

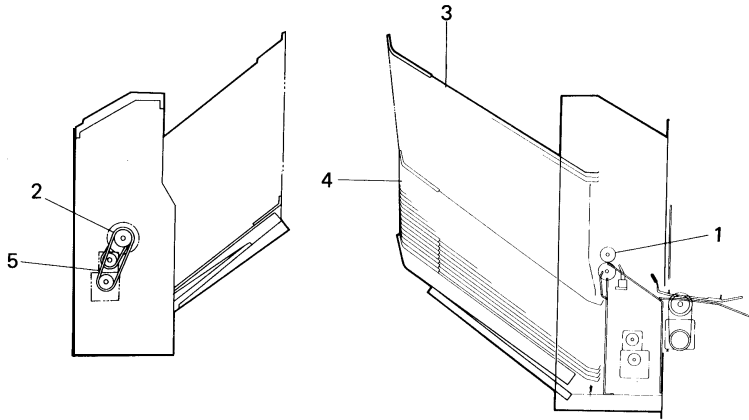
SORTER

SPECIFICATIONS

Paper Size for Bins:	Maximum A3, 11" x 17" Minimum B6, 5¹/₂" x 8¹/₂"
Paper Weight:	50 to 110 grams (14 to 28 lb)
Number of Bins:	20 bins + proof tray
Bin Capacity:	Sort Mode 30 sheets/A4 (8¹/₂" x 11") 10 sheets/A3 (11" x 17") Stack Mode 30 sheets/A4 (8¹/₂" x 11") 10 sheets/A3 (11" x 17")
Proof Tray Capacity:	100 sheets (all sizes)
Power Source:	100 V, 50/60 Hz, 0.6A (from copier)
Power Consumption:	60 w
Dimensions: (W XDXH)	346 mm x 474 mm x 388 mm 13.6" x 18.7" x 15.3"
Weight:	12.4 kg (27.3 lb)
Copier Interface Equipment:	Sorter adapter type E Interface PCB type E

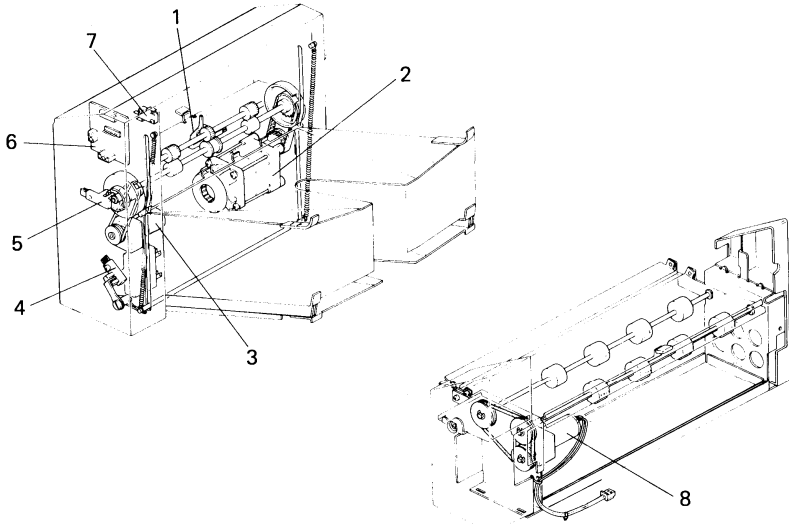
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MECHANICAL COMPONENT LAYOUT



- 1. Exit Rollers
- 2. Bin Drive Wheel
- 3. Proof Tray
- 4. Bins
- 5. Roller Drive Belt

ELECTRICAL COMPONENT LAYOUT



1. Paper Sensor (S-31)
2. Wheel Drive Motor (M-11)
3. Roller Drive Motor (M-12)
4. Bin Home Position Sensor (S-32)
5. Wheel Sensor (S-33)
6. Sorter Control PCB (PCB-9)
7. Cover Safety Switch (SW-9)
8. Relay Drive Motor (M-13)

BASIC OPERATION

1. Clear Mode

When the main switch of the copier is turned on, the sorter automatically assumes the clear mode. It also changes to the clear mode if the sort or stack mode is recalled or if the interrupt key is pressed. In the clear mode, all copies are stacked on the proof tray.

Sorter operation starts when a sheet of copy paper actuates the copier exit sensor. At this time the roller drive motor and relay drive motor energize. The motors de-energize when the paper exits the copier and the paper sensor is deactivated. The paper sensor signal is sent to the copier through an interface board to check for paper misfeed. The wheel drive motor does not turn on when in the clear mode.

2. Sort Mode

After the sort mode is selected by pressing the Sorter key, the wheel drive motor turns on to move the proof tray up. When the first sheet of paper activates the paper exit sensor, the roller drive motor turns on. Shortly after the paper sensor turns off (345 ms later), the wheel drive motor turns and advances the bins one step. When the wheel sensor is activated, the wheel drive motor turns off.

3. Stack Mode

As in the sort mode, the roller drive motor turns on when the first sheet of paper actuates the copier exit sensor. All copies of the copy run are then fed to the first bin. When the final copy passes the paper sensor, the wheel drive motor turns on and advances the bins one step.

There are no limits on the number of copies that can be entered up to the full **99** copy limit of the copier. However, the physical capacity of the bins is a good deal less. (See "Bin Capacity" in the specifications.)

When all 20 bins have been used, the wheel drive motor turns on until all the bins have been lowered (including the proof tray). At the same time, the Max indicator blinks.

4. Example of Sort Mode Operation

“3” copies entered/Start key pressed 3 times.

- Start Key ON -

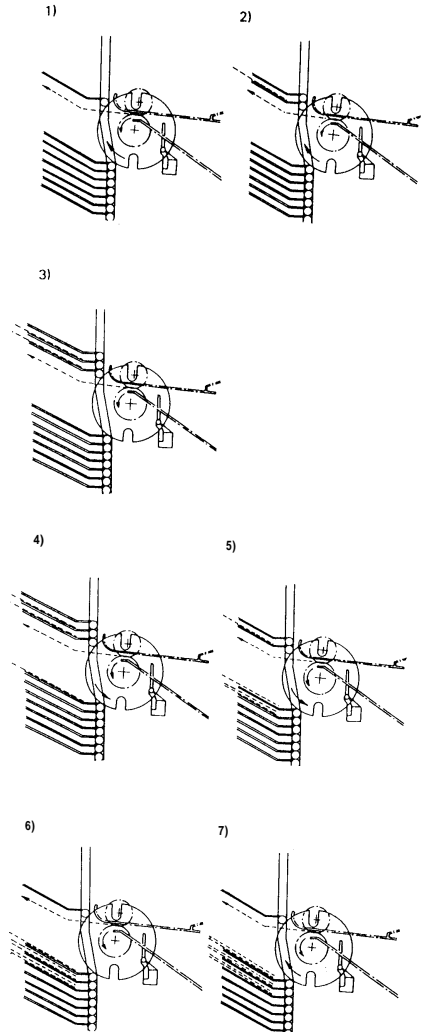
- 1) The first copy feeds to the first bin. After the paper detector turns off, the wheel drive motor turns on and moves the first bin up.
- 2) The same action as #1.
- 3) The third copy feeds to the third bin. The wheel drive motor does not turn on after the paper sensor turns off. (The sorter will stay at this position until auto-reset or until copying resumes.)

- Start Key ON -

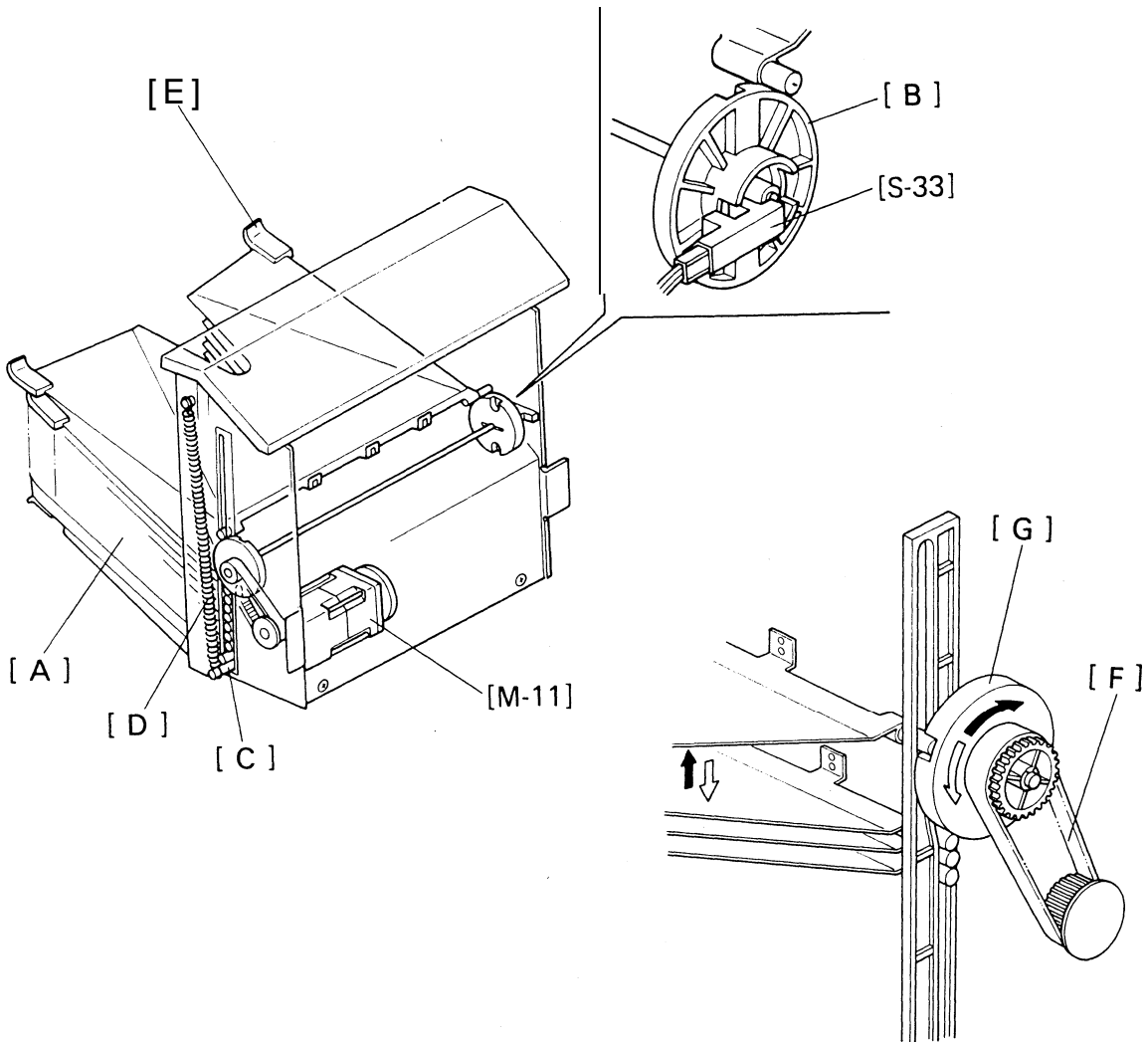
- 4) The first copy is fed to the third bin. After the paper detector turns off, the wheel drive motor turns on and moves the second bin down.
- 5) The same as #4.
- 6) The third copy is fed to the first bin. The wheel drive motor does not turn on after the paper sensor turns off.

- Start Key ON -

- 7) The first sequence (1, 2, and 3) is repeated.



BIN DRIVE MECHANISM



The bin drive mechanism moves the bins [A] up and down to receive copies under the direction of the copier CPU. The main components in this mechanism are the wheel drive motor [M 11], the two transfer wheels [B], the wheel sensor [S33], and the bins themselves.

Pins on either side of each bin are inserted into slots in the sorter side frame. The pins slide up and down in these slots. The bins rest on each other with the lower one resting on the lift bar [C]. The springs [D], on either end of the lift bar, lift it up forcing the bin pins against the transfer wheels. Plastic spacers [E] on the left end of the bins hold them apart.

To move the bins up, the bin drive motor turns clockwise. (as viewed from the front). A timing belt [F] turns the transfer wheels [G].

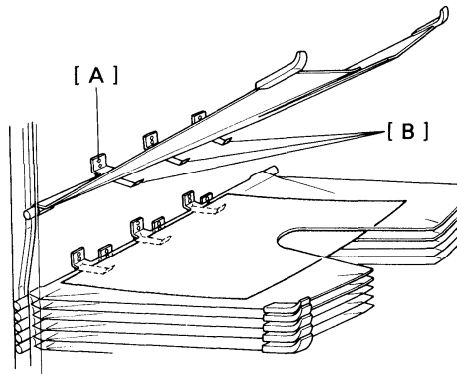
The transfer wheels have two slots in them 180 degrees apart. As the transfer wheels turn, these slots engage the pins of the bins and lift them up. Each time the transfer wheels turn 180 degrees, they raise one bin.

The CPU counts the bins using the wheel sensor. A cylindrical actuator on the front transfer wheel turns the wheel sensor on and off. This actuator has two notches that are 180 degrees apart. The wheel sensor turns on each time one of the slots passes through the sensor.

To move the bins down, the CPU reverses the bin drive motor and the above process reverses.

The home position sensor is located at the lower rear end of the sorter. When all the bins are lowered, the lift bar presses down on the actuator, actuating the sensor. The CPU checks the sensor whenever the power is turned on. At this time, if the bins are not in the home position, the sensor will deactuate and inform the CPU to return the sorter to the home position.

BINS

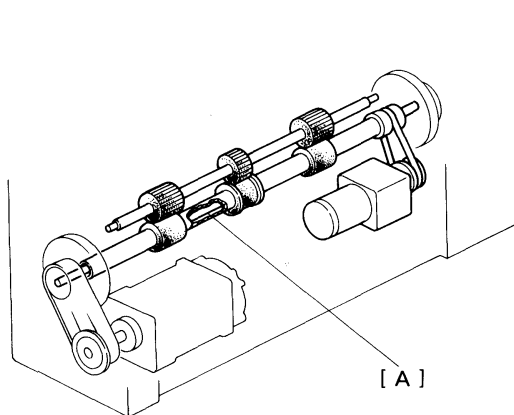


The proof tray and the twenty bins are all basically the same. Formed out of thin flexible steel plate, they have spacers on the left end to hold them apart, and pins at the front and rear of the right end, which are inserted in guide slots in the sorter frame.

On the right edge, the bins have stoppers [A] which prevent copies from sliding back into the sorter after they have been fed out. The pattern of these stoppers is different for even and odd numbered bins.

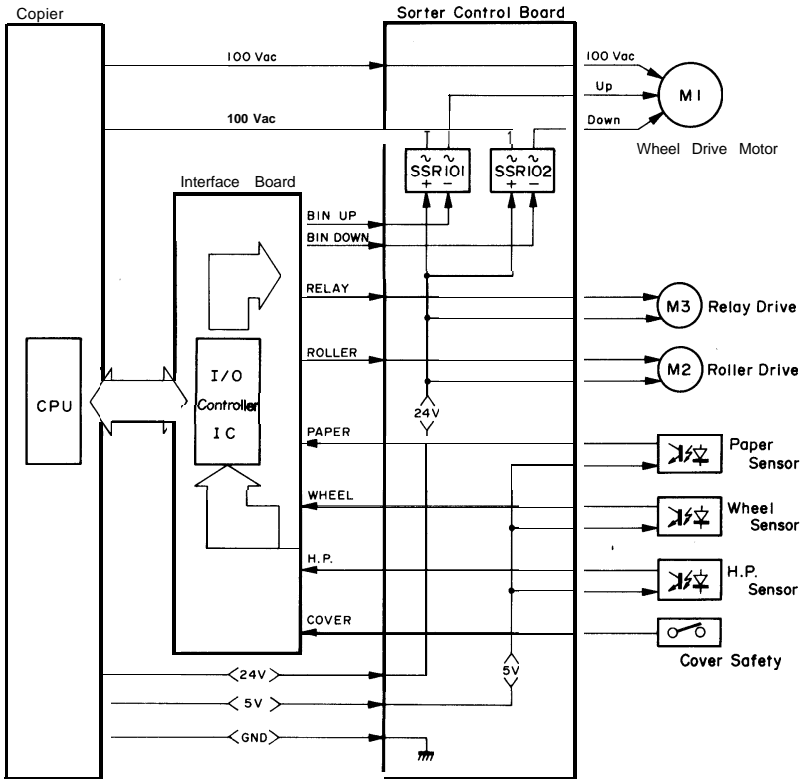
Three leaf springs [B] on the underside of each bin hold the copies flat in the underlying bin.

EXIT ROLLERS



The exit roller shaft is hollow and is mounted on the transfer wheel shaft [A] (coaxial). When the copy actuates the copier's exit sensor, the CPU sends a signal to the sorter to turn on the roller drive motor. The roller drive motor turns off at the same time as the copier main motor (M-12).

ELECTRICAL CONTROL



The copier CPU, through an I/O controller IC on the interface board, controls all the functions of the sorter.

The copier supplies 100 volts ac to the wheel drive motor and the SSRs. SSR 101 turns the wheel drive motor to move the bins up and SSR 102 is for the down operation.

The copier supplies two dc power levels, + 5 volts and +24 volts, for the dc components.

Signals from the sensors and the safety switch are sent to the copier CPU through the interface board. The copier CPU operates motors through the interface board and SSRs.

SORTER INSTALLATION

1. Accessory Check: FT4490

Check the quantity and condition of the accessories in the box according to the following list:

1. Installation Procedure (115V - English/220V - five languages)	1
2. New Equipment Condition Report	1
3. Envelope-NECR (1 15V only)	1
4. Grounding Screw	1
5. Toothed Washer	1
6. Knob Screw	2
7. Spacer 4.2 x 12 x 2.9	2
8. Multilingual Decal (220/240V only)	2

Interface PCB Type E and Sorter Adapter Type E are also required to install the sorter.

Check the accessories according to the following list:

Sorter Adapter Type E box:

1. Mounting Stud	2
2. Screw	1

Interface PCB Type E box:

1. PCB Mounting Stud	2
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- NOTE:**
- The interface PCB is not necessary if a DF is already installed in the system.
 - The sort/stack key top and key cover are enclosed with the copier.

SORTER INSTALLATION

1. Accessory Check: FT4430

Check the quantity and condition of the accessories in the box according to the following list:

1. Installation Procedure (115V - English/220V - five languages)	1
2. New Equipment Condition Report	1
3. Envelope-NECR (115V only)	1
4. Grounding Screw	1
5. Toothed Washer	1
6. Knob Screw	2
7. Spacer 4.2 x 12 x 2.9	2
8. Multilingual Decal (220/240V only)	2

Interface PCB Type E and Sorter Adapter Type E are also required to install the sorter.

Check the accessories according to the following list:

Sorter Adapter Type E box:

1. Mounting Stud
2. Screw

Interface PCB Type E box:

1. PCB Mounting Stud 2

- NOTE:**
- The interface PCB is not necessary with the A024-I 7 and A024-27 version machines (already equipped at the production line).
 - The interface PCB is not necessary if a DF is already installed in the system.
 - The sort/stack key top and key cover are enclosed with the copier.

UNPACKING AND INSTALLATION

- ACCESSORY CHECK (FT4480)

Check the quantity and condition of the accessories in the box according to the following list:

DESCRIPTION	Q'TY
1. Installation Procedure (115V - English only. 220V/240V - five languages)	1
2. New Equipment Condition Report	1
3. NECR Envelope (115V only)	1
4. Grounding Screw	1
5. Toothed Washer	1
6. Knob Screw	2
7. Spacer (4.2 x 12 x 2.9)	2
8. Multilingual Decal (220/240V only)	2

Interface PCB Type E and Sorter Adapter Type E are also required to install the sorter.

Check the accessories according to the following list:

Sorter Adapter Type E box:

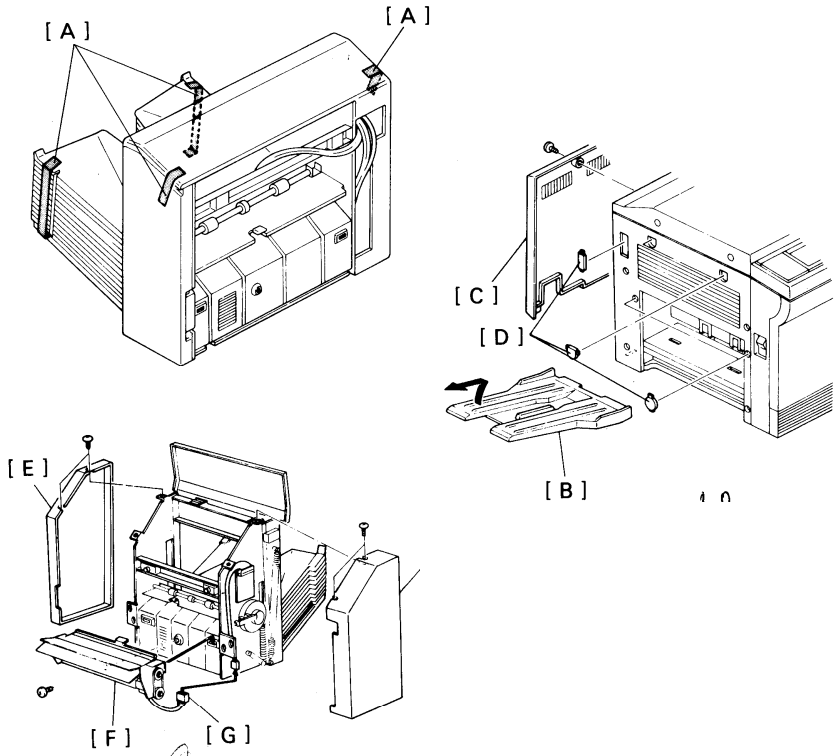
DESCRIPTION	Q'TY
1. Mounting Stud	2
2. Screw	1

Interface PCB Type E box:

DESCRIPTION	Q'TY
1. PCB Mounting Stud	2
2. Bolt	2
3. Nut	2

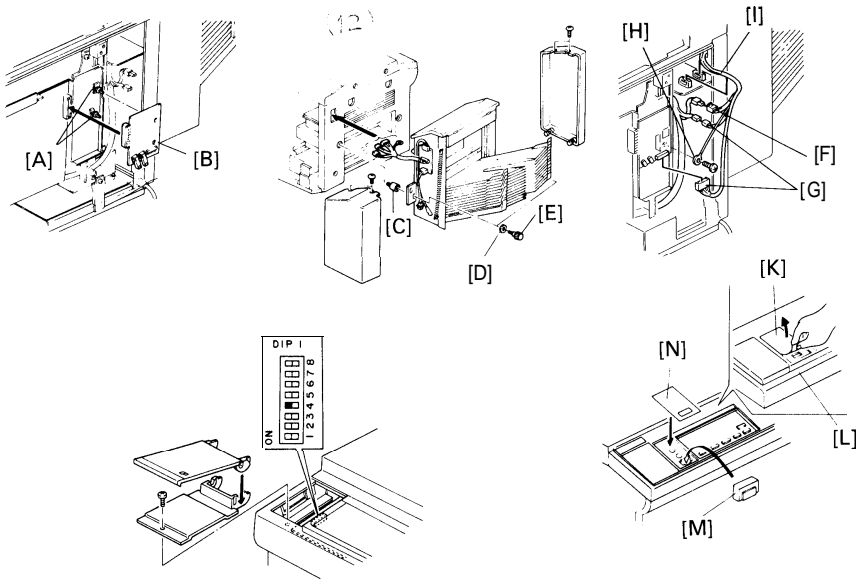
- NOTE:**
- Save the bolts and nuts for ADF installation.
 - Interface PCB is not necessary if a DF is already installed in the system.
 - Key-top and Key Cover for the sorter installation are attached the back-side of the rear cover.

2. Installation Procedure



1. Remove the strips [A].
2. Turn off the main switch and unplug the power supply cord of the copier.
3. Remove the receiving tray [B], and rear cover [C] (2 screws).
4. Remove the five plastic caps [D] from the left cover.
5. Remove the sorter covers [E] (2 screws each).
6. Install the sorter adapter [F] on the sorter (1 screw).
7. Connect the sorter adapter harness [G] to the sorter (free white 2P connector).

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8. Fix the two PCB mounting studs [A] on the main board bracket and install the interface board [B].
9. Screw the mounting studs [C] into the docking hole.
10. Mount the sorter on the copier. Pass the harness through the access hole.
11. Fix the sorter unit to the copier with the spacers [D] and two knob screws [E].
12. Connect the sorter ac harness [F] (free red 2P connector).
13. Connect the sorter dc harness [G] (CN102, free white 4P connector).
14. Secure the sorter ground wire [H] (1 screw with toothed washer).
15. Clamp the sorter harness [I] as shown in the figure.
16. Turn on DIP switch 1-4 [J] on the operation panel.
17. Mount the sorter covers and copier rear cover.
18. Peel off the panel cover [K] at the left end of the operation panel [L].
19. Install the Sort/Stack key top [M] and adhere the Sort/Stack key cover [N].
20. Check the sorter's operation and fill out the New Equipment Condition Report.



MINI SORTER INSTALLATION (FT5560)

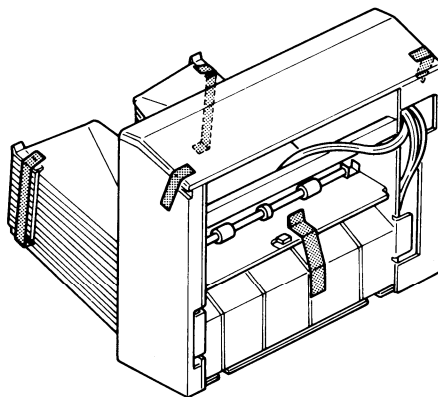
ACCESSORY CHECK

Check the quantity and condition of the accessories in the box according to the following list:

- | | |
|--|---|
| 1. Knob Screw | 2 |
| 2. Grounding Screw | 1 |
| 3. Toothed Washer | 1 |
| 4. New Equipment Condition Report | 1 |
| 5. NECR Envelope (115V only) | 1 |
| 6. Multilanguage Decal (220/240V only) | 1 |
| 7. Spacer (4.2 x 12 x 2.9) | 2 |

REMOVAL OF SHIPPING RETAINERS

1. Remove the strips of tape shown in the figure.



SORTER ADAPTER ACCESSORY CHECK

The following parts are required to install the sorter:

- ▶ Sorter Adapter Type D
- ▶ Interface PCB Type B

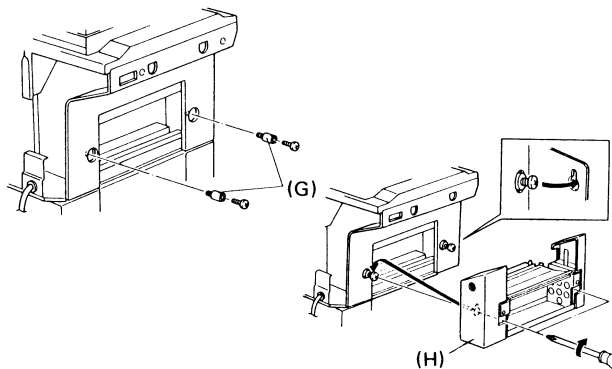
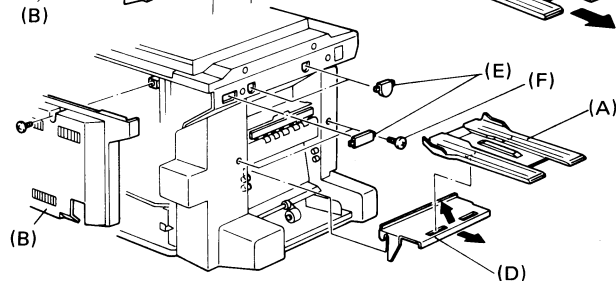
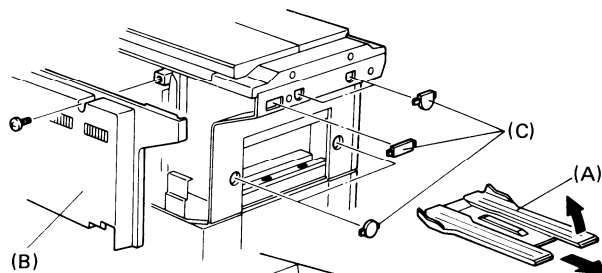
NOTE: Sorter adapter type D is required only when the system does not include the duplex unit.

Check the accessories in the Sorter Adapter Type D box according to the following list:

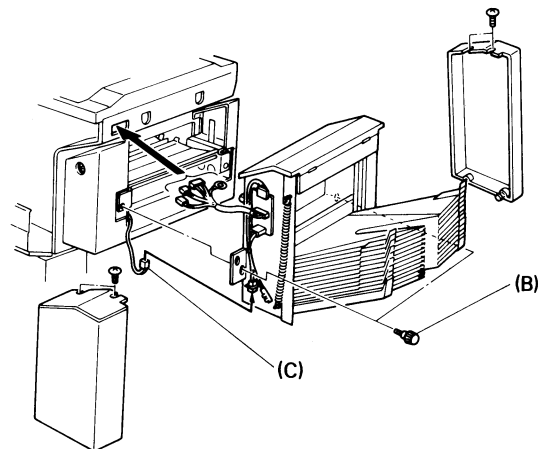
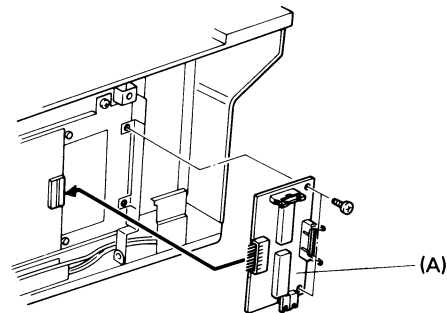
- | | |
|------------------|---|
| 1. Mounting Stud | 2 |
| 2. M4 x 8 Screw | 2 |

INSTALLATION PROCEDURE

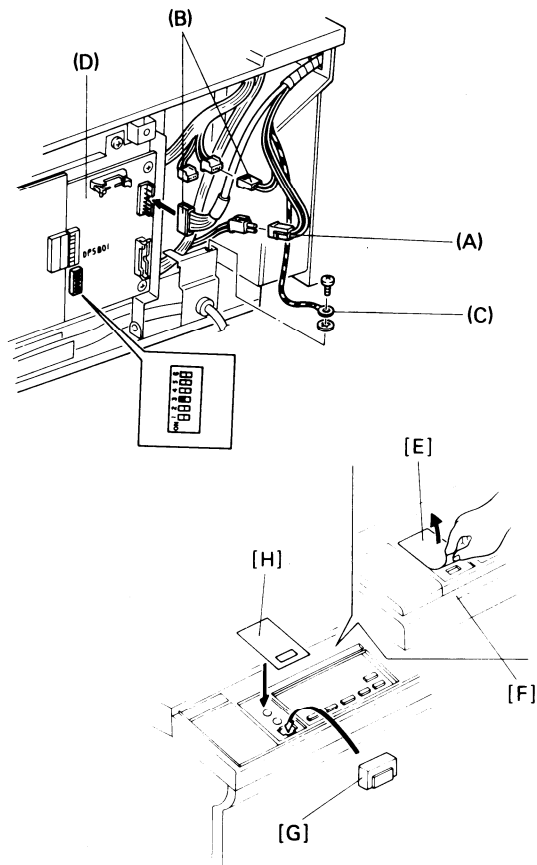
1. Turn off the main switch and unplug the power supply cord of the copier.
2. Remove the receiving tray [A] and rear cover [B] of the copier (3 screws).
3.
 - a. Remove the five plastic caps [C] from the left cover.
 - b. If the duplex unit is installed, remove the tray supporter [D], three plastic caps [E], and two truss screws [F] from the duplex unit.
4. Install the sorter adapter as follows:
(Duplex unit not installed)
 - a. Screw in the lower mounting studs [G].
 - b. Screw the M4 x 8 screws halfway into the mounting studs.
 - c. Hook the sorter adapter [H] on the screws, and tighten the screws to fix the adapter.



5. Install the interface board [A] on the PCB plate (2 screws, 1 connector).
6. Remove the sorter covers (2 screws each).
7. Mount the sorter on the copier. Insert the two mounting studs into the docking holes, and pass the harness through the access hole.
8. Fix the sorter unit to the copier with two knob screws and spacers [B].
 - ▶ When installing the duplex unit, the spacers are not needed.
9. Connect the sorter adapter harness [C] to the sorter (Free white 2P connector).
(non duplex machines only)

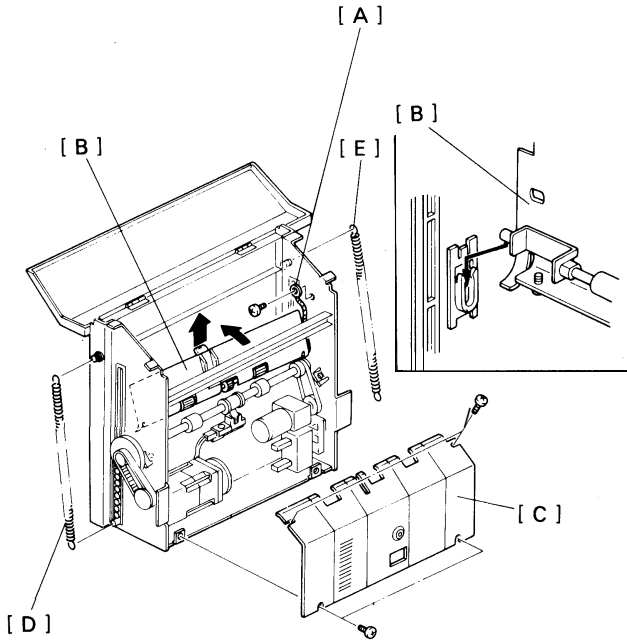


10. Connect the sorter ac harness [A] (Free red 2P connector).
11. Connect the sorter dc harness [B] (CN804, free white 4P connector).
12. Secure the sorter ground wire [C] (1 screw).
13. Turn on DIP SW801-3 on the interface board [D].
14. Mount the sorter covers and copier rear cover.
15. Peel off the panel cover [E] at the left end of the operation panel [F].
16. Insert the Sort/Stack key top (copier accessory [G]) and stick down the Sort/Stack key cover (copier accessory [H]).
17. Check the sorter's operation and fill out the New Equipment Condition Report.



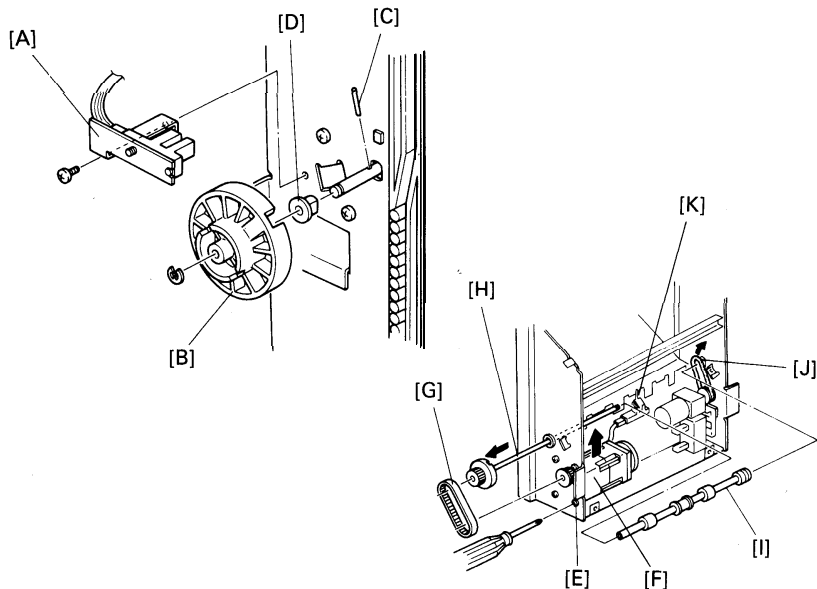
REPLACEMENT AND ADJUSTMENT

1. Exit Roller and O-Ring Replacement



1. Remove the sorter from the copier and the sorter adapter from the sorter.
2. Remove the front and rear covers (2 screws each).
3. Remove the ground wire [A] of the upper guide plate [B] (1 screw).
4. Swing the guide plate up, then remove it by carefully pulling it up.
5. Remove the inner cover [C] (4 screws).
6. Unhook the front [D] and rear [E] pressure springs.

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7. Remove the wheel sensor assembly [A] (1 screw).
 8. Remove the rear transfer wheel [B] (1 E-ring).
- NOTE:** Be sure not to lose the pin [C] of the wheel.
9. Remove the pin and bushing [D].
 10. Loosen the four mounting screws [E] of the wheel drive motor [F].
 11. Lift the wheel drive motor and slip off the timing belt [G].
 12. Slide off the wheel drive shaft [H] and remove the exit roller [I] and O-ring [J].

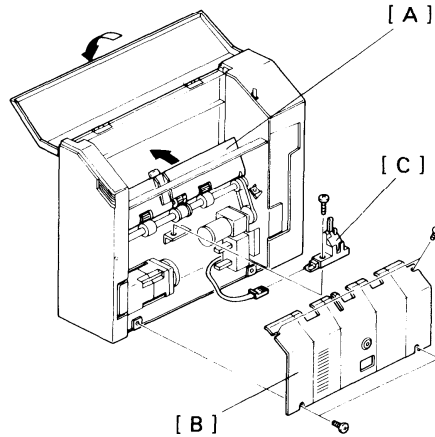
Do not damage the paper sensor [K] when removing the exit roller.

13. Replace the exit roller and O-ring, then reassemble.

NOTE: - When reinstalling the wheel sensor assembly, be sure that the sensor does not touch the wheel.

- When remounting the wheel drive motor, adjust the timing belt tension. (See the section on Timing Belt Tension Adjustment.)

2. Paper Sensor Replacement

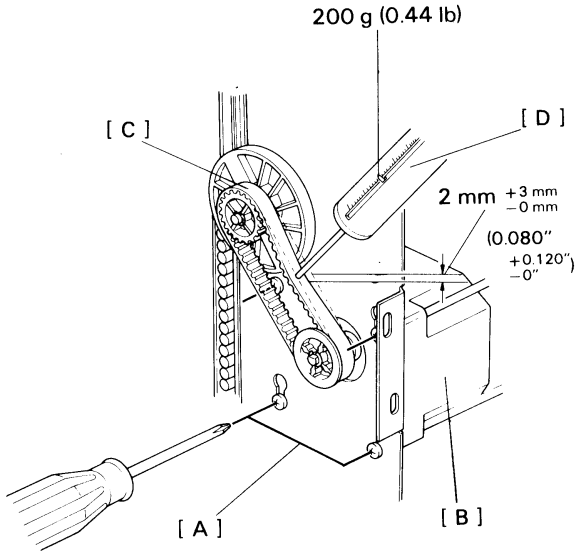


1. Remove the sorter from the copier and the sorter adapter from the sorter.
2. Swing up the guide plate [A].
3. Remove the inner cover [B] (4 screws).
4. Replace the paper sensor [C] (1 screw and 1 connector) and reassemble.

To avoid damaging the sensor, do not over-tighten the sensor mounting screw.

3. Timing Belt Tension Adjustment

ADJUSTMENT STANDARD: $2 \begin{smallmatrix} +3 \\ -0 \end{smallmatrix}$ mm; $0.08 \begin{smallmatrix} +0.12 \\ -0 \end{smallmatrix}$ inches
(deflection at 200 g (0.44 lb) pressure)



1. Remove the front cover.
2. Loosen the four mounting screws [A] of the wheel drive motor [B].
3. Press the timing belt [C] with a tension gauge [D] as shown in the figure and adjust the tension by repositioning the wheel drive motor.

SORTER CONTROL BOARD SCHEMATIC

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