm-up time is approximately 35 seconds.
	<ul style="list-style-type: none"> <li>Is the  indicator on?</li> </ul>	Copy paper is needed. See page 13, LOADING COPY PAPER.
	<ul style="list-style-type: none"> <li>Is  blinking in the copy quantity display?</li> </ul>	The TD cartridge is not installed. Install the TD cartridge.
	<ul style="list-style-type: none"> <li>Is  steadily lit in the copy quantity display?</li> </ul>	Side cover(s) is open. Close the front and side covers securely.
	<ul style="list-style-type: none"> <li>Is the  indicator blinking?</li> </ul>	The TD cartridge must be replaced. See page 39, TD CARTRIDGE REPLACEMENT.
	<ul style="list-style-type: none"> <li>Is the  indicator blinking?</li> </ul>	A misfeed has occurred. See page 43, MISFEED REMOVAL.
Lighting fixture flickers.	<ul style="list-style-type: none"> <li>Is the same power outlet used for the lighting fixture and the copier?</li> </ul>	Connect the copier to a power outlet which is not used for other electric appliances.

 **Be sure to use only genuine SHARP parts and supplies.**  
 Caution

Please contact your SHARP service center immediately if a problem persists after checking the above.

### Self-diagnostic function

An automatic self-diagnostic function is built into the copier. Should the copier malfunction, the self-diagnostic function will locate the problem and stop the copier to prevent damage. An alphanumeric code will appear in the copy quantity display.



**Example**

Should the copier completely stop and a letter and a number appear alternately, contact your SHARP service center immediately.

Copier trouble?

GENERAL INFORMATION

# SUPPLIES

## Types and sizes of copy paper

	Size	Weight	Capacity (21 lb. bond paper)	Special paper
Paper tray	5-1/2" x 8-1/2"* to 11" x 17"	15 lbs. to 21 lbs.	250 sheets	
Bypass tray	Ordinary paper: 5-1/2" x 8-1/2" to 11" x 17" Envelopes: Commercial 10 (4-1/8" x 9-1/2") International DL (110 x 220 mm) International C5 (162 x 229 mm)	15 lbs. to 34 lbs.** (Ordinary paper)	100 sheets	Transparency film, labels, envelopes***

\* 5-1/2" x 8-1/2" copy paper can be used in the upper paper tray but cannot be used in the lower paper tray.

\*\* For paper weighing from 28 to 34 lbs., 8-1/2" x 11" is the maximum size that can be fed through the bypass tray.

\*\*\* Do not use envelopes that have metal clasps, plastic snappers, string closures, windows, linings, self-adhesive patches or synthetic materials. These will cause physical damage to the copier.

- For best results, use only paper recommended by SHARP.
- Special papers except envelopes must be fed one sheet at a time through the bypass tray. Up to 10 envelopes can be set at one time.

## Supply part numbers

When ordering supplies, please use the correct part numbers as listed below.



Note

Be sure to use only genuine SHARP parts and supplies.

### Supply list

Supply	Part number	Usable life
TD cartridge	AL-160TD	Approx. 18,000 or 15,000 sheets*
Drum cartridge	AL-160DR	Approx. 30,000 sheets

\* 18,000 sheets: Based on copying onto letter-type paper at 5% toned area.

15,000 sheets: Based on copying onto letter-type paper at 6% toned area.

(The life of the TD cartridge which has been included in the copier at the factory is approximately 5,000 sheets. (at 6% toned area))

## Genuine supplies statement

Standard supplies for this copier that are to be replaced by the user are copy paper, TD cartridge, and drum cartridge.

For best copying results, be sure to use only SHARP Genuine Supplies which are designed, engineered and tested to maximize the life and performance of SHARP copiers. Look for the Genuine Supplies label on the TD cartridge and drum cartridge.



## Proper storage

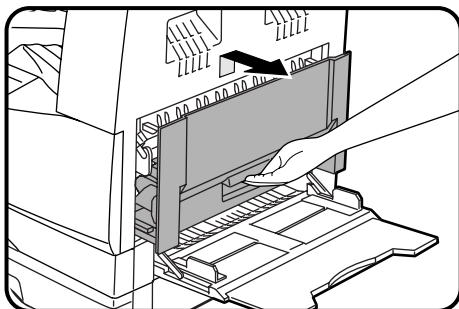
- 1. Store the supplies in a location that is:**
  - clean and dry,
  - at a stable temperature,
  - not exposed to direct sunlight.
- 2. Store copy paper in the wrapper and lying flat.**
  - Paper stored out of the wrapper or in packages standing on end may curl or get damp, resulting in paper misfeeds.

# MOVING INSTRUCTIONS

When moving this copier, follow the procedure below.

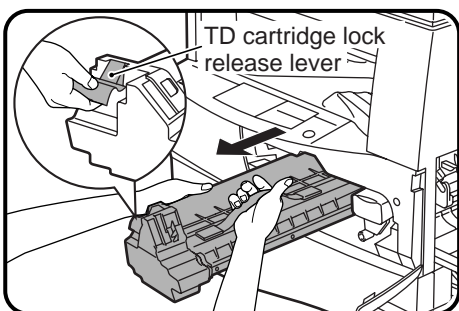


When moving this copier, be sure to remove the TD cartridge in advance.



**1** Turn the power switch off and disconnect the power cord.

**2** ① Open the bypass tray. Lift slightly on the side cover and slide the cover out until it stops. ② Push gently the right side of the front cover to open the cover.



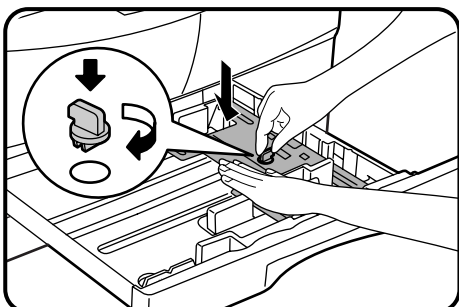
**3** Lift the TD cartridge lock release lever and pull the cartridge out until the green strap handle can be grasped by the right hand. Lift the cartridge by the handle while supporting it with the left hand at the green label position to remove it.

**4** Close the front cover by pushing both sides with your hands and then close the side cover by pressing the handle on the cover.



Caution

When closing the covers, be sure to close the front cover securely and then close the side cover. If the covers are closed in the wrong order, the covers may be damaged.



**5** Gently lift and pull out the paper tray until it stops.

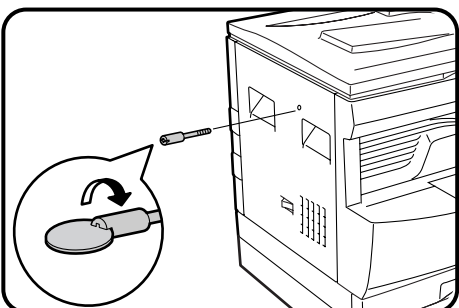
**6** Push the center of the pressure plate down until it locks in place and lock the plate using the pressure plate lock which has been stored in the front of the paper tray.

**7** Use a coin (or suitable object) to attach to the left side of the copier the screw that has been stored in the front of the paper tray.



Caution

When shipping the copier, the screw must be reinstalled to prevent shipping damage.



**8** Push the paper tray back into the copier.  
• Repeat steps 5, 6, and 8 for both the upper and lower trays.

**9** Close the bypass tray. Attach the packing materials and tape which were removed during installation of the copier. See page 11, SET-UP.

**10** Pack the copier into the carton. See page 10, CHECKING PACKED COMPONENTS AND ACCESSORIES.

# SPECIFICATIONS

## COPIER

Type	Digital laser copier, desktop
Copy system	Dry, electrostatic transfer
Originals	Sheets, bound documents
Original sizes	Max. 11" x 17"
Copy sizes	Max. 11" x 17" Min. 5-1/2" x 8-1/2" Image loss: Max. 5/32" (4 mm) (at the leading edge) Max. 5/32" (4 mm) (at the trailing edge)* Max. 5/32" (4 mm) (along other edges in total) * Max. can be 15/64" (6 mm) with the copies made from the SPF.
Copying speed (at 100% copy ratio)	16 copies/min. (8-1/2" x 11") 12 copies/min. (8-1/2" x 11"R) 10 copies/min. (8-1/2" x 14") 9 copies/min. (11" x 17")
Continuous copy	Max. 99 copies; subtractive counter
First-copy time	7.2 sec. (except in a power save mode)
Warm-up time	Approx. 35 sec.
Copy ratio	Variable: 50% to 200%, in 1% increments (total 151 steps) Fixed preset: 50%, 64%, 77%, 95%, 100%, 121%, 129%, 141%, 200%
Exposure system	Original table: Moving optical source, slit exposure (stationary platen) with automatic exposure function SPF: Moving original
Copy paper feed	Two paper trays with automatic feed (250 sheets each), one bypass tray with automatic feed (100 sheets)
Fusing system	Heat rollers
Developer system	Magnetic brush development
Light source	Xenon lamp
Resolution	Scan: 400 dpi Output: 600 dpi
Gradation	Scan: 256 levels Output: 2 levels
Power supply	AC 120V, 60 Hz, 11 amperes
Power consumption	Max. 1.5 kW

# SPECIFICATIONS

Overall dimensions (with bypass tray folded)	23-15/64" (W) x 20-23/32" (D) (590 mm (W) x 526 mm (D))
Weight	Approx. 92.7 lbs. (42 kg) TD and drum cartridges included
Copier dimensions	23-15/64" (W) x 20-23/32" (D) x 25-3/4" (H) (590 mm (W) x 526 mm (D) x 654 mm (H))
Operating conditions	Temperature: 59°F to 86°F (15°C to 30°C) Humidity: 20% to 85%

## SINGLE PASS FEEDER

Acceptable originals	Weight: 15 to 24 lbs. Size: 5-1/2" x 8-1/2" to 11" x 17" Capacity: Up to 30 sheets provided the total aggregate thickness does not exceed 5/32"
Detectable original sizes	5-1/2" x 8-1/2", 8-1/2" x 11", 8-1/2" x 11"R, 8-1/2" x 14", 11" x 17"

First-copy time and warm-up time may differ depending on operating conditions, such as power-supply voltage and room temperature.



Note

As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specification figures indicated are nominal values of production units. There may be some deviations from these values in individual units.



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# S H A R P

Date Issued: Nov. 1, 1998

## MATERIAL SAFETY DATA SHEET

MSDS No. F-00841

### Section 1. Product Identification

**Product:**

AL-160TD (Black Toner)

### Section 2. Supplier's Name and Address

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number: 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number: 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

### Section 3. Ingredients

<u>Ingredients</u>	<u>CAS No.</u>	<u>Proportion</u>	<u>OSHA PEL</u>	<u>ACGIH TLV</u>	<u>Other Limits</u>
Styrene-Acrylate copolymer	29497-14-1	> 88 %	Not listed	Not listed	None
Carbon black	1333-86-4	< 6.0%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None
Iron oxide	1309-38-2	< 4.5%	Not listed	Not listed	None
Metal Complex dye	{ 109125-51-1 109125-50-0 84179-66-8	< 1.5%	0.5mg/m <sup>3</sup>	0.5mg/m <sup>3</sup>	None

### Section 4. Hazardous Identification (Emergency Overview)

Toner is a fine, black powder possessing no immediate hazard. There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner. When used as intended according to instructions, studies do not indicate any symptoms of fibrosis will occur.

### Section 5. Health Hazard Data

<u>Route(s) of Entry:</u>	<u>Inhalation?</u>	<u>Skin?</u>	<u>Ingestion?</u>
	Yes	No	Possible but very unusual.

**Health Hazards:** Acute oral toxicity ----- LDLo of this toner is over 2,000mg/kg.

Mutagenicity ----- The result of Ames test is negative.

**Carcinogenicity:** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors. Moreover, a two-year cancer bioassay using a typical toner preparation containing carbon black demonstrated no association between toner exposure and tumor development in rats.

**Chronic Effect:** In a study in rats of chronic inhalation exposure to a typical toner, a mild to moderate degree of lung fibrosis was observed in 92% of the rats in the high concentration (16mg/m<sup>3</sup>) exposure group, and a minimal to mild degree of fibrosis was noted in 22% of the animals in the middle (4mg/m<sup>3</sup>) exposure group, but no pulmonary change was reported in the lowest (1mg/m<sup>3</sup>) exposure group, the most relevant level to potential human exposures.

**Signs and Symptoms of Exposure:** Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure:** None

**Emergency and First Aid Procedures:**

Inhalation; Remove to fresh air. If effects occur, consult medical personnel.

Eye; In case of contact, immediately flush eyes with water for 15 minutes.

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## Section 6. Physical Chemical Characteristics

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<b>Boiling / Melting Point:</b>	Not applicable	<b>Specific Gravity:</b>	1.1
<b>Vapor Pressure:</b>	Not applicable	<b>Solubility in Water:</b>	Negligible
<b>Vapor Density:</b>	Not applicable	<b>PH:</b>	Not applicable
<b>Evaporation Rate:</b>	Not applicable	<b>Viscosity:</b>	Not applicable
<b>Appearance:</b>	Fine powder	<b>Color:</b>	Black
<b>Odor:</b>	Odorless		

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## Section 7. Fire and Explosion Data

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<b>Flash Point (Method Used):</b>	Not applicable		
<b>Ignition Temperature:</b>	>350°C		
<b>Flammable Limits:</b>	(LEL); Not applicable	(UEL); Not applicable	
<b>Extinguishing Media:</b>	CO <sub>2</sub> , dry chemical, foam or water		
<b>Special Fire Fighting Procedure:</b>	None		
<b>Unusual Fire and Explosion Hazard:</b>	This material has no unusual fire or explosion hazards.		
<b>Sensitivity to Mechanical Impact:</b>	None		
<b>Sensitivity to Static Charge:</b>	None		

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## Section 8. Reactivity Data

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<b>Stability:</b>	Stable
<b>Incompatibility (Material to Avoid):</b>	None
<b>Hazardous Decomposition:</b>	CO and NO <sub>x</sub>
<b>Hazardous Polymerization:</b>	Will not occur.

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## Section 9. Precautions for Safe Handling and Use

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### Personal Protection Information (Respiratory, Eye Protection and Protective Glove):

Use of a dust mask is recommended when handling a large quantity of toner or during long term exposure, as with any non-toxic dust.

<b>Engineering Control / Ventilation:</b>	Not required.
<b>Work / Hygienic Practice:</b>	Inhalation should be minimized as with any non-toxic dust.
<b>Steps to be taken in case of Spill or Leak:</b>	Sweep up or clean up with vacuum cleaner.
<b>Waste Disposal Method:</b>	Waste material may be dumped or incinerated under conditions which meet all federal, state and local environmental regulations.

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## Section 10. Regulatory Information

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<b>NFPA Rating (U.S.A.):</b>	Health = 1	Flammability = 1	Reactivity = 0
<b>WHMIS Legislation (Canada):</b>	This product is not a controlled product.		
<b>Transport Information:</b>	This product is not a hazardous material.		
<b>UN No.:</b>	None allocated.		

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## Section 11. Other Information

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<b>References:</b>	IARC (1996) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 65, Printing Process and Printing inks, Carbon Black and Some Nitro Compounds, Lyon, pp-149-261
	H. Muhle, B. Bellmann, O. Creutzenberg, C. Dasenbrock, H. Ernst, R. Kilpper, J. C. MacKenzie, P. Morrow, U. Mohr, S. Takenaka, and R. Mermelstein (1991) Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats. Fundamental and Applied Toxicology 17, pp. 280-299

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# S H A R P

Date Issued :Nov. 1, 1998

## MATERIAL SAFETY DATA SHEET

MSDS No. F-30841

### Section 1. Product Identification

**Product**

AL-160TD(Black Developer)

### Section 2. Supplier's Name and Address

Sharp Corporation

22-22 Nagaike-cho, Abeno-ku, Osaka, Japan

Local suppliers are listed below. Please contact the nearest supplier for additional information.

(Country)	(Name and Telephone Number)
U.S.A.	Sharp Electronics Corporation Telephone number for information: 1-800-237-4277 Emergency telephone number: 1-800-255-3924
Canada	Sharp Electronics of Canada Ltd. Telephone number for information: 905-890-2100 Emergency telephone number: 1-800-255-3924
United Kingdom	Sharp Electronics (U.K.) Ltd. Telephone number for information: 01923-474013

### Section 3. Ingredients

Ingredients	CAS No.	Proportion	OSHA PEL	ACGIH TLV	Other Limits
Iron powder	7439-89-6	> 92.5%	Not listed	Not listed	None
Styrene-Acrylate copolymer	29497-14-1	< 7.0%	Not listed	Not listed	None
Carbon black	1333-86-4	< 0.5%	3.5mg/m <sup>3</sup>	3.5mg/m <sup>3</sup>	None

### Section 4. Hazardous Identification (Emergency Overview)

Developer is a black powder containing small amounts of toner, and possessing no immediate hazard.

There are no anticipated carcinogenic effects from exposure based on animal tests performed using toner.

### Section 5. Health Hazard Data

<b>Route(s) of Entry:</b>	<b>Inhalation?</b>	<b>Skin?</b>	<b>Ingestion?</b>
	No	No	Possible but very unusual.

**Health Hazards:** Acute oral toxicity----- LDLo of this toner which is included in this developer is over 2,000mg/kg.

Mutagenicity ----- The toner, which is included in this developer, has been tested on Ames test. The result is negative.

**Carcinogenicity:** In 1996 the IARC reevaluated carbon black as a Group 2B carcinogen (possible human carcinogen). This classification is given to chemicals for which there is inadequate human evidence, but sufficient animal evidence on which to base an opinion of carcinogenicity. The classification is based upon the development of lung tumors in rats receiving chronic inhalation exposures to free carbon black at levels that induce particle overload of the lung. Studies performed in animal models other than rats did not show any association between carbon black and lung tumors.

While there have been no studies to date using developer, a two-year cancer bioassay using a typical toner preparation containing carbon black (a small amount of toner is included in the developer mixture) demonstrated no association between toner exposure and tumor development in rats.

**Signs and Symptoms of Exposure:** Minimal irritation to respiratory tract may occur as with exposure to any non-toxic dust.

**Medical Conditions Generally Aggravated by Exposure:** None

**Emergency and First Aid Procedures:**

Inhalation; Remove to fresh air. If effects occur, consult medical personnel.

Eye; In case of contact, immediately flush eyes with water for 15 minutes.

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## Section 6. Physical Chemical Characteristics

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<b>Boiling / Melting Point:</b>	Not applicable	<b>Specific Gravity:</b>	about 7.3
<b>Vapor Pressure:</b>	Not applicable	<b>Solubility in Water:</b>	Negligible
<b>Vapor Density:</b>	Not applicable	<b>PH:</b>	Not applicable
<b>Evaporation Rate:</b>	Not applicable	<b>Viscosity:</b>	Not applicable
<b>Appearance:</b>	Fine powder	<b>Color:</b>	Black
<b>Odor:</b>	Odorless		

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## Section 7. Fire and Explosion Data

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<b>Flash Point (Method Used):</b>	Not applicable
<b>Ignition Temperature:</b>	>350°C
<b>Flammable Limits:</b>	(LEL); Not applicable (UEL); Not applicable
<b>Extinguishing Media:</b>	CO <sub>2</sub> , dry chemical, foam or water
<b>Special Fire Fighting Procedure:</b>	None
<b>Unusual Fire and Explosion Hazard:</b>	This material has no unusual fire or explosion hazards.
<b>Sensitivity to Mechanical Impact:</b>	None
<b>Sensitivity to Static Charge:</b>	None

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## Section 8. Reactivity Data

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<b>Stability:</b>	Stable
<b>Incompatibility (Material to Avoid):</b>	None
<b>Hazardous Decomposition:</b>	CO and NO <sub>x</sub>
<b>Hazardous Polymerization:</b>	Will not occur.

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## Section 9. Precautions for Safe Handling and Use

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<b>Personal Protection Information (Respiratory, Eye Protection and Protective Glove):</b>	None required under normal use.
<b>Engineering Control / Ventilation:</b>	Not required.
<b>Work / Hygienic Practice:</b>	Not required.
<b>Steps to be taken in case of Spill or Leak:</b>	Sweep up or clean up with vacuum cleaner.
<b>Waste Disposal Method:</b>	Waste material may be dumped or incinerated under conditions which meet all federal, state and local environmental regulations.

---

## Section 10. Regulatory Information

---

<b>NFPA Rating (U.S.A.):</b>	Health = 1	Flammability = 1	Reactivity = 0
<b>WHMIS Legislation (Canada):</b>	This product is not a controlled product.		
<b>Transport Information:</b>	This product is not a hazardous material.		
<b>UN No.:</b>	None allocated.		

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## Section 11. Other Information

---

<b>References:</b>	IARC (1996) IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans, Vol. 65, Printing Process and Printing inks, Carbon Black and Some Nitro Compounds, Lyon, pp-149-261
	H. Muhle, B. Bellmann, O. Creutzenberg, C. Dasenbrock, H. Ernst, R. Kilpper, J. C. MacKenzie, P. Morrow, U. Mohr, S. Takenaka, and R. Mermelstein (1991) Pulmonary Response to Toner upon Chronic Inhalation Exposure in Rats. Fundamental and Applied Toxicology 17, pp. 280-299

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**WARNING:**

FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

**Note:**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the operation manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Shielded cables must be used with this equipment to maintain compliance with FCC regulations.

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