INTRODUCTION

This Service Manual provides basic facts and figures about the Multi-Output Tray-C1 (hereafter Multitray) you will need when servicing the machine in the field.

This Service Manual consists of the following:

CHAPTER 1 INTRODUCTION provides the Multitray's features, specifications, and names of its parts and shows how to operate the machine.

CHAPTER 2 OPERATIONS AND TIMING explains the principles behind the operations of the Multitray's mechanical and electrical mechanisms by function.

CHAPTER 3 MECHANICAL SYSTEM explains the mechanical construction of the Multitray and shows how to disassemble and assemble the machine.

CHAPTER 4 MAINTENANCE AND INSPECTION gives lists of periodically replaced parts and consumables/durables and a scheduled servicing chart.

CHAPTER 5 TROUBLESHOOTING shows how to troubleshoot faults, provides electrical parts arrangement diagrams, and explains the Multitray's self diagnosis function.

APPENDIX contains general timing charts, a list of signals, and a general circuit diagram.

Information found in this manual may be updated from time to time for product improvement, and major updates are communicated in the form of Service Information bulletins.

All service persons are expected to be thoroughly familiar with this Service Manual and Service Information bulletins and be ready to respond to the needs of the user promptly.

CONTENTS

CHAPTER 1 GENERAL DESCRIPTION

CHAPTER 2 OPERATIONS AND TIMING

CHAPTER 3 MECHANICAL SYSTEM

CHAPTER 4 MAINTENANCE AND SERVICING

CHAPTER 5 TROUBLESHOOTING

APPENDIX

 CANON Multi-Output Tray-C1 REV.0 MAY 1996 PRINTED IN JAPAN (IMPRIME AU JAPON)

I. FEATURES

1. Sorts fax outputs and printer outputs for delivery.

The use of the special trays enables selection of output bins for copier mode, fax mode, and printer mode.

2. Shifting special trays.

The special trays shift to the front and the rear, sorting outputs being delivered.

II. SPECIFICATIONS

Item		Specifications	Remarks
Number of bins		2 special bins	1 additional bin (part of copier).
Types of mode		Sorer, printer, fax	
Stacking		Face up Face down (64 to 80 g/m^2)	
Size of paper		A5/STMT to A3/279 mm × 432 mm (11″ × 17″)	Postcards and envelopes are delivered to the 1st bin.
Volume of stack	Special tray 1	100 sheets	
	Special tray 2	100 sheets	
Power supply		24 VDC from copier. Serial No.: ZETxxxxx	
Dimensions (W × D × H)		195 (117) × 485 × 262 mm	The value in parentheses indicates the protrusion from the copier.
Weight		6.1 kg (approx.)	
Maximum power consumption			

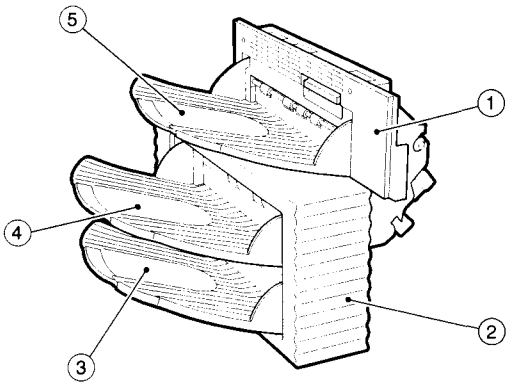
Specifications subject to change without notice.

Table 1-201

CANON Multi-Output Tray-C1 REV.0 MAY 1996 PRINTED IN JAPAN (IMPRIME AU JAPON)

III. NAMES OF PARTS

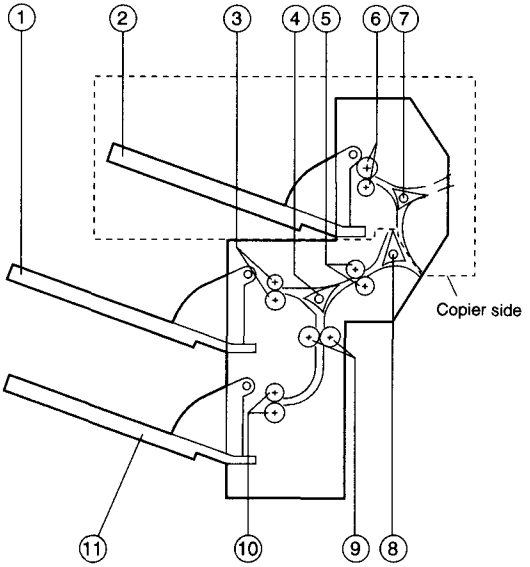
A. Exterior View



① Copier's delivery assembly
② Multi-Output Tray-C1
③ Special tray 2 (delivery tray 3)
④ Special tray 1 (delivery tray 2)
⑤ Delivery tray 1

Figure 1-301

B. Cross Section



① Delivery tray 2 (special tray 1)
② Delivery tray 1
③ Delivery roller 2
④ Paper deflecting plate 3
⑤ Feeding roller 1
⑥ Delivery roller 1
⑦ Paper deflecting plate 1
⑧ Paper deflecting plate 2
⑨ Feeding roller 2
⑩ Delivery roller 3
⑪ Delivery tray 3 (special tray 2)

Figure 1-302 Cross Section of Multi-Output Tray-C1

CANON Multi-Output Tray-C1 REV.0 MAY 1996 PRINTED IN JAPAN (IMPRIME AU JAPON)

IV. OPERATION

Settings are selected on the copier's LCD. Of the copier settings, the following relate to the Multitray:

A. Custom Common Settings

To select custom common settings, select 'ADDITIONAL FUNCTIONS' and select 'custom common settings'.

No.	Item	Description	Factory default
1	PRINTING PRIORITY	Use it to set the order of priority for copier, fax, and printer.	Copier: 1 Fax: 2 Printer: 3
2	TRAY	Use it to specify for what functions the special trays should be used.	A: Copier outputs B: Fax/printer outputs

Table 1-401

B. Sorting Operation

The Multitray sorts outputs depending on the following conditions:

1. Whether a mode (copier, fax, printer) has been selected under 'TRAY' in user mode.
   The Multitray will sort outputs to the selected tray.
2. Whether the RF is used or the original is placed on the copyboard glass.
   See Table 1-402 if 'copier' is selected for A, B, and C under 'TRAY' (A, B, and C represent tray 1, 2, and 3, respectively).

	Original in RF	Original on copyboard glass
Order of trays	A, B, B, C, C, A, B, B, C, and C*	A, B, C*
Number of sets	As many as can be stacked on trays (100 sheets max.)	3 sets max.; 'copier' selected for A, B, and C.

*Trays B and C are shifted.

Table 1-402

C. Face-Down Delivery

Face-down delivery requires a reversing function in the copier's delivery assembly and is executed as follows:

1. Fax Outputs
   The outputs will automatically be face down.
2. With ADF in Use
   Face-down delivery may be selected in user mode.

CANON Multi-Output Tray-C1 REV.0 MAY 1996 PRINTED IN JAPAN (IMPRIME AU JAPON)

I. BASIC FUNCTIONS

A. Basic Construction

The Multitray comes with two special trays that are designed to shift for sorting outputs and serve as a 3-bin output device with the addition of the copier's delivery assembly.

Special trays 1 and 2 may be selected for copier outputs or fax and printer outputs.

The Multitray is supplied with 24VDC by the copier, and its electrical mechanisms are controlled by the copier's DC controller PCB.

II. BASIC CONSTRUCTION

A. Functional Construction

The Multitray may be divided into two functional blocks: tray shift drive block and feeding drive block. Figure 2-201 is a diagram of these functional blocks.

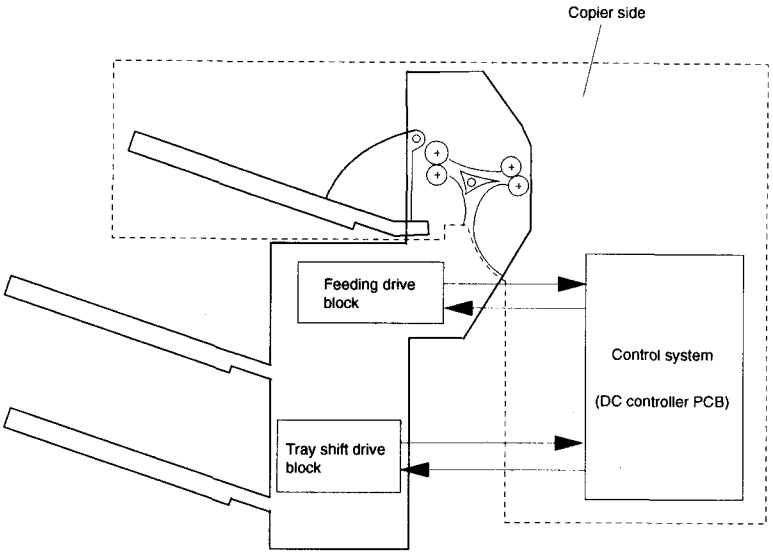


Figure 2-201

  CANON Multi-Output Tray-C1 REV.0 MAY 1996 PRINTED IN JAPAN (IMPRIME AU JAPON)

B. Outline of Electrical Circuitry

The Multitray's electrical mechanisms are controlled by the copier's DC controller PCB.

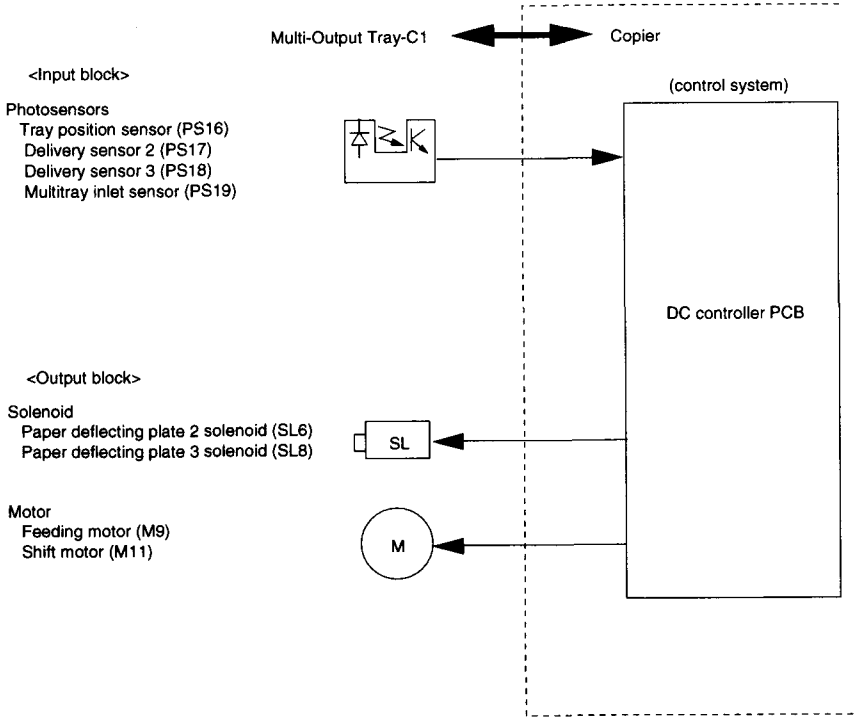


Figure 2-202

C. Inputs to and Outputs from the Copier's DC Controller

1. Inputs to the DC Controller PCB

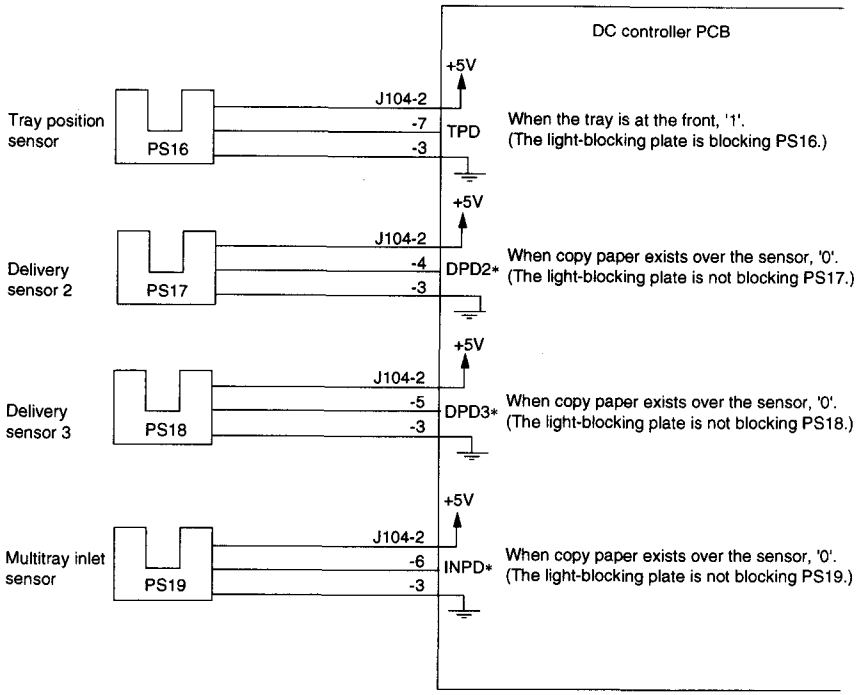


Figure 2-203

2. Outputs from the DC Controller

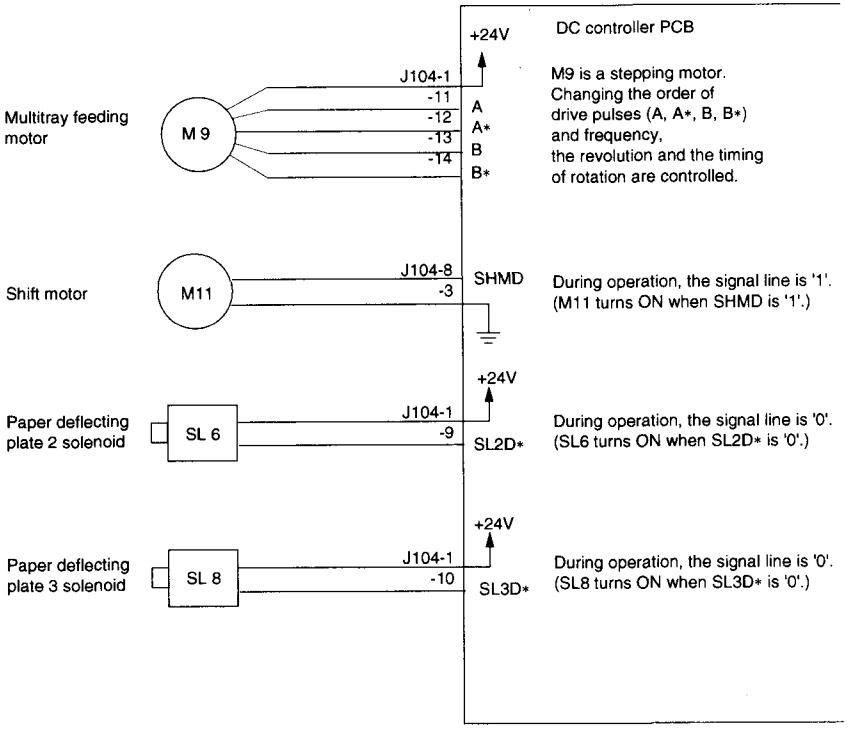


Figure 2-204

III. BASIC OPERATIONS

A. Outline

The Multitray is designed so that it can deliver outputs either face up or down to its two shifting trays. (Face-down delivery, however, requires a reversing mechanism in the copier and the use of an ADF.)

The Multitray delivers outputs according to the following modes and allows selection of a delivery bin (in user mode).

1. **Delivering Copier Outputs**
   The outputs may be sorted and delivered to delivery trays 1, 2, and 3.
2. **Delivering Printer Outputs**
   The outputs may be stacked on all delivery trays 1, 2, and 3.
3. **Delivering Fax Outputs**
   The outputs may be stacked to all delivering trays 1, 2, and 3.

■ *Face-Up Delivery (normal delivery)*

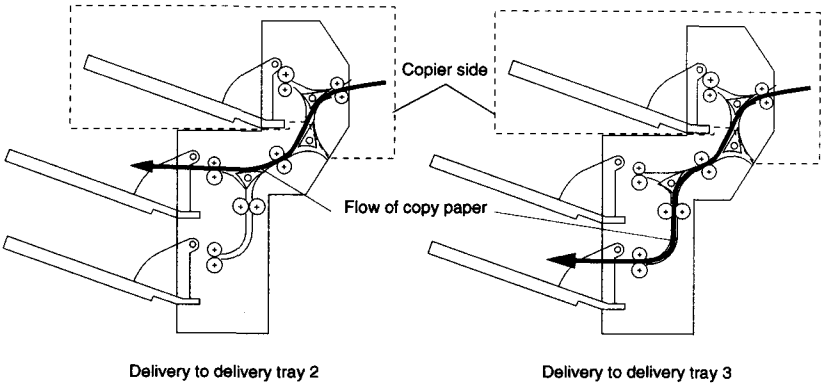


Figure 2-301

  CANON Multi-Output Tray-C1 REV.0 MAY 1998 PRINTED IN JAPAN (IMPRIME AU JAPON)

■ Face-Down Delivery to Delivery Tray 2 (w/ LOWER PAPER FEEDER assembly)

The following explanation assumes delivery to delivery tray 2; the same will be executed to delivery tray 1 or 3 with the help of a reversing mechanism.

① After moving through the fixing assembly, the copy paper moves to the lower paper feeder assembly.

② The copy paper reverses within a specific period of time after it has moved pas the post-fixing paper sensor (PS7); then, the paper moves in the direction of the Multitray.

③ The copy paper is delivered to delivery tray 2.

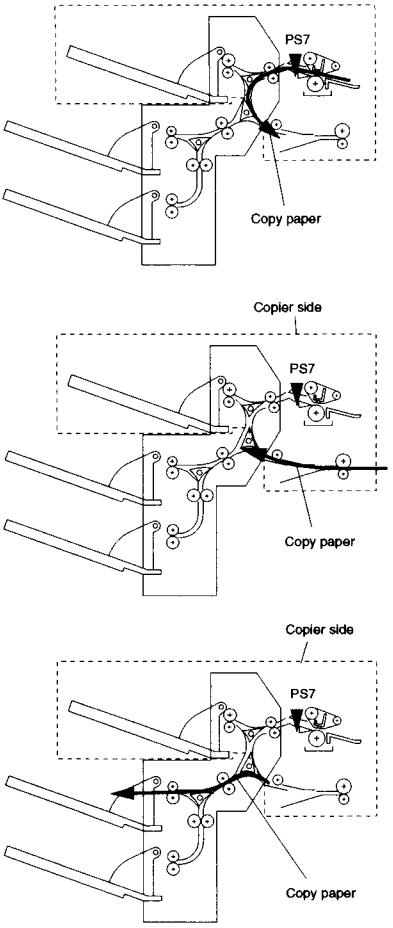


Figure 2-302

IV. FEEDING DRIVE SYSTEM

A. Outline

1. Construction

Copy paper coming from the copier is controlled by the copier's DC controller PCB and delivered to the delivery tray.

Figure 2-401 is a diagram of the feeding drive system and the arrangement of electrical parts; Table 2-401 shows the names of electrical parts and signal lines. (Those within dashed lines belong to the copier and are not explained herein.)

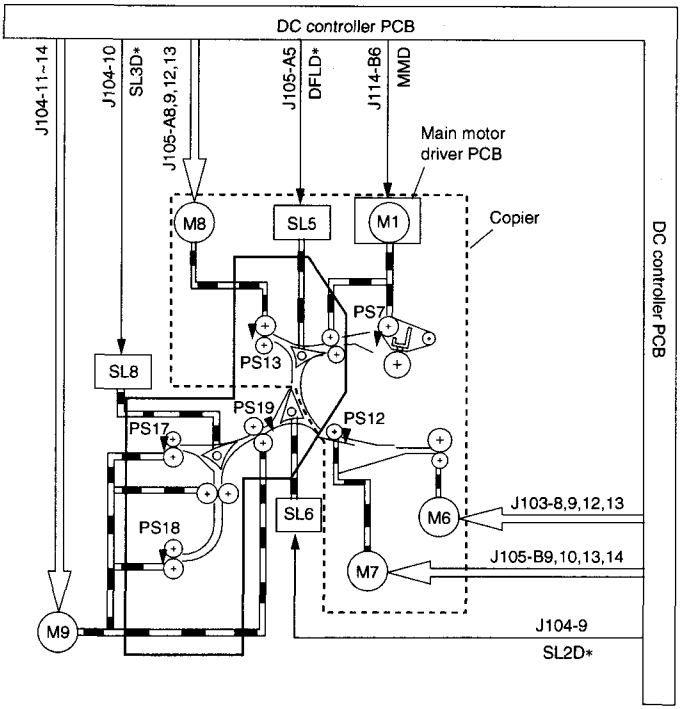
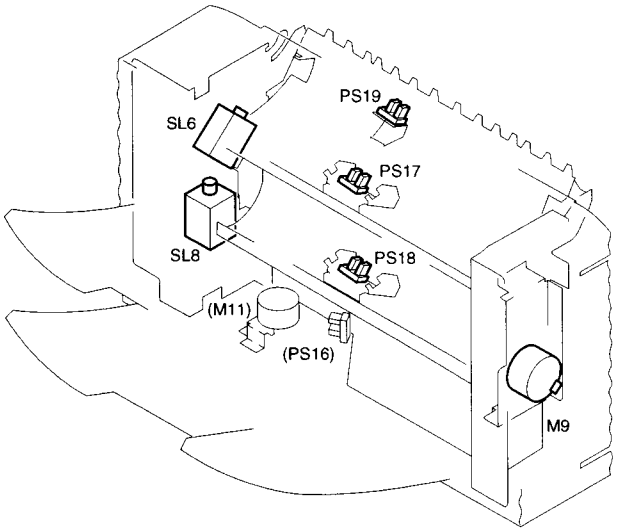


Figure 2-401 Diagram of the Feeding Drive System



PS16 is the tray position sensor, and M11 is the tray shift drive motor; both are explained in the section on the tray shift mechanism.

Figure 2-401-1 Arrangement of Electrical Parts (feeding drive system)

Parts notation	Parts name	Jack No. (*2)	State (*3)
PS19	Multitray inlet sensor	J104-6	0
PS17	Delivery sensor 2	J104-4	0
PS18	Delivery sensor 3	J104-5	0
M9	Multitray feeder motor (*1)	J104-11~14	–
SL6	Paper deflecting plate 2 solenoid	J104-9	0
SL8	Paper deflecting plate 3 solenoid	J104-10	0

*1 Stepping motor.
*2 Jack No. on the DC controller PCB (signal line).
*3 State when the sensor is ON.

Table 2-401 Electrical Parts Signals and Signal Lines

B. Feeding Drive

1. Drive and Sequence of Operations (face-up delivery)

■ Delivery to Delivery Tray 2

Copy paper is forwarded to delivery tray 2 when the paper deflecting plate 1 solenoid turns ON and the paper deflecting plate 2/3 solenoids turn OFF (Figure 2-402). While the copy paper is moving, the multi-tray feeding motor (M9) doubles its speed of rotation as soon as the paper deflecting plate 1 solenoid (SL5) turns OFF to increase the speed of delivery.

(Copy paper is delivered to delivery tray 3 when the paper deflecting plate 3 solenoid SL8 turns ON.)

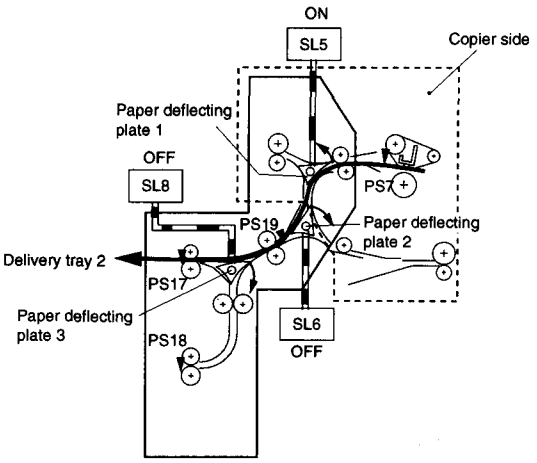
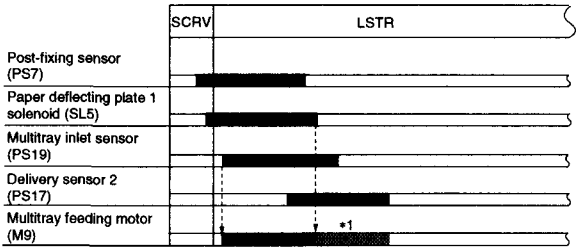


Figure 2-402

■ Sequence of Operations (delivery to delivery tray 2)

The paper deflecting plate 2/3 solenoids turn ON a specific period of time after copy paper has moved past the post-fixing paper sensor (PS7).



*1: The feeding motor doubles its speed of rotation when the paper deflecting plate 1 solenoid turns OFF.

Figure 2-403 Delivery to Delivery Tray 2 (A4, 1 sheet)

C. Shifting the Trays

1. Outline

The Multitray's delivery trays 2 and 3 shift to the rear and the front to sort outputs, thereby stacking the outputs as shown in Figure 2-404.

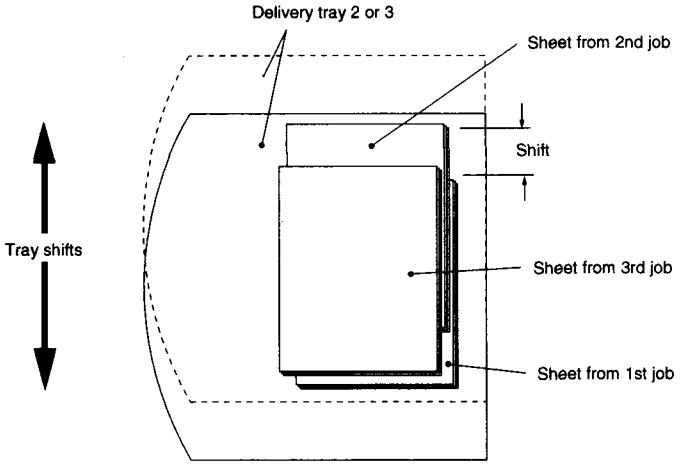


Figure 2-404

Reference:
The term a *job* refers to the series of operations executed between the start of the delivery of the first page and the end of the delivery of the last page.

2. Operations

a. Shifting Drive

The delivery tray 2 or 3 is shifted to the rear or the front by the drive of the shift motor (M11) transmitted through gears and cams. (Since the drive is transmitted by a single shifting plate, both delivery trays 2 and 3 are shifted at the same time.)

The shift motor (M11) is a DC motor that rotates in one-direction only, and its speed and timing of rotation is controlled by the drive signals from the copier's DC controller PCB.

Figure 2-405 is a diagram showing how the trays are shifted and how electrical parts are arranged.

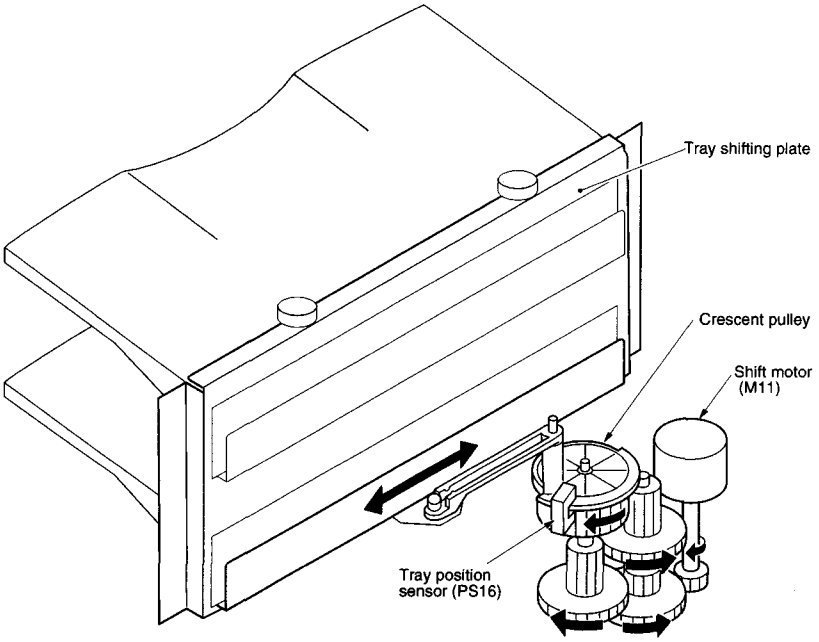


Figure 2-405 Tray Shifting Drive

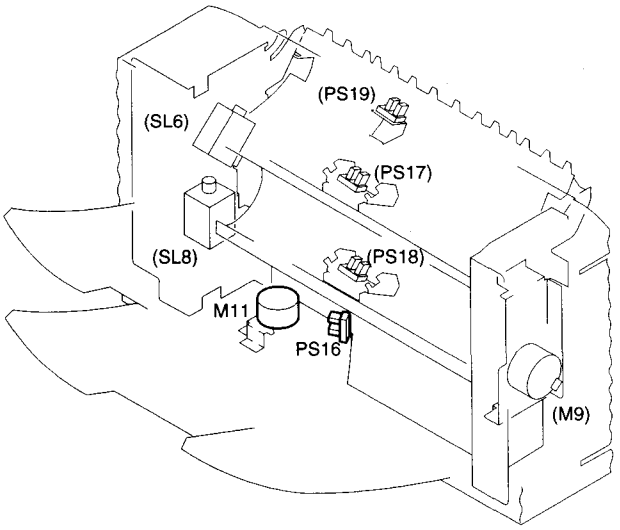


Figure 2-405-1 Electrical Parts Involved in Shifting the Trays

Parts notation	Parts name	Jack No.	State
PS16	Tray position sensor	J104-7	0
M11	Shift tray drive motor	J104-8	1

Table 2-402 Electrical Parts and Signal Lines

b. Identifying the Position of the Trays

The position of the tray is identified by the copier's DC controller PCB with reference to the tray position signal from the tray position sensor (PS16).

The DC controller PCB assumes that the shift tray is at home position when the tray is at the front and the edge of the crescent pulley blocks the tray position sensor.

The home position is identified when the main power supply is turned on.

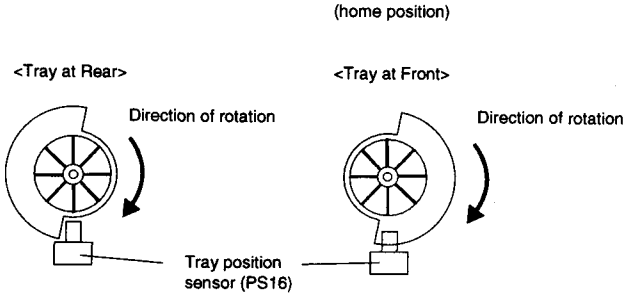
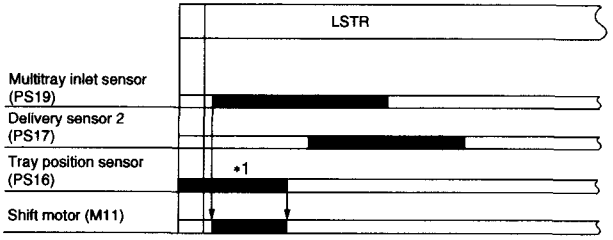


Figure 2-406 Top View of the Crescent Pulley and the Tray Position Sensor

c. Sequence of Operations

The shift motor (11) turns ON as soon as the leading edge of copy paper moves past the multitray inlet sensor (PS19). See Figure 2-407 for sequence of motor operations.



*1: Light-blocking plate over the sensor.

Figure 2-407

D. Detecting Jams

1. Multitray Inlet Sensor Delay Jam

A delay jam is identified if the leading edge of copy paper does not reach the Multitray inlet sensor (PS19) within a specific period of time after it has moved past the post-fixing paper sensor (PS7).

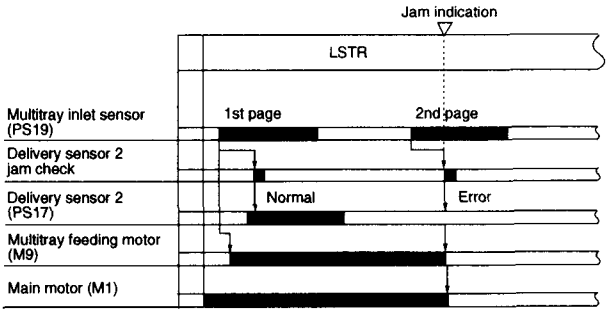


Figure 2-408 Multitray Inlet Sensor Delay Jam (A4, 2 sheets)

2. Delivery Upper Sensor 2 Delay Jam

A delay jam is identified if the leading edge of copy paper does not reach the delivery sensor 2 (PS17) within a specific period of time after it has moved past the multitray inlet sensor (PS19).

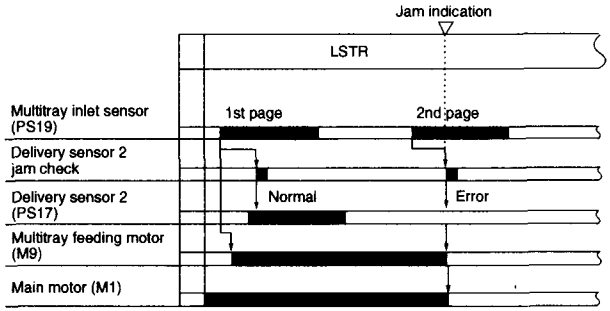


Figure 2-409 Delivery Upper Sensor 2 Delay Jam (A4, 2 sheets)

3. Delivery Sensor 2 Stationary Jam

A stationary jam is identified if the leading edge of copy paper does not reach the delivery sensor 2 (PS17) within a specific period of time after it has moved past the delivery sensor 2 (PS17).

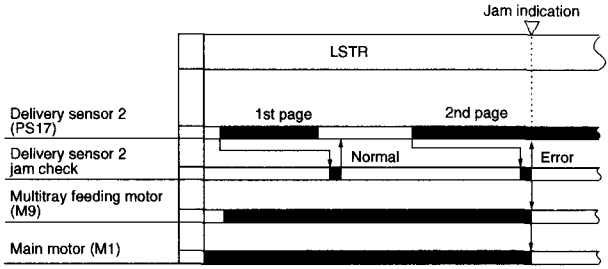


Figure 2-410 Delivery Sensor 2 Stationary Jam (A4, 2 copies)

4. Delivery Sensor 3 Delay Jam

A delay jam is identified if the leading edge of copy paper does not reach the delivery sensor 3 (PS18) within a specific period of time after it has moved past the multitray inlet sensor (PS19).

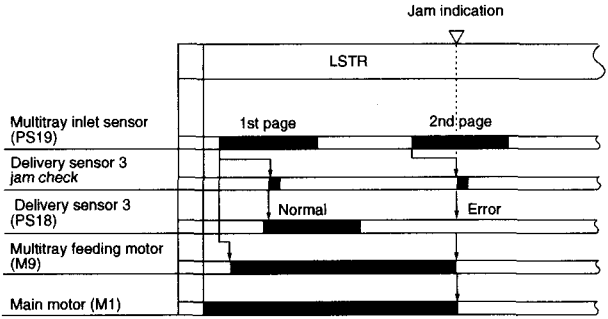
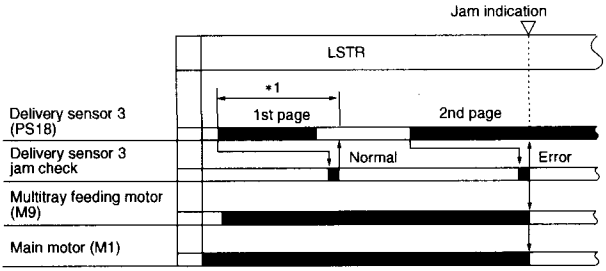


Figure 2-411 Delivery Sensor 3 Delay Jam (A4, 2 sheets)

5. Delivery Sensor 3 Stationary Jam

A stationary jam is identified if the leading edge of copy paper does not move past the delivery sensor 3 (PS18) within a specific period of time after it has moved past the delivery sensor 3 (PS18).



*1: Length detected varies depending on copy paper size.

Figure 2-412 Delivery Sensor 3 Stationary Jam (A4, 2 sheets)

6. Power-On Jam

A jam will be identified if any of the sensors is on when the copier's power switch is turned on.

- Multitray inlet sensor (PS19)
- Delivery tray 2 sensor (PS17)
- Delivery tray 3 sensor (PS18)

1. Removing the External Covers

1) Remove the delivery tray.
2) Find four hooks on the external cover ① (2 at top ②, and 2 at bottom ③); release the bottom hooks using a small flat-bladed screwdriver, and remove the external cover.

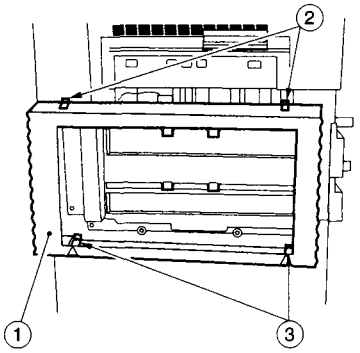


Figure 3-101

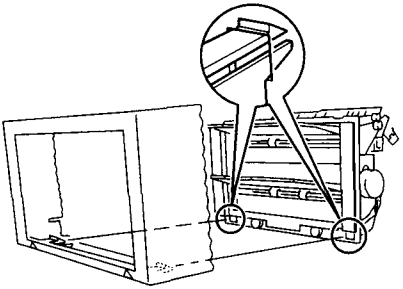


Figure 3-101-1

2. Removing the Multitray

You must remove the Multitray whenever you need to lift the copier for relocation; work as follows:

1) Remove the external cover (4 hooks).
2) Pull out the stopper plate ①.

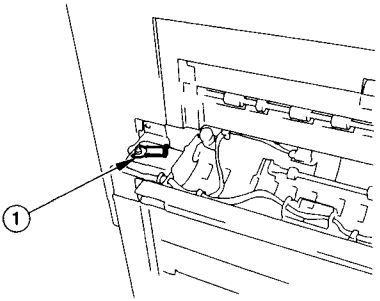


Figure 3-102

3) Open the Multitray, and disconnect the connector ②.

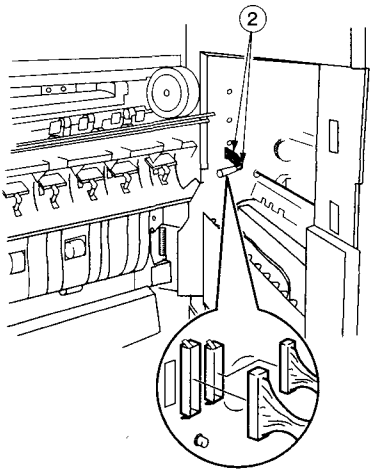


Figure 3-102A

4) Free the harness from the edge saddles found at the hinge assembly supporting the Multitray.
5) Holding the bottom of the Multitray, remove the Multitray by holding the latch assembly of the delivery assembly with the other hand.

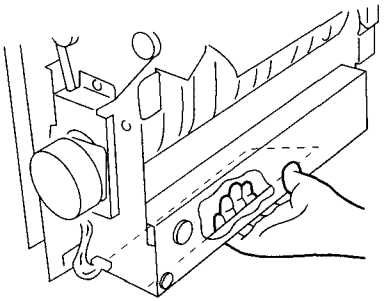


Figure 3-103

Caution:
If you need to place the Multitray on the floor or the like, place it with its delivery tray side at the bottom.

3. Removing the Feeder Motor (M9)

1) Open the front door, and open the Multitray.
2) Disconnect the connector ①, and free the harness from the edge saddle ②.
3) Remove the two screws ④, and remove the feeder motor.

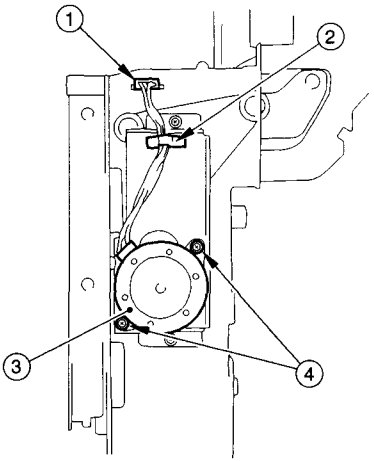


Figure 3-104

4. Removing the Multitray Inlet Sensor (PS19)/Delivery Sensor 2 (PS17)

1) Remove the external cover (4 hooks).
2) Disconnect the connector ① and remove the hook ②, and remove the multitray inlet sensor ③ (PS19) and the delivery tray 2 sensor ④ (PS17).

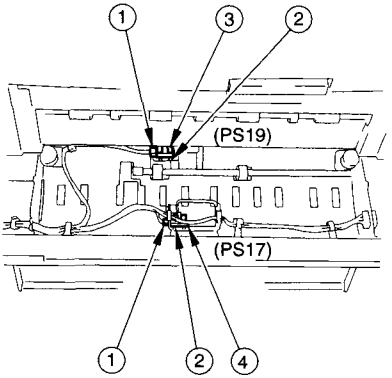


Figure 3-105

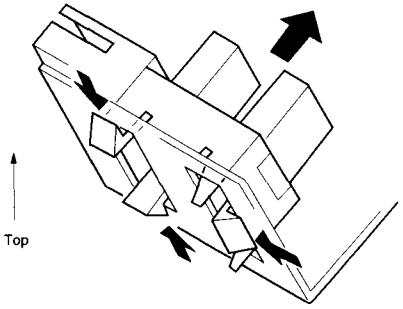


Figure 3-105-1

5. Removing the Shift Tray Assembly

1) Remove the Multitray from the copier.
2) Remove the two screws ②, and remove the shift tray motor cover ①.

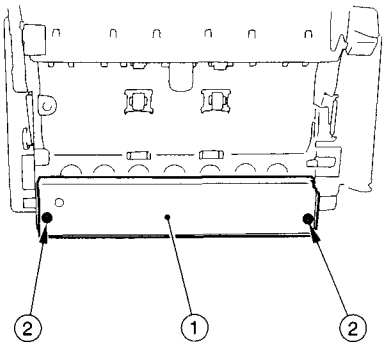


Figure 3-106

3) Disconnect the connector ③.

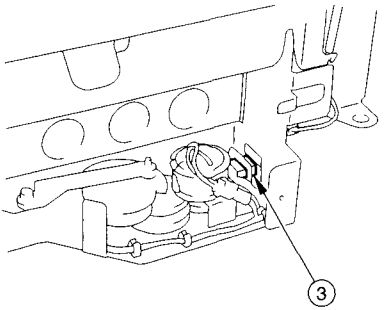


Figure 3-107

4) Remove the four screws ⑤, and remove the shift tray assembly.

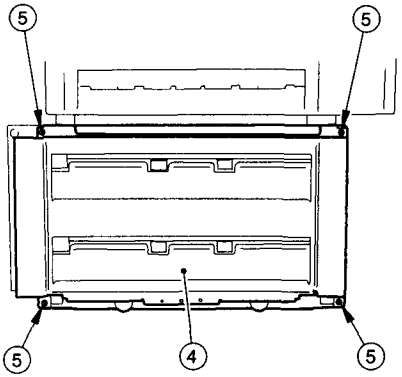


Figure 3-108

6. Removing the Shift Tray Motor (M11)

1) Remove the shift tray assembly.
2) Remove the screw ②, and disconnect the connector ③; then, remove the shift tray motor ① (M11).

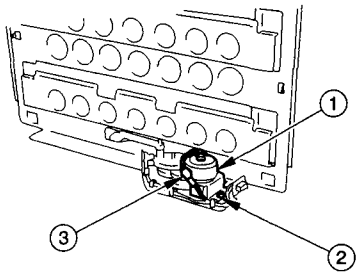


Figure 3-109

7. Removing the Delivery Sensor 3 (PS18)

1) Remove the shift tray assembly.
2) Disconnect the connector ①, and remove the delivery sensor 3 (PS18).

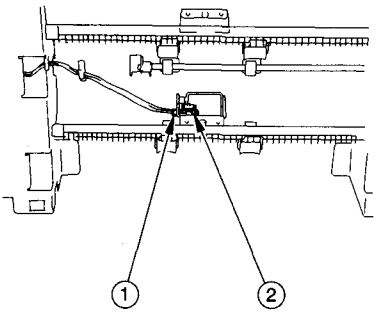


Figure 3-110

8. Removing the Delivery Roller 2

1) Remove the external cover (4 hooks).
2) Release the hook assembly ①, and remove the delivery roller ②.

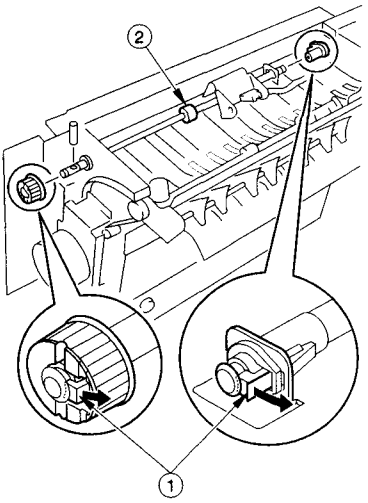


Figure 3-111

  CANON Multi-Output Tray-C1 REV.0 MAY 1996 PRINTED IN JAPAN (IMPRIME AU JAPON)

I. PERIODICALLY REPLACED PARTS

The Multitray does not have parts designated for periodical replacement.

II. CONSUMABLES AND DURABLES

The Multitray does not have parts designated as consumables.

III. SCHEDULED SERVICING

The Multitray does not have parts that require scheduled servicing.

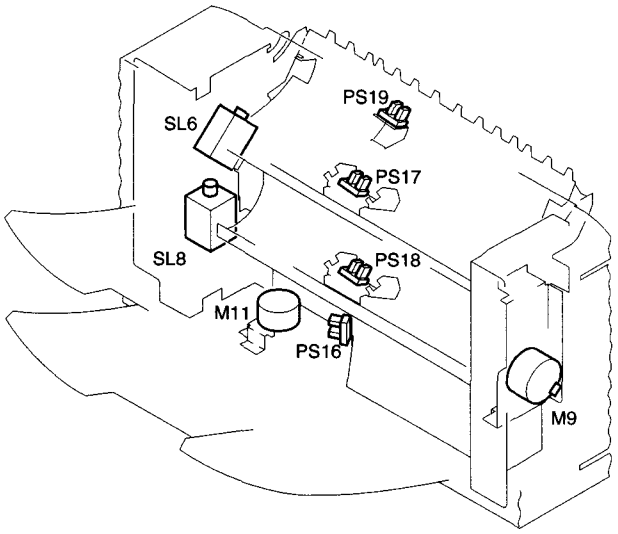
 CANON Multi-Output Tray-C1 REV.0 MAY 1996 PRINTED IN JAPAN (IMPRIME AU JAPON)

I. TROUBLESHOOTING PROBLEMS

1. E541

Cause	Step	Checks	Yes/No	Action
	1	Turn off and then on the main power. Is the tray at the front?	YES	Go to step 4.
DC controller PCB	2	Set the meter to the NA DCV range. Is the voltage between J104-7 (+) and -3 (–) on the DC controller PCB 5 V when the light is blocked and 0 V otherwise?	NO	Disconnect and connect the connector; if normal, replace the DC controller PCB.
Shift motor	3	Set the meter to Ω mode. Is there electrical continuity between J104-3 and -8? (70Ω to 80Ω)	NO	Check the wiring; if normal, replace the shift motor.
DC controller PCB	4	Set the meter to DCV mode. Is the voltage between J104-2 (+) and -3 (–) on the DC controller always 5 V while power is on?	NO	Check the wiring and the power line; if normal, replace the DC controller PCB.
Tray position sensor (PS16)	5	Set the meter to DCV mode. Is the voltage between J104-8 (+) and -3 (–) immediately after the main power is turned on 24 V?	NO	Replace the tray position sensor.
			YES	Check the copier.

II. ARRANGEMENT OF ELECTRICAL PARTS



  CANON Multi-Output Tray-C1 REV.0 MAY 1996 PRINTED IN JAPAN (IMPRIME AU JAPON)

Symbol	Name	Notation	Description
	Photointerrupter	PS16 PS17 PS18 PS19	Tray position detection Delivery tray 2 paper detection Delivery tray 3 paper detection Multitray inlet paper detection
	Motor	M9 M11	Multitray feeding drive Tray shift drive
	Solenoid	SL6 SL8	Paper deflecting plate 2 drive Paper deflecting plate 3 drive

III. SERVICE MODE

The service modes unique to the Multitray are controlled by the DC controller PCB, and data is indicated on the copier's LCD.

1. Control Display Mode

The type of jam, location of the jam, and a history of jams are shown on the second screen in control display mode.

2. I/O Display Mode

The states of the sensors used in the Multitray are shown on the second screen in I/O display mode. For details, see the Service Manual of the copier.

  CANON Multi-Output Tray-C1 REV.0 MAY 1996 PRINTED IN JAPAN (IMPRIME AU JAPON)

IV. SELF DIAGNOSIS

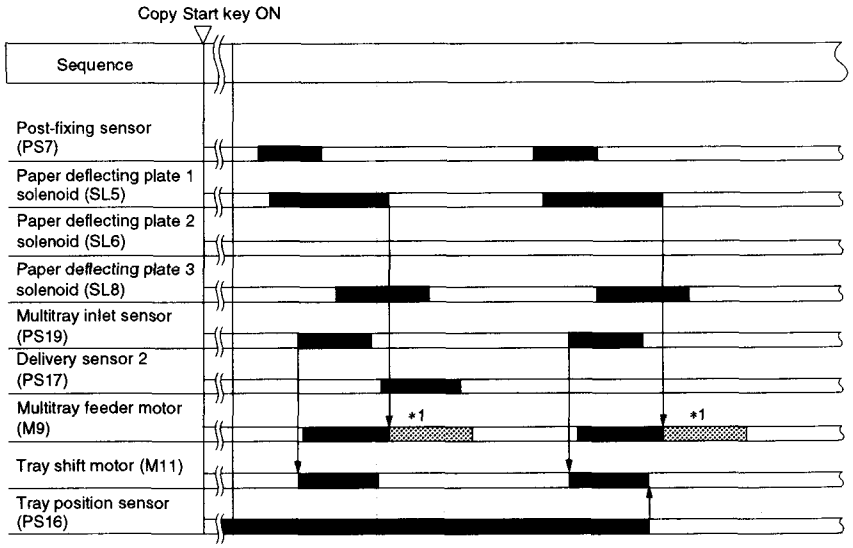
The microprocessor of the copier's DC controller PCB is equipped with a mechanism to check the condition of the Multitray (condition of sensors, in particular). The mechanism runs checks as necessary and indicates a specific code on the copier's control panel if it finds an error.

A. Self Diagnosis (Multitray)

Code	Cause	Description
E540	The shift tray home position sensor fails to operate.	The home position detection signal does not turn on within 5 sec after the shift tray home search starts.

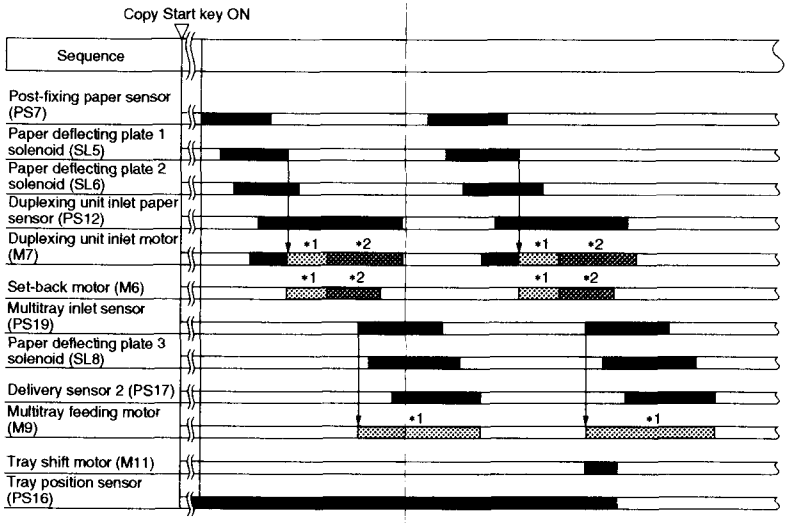
A. GENERAL TIMING CHART

■ A4, 2 Sheets, Normal Delivery to Delivery Tray 2



*1: The feeding motor doubles its speed of rotation when the paper deflecting plate 1 solenoid (SL5) turns OFF.

■ A4, 2 Sheets, Face-Down Delivery to Delivery Tray 2



*1: The motor doubles its speed of rotation.
*2: The motor reverses its direction of rotation. The speed is the same as in *1.

B. LIST OF SIGNALS

1. Names of Signals

TPD	Tray Position Detection signal
DPD2	Delivery Paper Detection 2 signal
DPD3	Delivery Paper Detection 3 signal
INPD	Inlet Paper Detection signal
SHMD	Shift Motor Drive
SL2D	Solenoid 2 Drive
SL3D	Solenoid 3 Drive