

**10-BIN SORTER**  
**(Machine Code: A657)**

# 1. SPECIFICATIONS

Number of Bins: 10 bins

Paper Size for Bins: Sort/Stack Mode:  
 Maximum: A3, 11" x 17"  
 Minimum: A5, 5 1/2" x 8 1/2"

Non-Sort/Stack Mode:  
 Maximum: A3, 11" x 17"  
 Minimum: A6 Lengthwise, 5 1/2" x 8 1/2"

Paper Weight: Sort/Stack Mode: 64 to 90 g/m<sup>2</sup> (17 to 24 lb)  
 Non-Sort/Stack Mode: 52 to 162 g/m<sup>2</sup> (14 to 43 lb)

Bin Capacity:

	Sort/ Stack Mode (All Bins)	Non Sort/ Stack Mode (Top Bin)
A4, 8 1/2" x 11" or less	20	100
B4, 8 1/2" x 14"	15	100
A3, 11" x 17"	10	100

Power Source: +5 volts and +24 volts from the copier

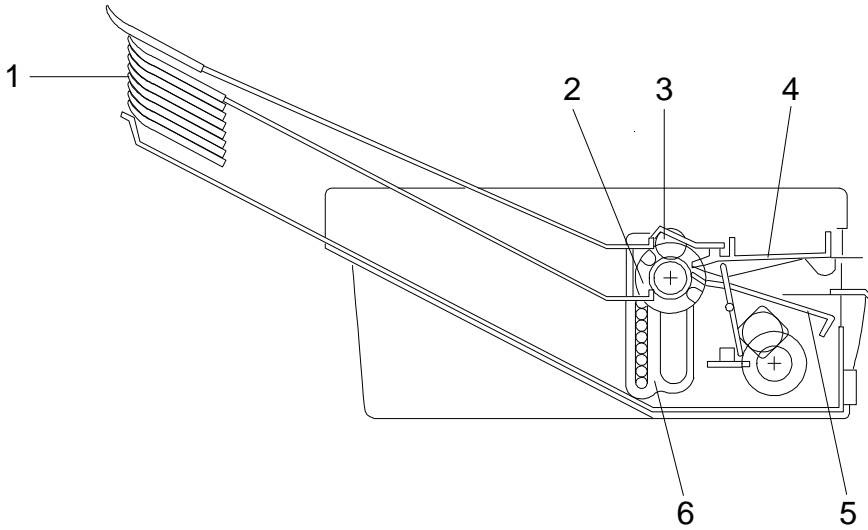
Power Consumption: 15 W

Dimensions (W x D x H): 402 mm x 447 mm x 217 mm  
 (15.7" x 17.5" x 8.5")

Weight: 7.5 kg (16.5 lb)

## 2. COMPONENT LAYOUT

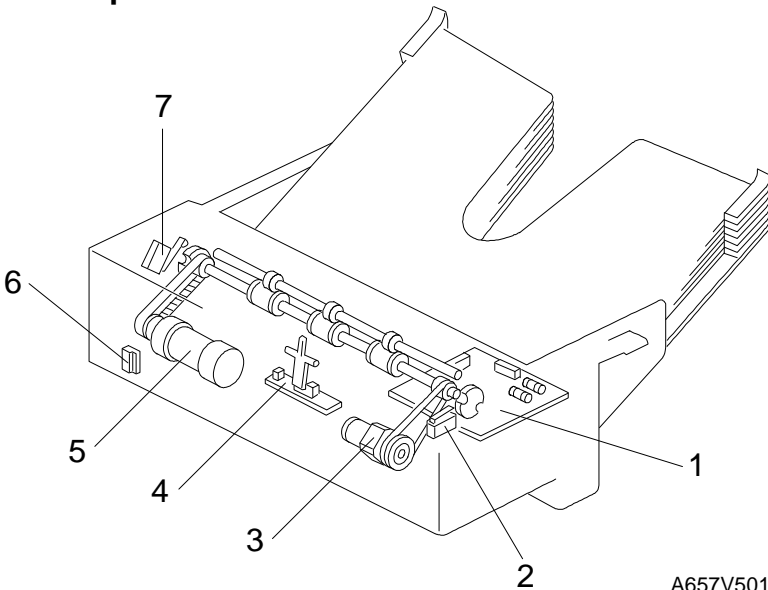
### - Mechanical Components -



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- |                   |                      |
|-------------------|----------------------|
| 1. Bins           | 4. Upper Paper Guide |
| 2. Transfer Wheel | 5. Lower Paper Guide |
| 3. Exit Roller    | 6. Bin Guide         |

### - Electrical Components -



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- |                       |                             |
|-----------------------|-----------------------------|
| 1. Sorter Main Board  | 5. Bin Drive Motor          |
| 2. Wheel Switch       | 6. Sorter Switch            |
| 3. Roller Drive Motor | 7. Bin Home Position Switch |
| 4. Paper Sensor       |                             |

### 3. ELECTRICAL COMPONENT DESCRIPTIONS

Symbol	Name	Function	Index No.
<b>Motors</b>			
M1	Roller Drive Motor	This dc motor drives the lower exit rollers.	3
M2	Bin Drive Motor	This reversible dc motor moves the bins up or down.	5
<b>Switches</b>			
SW1	Wheel Switch	Detects the rotation of the transfer wheel and stops it in the correct position.	2
SW2	Sorter Switch	This reed switch becomes activated when the sorter is in the proper position (aligned next to the copier). It also works as a jam reset switch for the sorter.	6
SW3	Bin Home Position Switch	Informs the CPU that all the bins are lowered.	7
<b>Sensors</b>			
S1	Paper Sensor	Serves as the misfeed sensor for the sorter and also sets exit roller and bin drive timing.	4
<b>Printed Circuit Boards</b>			
PCB1	Sorter Main Board	Serves as the communication board between the copier main board and the sorter.	1

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## 4. BASIC OPERATION

### - Clear Mode -

When the main switch of the copier is turned on, the sorter automatically assumes clear mode. In this mode, all copies are stacked in the first bin. The sorter also assumes clear mode when interrupt mode is selected.

Sorter operation begins when the copier sends the paper feed signal to the selected paper feed station. At this time, the roller drive motor energizes. When the paper exits onto the sorter bin, the paper sensor is de-activated and the roller drive motor is then de-energized. The copier main board monitors the paper sensor through the sorter main board to check for paper misfeeds.

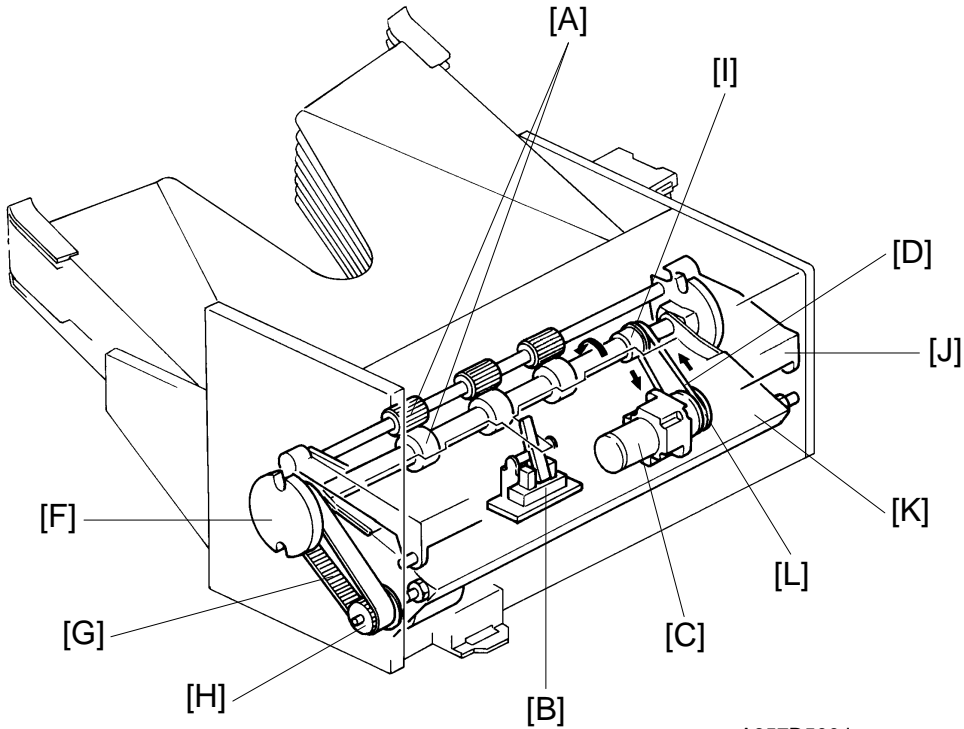
### - Sort Mode -

In this mode, all copies of the first original are delivered to separate bins starting from the top. The copies of the second original are delivered to the same bins, but starting from the bottom. The copies of the third original start from the top and so on. At 400 milliseconds after the copy has gone through the paper sensor, the bin drive motor turns on to advance the bins one step.

### - Stack Mode -

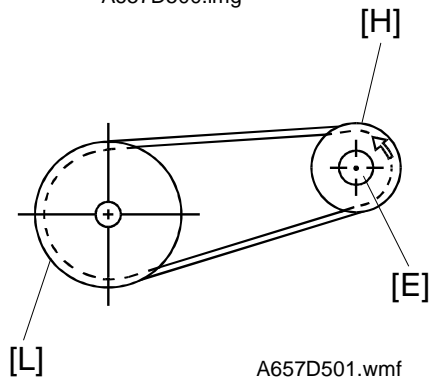
In this mode, all copies of the first original are delivered to the first bin, all copies of the second original are delivered to the second bin, and so on. At 400 milliseconds after the last copy of the original has gone through the paper sensor, the bin drive motor turns on to advance the bins one step.

# 5. EXIT ROLLER DRIVE MECHANISM



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- F: Transfer Wheel
- G: Bin Drive Belt
- H: Bin Drive Pulley
- I: Exit Roller Pulley
- J: Upper Paper Guide
- K: Lower Paper Guide
- L: Roller Drive Motor Pulley

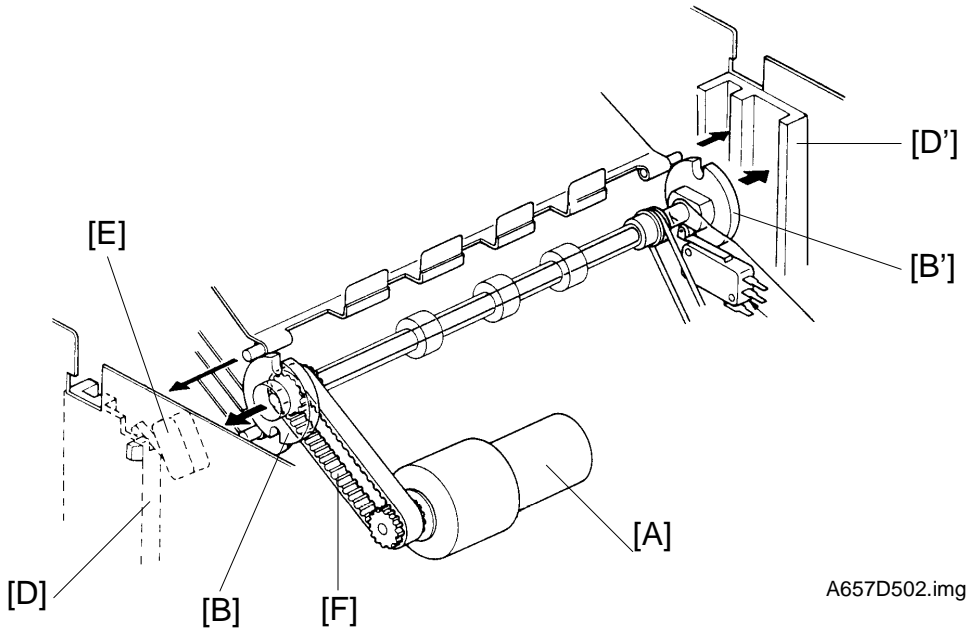


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The exit rollers [A] take over paper transport from the copier. When the copier sends the paper feed signal to the selected paper feed station, the exit rollers start rotating. The exit rollers continue to rotate for 900 milliseconds after the copy paper has gone through the paper sensor [B].

The roller drive motor [C] rotates the lower exit roller via the roller drive belt [D]. The shaft of the lower exit roller is a cylindrical cavity type which rotates around the transfer wheel shaft [E]. The paper sensor is positioned just in front of the exit rollers. The paper sensor detects misfeeds in the sorter.

# 6. BIN DRIVE MECHANISM

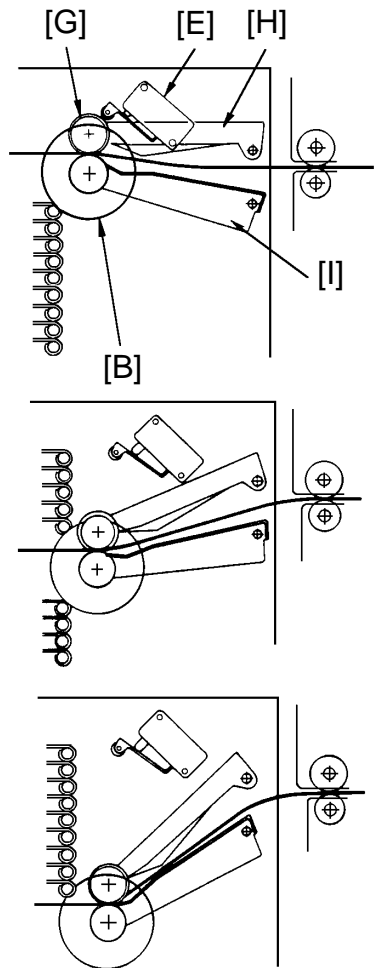


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- G: Exit Roller
- H: Upper Paper Guide
- I: Lower Paper Guide

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

Pins on either side of each bin are inserted into slots called bin guides [D,D']. The bins slide up and down in the bin guides. The bins sit on each other with the lower bin resting on the 10th bin (the 10th bin is permanently fixed in position). The upper and lower paper guides pivot up and down depending on the height of the bin to be picked up or released.



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The bin home position switch [E] informs the CPU when all the bins are lowered.

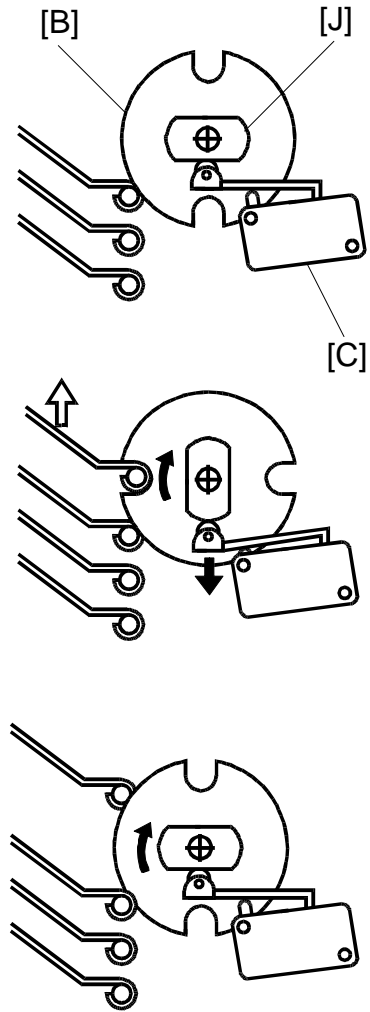
To move the bins up, the bin drive motor turns clockwise (as viewed from the front). A timing belt [F] turns the transfer wheels.

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

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

The CPU monitors the position of the bins through pulses generated by the wheel switch and the actuator cam [J].

The actuator cam has two flat sides that are 180 degrees apart and is mounted behind the rear transfer wheel. A pulse is generated each time one of the lobes of the actuator cam passes the wheel switch.

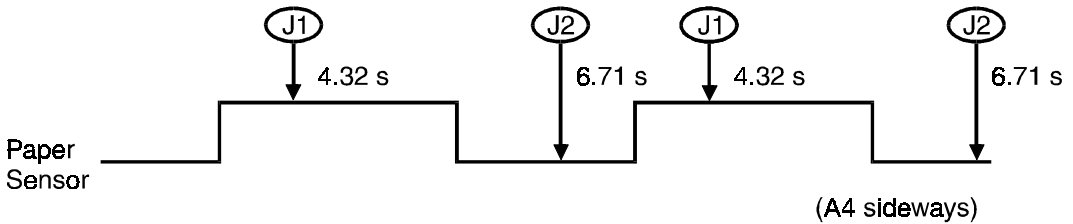


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## 7. MISFEED DETECTION



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In addition to being used for the exit roller drive timing, the paper sensor checks for misfeeds in the sorter.

### J1 - Paper Sensor On Check (A4 Sideways):

The copier CPU checks whether the paper sensor is actuated within 4.32 seconds after the registration clutch turns on.

### J2 - Paper Sensor Off Check (A4 Sideways):

The copier CPU also starts a timing cycle to detect the paper sensor off check after the registration clutch turns on. The misfeed detection timing is 6.71 seconds.

In misfeed condition, the "Check Paper Path" and "Misfeed Location" indicators light and copier operation is disabled. To recover the sorter from the misfeed condition, the sorter has to be slid away from the copier, the misfed paper removed, and the sorter returned to its original position.

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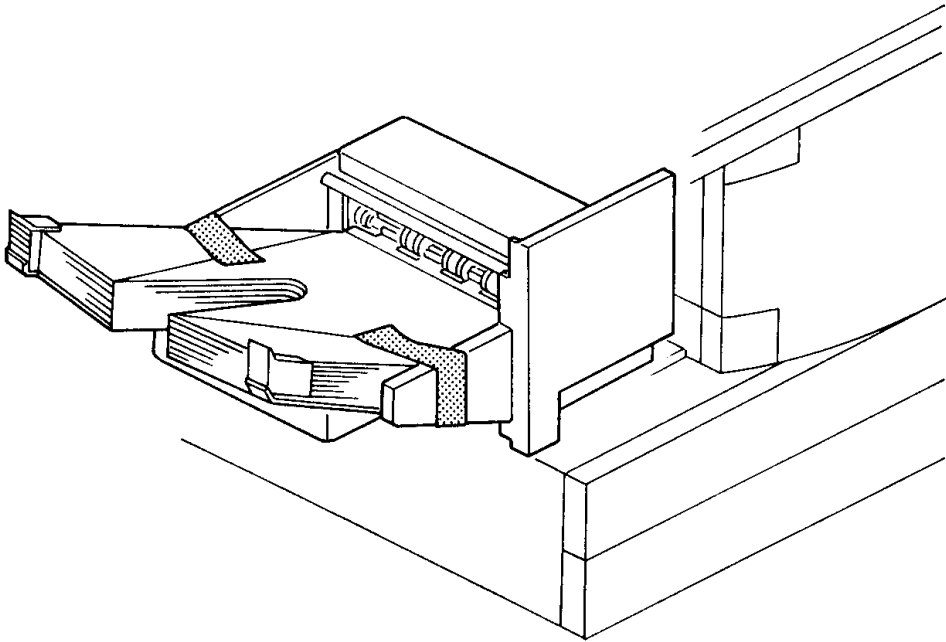
## 8. SERVICE TABLES

### 8.1 FUSE

Fuse No.	Rating	Blown Fuse Condition
F101	T1.0 A/250 V	Sorter will not operate.
F102	T0.5 A/250 V	Sorter will not operate.

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## 9. PREPARATION FOR TRANSPORTATION

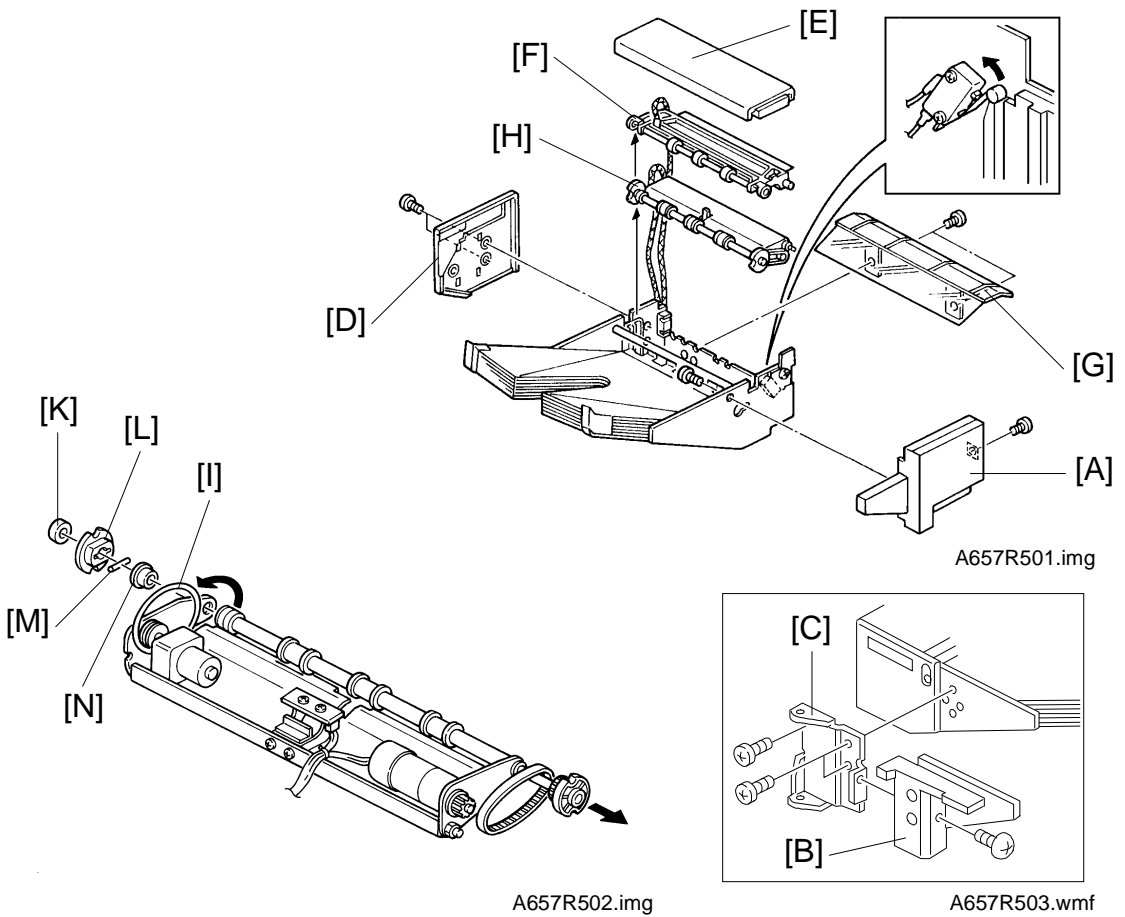


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- CAUTION:** When removing and transporting the sorter, be careful not to carry it in a vertical position, as the bins will become dislocated.
- CAUTION:** Before moving the sorter, be sure to prepare it for transportation as follows. The sorter may be badly damaged if it is moved without proper preparation.

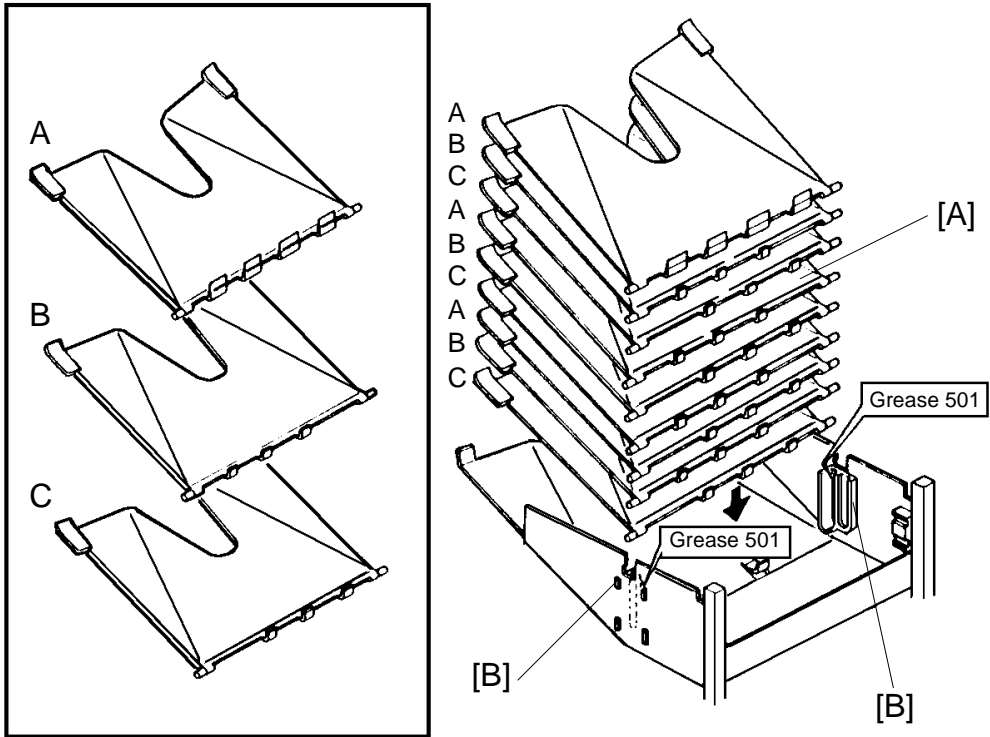
1. If the bins are not at the home position, turn on the main switch of the copier to move the bins to the home position.
2. Secure the bins with strips of tape as shown in the illustration.
3. Remove the sorter from the copier. (See the Installation Procedure.)

# 10. ROLLER DRIVE BELT REPLACEMENT



1. Remove the front cover [A] (1 screw).
  2. Remove the rear cover [B] (1 screw) and the sorter hinge [C] (2 screws).
  3. Remove the rear flat cover [D] (2 screws).
  4. Lift off the top cover [E].
  5. Lift the upper paper guide [F] up and out of position (1 grounding wire).
  6. Remove the entrance guide bracket [G] (2 screws).
  7. Lift the lower paper guide [H] out of position and turn it over to remove the roller drive belt [I].
- NOTE:** Be careful not to damage the bin home position switch actuator [J] when reassembling.
8. Remove the transfer spacer [K], wheel [L], pin [M], and bushing [N] on both sides of the shaft.
  9. Slide the wheel shaft towards the front and replace the roller drive belt.

# 11. BIN GUIDE LUBRICATION



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1. Remove the lower paper guide. (See Roller Drive Belt Replacement.)
2. Remove all bins [A] from the bin guides [B].
3. Apply G501 grease to the grooves of the bin guides.

**NOTE:** There are three types of bins (types A, B, and C in the above diagram). Therefore, when installing the bins, be sure that they are installed in the correct order.

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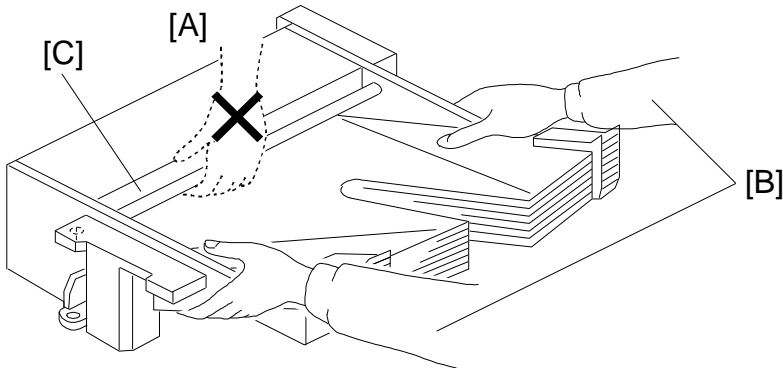
## 4. SORTER INSTALLATION (A657)

### 4.1 ACCESSORY CHECK

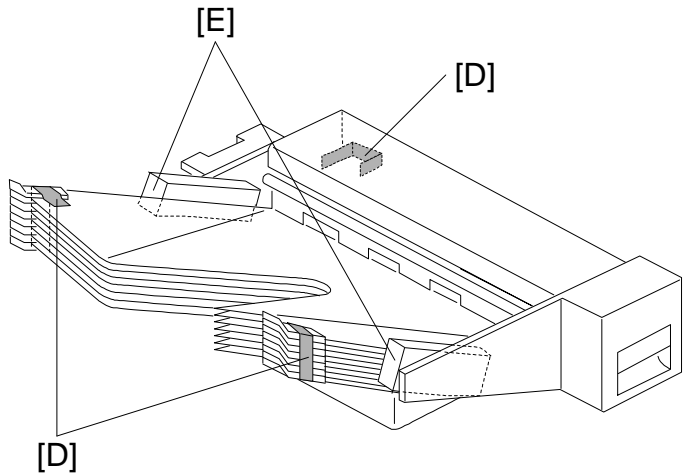
Check the accessories against the following list:

Description	Q'ty
1. Holder Bracket.....	1
2. Magnet Catch .....	1
3. Tapping Screw M4 x 6.....	6
4. Grounding Screw M4 x 8 .....	1
5. Snap Ring.....	1
6. NECR - Multi-language.....	1
7. Installation Procedure - English.....	1

## 4.2 INSTALLATION PROCEDURE



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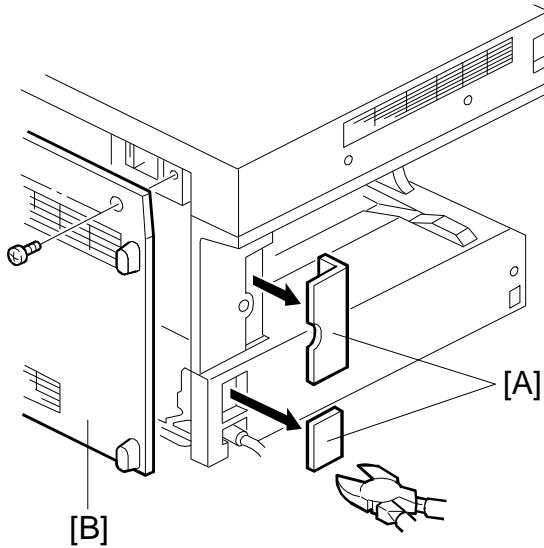
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- NOTE:**
- 1) Keep the shipping retainers after installing the machine. They will be reused if the machine will be transported to another location in the future.
  - 2) Proper installation of the shipping retainers is required in order to avoid any transport damage.
  - 3) Do not grasp the sorter by the top cover and stay as shown by [A]. Hold both sides of the sorter as shown by [B]. This is to prevent damage to the anti-static brush [C].

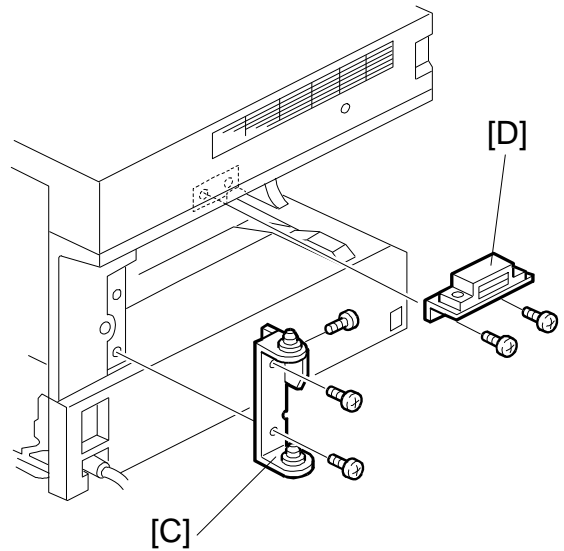
### CAUTION

**Unplug the copier power cord before starting the following procedure.**

1. Remove the copy tray from the copier.
2. Remove the strips of tape [D] and styrofoam blocks [E].

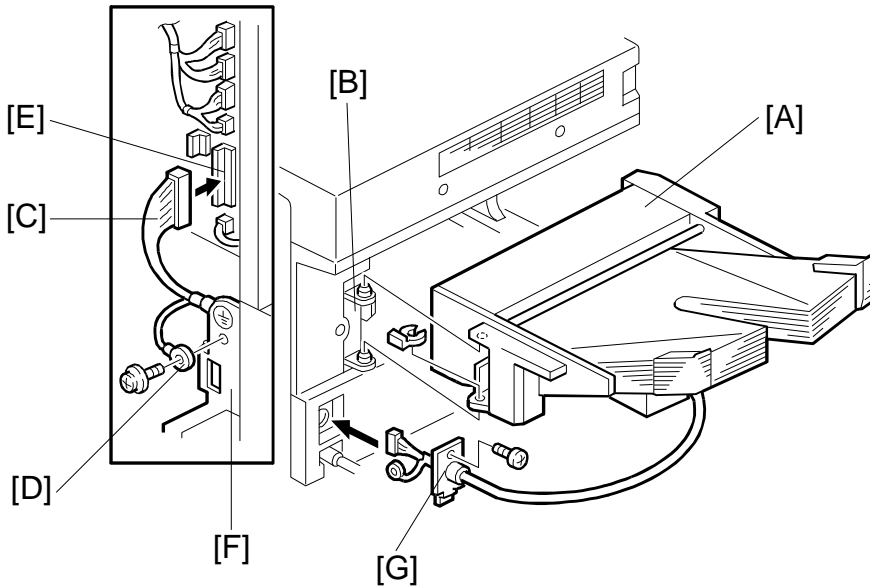


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3. Remove the 2 portions [A] on the left hand side of the copier with cutting pliers as shown.
4. Remove the rear cover [B] (2 screws).
5. Mount the sorter holder bracket [C] on the copier frame (3 tapping screws).
6. Mount the magnetic catch [D] near the exit cover (2 tapping screws).



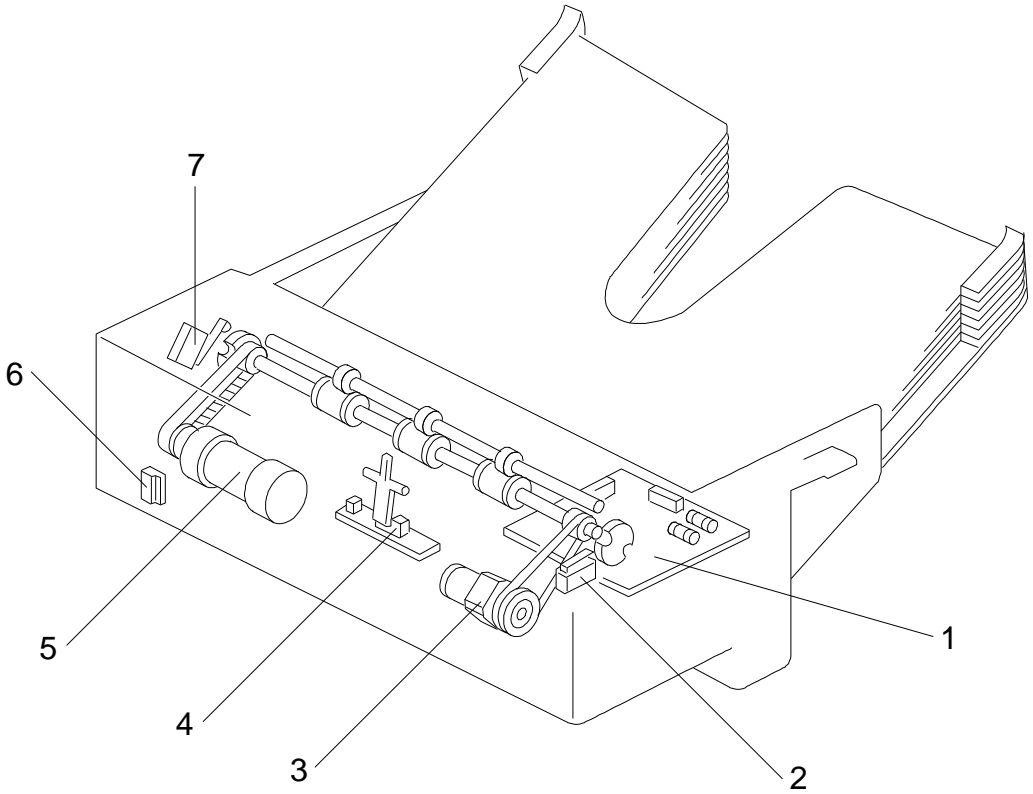
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7. Install the sorter [A] on the sorter holder bracket [B] (1 snap ring) as shown.
8. Insert the sorter harness [C] and the grounding wire [D] through the opening in the lower left cover. Plug the connector in to CN130 [E] on the main control board, and secure the grounding wire to the copier frame [F] (1 M4 x 8 screw).
9. Secure the bracket [G] (1 tapping screw).
10. Reinstall the rear cover.
11. Plug in the copier power cord and turn on the main switch.
12. Enter SP mode as follows:
  - 1) Press the  key.
  - 2) Enter "107" using the numeric keys.
  - 3) Hold down the  key for more than 3 seconds.
13. Press the following sequence of keys to change the "SP 71" value to "1".
 

 →  →  →  → 
14. Turn the main switch off and on.
15. Check the sorter's operation.



# SORTER (A657) ELECTRICAL COMPONENT LAYOUT



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<b>Description</b>	<b>Index No.</b>	<b>P to P Location</b>
Sorter Main Board (PCB1)	1	G1
Wheel Switch (SW1)	2	H2
Roller Drive Motor (M1)	3	H1
Paper Sensor (S1)	4	H2
Bin Drive Motor (M2)	5	H1
Sorter Switch (SW2)	6	H2
Home Position Switch (SW3)	7	H1