Model J-P3

(Machine Code: G106)

SERVICE MANUAL

Subject to change
20 February 2004

⚠IMPORTANT SAFETY NOTICES

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the printer and peripherals, make sure that the printer power cord is unplugged.
2. The wall outlet should be near the printer and easily accessible.
3. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
4. The printer drives some of its components when it completes the warm-up period. Be careful to keep hands away from the mechanical and electrical components as the printer starts operation.
5. The inside and the metal parts of the fusing unit become extremely hot while the printer is operating. Be careful to avoid touching those components with your bare hands.

HEALTH SAFETY CONDITIONS

Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The printer and its peripherals must be serviced by a customer service representative who has completed the training course on those models.
2. The NVRAM module (option) installed on the controller has a lithium battery which can explode if replaced incorrectly. Replace the NVRAM only with an identical one. The manufacturer recommends replacing the entire NVRAM. Do not recharge or burn this battery. Used NVRAM must be handled in accordance with local regulations.
3. The optional fax and memory expansion units contain lithium batteries, which can explode if replaced incorrectly. Replace only with the same or an equivalent type recommended by the manufacturer. Do not recharge or burn the batteries. Used batteries must be handled in accordance with local regulations.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, the maintenance unit which includes developer or the organic photoconductor in accordance with local regulations. (These are non-toxic supplies.)
3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.
5. Dispose of used fusing oil in accordance with local regulations.

LASER SAFETY

The Center for Devices and Radiological Health (CDRH) prohibits the repair of laser-based optical units in the field. The optical housing unit can only be repaired in a factory or at a location with the requisite equipment. The laser subsystem is replaceable in the field by a qualified Customer Engineer. The laser chassis is not repairable in the field. Customer engineers are therefore directed to return all chassis and laser subsystems to the factory or service depot when replacement of the optical subsystem is required.

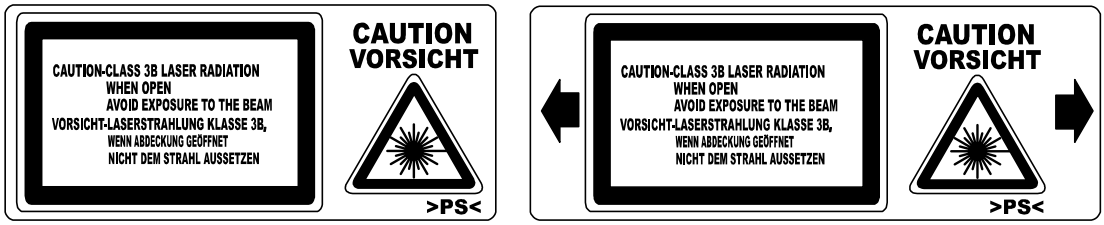
⚠WARNING

Use of controls, or adjustment, or performance of procedures other than those specified in this manual may result in hazardous radiation exposure.

⚠WARNING

WARNING: Turn off the main switch before attempting any of the procedures in the Laser Optics Housing Unit section. Laser beams can seriously damage your eyes.

CAUTION MARKING:



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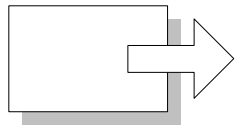
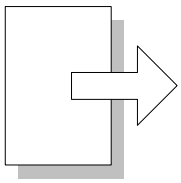
Symbols and Abbreviations

This manual uses the symbols and abbreviations shown below.

Symbol	Meaning
☛	Refer to section number
	Clip ring
	Screw
	Connector
SEF	Short Edge Feed
LEF	Long Edge Feed



Short Edge Feed (SEF)



Long Edge Feed (LEF)

TABLE OF CONTENTS

PERIPHERALS

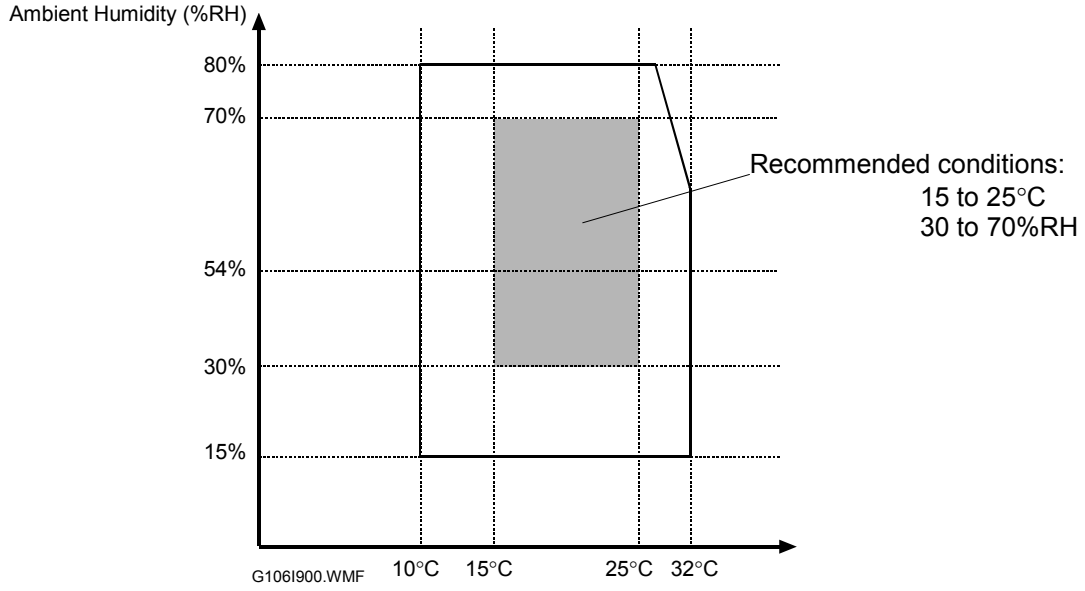
BOOKLET FINISHER (B602)

SPECIFICATIONS

1. INSTALLATION

1.1 INSTALLATION REQUIREMENTS

1.1.1 ENVIRONMENT



1. Temperature Range: 10°C to 32°C (50°F to 89.6°F)
2. Humidity Range: 15% to 80% RH
3. Ambient Illumination: Less than 2,000 lux (do not expose to direct sunlight)
4. Ventilation: 3 times/hr/person or more
5. Avoid exposing the machine to sudden temperature changes, which include:
   1) Direct cool air from an air conditioner
   2) Direct heat from a heater
6. Avoid installing the machine in areas that might be exposed to corrosive gas.
7. Install the machine at a location lower than 2,500 m (8,200 ft.) above sea level.
8. Install the machine on a strong, level base (☛ 1.1.2).
9. Avoid installing the machine in areas that may be subjected to strong vibration.

1.1.2 MACHINE LEVEL

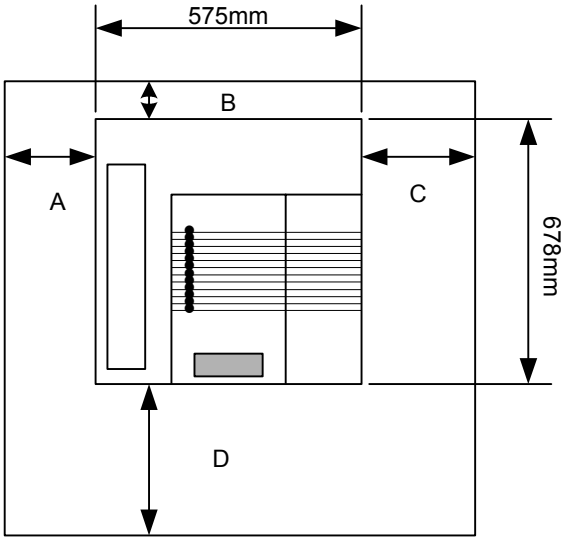
Front to back: Within 5 mm (0.2")

Right to left: Within 5 mm (0.2")

1.1.3 MACHINE SPACE REQUIREMENT

Install the machine near the power source. The diagrams show the necessary space.

Printer



A: Over 460 mm (18")
B: Over 100 mm (4")
C: Over 550 mm (22")
D: Over 700 mm (28")

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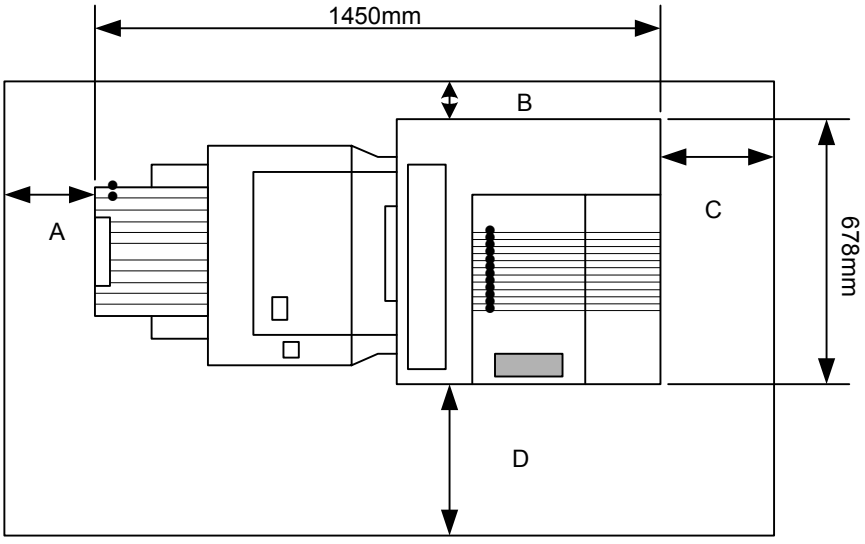
Printer and Finisher



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[A]: Over 460 mm (18")
[B]: Over 100 mm (4")
[C]: Over 550 mm (22")
[D]: Over 700 mm (28")

1.1.4 POWER REQUIREMENTS

⚠CAUTION

1. **Insert firmly the plug in the outlet.**
2. **Avoid using an outlet extension plug or cord.**
3. **Ground the machine.**

1. Input voltage level: 120 V, 60 Hz: More than 12 A
   220 V ~ 240 V, 50 Hz/60 Hz: More than 7 A
2. Permissible voltage fluctuation: ±10%
3. Do not put or place anything on the power cord.

1.2 OPTIONAL UNIT COMBINATIONS

No.	Options	Remarks
1	One-tray paper feed unit	You can install one of these three
2	Two-tray paper feed unit	
3	Large capacity tray	
4	Two-tray finisher	One from No. 4 and No. 6; No. 8 necessary
5	Punch kit (3 types)	No. 4 necessary; One of the three types
6	Booklet Finisher	One from No. 4 and No. 6; No. 8 necessary
7	Punch unit (4 types)	No. 6 necessary; One of the four types
8	Duplex unit	
9	64 MB memory	You can install one of these three
10	128 MB memory	
11	256 MB memory	
12	40 GB HDD unit	
13	IEEE 1284	You can install one of these four
14	IEEE 1394	
15	IEEE 802.11b	
16	Bluetooth	
17	NVRAM memory	

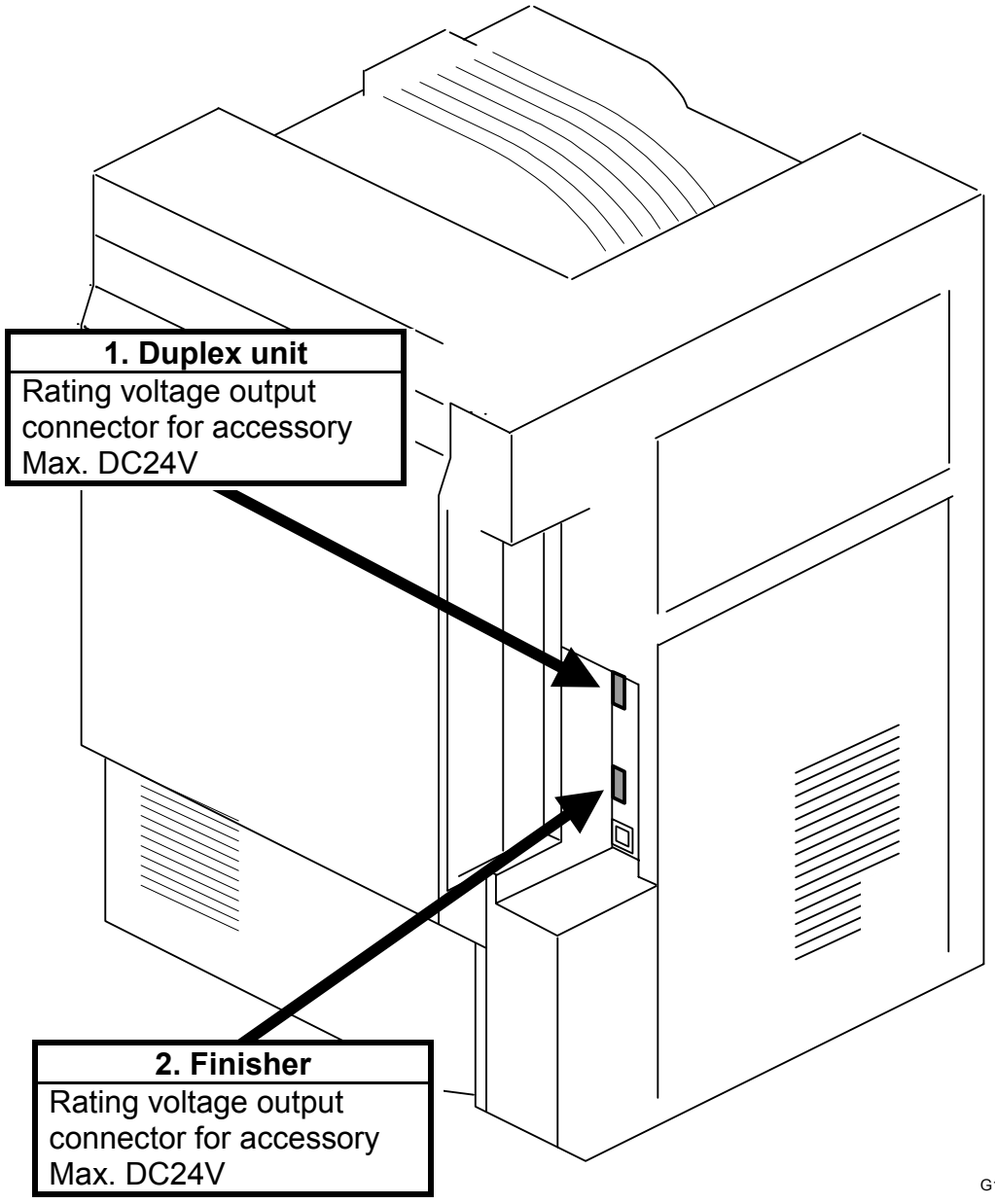
1.3 PRINTER

1.3.1 POWER SOCKETS FOR PERIPHERALS

⚠CAUTION

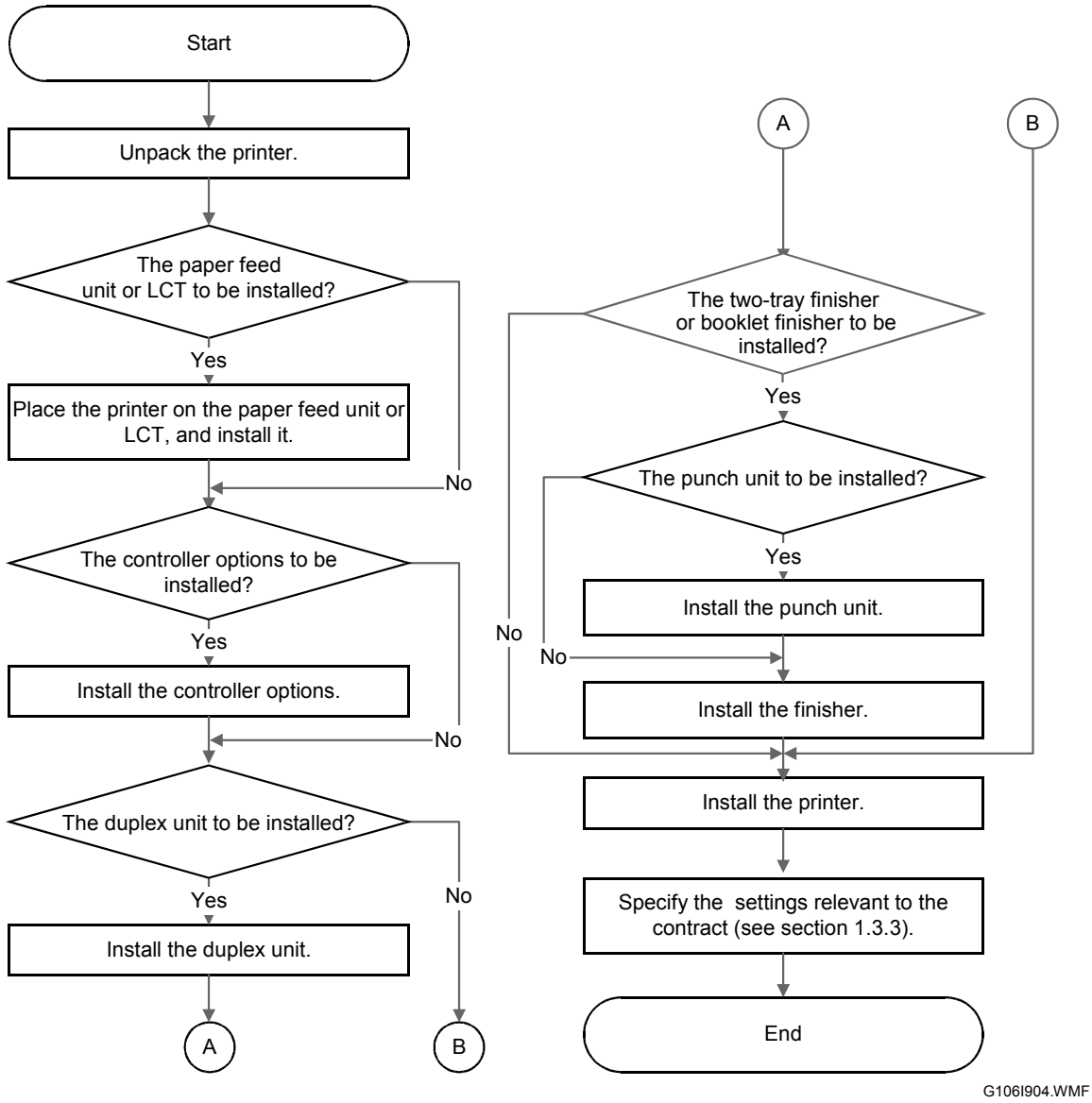
Rating voltage for peripherals.

Make sure to plug the cables into the correct sockets.



1.3.2 INSTALLATION FLOW CHART

The flow chart shows the installation procedure.



The two-tray finisher and the booklet finisher require ① the duplex unit and ② an optional paper tray unit or the LCT. Each punch unit is dedicated to the two-tray finisher or the booklet finisher.

1.3.3 INSTALLATION AND SETTINGS

For the installation procedure, see the Operating Instructions. After you install the printer, make the settings that are necessary for the service contract. When you make the settings, use caution:

1. Check the contract type carefully before you do steps 2 and 3. If you make the wrong settings, you cannot change some settings back again.
2. You must enable Meter Charge (SP5-930-001) for any meter click counter contract. The default is “OFF” (disabled).
3. If you set Meter Charge to “ON”, you must set Counter Methods (SP5-045) (developments/prints) in accordance with the contract (☛ 5.3.1). If you change the setting from “Prints” (default) to “Developments,” you cannot change the setting back again.

The table shows the SP Mode settings related to service contracts.

Service Program	Function
Meter Charge > ON/OFF (SP5-930-001)	Enables or disables the Meter Charge. (Default: OFF [Disabled]) When enabled: • The Counter menu appears immediately after you push the Menu key. The Counter Method (SP5-045) sets the type of the counter. • You can print the counter from the Counter menu. • When the ACS mode is on, a monochrome page is counted as such even if it follows a color page. When disabled: • The Counter menu is not displayed. • The total counter starts from 0 (zero). • When the ACS mode is on, a monochrome page is counted as a color page if it follows a color page.
Meter Charge > Menu (SP5-930-003)	Enables or disables the PM Alert for the PCUs, development units, and fusing unit. (Default: Click 1 [Enabled]) When the PM Alert is enabled, a message is displayed when one of the units needs to be replaced.
Meter Charge > Paper Transfer (SP5-930-005)	Enables or disables the PM Alert for the transfer unit and transfer cleaning unit. (Default: No Alert [Disabled])
Counter Method (SP5-045)	Tells the counter when to count (each development or each print). (Default: 1 [Prints])
Double Count (SP5-104)	Specifies whether the counter increase by +1 or by +2 when the paper size is A3 or 11" x 17". (Default: OFF [by +1])
Telephone Number Setting > Service (SP5-812-001)	Shows or sets the telephone number of the service representative.
Telephone Number Setting > Fax Telephone Number SP5-812-002	Shows or sets the fax number of the service station. The number is printed on the counter list when the Meter Charge is enabled. The user can send a fax message with the counter list.

1.3.4 MOVING THE MACHINE

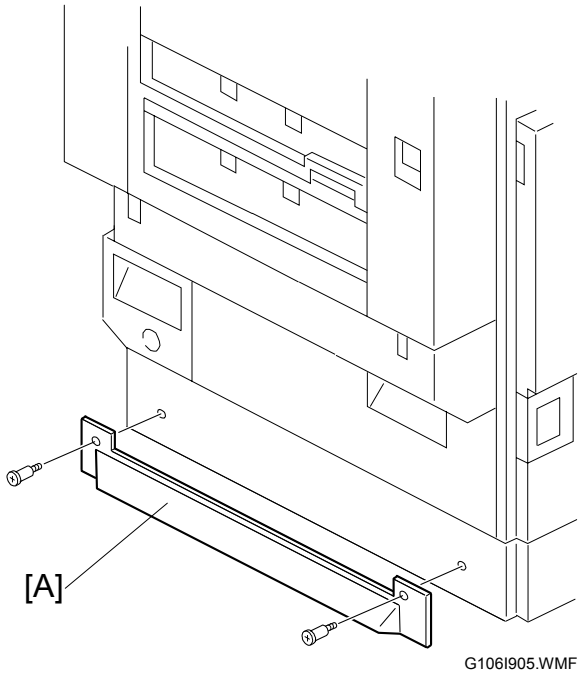
⚠CAUTION

Make sure that the transfer belt is in its correct position before moving the printer, otherwise the transfer belt and the black PCU may be damaged.

NOTE: This section assumes that you manually move the machine to a different floor in the same building. When using transportation equipment, see section 1.3.5.

The supports on the paper feed unit or LCT make it difficult to move the machine. You can remove them as necessary.

1. Check that the transfer belt is in the correct position.
2. Remove the supports [A] from both sides (🔩 x 2 for each).



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CAUTION: After moving the machine, reinstall the supports. Without them, the machine may tip over when you draw out a paper tray or while you work on the printer.

1.3.5 TRANSPORTING THE MACHINE

Read this section when you use transportation equipment to move the machine. When you manually move the machine to a different floor in the same building, see section 1.3.4.

After a Machine Test

If you install the machine in your office to do a test before you send the machine to the user, do these steps.

1. When you do your tests
- Do not use the oil supply unit that comes as an accessory with the machine.
2. When you send the machine after the tests:
- Remove the oil supply unit that you used for the tests.

  If you keep the oil supply unit installed in the machine, the oil supply roller in the fusing unit can move up and down during transportation. As a result, the oil supply roller constantly supplies oil to all the fusing mechanism. This oil can cause damage to the fusing mechanism, especially to the holder at the bottom of the unit.

Transporting a Used Machine

When you move a used machine to a different location, you must discard the oil supply unit (☛ After a Machine Test). After you install the machine at a new location, install a new oil supply unit.

Necessary Adjustment after Transportation

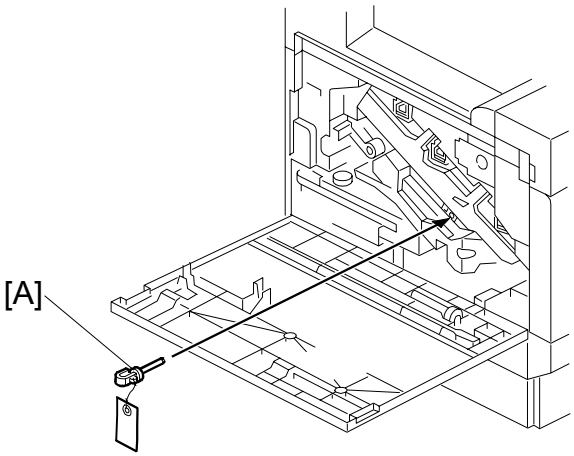
After you install the machine at a new location, do the Line Adjustment (SP5-993-002) or the Auto Adjustment (Menu > Maintenance > Color Regist. > Auto Adjust). When you do one of these programs, make sure that the tray fences are set correctly. If not set correctly, tray fences can make color images shift.

Preparing the Printer

⚠CAUTION

Make sure that the transfer belt is in its correct position before moving the printer, otherwise the transfer belt and the black PCU may be damaged.

1. Check that the transfer belt is in its correct position.
2. Remove the supports (☛ 1.3.4).
3. Remove the toner bottles to prevent toner from flowing into the toner supply tubes during transport. This may cause the tube to be clogged with toner.
4. Put air packing into the toner cartridge holders to shield the toner supply entrances. This prevents toner from flowing out to the toner cartridge holders.
5. Set the lock pin [A] (which comes with the machine) in the transfer belt unit.
   NOTE: The lower end of the transfer belt moves. The surfaces of the belt and PCU may be damaged by the friction between them if you transport the machine without locking the belt.



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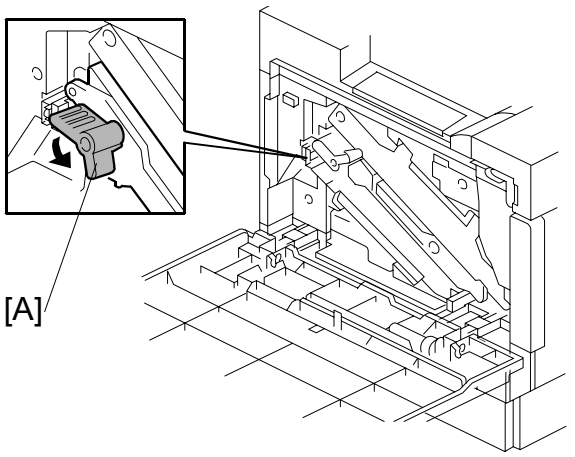
6. Make sure there is no paper left in the paper trays and fix down the bottom plates with a sheet of paper and tape.
7. Empty out the waste toner bottle and attach securing tape to prevent the bottle from coming out.
8. Empty out the waste oil bottle and attach securing tape to prevent the bottle from coming out.

9. Turn the release lever [A] counterclockwise to its lowermost position. (The lever does not stay in this position if you do not hold it.) Stick the lever in this position with tape.
   NOTE: The release lever lifts the transfer belt up and presses it against the black PCU. The surfaces of the belt and PCU may be damaged by the friction between them if you transport the machine with the two units in this position.



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10. Attach shipping tape to the covers and doors, or shrink-wrap the machine tightly.

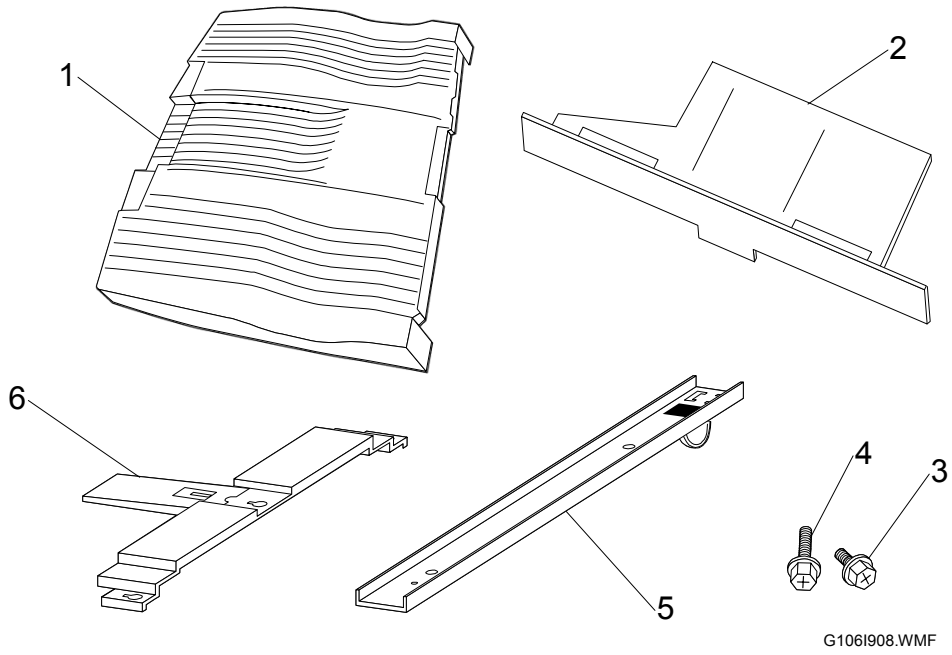
1.4 OPTIONAL UNIT

1.4.1 TWO-TRAY FINISHER

Accessory Check

Check the quantity and condition of the accessories.

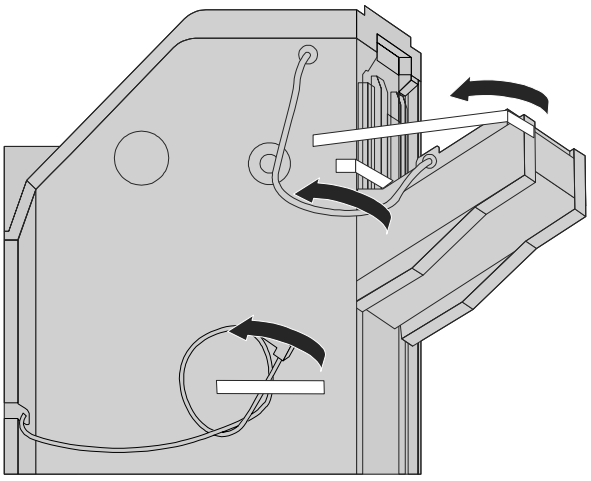
Description	Q'ty
1. Tray	2
2. Link-rail holder	1
3. Screw M4 x 8	2
4. Screw M4 x 12	6
5. Link rail	1
6. Duplex-unit support	1



Installation Procedure

⚠CAUTION

Turn off the main switch of the printer and unplug its power cord before starting the installation procedure.



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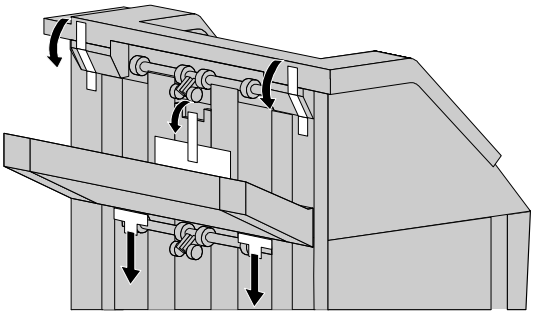

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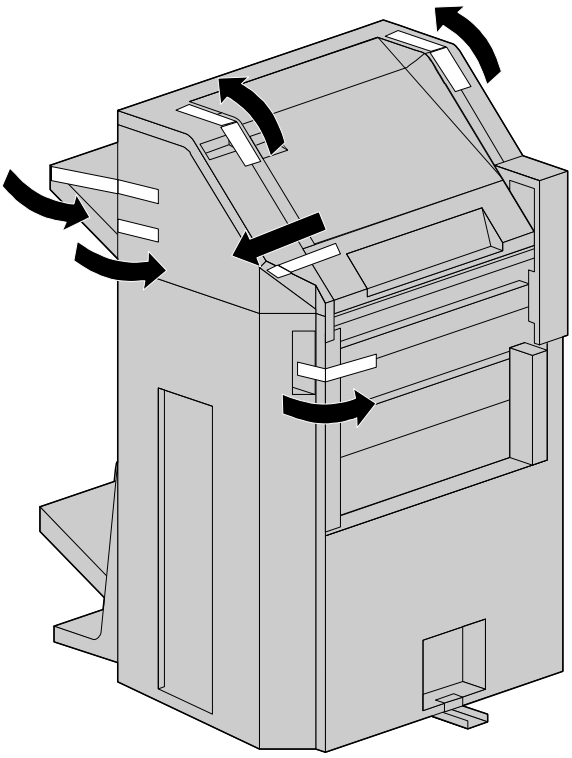

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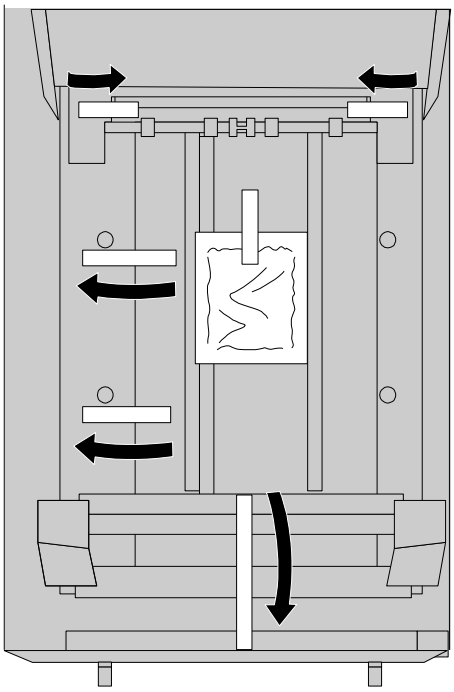

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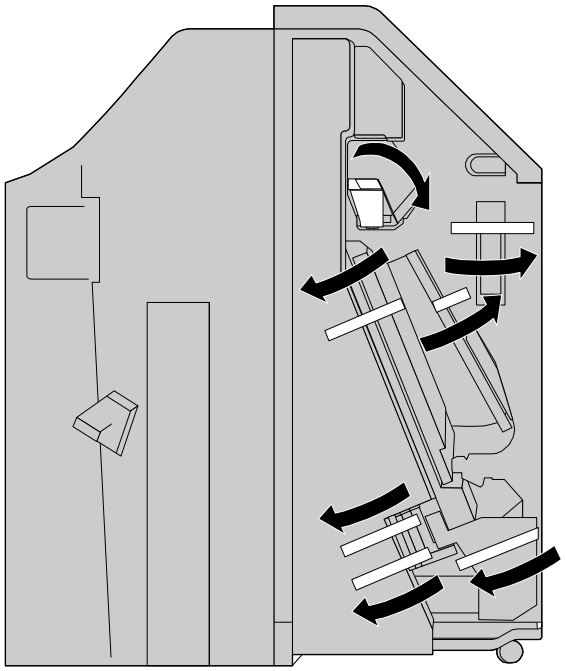

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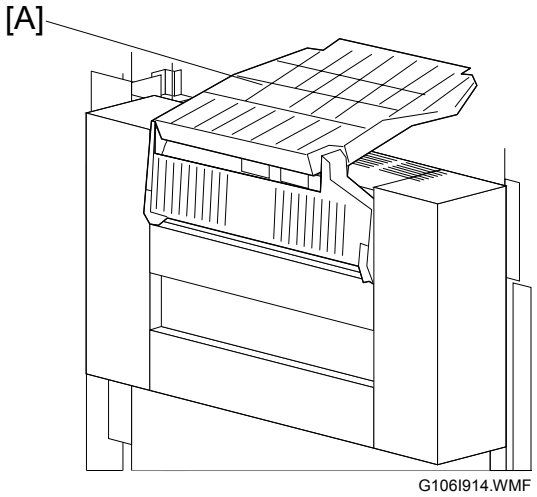
1. Remove all tape and packing materials.

2. Fold the external tray [A].



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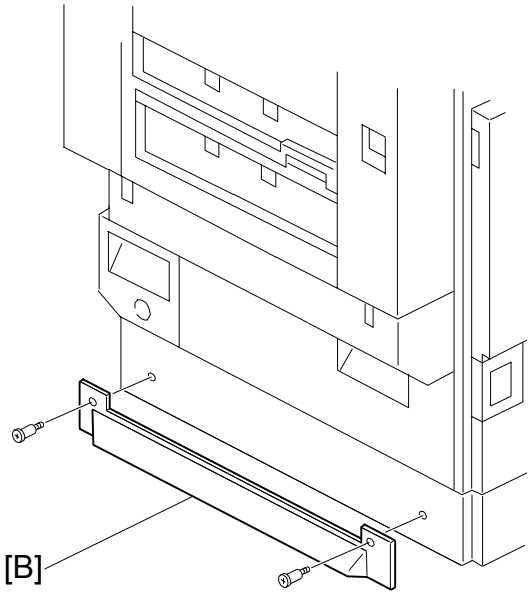
3. Remove the support on the left side [B] (🔩 x 2).



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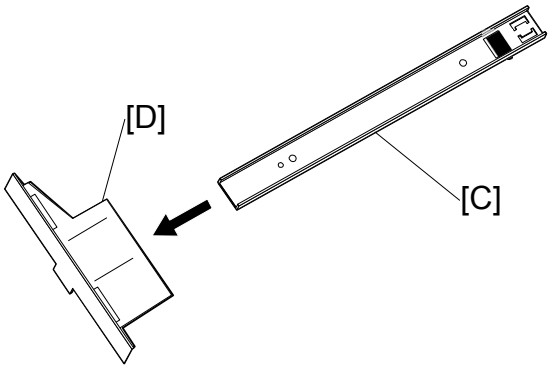
4. Set the link rail [C] on the link-rail holder [D].



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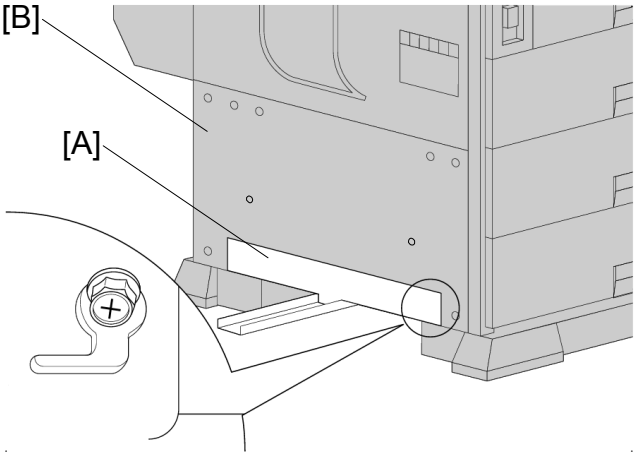
5. Install the link-rail holder (with the link rail) [A] on the printer [B] (x 2).



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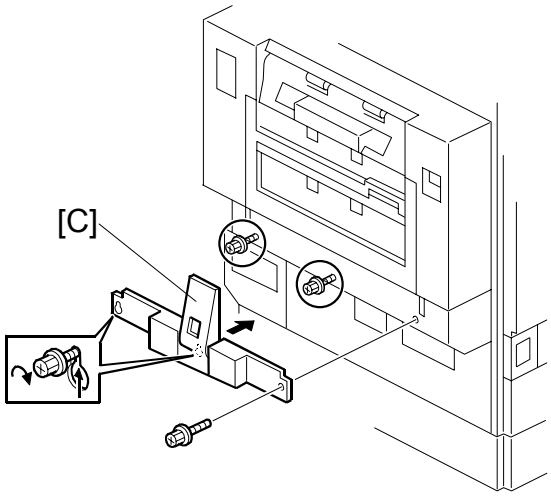
6. Install the duplex-unit support [C] on the duplex unit (x 3).



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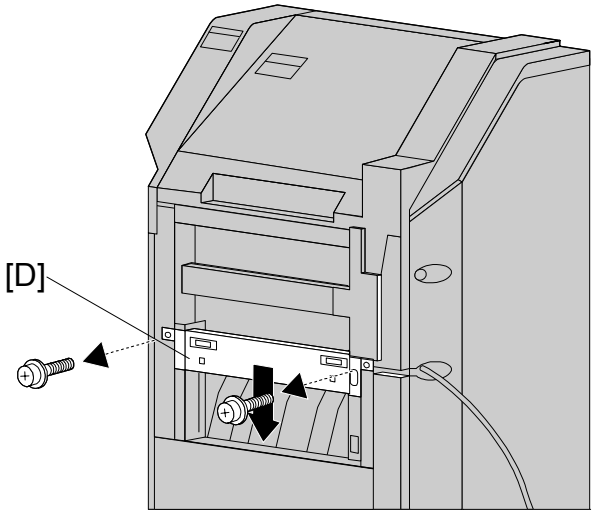
7. Adjust the position of the connection bracket [D] as necessary (x 2):
   - Upper position for the printer with the two-tray paper feed unit or LCT.
   - Lower position for the printer with the one-tray paper feed unit.



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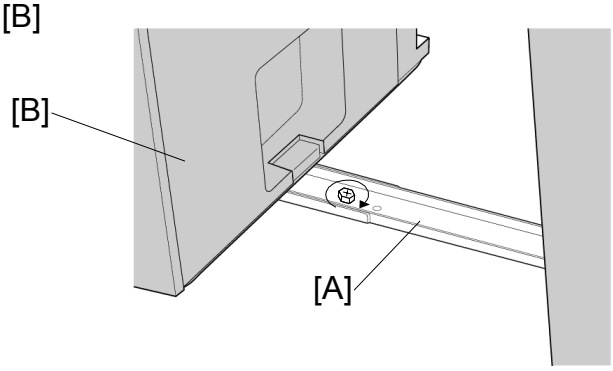
8. Attach the rail [A] to the finisher [B] (x 1).



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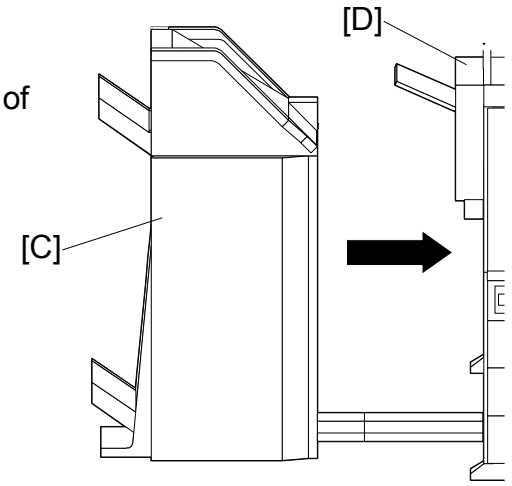
9. Connect the finisher [C] with the printer [D].
10. Connect the finisher cable to the connector of the printer.



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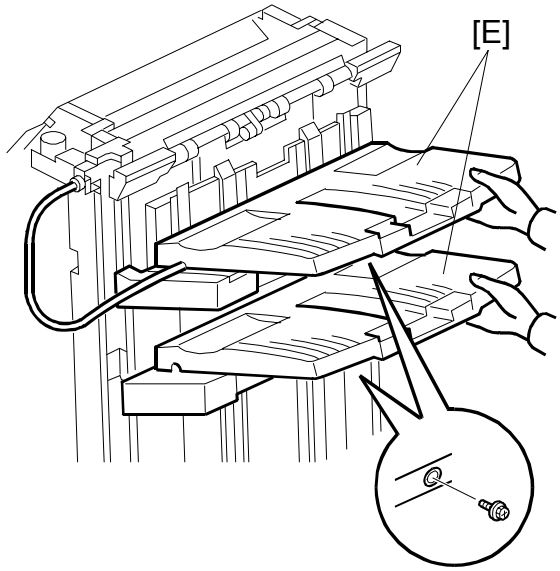
11. Install the two trays [E] (x 1 for each).



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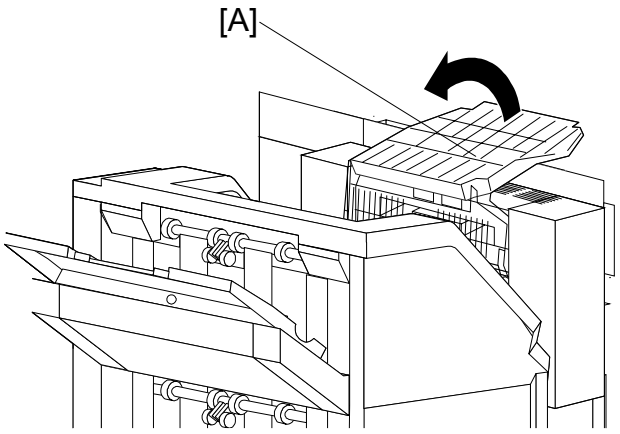
12. Extend the external tray [A] of the printer.
13. Turn on the main power switch and check the operation.



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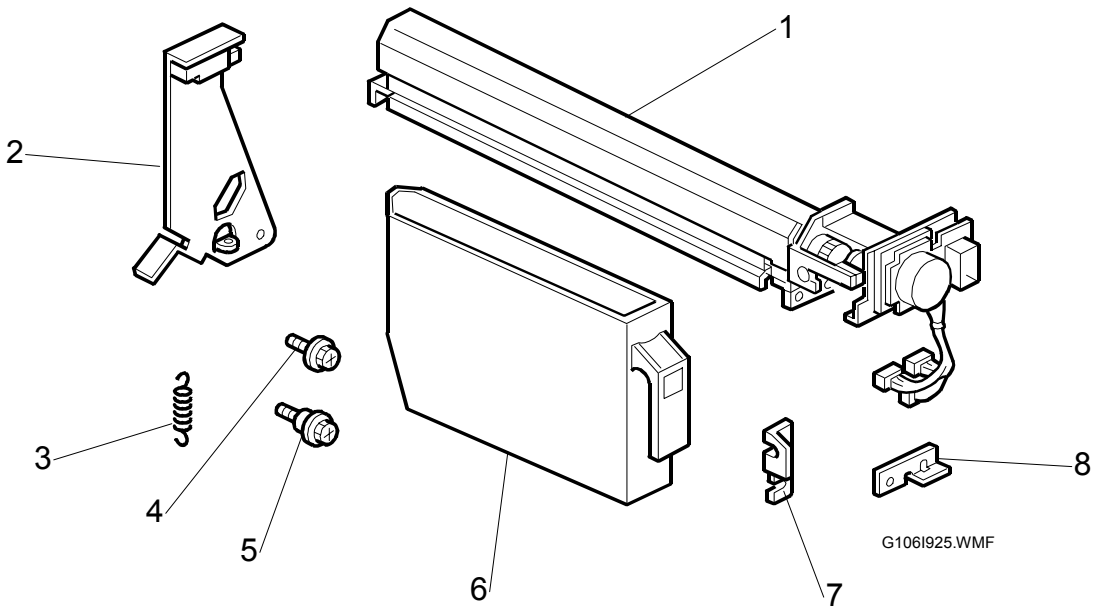
1.4.2 PUNCH UNIT

Accessory Check

Check the quantity and condition of the accessories.

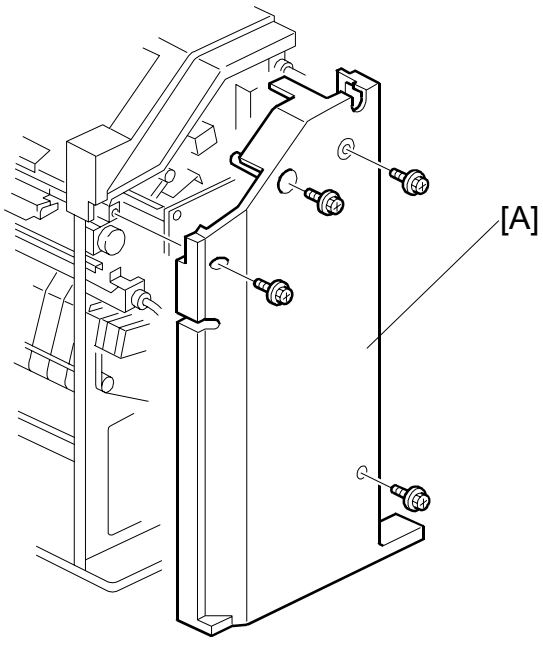
Description	Q'ty
1. Punch unit	1
2. Sensor arm	1
3. Spring	1
4. Screw M3 x 6	2
5. Step screw	2
6. Hopper	1
7. Spacer (2 mm)	1
8. Spacer (1 mm)	2



Installation Procedure

⚠CAUTION

Switch off the main machine and unplug its power cord. If the two-tray finisher has been installed, disconnect it and pull it away from the machine.



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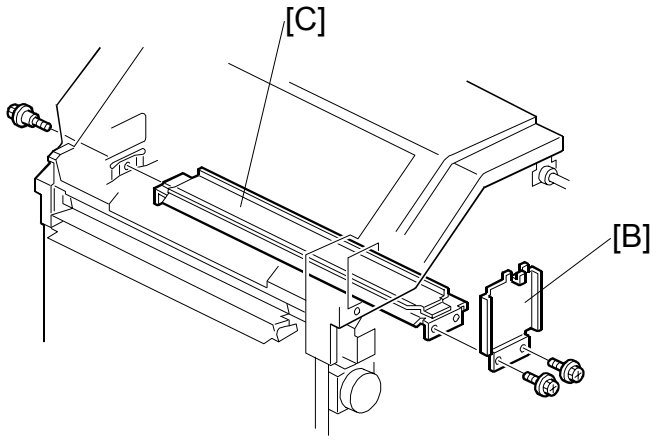
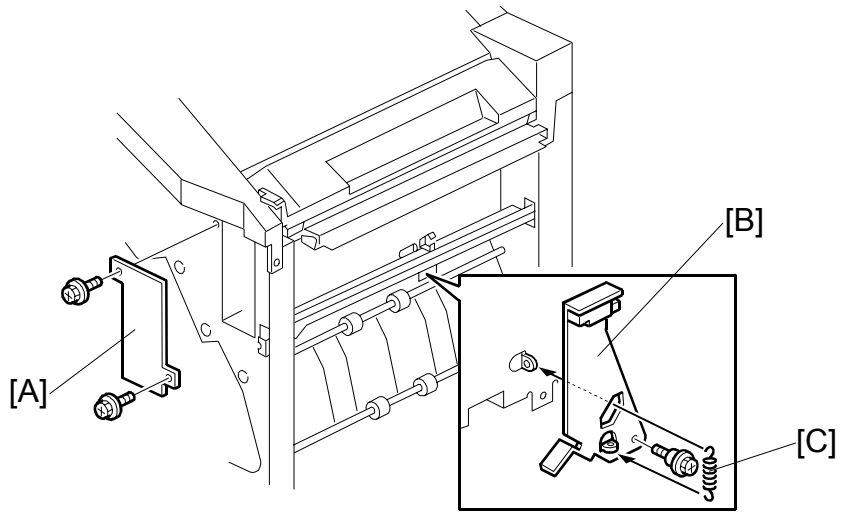
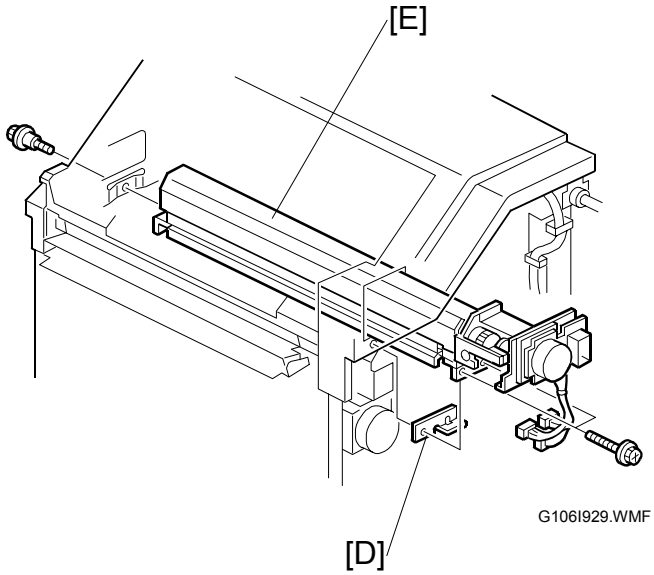


G106I927.WMF

1. Unpack the punch unit and remove all tapes and shipping retainers.
2. Open the front door and remove the rear cover [A] (🔩 x 4).
3. Remove the bracket [B] (🔩 x 2) and paper guide [C] (stepped 🔩 x 1).

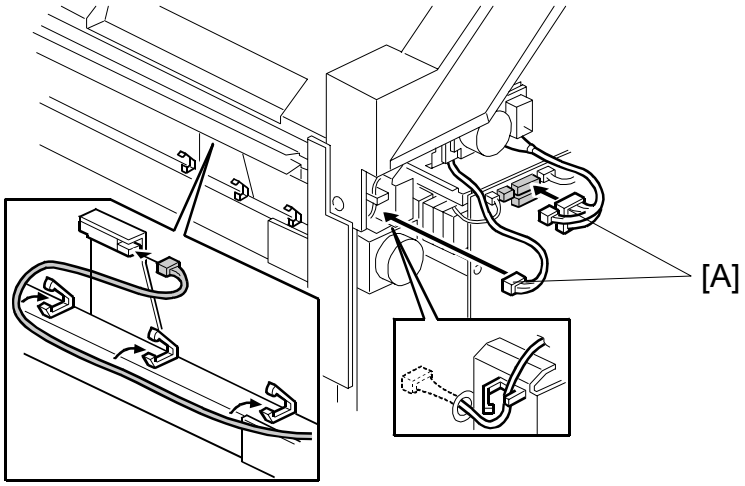


G106I928.WMF

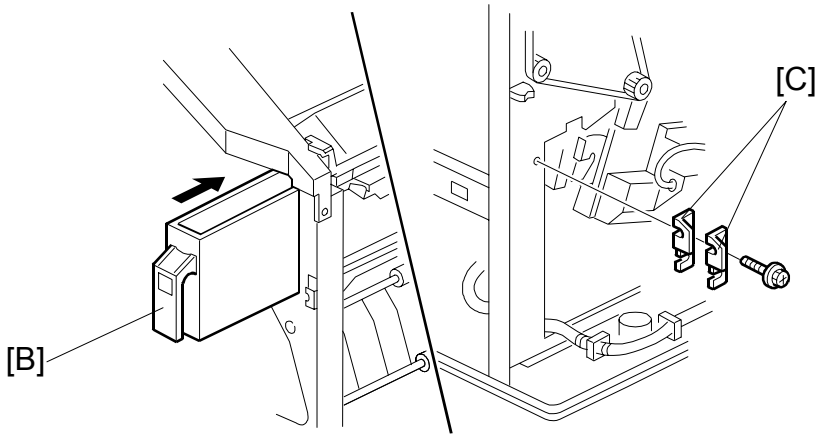


G106I929.WMF

4. Remove the hopper cover [A] (☞ x 2).
5. Install the sensor bracket [B] (stepped ☞ x 1).
6. Install the spring [C].
7. Install the 2 mm spacer [D].
8. Install the punch unit [E] (☞ x 2, stepped ☞ x 1).



G106I930.WMF



G106I931.WMF

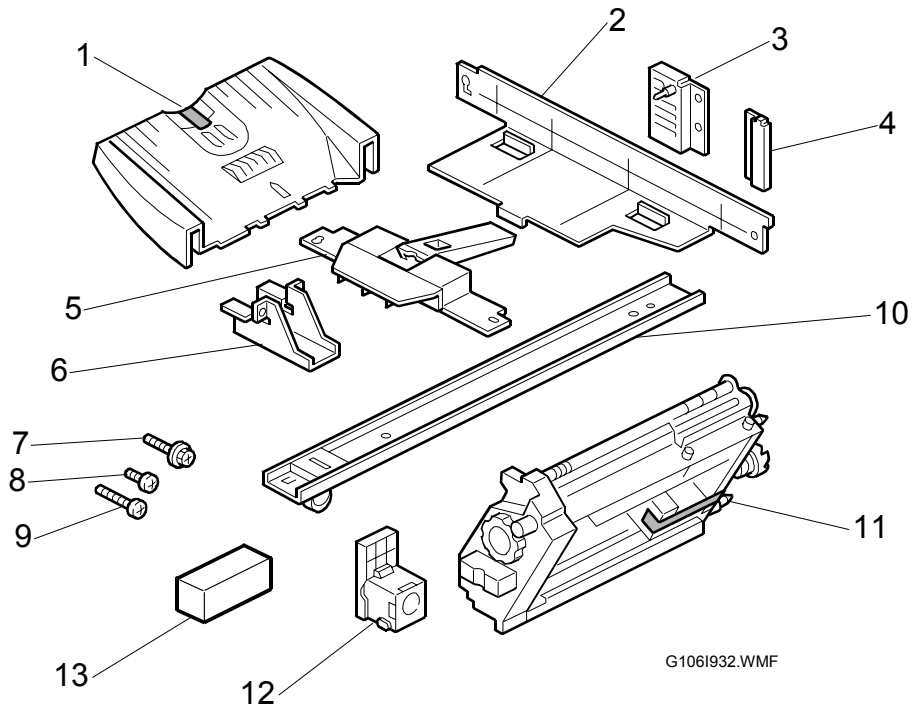
9. Connect the harnesses [A] and clamp them as shown.
10. Slide in the hopper [B].
11. Fasten the two 1-mm spacers [C] to the rear frame for future adjustment.
    NOTE: The spacers are used to adjust the horizontal positioning of the punch holes.
12. Reassemble the finisher and check the punch operation.

1.4.3 BOOKLET FINISHER

Accessory Check

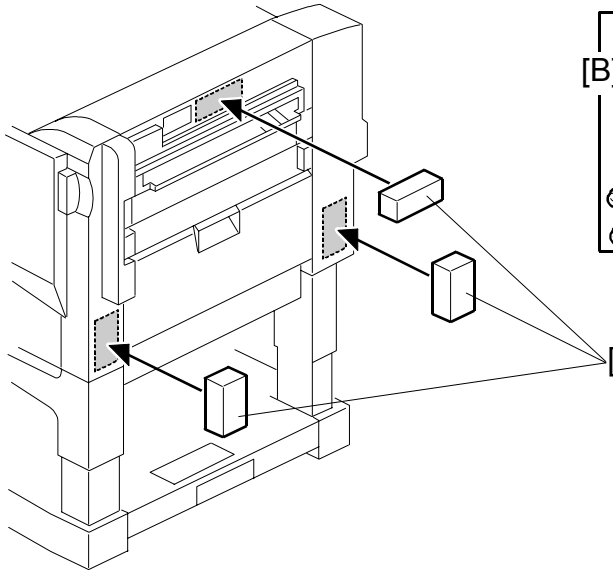
Check the quantity and condition of the accessories.

Description	Q'ty
1. Regular tray	1
2. Rail holder	1
3. Magnet catch–rear	1
4. Magnet catch–front	1
5. Duplex-unit support	1
6. Rail joint	1
7. Screw M4 x 12	6
8. Screw M4 x 6	8
9. Screw M3 x 14	4
10. Rail	1
11. Stapler unit	1
12. Staple cartridge	1
13. Pad	3



NOTE: Make sure that you retain the pads. The pads are white and made of Styrofoam.

Adjusting the Height



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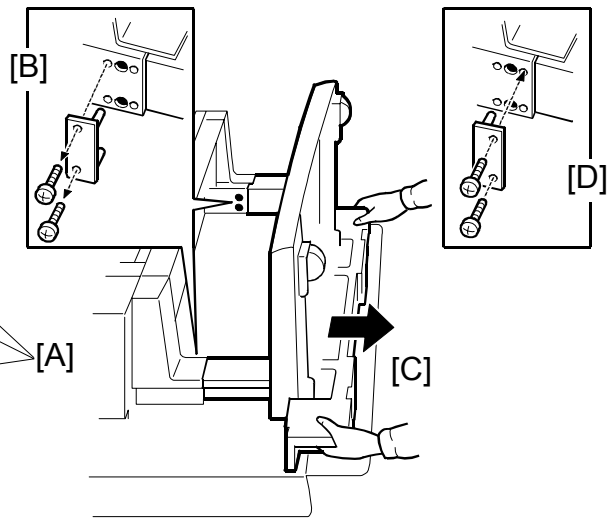
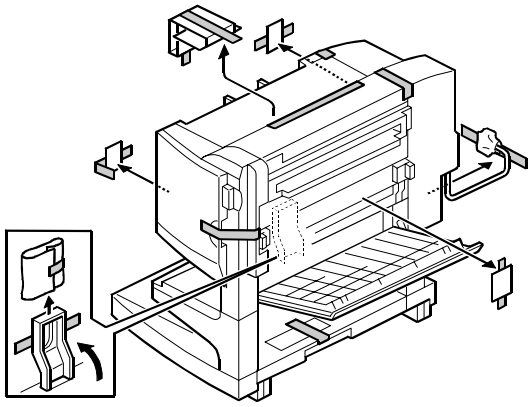


G106I934.WMF

1. Check the type of the optional paper tray:
   - If the optional two-tray paper feed unit or the optional LCT is installed, go to step 2.
   - If either of them is not installed, go to “Main Body.”
2. Tape the pads [A] to the right-hand side of the machine.
3. Lay the machine on its right-hand side.
4. Remove the adjuster plates [B] (🔩 x 2).
5. Change the height [C].
6. Reinstall the adjuster plates [D].
7. Take out the machine from the box and stand it up.
8. Check that the height is correct, and remove the pads.

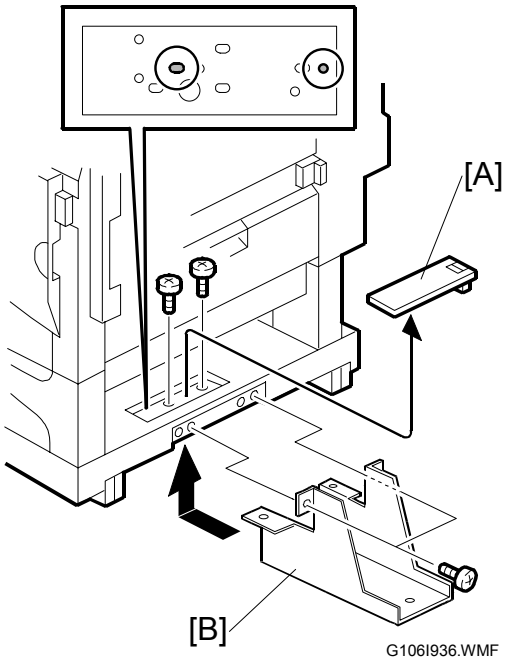
Main Body

1. Remove all tape and padding.



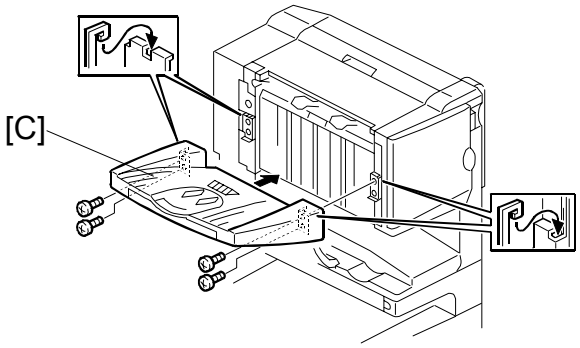
G106I935.WMF

2. Remove the screw cover [A].
3. Install the rail joint [B] (☞ x 4).
4. Reinstall the screw cover.



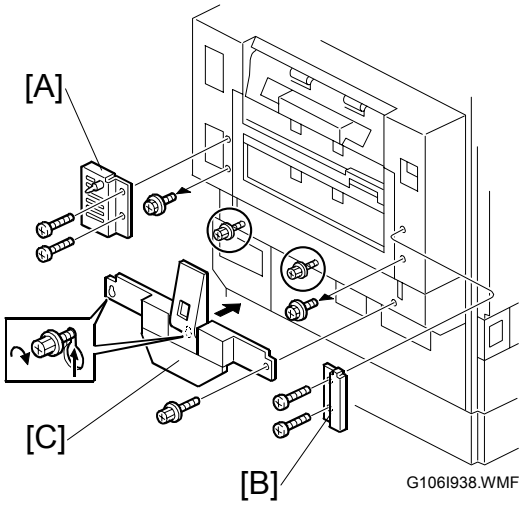
G106I936.WMF

5. Install the regular tray [C] (☞ x 4).

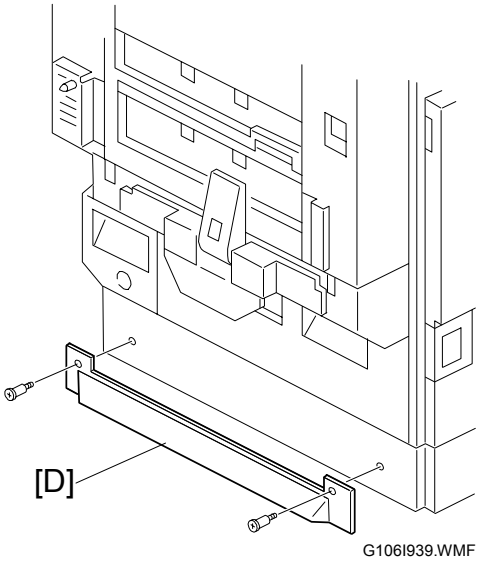


G106I937.WMF

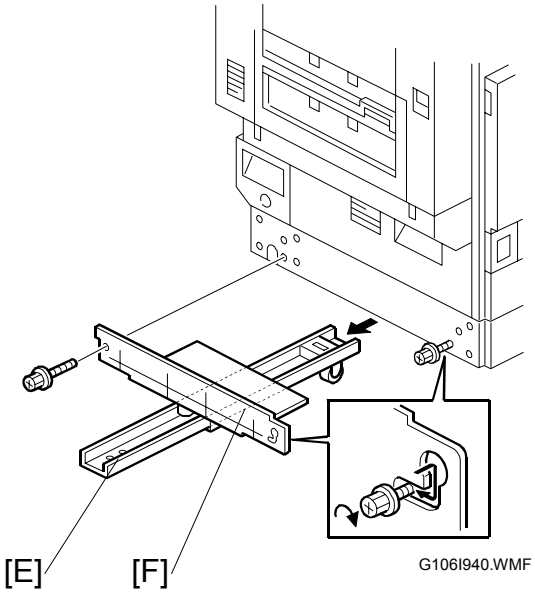
6. Install the magnet catches [A][B] (☞ x 2 for each).
7. Install the duplex-unit support [C] (☞ x 3).



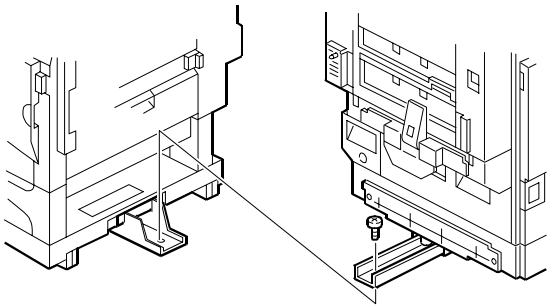
8. Remove the support on the left side [D] (☞ x 2).



9. Set the rail [E] through the rail holder [F].
10. Install the rail holder (with the rail) to the printer (☞ x 2).

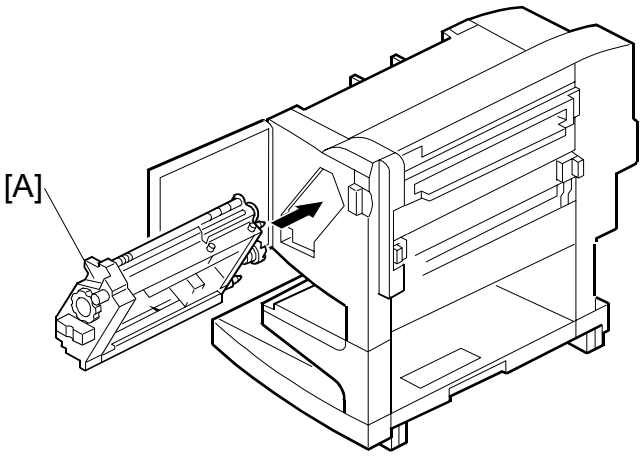


11. Connect the booklet finisher unit to the printer (🔩 x 1).



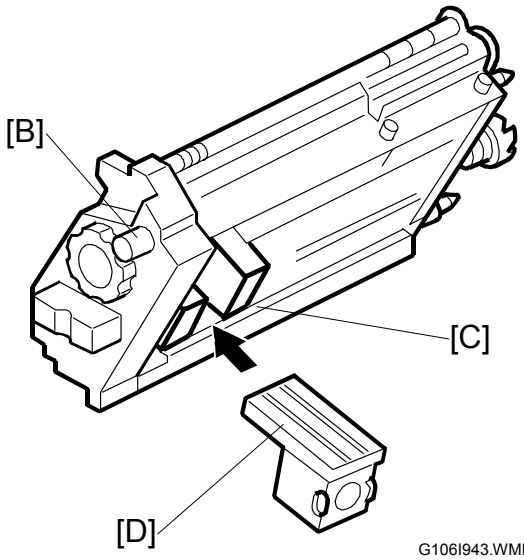
G106I941.WMF

12. Install the stapler unit [A].



G106I942.WMF

13. Turn the knob [B] clockwise until the staple-cartridge holder [C] reaches the front-most position.
14. Install the staple cartridge [D] firmly to the staple-cartridge holder.



G106I943.WMF

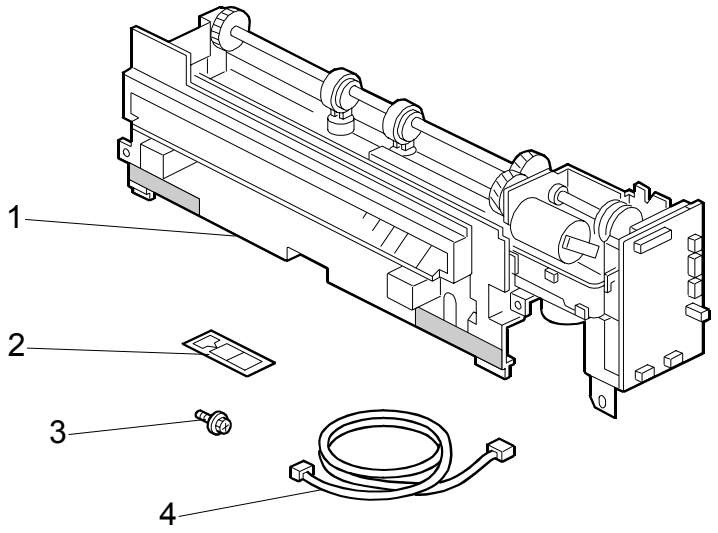
15. Turn on the main switch and check the operation.

1.4.4 OPTIONAL PUNCH UNIT

Accessory Check

Check the quantity and condition of the accessories.

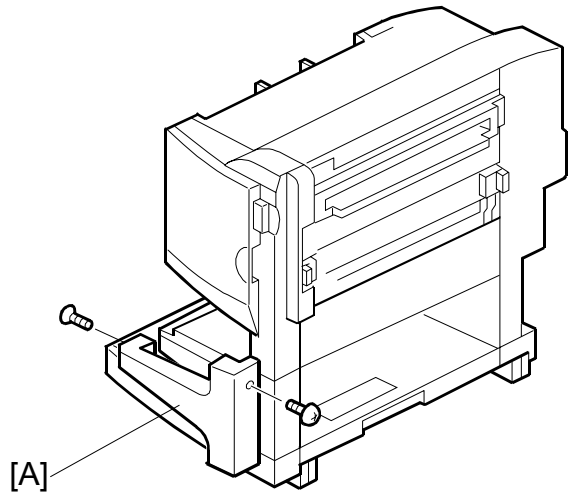
Description	Q'ty
1. Punch unit	1
2. Decal	1
3. Screw M4 x 6 (with the base)	1
4. Cable	2



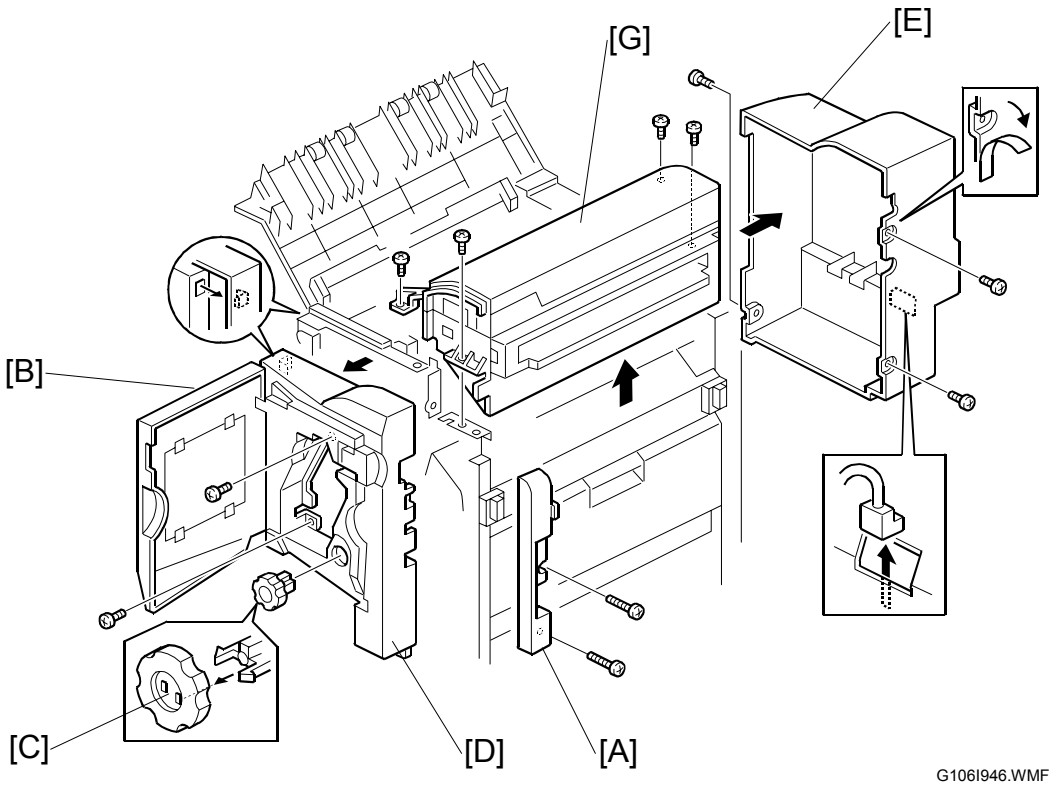
G106I944.WMF

Installation Procedure

1. Remove the front lower cover [A] (x 2).

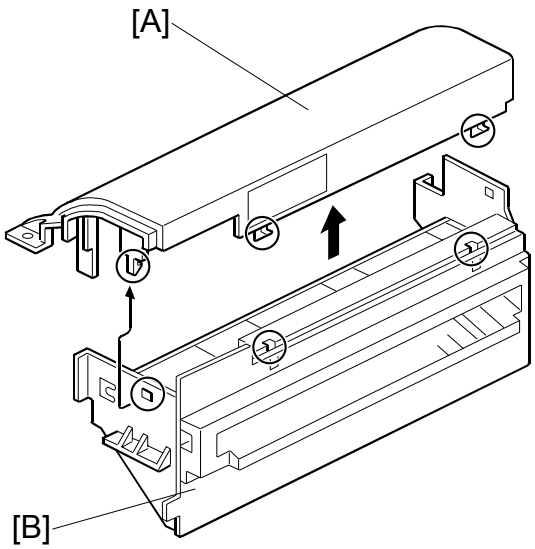


G106I945.WMF



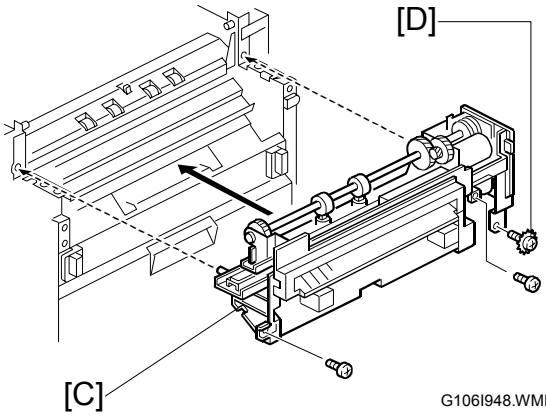
2. Remove the joint guard [A] (☞ x 2).
3. Open the front door [B].
4. Release the stopper and remove the knob [C].
5. Remove the front cover [D] (☞ x 4).
6. Remove the rear cover [E] (☞ x 3).
   NOTE: Do not damage the Mylar when you remove the screw.
7. Remove the right top cover with the paper entrance cover [G] (☞ x 4).

8. Remove the right top cover [A] from the paper entrance cover [B].



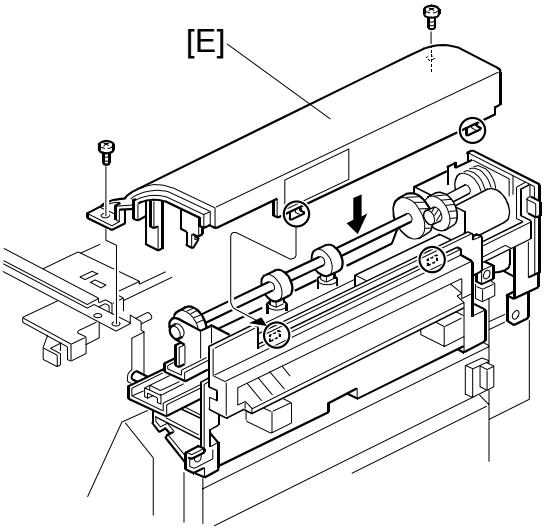
G106I947.WMF

9. Install the punch unit [C] (🔩 x 2, 1 screw with the base [D])



G106I948.WMF

10. Install the right top cover [E] (🔩 x 2).



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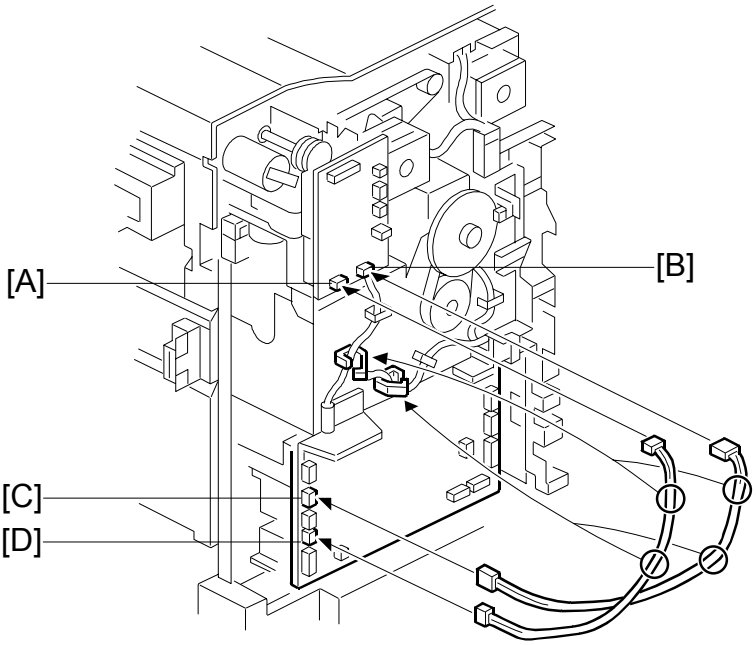
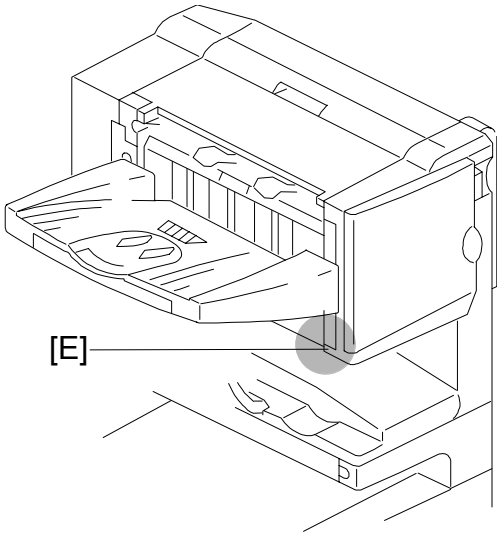


G106I950.WMF

11. Install the cable to the connectors as follows:
    - J1003 (punch unit) [A] to CN12 (booklet finisher unit) [D]
    - J1004 (punch unit) [B] to CN14 (booklet finisher unit) [C]



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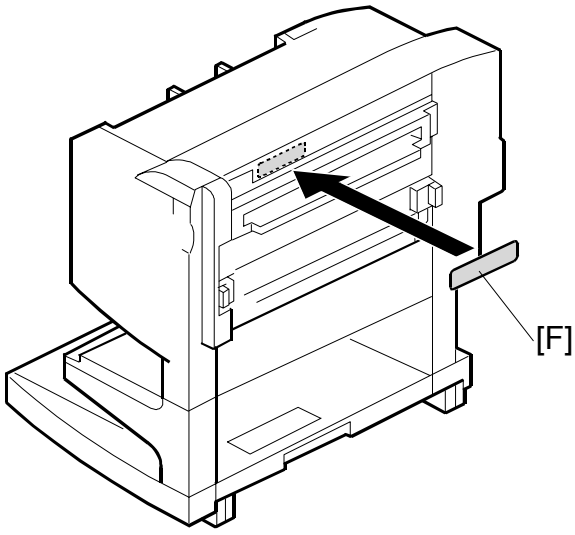


G106I952.WMF

12. Fasten the cable with the clamps.
13. Reassemble the booklet finisher unit.
    NOTE: Check that the side guide and the front cover correctly join with each other [E].
14. Attach the decal [F].
15. Turn on the main switch and check the punch operation.

2. PREVENTIVE MAINTENANCE

2.1 USER MAINTENANCE

Maintenance Kit

The table shows the maintenance kits for the user.

Kit	Component	Expected Yield (Prints)
A	Color PCU (3 PCUs for CMY)	50k
B	Color Development Unit (3 units for CMY)	100k
C	Fusing Unit (without Oil Supply Unit)	100k
D	Black Development Unit and Dust Filter	100k
E	Waste Toner Bottle	50k
F	Black PCU	50k
G	Oil Supply Unit	30k

NOTE: The yield is calculated for these conditions: A4 (LT) LEF, 5% image coverage ratio, 5 prints per job.

PM Alert Display

Model J-P3 can show a PM Alert (an error message) when a unit or component must be replaced. The table shows the SPs related to PM Alerts.

Service Program	Function
Meter Charge > Menu (SP5-930-003)	Enables or disables the PM Alert for the PCUs, development units, and fusing unit.
Alert Display > Waste Oil: Full (SP7-905-010)	Sets the number of revolutions the development drive motor-K can make after “Waste Oil Bottle is Almost Full”, is shown.
Alert Display > Oil: Alert: Page (SP7-905-014)	Sets the number of sheets the printer can output after the fusing oil gets to the near end condition.

Model J-P3 stops operation if the user does not replace the waste toner bottle or the oil supply unit when the machine tells the user to do this.

New Unit Detection

When the user replaces a unit or component that is a part of a maintenance kit, Model J-P3 automatically detects the unit or component. The related counter(s) (one or some of SP7-803-001 to 049) will be set to zero.

PM Table

Symbol key: C: Clean, R: Replace, L: Lubricate, I: Inspect

Main Unit

Item	30K	50K	100K	150K	EM	Remarks
Black PCU		R				
Color (Y/M/C) PCU		R				
Black Development Unit			R			
Color (C/M/Y) Development Unit			R			
Fusing Unit			R			
Oil Supply Unit	R					
Waste Toner Bottle		R				
Dust Filter			R			
Circuit Breaker					I	At least once a month

Punch Kit

Item	10K				EM	Remarks
Chads	I					Discard chads.

2.2 SERVICE MAINTENANCE

PM Counter Reset

Reset the related PM Counter after you replace a unit or component that is not a part of a maintenance kit (☛ 2.1). To do this, use PM Counter Reset (SP7-804). The table shows the service programs that you must use.

SP7-804-011	By-pass Tray Feed Roller	SP7-804-015	Paper Feed Tray 4 Feed Roller
SP7-804-012	Paper Feed Tray 1 Feed Roller	SP7-804-017	Transfer Unit
SP7-804-013	Paper Feed Tray 2 Feed Roller	SP7-804-018	Transfer Cleaning Unit
SP7-804-014	Paper Feed Tray 3 Feed Roller		

PM Table

Symbol key: C: Clean, R: Replace, L: Lubricate, I: Inspect

Main unit

Item	100K	150K	500K	1,000K	3,000K	EM	Remarks
Transfer Unit				R			
Transfer Cleaning Unit			R				
By-pass Feed Roller		R					
By-pass Pick-up Roller		R					
By-pass Separation Roller		R					
Waste Oil Bottle					R		
Pick-up Roller			R				
Feed Roller			R				
Separation Roller			R				

One-tray Paper Feed Unit (500 sheets x 1)

Item	100K	150K	500K	1,000K	3,000K	EM	Remarks
Relay Roller						C	Damp cloth
Bottom Plate Pad						C	Damp cloth
Pick-up Roller			R				
Feed Roller			R				
Separation Roller			R				

Two-tray Paper Feed Unit (500 sheets x 2)

Item	100K	150K	500K	1,000K	3,000K	EM	Remarks
Relay Roller						C	Damp cloth
Bottom Plate Pad						C	Damp cloth
Pick-up Roller			R				
Feed Roller			R				
Separation Roller			R				

LCT (2000 sheets)

Item	100K	150K	500K	1,000K	3,000K	EM	Remarks
Relay Roller						C	Damp cloth
Bottom Plate Pad						C	Damp cloth
Pick-up Roller			R				
Feed Roller			R				
Separation Roller			R				

Two-tray Finisher

Items	100K	150K	500K	1,000K	3,000K	EM	Remarks
Rollers						C	Damp cloth
Discharge Brush						C	Dry cloth
Sensors						C	Blower brush
Jogger Fences						I	Replace if required.

3. REPLACEMENT AND ADJUSTMENT

⚠CAUTION

Turn off the main power switch and unplug the printer before removing any part of the printer.

3.1 MODEL J-P3 AND MODEL J-P2

While reading this chapter, keep Model J-P2 Service Manual at hand. This chapter frequently refers to Model J-P2.

Model J-P3 and Model J-P2 have common features and components. Model J-P2 Service Manual gives you the information on these features and components. This chapter illustrates the features and components that are supported only by Model J-P3.

Symbols in this chapter:

☛: See Model J-P3 Service Manual
☛ [P2]: See Model J-P2 Service Manual
: Screw
: Connector
: Clip ring
: E ring

3.2 SPECIAL TOOLS

Part Number	Part Name	Q'ty
B6455010	SD Card	1
B6456700	PCMCIA Card Adapter	1
B6456800	USB Reader/Writer	1
A029 9387	Digital Multimeter–FLUKE87	1
G021 9350	Loop-back Connector–Parallel	1
C401 9503	20X Magnification Scope	1
A2579300	Grease Barrierta–S552R	1
52039501	Silicon Grease G-501	1

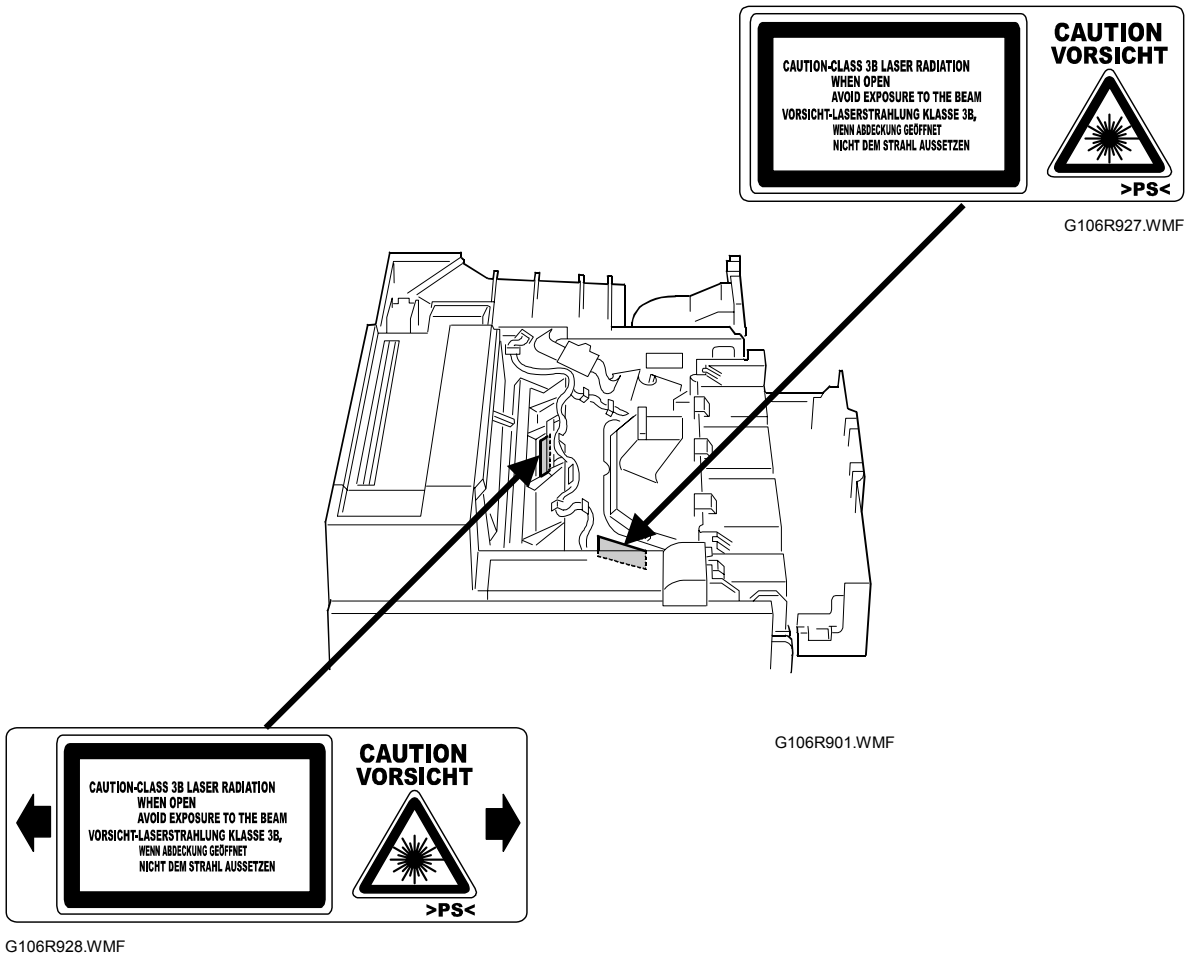
3.3 LASER OPTICS

⚠WARNING

Turn off the main power switch and unplug the printer before beginning any of the procedures in this section. Laser beams can cause serious eye injury.

3.3.1 CAUTION DECAL LOCATIONS

Caution decals are attached as shown below.



⚠ WARNING

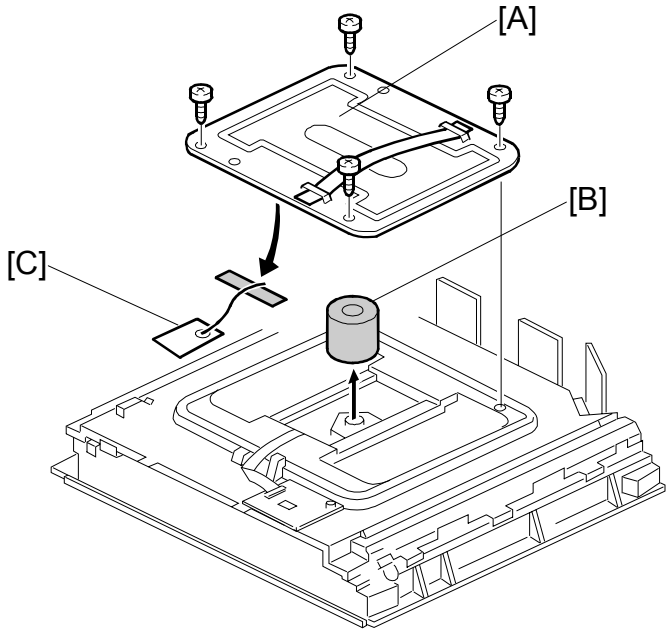
Be sure to turn off the main power switch and disconnect the power plug from the power outlet before beginning any disassembly or adjustment of the laser unit. This printer uses a class IIIb laser beam with a wavelength of 655 nm and an output of 7 mW. The laser can cause serious eye injury.

3.3.2 LASER OPTICS HOUSING UNIT

CAUTION: 1) Before installing a new laser optics housing unit, remove the sponge padding and the tag from the new unit.
2) Do not remove the polygon mirror from its base. If you do this, the lubricant on the shaft can leak out after you reassemble the printer.

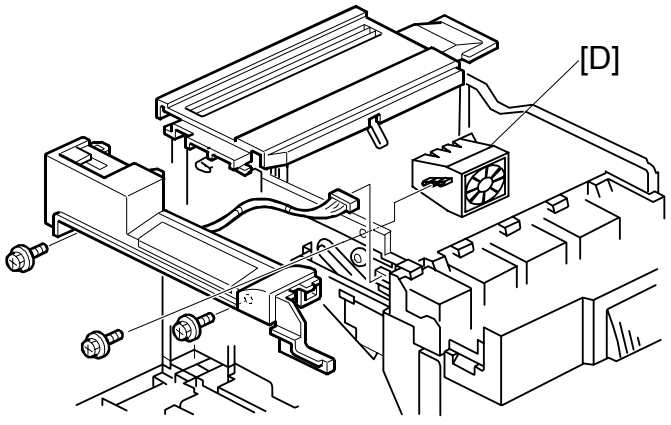
Steps 1 through 4 refer to the procedure for a newly supplied unit that replaces the old one.

1. Top cover of the laser optics housing unit [A] (🔩 x 4)
2. Sponge padding [B]
3. Tag [C]
4. Reinstall the top cover.



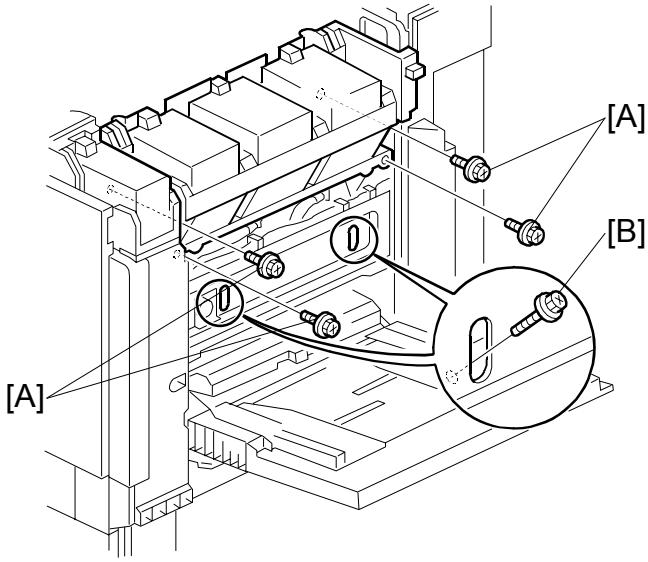
G106R905.WMF

5. Rear cover, upper rear cover (☛ [P2] 3.3.1)
6. Paper exit tray (☛ [P2] 3.3.2)
7. Right cover, upper right cover (☛ [P2] 3.3.3)
8. Operation panel (☛ [P2] 3.3.6)
9. Black PCU cooling fan [D] (🔌 x 1, 🔩 x 1)



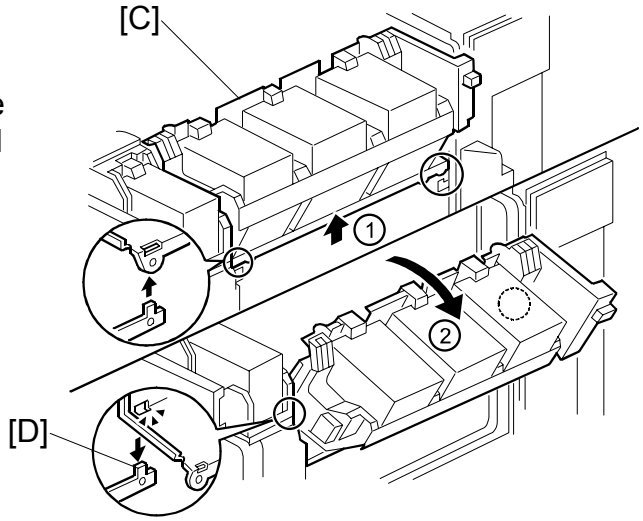
G106R924.WMF

10. Securing screws for the toner supply unit [A] (🔩 x 4)
11. Securing screws for the laser optics housing unit [B] (🔩 x 2)



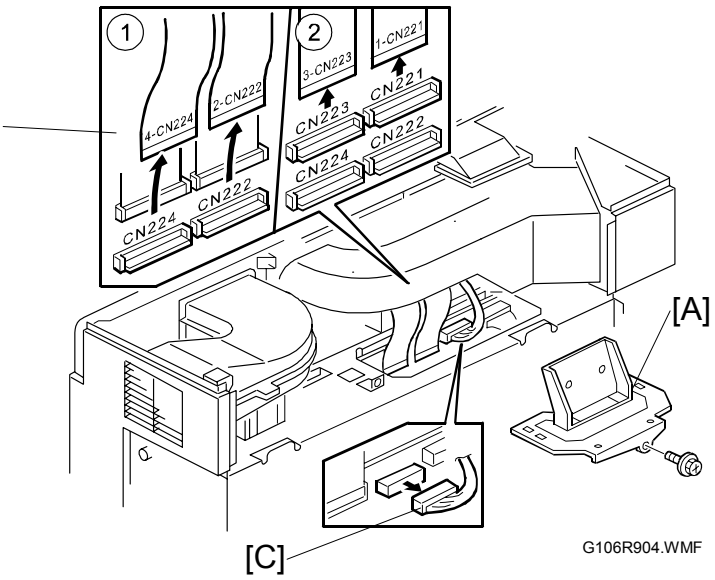
G106R903.WMF

12. Lift the toner supply unit [C] ①, and lower it ②.
    NOTE: The pins on the front side [D] and the rear side hold the toner supply unit.



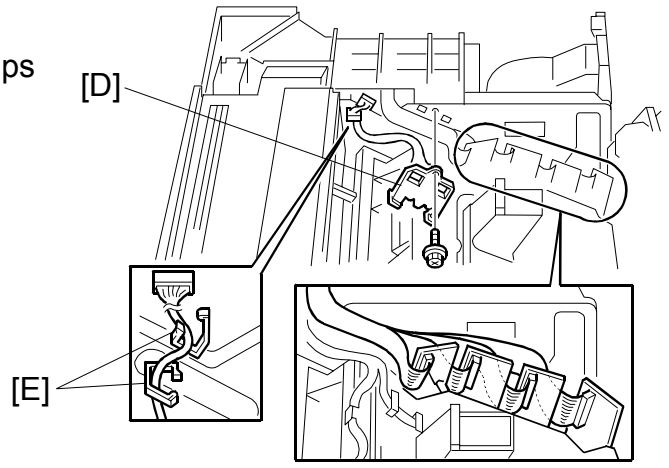
G106R908.WMF

13. Connector cover [A] (☞ x 1)
14. Four flat cables [B]
15. Connector [C]

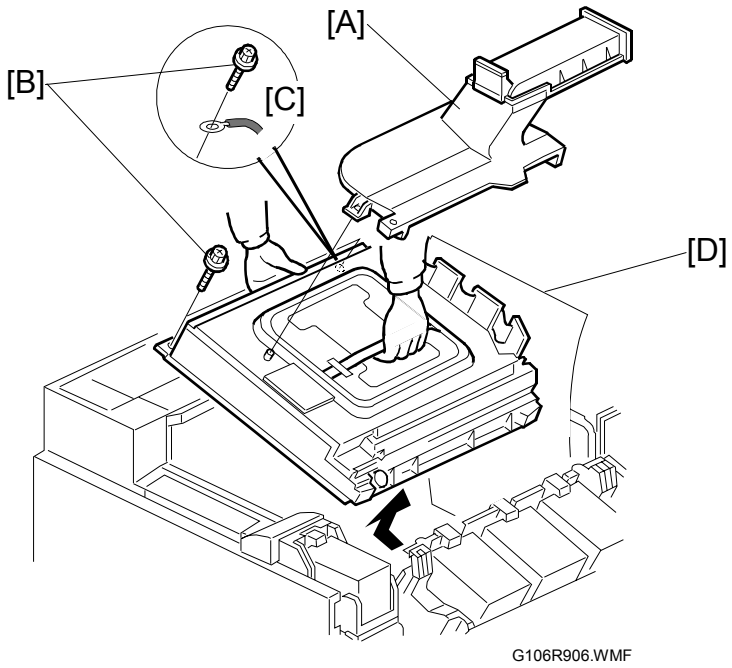


G106R904.WMF

16. Flat cable bracket [D] (☞ x 1)
17. Release the cable from the clamps [E].



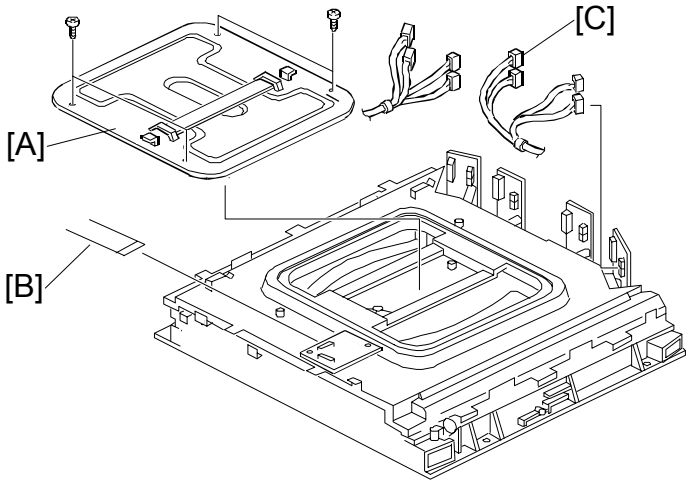
G106R936.WMF



18. Duct [A]
19. Securing screws for the laser optics housing unit [B] (☞ x 2)
    NOTE: When reassembling, attach the ground cable [C].
20. Put a sheet of paper [D] between the laser optic housing unit and the machine rear frame.
    NOTE: This ensures that the cables are not caught by the brackets when you lift the laser optics housing unit.
21. Hold the unit with both hands and lift it up slowly, making sure that the flat cables from the laser diode board are not caught by the brackets.
    NOTE: If you roughly remove the unit, the cables can be caught by the brackets and the laser diode board may be damaged.
22. Do SP5-993-002 (Line Adjustment > Execute) or Auto Adjustment in the User Tools (Maintenance > Color Regist. > Auto Adjust. > Now).

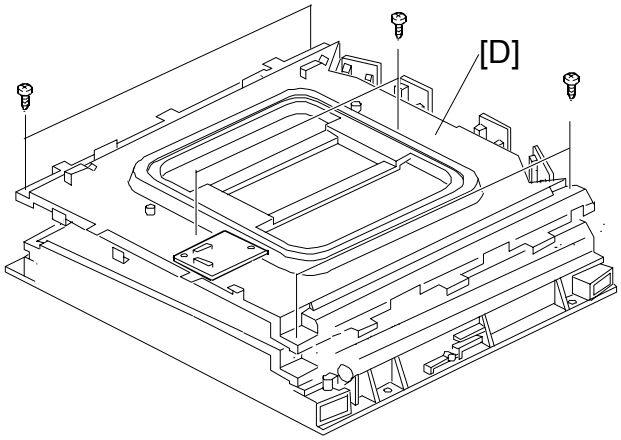
3.3.3 POLYGON MIRROR MOTOR

1. Laser optics housing unit (☛ 3.3.2)
2. Top cover [A] (🔩 x 4)
3. Flat cable on the polygon-mirror-motor drive-board [B]
4. Eight connectors [C] on the four LD boards



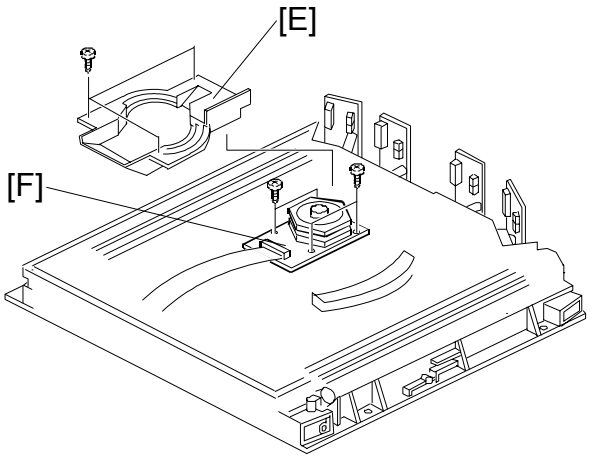
G106R921.WMF

5. Upper cover [D] (✋ x 9, 🔩 x 6)
   NOTE: Two of the nine connectors are on the opposite side of the upper cover.



G106R922.WMF

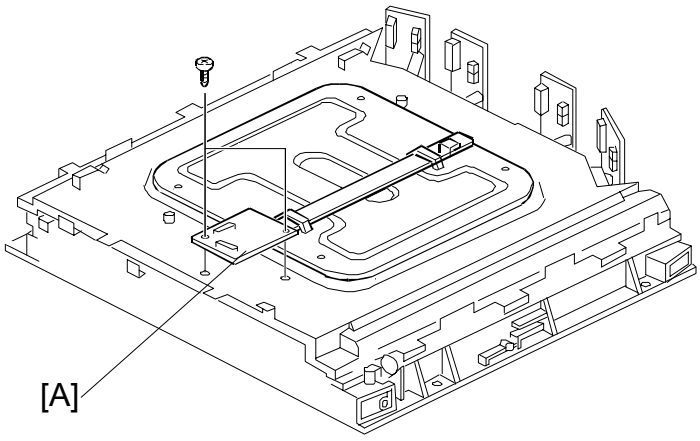
6. Air-current rectifier [E] (🔩 x 3)
7. Polygon mirror motor [F] (🔩 x 4)



G106R923.WMF

3.3.4 POLYGON MIRROR MOTOR DRIVE BOARD

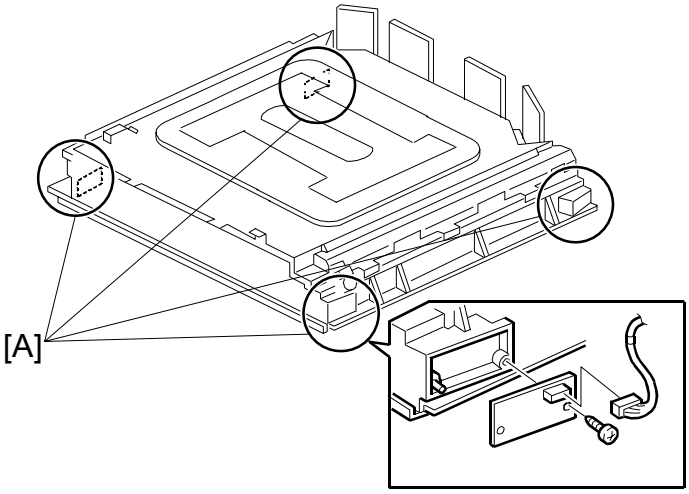
1. Laser optics housing unit (☛ 3.3.2)
2. Polygon mirror motor drive board [A] (🔩 x 2, 🖐 x 1, 1 flat cable)



G106R907.WMF

3.3.5 LASER SYNCHRONIZING DETECTOR BOARDS

1. Laser optics housing unit (☛ 3.3.2)
2. Synchronizing detector boards [A] (🔩 x 1, 🖐 x 1)

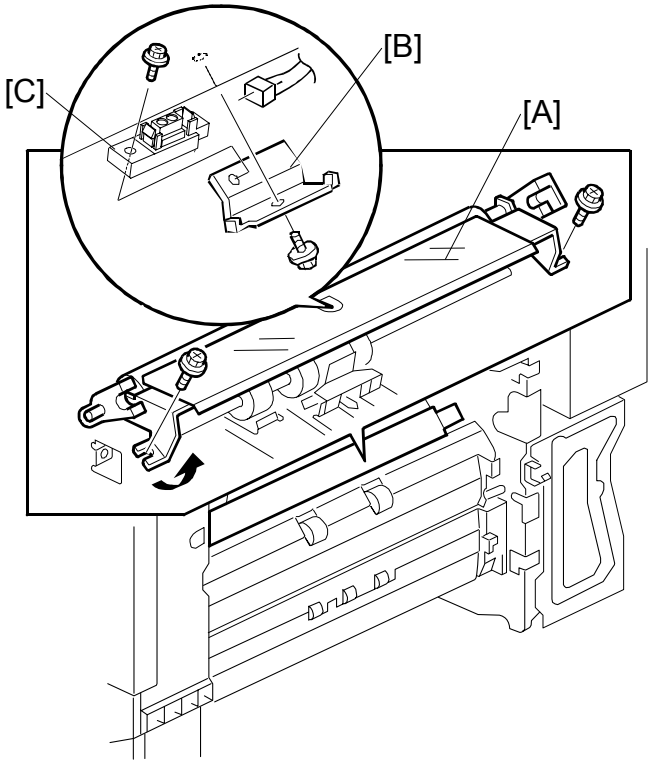


G106R937.WMF

3.4 PAPER FEED

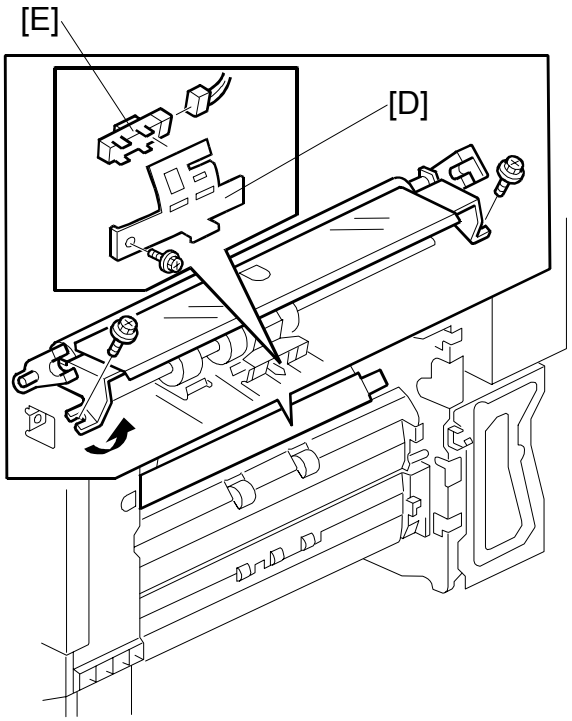
3.4.1 REGISTRATION SENSOR AND RELAY SENSORS

1. Right door unit (☛ [P2] 3.6.4)
2. Lift the registration guide [A] (x 2)
   NOTE: It is not necessary to fully lift the registration guide. You can get access to the screw of the registration sensor bracket when you lift the guide half the distance.
3. Registration sensor bracket [B] (x 2)
4. Registration sensor [C] (x 1, x 1)
   NOTE: When you reassemble, make sure that the connector does not come off.



G106R909.WMF

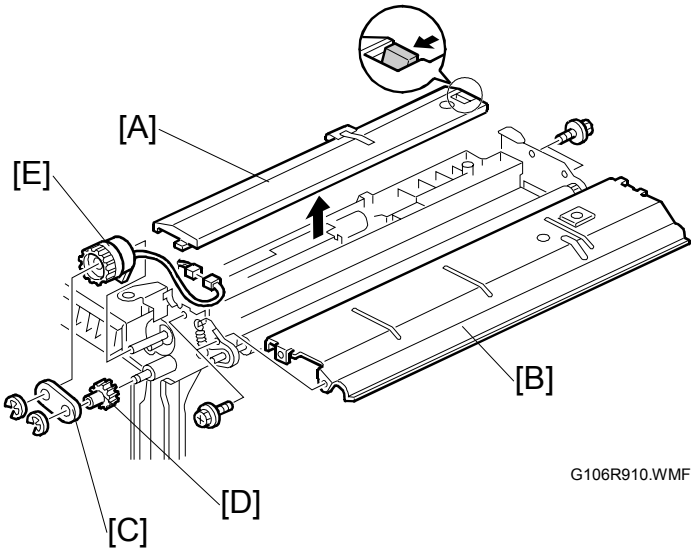
5. Relay sensor bracket [D] (x 1)
   NOTE: Remove the registration sensor bracket first. You have easier access to the relay sensor bracket.
6. Relay sensor [E] (x 1)



G106R938.WMF

3.4.2 BY-PASS FEED CLUTCH

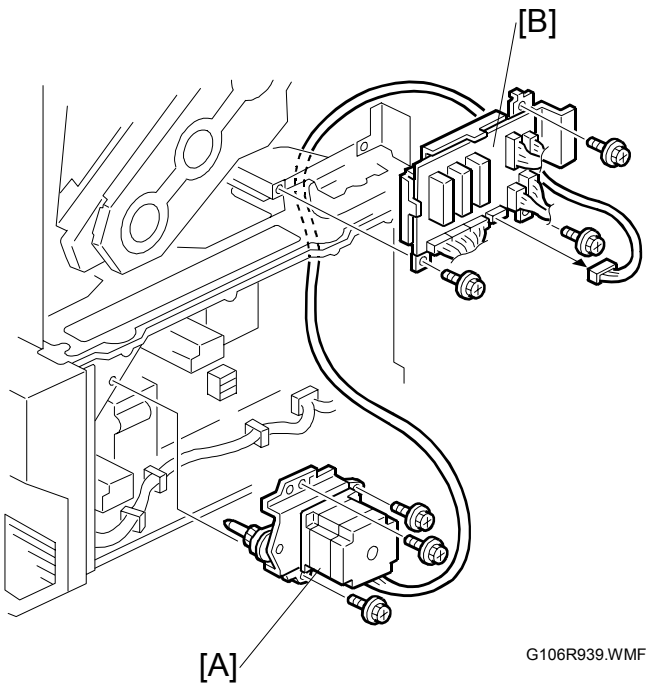
1. Right door unit (☛ [P2] 3.6.4)
2. By-pass tray cover [A] (☞ x 1, 1 hook)
3. Upper guide plate [B] (☞ x 4)
   NOTE: It is not necessary to remove the connectors on the bottom side of the upper guide plate.
4. Support plate [C] (☾ x 2)
5. Relay gear [D]
6. By-pass feed clutch [E] (☞ x 1)



G106R910.WMF

3.4.3 PAPER FEED MOTOR

1. Rear cover (☛ [P2] 3.3.1)
2. Swing out the high voltage supply unit. (☛ [P2] 3.10.2)
3. Sub power supply unit (☛ 3.8.3)
   NOTE: The cable of the paper feed motor goes behind the sub power supply unit.
4. Paper feed motor [A] (☞ x 3, ☞ x 1)
   NOTE: The connector is CN604 on the driver board [B].

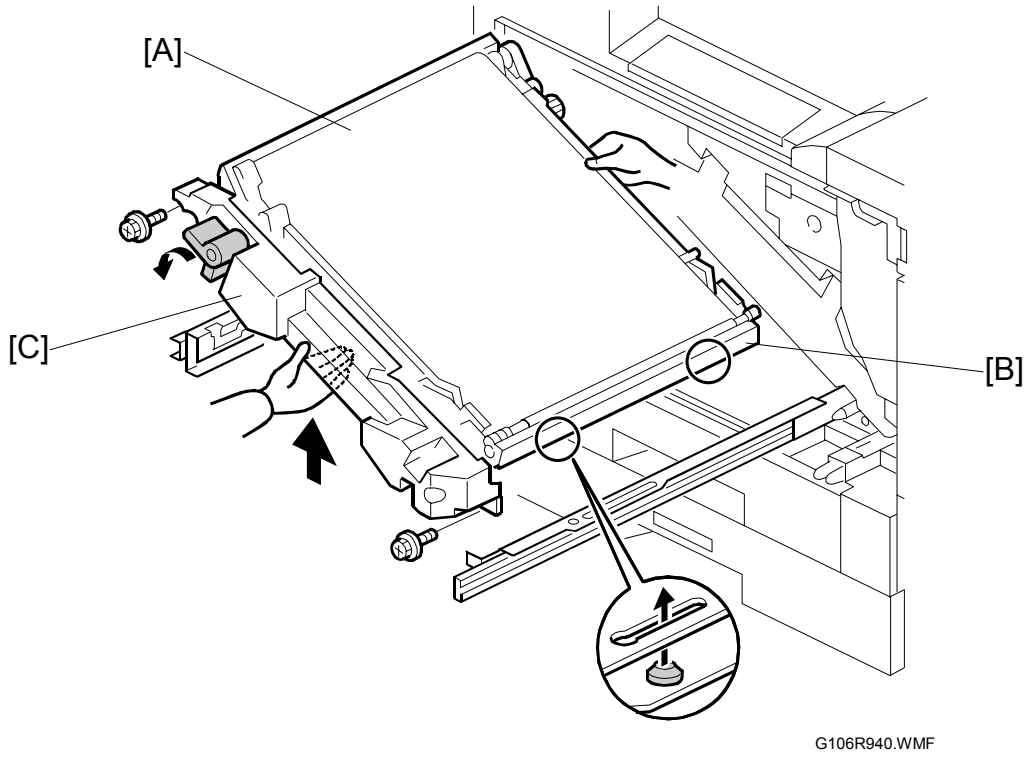


G106R939.WMF

3.5 TRANSFER AND PAPER TRANSPORT UNIT

3.5.1 TRANSFER UNIT

NOTE: When removing or installing the transfer unit, grasp the grip on the front frame and the center of the rear frame. Do not touch the transfer belt [A]. Do not damage the entrance Mylar [B].



G106R940.WMF

1. Turn the release lever counterclockwise (☛ [P2] 3.5).
2. Pull out the transfer unit [C] until the entire unit is visible (🔩 x 2).
3. Grasp the handle on the front frame and the center of the rear frame, and lift the unit to remove it.

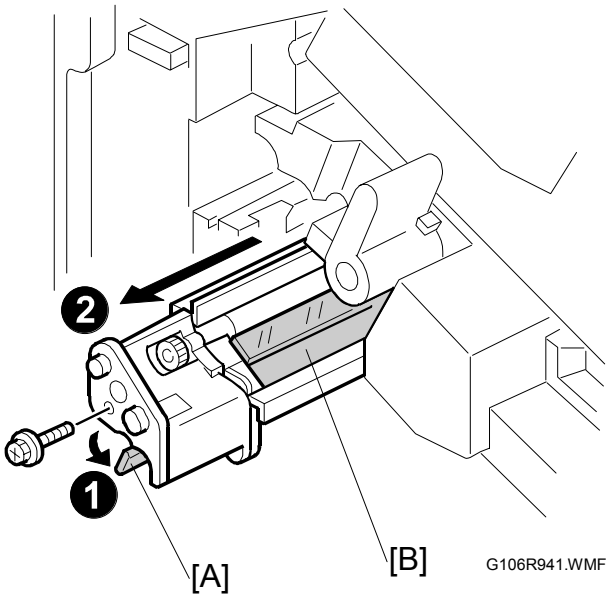
After replacing the transfer unit:

- Reset the maintenance counter, SP7-804-017
- Remove all the PCUs.
- Do the transfer belt idling with SP5-804-066 for 1 minute.
- Install the PCUs.
- Perform forced line position adjustment (SP5-993-002 or Menu > Maintenance > Color Regist. > Auto Adjust).
- Print the 1-dot grid pattern on A3/11" x 17" paper and check the color shift level (☛ [P2] 4.4.3).

3.5.2 TRANSFER BELT CLEANING UNIT

CAUTION: Push the lever [A] and hold it there while you remove or install the transfer belt cleaning unit. The blade [B] can cause damage to the transfer belt if you do not continue to push the lever.

While pushing the lever [A], pull out the transfer belt cleaning unit (☞ x 1).



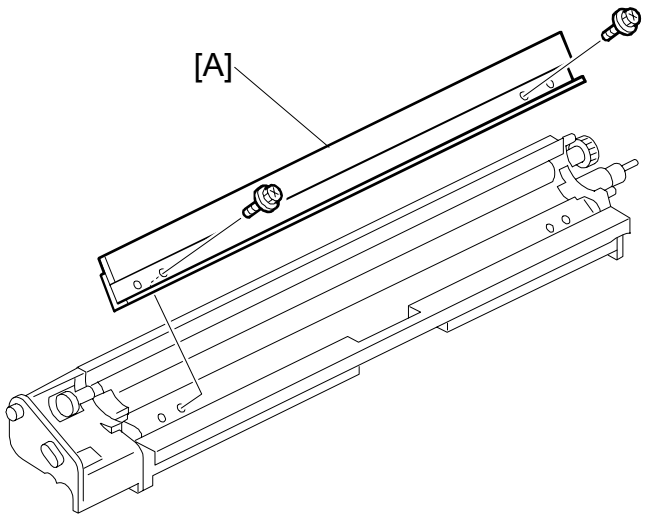
Adjustment and Setting

After replacing the transfer belt cleaning unit, reset the maintenance counter (SP7-804-018).

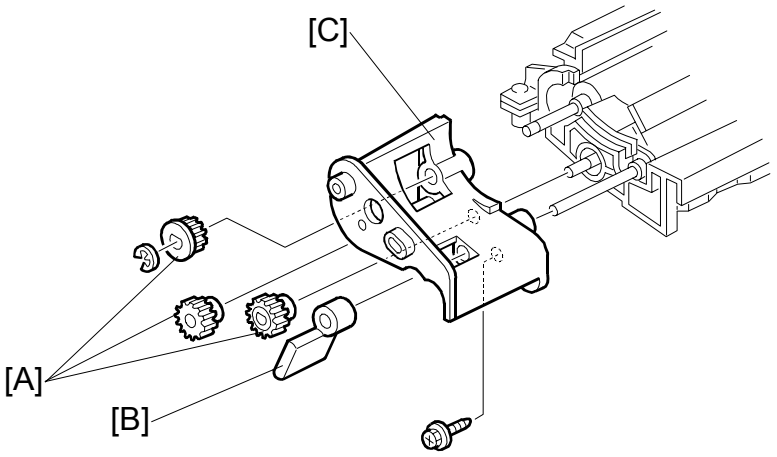
After replacing the transfer belt cleaning unit, do the forced line position adjustment (SP5-993-002 or Menu > Maintenance > Color Regist. > Auto Adjust).

3.5.3 CLEANING BLADE AND CLEANING ROLLER

1. Transfer belt cleaning unit (☞ 3.5.2)
2. Cleaning blade [A] (☞ x 2)

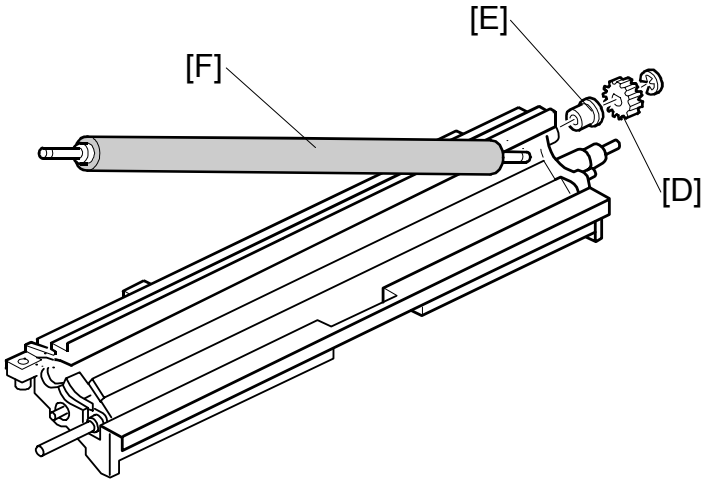


3. 3 gears [A] (ℂ x 1)
4. Lever [B]
5. Gear box [C] (🔩 x 1)



G106R913.WMF

6. Cleaning brush gear [D] (ℂ x 1)
7. Bushing [E]
8. Cleaning brush [F]



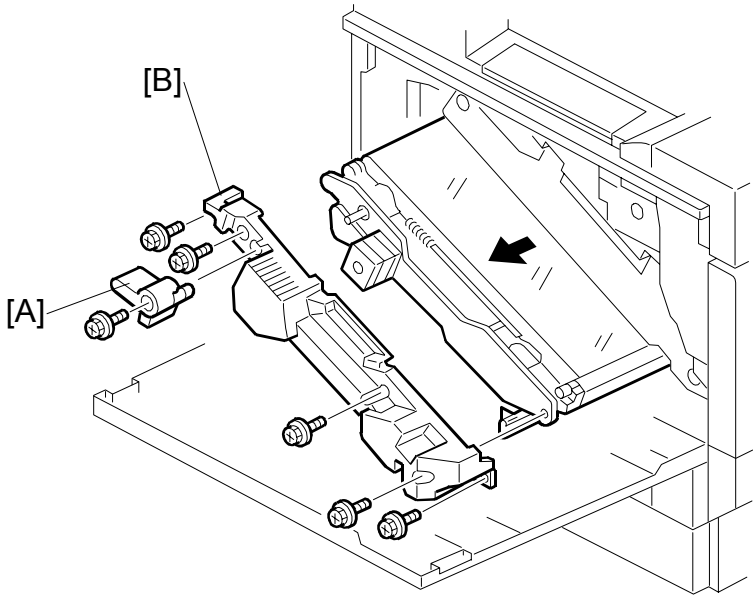
G106R912.WMF

Setting

After replacing the cleaning blade, do the forced line position adjustment (SP5-993-002 or Menu > Maintenance > Color Regist. > Auto Adjust).

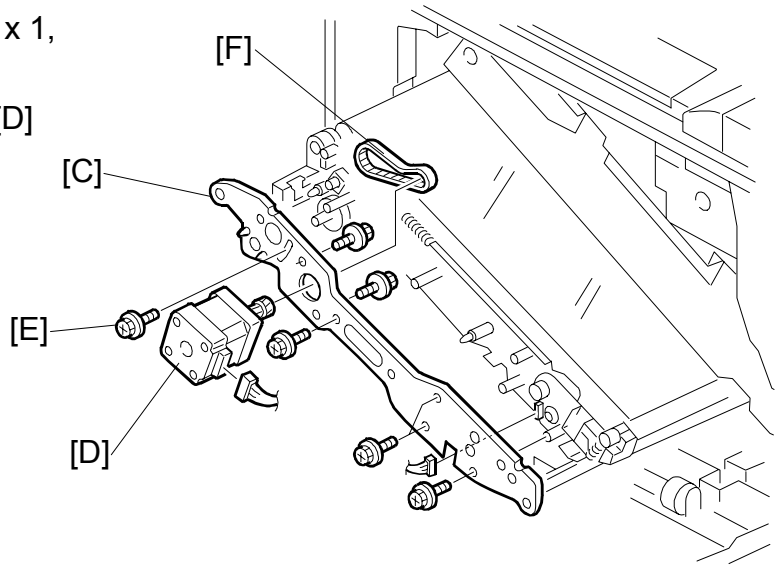
3.5.4 TRANSFER UNIT DRIVE MOTOR

1. Pull out the transfer unit (☛ 3.5.1).
2. Transfer belt cleaning unit (☛ 3.5.2)
3. Release lever [A] (☞ x 1)
4. Front cover [B] (☞ x 3)



G106R943.WMF

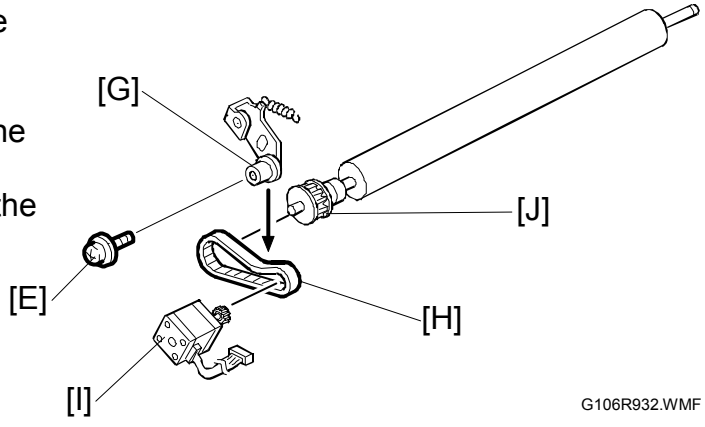
5. Front plate [C] (☞ x 5, ☜ x 1, Timing belt x 1)
6. Transfer unit drive motor [D] (☞ x 2, ☜ x 1)



G106R944.WMF

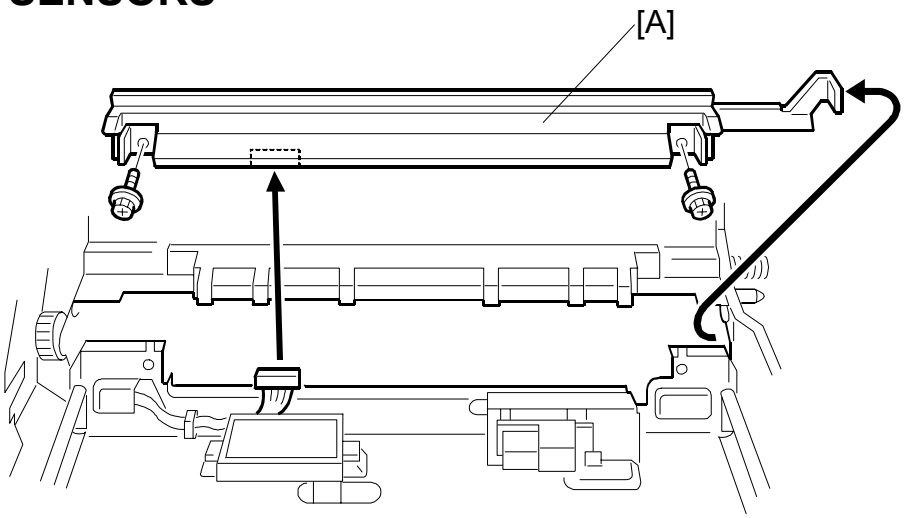
Reassembling

Before you attach the screw at the left end [E], check that the timing belt [F] is sufficiently tight. The screw [E] adjusts the position of the roller [G]. This roller pushes the timing belt [H], to make sure that the belt tightly engages with the drive motor [I] and the drive gear [J].



G106R932.WMF

3.6 ID SENSORS



G106R945.WMF

1. Transfer unit (☛ 3.5.1).
2. Fusing unit (☛ [P2] 3.9.1)
3. Black PCU (☛ [P2] 3.5)
4. ID sensor bracket [A] (x 2, x 1)

Reassembling

Check that the ID sensor bracket receives the drum-positioning plate correctly.

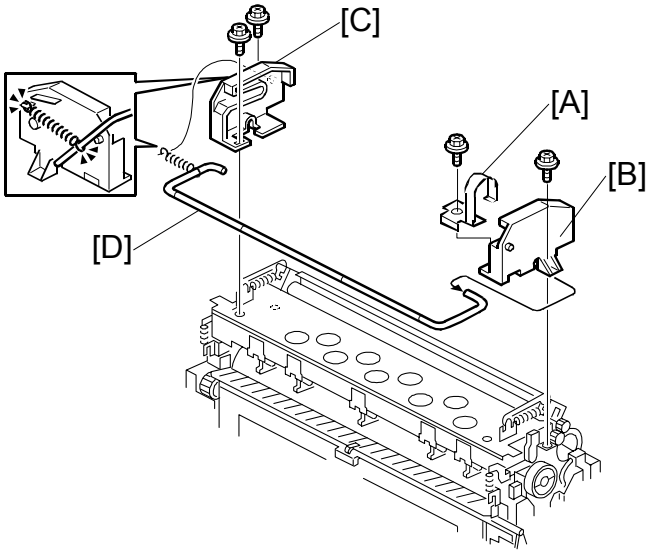
3.7 FUSING

⚠CAUTION

1. **Make sure that the fusing unit is sufficiently cool before you touch it. The fusing unit can be very hot.**
2. **Do not spill the silicone oil. Spilled silicone oil makes the floor slippery and can cause serious accidents.**
3. **Do not tilt the fusing unit. The oil supply unit [A] can fall off the fusing unit after the grip [B] is released from the oil supply unit.**

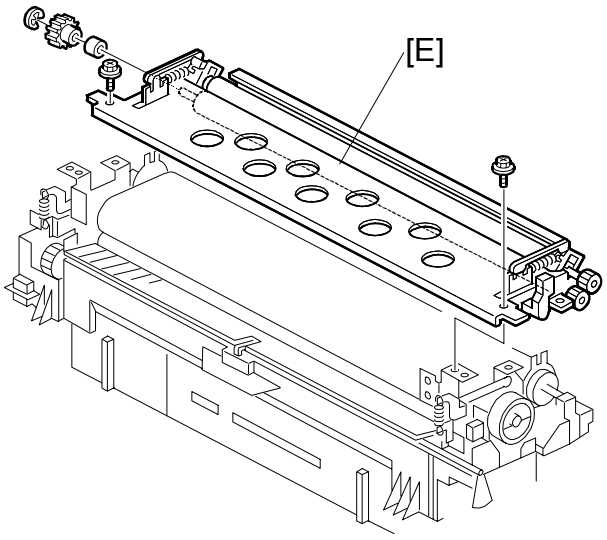
3.7.1 CLEANING UNIT

1. Upper cover (☛ [P2] 3.9.2)
2. Spacer [A] (☞ x 1)
3. Front handle guide [B] (☞ x 1)
4. Rear handle guides [C] (☞ x 2)
5. Handle [D] (Spring x 1)



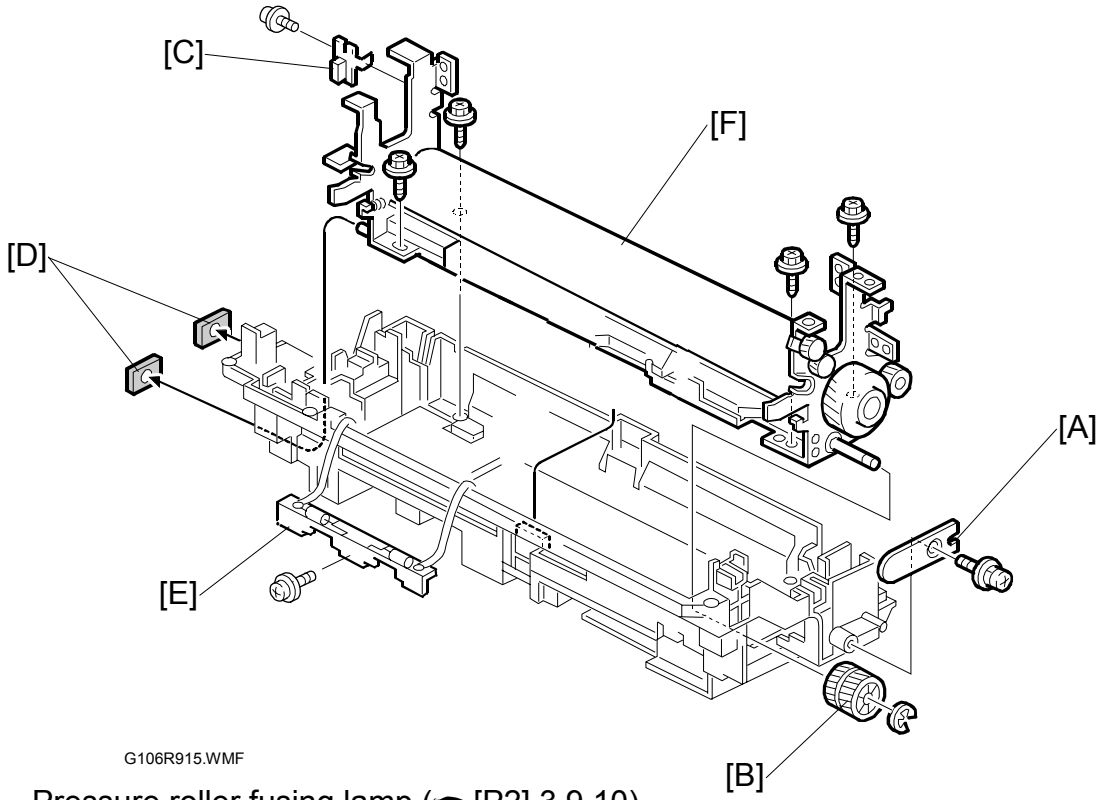
G106R914.WMF

6. Cleaning unit [E] (☞ x 2)

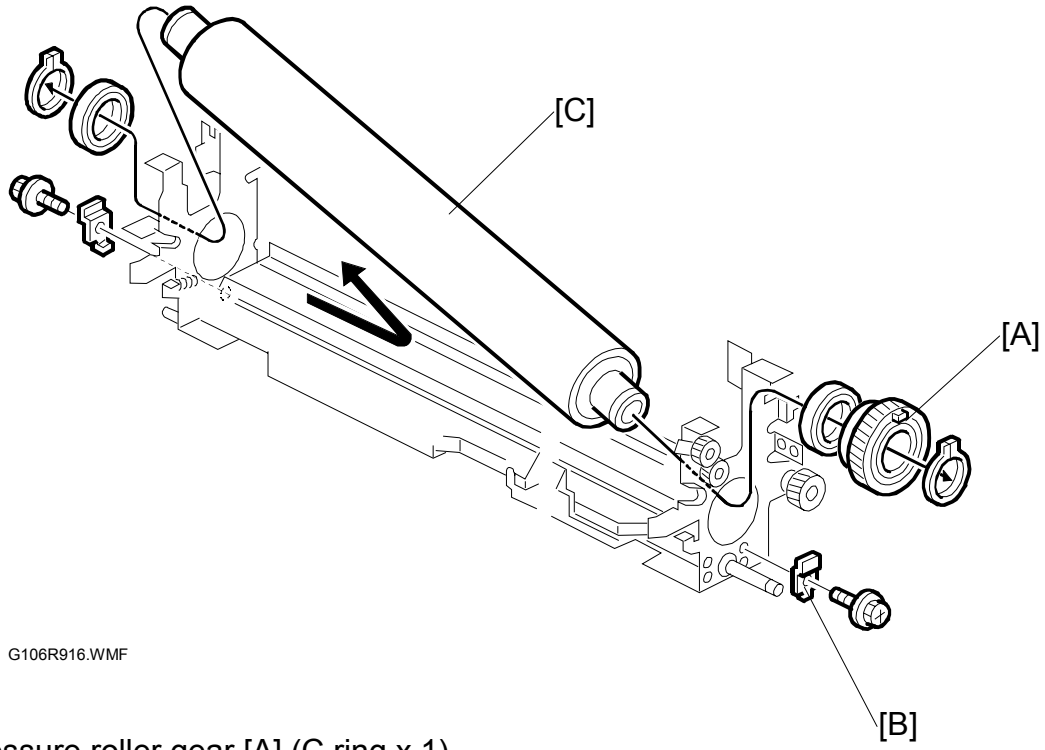


G106R946.WMF

3.7.2 PRESSURE ROLLER



1. Pressure roller fusing lamp (☛ [P2] 3.9.10)
2. Lower paper guide plate (☛ [P2] 3.9.8)
3. Drive gear holder [A] (☞ x 1)
4. Drive gear [B] (ℂ x 1)
5. Lower right cover (☛ [P2] 3.9.9)
6. Connector bracket [C] with the connector (☞ x 1)
7. Pads [D]
8. Release the fuse base [E] from the frame (☞ x 1).
   NOTE: It is not necessary to remove the cables.
9. Thermistor (☛ [P2] 3.9.9)
   NOTE: To prevent damage to the thermistor, remove the thermistor before you remove the pressure roller unit.
10. Pressure roller unit [F] (☞ x 4)
    NOTE: When you reassemble the machine, make sure that the pressure roller unit does not cause damage to the cables.



G106R916.WMF

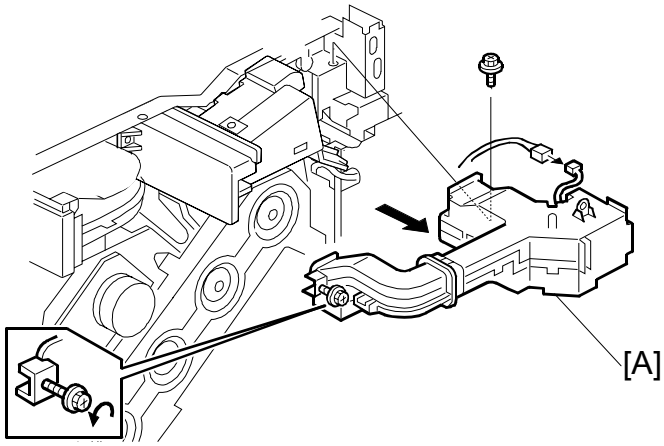
11. Pressure roller gear [A] (C ring x 1)
12. Pressure roller holder [B] (🔩 x 1)
13. Pressure roller [C] (C ring x 1, 2 bushings)

3.7.3 FUSING UNIT FAN

⚠CAUTION

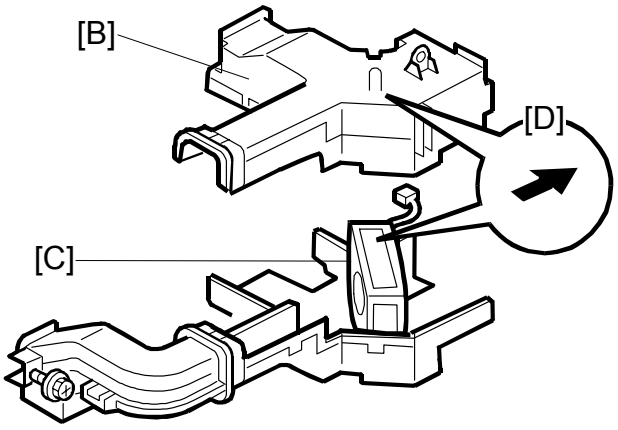
When reinstalling, make sure that the fan faces to the correct direction. The arrow on the fan [D] and the arrow on the duct [D] must face to the same direction.

1. Rear cover (☛ [P2] 3.3.1)
2. Left cover, rear left cover (☛ [P2] 3.3.5)
3. Fusing fan duct [A] (x 2, x 1)



G106R917.WMF

4. Release the hooks and remove the upper cover [B].
5. Fusing fan [C]

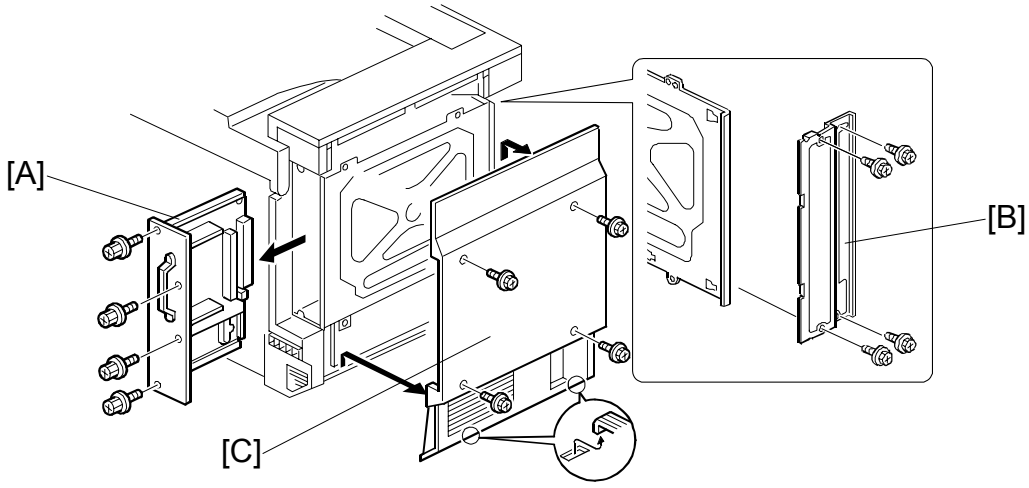


G106R947.WMF

3.8 ELECTRICAL COMPONENTS

3.8.1 CONTROLLER AND BCU

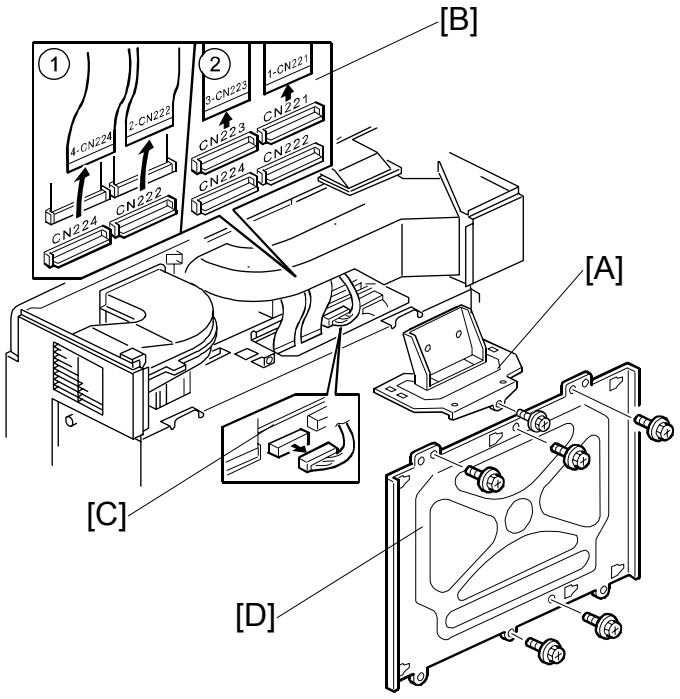
NOTE: 1) Before replacing the BCU, the controller, or the NVRAM, print out the SMC reports (“SP Mode Data” and “Logging Data”).
2) After replacing the BCU or the controller, remove the NVRAM from the old board and install it on the new board. If the NVRAM on the old board is defective, replace the NVRAM (☛ 3.8.2).



G106R918.WMF

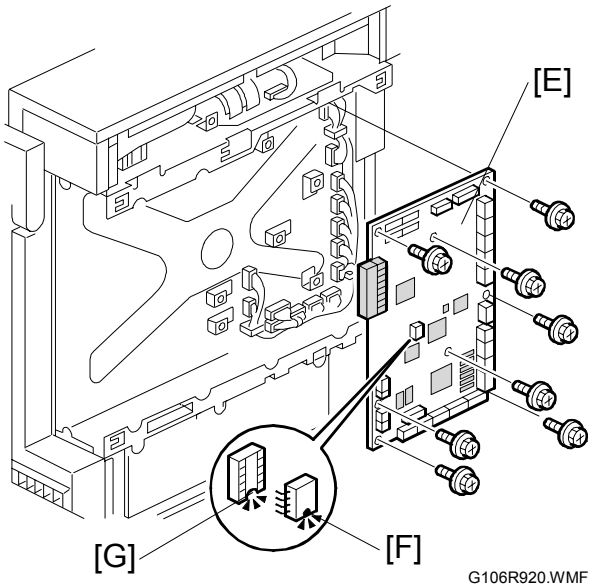
1. Controller [A] (☞ x 4)
2. Option bracket [B] (☞ x 4)
3. Rear cover [C] (☛ [P2] 3.3.1)

4. Connector cover [A] (☞ x 1)
5. Four flat cables [B]
6. Connector [C]
7. Cover bracket [D] (☞ x 5)



G106R919.WMF

8. BCU [E] (All ☞'s, ☞ x 8)



G106R920.WMF

CAUTION: 1) When handling NVRAMs, keep them away from any objects that can cause static electricity. The data in NVRAMs may be corrupted by static electricity.
2) Make sure the NVRAM is correctly installed on the board. A half-disk [F] is engraved on one side of the NVRAM, while a guide mark [G] is on one side of the NVRAM slot. Install the NVRAM so that the half-disk and the guide mark are on the same side.
3) When replacing the BCU, make sure that the DIP-switch settings on the old board and on the new board are the same (☞ 5.8).

3.8.2 NVRAM REPLACEMENT PROCEDURE

Make sure that you have the SMC report (factory settings) that comes with the printer before beginning the following procedure.

NVRAM on the BCU

For this procedure, you must know the device number and the destination code (☛ step 10).

1. Start the SP mode.
2. Use SP5-990 to print out the SMC reports ("SP Mode Data" and "Logging Data") if possible.
3. Use SP5-824 to upload the NVRAM data if possible.
4. Turn off the main power switch and unplug the power cord.
5. Replace the NVRAM on the BCU and reassemble the machine.
6. Plug in the power cord.
7. Turn on the main power switch.
8. Start the SP mode.
9. Use SP5-825 to download the NVRAM data if possible.
10. Contact your supervisor to enter the machine's device number.
    NOTE: SC999 or "Fusing Unit Setting Error" may be displayed until the machine's device number and destination code are programmed properly.
11. Turn the main power switch off and on.
12. If the NVRAM data is downloaded (☛ step 9), the following steps are not required.
13. Start the SP mode.
14. Use SP5-998-1 to reset the engine settings.
15. Reset the meter charge settings (SP5-930-001 to 005).
16. Enter the SP mode changes previously made at the factory and the field.
17. Replace all maintenance kits with new ones.

NVRAM on the Controller

1. Start the SP mode.
2. Use SP5-990 to print out the SMC reports ("SP Mode Data" and "Logging Data") if possible.
3. Use SP5-824 to upload the NVRAM data if possible.
4. Turn off the main power switch and unplug the power cord.
5. Replace the NVRAM on the controller and reassemble the machine.
6. Plug in the power cord.
7. Turn on the main power switch.
8. Start the SP mode.
9. Use SP5-825 to download the NVRAM data if possible. If it can be done, the following steps are not required.
10. Use Memory Clear (SP5-801) to reset this data:
    - SCS (SP5-801-003)
    - PRT (SP5-801-008)
    - NCS (SP5-801-011)
11. Do Counter Clear (SP7-808).
12. Make these contract-related settings:
    - Counter Method (SP5-045)
    - Double Count (SP5-104)
    - Telephone Number Setting > Fax Telephone Number (SP5-812-002) if the meter charge mode (SP5-930-001) is "ON" (enabled)
13. Enter the SP mode changes previously made at the factory and the field.

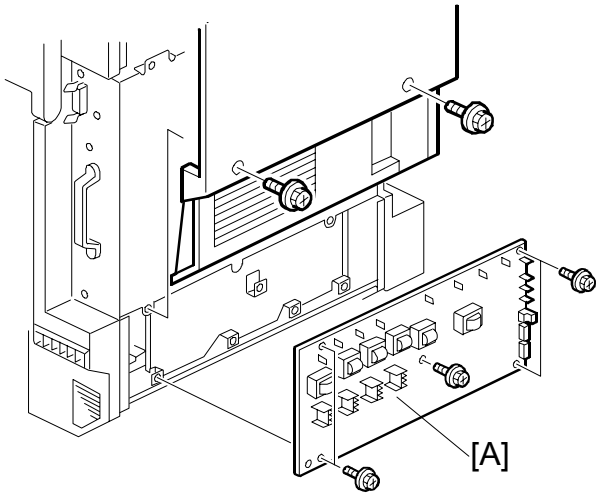
NVRAMs on the BCU and Controller

For this procedure, you must know the device number and the destination code (☛ step 10).

1. Start the SP mode.
2. Use SP5-990 to print out the SMC reports ("SP Mode Data" and "Logging Data") if possible.
3. Use SP5-824 to upload the NVRAM data if possible.
4. Turn off the main power switch and unplug the power cord.
5. Replace the NVRAMs on the BCU and the controller, and reassemble the machine.
6. Plug in the power cord.
7. Turn on the main power switch.
8. Start the SP mode.
9. Use SP5-825 to download the NVRAM data if possible.
10. Contact your supervisor to enter the machine's device number.
    NOTE: SC999 or "Fusing Unit Setting Error" may be displayed until the machine's device number and destination code is programmed properly.
11. Turn the main power switch off and on.
12. If the NVRAM data is downloaded (☛ step 9), the following steps are not required.
13. Start the SP mode.
14. Use SP5-998-001 to reset the engine settings.
15. Use Memory Clear (SP5-801) to reset this data:
    - SCS (SP5-801-003)
    - PRT (SP5-801-008)
    - NCS (SP5-801-011)
16. Do Counter Clear (SP7-808).
17. Reset the meter charge settings (SP5-930-001 to 005).
18. Make these contract-related settings:
    - Counter Method (SP5-045)
    - Double Count (SP5-104)
    - Telephone Number Setting > Fax Telephone Number (SP5-812-002)
19. Enter the SP mode changes previously made at the factory and the field.
20. Replace all maintenance kits with new ones.

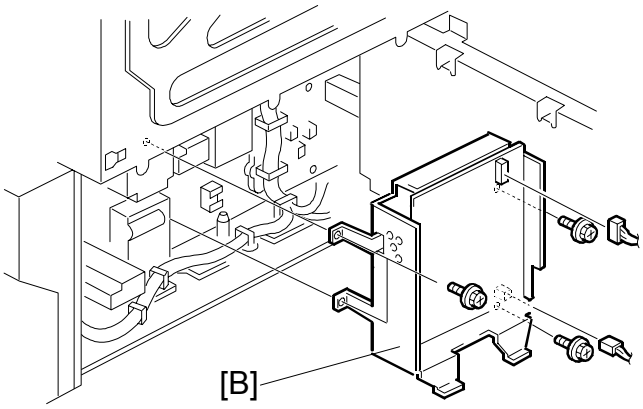
3.8.3 HIGH VOLTAGE SUPPLY BOARD

1. Rear cover (☛ [P2] 3.3.1)
2. High voltage supply board [A] (All'🖐, 🪛 x 6)



G106R935.WMF

3. Sub power supply unit [B] (🖐 x 2, 🪛 x 4)



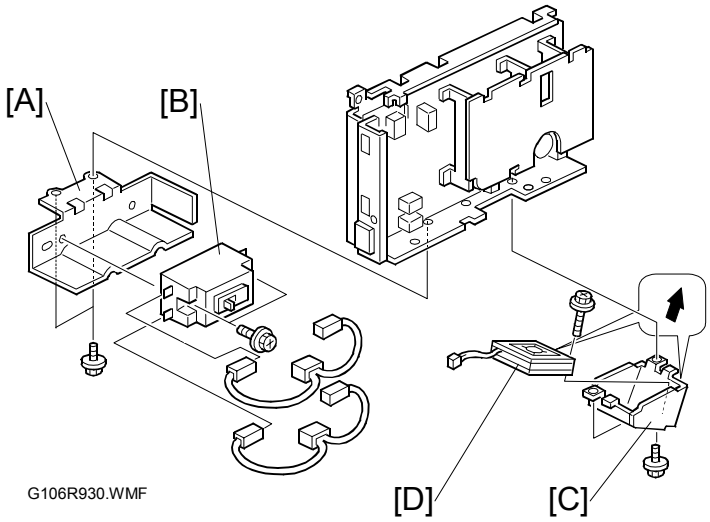
G106R911.WMF

3.8.4 CIRCUIT BREAKER AND PSU FAN

1. PSU (☛ [P2] 3.10.6)
2. Circuit breaker bracket [A] (x 2, x 2)
3. Circuit breaker [B] (x 4)
4. PSU fan bracket [C] (x 1, x 2)
5. PSU fan [D] (x 2)

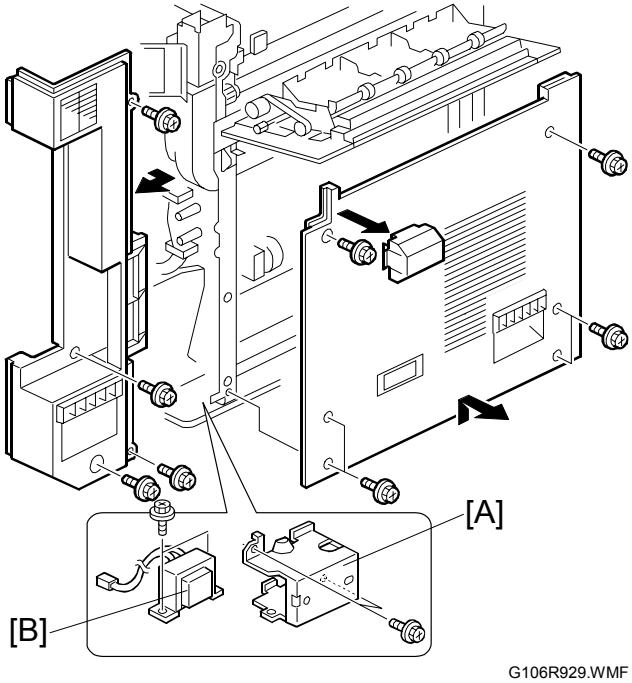
Reassembling

Check that the arrows on the fan and the bracket point in the same direction.



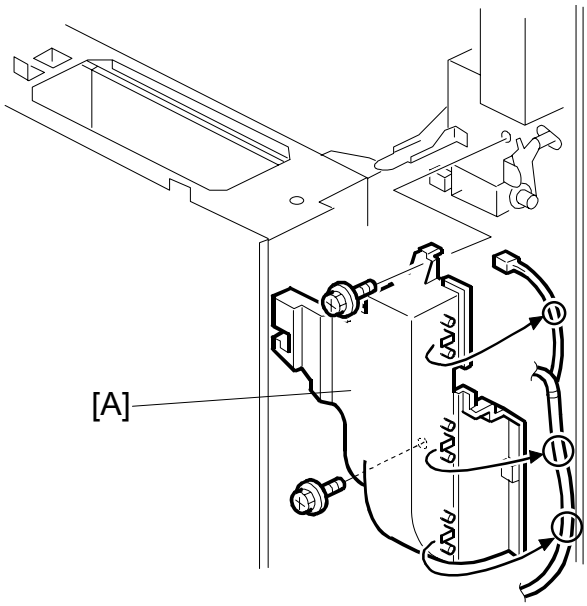
3.8.5 CHOKE COIL

1. Left cover, rear left cover (☛ [P2] 3.3.5)
2. Tray 2
3. Choke coil bracket [A] (x 2)
4. Choke coil [B] (x 2, x 1)
   NOTE: The connector is on the PSU.

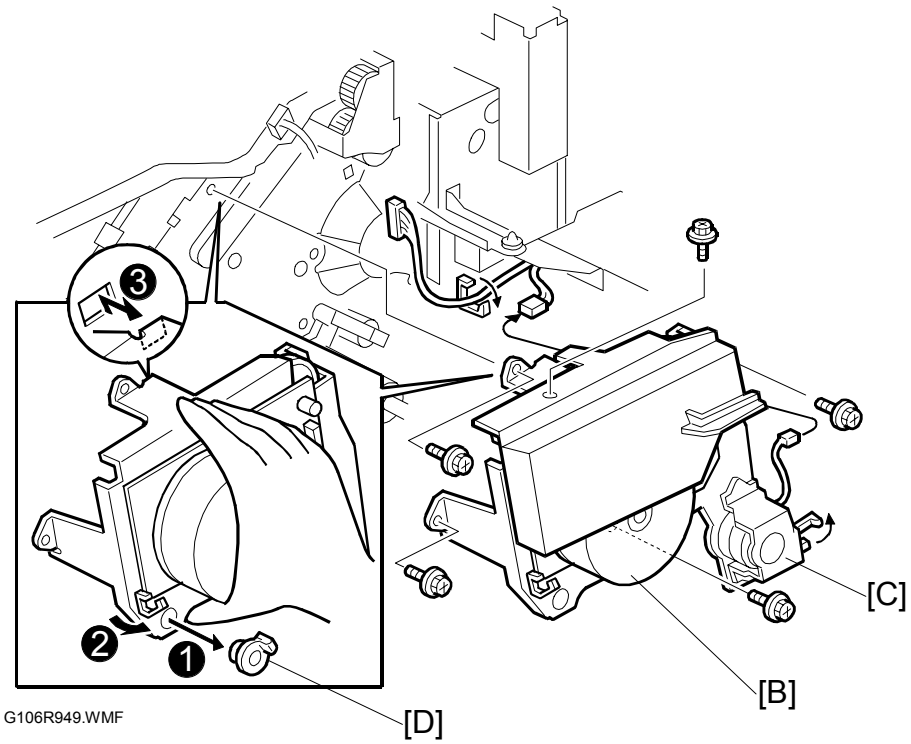


3.8.6 DEVELOPMENT DRIVE MOTOR-K

1. Fusing fan duct (☛ 3.7.3)
2. Development clutch securing plate (☛ [P2] 3.11.3)
3. Solenoid cover [A] (🔩 x 2)



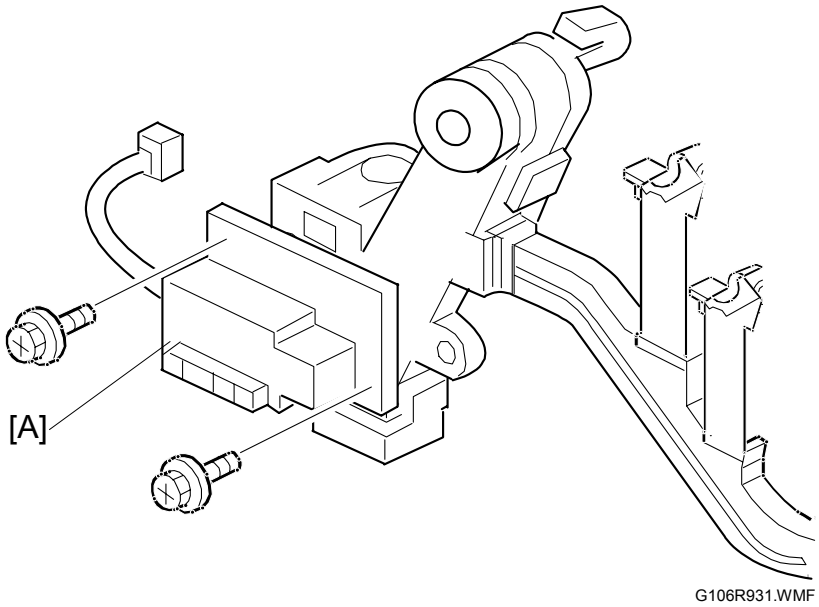
G106R948.WMF



G106R949.WMF

4. Development drive motor–K [B] (with the fusing clutch [C]) (🔩 x 4, 🔌 x 2)
   NOTE: When reassembling, remove the bushing [D] and install the development drive motor–K (with the fusing clutch) first. After this, install the bushing.

3.8.7 WASTE TONER VIBRATOR



1. Move out the controller box (☛ [P2] 3.10.1)
   NOTE: This step is necessary to remove the connector.
2. Transfer unit (☛ 3.5.1)
3. Waste toner vibrator [A]
   (x 2, x 1)

4. TROUBLESHOOTING

4.1 MODEL J-P3 AND MODEL J-P2

While reading this chapter, keep Model J-P2 Service Manual at hand. This chapter frequently refers to Model J-P2.

Model J-P3 and Model J-P2 have common features and components. Model J-P2 Service Manual gives you the information on these features and components. This chapter illustrates the features and components that are supported only by Model J-P3.

4.2 PROCESS CONTROL ERROR CONDITIONS

4.2.1 DEVELOPER INITIALIZATION RESULT

SP-3-005-006 (TD Initialization > Result)

No.	Result	Description	Possible Cause	Action
0	Not performed	Developer initialization is not performed.	When initializing only the black developer, the initialization result becomes “1000”.	When done in SP mode, do the developer initialization again. If the result is the same, reinstall the engine main firmware. When done at unit replacement: • Check if a new unit is installed • Check if the unit detection system is working • Check if SP2-223-001 (auto initialization at unit replacement) is enabled.
1	Successfully completed	Developer initialization is successfully completed.	-	-
2	Forced termination	Developer initialization was forcibly terminated.	A cover was opened or the main switch was turned off during the initialization.	When done in SP mode, do the developer initialization again. If the result is the same, reinstall the engine main firmware. When done at unit replacement, turn the main switch off and on.

No.	Result	Description	Possible Cause	Action
3	Vt error	Vt is less than 0.78V and "Reset development unit" is displayed.	1. Check if the drum stay is properly set and secured. 2. Check if the development unit is properly set. 3. If the problem is still the same, check the following: • Poor connection of connectors • TD sensor defective • Harness damage • BCU board failure • Firmware problem (engine main or MUSIC)	
8	Toner supply error	During toner fill-up mode, Vt does not reach the target value.	1. Check if the toner cartridge is properly set. 2. Check if the amount of toner left in the toner cartridge is insufficient. 3. Check if toner is coagulated. (If yes, shake the toner cartridge well.) 4. Check if the connectors of the following parts are properly set, and/or replace the parts. Toner attraction pump / Air Pump / Valves 5. Check if the toner supply tube is bent, caught, or damaged.	
9	Failure	Vt cannot be adjusted within 3.0 ± 0.1V. SC370 - 373 will be displayed. Turning the main switch off and on clears this SC code.	1. Shielding tape is not removed.	1. Remove the shielding tape to supply developer to the unit.
			2. Development unit is not firmly installed, causing poor connection of the TD sensor connector.	2. Reinstall the development unit.
			3. TD sensor defective.	3. Replace the development unit.

NOTE: When the machine detects new development units, it automatically starts developer initialization. If an error other than Error 8 occurs, developer initialization is automatically resumed by opening and closing the front door or turning the main switch off and on.

4.2.2 PROCESS CONTROL SELF-CHECK RESULT

See Model J-P2 Service Manual.

4.2.3 LINE POSITION ADJUSTMENT RESULT

SP5-993-007 (Line Position Adjustment > Result)

No.	Result	Description	Note
01	Successfully completed	Data sampling was correctly done and line position adjustment was successfully completed.	
02	Out of adjustment range (over ±1.4 mm)	The calculated result for line position correction is greater than ±1.4 mm.	
03	Calculation Error	Distance between the lines is greater than ±1.4 mm.	
04	Sampling Error	Data sampling cannot be done properly.	
05	Descending slope error	The ascending or descending slope of the ID sensor signal wave is out of specification.	(See **Note**)
06	Ascending slope error		(See **Note**)
07	Pattern lines mismatch (less than 64 lines)	The detected number of pattern lines is less than 64.	(See **Note**)
08	Sampling time-out	Data sampling cannot be done within the allocated time.	
09	Sampling start error	The start mark cannot be detected within the allocated time.	
10	Pattern length mismatch	The pattern length is shorter or longer than specified.	(See **Note**)
11	Pattern lines mismatch (over 64 lines)	The detected number of pattern lines is over 64.	
12	Magnification mismatch	The calculated magnification value does not match any data in the laser power frequency adjustment data table.	
13	Toner condition	The machine is in the toner near-end or toner end condition.	
17	Not executed	The machine is not ready to do the line position adjustment manually from the user menu.	
18	Potential control error	Line position adjustment cannot be done due to failed potential control.	

Note: Concerning the error codes (05, 06, 07 or 10) which stop sampling data when either the front, center, or rear ID sensor detect an error, the machine may display the error code for both ID sensors in some cases.

For the possible causes of the errors in the line position adjustment, see Model J-P2 Service Manual.

SC Code Classification

The table lists the classification of the SC codes:

Class 1	Section	SC Code	Detailed section
1XX	Scanning	100 -	Scanner
		190 -	Unique for a specific model
2XX	Laser exposure	200 -	Polygon motor
		220 -	Synchronization control
		230 -	FGATE signal related
		240 -	LD control
		260 -	Magnification
		280 -	Unique for a specific model
3XX	Image development 1	300 -	Charge
		330 -	Drum potential
		350 -	Development
		380 -	Unique for a specific model
4XX	Image development 2	400 -	Image transfer
		420 -	Paper separation
		430 -	Cleaning
		440 -	Around drum
		460 -	Unit
		480 -	Others
5XX	Paper feed / Fusing	500 -	Paper feed
		515 -	Duplex
		520 -	Paper transport
5XX	Paper feed / Fusing	530 -	Fan motor
		540 -	Fusing
		560 -	Others
		570 -	Unique for a specific model
6XX	Communication	600 -	Electrical counters
		620 -	Mechanical counters
		630 -	Account control
		640 -	CSS
		650 -	Network
		670 -	Internal data processing
		680 -	Unique for a specific model
7XX	Peripherals	700 -	Original handling
		720 -	Two-tray finisher
		740 -	Booklet finisher
8XX	Controller	800 -	Error after ready condition
		820 -	Diagnostics error
		860 -	Hard disk
		880 -	Unique for a specific model
9XX	Others	900 -	Counter
		920 -	Memory
		990 -	Others

4.3 SC TABLE

For the Service Call Conditions and other SC codes, see Model J-P2 Service Manual.

SC No.	Item	Definition	Possible Cause	Related SCs	Troubleshooting Procedure	Type
SC 201	Polygon motor error	• The polygon mirror motor does not reach the targeted operating speed within 10 seconds after turning on. • The lock signal does not become high within 10 seconds after turning off the polygon motor. • The lock signal does not become low within 0.2 second after the polygon motor reaches the targeted operating speed.	• Polygon mirror motor error • Abnormal GAVD behavior • Cable disconnection		1. Turn the main switch off and on. 2. Check the cables. 3. Replace the polygon motor.	
SC 286	Rotation encoder error	The controller receives unusual encoder signals three times.	• Defective transfer unit • Defective encoder		1. Turn the main switch off and on. 2. Replace the rotation encoder. 3. Replace the transfer unit.	
SC 370	TD sensor [K]: Adjustment error	During the developer initialization, the output value of the TD sensor is without the adjustment range (3.5 ± 0.1V).	• Poor connection (TD sensor outputs is less than 0.5V.) • Defective TD sensor		1. Turn the main switch off and on. 2. Reset the related color development unit. 3. Replace the related color development unit.	
SC 371	TD sensor [Y]: Adjustment error					
SC 372	TD sensor [C]: Adjustment error					
SC 373	TD sensor [M] : Adjustment error					

SC No.	Item	Definition	Possible Cause	Related SCs	Troubleshooting Procedure	Type
SC 374 SC 375 SC 376 SC 377	Vt error [K] Vt error [Y] Vt error [C] Vt error [M]	During the image development, Vt value is less than 0.78V.	• Poor connection (TD sensor outputs is less than 0.5V.) • Defective TD sensor		1. Turn the main switch off and on. 2. Reset the related color development unit. 3. Replace the related color development unit.	
SC 386 SC 387 SC 388 SC 389	Development gamma error K Development gamma error Y Development gamma error C Development gamma error M	Any of the following conditions happens three consecutive times: • When the development gamma is out of the following range: $0.3 \leq \gamma \leq 6.0$ • When Vk is out of the following range: $-150V \leq Vk \leq 150V$ • Development gamma calculation error	• Unsuitable toner density • Toner supply mechanism problem • Laser exposure problem • Image transfer problem		1. Turn the main switch off and on . 2. Check the process control self-check result (SP3-975). If the result is not "1", fix the problem according to the table in section 4.1.2. 3. Print a full color image by disabling SC detection (SP5-809-001) and check if the image quality is OK. If the image quality is not OK, fix the problem. Then, enable the SC detection again.	
SC 391-01	Charge AC: output error 391-01: K 391-02: Y 391-03: M 391-04: C	The high voltage supply board sends the feedback signal (CN228-2 to 5; MCYK). The BCU monitors these feedback signals every 8 ms. If the average of the sampled data is not within the control target 20 consecutive times, this SC code is generated.	• Power pack disconnected • Charge receptacle or terminal • Defective PCU bias input terminal • Incorrect power pack B/C output • Damaged cable • Defective BCU		1. Turn the main switch off and on. 2. Check the connector. 3. Check the PCU charge voltage input (the spring/conducting shaft) or replace the PCU. 4. Replace the power pack B/C. 5. Replace the cable. 6. Replace the BCU.	
SC 440-001	Drum motor error 440-001: Black 440-002: Color	No drum gear position sensor signal is detected within 0.7 second (185 mm/s), 0.8 second (162 mm/s), 1.0 second (125 mm/s), or 2.0 seconds (62.5 mm/s).	• Defective PCU • Defective drum motor • Defective drum gear position sensor		1. Turn the main switch off and on. 2. Check and/or replace the PCU. 3. Check and/or replace the sensor.	

SC No.	Item	Definition	Possible Cause	Related SCs	Troubleshooting Procedure	Type
SC 480	Waste toner bottle full	The waste toner bottle does not push the waste toner sensor feeler.	• The waste toner bottle is full. • The waste toner bottle is not correctly set.		1. Replace the waste toner bottle. 2. Check that the waste toner bottle is correctly lifted and that the bottle pushes the waste toner sensor feeler. 3. Close the front cover. Wait 10 seconds. Turn the main switch off and on.	
SC 481	Waste toner vibrator error	The waste toner vibrator does not operate.	• Loose connection • Defective motor		1. Turn the main switch off and on. 2. Check the connection. 3. Replace the motor.	
SC 543	Heating roller fusing lamp overheat	The detected fusing temperature stays at 220°C or more for five seconds.	• Defective PSU • Defective BCU		1. Replace the PSU. 2. Replace the BCU.	A
SC 555	Pressure roller fusing lamp consecutive full power	When the fusing unit is not running in the Ready condition, the pressure roller fusing lamp keeps ON with full power for 150 seconds continuously (North America) or 190 seconds continuously (Europe).	• Pressure roller thermistor out of position		1. Replace the fusing unit.	A

SC No.	Item	Definition	Possible Cause	Related SCs	Troubleshooting Procedure	Type
SC 621	Two-tray finisher/booklet finisher communication error	While the BCU communicates with an optional unit, an SC code is displayed if one of following conditions occurs. 1. The BCU receives a signal which is generated by the peripherals only just after the main switch is turned on. 2. When the BCU does not receive an OK signal from a peripheral 100 ms after sending a command to it. The BCU resends the command. The BCU does not receive an OK signal after sending the command 3 times.	• Cable problems • BCU problems • PSU problems in the machine • Main board problems in the peripherals		1. Turn the main switch off and on. 2. Check if the cables of peripherals are properly connected. 3. Replace the PSU if no power is supplied to peripherals. 4. Replace the BCU or main board of peripherals.	D
SC 622	Bank communication error					
SC 623	Duplex unit communication error		• Cable problems • BCU problems • PSU problems in the machine • Duplex control board problem		1. Turn the main switch off and on. 2. Check if the cable of the duplex inverter unit is properly connected. 3. Replace the PSU if no power is supplied to the peripherals. 4. Replace the duplex control board in the inverter unit.	D
SC 740	Booklet finisher transport motor error	• The folder home position sensor does not turn off within 2 seconds after the folder rollers start to move. • The folder home position sensor does not turn on within 2 seconds after the folder rollers start transporting the paper to the booklet tray.	• Defective transport motor • Loose connection of the transport motor • Defective folder home position sensor • Loose connection of the holder home position sensor		1. Turn the main switch off and on. 2. Check the connection of the transport motor. 3. Check the connection of the folder home position sensor. 4. Replace the transport motor.	B

SC No.	Item	Definition	Possible Cause	Related SCs	Troubleshooting Procedure	Type
SC 741	Booklet finisher paddle motor error	• The paddle home position sensor does not turn off within 2 seconds after the paddles start to move. • The paddle home position sensor does not turn on within 2 seconds after the paddles start to operate. • The stack-tray upper roller home position sensor does not turn off within 2 seconds after the paddle motor starts to lower the roller. • The stack-tray upper-roller home-position sensor does not turn on with in 2 seconds after the paddle motor starts to lower the roller.	• Defective paddle motor • Loose connection of the paddle motor • Defective paddle home position sensor • Loose connection of the paddle home position sensor • Defective stack-tray upper-roller home-position sensor • Loose connection of the stack-tray upper-roller home-position sensor		1. Turn the main switch off and on. 2. Check that the connection of the paddle motor. 3. Check the connection of the paddle home position sensor. 4. Check the connection of the stack-tray upper-roller home-position sensor. 5. Replace the paddle motor.	B
SC 742	Booklet finisher stapler slide motor error	• The stapler home position sensor does not turn off within 1 second after this same sensor turns on. • The stapler home position sensor does not turn on within 1 second when the stapler is coming back to its home position.	• Defective stapler slide motor • Loose connection of the stapler slide motor • Defective stapler home position sensor • Loose connection of the stapler home position sensor		1. Turn the main switch off and on. 2. Check the connection of the stapler slide motor. 3. Check the connection of the stapler home position sensor. 4. Replace the stapler home position sensor. 5. Replace the stapler slide motor.	B

SC No.	Item	Definition	Possible Cause	Related SCs	Troubleshooting Procedure	Type
SC 743	Booklet finisher front jogger fence motor error	• The front-jogger-fence home-position sensor does not turn off within 3 seconds after the front-jogger-fence motor starts. • The front-jogger-fence home-position sensor does not turn on within 3 seconds when the front-jogger-fence motor is driving the fence to its home position.	• Incorrect assembling of the front jogger fence • Loose connection of the front jogger fence motor • Defective front-jogger-fence home-position sensor • Loose connection of the front-jogger-fence home-position sensor		1. Turn the main switch off and on. 2. Check the connection of the front jogger fence motor. 3. Check the connection of the front-jogger-fence home-position sensor. 4. Replace the front-jogger-fence home-position sensor. 5. Replace the front jogger fence motor.	B
SC 744	Booklet finisher rear jogger fence motor error	• The rear-jogger-fence home-position sensor does not turn off within 3 seconds after the rear-jogger-fence motor starts. • The rear-jogger-fence home-position sensor does not turn on within 3 seconds when the rear-jogger-fence motor is driving the fence to its home position.	• Incorrect assembling of the rear jogger fence • Loose connection of the rear jogger fence motor • Defective rear-jogger-fence home-position sensor • Loose connection of the rear-jogger-fence home-position sensor		1. Turn the main switch off and on. 2. Check the connection of the rear jogger fence motor. 3. Check the connection of the rear-jogger-fence home-position sensor. 4. Replace the rear-jogger-fence home-position sensor. 5. Replace the rear jogger fence motor.	B

SC No.	Item	Definition	Possible Cause	Related SCs	Troubleshooting Procedure	Type
SC 745	Booklet finisher stack-tray exit motor error	• The stack-tray-belt home-position sensor does not turn off within 394 milliseconds after the stack-tray exit roller starts to drive the belts. → The stack-tray exit motor retries to drive the belts, but the stack-tray-belt home-position sensor still does not turn off within another 394 milliseconds. • The stack-tray-belt home-position sensor does not turn on within 1,084 milliseconds after the same home-position sensor turns off. → The stack-tray exit motor retires to drive the belts, but the stack-tray belt home-position sensor still does not turn on within another 1,084 milliseconds.	• Defective stack-tray exit motor • Loose connection of the stack-tray exit motor • Defective stack-tray-belt home-position sensor • Loose connection of the stack-tray-belt home-position sensor		1. Turn the main switch off and on. 2. Check the connection of the stack-tray exit motor. 3. Check the connection of the stack-tray-belt home-position sensor. 4. Replace the stack-tray-belt home-position sensor. 5. Replace the stack-tray exit motor.	B

SC No.	Item	Definition	Possible Cause	Related SCs	Troubleshooting Procedure	Type
SC 746	Booklet finisher stapler/folder motor error	• The stapler/folder motor starts. But the controller does not receive the signal from the encoder sensor within 0.1 second. • The stapler/folder motor starts to drive the stapler unit, and the stapler switch is on. But the controller does not receive the signal from the home position sensor for 0.5 second. • The stapler starts to staple the paper. But the controller does not receive any signal from the home position sensor, and the stapler switch is off. • The stapler/folder motor starts to drive the folder rollers. But the home position sensor does not turn off within 9.247 seconds. • The home position sensor does not turn on within 9.247 seconds after this same sensor turns off.	• Malfunction of the stapler/folder motor • Loose connection of the stapler/folder motor • Loose connection of the encoder sensor • Defective encoder sensor • Loose connection of the stapler switch • Defective stapler switch • Loose connection of the stapler home position sensor • Defective stapler home position sensor • Loose connection of the folder-roller home-position sensor • Defective folder-roller home-position sensor		1. Turn the main switch off and on. 2. Check the connection of the stapler/folder motor. 3. Check the connection of the encoder sensor. 4. Check the connection of the stapler switch. 5. Check the connection of the stapler home position sensor. 6. Check the connection of the folder-roller home-position sensor. 7. Replace the stapler/folder motor. 8. Replace the encoder sensor. 9. Replace the stapler switch. 10. Replace the stapler home position sensor. 11. Replace the folder-roller home-position sensor.	B

SC No.	Item	Definition	Possible Cause	Related SCs	Troubleshooting Procedure	Type
SC 747	Booklet finisher lift motor error	• The upper limit sensor detects the regular tray while the lift motor is lifting the regular tray. • The paper height sensor does not turn off within 10 seconds after the lift motor starts to lower the regular tray. • The upper limit sensor does not turn off within 10 seconds after the lift motor starts to lower the regular tray. • The paper height sensor does not turn on within 10 seconds after the lift motor starts to lift the regular tray. • The controller does not receive the signal from the lift motor encoder sensor within 50 milliseconds after the lift motor starts.	• Defective paper height sensor • Loose connection of the paper height sensor • Defective upper limit sensor • Loose connection of the upper limit sensor • Defective lift motor • Loose connection of the lift motor • Incorrect assembling of the lift motor • Defective lift motor encoder sensor • Loose connection of the lift motor encoder sensor		1. Turn the main switch off and on. 2. Check the connection of the paper height sensor. 3. Check the connection of the upper limit sensor. 4. Check the connection of the lift motor encoder sensor. 5. Check the connection of the lift motor. 6. Replace the paper height sensor. 7. Replace the upper limit sensor. 8. Replace the lift motor encoder sensor. 9. Replace the lift motor.	B
SC 748	Booklet finisher backup data error	The CPU tries to write data in the EEPROM three times, but fails to write data.	• Defective EEPROM • EEPROM not installed		1. Turn the main switch off and on. 2. Check that the EEPROM is installed. 3. Replace the EEPROM.	B
SC 749	Booklet finisher punch-unit communication error	A communication-error alarm is not cleared for 3 seconds.	• The finisher controller cannot communicate with the punch-unit controller.		1. Turn the main switch off and on. 2. Check the connection between the finisher controller and the punch-unit controller.	B
SC 750	Booklet finisher punch-unit controller error	The checksum in the backup data is inconsistent.	• Defective EEPROM (on the punch-unit controller) • EEPROM not installed		1. Turn the main switch off and on. 2. Check that the EEPROM is installed. 3. Replace the EEPROM.	B

SC No.	Item	Definition	Possible Cause	Related SCs	Troubleshooting Procedure	Type
SC 751	Booklet finisher punch-unit sensor error 1	The paper edge and size sensors receive the 2.5-volt light or weaker light even when the source emits 4.4-volt light.	• Defective sensors • Dirty sensors		1. Turn the main switch off and on. 2. Clean the sensors. 3. Replace the sensors.	B
SC 752	Booklet finisher punch-unit registration motor error	• The registration motor drives the slide unit to the rear side for 1 second. But the home position sensor does not turn on. • The registration motor drives the slide unit to the front side for 1 second. But the home position sensor does not turn off.	• Incorrect assembly of the registration motor • Loose connection of the registration motor • Defective home position sensor • Loose connection of the home position sensor		1. Turn the main switch off and on. 2. Check the connection of the registration motor. 3. Check the connection of the home position sensor. 4. Replace the home position sensor. 5. Replace the registration motor.	B
SC 753	Booklet finisher punch-unit punch motor error	• The punch motor starts to drive the punch cams. But the controller does not receive the encoder-lock signal for 60 milliseconds. • The punch motor start to drive the punch cams. But the home positions sensor does not turn on for 250 milliseconds.	• Malfunction of the punch motor • Loose connection of the punch motor • Defective home position sensor • Loose connection of the home position sensor • Loose connection of the encoder sensor • Defective encoder sensor		1. Turn the main switch off and on. 2. Check that the connection of the punch motor. 3. Check the connection of the home position sensor. 4. Check the connection of the encoder sensor. 5. Replace the home position sensor. 6. Replace the encoder sensor. 7. Replace the punch motor.	B
SC 754	Booklet finisher punch-unit sensor error 2	The A/D inputs of the sensor are not corrected by varying the D/A outputs.	• Defective sensor • Dirty sensor		1. Turn the main switch off and on. 2. Clean the sensors. 3. Replace the sensors.	B

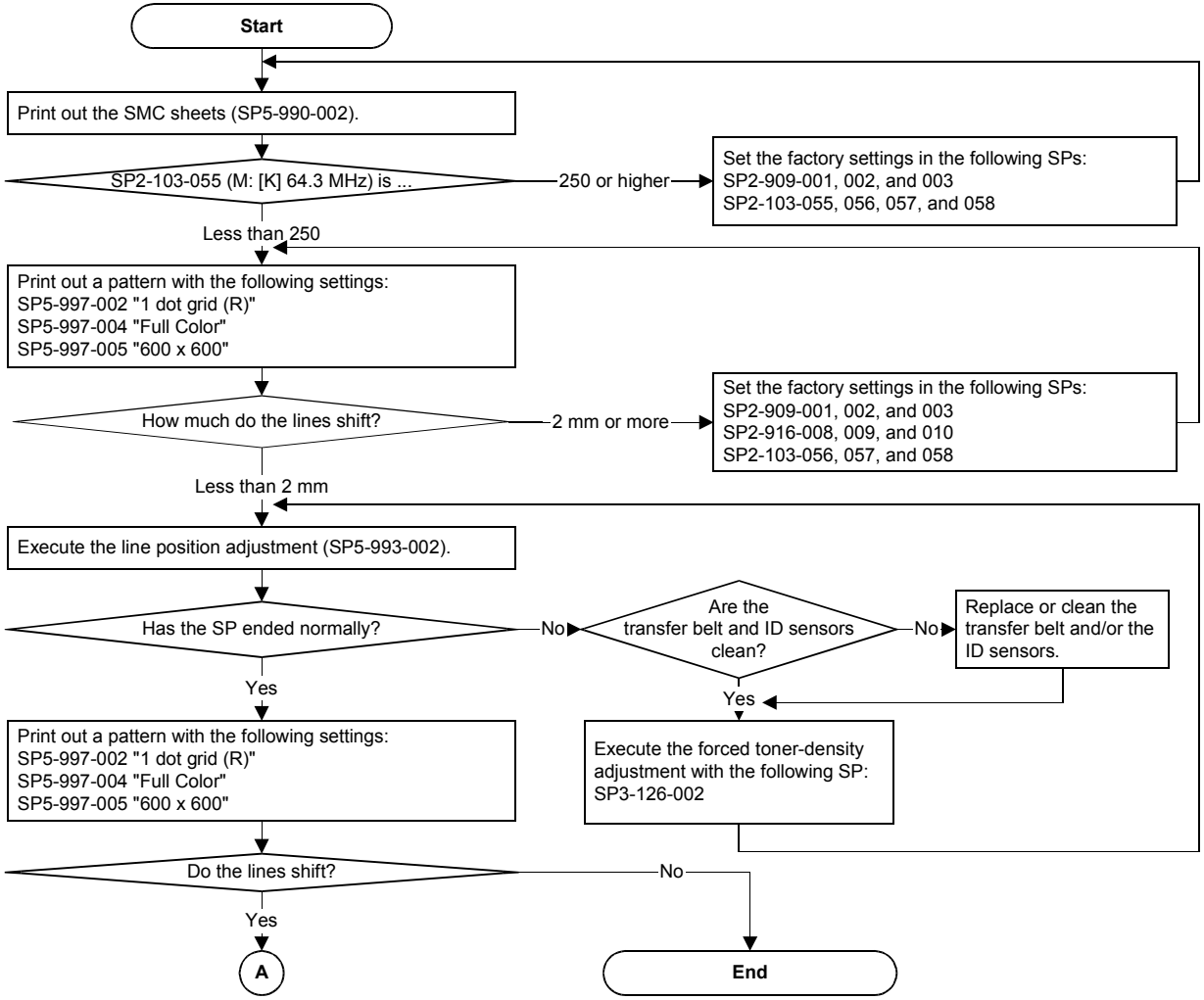
4.4 TROUBLESHOOTING GUIDE

4.4.1 IMAGE QUALITY

The table lists the troubleshooting procedures for some typical problems. For more troubleshooting procedures, see Model J-P2 Service Manual.

Subject	Symptom	Cause	Action
Symptoms related to color			
Color Shift	Color shift level is out of the adjustment standard.	The adjustment standard on this product is 150 μm at the maximum. The color shift level may change depending on a type of paper used.	Check the level of the color shifts reported from user and follow the troubleshooting procedure described in section 4- if necessary.
Color missing	Color(s) is missing on the outputs.	• The position of 3rd mirror moves due to the rough transportation of service part; and then, becomes out of position. • Flat cable(s) is not properly connected to the BCU board.	• When replacing the laser optic housing unit due to any reason, make a color demo page in the UP mode. If color(s) is missing, open the unit and reposition the mirror(s). • Reconnect the flat cable(s) firmly.

4.4.2 COLOR SHIFT



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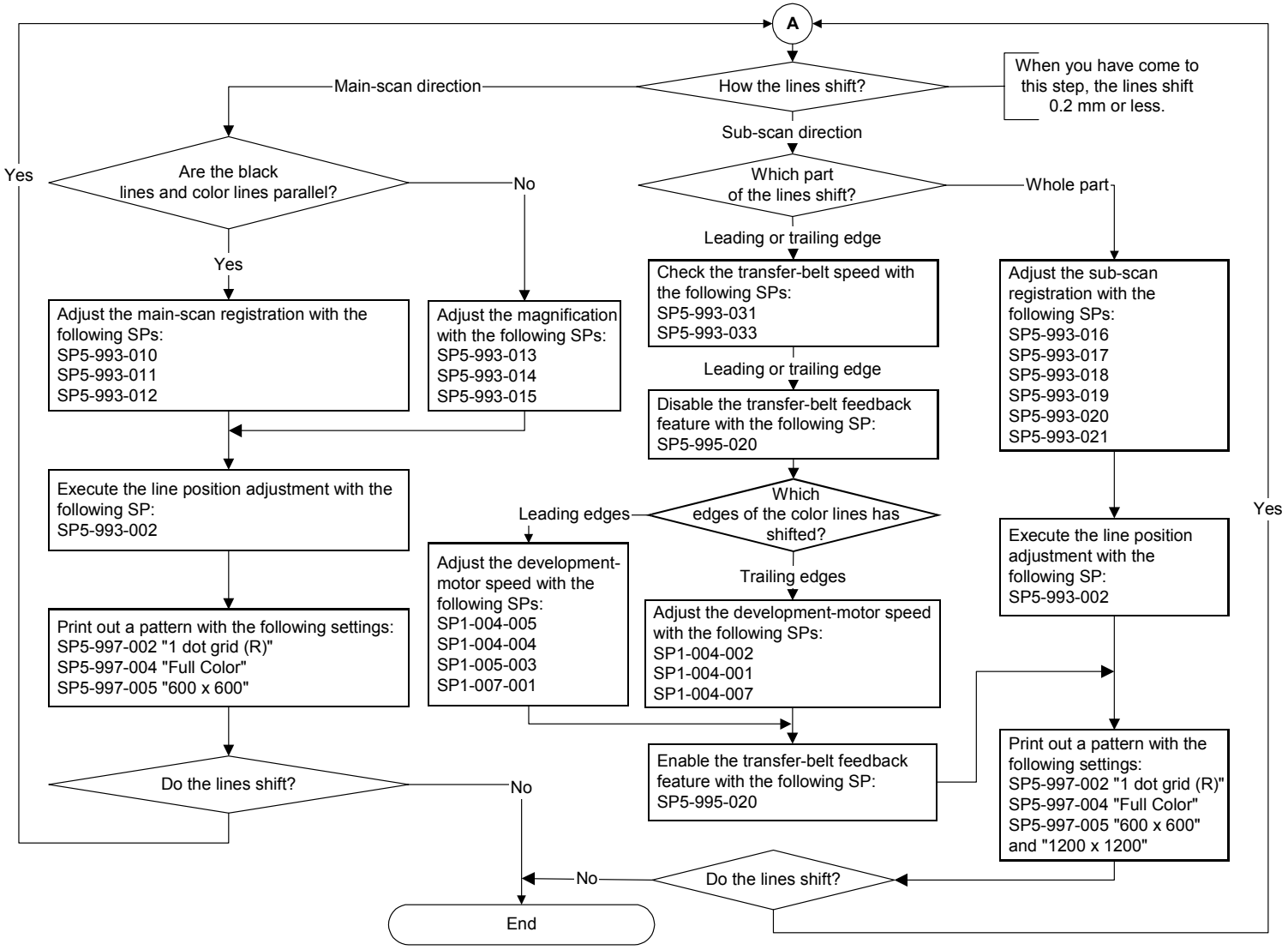
For general information and some typical symptoms, see Model J-P2 Service Manual.



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Adjustment Standard

The amount of color shift must be 150 μm or less. Some service programs (motor speed, registration, and magnification) can decrease the size of color shifts. But, there is a limit.

Preparation

The Line Adjustment (SP5-993-002) cannot correct the color shift if the gap between the color lines is 1.4 mm or greater. In this case, restore the factory settings in the following SPs and do the Line Adjustment. Then, follow the troubleshooting procedure if required.

- Main-scan Registration SP2-909-001 to 004
- Sub-scan Registration SP2-916-001 to 010
- Main-scan Magnification SP2-103-055 to 059

When you see a color shift, try the following procedure before adjusting a component or service program.

1. Print out the SMC sheets (SP5-990-002).
2. Do the Line Adjustment (SP5-993-002 or Menu > Maintenance > Color Regist. > Auto Adjust).
   NOTE: Make sure that the result (SP5-993-007) is "010101." If not, see Model J-P2 Service Manual, section 4.1.3.
3. Print a 1-dot grid pattern using A3/11" x 17" paper. Refer to the following table for the detailed SP mode settings.

Mode	**SP5-997 (Test Pattern) Setting**				
	Tray selection	Pattern	Color mode	Resolution	Paper size (By-pass)
Normal, color, 600 dpi	2	05	Full Color	600x600	—
Normal, color, 1200 dpi	2	05	Full Color	1200x1200	—
Thick paper	0	05	Full Color	1200x1200	A3 / 11x17

NOTE: When making prints on thick paper from the by-pass tray, the type of paper should be selected in the User Program mode. Any adjustment needs to be done by using the type of paper that the customer normally uses.

4. Check the tendency of color shift in the grid pattern printed in step 3. Sometimes, a magnification scope must be used to measure the amount of color shift between colors.
5. Take the required action explained in each section depending on the type of color shift.
6. Do the ‘Auto Adjust’ in the User Program mode after the adjustment is done in step 5, and check the result.
7. Repeat steps 3 to 6 until the color shift is acceptable.

For more on troubleshooting, see Model J-P2 Service Manual.

4.4.3 BLACK OVER PRINT

Black Over Print prevents unexpected white lines from appearing when black letters or lines are printed with color background. You can enable or disable this feature from the printer driver (default: enabled).

Black Over Print has these bad side effects:

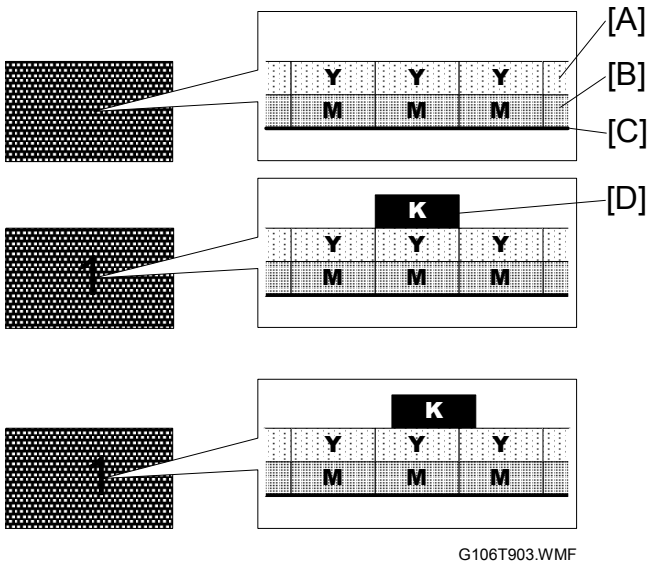
- Crispness may deteriorate because the black toner spreads out.
- More toner is consumed.
- The background color may be seen through black letters or lines.

Black Over Print Enabled

Black lines and color background are printed as follows:

1. The color toner (for example, magenta [B] and yellow [A] toner) is transferred on the paper [C].
2. The black toner [D] is transferred on the color toner.

Even if the line position of the black toner is not correct, an unexpected white line does not appear.

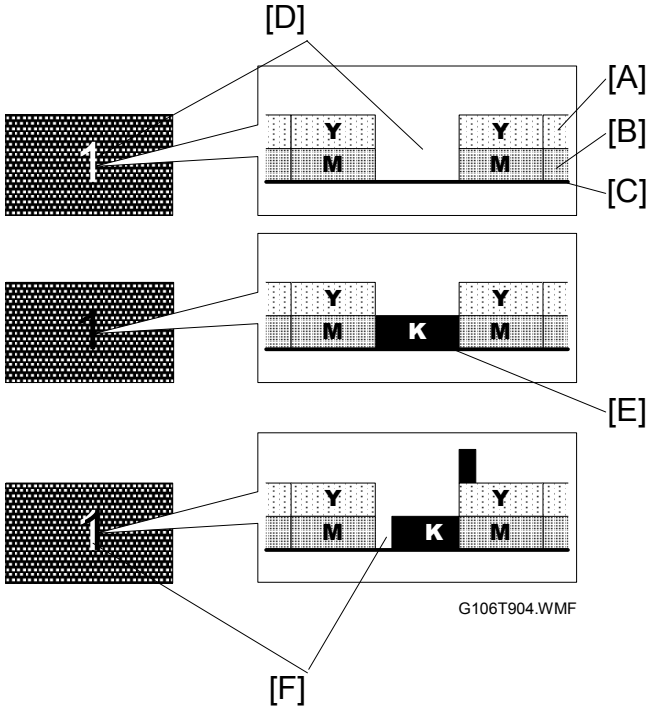


Black Over Print Disabled

Black lines and color background are printed as follows:

1. The color toner (for example, magenta [B] and yellow [A] toner) is transferred on the paper [C]. Some space [D] is left blank for the black toner.
2. The black toner [E] is transferred in the blank space.

If the line position of the black toner is not correct, an unexpected white line [F] appears.



4.5 BLOWN FUSE CONDITIONS

Main PSU

The table lists the fuses on the main power supply unit.

Fuse	Rating		Symptom when turning on the main switch
	115 V	220 - 240 V	
FU1	15A/125V	—	No response (No power is supplied to the electrical components.)
CB1	—	8A/250V	
FU2	10A/125V	5 A/250V	No response (No DC power is supplied to the electrical components.)
FU91	10 A/250 V	10 A/250V	The 24V DC power is not supplied. The message, “Close Front Cover,” is displayed.

Sub PSU

The table lists the fuses on the sub power supply unit.

Fuse	Rating		Symptom when turning on the main switch
	115V	220–240V	
F1	4A/250V	3.15A/250V	The two-tray finisher or booklet finisher is not detected. “Close Duplex Unit Cover” is shown.
F2	8A/250V	8A/250V	The two-tray finisher or booklet finisher is not detected. “Close Duplex Unit Cover” is shown.

BCU

The table lists the fuses on the sub power supply unit.

Fuse	Rating	Symptom when turning on the main switch
FU1	3A/32V	No response
FU2	1A/24V	SC 680 (BCU/ MUSIC communication error: The power is not supplied to the ID chips on the toner bottles, so the toner bottles are not recognized.)
FU3	4A/24V	When you turn on the main power switch, the operation panel displays messages as usual but the characters are not clear. After this, the messages and LEDs turn off.

4.6 LEDS (BCU)

LED	Status	
	Blinking	**Stays OFF or ON**
LED1 (Yellow)	The DSP functions correctly.	The DSP does not function correctly.
LED2 (Green)	The MUSIC CPU functions correctly.	The MUSIC CPU does not function properly.
LED3 (Red)	The main CPU functions correctly.	The main CPU does not function correctly.

5. SERVICE TABLES

5.1 SERVICE PROGRAM MODE

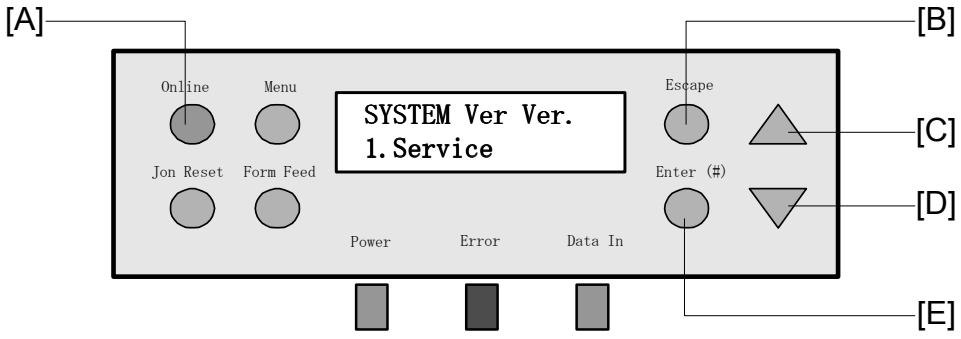
⚠CAUTION

Before you start the service program mode, make sure that the printer is not processing data. The Data In LED lights or blinks when the printer is processing data.

5.1.1 HANDLING SERVICE PROGRAM MODE

⚠IMPORTANT

Do not let the user get access to the service program mode. If a person other than service representatives gets access to the service program mode, the machine quality is not guaranteed.



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Starting SP Mode

Start the service program mode as shown in procedure A or B.

NOTE: The printer goes offline status while the service program mode is used.

A: When the main power switch is off

1. Push the on-line key [A] and the escape key [B] and hold them down.
2. Turn on the main power switch.
3. Hold the keys until the message “SYSTEM ver X.XX” is shown (where X.XX is the firmware version).

B: When the main power switch is on

1. Push the up arrow key [C] and down key [D] together for 5 seconds or more.
2. Push the enter key. The message “SYSTEM ver X.XX” is shown (where X.XX is the firmware version).

Selecting a Service Program

1. Use the up arrow key or the down arrow key to use one of these:
   - 1. Service: Gets access to the Controller Service Mode
   - 2. Engine: Gets access to the Engine Service Mode
   - 3: End: Goes out of the SP Mode
2. Push the enter key [E].
3. Use the up arrow key or the down arrow key to find the necessary service program.
4. Push the enter key.
5. To go back to step 1, push the escape key one or more times.

Changing a Setting

1. Start a service program (☛Selecting a Service Program). The current setting is shown.
2. Push the up arrow key or the down arrow key to input a value.
3. Push the enter key. The setting is changed.

NOTE: The setting does not change if you do not push the enter key.
To enable some settings, you must turn the main power switch off and on (☛Enabling Settings).

Quitting SP Mode

1. Push the escape key one or more times until one of these is shown
   - 1. Service
   - 2. Engine
2. Push the up arrow key or the down arrow key until this is shown:
   - 3: End
3. Push the enter key.

Enabling Settings

To enable the settings shown in this table, you must turn the main power switch off and on after you go out of SP Mode.

SP Modes Related to the Engine	SP Modes Related to the Controller
SP2-208-009	SP5-009-001
SP2-213-001	SP5-961-001
SP2-224-001 to 004	SP5-824-001
SP5-905-007	SP5-825-001
SP5-930-001 to 005	SP5-869
SP5-994-001 and 002	

Line Position Adjustment

If you change the settings of SP5-993-013 to 015, the new settings have an effect on the next line position adjustment.

5.1.2 REMARKS

Abbreviations and Symbols

These are the symbols and abbreviations in the service mode tables. (☛ 5.2.1/5.3.1).

Paper Type

N	Normal paper
TH	Thick paper

Color Mode

[Color]	Full-color mode
[K]	Black in B&W mode
[Y]	Yellow in full-color mode
[M]	Magenta in full-color mode
[C]	Cyan in the full-color mode
[YMC]	Yellow, magenta, and cyan
[FC]	Full-color mode
[FC, K]	Black in the full-color mode
[FC, Y]	Same as [Y]
[FC, M]	Same as [M]
[FC, C]	Same as [C]

Paper Feed Station

P	Paper tray
B	By-pass tray

Fusing Section

H	Heating roller
P	Pressure roller

Print Mode

S	Simplex
D	Duplex

Special Setting

FA	Factory setting (The setting could be adjusted before transportation. See the SMC Report behind the front cover.)
DFU	Design/Factory Use only (Do not change the setting.)

Line Speed

H	185 mm/s: (Not used in this machine.)
M	162 mm/s
L	62.5 mm/s

Storage

*	The setting is stored in the NVRAM (engine) or NVRAM (printer controller). If you clear the RAM, the setting returns to the default.
BCU	The setting is stored in the NVRAM on the BCU board.
CTL	The setting is stored in the NVRAM on the controller board.

Other

#	You must turn the main power switch off and on to enable the setting.

Service Tables

Possible Values

The service mode tables (☛ 5.2.1/5.3.1) show the possible values as follows:

[Adjustable range / Default setting / Step] Alphanumeric

where “Alphanumeric” shows that the setting is displayed by numbers and letters. In this type of example, the letters are not shown in the service mode tables.

Process Speed

Some service programs are related to the line speed and the print speed. The line speed and the print speed change with the print mode (black & white/color), the resolution, and the paper type as shown in the table.

Mode	Resolution (dpi)	Line speed (mm/s)	Print speed (ppm)
B/W	600 x 600 1,200 x 600	162	35
	1,200 x 1,200	62.5	14
Color	600 x 600 1,200 x 600	162	35
	1,200 x 1,200	62.5	14
OHP/Thick	600 x 600 1,200 x 600 1,200 x 1,200	62.5	10

5.2 CONTROLLER SERVICE MODE

5.2.1 SERVICE MODE TABLE

1001	[Bit Switch]		
1001 001	Bit Switch 1	*CTL	Adjusts bit switch settings. **DFU**
1001 002	Bit Switch 2	*CTL	
1001 003	Bit Switch 3	*CTL	
1001 004	Bit Switch 4	*CTL	
1001 005	Bit Switch 5	*CTL	
1001 006	Bit Switch 6	*CTL	
1001 007	Bit Switch 7	*CTL	
1001 008	Bit Switch 8	*CTL	

1003	[Clear Setting]		
1003 001	Init. System		Initializes settings in the System menu of the user mode.
1003 003	Delete Program		**DFU**

1004	[Print Summary]
	Prints the service summary sheet (a summary of all the controller settings).

1005	[Disp. Version]
	Displays the version of the controller firmware.

1101	[ToneCtlSet]		
1101 001	Tone (Factory)	*CTL	Recalls a set of gamma settings. This can be either a) the factory setting, b) the previous setting, or c) the current setting.
1101 002	Tone (Prev.)	*CTL	
1101 003	Tone (Current)	*CTL	

1102	[ToneCtlSet]	*CTL	
	Sets the printing mode (resolution) for the printer gamma adjustment. The asterisk (*) shows which mode is set. • *1200x1200Photo • 600x600Text • 1200x600Text • 600x600Photo • 1200x600Photo		

1103	[PrnColorSheet]		
1103 001	ToneCtlSheet		Prints the test page to check the color balance before and after the gamma adjustment.
1103 002	ColorChart		

1104	[ToneCtlValue]		
	Adjusts the printer gamma for the mode selected in the Mode Selection menu.		
1104 001	Set Black 1	*CTL	[0 to 255 / 16 / 1/step]
1104 021	Set Cyan 1	*CTL	
1104 041	Set Magenta 1	*CTL	
1104 061	Set Yellow 1	*CTL	
1104 002	Set Black 2	*CTL	[0 to 255 / 32 / 1/step]
1104 022	Set Cyan 2	*CTL	
1104 042	Set Magenta 2	*CTL	

1104 062	Set Yellow 2	*CTL	
1104 003	Set Black 3	*CTL	[0 to 255 / 48 / 1/step]
1104 023	Set Cyan 3	*CTL	
1104 043	Set Magenta 3	*CTL	
1104 063	Set Yellow 3	*CTL	
1104 004	Set Black 4	*CTL	[0 to 255 / 64 / 1/step]
1104 024	Set Cyan 4	*CTL	
1104 044	Set Magenta 4	*CTL	
1104 064	Set Yellow 4	*CTL	
1104 005	Set Black 5	*CTL	[0 to 255 / 80 / 1/step]
1104 025	Set Cyan 5	*CTL	
1104 045	Set Magenta 5	*CTL	
1104 065	Set Yellow 5	*CTL	
1104 006	Set Black 6	*CTL	[0 to 255 / 96 / 1/step]
1104 026	Set Cyan 6	*CTL	
1104 046	Set Magenta 6	*CTL	
1104 066	Set Yellow 6	*CTL	
1104 007	Set Black 7	*CTL	[0 to 255 / 112 / 1/step]
1104 027	Set Cyan 7	*CTL	
1104 047	Set Magenta 7	*CTL	
1104 067	Set Yellow 7	*CTL	
1104 008	Set Black 8	*CTL	[0 to 255 / 128 / 1/step]
1104 028	Set Cyan 8	*CTL	
1104 048	Set Magenta 8	*CTL	
1104 068	Set Yellow 8	*CTL	
1104 009	Set Black 9	*CTL	[0 to 255 / 144 / 1/step]
1104 029	Set Cyan 9	*CTL	
1104 049	Set Magenta 9	*CTL	
1104 069	Set Yellow 9	*CTL	
1104 010	Set Black 10	*CTL	[0 to 255 / 160 / 1/step]
1104 030	Set Cyan 10	*CTL	
1104 050	Set Magenta 10	*CTL	
1104 070	Set Yellow 10	*CTL	
1104 011	Set Black 11	*CTL	[0 to 255 / 176 / 1/step]
1104 031	Set Cyan 11	*CTL	
1104 051	Set Magenta 11	*CTL	
1104 071	Set Yellow 11	*CTL	
1104 012	Set Black 12	*CTL	[0 to 255 / 192 / 1/step]
1104 032	Set Cyan 12	*CTL	
1104 052	Set Magenta 12	*CTL	
1104 072	Set Yellow 12	*CTL	
1104 013	Set Black 13	*CTL	[0 to 255 / 208 / 1/step]
1104 033	Set Cyan 13	*CTL	
1104 053	Set Magenta 13	*CTL	
1104 073	Set Yellow 13	*CTL	
1104 014	Set Black 14	*CTL	[0 to 255 / 224 / 1/step]
1104 034	Set Cyan 14	*CTL	
1104 054	Set Magenta 14	*CTL	
1104 074	Set Yellow 14	*CTL	
1104 015	Set Black 15	*CTL	[0 to 255 / 240 / 1/step]
1104 035	Set Cyan 15	*CTL	
1104 055	Set Magenta 15	*CTL	
1104 075	Set Yellow 15	*CTL	

1105	[ToneCtlSave]
	Saves the print gamma (adjusted with the Gamma Adj.) as the new Current Setting. Before the machine stores the new "current setting", it moves the data stored as the "current setting" to the "previous setting" memory-storage location.

1106	[Toner Limit]		
	Adjusts the maximum toner amount for image development.		
1106 001	TonerLimitPhot	*CTL	[100 to 400 / 260 / 1 %/step]
1106 002	TonerLimitText	*CTL	[100 to 400 / 190 / 1 %/step]

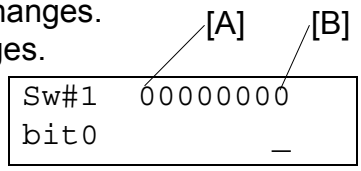
1107	[FactoryTestPrt]
	Prints the test page to check the color balance before transportation (600 x 600 2 bit). **DFU**

5.2.2 BIT SWITCH PROGRAMMING

Do not change the bit switches unless you are told to do this by the manufacturer.

1. Start the SP mode. The "Service" menu is shown.
2. Press the enter key two times.
3. To select a bit switch, press the up arrow key or the down arrow key.
4. Push the enter key.
5. Set the value with these keys:
   - [▲] [▼]: Moves the cursor to one of the adjacent bits.
   - [Escape]: Goes out of the program without saving changes.
   - [Enter]: Goes out of the program and saves changes.

   NOTE: The digit at the left [A] is bit 7 and the digit at the right [B] is bit 0.



6. Push the escape key one or more times until the menu "Service" is shown.
7. Select "End" and push the enter key.

5.3 ENGINE SERVICE MODE

5.3.1 SERVICE MODE TABLE

SP1-XXX (Feed)

1001	**[Lead Edge Reg.]** Leading Edge Registration (Paper Type, [Color], Process Speed), Paper Type -> N: Normal, OHP, TH: Thick		
1001 001	N [K]: L	*BCU	Adjusts the leading edge registration. This SP changes the registration clutch operation timing. [-10.0 to 10.0 / 0.0 / 0.1 mm/step] **FA**
1001 002	N [K]: M	*BCU	
1001 003	N [K]: H	*BCU	
1001 004	N [FC]: L	*BCU	
1001 005	N [FC]: M	*BCU	
1001 006	TH [K]	*BCU	
1001 007	TH [FC]	*BCU	
1001 008	OHP [K]	*BCU	
1001 009	OHP [FC]	*BCU	

1002	**[S-to-S Reg.]** Side-to-Side Registration		
1002 001	By-pass Table	*BCU	Adjusts the side-to-side registration. This SP changes the laser main scan start position. [-10.0 to 10.0 / 0.0 / 0.1 mm/step] **FA**
1002 002	Paper Tray 1	*BCU	
1002 003	Paper Tray 2	*BCU	
1002 004	Paper Tray 3	*BCU	
1002 005	Paper Tray 4	*BCU	
1002 006	Duplex	*BCU	

1003	**[Paper Buckle]** Paper Buckle (**P**aper Tray or **B**y-pass, Paper Type, Process Speed), Paper Type: N: Normal, TH: Thick		
1003 001	P: L	*BCU	Adjusts the amount of paper buckle at the registration roller. This SP changes the paper feed timing. [-10 to 10 / 0 / 1 mm/step]
1003 002	P: M	*BCU	
1003 003	P: H	*BCU	
1003 004	B N: L	*BCU	
1003 005	B N: M	*BCU	
1003 006	B N: H	*BCU	
1003 007	B TH	*BCU	
1003 008	B OHP	*BCU	

1004	**[Dev. Mt Speed]** Development Drive Motor Speed ([Color], Process Speed, Paper Type), Paper Type -> N: Normal, TH: Thick		
	Adjusts the development drive motor speed for correcting color shifts at the leading edge or trailing edge area. Black Motor [K]: Adjusts fusing roller speed for the trailing edge area. Color Motor [YMC]: Adjusts registration roller speed for the leading edge area. **NOTE:** • SP1-004-002 and 005 is for color mode. Fine adjustment for B&W mode can be done with SP1-005-001 and 002. • SP1-004-004 is for normal paper. Fine adjustment for thick paper can be done with SP1-005-003.		
1004 001	[K]: L: N	*BCU	[96.0 to 104.0 / 100.0 / 0.1 %/step]
1004 002	[K]: M	*BCU	

1004 003	[K]: H	*BCU	
1004 004	[YMC]: L	*BCU	[96.00 to 104.00 / 100.00 / 0.05 %/step]
1004 005	[YMC]: M	*BCU	
1004 006	[YMC]: H	*BCU	
1004 007	[K]: L: TH	*BCU	[96.0 to 104.0 / 100.0 / 0.1 %/step]

1005	**[Dev. Mt Speed2]** Development Drive Motor Speed 2 ([Color], Process Speed, Paper Type), Paper Type -> TH: Thick		
1005 001	[K]	*BCU	[-0.2 to +1.0 / +0.2 / 0.1 %/step]
	Adjusts the black development drive motor speed for the B&W 162mm/s process speed. The value stored in this SP mode is different from SP1-004-002 (see the note for SP 1-004). Black development motor speed for B/W at 162 mm/s = Black development motor speed for B/W at 162 mm/s (1-004-002) + 1-005-001. At the 162mm/s process speed, the transfer unit position for B&W is different than for color mode. The transfer unit position affects the paper transport quality, causing the paper to flip up at the fusing section if the same speed as color mode is used for B&W mode. To minimize the occurrence of paper flipping up, which causes smeared images in the trailing area, this SP mode can change the motor speed in B&W mode.		
1005 002	[YMC]	*BCU	[-1.00 to 1.00 / 0 / 0.05 %/step] **FA**
	Adjusts the color development drive motor speed for the B&W 162mm/s process speed. The value stored in this SP mode is different from SP1-004-005 (see the note for SP 1-004). YMC development motor speed for B/W at 162 mm/s = YMC development motor speed for B/W at 162 mm/s (1-004-005) + 1-005-002 At the 162mm/s process speed, the transfer unit position for B&W is different than for color mode. The transfer unit position affects the paper transport speed slightly. This SP mode can adjust the motor speed for B&W mode.		
1005 003	[YMC] TH	*BCU	[-0.30 to 0.30 / 0 / 0.05 %/step]
	Adjust the color development drive motor speed for thick paper in by-pass mode. The value stored in this SP mode is different from SP1-004-004 (see the note for SP 1-004). Normal and thick paper are different types of paper, and this sometime causes color shift due to paper slippage. This SP mode can change the motor speed for thick paper.		

1006	**[Dev. Mt Speed3]** Development Drive Motor Speed 3 ([Color], Process Speed, Paper Type), Paper Type -> SP: Special		
	Adjusts the development motor speed for special paper.		
1006 001	[K]: L: SP	*BCU	[-4.0 to 4.0 / 0 / 0.1 %/step]
1006 002	[K]: M: SP	*BCU	
1006 003	[YMC]: L: SP	*BCU	[-0.4 to 0.4 / -0.1 / 0.05 %/step]
1006 004	[YMC]: M: SP	*BCU	

1007	**[Dev. Mt Speed4]** Development Drive Motor Speed 4		
1007 001	[CL]: Mail TH	*BCU	[-1.00 to 0.00 / -0.40 / 0.05%/step]
	Adjusts the development motor speed for postcards.		
1007 002	[CL]: L: B/W TH	*BCU	[-0.40 to 0.40 / 0.00 / 0.05/step]
	Adjusts the registration line speed for the B&W mode for thick paper. The line speed is calculated as follows: Line speed = SP1-004-004 + SP1-005-003 + SP1-007-002		

1008	**[Drum STM Speed]** Drum STM Speed Adjustment		
	Adjusts the drum speed. This SP does not change the transfer belt speed.		
1008 001	[CL]: L	*BCU	[0 to 10/ 7 / 1 /step] **DFU**
1008 002	[CL]: M	*BCU	[0 to 10/ 6 / 1 /step] **DFU**
1008 003	[Bk]: M	*BCU	[0 to 10/ 5 / 1 /step] **DFU**
1008 004	[Bk]: M	*BCU	[0 to 10/ 5 / 1 /step] **DFU**
1008 005	OHP	*BCU	[0 to 10/ 4 / 1 /step] **DFU**
1008 006	MUSIC	*BCU	[0 to 10/ 2 / 1 /step] **DFU**
1008 007	[Bk]: L: TH	*BCU	[0 to 10/ 5 / 1 /step] **DFU**

1104	**[Fusing Cont.]** Fusing Control		
1104 001	Control Method	*BCU	[0 or 1 / 0 / -] Alphanumeric
	Selects the fusing control method. 0: ON/OFF Control 1: Phase Control **NOTE:** This mode can be used only for N. America models.		
1104 025	Process Speed	*BCU	Selects the default target fusing temperature. When you turn on the main power switch, the fusing temperature is set to this temperature. The target fusing temperature depends on the process speed. Select one of the following processes: • Color: Middle Speed • Color: Low Speed • Black and White: High Speed • Black and White: Middle Speed • OHP, Thick Paper

1105	**[Fusing Temp.]** Fusing Temperature (**H**eating or **P**ressure roller: Paper Type, [Color], **S**implex/**D**uplex, Process Speed) Paper Type -> N: Normal, OHP. TH: Thick, SP: Special Some settings of fusing temperature depend on the destination (US or Europe/Asia). US: Setting for US, EU: Setting for Europe/Asia		
1105 001	H: Ready	*BCU	[10 to 100 / 10 / 1°C/step]
	Sets the heating roller temperature for the printing ready condition. After the main switch has been turned on, the machine enters the print ready condition when the heating roller temperature reaches the temperature specified in this SP mode. When the machine is in the recovery mode from the energy saver or auto off mode, the machine becomes ready when both heating and pressure roller temperatures reach the specified temperature. Ready temperature = (Target temperature specified in SP1-104-25 or 105-3 to 28) – Temperature specified in this SP mode.		
1105 002	P: Ready	*BCU	[10 to 100 / 10 / 1°C/step]
	Sets the pressure roller temperature for the printing ready condition. Ready temperature = (Target temperature specified in SP1-104-25 or 105-3 to 28) – Temperature specified in this SP mode		
The following SPs set the target temperatures of the heating and pressure rollers. (NA: North America, EU: Europe and Asia, L: Low speed [62.5 mm/s], M: Middle speed [162 mm/s], H: High speed (Not used in this machine)			
1105 004	H: N [K] S: M	*BCU	[100 to 190 / 185 / 5°C/step]
1105 006	H: N [K] D: M	*BCU	[100 to 190 / 180 / 5°C/step]
1105 008	H: N[FC] S: L	*BCU	[100 to 190 / 145 / 5°C/step]

1105 009	H: N[FC] S: M	*BCU	[100 to 190 / 185 / 5°C/step]
1105 010	H: N[FC] D: L	*BCU	[100 to 190 / 140 / 5°C/step]
1105 011	H: N[FC] D: M	*BCU	[100 to 190 / 180 / 5°C/step]
1105 013	H: OHP	*BCU	[100 to 190 / 160 / 5°C/step]
1105 015	P: N [K] S: M	*BCU	[0 to 190 / 160 / 5°C/step]
1105 017	P: N [K] D: M	*BCU	[0 to 190 / 155 / 5°C/step]
1105 019	P: N[FC] S: L	*BCU	[0 to 190 / 125 / 5°C/step]
1105 020	P: N[FC] S: M	*BCU	[0 to 190 / 160 / 5°C/step]
1105 021	P: N[FC] D: L	*BCU	[0 to 190 / 120 / 5°C/step]
1105 022	P: N[FC] D: M	*BCU	[0 to 190 / 155 / 5°C/step]
1105 024	P: OHP	*BCU	[0 to 190 / 145 / 5°C/step]
1105 026	H: TH	*BCU	[0 to 190 / 170 / 5°C/step]
1105 028	P: TH	*BCU	[0 to 190 / 150 / 5°C/step]
1105 029	H: Envelop	*BCU	[0 to 190 / 170 / 5°C/step]
1105 030	P: Envelop	*BCU	[0 to 190 / 150 / 5°C/step]
1105 031	H: Offset Temp	*BCU	[1 to 20 / 5 / 1°C/step]
	Sets the heating roller temperature for the printing start condition when changing the process speed. Fusing temperature must be decreased when the machine changes to a process speed that is slower than the current process speed (for example, when the speed changes from 162 mm/s to 62.5 mm/s). The machine idles while reducing the fusing temperature. When the fusing temperature becomes lower than the ready temperature, the machine starts printing. Ready Temperature = Target temperature + Temperature specified in this SP mode.		
1105 032	P: Offset Temp	*BCU	[1 to 20 / 10 / 1°C/step]
	Sets the pressure roller temperature for the printing start condition when changing the process speed.		
1105 033	H: SP: L	*BCU	[-20 to +30 / -10 / 1°C/step]
1105 034	H: SP: M	*BCU	[-20 to +30 / -10 / 1°C/step]
1105 035	H: SP: H	*BCU	[-20 to +30 / +10 / 1°C/step]
1105 036	P: SP: L	*BCU	[-20 to +30 / -10 / 1°C/step]
1105 037	P: SP: M	*BCU	[-20 to +30 / -10 / 1°C/step]
1105 038	P: SP: H	*BCU	[-20 to +30 / +20 / 1°C/step]
1105 051	H: N [K] S: L	*BCU	[100 to 190 / 145 / 5°C/step]
1105 052	H: N [K] D: L	*BCU	[100 to 190 / 140 / 5°C/step]
1105 053	P: N [K] S: L	*BCU	[100 to 190 / 125 / 5°C/step]
1105 054	P: N [K] D: L	*BCU	[100 to 190 / 120 / 5°C/step]

1106	**[Temp. Display]** Fusing Temperature Display (**H**eating or **P**ressure)		
	Displays the current temperature of the heating and pressure rollers.		
1106 001	H Roller		[0 to 200 / - / 1°C/step]
1106 002	P Roller		

1902	**[Paper Size]** Tray Paper Size		
1902 001	Tray 1 A4/LT	*BCU	[0 or 1 / 0 / -] Alphanumeric 0: A4 sideways, 1: LT sideways
	Specifies the paper size for tray 1. Tray 1 can only use these two sizes. US: 1 **FA**		
1902 002	Tray 2 B4/LG	*BCU	[0 or 1 / 0 / -] Alphanumeric 0: B4 lengthwise, 1: LG lengthwise
	Specifies the paper size for tray 2. This specifies which size is detected for a sensor output of 1101 (see section 6 for details). US: 1 **FA**		

1902 003	Tray 2 A4/LT	*BCU	[0 or 1 / 0 / -] Alphanumeric 0: A4 lengthwise, 1: LT lengthwise
	Specifies the paper size for tray 2. This specifies which size is detected for a sensor output of 0110 (see section 6 for details). US: 1 **FA**		
1902 004	Tray 2 B5/LT	*BCU	[0 or 1 / 0 / -] Alphanumeric 0: LT, 1: B5 lengthwise
	Specifies the paper size for tray 2. This specifies which size is detected for a sensor output of 1011 (see section 6 for details).		
1902 005	Fix Size	*BCU	[0 or 1 / 0 / -] Alphanumeric 0: OFF, 1: ON
	• ON: The by-pass tray automatically detects the paper size and its orientation. The process speed is decreased to 1/2. • OFF: The by-pass tray does not detect the paper size. The process speed stays at the normal speed.		

1910	**[Idling Time]** (Fusing Idling Time)	*BCU	[0 to 180 / 1 / 1 minute/step] **DFU**
	Specifies the timer for deciding whether to do fusing idling when receiving a print command. When receiving a new job within the time specified in this SP mode after the last job is completed, fusing idling is not done because the fusing section was already warmed up during the last job.		

1912	**[Machine Temp.]** Machine Temperature Correction Th: Threshold, **H**eating or **P**ressure roller		
	Corrects the fusing temperature depending on the temperature inside the machine. If the temperature inside the machine is too high or low, this may cause hot or cold offset image at the fusing section. To avoid the offset image, the fusing temperature is corrected depending on the temperature inside machine, which is monitored by the thermistor located on the right side of the laser optics housing unit. If the temperature inside the machine is detected as high or low (based on the settings of SP1-912-001 or 002), the fusing temperature is decreased or increased by the temperature specified in SP1-912-003 to 006.		
1912 001	Th:High Temp	*BCU	[0 to 50 / 30 / 1°C/step]
	Sets the threshold for entering the high temperature condition.		
1912 002	Th:Low Temp	*BCU	[0 to 50 / 17 / 1°C/step]
	Sets the threshold for entering the low temperature condition.		
1912 003	H: High Temp	*BCU	[0 to 15 / 0 / 1°C/step]
	Sets the fusing temperature decrease for the high temperature condition.		
1912 004	P: High Temp	*BCU	[0 to 15 / 0 / 1°C/step]
1912 005	H: Low Temp	*BCU	[0 to 15 / 5 / 1°C/step]
	Sets the fusing temperature increase for the low temperature condition.		
1912 006	P: Low Temp	*BCU	[0 to 15 / 5 / 1°C/step]

1913	**[Temp. Cor. 1]** Fusing Temperature Correction (Correction Timing)		
	Specifies the number of sheets to determine whether or not to apply the fusing temperature correction. During a multi print job, the fusing temperature tends to slightly overshoot around the 10th sheet and then stabilize. Temperature overshooting may cause the glossiness to increase. To minimize the overshooting, both fusing and pressure roller temperatures are decreased by the amount specified in SP1-914 at the number of sheets specified in this SP mode, until the end of the job. The temperatures are decreased in two steps. Example: 162 mm/s line speed First step (also called 'Mode 1'): After 5 sheets (SP 1-913-2), temperature drops by 5°C (SP 1-914-2). Second step (also called 'Mode 2'): After 20 sheets (SP 1-913-7), temperature drops by 10°C (SP 1-914-7). Narrow: LT/A4 SEF width or less Wide: Wider than LT/A4 SEF		
1912 001	Mode 1: H	*BCU	[1 to 255 / 5 / 1 sheet/step]
1912 002	Mode 1: M	*BCU	
1912 003	Mode 1: L	*BCU	
1912 004	Mode 1 OHP narrow	*BCU	
1912 005	Mode 1: H: wide	*BCU	[1 to 255 / 10 / 1 sheet/step]
1912 006	Mode 2: H	*BCU	[1 to 255 / 20 / 1 sheet/step]
1912 007	Mode 2: M	*BCU	[1 to 255 / 20 / 1 sheet/step]
1912 008	Mode 2: L	*BCU	[1 to 255 / 20 / 1 sheet/step]
1912 009	Mode 2: H: narrow	*BCU	[1 to 255 / 10 / 1 sheet/step]
1912 010	Mode 2: H: wide	*BCU	[1 to 255 / 20 / 1 sheet/step]

1914	**[Temp. Cor. 2]** Fusing Temperature Correction (Temperature Setting)		
	Specifies the temperature to be subtracted from the target temperatures specified in SP1-105-4 to-24. Narrow: LT/A4 SEF width or less Wide: Wider than LT/A4 SEF		
1914 001	Temp 1:H	*BCU	[0 to 20 / 0 / 5°C /step]
1914 002	Temp 1:M	*BCU	[0 to 20 / 5 / 5°C /step]
1914 003	Temp 1:L	*BCU	[0 to 20 / 0 / 5°C /step]
1914 004	Temp 1 OHP narrow	*BCU	[0 to 20 / 5 / 5°C /step]
1914 005	Temp 1 OHP wide	*BCU	[0 to 20 / 5 / 5°C /step]
1914 006	Temp 2:H	*BCU	[0 to 20 / 10 / 5°C /step]
1914 007	Temp 2:M	*BCU	[0 to 20 / 10 / 5°C /step]
1914 008	Temp 2:L	*BCU	[0 to 20 / 10 / 5°C /step]
1914 009	Temp 2 OHP narrow	*BCU	[0 to 20 / 5 / 5°C /step]
1914 010	Temp 2 OHP wide	*BCU	[0 to 20 / 5 / 5°C /step]

1915	**[Stand-by Time]**		
1915 001	Job Receiving	*BCU	[0 to 180 / 60 / 10 seconds/step] 0: The machine does not shift to the stand-by mode.
	Specifies the time to shift the machine into the stand-by mode when not receiving a print start command after receiving a print preparation command.		
1915 002	Job End	*BCU	[0 to 180 / 30 / 10 seconds/step] 0: The machine does not shift to the stand-by mode.
	Specifies the time to shift the machine into the stand-by mode after the last job is completed.		

1916	[Idling Mode]		
1916 001	Mode Set	*BCU	[0 to 1 / 0 / 1 /step] 0: Off, 1: On
	Executes the extra idling operation after the fusing unit becomes ready just after the main switch has been turned on.		
1916 002	Idling Time	*BCU	[10 to 120 / 30 / 10 sec/step]
	Specifies how long the extra idling operation is executed.		
1916 003	PreJob Mode	*BCU	[0 to 2 / 0 / 1 /step] 0: Off 1: When a job gets to the printer 2: When a job gets to the printer and the machine's internal temperature is less than the temperature set with SP1-912-002 (default: 17ºC).
	Executes the extra idling operation after the fusing unit becomes ready when a print job arrives at the printer.		
1916 004	Idling Time SP: H	*BCU	[0 to 360 / 0 / 1 sec/step] **DFU**
	Specifies how long the extra idling operation is executed when special paper is used and the line speed is 185 mm/s.		

1996	**[OHP/TH Fusing]** OHP/Thick Paper Fusing Temperature Correction (**H**eating or **P**ressure Roller)		
	Specifies the temperature for starting a print job. The fusing section is already warmed up when the last print job was completed. If prints are made on OHP or thick paper at this time, the fusing temperature tends to be higher than the target, causing exit roller marks or a paper jam in the fusing section. To prevent this, the print job will not start if the heating and pressure roller temperatures are higher than the following: (Target temperature specified by SP1-105-12, -13, -23, -24) - (Temperature specified by this SP mode (default: 5°C for heating roller, 10°C for pressure roller))		
1996 004	H:Print Temp	*BCU	[0 to 20 / 0 / 1°C /step]
1996 005	P: Print Temp	*BCU	[0 to 20 / 0 / 1°C /step]
1996 006	PreJob Mode	*BCU	[0 to 1 / 0 / 1 /step] 0: Off, 1: On
	This SP enables or disables the 30-second fusing unit idling at the start of an OHP print job. When enabled, idling is done even if the machine is in the ready condition.		

SP2-XXX (Drum)

2001	**[Charge Bias]** Charge Roller Bias (**DC** or **AC** component: [Color], Process Speed) U: Upper, L: Lower		
Adjusts the DC component of the charge roller bias in the various print modes. Charge bias (DC component) is automatically adjusted during process control; therefore, adjusting these settings does not effect while process control mode (SP3-125 Default: ON) is activated. When deactivating process control mode with SP3-125, the values in these SP modes are used for printing.			
2001 001	DC: [K]	*BCU	[300 to 1000 / 700 / 10 volts/step] **DFU**
2001 002	DC: [Y]	*BCU	
2001 003	DC: [M]	*BCU	
2001 004	DC: [C]	*BCU	
• Displays the AC component of the charge roller bias adjusted during machine initialization or process control self-check. • Sets AC bias in the various print modes for test purposes. If the optimum AC bias cannot be selected because of the settings of SP2-001-014 through 017, this may cause white spots on images and black spots on background. (In particular, spots may appear if the room temperature is very low.) Check the printouts after changing the AC bias with these SP modes (SP2-001-005 through 013) and exiting SP mode. If increasing or decreasing the AC bias for relevant color solves the spot problem, shift the AC target (SP2-001-014 through 017) by the value increased or decreased during the test.			
2001 005	AC: [K]: L	*BCU	[0 to 255 / 40 / 1/step] **DFU**
2001 006	AC: [K]: M	*BCU	[0 to 255 / 159 / 1/step] **DFU**
2001 007	AC: [K]: H	*BCU	[0 to 255 / 159 / 1/step] **DFU**
2001 008	AC: [Y]: L	*BCU	[0 to 255 / 40 / 1/step] **DFU**
2001 009	AC: [Y]: M	*BCU	[0 to 255 / 159 / 1/step] **DFU**
2001 010	AC: [M]: L	*BCU	[0 to 255 / 40 / 1/step] **DFU**
2001 011	AC: [M]: M	*BCU	[0 to 255 / 159 / 1/step] **DFU**
2001 012	AC: [C]: L	*BCU	[0 to 255 / 40 / 1/step] **DFU**
2001 013	AC: [C]: M	*BCU	[0 to 255 / 159 / 1/step] **DFU**
2001 014	AC Target [K]	*BCU	[0 to 255 / 134 / 1/step] **DFU**
	Sets the upper limit of the AC component adjustable range for black. During machine initialization and process control self-check, the AC component of the charge roller bias is automatically adjusted within the range specified by SP2-001-014 through 017.		
2001 015	AC Target [Y]	*BCU	[0 to 255 / 129 / 1/step] **DFU**
2001 016	AC Target [M]	*BCU	[0 to 255 / 134 / 1/step] **DFU**
2001 017	AC Target [C]	*BCU	[0 to 255 / 129 / 1/step] **DFU**

2103	**[LD Control]** LD Power Control ([Color Mode, Color], Process Speed, **K** or **C**olor mode) P: Power, M: Magnification		
	Adjusts the laser power by changing the current applied to LD. Laser power is automatically adjusted during process control; therefore, adjusting these data has no effect while Process Control (SP3-125 Default : ON) is activated. After deactivating Process Control with SP3-125, the values in these SP modes are used for printing.		
2103 001	P: [K] 62.5 C	*BCU	[0 to 1023 / 576 / 1/step] **DFU**
2103 002	P: [K] 125 C	*BCU	[0 to 1023 / 640 / 1/step] **DFU**
2103 004	P: [Y] 62.5 C	*BCU	[0 to 1023 / 576 / 1/step] **DFU**
2103 005	P: [Y] 125 C	*BCU	[0 to 1023 / 640 / 1/step] **DFU**
2103 007	P: [M] 62.5 C	*BCU	[0 to 1023 / 576 / 1/step] **DFU**
2103 008	P: [M] 125 C	*BCU	[0 to 1023 / 640 / 1/step] **DFU**
2103 010	P: [C] 62.5 C	*BCU	[0 to 1023 / 576 / 1/step] **DFU**
2103 011	P: [C] 125 C	*BCU	[0 to 1023 / 640 / 1/step] **DFU**

2103 013	P: [K] 62.5 K	*BCU	[0 to 1023 / 576 / 1/step] **DFU**
2103 014	P: [K] 125 K	*BCU	[0 to 1023 / 576 / 1/step] **DFU**
2103 015	P: [K] 185 K	*BCU	[0 to 1023 / 601 / 1/step] **DFU**
2103 025	P: [0 1] 125 K	*BCU	[0 to 1023 / 672 / 1/step] **DFU**
2103 026	P: [0 1] 125 K	*BCU	[0 to 1023 / 576 / 1/step] **DFU**
2103 027	P: [0 1] 185 K	*BCU	[0 to 1023 / 601 / 1/step] **DFU**
	Main Scan Magnification ([Color], Laser Exposure Frequency)		
2103 055	M: [K] 64.3MHz	*BCU	Displays the result of the latest line position adjustment. Changing this affects the main scan magnification; however, this will be automatically corrected at the next line position adjustment. If a fine adjustment is required, it can be done with SP5-993-013 to 015 (this affects the way that the adjustment is done, and will be effective from the next line position adjustment). [0 to 280 / 140 / 1 dot/step] 1 dot = 20μ **DFU** **NOTE:** If the line position adjustment does not work properly, the line position can be adjusted manually with this SP mode as a temporary measure. In this case, the line position adjustment needs to be disabled with SP5-993-001.
2103 056	M: [Y] 64.3MHz	*BCU	
2103 057	M: [M] 64.3MHz	*BCU	
2103 058	M: [C] 64.3MHz	*BCU	
2103 059	M: [K] 41.7MHz	*BCU	
2103 060	M: [Y] 41.7MHz	*BCU	[0 to 280 / 140 / 1/step] **DFU**
2103 061	M: [M] 41.7MHz	*BCU	[0 to 280 / 140 / 1/step] **DFU**
2103 062	M: [C] 41.7MHz	*BCU	[0 to 280 / 140 / 1/step] **DFU**
2103 101	CF: Bk: B/W: 1	*BCU	[0 to 1023 / 604 / 1/step] **DFU**
2103 102	CF: Bk: B/W: 2	*BCU	[0 to 1023 / 604 / 1/step] **DFU**
2103 103	CF: Bk: CL	*BCU	[0 to 1023 / 720 / 1/step] **DFU**
2103 104	CF: Y: CL	*BCU	[0 to 1023 / 720 / 1/step] **DFU**
2103 105	CF: M: CL	*BCU	[0 to 1023 / 720 / 1/step] **DFU**
2103 106	CF: C: CL	*BCU	[0 to 1023 / 720 / 1/step] **DFU**
2103 107	CF: Bk: OHP/Th	*BCU	[0 to 1023 / 590 / 1/step] **DFU**
2103 108	CF: Y: OHP/Th	*BCU	[0 to 1023 / 590 / 1/step] **DFU**
2103 109	CF: M: OHP/Th	*BCU	[0 to 1023 / 590 / 1/step] **DFU**
2103 110	CF: C: OHP/Th	*BCU	[0 to 1023 / 590 / 1/step] **DFU**

2109	**[LD Beam Pitch]** LD Beam Pitch **Not used**		
	Sets the beam pitch for black in 1200 dpi or 600 dpi mode. **NOTE:** After replacing the laser optics housing unit, the data printed on the decal attached to the new unit must be input with this SP mode.		
2109 002	Pitch 1200	*BCU	[0 to 255 / 50 / 1 pulse/step] **FA**
2109 003	Pitch 600	*BCU	[0 to 255 / 42 / 1 pulse/step] **FA**
2109 005	Display 1200		[0 to 255 / 50 / 1 pulse/step]
2109 006	Display 600		[0 to 255 / 42 / 1 pulse/step]

2112	**[Polygon OFF 1]** Polygon Mirror Motor OFF Timing		
2112 001	Warming-up	*BCU	[0 to 60 / 10 / 1 second/step] 0: Not turned off except for Energy Saver mode
	The polygon mirror motor turns off if the machine receives no print start command for the time specified in this SP mode after receiving the print preparation command.		

2112 002	Job End	*BCU	[0 to 60 / 10 / 1 second/step] 0: Not turned off except for Energy Saver mode
	The polygon mirror motor turns off if the machine receives no print job for the time specified in this SP mode after the previous job was completed.		

2113	**[Polygon OFF 2]** Polygon Mirror Motor OFF		[0 or 1 / 0 / 1 /step] 0: Enable, 1: Disable
	The polygon mirror motor does not turn on until the printer enters the ready condition even after receiving the print start command. **NOTE:** When a user complains about high frequency noise, enabling this mode can minimize the noise.		

2201	**[Dev. Bias]** Development Bias ([Color], Process Speed)		
2201 001	[K]: L	*BCU	Adjusts the development bias. Development bias is automatically adjusted during process control; therefore, adjusting these settings has no effect while Process Control (SP3-125 Default: ON) is activated. After deactivating Process Control with SP3-125, the values in these SP modes are used for printing. [200 to 800 / 500 / 10 V/step] **DFU**
2201 002	[K]: M	*BCU	
2201 003	[K]: H	*BCU	
2201 004	[Y]: L	*BCU	
2201 005	[Y]: M	*BCU	
2201 006	[M]: L	*BCU	
2201 007	[M]: M	*BCU	
2201 008	[C]: L	*BCU	
2201 009	[C]: M	*BCU	

2207	**[Forced Toner]** Forced Toner Supply ([Color])		
	Forces toner to be supplied to the development unit. The toner supply clutch turns on for 0.7 s and off for 1.3 s.		
2207 001	[K]		[0 or 1 / 0 / 1 /step] 0: Not execute, 1: Execute
2207 002	[Y]		
2207 003	[M]		
2207 004	[C]		

2208	**[Toner Mode]** Toner Supply Method ([Color])		
2208 001	[K]	*BCU	Selects the toner supply method. [0 to 2 / 1 / 1/step] Alphanumeric 0: Fixed supply (with the supply rates stored with SP2-208-5 to 8) 1: Fuzzy control supply 2: Proportional control supply (using the Vref values stored with SP2-224-5 to 8)
2208 002	[Y]	*BCU	
2208 003	[M]	*BCU	
2208 004	[C]	*BCU	
2208 005	Fixed Rate [K]	*BCU	Sets the toner supply rate used when the toner supply method (SP2-208-1 to 4) is set to '0' (fixed supply mode). [0 to 100 / 5 / 1%/step]
2208 006	Fixed Rate [Y]	*BCU	
2208 007	Fixed Rate [M]	*BCU	
2208 008	Fixed Rate [C]	*BCU	

2208 009	Upper Limit	*BCU #	Specifies the maximum possible toner supply, expressed as a percentage of the maximum amount of toner that can possibly be supplied for a sheet of paper. If too much toner is supplied to the development unit especially for black or in the low humidity condition, this may cause dirty background due to insufficient agitation. This SP mode limits the maximum possible toner supply for black and only in the low humidity condition for color. [0 to 100 / 63 / 1 %/step] **DFU** **NOTE:** The main switch must be turned off and on to effect the setting change.
2208 010	LowCoverage[K]	*BCU	Adjusts the toner supply amount (fixed rate) when making multiple prints of pages with low image ratio (coverage). When printing with a low image ratio, toner concentration is controlled only with Vt outputs since pixel count is not done for low image ratios. This may cause the attraction force between toner and carrier to increase, resulting in low image density on outputs. To prevent this, the machine counts the number of pixels and supplies a fixed amount of toner if the accumulated number of pixels becomes greater than the specified level. [0 to 100 / 0 / 1 %/step] **DFU**
2208 011	LowCoverage[Y]	*BCU	
2208 012	LowCoverage[M]	*BCU	
2208 013	LowCoverage[C]	*BCU	
2208 014	Vt Coeff[Bk]	*BCU	Specifies each constant to adjust the toner supply amount. The optimum value is specified before shipment. [0 to 2.0 / K: 0.30, Y: 0.28, C: 0.25, M: 0.25 / 0.01 %/step] **DFU**
2208 015	Vt Coeff[Y]	*BCU	
2208 016	Vt Coeff[M]	*BCU	
2208 017	Vt Coeff[C]	*BCU	
2208 018	Img Coeff[Bk]	*BCU	Specifies each constant to adjust the toner supply amount. The optimum value is specified before shipment. [0 to 2.0 / 0.70 / 0.01 %/step] **DFU**
2208 019	Img Coeff[Y]	*BCU	
2208 020	Img Coeff[M]	*BCU	
2208 021	Img Coeff[C]	*BCU	
2208 022	ImgCrctCoef[Bk]	*BCU	Specifies each constant to adjust the toner supply amount. The optimum value is specified before shipment. [0 to 2.0 / 0.10 / 0.01 %/step] **DFU**
2208 023	ImgCrctCoef[Y]	*BCU	
2208 024	ImgCrctCoef[M]	*BCU	
2208 025	ImgCrctCoef[C]	*BCU	

2210	**[Toner Counter]** Toner Supply Counter ([Color])		
	Displays the total time that the toner supply clutch has been on. This data is stored in the memory chip on each toner cartridge.		
2210 005	[K]	*BCU	[0 to 5000 / 0 / 1 second/step]
2210 006	[Y]	*BCU	
2210 007	[M]	*BCU	
2210 008	[C]	*BCU	

2212	**[Toner Near/End]** Toner Near End / End Detection Threshold ([Color])		
2212 001	Start [K]	*BCU	When the amount of toner amount left in the cartridge becomes less than this value, the machine starts monitoring the Vt values for toner near end detection. [0 to 1000 / 100 / 10 g/step]
2212 002	Start [YMC]	*BCU	
2212 005	Near [K]	*BCU	Specifies the threshold for toner near-end

2212 006	Near [YMC]	*BCU	detection. The machine detects toner near-end when the following happens 10 times consecutively. Vt > Vref + Threshold [0 to 5.0 / 0.4 / 0.1 V/step]
2212 007	End [K]	*BCU	Specifies the threshold for toner end detection. The machine detects toner end when the following happens 10 times consecutively. Then, the machine stops printing, even during a print job. Vt > Vref + Threshold [0 to 5.0 / 0.5 / 0.1 V/step]
2212 008	End [YMC]	*BCU	
2212 009	Pixel [K]	*BCU	Specifies the number of sheets with full image coverage that can be printed after toner near-end has been detected. When near-end is detected, the pixels in the images are counted. The machine detects toner end when the following happens, and the machine stops printing even during a print job. Pixel count = 5 A4/LT sheets with full image coverage [0 to 255 / 50 / 1 sheet/step] **NOTE:** The setting of SP2-212-11 has priority for deciding when to stop printing.
2212 010	Pixel [YMC]	*BCU	
2212 011	Min. Print	*BCU	Specifies the minimum number of sheets that can be printed after toner near-end has been detected. However, when the following happens 10 consecutive times, the machine stops printing even during a print job or if this guaranteed minimum has not been met. Vt > Current Vref value + 1.2V or Vt > 4.8V [0 to 50 / 10 / 1 sheet/step]
2212 012	sensor avg [K]	*BCU	Displays the average signal value of the toner end sensor. Printed images can be weak when the value is larger. [0 to 1 / 0 / 0.01/step] Each toner sensor detects the toner that is falling through the toner path beneath the toner cartridge. Each sensor outputs “0” when it detects toner in the toner path, or outputs “1” when it does not detect toner. The signal is “1” if toner is not passing through the path even though the toner cartridge contains toner. These signals, “0” and “1”, are periodically checked and used to calculate the signal average. When enough toner is in the cartridge, the signal average is a smaller value (“0” or its vicinity). When toner is insufficient, the average is a larger value (“1” or its vicinity).
2212 013	sensor avg [Y]	*BCU	
2212 014	sensor avg [M]	*BCU	
2212 015	sensor avg [C]	*BCU	

2213	**[T End ON/OFF]** Toner End Detection ON/OFF	*BCU #	[0 to 2 / 1 / 1 /step] Alphanumeric, **DFU** 0: Both sensors disabled 1: Both sensors enabled 2: Toner end sensor disabled and TD sensor enabled
	Enables or disables toner near-end and end detection (if disabled, the toner supply clutch on time is still counted). Use this SP only when tests are necessary under the toner end or toner near end condition. Specify the default value after the tests. **NOTE:** The main switch must be turned off and on to effect the setting change.		

2223	**[TD Vcnt]** TD Sensor Vcnt Control		
2223 001	Initialization	*BCU	[0 or 1 / 1 / -] Alphanumeric, **DFU** 0: Disabled, 1: Enabled
	Enables or disables the Vcnt Auto Adjustment when detecting a new development unit. When the machine detects a new development unit, developer initialization automatically starts. During the developer initialization, Vcnt is automatically adjusted so that Vt is within 3.0 ± 0.1V.		
2223 002	Humidity	*BCU	[0 or 1 / 1 / -] Alphanumeric 0: Disabled, 1: Enabled
	Enables or disables the Humidity Auto Correction. This corrects the Vcnt value for the current humidity. This correction is applied to both the Vcnt values automatically adjusted during developer initialization and manually adjusted with SP2-224-1 to 4. If this correction does not work well under certain environmental conditions or due to a defective humidity sensor, deactivate the Humidity Auto Correction and adjust the Vcnt value in SP2-224-1 to 4 (by trial and error).		
2223 003	Toner Fill Up	*BCU	[0 or 1 / 0 / -] Alphanumeric, **DFU** 0: Deactivate, 1: Activate
	Activates or deactivates the Toner Fill Up mode, which fills up the toner supply tube with toner during developer initialization. This function is required only at machine installation. Although the default is "0", the factory setting is "1". After toner fill-up occurs during machine installation, the setting is changed to "0" automatically.		

2224	**[Vcnt / Vref]** Vcnt / Vref ([Color])		
Adjusts the Vcnt value manually. The value in this SP mode is effective until after the next process control self-check. To always use this value for some reason, select proportional control supply mode with SP2-208-1 to 4.			
2224 001	Vcnt [K]	*BCU#	[0 to 22.0 / 10.0 / 0.1 V/step] **NOTE:** The main switch must be turned off and on to effect the setting change.
2224 002	Vcnt [Y]	*BCU#	
2224 003	Vcnt [M]	*BCU#	
2224 004	Vcnt [C]	*BCU#	
Adjusts the Vref value manually. The value in this SP mode is effective until the next process control self-check. To always use this value for some reason, select proportional control supply mode with SP2-208-1 to 4.			
2224 005	Vref [K]	*BCU	[0 to 5.0 / 2.8 / 0.1 V/step]
2224 006	Vref [Y]	*BCU	
2224 007	Vref [M]	*BCU	
2224 008	Vref [C]	*BCU	

2301	**[Transfer Cur.]** Transfer Current ([Color Mode, Color], **P**aper Tray or **B**y-pass, **S**implex or **D**uplex, Process Speed) Paper Type -> TH: Thick Paper, SP: Special Paper		
	Adjusts the transfer current for each color and each print mode. **NOTE:** If the transfer current is increased too much, image offset may occur especially in halftone areas.		
2301 001	[K] P S: M	*BCU	[0 to 50 / 20 / 1 μA/step]
2301 002	[K] P S: H	*BCU	[0 to 50 / 20 / 1 μA/step]
2301 003	[K] P D: M	*BCU	[0 to 50 / 21 / 1 μA/step]
2301 004	[K] P D: H	*BCU	[0 to 50 / 21 / 1 μA/step]
2301 005	[K] B S: L	*BCU	[0 to 50 / 8 / 1 μA/step]
2301 006	[K] B S: M	*BCU	[0 to 50 / 20 / 1 μA/step]
2301 007	[K] B S: H	*BCU	[0 to 50 / 20 / 1 μA/step]
2301 008	[FC K] P S: L	*BCU	[0 to 50 / 7 / 1 μA/step]

2301 009	[FC K] P S: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 010	[FC Y] P S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 011	[FC Y] P S: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 012	[FC M] P S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 013	[FC M] P S: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 014	[FC C] P S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 015	[FC C] P S: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 016	[FC K] P D: L	*BCU	[0 to 50 / 9 / 1 µA/step]
2301 017	[FC K] P D: M	*BCU	[0 to 50 / 20 / 1 µA/step]
2301 018	[FC Y] P D: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 019	[FC Y] P D: M	*BCU	[0 to 50 / 16 / 1 µA/step]
2301 020	[FC M] P D: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 021	[FC M] P D: M	*BCU	[0 to 50 / 16 / 1 µA/step]
2301 022	[FC C] P D: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 023	[FC C] P D: M	*BCU	[0 to 50 / 16 / 1 µA/step]
2301 024	[FC K] B S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 025	[FC K] B S: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 026	[FC Y] B S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 027	[FC Y] B S: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 028	[FC M] B S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 029	[FC M] B S: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 030	[FC C] B S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 031	[FC C] B S: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 032	[K] OHP: L	*BCU	[0 to 50 / 6 / 1 µA/step]
2301 033	[FC K] OHP: L	*BCU	[0 to 50 / 13 / 1 µA/step]
2301 034	[FC Y] OHP: L	*BCU	[0 to 50 / 11 / 1 µA/step]
2301 035	[FC M] OHP: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 036	[FC C] OHP: L	*BCU	[0 to 50 / 9 / 1 µA/step]
2301 037	[K] TH R: L	*BCU	[0 to 50 / 6 / 1 µA/step]
2301 038	[FC K] TH R: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 039	[FC Y] TH R: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 040	[FC M] TH R: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 041	[FC C] TH R: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 042	[K] SP: L	*BCU	[0 to 50 / 8 / 1 µA/step]
2301 043	[K] SP: M	*BCU	[0 to 50 / 20 / 1 µA/step]
2301 044	[K] SP: H	*BCU	[0 to 50 / 20 / 1 µA/step]
2301 045	[FC K] SP: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 046	[FC Y] SP: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 047	[FC M] SP: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 048	[FC C] SP: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 049	[FC K] SP: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 050	[FC Y] SP: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 051	[FC M] SP: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 052	[FC C] SP: M	*BCU	[0 to 50 / 18 / 1 µA/step]
2301 057	[K] TH S: L	*BCU	[0 to 50 / 6 / 1 µA/step]
2301 058	[FC K] TH S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 059	[FC Y] TH S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 060	[FC M] TH S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 061	[FC C] TH S: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 062	[K] SP D: L	*BCU	[0 to 50 / 10 / 1 µA/step]
2301 063	[K] SP D: M	*BCU	[0 to 50 / 21 / 1 µA/step]
2301 064	[K] SP D: H	*BCU	[0 to 50 / 21 / 1 µA/step]

2301 065	[FC K] SP D: L	*BCU	[0 to 50 / 9 / 1 µA/step]
2301 066	[FC Y] SP D: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 067	[FC M] SP D: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 068	[FC C] SP D: L	*BCU	[0 to 50 / 7 / 1 µA/step]
2301 069	[FC K] SP D: M	*BCU	[0 to 50 / 20 / 1 µA/step]
2301 070	[FC Y] SP D: M	*BCU	[0 to 50 / 16 / 1 µA/step]
2301 071	[FC M] SP D: M	*BCU	[0 to 50 / 16 / 1 µA/step]
2301 072	[FC C] SP D: M	*BCU	[0 to 50 / 16 / 1 µA/step]
2301 091	[K] P S: L	*BCU	[0 to 50 / 8 / 1 µA/step]
2301 092	[K] P D: L	*BCU	[0 to 50 / 10 / 1 µA/step]

2309	**[Cur.Paper Size]** Transfer Current - Paper Size Correction Paper Type -> N: Normal, TH: Thick, OHP		
	Corrects the transfer current for paper size. When small paper is used for printing, the transfer current flows to the drum at the non-image areas where the transfer belt touches the OPC drum. This may cause an abnormal image due to insufficient current at the image areas. **NOTE:** Increase only when an abnormal image (insufficient image transfer) occurs on a small paper size. However, increasing the current too much may cause image offset.		
2309 005	N LT SEF	*BCU	[1.0 to 4.0 / 1.4 / 0.1/step]
2309 006	N A5 SEF	*BCU	[1.0 to 4.0 / 1.8 / 0.1/step]
2309 007	TH LT SEF	*BCU	[1.0 to 4.0 / 1.2 / 0.1/step]
2309 008	TH A5 SEF	*BCU	[1.0 to 4.0 / 1.4 / 0.1/step]
2309 009	OHP LT SEF	*BCU	[1.0 to 4.0 / 1.4 / 0.1/step]
2309 010	OHP A5 SEF	*BCU	[1.0 to 4.0 / 4.0 / 0.1/step]

2402	**[Transfer Ctrl]** Transfer Control		
2402 001	C Mode Posit	*BCU	[0 to 500 / 170 / 10/step] **DFU**
	Adjusts the transfer belt position for color printing. SP2-402-1 is valid only when auto correct (SP2-402-2) is disabled (☛ J-P2 Service Manual 6.7.5).		
2402 002	Auto Correct	*BCU	[0 to 1 / 1 / 1/step] **DFU** 0: Disabled, 1: Enabled
	Enable or disable the auto-adjustment of the transfer belt position. • When SP2-402-2 is enabled, the transfer belt position for color printing is decided in accordance with the result of the initialization processing (☛ J-P2 Service Manual 6.7.5). • SP2-402-2 validates the setting of SP2-402-1, but does not affect the setting of SP2-402-3.		
2402 003	Bk Mode Posit	*BCU	[0 to 500 / 130 / 10/step] **DFU**
	Adjusts the transfer belt position for monochrome printing. SP2-402-3 is always valid regardless of the setting in SP2-402-2.		

2801	**[PA Roller Cur.]** Paper Attraction Roller Current ([Color], **S**implex or **D**uplex, Process Speed): Current Adjustment (**P**aper or **B**y-pass): Paper Size Correction		
	Adjusts the paper attraction roller current for color printing. If paper misfeeds occur at the transfer unit in color mode, check and/or adjust the paper attraction roller current. **NOTE:** The magenta development section is close to the paper attraction roller. Decreasing the current may not cause paper misfeed. If the current is increased too much, the following image problems may occur depending on the humidity. High humidity: Insufficient image transfer in magenta due to current flow to the magenta OPC drum Low humidity: Offset image in magenta halftone areas due to paper charged positive too much When adjusting the current with this SP mode, the value should be lower than transfer current.		
2801 006	[FC] S: L	*BCU	[0 to 50 / 1 / 1 μA/step]
2801 007	[FC] S: M	*BCU	[0 to 50 / 1 / 1 μA/step]
2801 008	[FC] D: L	*BCU	[0 to 50 / 5 / 1 μA/step]
2801 009	[FC] D: M	*BCU	[0 to 50 / 10 / 1 μA/step]
2801 014	[K] B TH S	*BCU	[10 to 30 / 5 / 0.1/step]
2801 015	[FC] B TH S	*BCU	[10 to 30 / 1 / 0.1/step]
2801 016	[K] B OHP	*BCU	[10 to 30 / 5 / 0.1/step]
2801 017	[FC] B OHP	*BCU	[10 to 30 / 1 / 0.1/step]
2801 018	[K] B TH D	*BCU	[10 to 30 / 5 / 0.1/step]
2801 019	[FC] B TH D	*BCU	[10 to 30 / 1 / 0.1/step]
2801 020	[K] SP S	*BCU	[10 to 30 / 8 / 0.1/step]
2801 021	[K] SP D	*BCU	[10 to 30 / 12 / 0.1/step]
2801 022	[FC] SP S: L	*BCU	[10 to 30 / 1 / 0.1/step]
2801 023	[FC] SP S: M	*BCU	[10 to 30 / 1 / 0.1/step]
2801 024	[FC] SP D: L	*BCU	[10 to 30 / 1 / 0.1/step]
2801 025	[FC] SP D: M	*BCU	[10 to 30 / 1 / 0.1/step]
2801 026	[K] S: L	*BCU	[0 to 50 / 5 / 1 μA/step]
2801 027	[K] S: M	*BCU	[0 to 50 / 8 / 1 μA/step]
2801 028	[K] S: H	*BCU	[0 to 50 / 8 / 1 μA/step]
2801 029	[K] D: L	*BCU	[0 to 50 / 5 / 1 μA/step]
2801 030	[K] D: M	*BCU	[0 to 50 / 8 / 1 μA/step]
2801 031	[K] D: H	*BCU	[0 to 50 / 8 / 1 μA/step]
2801 032	[K] SP S: L	*BCU	[0 to 50 / 5 / 1 μA/step]
2801 033	[K] SP S: M	*BCU	[0 to 50 / 8 / 1 μA/step]
2801 034	[K] SP S: H	*BCU	[0 to 50 / 8 / 1 μA/step]
2801 035	[K] SP D: L	*BCU	[0 to 50 / 5 / 1 μA/step]
2801 036	[K] SP D: M	*BCU	[0 to 50 / 8 / 1 μA/step]
2801 037	[K] SP D: H	*BCU	[0 to 50 / 8 / 1 μA/step]

2802	**[PA Cur. Size]** Paper Attraction Roller Current - Paper Size Correction Paper Type -> N: Normal, TH: Thick, OHP		
	Adjusts the correction, depending on the paper size. When small-width paper is used for printing, the paper attraction roller current flows to the non-image areas of OPC drum where the transfer belt touches the drum. This may cause paper misfeed due to insufficient current. To increase the current by 1.5 times, set the SP mode to “15”. **NOTE:** Adjust only when a paper misfeed occurs with a small paper size. Increasing the current too much may cause image offset in magenta halftone areas.		
2802 001	N LT SEF	*BCU	[10 to 40 / 15 / 0.1/step]

2802 002	N A5 SEF	*BCU	[10 to 40 / 20 / 0.1/step]
2802 003	TH LT SEF	*BCU	[10 to 40 / 15 / 0.1/step]
2802 004	TH A5 SEF	*BCU	[10 to 40 / 20 / 0.1/step]
2802 005	OHP LT SEF	*BCU	[10 to 40 / 24 / 0.1/step]
2802 006	OHP A5 SEF	*BCU	[10 to 40 / 40 / 0.1/step]

2908	**[Mirror Motor]** Mirror Positioning Motor ([Color])		
	Displays the result of the latest line position adjustment. Changing this affects the mirror position, which corrects the optically skewed image; however, this will be automatically corrected at the next line position adjustment. **NOTE:** If the line position adjustment does not work properly, the line position can be adjusted manually with this SP mode as a temporary measure. In this case, the line position adjustment needs to be disabled with SP5-993-001.		
2908 002	[C]	*BCU	[-128 to 127 / 0 / 1 pulse/step] **DFU**
2908 003	[M]	*BCU	
2908 004	[Y]	*BCU	

2909	**[Main-scan Reg.]** Main-scan Registration ([Color])		
	Displays the result of the latest line position adjustment. Changing this affects the main scan registration; however, this will be automatically corrected at the next line position adjustment. If a fine adjustment is required, it can be done with SP5-993-010 to 012 (this affects the way that the adjustment is done, and will be effective from the next line position adjustment. **NOTE:** If the line position adjustment does not work properly, the line position can be adjusted manually with this SP mode as a temporary measure. In this case, the line position adjustment needs to be disabled with SP5-993-001. 1 dot = 20μ		
2909 001	[Y]: 1200	*BCU	[-999 to 999 / +212 / 1 dot/step] **DFU**
2909 002	[M]: 1200	*BCU	[-999 to 999 / 0 / 1 dot/step] **DFU**
2909 003	[C]: 1200	*BCU	[-999 to 999 / -212 / 1 dot/step] **DFU**
2909 004	[K]: 1200	*BCU	[-999 to 999 / 0 / 1 dot/step] **DFU**
2909 005	[Y]: 600	*BCU	[-999 to 999 / +106 / 1 dot/step] **DFU**
2909 006	[M]: 600	*BCU	[-999 to 999 / 0 / 1 dot/step] **DFU**
2909 007	[C]: 600	*BCU	[-999 to 999 / -106 / 1 dot/step] **DFU**
2909 008	[K]: 600	*BCU	[-999 to 999 / 0 / 1 dot/step] **DFU**

2916	**[Sub-scan Reg.]** Sub-scan Registration ([Color Mode, Color], Resolution)		
	Displays the result of the latest line position adjustment. Changing this affects the sub scan registration; however, this will be automatically corrected at the next line position adjustment. If a fine adjustment is required, it can be done with SP5-993-016 to 021 (this affects the way that the adjustment is done, and will be effective from the next line position adjustment. **NOTE:** If the line position adjustment does not work properly, the line position can be adjusted manually with this SP mode as a temporary measure. In this case, the line position adjustment needs to be disabled with SP5-993-001. 600 dpi: 1 dot = 40μ, 1200dpi: 1 dot = 20μ		
2916 001	[K] 1200	*BCU	[0 to 20000 / 15020 / 1 dot] **DFU**
2916 002	[FC K] 1200	*BCU	[0 to 20000 / 15038 / 1 dot] **DFU**
2916 003	[FC Y] 1200	*BCU	[0 to 20000 / 10402 / 1 dot] **DFU**
2916 004	[FC M] 1200	*BCU	[0 to 20000 / 1136 / 1 dot] **DFU**
2916 005	[FC C] 1200	*BCU	[0 to 20000 / 5762 / 1 dot] **DFU**
2916 006	[K] 600	*BCU	[0 to 20000 / 7510 / 1 dot] **DFU**
2916 007	[FC K] 600	*BCU	[0 to 20000 / 7519 / 1 dot] **DFU**
2916 008	[FC Y] 600	*BCU	[0 to 20000 / 5201 / 1 dot] **DFU**

2916 009	[FC M] 600	*BCU	[0 to 20000 / 568 / 1 dot] **DFU**
2916 010	[FC C] 600	*BCU	[0 to 20000 / 2881 / 1 dot] **DFU**

2919	**[MScan Lgth Det]** Main-scan Length Detection	*BCU	[0 or 1 / 1 / -] Alphanumeric 0: Disable 1: Enable
	Enables or disables the main-scan length detection.		

2994	**[MScan Reg Cor]** Main-scan Registration Correction ([Color]) Not used. **DFU**		
2994 001	[Y]	*BCU	[-128 to 127 / 0 / 1 dot/step] **DFU**
2994 002	[M]	*BCU	[-128 to 127 / 1 / 1 dot/step] **DFU**
2994 003	[C]	*BCU	[-128 to 127 / 1 / 1 dot/step] **DFU**
2994 004	[K]	*BCU	[-128 to 127 / 0 / 1 dot/step] **DFU**

2995	**[Motor Reset]** Mirror Positioning Motor Reset	*BCU	
	Rotates the mirror position motors (CMY) by 250 pulses clockwise; then by 125 pulses counterclockwise. This moves the mirrors back to the initial position. Then, the settings of SP2-908-002 to 004 are reset to 0. When the line position adjustment fails, it is one of possible causes when the mirror position motor locks. Performing this SP mode can move the mirrors back to the original position if it locks. Then, do the forced line position adjustment (SP5-993-002).		

SP3-XXX (Process)

3005	**[TD Initial]** TD Sensor Initialization ([Color])		
3005 001	[K]		Initializes the developer. **DFU** Press the Enter key to execute the initialization after the machine asks “Execute?”
3005 002	[Y]		
3005 003	[M]		
3005 004	[C]		
3005 005	[All Color]		
3005 006	Result	*BCU	[1 to 9 / - / -] 1: Success, 2 to 9: Failure
	Displays the developer initialization result. All colors are displayed. Values is displayed in the order K Y C M. e.g., 1 1 2 1: Initialization of Cyan failed but the others succeeded See the troubleshooting section for details.		

3006	**[Vcnt Initial]** Vcnt Initial Setting Display ([Color])		
3006 001	[K]	*BCU	Displays the initial Vcnt value. [0 to 240 / 100 / 0.1/step]
3006 002	[Y]	*BCU	
3006 003	[M]	*BCU	
3006 004	[C]	*BCU	

3007	**[Vcnt Current]** Vcnt Current Value Display ([Color])		
3007 001	[K]	*BCU	Displays the current Vcnt value. [0 to 240 / - / 0.1/step]
3007 002	[Y]	*BCU	
3007003	[M]	*BCU	
3007004	[C]	*BCU	

3008	**[Humidity]**	*BCU	[0 to 100 / - / 1/step]
	Displays the humidity measured by the humidity/temperature sensor.		

3107	**[Vsg Display]** Vsg Display (**F**ront or **R**ear)		
3107 001	Vsg F	*BCU	[0.00 to 5.00 / - / 0.01V/step]
	Displays the Vsg value of the front ID sensor. Vsg is normally 4.0 ± 0.5 V. If Vsg is out of the adjustment range and this is detected 3 times consecutively, it leads to SC385.		
3107 002	LED Current F	*BCU	[0 to 1023 / - / 1]
	Displays the ID sensor LED current adjusted during Vsg adjustment.		
3107 003	Vsg C	*BCU	[0.00 to 5.00 / - / 0.01V/step]
	Displays the Vsg value of the center ID sensor. Vsg is normally 4.0 ± 0.5 V. If Vsg is out of the adjustment range and this is detected 3 times consecutively, it leads to SC385.		
3107 004	LED Current C	*BCU	[0 to 1025 / - / 1]
	Displays the ID sensor LED current adjusted during Vsg adjustment.		
3107 005	Vsg R	*BCU	[0.00 to 5.00 / - / 0.01V/step]
	Displays the Vsg value of the rear ID sensor. Vsg is normally 4.0 ± 0.5 V. If Vsg is out of the adjustment range and this is detected 3 times consecutively, it leads to SC385.		
3107 006	LED Current R	*BCU	[0 to 1025 / - / 1]
	Displays the ID sensor LED current adjusted during Vsg adjustment.		

3107 007	Vsg avg bk	*BCU	[0.00 to 5.00 / - / 0.01V/step]
	Displays the average black Vsg value of the center ID sensor.		

3120	**[Dev. g Target]** Development Gamma Target ([Color])		
	Adjusts the development gamma by changing the Vref value used for toner density control. Vref is automatically corrected so that the gamma measured during the process control self-check becomes "the value set with this SP mode ± 0.15"		
3120 001	[K]	*BCU	[1.00 to 3.00 / 1.60 / 1 mg/cm^2/KV / step] **DFU**
3120 002	[Y]	*BCU	[.100 to 3.00 / 1.65 / 1 mg/cm^2/KV / step] **DFU**
3120 003	[M]	*BCU	
3120 004	[C]	*BCU	

3121	**[Dev. g Display]** Development Gamma Display ([Color]) Displays the development gamma measured during the process control self-check.		
3121 001	[K]	*BCU	[0 to 10.00 / - / 1 mg/cm2/KV /step]
3121 002	[Y]	*BCU	Normal Range: 1.00 to 2.00
3121 003	[M]	*BCU	
3121 004	[C]	*BCU	

3122	**[Vk Display]** Vk Display ([Color])		
3122 001	[K]	*BCU	Displays the current Vk value.
3122 002	[Y]	*BCU	[-255 to 255 / - / 1 V/step]
3122 003	[M]	*BCU	Normal Range: -50 to 50
3122 004	[C]	*BCU	

3123	**[Vref Display]** Current Vref Display ([Color])		
3123 001	[K]	*BCU	Displays the current Vref value.
3123 002	[Y]	*BCU	[0.0 to 5.0 / - / 0.1V/step]
3123 003	[M]	*BCU	
3123 004	[C]	*BCU	

3125	**[Process Contr.]** Process Control		
3125 001	ON/OFF	*BCU	[0 or 1 / 1 / 1/step] Alphanumeric 0: OFF (Use the fixed values for VD, VL and VB set with SP2-001, SP2-103, and SP2-201.) 1: ON
	Enables or disables process control.		
3125 002	LD Control	*BCU	[0 to 2 / 1 / 1/step] Alphanumeric 0: Fixed (at the value in SP2-103) 1: Controlled by process control 2: Controlled by LD power selection
	Selects the LD control mode.		

3125 003	Auto TD Adj.	*BCU	[0 to 3 / 0 / 1/step] Alphanumeric 0: Disable 1: Initial & Non-use self-check 2: Job end & Non-use self-check 3: Initial & Job end & Non-use self-check
	Specifies when to perform the Auto Toner Density Adjustment. When performing the Auto Toner Density Adjustment, the machine supplies or consumes toner so that the development gamma is within ± 0.15 of the gamma target. *Change if the user complains of toner density fluctuations. Before changing the setting away from 0, check whether the forced TD adjustment (3-126-2) is effective. If the problem is persistent, then change to 1, 2, or 3. However, the machine takes several minutes to do this adjustment.*		
3125 004	ACC	*BCU	[0 to 2 / 2 / 1/step] Not used 0: Disable 1: Process Control Self-check 2: Auto TD Adjustment & Process Control Self-check
	Enables or disables the process control self-check before printing the ACC pattern. **NOTE:** If color balance changes during multi-copy runs after ACC is performed, select 1 or 2. Setting 2 can precisely adjust the image density; however, it takes about 6 minutes. Select 1 or 2 depending on the user's requirement.		
3125 005	TD Adj. Cndtn	*BCU	[0 to 1 / 1 / 1/step] 0: No, 1: Yes
	Specifies whether temperature and humidity are taken into account when deciding the timing of the auto toner density adjustment (described in SP 3-125-3). Timing for the auto toner density adjustment is determined by the setting of SP3-125-003. In addition, if SP 3-125-5 is set to 1, the auto toner density adjustment is done when the temperature and humidity meet specified conditions (same conditions as used for transfer current correction). Specify "1" when both temperature and humidity are both high or low.		
3125 006	TD Adj. Times	*BCU	[1 to 3 / 3 / 1/step]
	Limits the number of auto toner density adjustments. The auto toner density adjustment consists of three steps: detecting the development gamma, supplying or consuming toner, and detecting the development gamma again. When these three steps are all complete, it means a single auto toner density adjustment is complete.		

3126	**[Forced SelfChk] Forced Self-check**		
3126 001	Forced SelfChk		Performs a forced process control self-check.
3126 002	Forced TD Adj.		Performs a forced auto toner density adjustment.

3902	**[Pntr. Display]** Pointer Table Display ([Color])		
3902 001	Printer [K]	*BCU	Displays the number in the pointer table that was selected during the latest process control self-check. [1 to 30 / - / 1/step]
3902 002	Printer [Y]	*BCU	
3902 003	Printer [M]	*BCU	
3902 004	Printer [C]	*BCU	
3902 005	CF [K]	*	**DFU**
3902 006	CF [Y]	*	
3902 007	CF [M]	*	
3902 008	CF [C]	*	

3903	**[M/A Target]** M/A Target ([Color])		
	Adjusts the M/A (**M**ass per **A**rea, mg/cm^2) value used during the process control self-check. Adjusting this changes the development bias. This causes the solid ID to increase or decrease. If developer capability causes an ID problem, toner density needs to be adjusted with SP3-120-1 to 4, depending on the color.		
3903 001	Printer [K]	*BCU	[0 to 1.50 / <u>0.60</u> / 0.01 mg/cm^2 /step] **DFU**
3903 002	Printer [Y]	*BCU	
3903 003	Printer [M]	*BCU	
3903 004	Printer [C]	*BCU	
3903 005	CF [K]	*	[0 to 1.50 / <u>0.60</u> / 0.01 mg/cm^2 /step] **DFU**
3903 006	CF [Y]	*	
3903 007	CF [M]	*	
3903 008	CF [C]	*	

3904	**[M/A for LD]** M/A Target for LD Correction ([Color])		
	Adjusts the M/A value used during the LD correction mode. This value is effective when SP3-125-2 “LD Control Selection” is set to “2”. Adjusting this data effects the image reproduction especially in highlight areas.		
3904 001	Printer [K]	*BCU	[0 to 1.00 / <u>0.10</u> / 0.01 mg/cm2 /step] **DFU**
3904 002	Printer [Y]	*BCU	[0 to 1.00 / <u>0.12</u> / 0.01 mg/cm2 /step] **DFU**
3904 003	Printer [M]	*BCU	
3904 004	Printer [C]	*BCU	
3904 005	CF [K]	*	[0 to 1.00 / <u>0.13</u> / 0.01 mg/cm2 /step] **DFU**
3904 006	CF [Y]	*	[0 to 1.00 / <u>0.14</u> / 0.01 mg/cm2 /step] **DFU**
3904 007	CF [M]	*	
3904 008	CF [C]	*	

3905	**[M/A Target]**		
3905 001	Intrvl [K]	*BCU	[0 to 1.50 / <u>0.30</u> / 0.01 mg/cm^2 /step] **DFU** Adjusts the target amount of each toner on paper sheets. These values are optimized before shipment. Do not change the values. Changing these values does not affect toner density on paper sheets.
3905 002	Intrvl [Y]	*BCU	
3905 003	Intrvl [M]	*BCU	
3905 004	Intrvl [C]	*BCU	
3905 005	Intrvl [K]	*BCU	[0 to 1.500 / - / 0.01 mg/cm^2 /step] Displays the amount of each toner on the paper. A problem may have occurred in the printer engine if the value is high or low (i.e., if the difference between SP3-905-1/2/3/4 and SP3-5/6/7/8 is larger than ±0.03 mg/cm^2). Possible problems: Defective TD sensor, defective ID sensor, toner near-end (if the value is lower than the target), defective toner supply mechanism
3905 006	Intrvl [Y]	*BCU	
3905 007	Intrvl [M]	*BCU	
3905 008	Intrvl [C]	*BCU	

3906	**[PC SelfChk]** Process Control Self-checks		
3906 001	Job End	*BCU	[0 to 999 / 200 / 1 print/step]
	Specifies the execution timing of the job end process control self-check. The job end process control self-check is automatically done after a job is completed when 200 prints have been made since the last self-check. The counter for the job end process control self-check resets when one of the following process control self-checks is done. • Initial • Interval: Interrupt • Non-use Time • During Toner End When K prints are made, the number of prints is calculated with the K coefficient in SP3-906-5.		
3906 002	Interrupt	*BCU	[0 to 999 / 0 / 1 print/step]
	Specifies the execution timing of the interrupt process control self-check. The interrupt process control self-check is automatically done if the number of prints in the job exceeds the number set in this SP mode. When the print job is completed, the counter is reset, even if the interrupt self check did not occur. When K prints are made, the number of prints is calculated with the K coefficient in SP3-906-5.		
3906 003	Non-use Time 1	*BCU	[0 to 999 / 0 / 1 print/step] 0: Disable
	Specifies the executing timing of the non-use time process control self-check. The non-use time process control self-check is automatically done after the number of prints set with this SP mode have been made and no prints have been made for the time set with SP mode 3-906-4 since the last print job. If the conditions are met, the self-check will be done after the print job is completed. The counter is reset when the initial process control self-checks is done or when a print is made.		
3906 004	Non-use Time 2	*BCU	[0 to 2550 / 480 / 10 minutes/step] 0: Disable
	Specifies the executing timing of the non-use time process control self-check.		
3906 005	K Coefficient	*BCU	[0 to 1.00 / 1.00 / 0.01/step] **DFU**
	Sets the coefficient to calculate the counter value for black-and-white prints. With the default setting (100), counters used for process control count up by 1 when 1 black-and-white print has been made.		

3910	**[Vmin Display]** Vmin Display ([Color])		
3910 001	[K]	*BCU	[0 to 2.00 / 0 / 0.01/step]
	Displays the current Vmin value for K		
3910 002	[Color]	*BCU	[0 to 2.00 / 0 / 0.01/step]
	Displays the lowest current Vmin value for the colors (CMY).		

3911	**[Vt Display Cur]** Vt Current Display ([Color])		
3911 001	[K]	*BCU	Displays the current Vt value. [0.0 to 5.0 / - / 0.1V/step]
3911 002	[Y]	*BCU	
3911 003	[M]	*BCU	
3911 004	[C]	*BCU	

3912	**[Vt Display Ave]** Vt Average Display ([Color])		
3912 001	[K]	*BCU	Displays the average Vt value. [0.0 to 5.0 / - / 0.1V/step]
3912 002	[Y]	*BCU	
3912 003	[M]	*BCU	
3912 004	[C]	*BCU	

3913	**[T. Supply Time]** Toner Supply Time Display ([Color])		
3913 001	[K]	*BCU	Displays the toner supply clutch on time for the most recent page. [0 to 5000 / - / 10 ms/step]
3913 002	[Y]	*BCU	
3913 003	[M]	*BCU	
3913 004	[C]	*BCU	

3920	**[OPC Refresh]**		
3920 001	Temperature	*BCU	[10 to 30 / 25 / 1°C /step]
	This SP determines the temperature threshold for determining whether refresh mode is done just after the machine is switched on. The charge roller generates NOx (nitrogen oxides), and these contaminate the OPC drum surface and may cause a smeared image. Just after the main switch is turned on, if the temperature measured by both the thermistor located at the right side on the laser optics housing unit and the temperature/humidity sensor is greater than the temperature specified in this SP mode, refresh mode is done before initial process control. During refresh mode, toner is developed on the OPC with 50V development potential and cleaned to remove NOx. This cycle is repeated a few times.		
3920 002	Humidity	*BCU	[10 to 90 / 75 / 1%/step]
	This SP determines the humidity threshold for determining whether refresh mode is done just after the machine is switched on. Just after the main switch is turned on, if the humidity measured by the temperature/humidity sensor is greater than the humidity specified in this SP mode, refresh mode is done before the initial process control self-check.		
3920 003	Prints	*BCU	[10 to 2550 / 200 / 10 prints/step]
	Specifies how often refresh mode is done. When the total number of prints since the last refresh mode exceeds the number specified in this SP mode, refresh mode is done before the job end process control self-check.		
3920 004	Mode Set	*BCU	[0 to 2 / 2 / 1/step] Alphanumeric 0: Disabled 1: Done at power on and toner end recovery 2: Done at power on, toner end recovery, and after the specified number of prints.
	Enables/disables refresh mode. **NOTE:** Refresh mode is done during the toner end recovery self-check after a new toner cartridge is installed.		
3920 005	Forced		
	Executes a forced refresh mode. Use this mode when the image is smeared. It takes about 1 minute.		
3920 006	Auto Tnr Ref (Auto Toner Refresh)	*BCU	[0 or 1 / 1 / -] 0: Disabled, 1: Enabled
	Performs a toner refresh during the OPC refresh mode by changing the development bias from 50V to 400V. Enable this SP mode when dirty background and/or firefly spots appear intermittently on prints with a low image area ratio. While making prints with a low image area ratio, developer is agitated with less toner supplied. This may cause the toner-carrier attraction force to increase or toner to coagulate. This sometimes causes firefly spots or dirty background when a large amount of toner is supplied. **NOTE:** When enabling this SP mode, the following SP modes should be changed. SP3-906-001 Job End Process Control Self-check 200 (Default) -> 100 SP3-920-003 OPC Refresh Mode / Prints 200 (Default) -> 100		

3921	**[Forced Tnr Ref]** Forced Toner Refresh		
	Perform forced toner refresh mode. When the developer has deteriorated or when prints are made in a very low humidity condition, dirty background may appear continuously. When this kind of dirty background appears, check whether or not the development gamma is within the target (SP3-120 and 121). If the development gamma is not within the target, do this SP mode. The machine automatically does the toner refresh mode in the following sequence. 1. Consumes toner in the development unit without toner supply until toner end is detected 2. Starts toner recovery mode. 3. Starts process control self-check. **NOTE:** If toner is drastically consumed for a short time, this may cause carrier to flow out. To prevent this, toner is consumed over a long period of time. (It takes about 20 minutes to complete this toner refresh mode).		
3921 001	Bk		
3921 002	All Color		

3922	**[OPC Refresh2]**	*BCU	[0 ~ 2 / 1 / 1 /step] 0: Disable (OPC refresh is not executed.) 1: Low coverage (OPC refresh is executed after an output of low coverage ratio.) 2: Every time (OPC refresh is executed after every job.)
	Specifies when the OPC refresh is executed for CMY drums, which forcibly creates a temporary 15mm-wide toner line on the drum surface by applying the development bias (200V) and turning on the development clutch at the end of a job. Note that this OPC refresh is a separate process from the one controlled by SP 3-920 and 3-921.		

3975	**[P Ctrl Result]** Process Control Self-check Result	*BCU	[0 to 9999 / - / 1/step]
	Displays the result of the latest process control self-check. All colors are displayed. The results are displayed in the order “K Y C M” e.g., 1 1 9 1: The self-check for Cyan failed but the others were successful See the troubleshooting section for details.		

SP5-XXX (Mode)

5009	**[Language]**	*CTL#	[0 to 16 / 2 / 1/step]
	Selects the language for the control panel.		

Data	Language	Data	Language
0	No language	**9**	Norwegian
1	Japanese	**10**	Danish
2	English	**11**	Swedish
3	American	**12**	Polish
4	French	**13**	Portuguese
5	German	**14**	Hungarian
6	Italian	**15**	Czech
7	Spanish	**16**	Finnish
8	Dutch		

NOTE: When changing language, the main switch has to be turned off and on to initialize the system.

5024	mm/inch Display	*CTL	0: mm (Europe/Asia), 1: inch (USA)
	Display units (mm or inch) for custom paper sizes.		

5045	**[Counter Method]**	*CTL	[0 or 1 / 1 / -] 0: Developments, 1: Prints
	Selects the counting method if the meter charge mode is enabled with SP5-930-001. You can change the setting only one time.		

5104	**[Double Count]**	*CTL	[0 or 1 / 0 / -] 0: Normal count, 1: Double count
	Specifies whether the counter is double clicked for A3/DLT size prints.		

5131	**[Paper Size]**	*BCU	
	• DOM: Japan • USA: North America • ERP: Europe The default setting changes for each area.		

5150	**[Bypass Length Setting]**	*CTL	[0 or 1 / 0 / -] 0: OFF, 1: ON
	Lets or does not let the by-pass tray feed extra long paper (up to 1260 mm).		

5302	**[Set Time]**	*CTL#	[-1440 to 1440 / 60 / 1 min./step] Not used
	Adjusts the RTC (real time clock) time setting for the local time zone. Examples: For Japan (+9 GMT), enter 540 (9 hours x 60 min.) NA :-300 (New York) EU :+ 60 (Paris) CH :+480 (Beijing) TW :+480 (Taipei) AS :+480 (Hong Kong)		

5404	**[UCodeCtrClr]** Use Code Counter Clear		
	Clears all counters for users.		

5501*	**[PM Alarm]**	*CTL	[0 to 9999 / 0 / 1/step] 0: Disables the PM alarm
	Sets the PM alarm level. A PM alarm is made when this condition occurs: PA x 1000 = PC, where PA is the value set in SP5-501 and PC is the value in the PM counter. This SP is for use with NRS.		

5504	**[Jam Alarm]**	*CTL	[0 to 3 / 3 / 1/step] 3: 6K, 2: 3K, 1: 1.5K, 0: Disables the jam alarm
	Sets the jam alarm level. If a paper jam occurs, the jam alarm counter increases by +1. If no paper jam occurs while the set number of paper is output, the jam alarm counter decreases by -1. The jam alarm occurs when the jam alarm counter gets to +10. This SP is for use with NRS.		

5505	**[Error Alarm]**	*CTL	[0 to 255 / 50 / 1/step] 0: Disables the PM alarm
	Sets the error alarm level. If an SC code occurs, the error alarm counter increases by +1. If no SC code occurs while the set number of paper is output, the jam alarm counter decreases by -1. The error alarm occurs when the error alarm counter reaches +5. This SP is for use with NRS.		

5507	**[Supply Alarm]**		
Enables or disables the supply alarm.			
5507 001	Paper Supply Alarm	*CTL	[0 to 1 / 0 / 1/step] 0: OFF, 0: ON
5507 002	Staple Supply Alarm	*CTL	
5507 003	Toner Supply Alarm	*CTL	
Sets the supply alarm level. A supply alarm counter increases by +1 when a sheet of the related size is used. The supply alarm occurs when one of the supply alarm counters gets to the set value. This SP is for use with NRS.			
5507 128	Interval: Others	*CTL	[250 to 10000 / 1000 / 1/step]
5507 132	Interval: A3	*CTL	
5507 133	Interval: A4	*CTL	
5507 134	Interval: A5	*CTL	
5507 141	Interval: B4	*CTL	
5507 142	Interval: B5	*CTL	
5507 160	Interval: DLT	*CTL	
5507 164	Interval: LG	*CTL	
5507 166	Interval: LT	*CTL	
5507 172	Interval: HLT	*CTL	

5801	**[Memory Clear]** (☛ 5.3.2)		
5801 001	All		Executes SP5-801-002 through 014.
5801 002	ENG All		Resets or deletes the engine-related data.
5801 003	SCS		Clears the system settings.
5801 004	IMH		Clears IMH data. **DFU**
5801 005	MCS		Clears MCS data. **DFU**
5801 008	PRT		Clears the printer application settings.

5801 011	NCS		Initializes the system default and interface settings (IP address also), SmartNetMonitor for Admin, WebStatusMonitor settings, and the TELNET settings.
5801 014	DCS Setting		Resets or deletes the DCS-related data.
5801 015	Clear UCS Setting		Resets or deletes the UCS-related data.
5801 016	MIRS Setting		Resets or deletes the MIRS-related data.

5802	**EngineFreeRun**
	Performs a free run on the printer engine. **NOTE:** • The machine starts free run in the same condition as the sequence of A4/LT printing from the 1st tray. Therefore, paper should be loaded in the 1st tray, but paper is not fed. • The main switch has to be turned off and on after using the free run mode for a test.

5803	**[Input Check]** (☛ 5.3.3)
5804	**[Output Check]** (☛ 5.3.4)

5808	**[Destination]** Destination Code Display	*BCU	
	Displays the destination code.		

5809	**[SC OFF]** SC Detection ON/OFF	*BCU	[0 or 1 / 0 / -] Alphanumeric 0: Enable, 1: Disable
5809 001	ALL		
	Enable or disables the service call detection. The SC codes (not related to the waste toner vibrator) are all ignored when SP5-809-001 is enabled.		
5809 002	Vib Motor		
	Enable or disables the service call detection. The SC code related to the waste toner vibrator is ignored when SP5-809-002 is enabled.		

5810	**[SC Reset]**
	Resets a type A service call condition. Turn the main power switch off and on after resetting the SC code.

5811	**[SN Display]** Serial Number Display	*BCU	
	Displays the machine serial number.		

5812	**[Tel. No. Setting]**	*CTL	
5812 001	Service		
	Sets the telephone number for a service representative. This number is printed on the Counter List, which can be printed with the user's "Counter" menu. This can be up to 20 characters (both numbers and alphabetic characters can be input).		
5812 002	FAX TEL No.		
	Sets the fax or telephone number for a service representative. This number is printed on the Counter List, which can be printed with the user's "Counter" menu if the Meter Charge mode is selected with SP5-930-1. This can be up to 13 characters (both numbers and alphabetic characters can be input).		

5816	**[Remote Service]**		
	Used for NRS only		
5816 001	I/F Setting	*CTL	[0 to 1 / 1 / 1/step] 0: Off 1: Network (The remote service function is on.)
5816 002	CE Call	*CTL	[0 to 1 / 1 / 1/step] 0: Start, 1: End
5816 003	Function Flag	*CTL	[0 to 1 / 1 / 1/step] 0: Off (The remote service function is disabled.) 1: On (The remote service function is enabled.)
5816 004	Communication Test		
	Does a communication test. One of the return codes from 0 to 99 is shown: • 0: Normal end (The service is operating.) • 1: Normal end (The service is not operating.) • Any other code: Abnormal end Do the test from the User Tools. Do not use SP5-816-004 unless you are told to do it by the manufacturer.		
5816 005	Device Information		
	Does a device test. One of the return codes from 0 to 99 is shown: • 0: Normal end (The service is operating.) • 1: Normal end (The service is not operating.) • Any other code: Abnormal end Do the test from the User Tools. Do not use SP5-816-005 unless you are told to do it by the manufacturer.		
5816 006	Device Information	*CTL	[0 to 1 / 0 / 1/step] 0: Not displayed, 1: Displayed
	Shows or does not show the device information in the User Tools.		
5816 007	SSL Disable	*CTL	[0 to 1 / 0 / 1/step] 0: Enabled, 1: Disabled
5816 008	RCG Connect Time	*CTL	[1 to 90 / 10 / 1 second/step]
	Sets the timeout counter for the remote connection.		
5816 009	RCG Write Timeout	*CTL	[0 to 100 / 60 / 1 second/step]
	Sets the timeout counter for writing processing.		
5816 010	RCG Read Timeout	*CTL	[0 to 100 / 60 / 1 second/step]
	Sets the timeout counter for reading processing.		
5816 011	Port 80 Enable	*CTL	[0 to 1 / 0 / 1/step] 0: Disables, 1: Enables
	Enables or disables access to the SOAP method via port 80.		

5821	**[Remote Service Address]**		
5821 001	CSS-PI Device Code	*CTL	[0 to 4 / 0 / 1/step] **DFU**
5821 002	RCG IP Address	*CTL	[00000000h to FFFFFFFFh / 00000000h / 1/step]
	Sets the IP address of the RCG (Remote Communication Gate).		

5824	**[NVRAMUpload]** NVRAM Upload	#	
	Uploads the UP and SP mode data (except for counters and the serial number) from the NVRAM to an SD card.		

5825	**[NVRAMDownload]** NVRAM Download	#	
	Downloads the UP and SP mode data from an SD card to the NVRAM.		

5828	**[Network]** Job spool settings/ Interface selection for Ethernet and wireless LAN		
5828 066	HD job Clear	*CTL	[0 to 1 / 1 / 1/step] 0: Data is cleared 1: Automatically printed
	Treatment of the job when a spooled job exists at power on.		
5828 069	Job Spool (Protocol)	*CTL	[0 to 1 / 1 / 1/step] 0: Off, 1: On Bit switch: • Bit 0: LPR • Bit 1: FPT • Bit 2: IPP • Bit 3: SMB • Bits 4 to 7: Reserved
	Switches job spooling off or on and enables settings for job spooling protocols.		
5828 074	Delete Password	*CTL	Deletes passwords.
5828 084	Print Settings List	*CTL	Prints a list of NCS related parameters.
5828 090	TELNET	*CTL	[0 to 1 / 1 / 1/step] 0: Disabled, 1: Enabled
	Enables or disables Telnet.		
5828 091	Web	*CTL	[0 to 1 / 1 / 1/step] 0: Disabled, 1: Enabled
	Enables or disables the Web monitor.		
5828 115	SMB Computer Name		
	Displays the SMB computer name.		
5828 116	SMB Workgroup Name		
	Displays the workgroup name.		

5832	**[HDD Init.]** HDD Initialization		
	Prepares the hard disk. Use this SP mode only when there is a hard disk error.		

5833	**[JobLog ON/OFF]**	*CTL	[0 or 1 / 0 / -] 0: Disabled, 1: Enabled
	Saves the result of the jobs in the job log. If this mode is enabled, the result is written on the HDD. If no HDD is installed, this feature is disabled even if this SP is set to “enabled”..		

5839	**[IEEE1394]**		
5839 004	Device Name	*CTL	**DFU**
5839 007	Cycle Master	*CTL	**DFU**
5839 008	BCR mode	*CTL	**DFU**
5839 009	IRM 1394a Check	*CTL	**DFU**
5839 010	Unique ID	*CTL	**DFU**
5839 011	Logout	*CTL	**DFU**
5839 012	Login	*CTL	**DFU**
5839 013	Login MAX	*CTL	**DFU**

5840	**[IEEE 802.11b]**		
5840 004	Current SSID	*CTL	
	Enters a unique ID (up to 32 characters long) to identify the device when it is operating in an area with another wireless LAN network.		

5840 006	Channel Max	*CTL	[1 to 11 or 13 / 1 / 1 /step] Europe/Asia: 1 to 13 USA: 1 to 11 **Note**: Do not change the setting
	Sets the maximum number of channels available for data transmission via the wireless LAN. The number of channels available varies according to location. The default settings are set for the maximum end of the range for each area. Adjust the upper 4 bits to set the maximum number of channels. **DFU**		
5840 007	Channel Min	*CTL	[1 to 11 or 13 / 1 / 1 /step] Europe/Asia: 1 to 13 USA: 1 to 11 **Note**: Do not change the setting
	Sets the minimum number of channels available for data transmission via the wireless LAN. The number of channels available varies according to location. The default settings are set for the minimum end of the range for each area. Adjust the lower 4 bits to set the minimum number of channels. **DFU**		
5840 011	WEP key number	*CTL	[00~11 / 00 / 1 binary] 00: Key #1 01: Key #2 (Reserved) 10: Key #3 (Reserved) 11: Key #4 (Reserved)
	Selects the WEP key.		
5840 018	SSID Key Check		Checks that the SSID is correct.
5840 020	WEP mode	*CTL	[0~1/0/1] 0: Max. 64-bit (10 characters) 1: Max. 128-bit (10, 26 characters)
	Determines the operation mode of the WEP key. Displayed only when the option 801.11b for wireless LAN is installed.		

5844	**[USB]**		
5844 001	Transfer Rate	*CTL	Adjusts the USB transfer rate. [0 to 1 / 0 / 1/step] 0: Auto Change, 1: Full speed
5844 002	Vendor ID	*CTL	Displays the vendor ID. **DFU**
5844 003	Product ID	*CTL	Displays the product ID. **DFU**
5844 004	Dev Release Num	*CTL	Displays the development release version number. **DFU**

5845	**[Delivery Srv]** Delivery Server		
5845 003	Retry Interval	*CTL	[60 to 900 / 300 / 1 second/step]
	Specifies the retry interval.		
5845 004	Number of Retries	*CTL	[0 to 99 / 3 / 1/step]
	Specifies the maximum number of retries.		

5846	**[UCS Setting]**		
5845 003	Maximum Entries	*CTL	
	Specifies the number of maximum entries.		
5845 050	Initialize All Data	*CTL	
	Initializes all data.		

5856	**[Remote Update]**	*CTL	[0 to 1 / 0 / 1/step] 0: Disable, 1: Enable
	Allows the technician to upgrade the firmware using a parallel cable		

5857	[Save Debug Log]		
5857 001	On/Off	*CTL	[0 to 1 / 0 / 1/step] 0: Disabled, 1: Enabled
	Enables or disables the debug log saving function.		
5857 002	Target	*CTL	[2 to 3 / 2 / 1/step] 2: Hard disk, 3: SD card
	Sets the storage location for the debug log.		
5857 005	Save to HDD	*CTL	
	Sets the key number of the debug log.		
5857 006	Save to SD	*CTL	
	Sets the key number of the debug log.		
5857 009	HDD to SD (4MB)	*CTL	
	Copies the most recent 4 MB of the debug log from the hard disk to the SD card.		
5857 010	HDD to SD (Any)	*CTL	
	Sets the key number of the debug log copied from the hard disk to the SD card.		
5857 011	Erase HDD Log	*CTL	
	Deletes the debug log from the hard disk.		
5857 012	Erase SD Log	*CTL	
	Deletes the debug log from the SD card.		
5857 013	Free Space on SD	*CTL	
	Shows the free space on the SD card.		
5857 014	SD to SD (4MB)	*CTL	
	Copies the most recent 4 MB of the debug log from an SD card to a different SD card.		
5857 015	SD to SD (Any)	*CTL	
	Sets the key number of the debug log copied from an SD card to a different SD card.		
5857 016	Make HDD Log File	*CTL	Makes a log file on the HDD to save debug logs. To save debug logs, the controller makes a log file first, then writes data in the file. This procedure can use much time. The user can switch off the main power switch before the log is written in the file. To prevent this possible problem, you can prepare a log file in advance. If you do this, the controller uses less time to save logs because the log file is prepared.
5857 017	Make SD Log File	*CTL	

5858	[Debug Save When]		
5858 001	Engine SC Error	*CTL	[0 to 1 / 0 / 1/step] 0: Collected, 1: Not collected
	Collects debug logs when an engine-related SC code occurs.		
5858 002	System SC Error	*CTL	[0 to 1 / 0 / 1/step] 0: Collected, 1: Not collected
	Collects debug logs when a controller-related SC code occurs.		
5858 003	Any SC Error	*CTL	[00000 to 65535 / 0 / 1/step]
	Sets the SC code whose logs are collected.		
5858 004	Jam	*CTL	[0 to 1 / 0 / 1/step] 0: Collected, 1: Not collected
	Collects debug logs when a paper jam occurs.		

5859	[Log Save Key No.]	*CTL	[0000000 to 9999999 / 0 / 1/step]
5859 001	Key 1	Sets the key number of a specific event (☛ NOTE) whose logs are saved in the specified storage (☛	
5859 002	Key 2		

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5859 003	Key 3	NOTE). When multiple key numbers are assigned, the logs are collected in this order: Key 1, Key 2, ..., Key 9, Key 10. **NOTE:** The event is set with SP5-857-2. The storage is set with SP5-858.
5859 004	Key 4	
5859 005	Key 5	
5859 006	Key 6	
5859 007	Key 7	
5859 008	Key 8	
5859 009	Key 9	
5859 010	Key 10	

5860	**[SMTP/POP3/IMAP]**		
5860 002	SMTP Server Port No.	*CTL	[1 to 65535 / 25 / 1/step]
	Specifies the number of the SMTP server ports.		
5860 003	SMTP Auth.	*CTL	[0 to 1 / 0 / 1/step] • 0: Disable, • 1: Enable
	Enables or disables the SMTP authentication for mail transfers.		
5860 006	SMTP Auth. Encryption	*CTL	[0 to 2 / 0 / 1/step] • 0: Automatic, • 1: Not encrypt, • 1: Encrypt
	Encrypts or does not encrypt passwords for SMTP authentications.		
5860 007	POP before SMTP	*CTL	[0 to 1 / 0 / 1/step] • 0: Disable, • 1: Enable
	Enables or disables the authentication that is executed on the POP server before the communication is established with the SMTP server to transfer mails.		
5860 008	POP to SMTP Wait	*CTL	[0 to 10000 / 300 / 1 ms/step]
	Specifies the waiting time to access the SMTP server after the authentication on the POP server.		
5860 013	POP Auth. Encryption	*CTL	[0 to 2 / 0 / 1/step] • 0: Automatic, • 1: Not encrypt, • 1: Encrypt
	Encrypts or does not encrypt passwords for POP3/IMAP4 authentications.		
5860 014	POP Server Port No.	*CTL	[1 to 65535 / 110 / 1/step]
	Specifies the port number of the POP server.		
5860 022	SMTP from Replace	*CTL	[0 to 1 / 0 / 1/step]
	Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated. 0: No. “From” item not switched, 1: Yes. “From” item switched.		

5866	**[E-Mail Alert]**	*CTL	[0 to 1 / 0 / 1/step] 0: Not attached, 1: Attached
	Attaches or does not attach the data field to the header of alert e-mail.		

5869	**[RAM Disk Setting]**	# *CTL	[0 to 1 / 0 / 1/step] 0: On, 1: Off
	Enables or disables the e-mail transfer function. This SP sets the RAM disk size for the e-mail transfer function.		

5870	**[Common Key Info Writing]**	*CTL	
	Writes the authentication data (used for NRS) in the memory.		

5873	**[SD Card Appli Move]**	
5873 1	Move Exec	(☛ 5.5)
5873 2	Undo Exec	

5907	[Plug/Play] Plug & Play Name Selection		
5907 001	Plug/Play	*BCU	Specifies the manufacturer and model name. [0 to 7 / 0 / 1/step] **FA**

	MF	Model Name	NetBeui
0	Ricoh	Aficio CL7100	Aficio CL7100
1	Savin	CLP35	CLP35
2	Gestetner	C7435n	C7435n
3	NRG	C7435n	C7435n
4	Infotec	IPC 3535	IPC 3535
5	Lanier	LP235c	LP235c

5930	[Meter Charge] Meter Charge Mode		
5930 001	ON/OFF	*BCU #	[0 or 1 / 0 / -] Alphanumeric 0: OFF, 1: ON
	Enables or disables the Meter Charge mode. When enabling the Meter Charge mode, the "Counter" menu is added to the user menu.		
5930 002	Maintenance Style	*BCU #	**DFU**
5930 003	Menu	*BCU #	[0 or 1 / 1 / -] Alphanumeric 0: Click 2, 1: Click 1

Selects the method for displaying the alert when the life of the parts in a maintenance kit has almost ended. The following table lists the machine condition when the near end or end condition of each maintenance unit is detected. In this table, a dash (-) means "normal operation."

	Setting: 1 (Click 1)			Setting: 0 (Click 2)		
	Near	End	Printing	Near	End	Printing
A	-	Alert	-	-	-	-
B	-	Alert	-	-	-	-
C	-	Alert	-	-	-	-
D	-	Alert	-	-	-	-
E	Alert	Alert	Stop	Alert	Alert	Stop
F	-	Alert	-	-	-	-
G	Alert	Alert	Stop	Alert	Alert	Stop

A: Color PCU
B: Color Development Unit
C: Fusing Unit
D: Black Development Unit
E: Waste Toner Bottle
F: Black PCU
G: Oil Supply Unit

NOTE: SP5-930-004 allows the alert for the paper feed roller to be displayed.

5930 004	Paper Feed	*BCU #	**DFU**
5930 005	Paper Trans.	*BCU #	[0 or 1 / 0 / -] Alphanumeric 0: No Alert, 1: Alert
	Determines whether to display the alert when the life of the transfer unit or transfer belt cleaning unit is nearly ended.		

5961	[Finisher Stack] Finisher Maximum Stack	*BCU #	[0 or 1 / 1 / -] 0: Disabled, 1: Enabled

	Enables or disables maximum stack mode for the lower shift tray only in staple mode. If this is enabled, the upper tray can be used for stacking 500 sheets but it stays at the upper exit (will not be used for stapling mode), and the lower tray is used for stacking up to 2,000 sheets. If this is disabled, the upper tray can be used for stacking 500 sheets and the lower tray for 1,500 sheets. **NOTE:** The main switch must be turned off and on to effect the setting change.

5989	**[Loop Back Test]**		
5989 001	Duplex		Executes a communication test with peripherals by using a special tool (connector) which is unique for each peripheral. The machine checks if the communication with the peripherals is OK or NG; then displays the result. **DFU**
5989 003	Finisher		
5989 004	PSU		

5990	**[SP print mode]**		
5990 001	All (Data List)		Does SP5-990-002, 004, 005, 006, and 007.
5990 002	SP (Mode Data List)		Prints an SMC report on all SP modes.
5990 004	Logging		Prints an SMC report on the SPs that save logs.
5990 005	Diagnosis Report		Prints the Self-Diagnosis Report.
5990 006	Non-Default		Prints an SMC report on the SPs that have settings which are different from the defaults.
5990 007	NIB Summary		Prints the network configuration report.

5991	**[Jam OFF/ON]** Jam ON/OFF		[0 or 1 / 0 / -] Alphanumeric 0: Enable, 1: Disable
	Enables or disables jam detection.		

5993	**[Line Adj.]** Line Adjustment		
	Line Positioning Adjustment ([Color]) M: Main-scan, S: Sub-scan, Reg.: Registration, Mag.: Magnification For example: M Reg = Main scan registration		
5993 001	Mode Selection	*BCU	[0 to 2 / 1 / 1/step] Alphanumeric 0: Never done 1: Done at a) all process control self checks except after toner end recovery and developer initialization, b) new PCU detected, and c) the temperature has changed by 5°C since the last adjustment 2: As for setting '1', except it is not done during self-checks. However, it is done at the initial process control self check. The size of the 5°C difference can be changed with SP5-993-3
	Specifies when the automatic line position adjustment is done.		
5993 002	Execute		Use to make a line position adjustment.
5993 003	Temperature	*BCU	[3 to 15 / 5 / 1/°C]
	Specifies the temperature for starting the line positioning adjustment. The line position adjustment automatically starts when the temperature differs by the amount specified in this SP mode from the temperature when the last adjustment was done. There are two thermistors on the laser optics-housing unit. The thermistor close to the fusing unit monitors the temperature for this adjustment.		

5993 004	Interrupt	*BCU	[0 or 1 / 1 / -] Alphanumeric 0: Disabled, 1: Enabled
	Enables or disables the line position adjustment during a print job when the temperature differs by the amount specified in SP5-993-003 from the temperature at the last adjustment.		
5993 005	Stand-by	*BCU	[0 or 1 / 0 / -] Alphanumeric 0: Disabled, 1: Enabled
	Enables or disables the line position adjustment during stand-by mode when the temperature differs by the amount specified in SP5-993-003 from the temperature at the last adjustment.		
5993 006	Job Start	*BCU	[0 or 1 / 1 / -] 0: Disabled, 1: Enabled
	Enables or disables the line position adjustment just before starting a color print job when the temperature differs by the amount specified in SP5-993-003 from the temperature when the machine woke up from energy saver mode.		
5993 007	Result	*BCU	
	Displays the result of the latest line position adjustment in 4 digits. First and second digits: Error detected on the rear ID sensor Third and fourth digits: Error detected on the center ID sensor Fifth and sixth digits: Error detected on the front ID sensor <Result> 0 1 0 1 0 1 The 6th digit ↑ ↑ The 1st digit Refer to the Troubleshooting section for more details about the two-digit codes.		
5993 008	Exe. Counter	*BCU	
	Displays how many times the line position adjustment has been executed. Counts up by +1 normally. After a forced adjustment and a PCU replacement, it counts up +3 Also includes adjustments done at the factory.		
5993 009	Error Counter	*BCU	Displays how many times errors have been detected during the line position adjustment.
The way that the auto line position adjustment is done can be adjusted using the following SP modes (SP5-993-010 to 021). These are coefficients used for the adjustment. Normally, do not change except if the automatic adjustment gives poor results immediately after installing a new optics housing unit. Change the value then do a forced line position adjustment (SP 5-993-2) to check the effects of the changes. Example: If magenta is always shifted one dot to the left, reduce 5-993-11 by 1.			
5993 010	M Reg. [Y]	*BCU	A fine adjustment to the main-scan registration. [-128 to 127 / 0 / 1 dot/step] **FA** 1 dot = 20μ
5993 011	M Reg. [M]	*BCU	
5993 012	M Reg. [C]	*BCU	
5993 013	M Mag. [Y]	*BCU	A fine adjustment to the main-scan magnification. [-100 to 100 / 0 / 0.01 %/step] **FA** **NOTE:** The setting changes in this SP mode will be affect the next line position adjustment.
5993 014	M Mag. [M]	*BCU	
5993 015	M Mag. [C]	*BCU	
5993 016	S Reg. 600[Y]	*BCU	A fine adjustment to the sub-scan registration for each color (color registration). [-128 to 127 / 0 / 1 dot/step] FA 600dpi: 1 dot = 40μ 1200 dpi: 1 dot = 20μ
5993 017	S Reg. 600[M]	*BCU	
5993 018	S Reg. 600[C]	*BCU	
5993 019	S Reg. 1200[Y]	*BCU	
5993 020	S Reg. 1200[M]	*BCU	
5993 021	S Reg. 1200[C]	*BCU	
5993 022	Interrupt	*BCU	[10 to 250 / 100 / 10 sheets/step]

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	Specifies the number of sheets to be printed before a line position adjustment is done during a print job. SP 5-993-4 must be enabled. When the temperature difference meets the conditions specified in SP5-993-3, the machine starts counting the number of prints in the job. The machine interrupts the print job and does the line position adjustment if the number of prints exceeds the number specified in this SP mode. If the counted number of prints does not exceed the number specified, the machine resets the counter, then continues to monitor the temperature and does the line position adjustment next time.		
5993 024	Mscan Lgth Det	*BCU	[60 to 990 / 130 / 10 sec/step]
	Performs the main scan length detection when the polygon motor has operated consecutively for the time specified in this SP mode.		
5993 025	Drm Gear Phase	*BCU	[0 to 345 / 0 / 15 degrees/step] **DFU**
	Adjusts the phases of the black drum gear and the color drum gear.		
5993 026	Initialization	*BCU	[0 to 1 / 1 / 0/step] 0: Disable, 1: Enable
	Enables or disables the line position adjustment during initialization.		
5993 027	Toner Refresh	*BCU	[0 to 1 / 1 / 1/step] 0: Disable, 1: Enable
	Enables or disables the toner refreshing operation. Repetitive line position adjustments can cause abnormal outputs such as white spots. To prevent this, toner is consumed and supplied after line position adjustment.		
5993 031	PPS: M		Checks the transfer PPS in the 162-mm/s mode. Use this SP only as explained in section 4.4.3.
5993 032	PPS Set: M	*BCU	[6043 to 6166 / 6105 / 1 step]
	Adjusts the transfer PPS in the 125-mm/s mode. Use this SP only as explained in section 4.4.3.		
5993 033	PPS: L		Checks the transfer PPS in the 62.5-mm/s mode. Use this SP only as explained in section 4.4.3.
5993 034	PPS Set: L	*BCU	[6043 to 6166 / 6105 / 1 step]
	Adjusts the transfer PPS in the 62.5-mm/s mode. Use this SP only as explained in section 4.4.3.		
5993 035	Color Adj Level	*BCU	[LOW, MID, HIGH / MID / - /step]
	Specifies the level of color adjustment. This SP sets the following SPs as listed.		

	HI	MID	LOW
SP3-906-001	200	200	999
SP3-906-002	200	0	0
SP3-906-003	0	0	0
SP3-906-004	480	480	480
SP3-906-005	1.00	1.00	1.00

This SP controls how often the automatic line position adjustment is done. For the most accurate machine operation, set it to HIGH. If the user says that this adjustment is done too often, which uses too much time, set it to MID or LOW (less accurate operation but less time used).

5994	**[Unit Set]** Maintenance Unit Detection ON/OFF		
5994 001	Dev/PCU	*BCU#	[0 or 1 / 0 / -] Alphanumeric 0: Enable, 1: Disable
	Enables or disables PCU and development unit detection. **NOTE:** If this mode is disabled, new unit detection also does not function. Use this mode as a temporary measure, only when the micro-switches are defective.		
5994 002	Oil Unit	*BCU#	[0 or 1 / 0 / -] Alphanumeric 0: Enable, 1: Disable

	This is for the oil supply unit only, and not the fusing unit **NOTE:** Use this mode as a temporary measure, only when the unit detection mechanism is defective.

5995	**[ColorGapAdj2]** Color Gap Adjustment 2	*BCU	[0 or 1 / 0 / -] 0: Enabled, 1: Disabled
	Enables or disables the transfer belt feedback feature. Use this SP only as explained in section 4.4.3.		

5997	**[Test Pattern]**		
5997 001	IntTray		Selects the tray for making a test print. [0 to 4 / 1 / 1/step] 0: By-pass Table 1: Tray 1 2: Tray 2 3: Tray 3 4: Tray 4 **NOTE:** The machine makes a test pattern on the paper size loaded in the selected paper tray.
5997 002	Pattern		Selects a test pattern. [0 to 23 / 0 / 1/step] 0: None 1: 1-dot sub-scan line 2: 2-dot sub-scan line 3: 1-dot main-scan line 4: 2-dot main-scan line 5: 1-dot grid pattern (fine) 6: 2-dot grid pattern (fine) 7. 1-dot grid pattern (rough) 8. 2-dot grid pattern (rough) 9. 1-dot slant grid pattern 10. 2-dot slant grid pattern 11. 1-dot pattern 12. 2-dot pattern 13. 4-dot pattern 14. 1-dot trimming pattern 15. 2-dot trimming pattern 16. Cross stitch: sub-scan 17. Cross stitch: main-scan 18. Belt pattern 19. Belt pattern (vertical) 20. Checkered Flag 21. Grey scale (vertical) 22. Grey scale (Horizontal) 23. Solid
5997 003	Color		Selects the color for making a test pattern. [0 to 6 / 6 / 1/step] Alphanumeric 0: Red 1: Green 2: Blue 3: Yellow 4: Magenta 5: Cyan 6: Black
5997 004	Mode		Selects the color mode for making a test print. [0 or 1 / 0 / 1/step] Alphanumeric 0: Full Color 1: Single Color

5997 005	Resolution		Selects the resolution for making a test print. [0 to 2 / 1 / 1/step] Alphanumeric 0: 600x600 1: 1200x600 2: 1200x1200
5997 006	MLT Paper Size		Selects the paper size for making a test pattern from the by-pass table. [0 to 3 / 0 / 1/step] Alphanumeric 0: A4 LEF 1: LT LEF 2: A3 3: DLT
5997 007	Print Exe		Prints the test pattern with the settings specified with SP5-997-001 to 006. **NOTE:** When exiting the SP mode, the test print mode is automatically canceled.

5998	**[Memory Clear 2]** (☛ 5.3.2)		
5998 001	ENG Setting		Clears the engine settings except for counters.
5998 002	ENG Counter		Clears all counters.

SP6-XXX (Peripherals)

6110	**[Punch]**		
	Adjusts the punching position. Punch 1 US: 2 punch holes Europe: 2 punch holes North Europe: 4 punch holes Punch 2 US: 3 punch holes Europe: 4 punch holes Increment: Holes move toward the paper center. Decrement: Holes move toward the paper edge.		
6110 001	MF Fin 1	*BCU	[-7.5 to 7.5 / 0 / 0.5 mm/step]
6110 002	MF Fin 2	*BCU	
6110 003	Booklet Fin		[-2.5 to 7.5 / 0 / 0.5 mm/step]

6111	**[Staple Position]**		
	Adjusts the stapling position. Increment: Staple position moves toward the edge of paper. Decrement: Staple position moves toward the center of paper. **NOTE:** Although the adjustable range is ±3.5 mm, the stapling position can be changed only by 1.0 mm when stapling one position at the front or rear side even when the input value is more than 1.0.		
6111 001	MF Fin	*BCU	[-3.5 to 3.5 / 0 / 0.5 mm/step]
6111 002	Booklet Fin		[-3.75 to 3.75 / 0. / 0.25 mm/step]

6112	**[Fold Position]**	*BCU	[-3.75 to 3.75 / 0. / 0.25 mm/step]
6111 001	A3/DLT		Adjusts the folding positions of the optional booklet finisher.
6111 002	B4/LG		
6112 003	A4/LT		
6112 004	A3/DLT		
6112 005	B4/LG		
6112 006	A4/LT		

6901	**[Multi Bin Set]**		
	Specifies whether or not the optional multi-bin output tray is installed. When installing the multi-bin output tray, this SP mode should be set to “1”.		
6901 001	Multi Bin Set	*BCU	[0 or 1 / 0 / -] **Not used** 0: Not Set, 1: Set

SP7-XXX (Data Log)

7401	**[SC Counter]**	*CTL	[0 to 9999 / 0 / 1/step]
	Displays the number of SC codes detected.		

7403	**[Latest10SClog]**		
7403 001	Latest	*CTL	Logs the SC codes detected. The 10 most recently detected SC Codes are not displayed on the screen, but can be seen on the SMC (logging) outputs.
7403 002	Latest 1	*CTL	
7403 003	Latest 2	*CTL	
7403 004	Latest 3	*CTL	
7403 005	Latest 4	*CTL	
7403 006	Latest 5	*CTL	
7403 007	Latest 6	*CTL	
7403 008	Latest 7	*CTL	
7403 009	Latest 8	*CTL	
7403 010	Latest 9	*CTL	

7502	**[Total Jam]**	*CTL	[0 to 9999 / 0 / 1 sheet/step]
	Displays the total number of jams detected.		

7504	**[Jam Location]** ON: On check, OFF: Off Check		
	Displays the number of jams according to the location where jams were detected.		
7504 003	Tray 1: ON	*CTL	
7504 004	Tray 2: ON	*CTL	
7504 005	Tray 3/LCT: ON	*CTL	
7504 006	Tray 4: ON	*CTL	
7504 008	Registration: ON	*CTL	
7504 009	External Tray: ON	*CTL	
7504 010	Internal Tray: ON	*CTL	
7504 011	Duplex: ON	*CTL	
7504 012	Duplex Exit 1: ON	*CTL	
7504 013	Duplex Exit 2: ON	*CTL	
7504 014	Duplex Exit 3: ON	*CTL	
7504 015	Duplex Feed: ON	*CTL	
7504 020	Mail Box Upper: ON	*CTL	
7504 021	Mail Bos Lower: ON	*CTL	
7504 051	Tray 1: OFF	*CTL	
7504 052	Tray 2: OFF	*CTL	
7504 053	Tray 3/LCT: OFF	*CTL	
7504 054	Tray 4: OFF	*CTL	
7504 061	Registration: OFF	*CTL	
7504 063	External Tray: OFF	*CTL	
7504 064	Internal Tray: OFF	*CTL	
7504 065	Duplex: OFF	*CTL	
7504 066	Duplex Exit 1: OFF	*CTL	
7504 067	Duplex Exit 2: OFF	*CTL	
7504 068	Duplex Exit 3: OFF	*CTL	
7504 069	Duplex Feed: OFF	*CTL	
7504 100	Finisher Entrance	*CTL	
7504 101	Finisher Shift Tray 1	*CTL	
7504 102	Finisher Shift Tray 2	*CTL	
7504 103	Finisher Staple	*CTL	

7504 104	Finisher Exit	*CTL	
7504 105	Finisher Drive	*CTL	
7504 106	Finisher Tray Up/Down	*CTL	
7504 107	Finisher Jogger	*CTL	
7504 108	Finisher Staple	*CTL	
7504 109	Finisher Exit	*CTL	
7504 110	Finisher Punch	*CTL	
7504 111	Finisher Jam Clear	*CTL	
7504 120	Finisher 120	*CTL	Booklet finisher entrance off
7504 121	Finisher 121	*CTL	Booklet finisher entrance on
7504 122	Finisher 122	*CTL	Booklet finisher stack tray
7504 123	Finisher 123	*CTL	Booklet finisher folding off
7504 124	Finisher 124	*CTL	Booklet finisher folding on
7504 125	Finisher 125	*CTL	Booklet finisher staple
7504 126	Finisher 126	*CTL	Booklet finisher punch
7504 127	Finisher 127	*CTL	Booklet finisher transport motor
7504 128	Finisher 128	*CTL	Booklet finisher paddle motor
7504 129	Finisher 129	*CTL	Booklet finisher stapler/folder motor
7504 130	Finisher 130	*CTL	Booklet finisher fence motor
7504 131	Finisher 131	*CTL	Booklet finisher regular tray

7506	**[Jam Paper Size]**		
7506 005	A4	*CTL	Displays the number of jams according to the paper size. [0 to 9999 / 0 / 1 sheet/step]
7506 006	A5	*CTL	
7506 014	B5	*CTL	
7506 038	8 1/2 x 11	*CTL	
7506 044	5 1/2 x 8 1/2	*CTL	
7506 132	A3 SEF	*CTL	
7506 133	A4 SEF	*CTL	
7506 134	A5 SEF	*CTL	
7506 141	B4 SEF	*CTL	
7506 142	B5 SEF	*CTL	
7506 160	DLT SEF	*CTL	
7506 164	LG SEF	*CTL	
7506 166	LT SEF	*CTL	
7506 172	HLT SEF	*CTL	
7506 255	Others	*CTL	

7507	**[Jam History]**		
7507 001	Latest	*CTL	Displays the 10 most recently detected paper jams.
7507 002	Latest 1	*CTL	
7507 003	Latest 2	*CTL	
7507 004	Latest 3	*CTL	
7507 005	Latest 4	*CTL	
7507 006	Latest 5	*CTL	
7507 007	Latest 6	*CTL	
7507 008	Latest 7	*CTL	
7507 009	Latest 8	*CTL	
7507 010	Latest 9	*CTL	

7803	[PM Counter Display]		
	(**S**heets or **R**otations, Unit, [Color]) Dev.: Development Unit, PF: Paper Feed Rollers, Oil Supply: Oil Supply Unit, Fusing: Fusing Unit, Transfer: Transfer Unit		
Displays the number of sheets printed for each current maintenance unit.			
7803 001	Paper	*BCU	[0 to 9999999 / 0 / 1 sheet/step] PM counters click up based on the number of A4 (LT) LEF size sheets printed. Therefore, the A3 (DLT) Double Count is activated. The Double Count cannot be deactivated. When a unit is replaced, the machine automatically detects that the new unit is installed. Then, the current PM counter value is automatically moved to the PM Counter - Previous (SP7-906-1 to 9) and is reset to "0". The total number of sheets printed with the last unit replaced can be checked with SP7-906-1 to 9. 7803 001: This shows the number of pages printed. **NOTE**: The LCT is counted as the 3rd feed station.
7803 002	S: PCU [K]	*BCU	
7803 003	S: PCU [Y]	*BCU	
7803 004	S: PCU [M]	*BCU	
7803 005	S: PCU [C]	*BCU	
7803 006	S: Dev. [K]	*BCU	
7803 007	S: Dev. [Y]	*BCU	
7803 008	S: Dev. [M]	*BCU	
7803 009	S: Dev. [C]	*BCU	
7803 010	S: Oil Supply	*BCU	
7803 011	PF By-pass	*BCU	
7803 012	PF Tray 1	*BCU	
7803 013	PF Tray 2	*BCU	
7803 014	PF Tray 3	*BCU	
7803 015	PF Tray 4	*BCU	
7803 016	S: Fusing	*BCU	
7803 017	S: Transfer	*BCU	
Displays the number of revolutions of motors or clutches for each current maintenance unit. [0 to 9999999 / 0 / 1 revolution/step] When a unit is replaced, the machine automatically detects that the new unit is installed. Then, the current PM counter value is automatically moved to the PM Counter - Previous (SP7-906-10 to 20) and is reset to "0". The total number of revolutions made with the last unit replaced can be checked with SP7-906-10 to 20.			
7803 018	R: PCU [K]	*BCU	Target Revolution: 300,000
7803 019	R: PCU [Y]	*BCU	Target Revolution: 319,000
7803 020	R: PCU [M]	*BCU	Target Revolution: 319,000
7803 021	R: PCU [C]	*BCU	Target Revolution: 319,000
7803 022	R: Dev. [K]	*BCU	Target Revolution: 1,142,000
7803 023	R: Dev. [Y]	*BCU	Target Revolution: 1,146,000
7803 024	R: Dev. [M]	*BCU	Target Revolution: 1,146,000
7803 025	R: Dev. [C]	*BCU	Target Revolution: 1,146,000
7803 026	R: Oil Supply	*BCU	Target Revolution: 2,559,000
7803 027	R: Fusing	*BCU	Target Revolution: 8,397,000
7803 028	R: Transfer	*BCU	
Displays the number of sheets printed until the waste toner bottle becomes full or toner runs out.			
7803 029	S: Waste Toner	*BCU	[0 to 9999999 / - / 1 sheet/step]
7803 030	S: Toner [K]	*BCU	
7803 031	S: Toner [Y]	*BCU	
7803 032	S: Toner [M]	*BCU	
7803 033	S: Toner [C]	*BCU	
Displays the total operating time for the toner attraction pump.			
7803 034	TonerSupply[K]	*BCU	[0 to 9999999 / - / 1 s/step]
7803 035	TonerSupply[Y]	*BCU	
7803 036	TonerSupply[M]	*BCU	
7803 037	TonerSupply[C]	*BCU	

Displays the value given by the following formula:
(Current revolution ÷ Target revolution) × 100, where "Current revolution" is the current value for the counter of the part, and "Target revolution" is the values of SP7-803-17 through 27. This shows how much of the unit's expected lifetime has been used up.
The R% counter is based on rotations, not prints. If the number of rotations reaches the limit, the machine enters the end condition for that unit. If the print count lifetime is reached first, the machine also enters the end condition, even though the R% counter is still less than 100%.
Oil supply unit: When the R% counter reaches 100%, it enters the near-end condition, not the end condition. The end condition occurs some number of rotations after this (not adjustable).
NOTE: The machine internally adjusts or compensates as necessary, depending on conditions of machine usage. Due to this, at the oil supply unit near-end condition, the R% counter of the oil supply unit can be 100%, lower than 100%, or higher than 100%.

7803 038	R(%): PCU [K]	*BCU	
7803 039	R(%): PCU [Y]	*BCU	
7803 040	R(%): PCU [M]	*BCU	
7803 041	R(%): PCU [C]	*BCU	
7803 042	R(%): Dev [K]	*BCU	
7803 043	R(%): Dev [Y]	*BCU	
7803 044	R(%): Dev [M]	*BCU	
7803 045	R(%): Dev [C]	*BCU	
7803 046	R(%): Oil Spply	*BCU	
7803 047	R(%): Fusing	*BCU	
7803 048	S: Trans Cln	*BCU	
7803 049	R: Trans Cln	*BCU	

7804	**[PM Counter Reset]**		
	(Unit, [Color]) Dev.: Development Unit, PF: Paper Feed Rollers, Transfer: Transfer Unit		
7804 001	Paper		Clears the PM counter. Press the Enter key after the machine asks "Execute?". When a unit is replaced, the machine automatically detects that the new unit is installed. Then, the current PM counter value is automatically moved to the b PM Counter - Previous (SP7-906-1 to 25) and is reset to "0". **NOTE:** The LCT is counted as the 3rd feed station.
7804 002	PCU [K]		
7804 003	PCU [Y]		
7804 004	PCU [M]		
7804 005	PCU [C]		
7804 006	Dev. [K]		
7804 007	Dev. [Y]		
7804 008	Dev. [M]		
7804 009	Dev. [C]		
7804 010	Oil Supply		
7804 011	PF By-pass		
7804 012	PF Tray 1		
7804 013	PF Tray 2		
7804 014	PF Tray 3		
7804 015	PF Tray 4		
7804 016	Fusing		
7804 017	Transfer		
7804 018	Trans Cln		
7804 050	All		

7807	**[SC/Jam Clear]** SC/Jam Counter Clear
	Clears the counters related to SC codes and paper jams.

7808	**[Counter Clear]** (☛ 5.3.2)
	Clears all counters.

7832	**[Diag. Result]** Diagnostic Result	*CTL	
	Displays the result of the diagnostics. To scroll the return codes, press the up-arrow key or the down-arrow key.		

7833	**[Coverage]** Pixel Coverage Ratio		
Displays the image coverage ratio for each color of the last output. This SP mode displays the "coverage ratio" of the output, i.e. the ratio of the total pixel area of the image data to the total printable area on the paper. Note that this value is not directly proportional to the amount of toner consumed, although of course it is one factor that affects this amount. The other major factors involved include: the type, total image area and image density of the original, toner concentration and developer potential.			
7833 001	Last [K]	*BCU	[0 to 100.00 / - / 0.01 %/step]
7833 002	Last [C]	*BCU	
7833 003	Last [M]	*BCU	
7833 004	Last [Y]	*BCU	
Displays accumulated average value of image coverage ratio for each color. SP7-833-005 to 008 vs SP8-831-001 to 004 The averages for K (SP7-833-005 and SP8-831-001) are the same. For CMY, SP8-831 does not include black-and-white pages in the middle of a color job. However, SP7-833 does include these pages in the average. As a result, the readings of SP7-833 will be lower, because these averages include pages for which there is zero for CMY, but the averages calculated for SP8-831 do not include these pages.			
7833 005	Average [K]	*BCU	[0 to 100.00 / - / 0.01 %/step]
7833 006	Average [C]	*BCU	
7833 007	Average [M]	*BCU	
7833 008	Average [Y]	*BCU	
Displays the total number of toner cartridges replaced. SP7-833-011 to 014 are same as SP7-908-5 to 8.			
7833 011	Toner [K]	*BCU	[0 to 65535 / - / 1 cartridge/step]
7833 012	Toner [C]	*BCU	
7833 013	Toner [M]	*BCU	
7833 014	Toner [Y]	*BCU	

7834	**[Coverage Clear]**		
7834 001	Average		Resets the average coverage counters.
7834 002	Toner		Resets the toner cartridge counters.
7834 003	S: PREV Toner		Resets the sheet counters of the previous cartridges. The sheet counters count the number of sheets printed with a toner cartridge.
7834 004	S: Coverage 0-100		Resets the coverage counters.
7834 255	All		Executes SP7-834-001 through 004.

7836	**[Total Memory Size]**
	Shows the total storage size.

7901	**[Assert Info]**		
7901 001	File Name		Records the location where a problem is detected in the program. The data stored in this SP is used for problem analysis. **DFU**
7901 002	# of Lines		
7901 003	Location		

7905	[Alert Display]		
7905 010	Wst Oil: Full	*BCU	[232 to 464 / 232 / 1 kilo-revolutions/step]
	Specifies the number of revolutions the development drive motor-K can make after the message, “Waste Oil Bottle is Almost Full”, is displayed. The machine stops after the motor has made the specified number of revolutions. This SP specifies the interval from near end to end for the waste oil bottle. 232k revolutions equals 2.5k prints. If it is set to 464, the end condition is 5.0k prints after near end.		
7905 014	Oil: Alert: Page	*BCU	[25.0 to 27.5 / 27.5 / 0.1 kilo-sheets/step]
	Specifies the number of sheets the machine can output after the oil supply reaches the near-end condition.		
7905 023	PCU: Black	*BCU	Shows the number of sheets that causes an alert (50K sheets [not adjustable]). **DFU**
7905 024	PCU: Color	*BCU	
7905 025	DEV: Black	*BCU	Shows the number of sheets that causes an alert (100K sheets [not adjustable]). **DFU**
7905 026	DEV: Color	*BCU	

7906	**[PMCounter-PREV]** PM Counter - Previous		
	(**S**heets or **R**otations, Unit, [Color]), Dev.: Development Unit		
7906 001	S: PCU [K]	*BCU	Displays the number of sheets printed with the previous maintenance units. [0 to 9999999 / 0 / 1 sheet/step]
7906 002	S: PCU [Y]	*BCU	
7906 003	S: PCU [M]	*BCU	
7906 004	S: PCU [C]	*BCU	
7906 005	S: Dev. [K]	*BCU	
7906 006	S: Dev. [Y]	*BCU	
7906 007	S: Dev. [M]	*BCU	
7906 008	S: Dev. [C]	*BCU	
7906 009	S: Oil Supply	*BCU	
7906 010	S: Fusing	*BCU	
7906 011	R: PCU [K]	*BCU	Displays the number of revolutions for motors or clutches in the previous maintenance units. [0 to 9999999 / 0 / 1 revolution/step]
7906 012	R: PCU [Y]	*BCU	
7906 013	R: PCU [M]	*BCU	
7906 014	R: PCU [C]	*BCU	
7906 015	R: Dev. [K]	*BCU	
7906 016	R: Dev. [Y]	*BCU	
7906 017	R: Dev. [M]	*BCU	
7906 018	R: Dev. [C]	*BCU	
7906 019	R: Oil Supply	*BCU	
7906 020	R: Fusing	*BCU	
7906 021	S: Waste Toner	*BCU	Displays the number of sheets printed with the previous maintenance unit or toner cartridge. [0 to 9999999 / 0 / 1 sheet/step]
7906 022	S: Toner [K]	*BCU	
7906 023	S: Toner [Y]	*BCU	
7906 024	S: Toner [M]	*BCU	
7906 025	S: Toner [C]	*BCU	
7906 026	R(%): PCU [K]	*BCU	Displays the value given by the following formula: (Current count ÷ Yield count) x 100, where “Current count” is the current values in the counter for the part, and “Yield count” is the recommended yield. [0 to 999 / 0 / 1 %/step]
7906 027	R(%): PCU [Y]	*BCU	
7906 028	R(%): PCU [M]	*BCU	
7906 029	R(%): PCU [C]	*BCU	
7906 030	R(%): Dev [K]	*BCU	
7906 031	R(%): Dev [Y]	*BCU	
7906 032	R(%): Dev [M]	*BCU	
7906 033	R(%): Dev [C]	*BCU	
7906 034	R(%): Oil Spply	*BCU	
7906 035	R(%): Fusing	*BCU	

7907	[Check Sum]		
7907 001	Engine Main	*BCU	Displays the check sum of the firmware.
7907 002	Engine MUSIC	*BCU	

7910	[Firmware PN] Firmware Part Number		
	Displays the part number of the firmware.		
7910 001	System	7910 157	RTIFF
7910 002	Engine	7910 158	PCL
7910 007	Finisher	7910 159	PCLXL
7910 009	Bank	7910 160	MSIS
7910 010	LCT	7910 161	MSIS (OPTION)
7910 011	Mail Box	7910 162	PDF
7910 013	Duplex	7910 163	BMLinkS
7910 014	MUSIC	7910 180	FONT
7910 021	DSP MUSIC	7910 181	FONT 1
7910 131	Bluetooth	7910 182	FONT 2
7910 150	RPCS	7910 183	FONT 3
7910 151	PS	7910 200	Factory
7910 152	RPDL	7910 204	Printer
7910 153	R98	7910 209	Test Suite
7910 154	R16	7910 210	MIB
7910 155	RPGL	7910 211	Web System
7910 156	R55		

7911	[Firmware Ver.] Firmware Version		
	Displays the firmware version.		
7911 001	System	7911 157	RTIFF
7911 002	Engine	7911 158	PCL
7911 007	Finisher	7911 159	PCLXL
7911 009	Bank	7911 160	MSIS
7911 010	LCT	7911 161	MSIS (OPTION)
7911 011	Mail Box	7911 162	PDF
7911 013	Duplex	7911 162	BMLinkS
7911 014	MUSIC	7911 180	FONT
7911 021	DSP MUSIC	7911 181	FONT 1
7911 131	Bluetooth	7911 182	FONT 2
7911 150	RPCS	7911 183	FONT 3
7911 151	PS	7911 200	Factory
7911 152	RPDL	7911 204	Printer
7911 153	R98	7911 209	Test Suite
7911 154	R16	7911 210	MIB
7911 155	RPGL	7911 211	Web System
7911 156	R55		

SP8-XXX (Data Log 2)

The counters in Data Log 2 are commonly used by multiple machines. Data Log 2 includes the counters of the functions or units that are not supported by Model J-P3. The counters in Data Log 2 are cleared by SP5-801 (Memory Clear) or SP7-808 (Counter Reset).

Keys and abbreviations in Data Log 2

- **Program-related keys and abbreviations**

T:	the grand total of the counters of all application programs
C:	the counter of the copier application program excluding the events related to the document server
F:	the counter of the facsimile application program excluding the events related to the document server
P:	the counter of the printer application program excluding the events related to the document server
S:	the counter of the scanner application program excluding the events related to the document server
L:	the counter of the document server (local storage)
O:	the counter of other application programs including remote application programs

- **Program-independent keys and abbreviations**

/	by (“T:Jobs/Apl” means the total Jobs by Application.)
>	or more (“2>” means two or more.)
AddBook	address book
Apl	application program
B/W	black & white
Bk	black
C	cyan
ColCr	color create
ColMode	color mode
Comb	combine
Comp	compression
Deliv	delivery
DesApl	designated application program (The designated application program is the application program that stores the data or information on the document server, for example.)
Dev Counter	development count; the number of pages developed
Dup, Duplex	duplex printing
Emul	emulation
FC	full color
FIN	finish, post-print processing
Full Bleed	without margin
GenCopy	generation copy
GPC	get print counter (The get print counter starts counting when the number of processed pages exceeds 10. For example, when 12 pages are processed, the get print counter shows 2.)
IFax	Internet fax
ImgEdt	image editing performed on the original with the copier GUI (Image editing includes, for example, border removal, adding stamps, and page numbering.)
K	black in the YMCK mode
LS	local storage; document server
LSize	large size
Mag	magnification
MC	one color

NRS	new remote service; NRS
Org	original for scanning
OrgJam	original jam
Palm 2	Print Job Manager/Desk Top Editor (A pair of utility programs that distribute print jobs evenly among the printers on the network and processes files.)
PC	personal computer
PGS	pages (Duplex printing is counted as two. A3/DLT simplex is counted as two if the A3/DLT double-count program is validated.)
PJob	print job
Ppr	paper
PrtJam	printer (plotter) jam
PrtPGS	print pages
R	red toner remaining (Currently, no machine supports this function.)
Rez	resolution
SC	service condition code; SC code
Scn	scan
Sim, Simplex	simplex, printing on one side.
S-to-Email	scan-to-e-mail
SMC	SMC report printed by SP5-990
Svr	server
TonEnd	toner end
TonSave	toner save
TXJob	send, transmission
YMC	yellow, magenta, and cyan
YMCK	yellow, magenta, cyan, and black

8001	T:Total Jobs	*CTL	The number of times the application program starts a job [0~9999999/ **0** / 1]
8004	P: Total Jobs	*CTL	
8007	O: Total Jobs	*CTL	

- The jobs interrupted by paper jams or some other errors are also counted.
- The jobs executed by SPs are not counted.
- When using secure printing (when a password is required to start the print job), the job is counted at the time when either “Delete Data” or “Specify Output” is specified.
- When the user prints a report (user code list, for example), the O: counter increments.

8021	T: Pjob/LS	*CTL	The number of times the application program stores data on the document server [0~9999999/ **0** / 1]
8024	P: Pjob/LS	*CTL	
8027	O: Pjob/LS	*CTL	

- When images stored on the document server by a network application (including Palm 2), are printed with another application, the O: counter increments.

8031	T: Pjob/DesApl	*CTL	The number of times the application program retrieves data from the document server [0~9999999/ **0** / 1]
8034	P: Pjob/DesApl	*CTL	
8037	O: Pjob/DesApl	*CTL	

- When documents already stored on the document server are printed, the counter of the application program that executes the print job increases.

8061	T: FIN Jobs	*CTL	The number of times the application program uses the finisher [0~9999999/ **0** / 1]
8064	P: FIN Jobs	*CTL	
8067	O: FIN Jobs	*CTL	
001	Sort	The number of times the application program starts the sort mode	
002	Stack	The number of times the application program starts the tack mode	
003	Staple	The number of times the application program starts the staple mode	
004	Booklet	The number of times the application program starts the booklet mode **NOTE:** The counter of the staple mode (003) can also increase.	
005	Z-Fold	The number of times the application program starts the Z-fold mode **NOTE:** The booklet mode is not included.	
006	Punch	The number of times the application program starts the punch mode **NOTE:** The counter of the printer application program (P:) can also increase.	
007	Other	(Reserved)	

8071	T: Jobs/PGS	*CTL	The number of jobs that try to output a specific number of pages [0~9999999/ **0** / 1]		
8074	P: Jobs/PGS	*CTL			
8077	O: Jobs/PGS	*CTL			
001	1 Page			008	21~50 Pages
002	2 Pages			009	51~100 Pages
003	3 Pages			010	101~300 Pages
004	4 Pages			011	301~500 Pages
005	5 Pages			012	501~700 Pages
006	6~10 Pages			013	701~1000 Pages
007	11~20 Pages			014	1001~ Pages

- The jobs interrupted by paper jams or some other errors are also counted.
- If a job is suspended and restarted later, the job is seen as one job.
- If the finisher runs out of staples during stapling, the job is counted at the time the error occurs.
- The first test print and subsequent test prints to adjust settings are added to the number of pages of the copy job (SP 8072).

8381	T: Total PrtPGS	*CTL	The number of sheets that the application program tries to print (excluding the pages printed in the SP mode) [0~9999999/ **0** / 1]
8384	P: Total PrtPGS	*CTL	
8387	O: Total PrtPGS	*CTL	

- A3/DLT simplex is counted as two if the A3/DLT double-count program is validated.
- The following pages are not counted as printed pages:
  - Blank pages in a duplex printing job
  - Blank pages inserted as document covers, chapter title sheets, and slip sheets
  - Reports printed to confirm counts
  - All reports done in the service mode (service summaries, engine maintenance reports, etc.)
  - Test prints for machine image adjustment
  - Error notification reports
  - Partially printed pages as the result of a copier jam

8391	LSize PrtPGS	*CTL	The number of sheets printed on A3/DLT and larger sizes [0~9999999/ **0** / 1]

8411	Prints/Duplex	*CTL	The number of sheets used in duplex printing [0~9999999/ **0** / 1]

- The counter increases by +1 when both sides (front/back) are printed. The counter does not increase when one of the two sides is not printed (e.g., the last page of the documents that have three pages, five pages, seven pages, and so on).

8 421	T: PrtPGS/Dup Comb	*CTL	The number of sheets used in binding and combining [0~9999999/ **0** / 1]
8 424	P: PrtPGS/Dup Comb	*CTL	
8 427	O: PrtPGS/Dup Comb	*CTL	
001	Simplex> Duplex		
004	Simplex Combine		
005	Duplex Combine		
006	2>	2 pages on 1 side (2-Up)	
007	4>	4 pages on 1 side (4-Up)	
008	6>	6 pages on 1 side (6-Up)	
009	8>	8 pages on 1 side (8-Up)	
010	9>	9 pages on 1 side (9-Up)	
011	16>	16 pages on 1 side (16-Up)	
012	Booklet		
013	Magazine		

- These counters are useful for the users who want to know how much paper they have saved.
- Partially printed sheets are also counted as 1 page (e.g, the last page in the 4-Up mode is only partially printed when the documents have 5, 6, or 7 pages, 9, 10, or 11 pages, 13, 14, or 15 pages, and so on.).
- Here is a summary of how the counters work in the booklet and magazine modes.

Booklet		**Magazine**	
Original Pages	**Count**	**Original Pages**	**Count**
1	1	1	1
2	2	2	2
3	2	3	2
4	2	4	2
5	3	5	4
6	4	6	4
7	4	7	4
8	4	8	4

8431	T: PrtPGS/ImgEdt	*CTL	The number of pages that the application program handles in a specific way [0~9999999/ **0** / 1]
8434	P: PrtPGS/ImgEdt	*CTL	
8437	O: PrtPGS/ImgEdt	*CTL	
001	Cover/Slip Sheet	The number of cover sheets or slip sheets inserted **NOTE:** A duplex-printed cover is counted as two.	
002	Series/Book	The number of pages printed in series (one side) or in the booklet mode	
003	User Stamp	The number of pages where stamps were applied (including page numbering and date stamping)	

8441	T: PrtPGS/Ppr Size	*CTL	The number of sheets of a specific paper size that the application program uses [0~9999999/ **0** / 1]
8444	P: PrtPGS/Ppr Size	*CTL	
8447	O: PrtPGS/Ppr Size	*CTL	

001	A3	007	LG
002	A4	008	LT
003	A5	009	HLT
004	B4	010	Full Bleed
005	B5	254	Other (Standard)
006	DLT	255	Other (Custom)

- These counters do not distinguish between LEF and SEF.

8451	PrtPGS/Ppr Tray	*CTL	The number of sheets fed from a specific tray [0~9999999/ **0** / 1]
001	Bypass	Bypass Tray	
002	Tray 1	Copier	
003	Tray 2	Copier	
004	Tray 3	Paper Tray Unit/LCT (Optional)	
005	Tray 4	Paper Tray Unit (Optional)	
006	Tray 5	(Not used)	
007	Tray 6	(Not used)	
008	Tray 7	(Not used)	
009	Tray 8	(Not used)	
010	Tray 9	(Not used)	

8461	T: PrtPGS/Ppr Type	*CTL	The number of sheets of specific paper types [0~9999999/ **0** / 1]
8464	P: PrtPGS/Ppr Type	*CTL	

001	Normal	005	Normal (Back)
002	Recycled	006	Thick (Back)
003	Special	007	OHP
004	Thick	008	Other

- These counters increase when the paper is output. On the other hand, the PM counter increases (to measure the service life of each feed roller) when the paper is fed.
- Blank sheets (covers, chapter covers, slip sheets) are also counted.
- During duplex printing, a sheet printed on two sides and a sheet printed on one side are both counted as 1.

8471	PrtPGS/Mag	*CTL	The number of pages magnified or reduced [0~9999999/ **0** / 1]		
001	~49%			004	101%~200%
002	50%~99%			005	201% ~
003	100%				

- Some application programs (on the computer) can specify the magnification setting of the printer driver (e.g., MS Excel). In a case like this, SP8-471 recognizes the setting and increases the corresponding counter. Other application programs can magnify or reduce the print images on their own. In a case like this, SP8-471 does not recognize the magnification setting of the application programs and increase the counter of 100%.
- Magnification adjustment conducted on the document server is not counted.
- Blank cover sheets and slip sheets are regarded as 100%.

8481	T: PrtPGS/TonSave	*CTL	The number of pages printed with the toner save feature activated [0~9999999/ **0** / 1]
8484	P: PrtPGS/TonSave	*CTL	

- These counters display the same result.

8501	T: PrtPGS/Col Mode	*CTL	The number of pages printed in a specific color mode [0~9999999/ **0** / 1]		
8504	P: PrtPGS/Col Mode	*CTL			
001	B/W			003	Full Color
002	Single Color				

8511	T: PrtPGS/Emul	*CTL	The number of pages printed by the printer emulation mode [0~9999999/ **0** / 1]		
8514	P: PrtPGS/Emul	*CTL			
001	RPCS			008	RTIFF
002	RPDL			009	PDF
003	PS3			010	PCL5e/5c
004	R98			011	PCL XL
005	R16			012	IPDL-C
006	GL/GL2			013	BM-Links (for local models only)
007	R55			014	Other

- These counters display the same result.

8521	T: PrtPGS/FIN	*CTL	The number of pages processed by the finisher [0~9999999/ **0** / 1]		
8524	P: PrtPGS/FIN	*CTL	[0~9999999/ **0** / 1]		
001	Sort			005	Z-Fold
002	Stack			006	Punch
003	Staple			007	Other
004	Booklet				

- Even if the pages are too many for the finisher to staple, all pages are counted (including unstapled pages).
- The counter of stapling (003) increases by +1 when the paper is transported from the printer to the tray of the finisher. Even if a paper jam occurs on this path, the counter (003) increases. If the same job is retried, the counter (003) increases once again.

8531	Staples	*CTL	The number of staples [0~9999999/ **0** / 1]

8581	T: Counter	*CTL	The number of outputs in a specific color mode [0~9999999/ **0** / 1]		
001	Total			007	Copy: B/W
002	Total: Full Color			008	Print: Color
003	B&W/Single Color			009	Print: B/W
004	Development: CMY			010	Total: Color
005	Development: K			011	Total: B/W
006	Copy: Color				

8584	P: Counter	*CTL	The number of outputs in a specific color mode [0~9999999/ **0** / 1]		
001	B/W			003	Full Color
002	Single Color				

8591	O: Counter	*CTL	The number of A3/DLT, duplex printing, or staples [0~9999999/ **0** / 1]		
001	A3/DLT			003	Staple
002	Duplex				

- Note that these counters are not for the printer application program.

8771	Dev Counter	*CTL	The number of rotations of the development rollers [0~9999999/ **0** / 1]		
001	Total			004	M
002	K			005	C
003	Y				

8781	Toner Botol Info.	*BCU	The number of toner bottles (cartridges) already replaced [0~9999999/ **0** / 1]		
001	Toner [BK]		003	Toner [M]	
002	Toner [Y]		004	Toner [C]	

- SP7-833-011 through 014 and SP8-781-001 through 004 display the same results.

8801	Toner Remain	*CTL	The percentage of the remaining toner [0~100/ **0** / 1]		
001	K		003	M	
002	Y		004	C	

8831	Coverage	*BCU	The average coverage [0~100/ **0** / 1]		
001	Average [BK]		003	Average [M]	
002	Average [Y]		004	Average [C]	

- SP8-831 displays the image coverage ratio for each color of the last output. This SP mode displays the coverage ratio of the output, i.e. the ratio of the total pixel area of the image data to the total printable area on the paper. Note that this value is not directly proportional to the amount of toner consumed, although of course it is one factor that affects this amount. The other major factors involved include: the type, total image area and image density of the original, toner concentration and developer potential.
- SP8-831-001 through 004 and SP7-833-005 through 008 display the same results.

8841	Coverage	*BCU	The coverage of the latest print [0~100/ **0** / 1]		
001	Last [BK]		003	Last [M]	
002	Last [Y]		004	Last [C]	

- SP8-841-001 through 004 and SP7-833-001 through 004 display the same results.

8851	Coverage: 0-10%	*BCU	The number of scanned sheets of a specific coverage ratio [0~9999999/ **0** / 1]		
8861	Coverage: 11-20%	*BCU			
8871	Coverage: 21-30%	*BCU			
8881	Coverage: 31%-	*BCU			
001	S: BK		003	S: M	
002	S: Y		004	S: C	

- For example, SP8-851-001 displays the number of scanned sheets whose black-coverage ratio is 0 percent through 10 percent. SP8-881-004 displays the number of scanned sheets whose cyan-coverage ratio is 31 percent or higher.

8891	PM Counter	*BCU	The number of sheets output by the scanner application program [0~9999999/ **0** / 1]		
001	S: Toner [BK]			003	S: Toner [M]
002	S: Toner [Y]			004	S: Toner [C]

8901	PM Counter: Previous	*BCU	The number of sheets output by the scanner application program with the previously replaced units [0~9999999/ **0** / 1]		
001	S: Toner [BK]			003	S: Toner [M]
002	S: Toner [Y]			004	S: Toner [C]

8941	Machine Status	*CTL	The amount of time the machine spends in a specific mode [0~9999999/ **0** / 1]
001	Operation Time	The engine is operating. The counter does not include the time when the data is being saved in the HDD (while engine is not operating).	
002	Standby Time	The engine is not operating. The counter includes the time when the data is being saved in the HDD. The counter does not include the time when the machine is n the Energy Saver Mode, the Low Power Mode, or the Off Mode.	
003	Energy Save Time	The machine is in the Energy Saver Mode. The counter includes the time when the background printing is being executed.	
004	Low Power Time	The machine is in the Low Power Mode. The counter includes the time when the engine is on in the Energy Saver Mode. The counter also includes the time when the background printing is being executed.	
005	Off Mode Time	The machine is in the Off Mode. The counter includes the time when the background printing is being executed. The counter does not include the time when the main power switch is off.	
006	Down Time/SC	The total downtime caused by SC codes	
007	Down Time/PrtJam	The total downtime caused by paper jams	
008	Down Time/OrgJam	The total downtime caused by original jams	
009	Down Time/TonEnd	The total downtime caused by toner ends	

5.3.2 MEMORY CLEAR/COUNTER CLEAR

The table lists the data that is reset or deleted with SP5-801, SP5-998, and SP7-808. The serial number information, meter charge setting (SP5-930), and meter charge counters (SP8-58x) are not cleared.

NOTE: In this section (5.3.2), the letter "x" represents a whole number from "0" to "9".

Service Program		Reset or Deleted
5801 003	Memory Clear > SCS	SP5-009, 101, 104, 305, 812, 833, 961, 970 SP7-401, 502, 504, 506, 507 SP8-00x, 02x, 03x, 06x, 07x, 42x, 43x, 44x, 451, 46x, 471, 48x, 51x, 52x, 771, 781, 801, 831, 841, 851, 861, 871, 881, 891, 901, 941
5801 004	Memory Clear > IMH	No SP modes are cleared. All files stored in the HDD are deleted.
5801 005	Memory Clear > MCS	No SP modes are cleared.
5801 008	Memory Clear > PRT	Service settings: • Bit switches • Gamma settings (User & Service) • Toner Limit User settings: • Tray Priority • Menu Protect • System Setting other than energy saver settings • I/F Setup (I/O Buffer and I/O Timeout) • PCL Menu
5801 011	Memory Clear > NCS	All setting of Network Setup (User Menu)
5998 001	Memory Clear > ENG Setting	All engine related SP modes other than the following: • Serial number information • SP modes related to meter charge • Counters and logging data
5998 002	Memory Clear > ENG Counter	All counters and logging data related to engine
7808 001	Counter Clear	SP7-502, 504, 506, and 507 SP8-00x, 02x, 03x, 06x, 07x, 42x, 43x, 44x, 451, 46x, 471, 48x, 51x, 52x, 771, 781, 801, 831, 841, 851, 861, 871, 881, 891, 901, 941

5.3.3 INPUT CHECK TABLE

When entering the Input Check mode, 8 digits display the result for a section. Each digit corresponds to a different device as shown in the table.

Bit No.	7	6	5	4	3	2	1	0
Result	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1	0 or 1

SP5-803 -XXX	Bit	Description	Reading	
			0	1
1	**Paper Tray 1**			
	0	Paper End Sensor	Paper end	Paper detected
	1	Paper Lift Sensor	Deactivated	Activated (Actuator not inside sensor)
	2	Paper Height Sensor 1	See Table 1.	
	3	Paper Height Sensor 2		
	4	Tray Set	Not set	Set
2	**Paper Tray 2**			
	0	Paper End Sensor	Paper end	Paper detected
	1	Paper Lift Sensor	Deactivated	Activated (Actuator not inside sensor)
	2	Paper Height Sensor 1	See Table 1. 1: Activated (Actuator inside sensor)	
	3	Paper Height Sensor 2		
	4	Paper Size Switch 1	See Table 2. 1: Pushed	
	5	Paper Size Switch 2		
	6	Paper Size Switch 3		
	7	Paper Size Switch 4		
3	**By-pass Table**			
	0	Paper End Sensor	Paper end	Paper detected
	1	Paper Size 1	See Table 3.	
	2	Paper Size 2		
	3	Paper Size 3		
	4	Paper Size 4		
4	**Doors**			
	0	Front Door Switch	Opened	Closed
	1	Left Door Switch	Opened	Closed
	2	Right Door Switch	Opened	Closed
	3	Vertical Transport Switch	Opened	Closed
	4	Duplex Inverter Unit Switch	Opened	Closed
	5	Right Door Switch (LCT/PFU)	Opened	Closed
5	**Paper Feed**			
	0	Relay Sensor	Paper not detected	Paper detected
	1	Vertical Transport Sensor	Paper not detected	Paper detected
	2	Upper Relay Sensor (PFU)	Paper not detected	Paper detected
	3	Lower Relay Sensor (PFU)	Paper not detected	Paper detected
	4	Registration Sensor	Paper not detected	Paper detected
	5	Duplex Inverter Sensor	Paper not detected	Paper detected
	6	Duplex Feed Sensor	Paper not detected	Paper detected

SP5-803 -XXX	Bit	Description	Reading	
			0	1
6	**Paper Exit**			
	0	Fusing Exit Sensor	Paper not detected	Paper detected
	1	Paper Exit Sensor	Paper not detected	Paper detected
	2	Duplex Exit Sensor 1	Paper not detected	Paper detected
	3	Duplex Exit Sensor 2	Paper not detected	Paper detected
	4	Duplex Exit Sensor 3	Paper not detected	Paper detected
	5	Exit Upper Limit Sensor	Not full	Full
7	**Fusing Unit**			
	0	Fusing Unit (Set)	Not set	Set
	1	Fusing Unit (New)	0 to 1 : New unit installed	
	2	Oil Supply Unit (Set)	Set	Not set
	3	Oil Supply Unit (New)	1 to 0 : New unit installed	
	4	European Version	US	Europe
	5	Waste Oil Bottle Set Sensor	Not Set	Set
	6	Waste Oil Sensor	Not full	Full
8	**Motor Lock**			
	0	Development Drive Motor - CMY	Not locked	Locked
	1	Development Drive Motor - K	Not locked	Locked
	2	Fusing Fan Motor	Not locked	Locked
	3	Air Pump Motor - MY	Not locked	Locked
	4	Air Pump Motor - CK	Not locked	Locked
9	**Dev. Unit/ PCU**			
	0	Development Unit - K	Not set	Set
	1	Development Unit - C	Not set	Set
	2	Development Unit - M	Not set	Set
	3	Development Unit - Y	Not set	Set
	4	PCU - K	Not set	Set
	5	PCU - C	Not set	Set
	6	PCU - M	Not set	Set
	7	PCU - Y	Not set	Set
10	**Toner End Sens**			
	0	Black Toner	Not end	End
	1	Cyan Toner	Not end	End
	2	Magenta Toner	Not end	End
	3	Yellow Toner	Not end	End
13	**Others**			
	0	LD H.P. Sensor	Not H.P.	H.P.
	1	Transfer Belt Sensor	Not contact	Contact
	2	-	-	-
	3	Used Toner Sensor	Not full	Full
	4	Used Toner Bottle Set Sensor	Not set	Set
	5	Drum Gear Position Sensor - K	Deactivated	Activated (Actuator inside sensor)
	6	Drum Gear Position Sensor - CMY	Deactivated	Activated (Actuator inside sensor)

SP5-803 -XXX	Bit	Description	Reading	
			0	1
15	**Mail Box 1**			
	0	Tray 1 Paper Overflow Sensor	Not full	Full
	1	Tray 1 Paper Sensor	Paper not detected	Paper detected
	2	Tray 2 Paper Overflow Sensor	Not full	Full
	3	Tray 2 Paper Sensor	Paper not detected	Paper detected
	4	Tray 3 Paper Overflow Sensor	Not full	Full
	5	Tray 3 Paper Sensor	Paper not detected	Paper detected
	6	Tray 4 Paper Overflow Sensor	Not full	Full
	7	Tray 4 Paper Sensor	Paper not detected	Paper detected
16	**Mail Box 2**			
	0	Vertical Transport Sensor 1	Paper not detected	Paper detected
	1	Vertical Transport Sensor 2	Paper not detected	Paper detected
	2	Door Safety Switch	Opened	Closed

Table 1: Paper Height Sensor

Low: Deactivated, High: Activated (actuator inside sensor)

Remaining paper	Paper height sensor 1	Paper height sensor 2
Full	Low	Low
Nearly full	Low	High
Near end	High	High
Almost empty	High	Low

Table 2: Paper Size Switch (Tray 2)

0: Not pushed, 1: pushed

Models		Switch Location			
North America	**Europe/Asia**	**1**	**2**	**3**	**4**
11" x 17" SEF	11" x 17" SEF	0	1	0	0
A3 SEF	A3 SEF	1	0	1	0
8 1/2" x 14" SEF *1	B4 SEF *1	1	1	0	1
8 1/2" x 11" SEF *2	A4 SEF *2	0	1	1	0
11" x 8 1/2" LEF *3	11" x 8 1/2" LEF *3	1	0	1	1
A4 LEF	A4 LEF	0	1	0	1
B5 LEF	B5 LEF	0	0	1	0
A5 LEF	A5 LEF	0	0	0	1

NOTES:

*1: The machine detects either 8 1/2" x 14" SEF or B4 SEF, depending on the setting of SP 1-902-2

*2: The machine detects either 8 1/2" x 11" SEF or A4 SEF, depending on the setting of SP 1-902-3

*3: The machine detects either 11" x 8 1/2" LEF or B5 SEF, depending on the setting of SP 1-902-4

Table 3: Paper Size (By-pass Table)

Models		Bit No.			
North America	**Europe/Asia**	**4**	**3**	**2**	**1**
11" x 17" SEF	11" x 17" SEF	0	0	1	1
A3 SEF	A3 SEF	0	0	0	1
-	B4 SEF	0	0	1	0
8 1/2" x 11" SEF	A4 SEF	0	1	1	0
8" x 13" SEF	F SEF	0	1	0	0
-	A5 SEF	1	1	0	0
5 1/2" x 18 1/2" SEF	B6 SEF	1	0	0	0
Post Card	Post Card	0	0	0	0

5.3.4 OUTPUT CHECK TABLE

CH: Charge
PF: **P**aper **F**eed
TS: **T**oner **S**upply
CW: Clockwise
CCW: Counterclockwise
MB: 4-bin **M**ail**b**ox
DI: **D**uplex **I**nverter

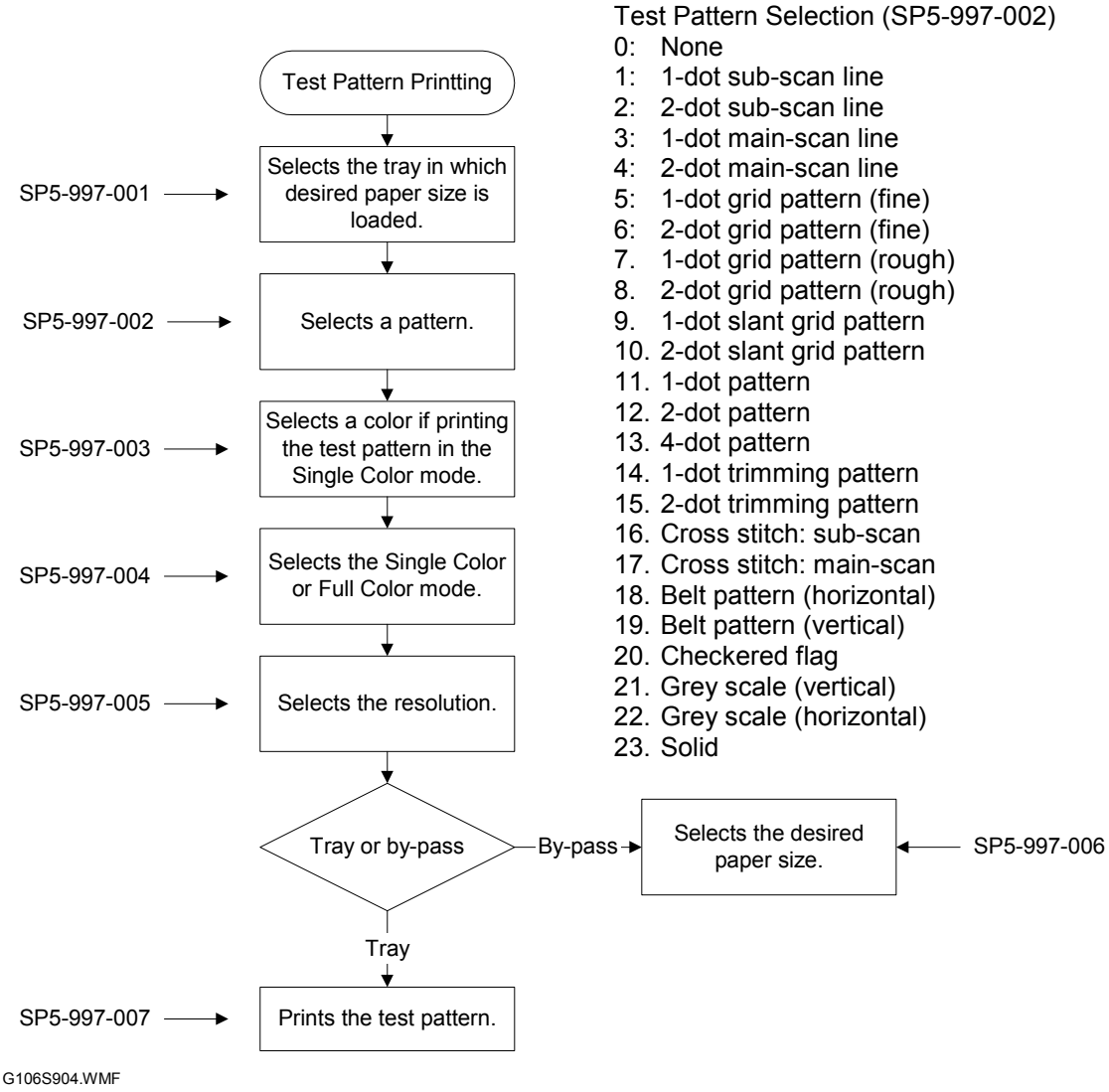
SP5-804-XXX		Description
1	Lift M UP (1)	Tray 1 Lift Motor / UP
2	Lift M DOWN(1)	Tray 1 Lift Motor / DOWN
3	Lift M UP(2)	Tray 2 Lift Motor / UP
4	Lift M DOWN(2)	Tray 2 Lift Motor / DOWN
5	By-pass CL	By-pass Feed Clutch
6	Pick-up SOL	Pick-up Solenoid
7	PF CL (1)	Paper Feed Clutch - Tray 1
8	PF CL (2)	Paper Feed Clutch - Tray 2
9	PF GRP SOL	Grip Roller Release Solenoid
10	Regist CL	Registration Clutch
11	Junction SOL	Exit Junction Gate Solenoid
12	Oil Supply SOL	Oil Supply Unit Solenoid
13	Fusing CL	Fusing Clutch
14	Wst Tn Vib M	Waste Toner Vibrator Motor
19	K Dev CL	Development Unit Clutch - K
20	C Dev CL	Development Unit Clutch - C
21	M Dev CL	Development Unit Clutch - M
22	Y Dev CL	Development Unit Clutch - Y
23	K Dev M H	Development Motor - K / High Speed
24	K Dev M M	Development Motor - K / Middle Speed
25	K Dev M L	Development Motor - K / Low Speed
26	K Dev M Card	Black Development Motor - Thick paper
27	FC Dev M H	Color Development Motor - 185mm/s **DFU**
28	FC Dev M M	Color Development Motor - 162mm/s
29	FC Dev M L	Color Development Motor - 62.5mm/s
30	TS CL [Y]	Toner Supply Clutch for Yellow
31	TS CL [M]	Toner Supply Clutch for Magenta
32	TS CL [C]	Toner Supply Clutch for Cyan
33	TS CL [K]	Toner Supply Clutch for Black
34	Valve SOL [K]	Air Flow Valve solenoid for Black
35	Valve SOL [C]	Air Flow Valve solenoid for Cyan
36	Valve SOL [M]	Air Flow Valve solenoid for Magenta
37	Valve SOL [Y]	Air Flow Valve solenoid for Yellow
38	Toner Sply Mt1	Toner Supply Motor 1 - yellow and magenta
39	Toner Sply Mt2	Toner Supply Motor 2 - cyan and black
40	Air Supply [Y]	Air Pump Motor and Valve for Yellow
41	Air Supply [M]	Air Pump Motor and Valve for Magenta
42	Air Supply [C]	Air Pump Motor and Valve for Cyan
43	Air Supply [K]	Air Pump Motor and Valve for Black

SP5-804-XXX		Description
44	T End Sens [Y]	Toner End Sensor - Y
45	T End Sens [M]	Toner End Sensor - M
46	T End Sens [C]	Toner End Sensor - C
47	T End Sens [K]	Toner End Sensor - K
50	PSU Fan	PSU Cooling Fan Motor
51	Fusing Fan H	Fusing Fan Motor / High Speed
52	Fusing Fan L	Fusing Fan Motor / Low Speed
53	M Fan	Laser Optics Housing Unit Cooling Fan
54	Belt M CW	Transfer Belt Contact Motor / Clockwise
55	Belt M CCW	Transfer Belt Contact Motor / Counterclockwise
56	Belt M Break	Transfer Belt Contact Motor / Break
57	Fusing Relay	Fusing Relay
58	Heat Lamp	Heating Roller Fusing Lamp
59	Pressure Lamp	Pressure Roller Fusing Lamp
65	Drum M L CW	Drum Drive Motors (K & CMY) and Transfer belt Drive Motor / Low Speed / Clockwise
66	Drum M M CW	Drum Drive Motors (K & CMY) and Transfer belt Drive Motor / Middle Speed / Clockwise
67	Drum M H CW	Drum Drive Motors (K & CMY) and Transfer belt Drive Motor / High Speed / Clockwise
76	PF M L CW	Paper Feed Motor / Low Speed / Clockwise
77	PF M M CW	Paper Feed Motor / Middle Speed / Clockwise
78	PF M H CW	Paper Feed Motor / High Speed / Clockwise
79	PF M Feed	Paper Feed Motor / Feed Speed / Clockwise
80	By-Pass M L CW	Paper Feed Motor / Low Speed / Clockwise
81	By-Pass M C CW	Paper Feed Motor / Thick paper or OHP mode / Clockwise
82	By-Pass M M CW	Paper Feed Motor / Middle Speed / Clockwise
89	CH DC [Y]	Charge DC Bias for Yellow / 162mm/s
90	CH DC [M]	Charge DC Bias for Magenta / 162mm/s
91	CH DC [C]	Charge DC Bias for Cyan / 162mm/s
92	CH DC [K]	Charge DC Bias for Black / 162mm/s
93	CH AC [FC]: L	Charger AC / Full Color / 62.5 mm/s
94	CH AC [K]: L	Charger AC / Black / 62.5 mm/s
95	CH AC [FC]: M	Charger AC / Full Color / 162mm/s
96	CH AC [K]: M	Charger AC / Black / 162mm/s
97	CH AC [FC]: H	Charger AC / Full Color / 185 mm/s **DFU**
98	CH AC [K]: H	Charger AC / Black / 185 mm/s **DFU**
99	Dev DC [Y]	Development DC Bias for Yellow
100	Dev DC [M]	Development DC Bias for Magenta
101	Dev DC [C]	Development DC Bias for Cyan
102	Dev DC [K]	Development DC Bias for Black
103	Dev AC [FC]: L	Development AC Bias for Color - 62.5 mm/s
104	Dev AC [K]: L	Development AC Bias for Black - 62.5 mm/s
105	Dev AC [FC]: M	Development AC Bias for Color - 162mm/s
106	Dev AC [K]: M	Development AC Bias for Black - 162mm/s
107	Dev AC [FC]: H	Development AC Bias for Color - 185 mm/s **DFU**
108	Dev AC [K]: H	Development AC Bias for Black - 185 mm/s **DFU**

SP5-804-XXX		Description
109	Transfer [Y]	Transfer Current for Yellow
110	Transfer [M]	Transfer Current for Magenta
111	Transfer [C]	Transfer Current for Cyan
112	Transfer [K]	Transfer Current for Black
113	Cleaning Bias	Transfer Belt Cleaning Roller Bias
114	PA Roller Bias+	Paper Attraction Roller Bias
115	PA Roller Bias-	Paper Attraction Roller Bias
116	DevAC TRG [FC]	Development AC Trigger for Color
117	DevAC TRG [K]	Development AC Trigger for Black
118	DevPWM TRG [K]	Development PWM Trigger for Black
119	DevPWM TRG [C]	Development PWM Trigger for Cyan
120	DevPWM TRG [M]	Development PWM Trigger for Magenta
121	DevPWM TRG [Y]	Development PWM Trigger for Yellow
122	CHdcPWM TRG [K]	Charge DC PWM Trigger for Black
123	CHdcPWM TRG [C]	Charge DC PWM Trigger for Cyan
124	CHdcPWM TRG [M]	Charge DC PWM Trigger for Magenta
125	CHdcPWM TRG [Y]	Charge DC PWM Trigger for Yellow
126	CHac1 TRG [FC]	Charge AC1 Trigger for Color
127	Chac2 TRG [FC]	Charge AC2 Trigger for Color
128	Chac3 TRG [FC]	Charge AC3 Trigger for Color
129	CHac1 TRG [K]	Charge AC1 Trigger for Black
130	Chac2 TRG [K]	Charge AC2 Trigger for Black
131	Chac3 TRG [K]	Charge AC3 Trigger for Black
132	ID Sensor LED	ID Sensor LED
133	TD Vcnt	TD Sensor / Vcnt
134	Memory Chip	Memory Chip / Power (5V) Supply
136	PCU Cln Bias K	PCU Cleaning Bias for Black
137	PCU Cln Bias YMC	PCU Cleaning Bias for YMC
141	Polygon M 29	Polygon Motor / 29.528
142	Polygon M 21	Polygon Motor / 21.850
143	LD FC[K]: L	LD Power for Black in Color Mode / 62.5
144	LD FC[K]: M	LD Power for Black in Color Mode / 162
145	LD FC[Y]: L	LD Power for Yellow in Color Mode / 62.5
146	LD FC[Y]: M	LD Power for Yellow in Color Mode / 162
147	LD FC[M]: L	LD Power for Magenta in Color Mode / 62.5
148	LD FC[M]: M	LD Power for Magenta in Color Mode / 162
149	LD FC[C]: L	LD Power for Cyan in Color Mode / 62.5
150	LD FC[C]: M	LD Power for Cyan in Color Mode / 162
151	LD1 [K]: L	LD1 Power for Black / 62.5
152	LD1 [K]: M	LD1 Power for Black / 162
153	LD1 [K]: H	LD1 Power for Black / 185 **DFU**
154	LD2 [K]: L	LD2 Power for Black / 62.5 **DFU**
155	LD2 [K]: M	LD2 Power for Black / 162 **DFU**
156	LD2 [K]: H	LD2 Power for Black / 185 **DFU**
157	LD [K]: L	LD Power for Black / 62.5
158	LD [K]: M	LD Power for Black / 162
159	LD [K]: H	LD Power for Black / 185 **DFU**

SP5-804-XXX		Description
165	PSU M	Optional Paper Feed Unit (PSU: Paper Supply Unit) / Motor
166	PF CL PFU (1)	Paper Feed Clutch / Optional Paper Feed Unit / Tray 1
167	PF CL PFU (2)	Paper Feed Clutch / Optional Paper Feed Unit / Tray 2
168	Pick-up SOL PSU	Pick-up Solenoid / Optional Paper Feed Unit (PSU: Paper Supply Unit)
170	MB M	4-bin Mailbox Main Motor
171	MB SOL1	4-bin Mailbox Junction Gate Solenoid 1
172	MB SOL2	4-bin Mailbox Junction Gate Solenoid 2
173	MB SOL3	4-bin Mailbox Junction Gate Solenoid 3
174	MB Gate SOL	4-bin Mailbox Junction Gate Solenoid
176	Duplex SOL	Duplex Junction Gate Solenoid
177	DI M1 62.5CCW	Duplex Inverter Motor 1 / 62.5 / Counterclockwise
178	DI M1 65CCW	Duplex Inverter Motor 1 / 65 / Counterclockwise
179	DI M1 125CCW	Duplex Inverter Motor 1 / 125 / Counterclockwise
180	DI M1 130CCW	Duplex Inverter Motor 1 / 130 / Counterclockwise
181	DI M1 185CCW	Duplex Inverter Motor 1 / 185 / Counterclockwise
182	DI M1 193CCW	Duplex Inverter Motor 1 / 193 / Counterclockwise
183	DI M1 370CCW	Duplex Inverter Motor 1 / 370 / Counterclockwise
184	DI M1 370CW	Duplex Inverter Motor 1 / 370 / Clockwise
185	DI M1 450CW	Duplex Inverter Motor 1 / 450 / Clockwise
186	DI M2 62.5CCW	Duplex Inverter Motor 2 / 62.5 / Counterclockwise
187	DI M2 65CCW	Duplex Inverter Motor 2 / 65 / Counterclockwise
188	DI M2 125CCW	Duplex Inverter Motor 2 / 125 / Counterclockwise
189	DI M2 130CCW	Duplex Inverter Motor 2 / 130 / Counterclockwise
190	DI M2 185CCW	Duplex Inverter Motor 2 / 185 / Counterclockwise
191	DI M2 193CCW	Duplex Inverter Motor 2 / 193 / Counterclockwise
192	DI M2 370CCW	Duplex Inverter Motor 2 / 370 / Counterclockwise
193	DI M2 370CW	Duplex Inverter Motor 2 / 370 / Clockwise
194	DI M2 450CW	Duplex Inverter Motor 2 / 450 / Clockwise
195	DI M2 OFF	Duplex Inverter Motor 2 / OFF
196	DI M12 62.5CCW	Duplex Inverter Motor 1&2 / 62.5 / Counterclockwise
197	DI M12 65CCW	Duplex Inverter Motor 1&2 / 65 / Counterclockwise
198	DI M12 125CCW	Duplex Inverter Motor 1&2 / 125 / Counterclockwise
199	DI M12 130CCW	Duplex Inverter Motor 1&2 / 130 / Counterclockwise
200	DI M12 185CCW	Duplex Inverter Motor 1&2 / 180 / Counterclockwise
201	DI M12 193CCW	Duplex Inverter Motor 1&2 / 193 / Counterclockwise
202	DI M12 370CCW	Duplex Inverter Motor 1&2 / 370 / Counterclockwise
203	DI M12 370CW	Duplex Inverter Motor 1&2 / 370 / Clockwise
204	DI M12 450CW	Duplex Inverter Motor 1&2 / 450 / Clockwise
205	PF M 125CCW	Duplex Feed Motor / 125 / Counterclockwise
206	PF M 230CCW	Duplex Feed Motor / 230 / Counterclockwise
207	PF M 370CCW	Duplex Feed Motor / 370 / Counterclockwise

5.3.5 TEST PATTERN (SP5-997)



G106S904.WMF

5.4 FIRMWARE UPDATE

5.4.1 TYPE OF FIRMWARE

The table lists the programs used by Model J-P3.

Type of firmware	Function	Location of firmware	Message displayed
Engine - Main	Printer engine control	BCU flash ROM	Engine
Engine - MUSIC	Line position adjustment	BCU MUSIC CPU	Music
System	Printer system management	Controller flash ROM	Onboard Sys
Printer Application	Feature application	SD card	Onboard Prn-4
NIB	NIB management	SD card	Network Support
Web System	Web service application	SD card	Web Support

5.4.2 PRECAUTIONS

Handling SD Cards

Observe the following precautions when handling SD cards:

- Turn off the main power switch before you insert or remove an SD card. Data in the SD card can be corrupted if you insert or remove an SD card while the main power switch is on.
- Do not turn off the main power switch during downloading.
- Keep SD cards in a safe location. Do not store SD cards in these locations:
  - Locations exposed to high temperature, high humidity, direct sunlight, or strong vibration
  - Locations where there are effects from magnetic forces
- Do not bend or scratch SD cards.
- Do not drop SD cards or expose them to shock or vibration.

NOTE: For the arrangement of files in SD cards, see 5.4.3.

Upload or Download

In this section (5.4), ‘upload’ and ‘download’ have these meanings:

- Upload: To copy data from the printer to the SD card
- Download: To copy data from the SD card to the printer

Network Connection

Before you start, tell the user that they cannot use the printer during firmware update, and that they must disconnect the printer physically from the network. If a print job comes in, this can cause problems with the firmware update.

5.4.3 FILE ARRANGEMENT

How the Program Works

The firmware-update program of Model J-P3 searches the folder *romdata* for necessary firmware. When you save the firmware in a SD card, make the folder *romdata.* You must not make the folder *romdata* in another folder; but you can make more than one folder in the folder *romdata.* The firmware-update program searches all folders if they are in *romdata.*

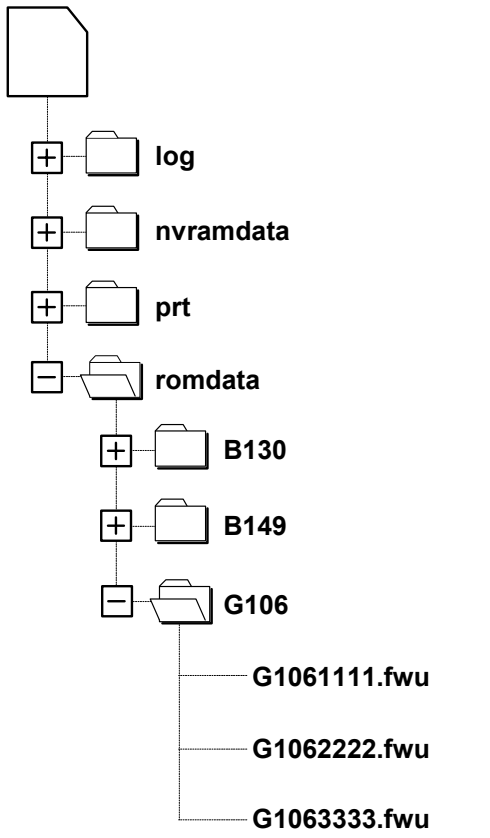
Each firmware program contains the file information. Before downloading the firmware from an SD card, the firmware-update program reads the file information. The firmware is downloaded only when the file information is correct.

NOTE: The file information can identify the firmware, but this information does not guarantee that the data is not corrupted.

Example

When you save the firmware, we recommend that you arrange folders and files as follows:

- In the folder *romdata,* make another folder and use this folder exclusively for one model. Use the machine code as the name of this folder.
- When you save the firmware of a different model, make a new folder in the folder *romdata.* Give it a name as mentioned above. (The diagram shows an example. The folder *romdata* has three sub-folders: B130, B149, and G106. Each folder is for one model.)
- When you save some files other than firmware, make a new folder outside *romdata.* Save the files in this folder. Do not save any file outside the folders. (The diagram shows an example. Three folders, *log*, *nvramdata*, and *prt*, are outside *romdata.* These folders can store debug logs, NVRAM data, and captured files respectively.)

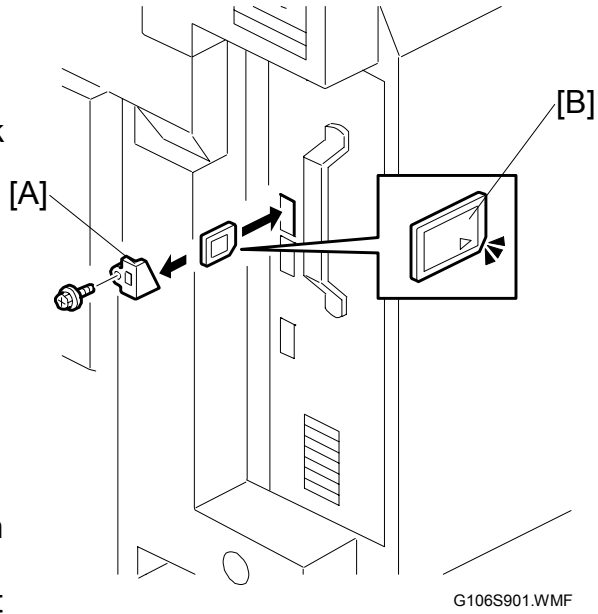


G106S902.WMF

5.4.4 UPDATING

Procedure

1. Turn off the main power switch.
2. Disconnect the printer from the network (☛ 5.4.2).
3. Remove the slot cover [A] from slot 1 (☞ x 1).
4. Turn the SD card face [B] to the rear side of the printer, and insert it into slot 1.
5. Slowly push the SD card into the slot until it clicks.
6. Make sure that the SD card is locked in place.
   NOTE: To remove the SD card, push it in until it clicks, and release it slowly. The slot pushes out the SD card.



G106S901.WMF

7. Turn on the main power switch.
8. Wait until a firmware name is shown on the display (about 45 seconds).
   NOTE: The firmware name is read from inside the firmware. The firmware name is not changed even if you change the file name on your PC.
9. If the necessary firmware name is shown on the display, go to the next step. To use a different firmware, push the up-arrow key or the down-arrow key to find the necessary firmware.
10. To select the firmware, push the enter key. Make sure that a star (✱) is added to the firmware name.
11. If you update more than one firmware program at the same time, find each of them and select each of them. Make sure a star is added to each firmware name.
12. To select “Execute, ” push the up-arrow key or the down-arrow key.

Service Tables

13. To start firmware update, push the enter key. While each firmware is downloaded, the underscores on the operation panel are replaced by stars.
14. Wait until the message “Updated” is shown.
15. Turn off the main power switch.
16. Remove the SD card from the slot.
17. Attach the slot cover (🖉 x 1).
18. Connect the printer to the network physically.
19. Turn on the main power switch.
20. Print the Configuration Page to check that the every firmware is correctly updated: Menu > List/Test Print > Config.P/Er.Log

Error Handling

An error code is shown if an error occurs during the download. Error codes have the letter “E” and a number. If an error occurs, the firmware is not correctly downloaded; see the error code table (5.4.6) and do the necessary steps. After this, download the firmware again.

Power Failure

If firmware update is interrupted by power failure, the firmware is not correctly downloaded. In this condition, machine operation is not guaranteed. You have to download the firmware again.

5.4.5 NVRAM DATA UPLOAD/DOWNLOAD

⚠CAUTION

Turn off the main power switch before you insert or remove an SD card. Make sure that the controller and the BCU are correctly connected.

Uploading NVRAM Data

Copy the data from the NVRAM to an SD card (referred to as "to upload NVRAM data" in this section) before you replace the NVRAM. If you cannot upload NVRAM data, manually input the necessary settings after you replace the NVRAM.

1. Start the SP mode.
2. Select SP5-990-001 (ALL (Data List)).
3. Do the SP.
4. See if the SMC Report is correctly output.
   NOTE: You may need the SMC Report when the machine did not complete an NVRAM data upload or download (☛ Downloading NVRAM Data) correctly.
5. Go out of the SP mode.
6. Turn off the main power switch.
7. Insert an SD card into slot 1.
8. Turn on the main power switch.
9. Start the SP mode.
10. Select SP5-824 (NVRAM Upload).
11. Push the enter key. The upload starts.
    When uploading ends correctly, the following file is made:
    NVRAM\serial_number.NV
    where "NVRAM" is the folder name in the SD card and "serial_number.NV" is the file name with the extension ".NV". The serial number of the printer is used as the file name. For example, if the serial number is G1060017, the file name is "G1060017.NV".
12. Go out of the SP mode.
13. Turn off the main power switch.
14. Remove the SD card.
15. Mark the SD card with, for example, the machine code. You need this SD card when you download NVRAM data (☛ Downloading NVRAM Data).
    NOTE: One SD card can store the NVRAM data from two or more machines.

Downloading NVRAM Data

Copy the data from the SD card to the NVRAM (referred to as “to download NVRAM data” in this section) after you replace the NVRAM. If you cannot download NVRAM data, manually input the necessary settings.

1. Make sure that the main power switch is off. If it is on, turn it off.
2. Make sure that you have the correct SD card that contains the necessary NVRAM data.
3. Insert the SD card into slot 1.
4. Turn on the main power switch.
5. Start the SP mode.
6. Select SP5-825 (NVRAM Download).
7. Push the enter key. The download starts.
   NOTE: The machine cannot do the download if the file name in the SD card is different from the serial number of the printer (☛Uploading NVRAM Data).
8. Go out of the SP mode.
9. Turn off the main power switch.
10. Remove the SD card.
11. Turn on the main power switch.
12. Check that the NVRAM data is correctly downloaded.

This procedure does not download the following data to the NVRAM:

- Total Count
- Machine's Device Number

5.4.6 ERROR CODE TABLE

These error codes are used by more than one model. Some codes are not used by Model J-P3.

Code	Cause	Solution
20	Cannot map logical address	Make sure SD card inserted correctly, or use another SD card.
21	Cannot access memory	HDD connection incorrect or replace hard disks.
22	Cannot decompress compressed data	Incorrect ROM data on the SD card, or data is corrupted.
23	Error occurred when ROM update program started	Controller program abnormal. If the second attempt fails, replace controller board.
24	SD card access error	Make sure SD card inserted correctly, or use another SD card.
30	No HDD available for stamp data download	HDD connection incorrect or replace hard disks.
31	Data incorrect for continuous download	Insert the SD card with the remaining data required for the download, the re-start the procedure.
32	Data incorrect after download interrupted	Execute the recovery procedure for the intended module download, then repeat the installation procedure.
33	Incorrect SD card version	Incorrect ROM data on the SD card, or data is corrupted.
34	Module mismatch - Correct module is not on the SD card)	SD update data is incorrect. Acquire the correct data (Japan, Overseas, OEM, etc.) then install again.
35	Module mismatch – Module on SD card is not for this machine	SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again.
36	Cannot write module – Cause other than E34, E35	SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again.
40	Engine module download failed	Replace the update data for the module on the SD card and try again, or replace the BCU board.
42	Operation panel module download failed	Replace the update data for the module on the SD card and try again, or replace the LCDC.
43	Stamp data module download failed	Replace the update data for the module on the SD card and try again, or replace the hard disks.
44	Controller module download failed	Replace the update data for the module on the SD card and tray again, or replace controller board.
50	Electronic confirmation check failed	SD update data is incorrect. The data on the SD card is for another machine. Acquire correct update data then install again.

5.5 SD CARD APPLI MOVE

5.5.1 OVERVIEW

The service program “SD Card Appli Move” (SP5-873) enables you to copy application programs from an SD card to another SD card.

There are three SD card slots. Model J-P3 can use slot 2 and slot 3 to store application programs. Slot 1 is for maintenance work only. Because of this, if the application programs are stored in three SD cards or more, ① choose one SD card or two from these SD cards and ② store all the application programs on these one or two cards.

Use extreme caution when using SD Card Appli Move:

1. The authentication data is transferred with the application program from an SD card to the other SD card. Authentication fails if you try to use the SD card after you copy the application program from this card to another SD card.
2. Do not use an SD card if it has been used for some other work, for example, on a computer. Normal operation is not guaranteed when such SD card is used.
3. Keep the SD card in a safe place after you copy the application program from the card to another card. This is because: ① The SD card can be the only proof that the user is licensed to use the application program. ② You may need to check the SD card and its data to solve a problem in the future.
4. You cannot copy PostScript data to another SD card. You can copy an application program to the SD card that stores PostScript data.

5.5.2 MOVE EXEC

The menu “Move Exec” (SP5-873-001) enables you to copy application programs from the original SD card to another SD card. The application programs are copied as follows:

- From slot 1 to slot 2 when SD cards are in slots 1 and 2 or in all slots
- From slot 1 to slot 3 when SD cards are in slots 1 and 3

Note that the authentication data is also copied with the application program (☛ 5.5.1).

1. Turn off the main power switch.
2. Make sure that an SD card is in slot 3 or in slots 2 and 3. The application program is copied to one of these SD cards.
3. Insert the SD card (having stored the application program) to slot 1. The application program is copied from this SD card.
4. Turn on the main power switch.
5. Start the SP mode.
6. Select SP5-873-001 “Move Exec.”
7. Follow the messages displayed on the operation panel.
8. Go out of the SP mode.
9. Turn off the main power switch.
10. Remove the SD card from slot 1.
11. Turn on the main power switch.
12. Check that the application programs run normally.

5.5.3 UNDO EXEC

The menu “Undo Exec” (SP5-873-002) enables you to copy back application programs from an SD card to the original SD card. You can use this program when, for example, you have mistakenly copied some programs by using Move Exec (SP5-873-001). The application programs are copied as follows:

- From slot 1 to slot 2 when SD cards are in slots 1 and 2 or in all slots
- From slot 1 to slot 3 when SD cards are in slots 1 and 3

Note that the authentication data is also copied with the application program (☛ 5.5.1).

1. Turn off the main power switch.
2. Insert the original SD card in slot 2. The application program is copied back to this card.
   NOTE: You can insert the original SD card in slot 3. If you do this, remove the SD card from slot 2 if there is one there.
3. Insert the SD card (having stored the application program) to slot 1. The application program is copied back from this SD card.
4. Turn on the main power switch.
5. Start the SP mode.
6. Select SP5-873-002 “Undo Exec.”
7. Follow the messages displayed on the operation panel.
8. Go out of the SP mode.
9. Turn off the main power switch.
10. Remove the SD card from slot 3.
11. Remove the other SD card from slot 1.
12. Insert the necessary SD card in slot 3. If two SD cards are necessary, insert them in slots 2 and 3.
13. Turn on the main power switch.
14. Check that the application programs run normally.

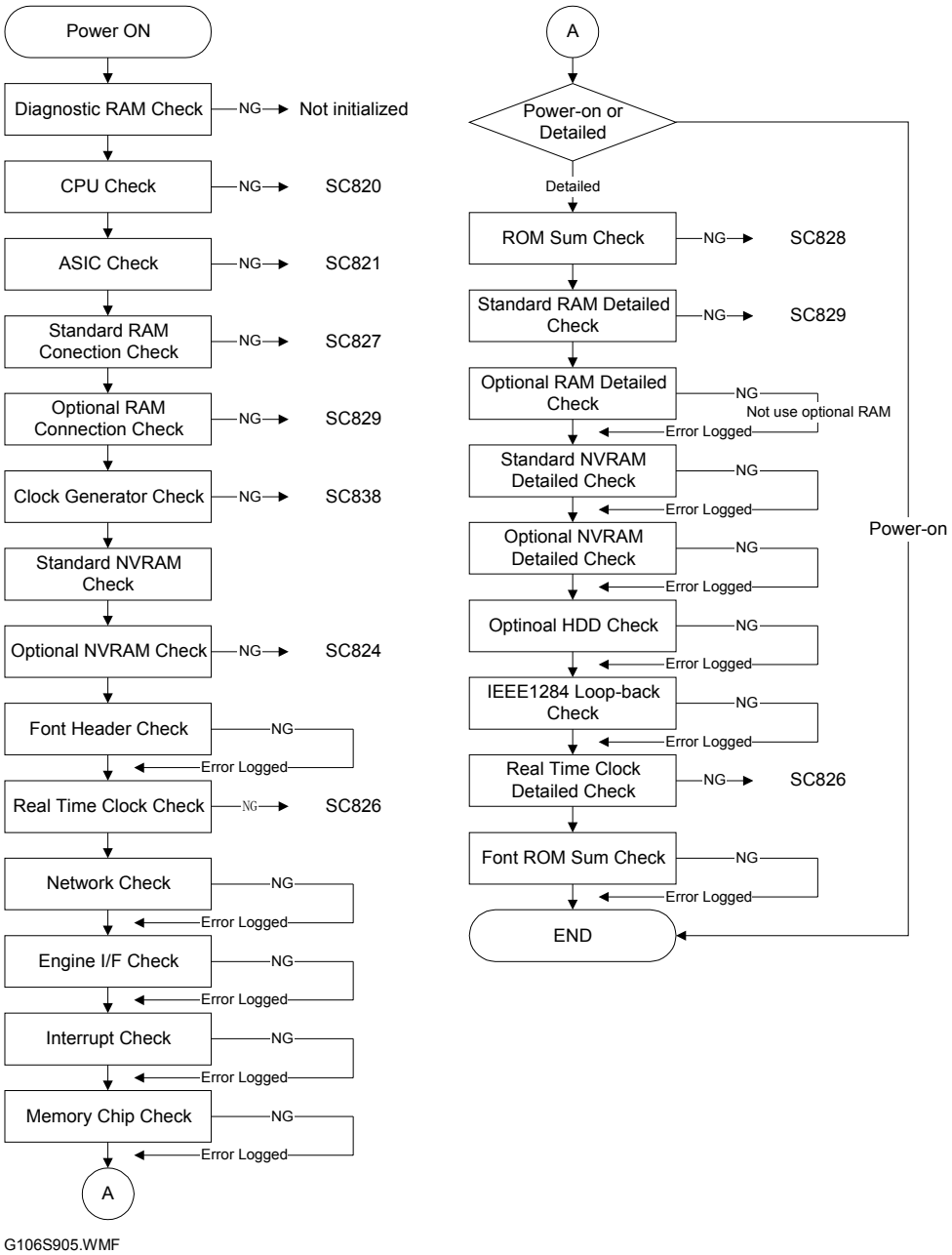
5.6 CONTROLLER SELF-DIAGNOSTICS

5.6.1 OVERVIEW

There are three types of self-diagnostics for the controller.

- Power-on self-diagnostics: The machine automatically starts the self-diagnostics just after the power has been turned on.
- Detailed self-diagnostics: The machine does the detailed self-diagnostics by using a loop-back connector (P/N G0219350)
- SC detection: The machine automatically detects SC conditions at power-on or during operation.

The following shows the workflow of the power-on and detailed self-diagnostics.



G106S905.WMF

5.6.2 DETAILED SELF-DIAGNOSTICS

This detailed self-diagnostic test requires a loop-back connector (P/N: G0219350).

1. Turn off the machine and attach the loop-back connector to the parallel interface.
2. Turn on the machine while pressing the “On Line” key and “# Enter” key together.
3. The machine automatically starts the self-diagnostics and prints the diagnostic report after completing the test.
   - Refer to the diagnostics report for the detected errors. The errors detected during self-diagnostics can be checked with SP7-832-001 (Diag. Result).
   - Refer to section 4.2 for details about the error codes.

5.7 USER PROGRAM MODE

Starting a User Program

1. Push the menu key to start the user program mode.
2. Use the up arrow key and the down arrow key to select a program.
3. Push the enter key to start the program.

NOTE: To return to step 1, press the escape key one or more times.

Quitting a User Program

Push the online key or push the escape key one or more times until “ready” is shown.

Menu List

For more, print the menu list (Menu > List/Test Print > Menu List).

Paper Input
- Bypass Size
- Tray Paper Size
- Paper Type
- Tray Locking
- Tray Priority

List/Test Print
- Config. Page/Error Log
- Config. Page
- Error Log
- Menu List
- Color Demo Page
- PCL Config. Page
- PS Config. Page
- PDF Config. Page
- Hex Dump
- Operations Test

Maintenance
- Color Registration
- Color Calibrate
- Image Density
- Registration
- 4C. Graphic Mode
- Key Repeat

System
- Print Error Report
- Auto Continue
- Memory Overflow
- Copies
- Printer Language
- Sub Paper Size
- Page Size
- Def. Printer Language
- Output Tray
- Energy Saver 1
- Energy Saver 2
- Unit of Measure
- B&W Page Detect
- Letterhead Mode
- RAM Disk
- Notify by Email

Host Interface
- I/O Buffer
- I/O Timeout
- Network Setup

PCL Menu
- Orientation
- Form Lines
- Font Source
- Font Number
- Point Size
- Font Pitch
- Symbol Set
- Courier Font
- Ext. A4 Width
- Append CR to LF
- Resolution

PS Menu
- Data Format
- Resolution
- Color Setting
- Color Profile

PDF Menu
- PDF: Change PW
- PDF Group PW
- Resolution
- Color Setting
- Color Profile

Language

5.8 DIP SWITCHES

Controller Board

All switches are off.

BCU Board

Locale	DIP Switch			
	1	2	3	4
North America	On	Off	Off	Off
Europe	Off	On	Off	Off
Asia	On	On	Off	Off
China	Off	Off	On	Off
Taiwan	On	Off	On	Off
Korea	Off	On	On	Off

6. DETAILED DESCRIPTIONS

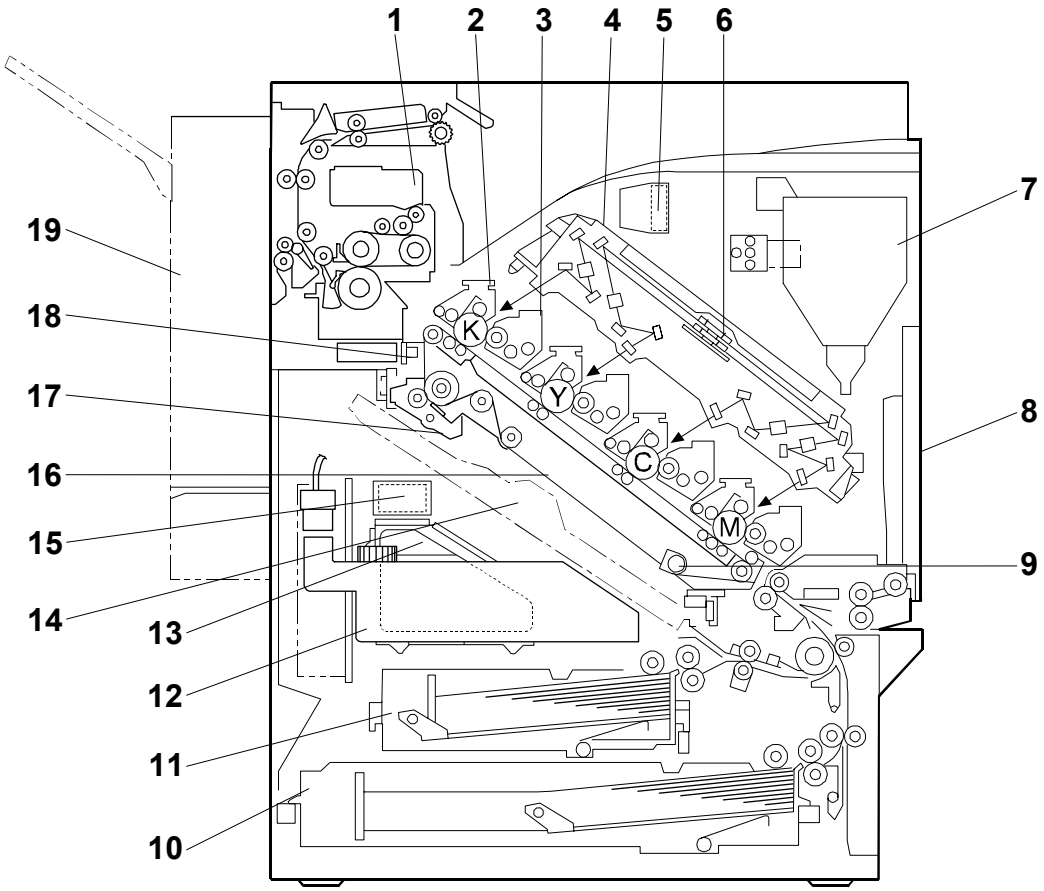
6.1 MODEL J-P3 AND MODEL J-P2

While reading this chapter, keep Model J-P2 Service Manual at hand. This chapter frequently refers to Model J-P2.

Model J-P3 and Model J-P2 have common features and components. Model J-P2 Service Manual gives you the information on these features and components. This chapter illustrates the features and components that are supported only by Model J-P3.

6.2 OVERVIEW

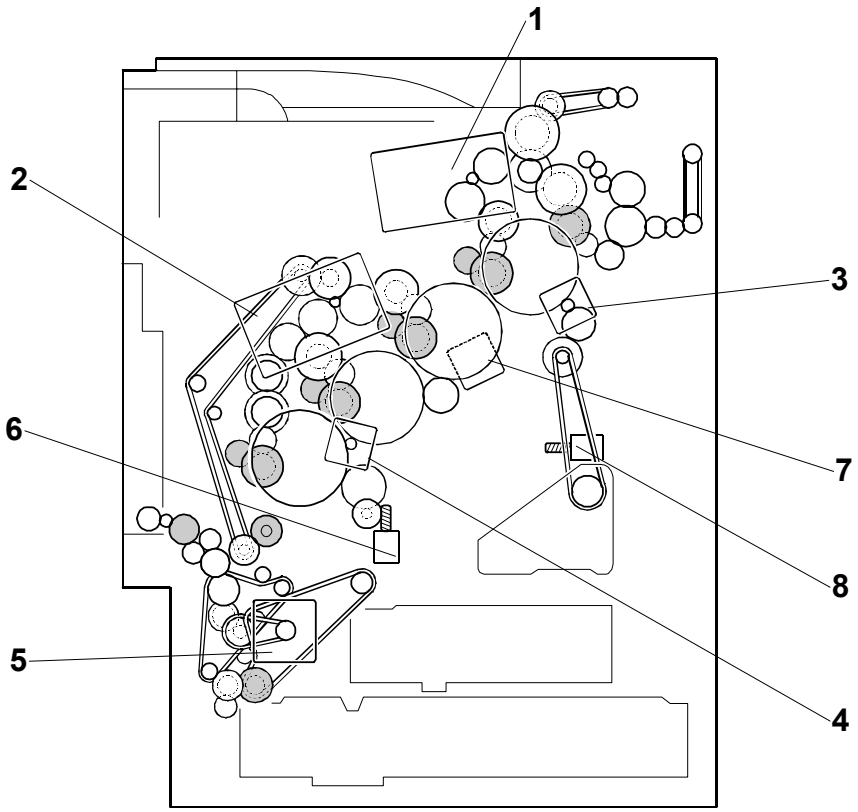
6.2.1 COMPONENT LAYOUT



G106D907.WMF

1. Fusing Unit
2. PCU (one for each color)
3. Development Unit
4. Laser Optics Housing Unit
5. Black PCU Cooling Fan
6. Polygon Mirror Motor
7. Toner Cartridge
8. By-pass Feed Table
9. Rotation Encoder
10. Tray 2
11. Tray 1
12. Waste Oil Bottle
13. Waste Toner Bottle
14. Duplex Feed Unit (Optional)
15. Waste Toner Vibrator
16. Transfer Unit
17. Transfer Belt Cleaning Unit
18. ID Sensor
19. Duplex Inverter Unit (Optional)

6.2.2 DRIVE LAYOUT

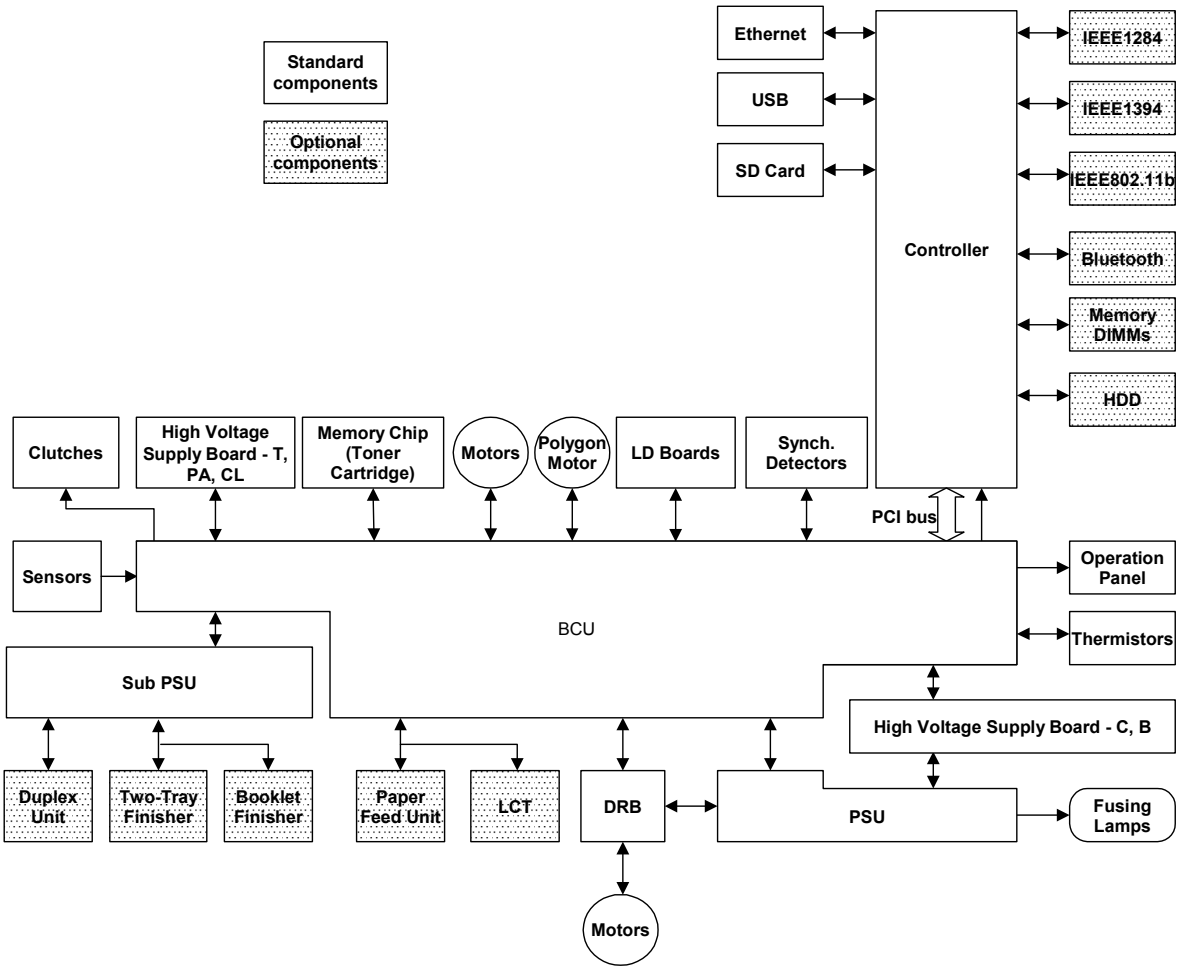


G080D935.WMF

1. **Development drive motor-K:**
   This drives the development unit for black, the fusing unit, and the paper exit section.
2. **Development drive motor-CMY:**
   This drives the color development units (magenta/cyan/yellow), the registration roller, and the waste toner collection coils from the PCUs.
3. **Drum drive motor-K:**
   This drives the black PCU and the collection coil in the waste toner bottle.
4. **Drum drive motor-CMY:**
   This drives the PCUs for magenta, cyan, and yellow.
5. **Paper feed motor:**
   This drives the paper feed mechanisms (tray 1/tray 2/by-pass tray).
6. **Transfer belt contact motor:**
   This moves the transfer belt into contact and away from the color PCUs.
7. **Transfer unit drive motor:**
   This drives the transfer unit.
8. **Waste toner vibrator:**
   This motor makes vibrations. Because of this, waste toner does not block the waste toner path.

6.2.3 BOARD STRUCTURE

Overview



G106D908.WMF

The BCU controls all mechanical components. The PCI bus connects the BCU and controller. These optional components can be installed on the controller:

- IEEE 1284, IEEE 1394, IEEE 802.11b, or Bluetooth
- Memory DIMM
- Hard disk drive

Descriptions

BCU (Base Engine Control Unit):
The BCU has three CPUs (Main, MUSIC, and DSP). The CPUs control the following components and processes:

Main CPU

- Engine sequence
- Machine and printer engine operation
- Peripherals
- High voltage supply, laser emission, fusing
- Sensors, drive board, solenoids
- Motors

MUSIC (Mirror Unit for Skew and Interval Correction) CPU

- TD sensor
- Line position adjustment
- Memory chip on the toner cartridge

DSP (Digital Signal Processor)

- Line position adjustment

Controller:
The controller handles the following functions:

- Printer-to-host interface
- Operation panel interface
- USB interface
- Standard network interface
- Optional interfaces (IEEE 1284, IEEE 1394, IEEE 802.11b [Wireless LAN], Bluetooth)
- HDD, DRAM DIMM

LD Drive Board:
This is the laser diode drive circuit board.

DRB:
The DRB (driver board) controls the paper feed motor, development motors (color/black), drum drive motors (color/black), transfer unit drive motor, and transfer voltage.

USB:
Offers simple connectivity for computers, printers, keyboards, and other peripherals.

IEEE 1284 Interface (Optional):
This is a parallel printer port.

IEEE1394 Interface (Optional):
This allows computers to connect to this printer using an IEEE1394 interface.

Bluetooth (Optional):
Provides radio links between mobile computers, mobile phones and other portable handheld devices.

IEEE 802.11b (wireless LAN) (Optional):
Uses radio frequency technology to transmit and receive data over the air and minimize the need for wired connections.

HDD Unit (Optional):
The HDD unit stores the data for the following.

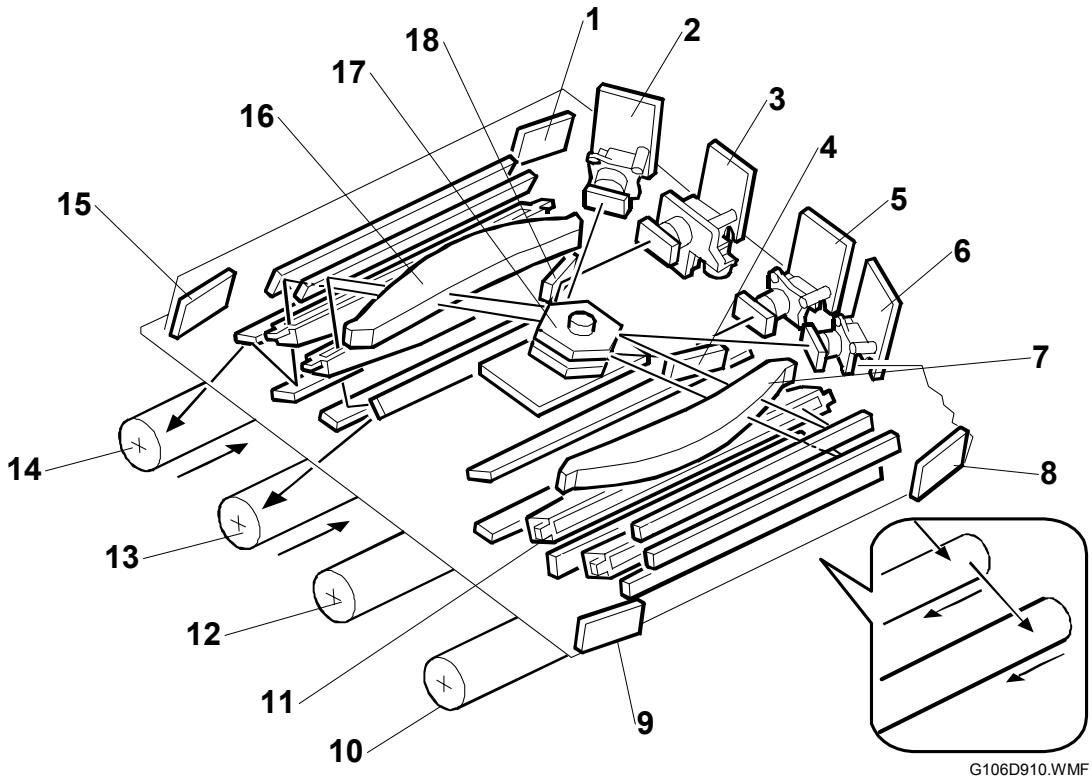
- Additional soft fonts
- Collation
- Locked print
- Sample print
- Downloading forms for form overlay

Memory DIMM (Standard: 128 MB DRAM, Optional: 64/128/256 MB DRAM):
This is for additional printer processing memory, used for collation and for soft fonts.

Operation Panel Board:
Controls the display panel, the LED, and the keypad.

6.3 LASER EXPOSURE

6.3.1 OVERVIEW

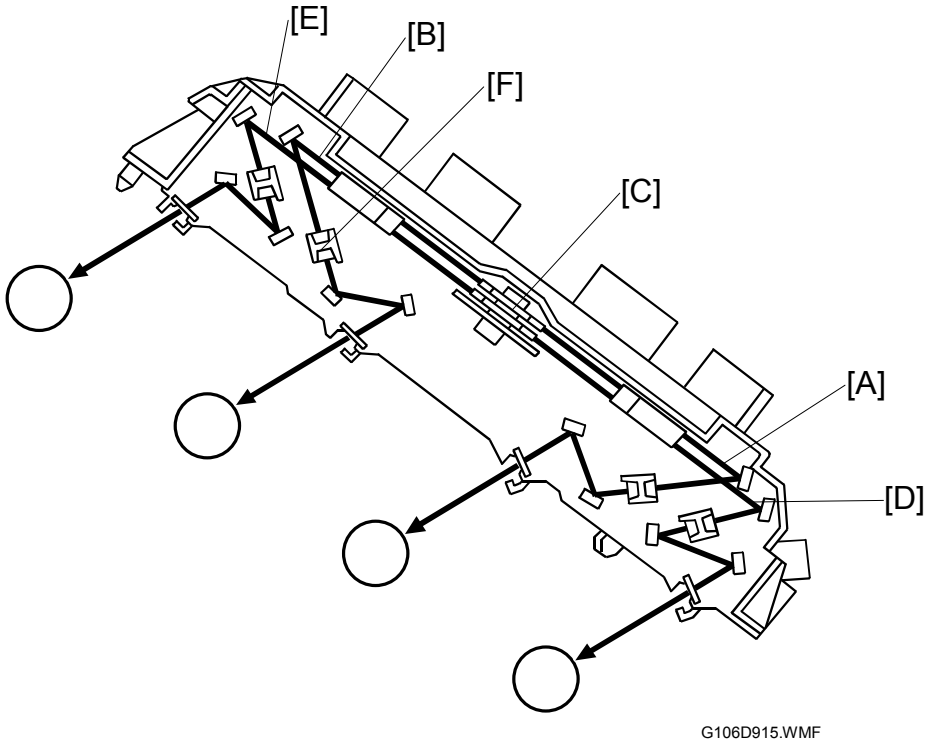


1. Synchronizing detector board-Y, K-E
2. LD unit-Y
3. LD unit-K
4. LD Mirror-M
5. LD unit-M
6. LD unit-C
7. F-theta lens-M, C
8. Synchronizing detector board-M, C-S
9. Synchronizing detector board-M, C-E
10. OPC drum-M
11. WTL
12. OPC drum-C
13. OPC drum-Y
14. OPC drum-K
15. Synchronizing detector board-Y, K-S
16. F-theta lens-Y, K
17. Polygon mirror motor
18. LD Mirror-K

Model J-P3 has four LD units, two hexagonal mirrors, and one polygon-mirror motor. One hexagonal mirror is on top of the other; the two mirrors are on the same pivot. The polygon-mirror motor drives this pivot, and this turns the two mirrors at the same time. The upper mirror reflects the beams from LD unit-Y and LD unit-C; the lower mirror reflects the beams from LD unit-K and LD unit-M.

The beams from LD unit-Y and LD unit-K are reflected to the left side (viewed from the front of the machine); the beams from LD unit-M and LD unit-C are reflected to the right side. Laser exposure for magenta and cyan starts from the rear side of the drums; laser exposure for yellow and black starts from the front side of the drums.

6.3.2 OPTICAL PATH



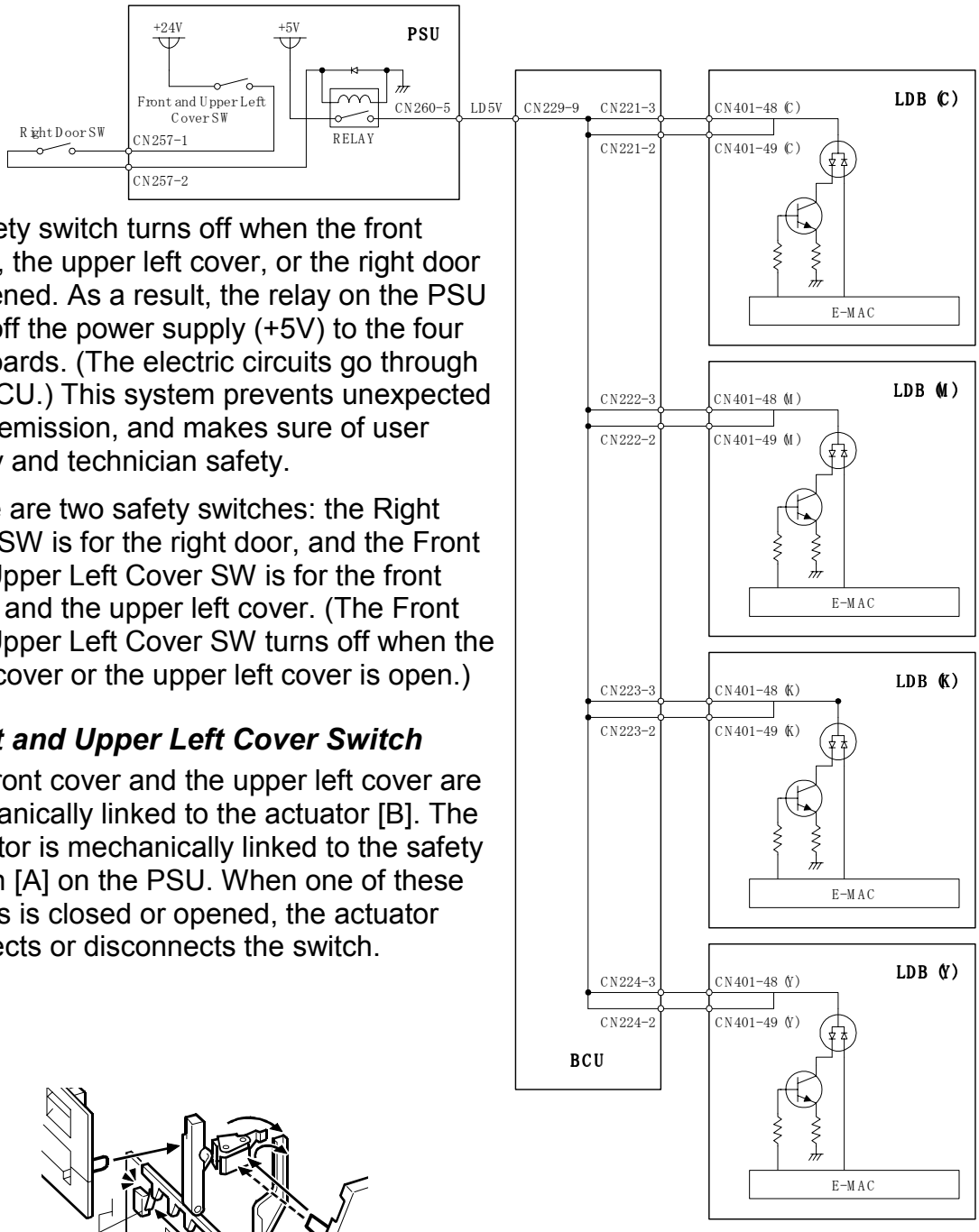
The laser beams for cyan [A] and yellow [B] are directed to the upper part of the polygon mirror [C], and those for magenta [D] and black [E] are directed to the lower part of the polygon mirror. The LD mirrors (see the previous page) deflect the laser beams for magenta and black towards the lower polygon mirror.

The WTL [F] corrects the main scan line; without this component, the line bends out towards the middle of the main scan. The central bend of the WTL is adjusted in the factory.

The speed of the polygon mirror depends on the selected mode (see below).

Mode	Resolution (dpi)	Polygon motor speed (rpm)	Process line speed (mm/s)	Print speed (ppm)
B/W (except OHP/Thick paper)	600 x 600 1,200 x 600	38,273	162	35
	1,200 x 1,200	29,528	62.5	14
Color (except OHP/Thick paper)	600 x 600 1,200 x 600	38,273	162	35
	1,200 x 1,200	29,528	62.5	14
OHP/Thick	600 x 600 1,200 x 600 1,200 x 1,200	29,528	62.5	10

6.3.3 LD SAFETY SWITCH



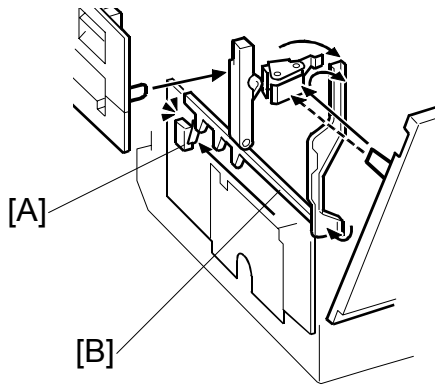
G106D901.WMF

A safety switch turns off when the front cover, the upper left cover, or the right door is opened. As a result, the relay on the PSU cuts off the power supply (+5V) to the four LD boards. (The electric circuits go through the BCU.) This system prevents unexpected laser emission, and makes sure of user safety and technician safety.

There are two safety switches: the Right Door SW is for the right door, and the Front and Upper Left Cover SW is for the front cover and the upper left cover. (The Front and Upper Left Cover SW turns off when the front cover or the upper left cover is open.)

Front and Upper Left Cover Switch

The front cover and the upper left cover are mechanically linked to the actuator [B]. The actuator is mechanically linked to the safety switch [A] on the PSU. When one of these covers is closed or opened, the actuator connects or disconnects the switch.



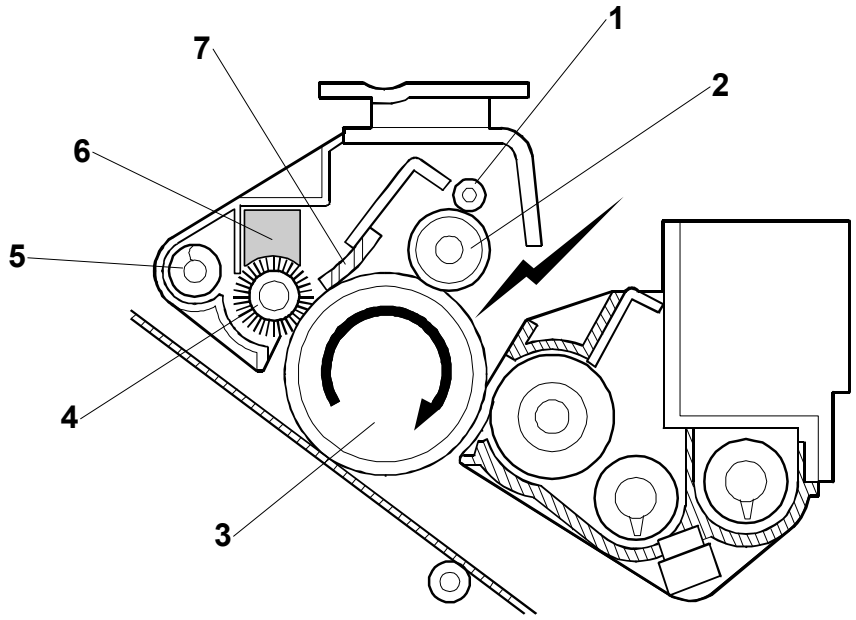
G106D916.WMF

E-MAC: Enhanced Modulation ASIC on CMOS

LDB: LD Drive Board (included in the LD Unit)

6.4 PHOTOCONDUCTOR UNIT

6.4.1 OVERVIEW



G106D902.WMF

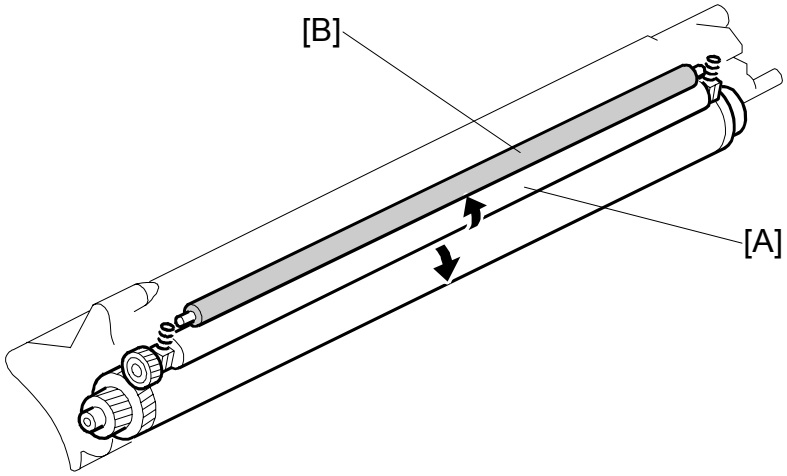
1. Cleaning roller
2. Charge roller (non-contact)
3. OPC drum
4. Cleaning brush
5. Waste toner collection auger
6. Lubricant bar
7. Cleaning blade

This machine has four independent PCUs, one for each color. Each PCU consists of an OPC drum, non-contact charge roller, cleaning brush, and cleaning blade. The diameter of the drum is 30 mm (circumference: about 94.25 mm).

The photoconductor gap between a PCU and the corresponding development roller is determined by the drum positioning plate and the rear shaft, and is not adjustable in the field.

The push switches in the drum positioning plate detect when a new PCU has been installed.

6.4.2 DRUM CHARGE AND QUENCHING



G106D917.WMF

This machine uses a non-contact charge roller [A] to reduce ozone. The non-contact charge roller gives the drum surface a negative charge. The high voltage supply board–C, which is located at the rear of the machine, applies a dc and ac voltage (at a constant voltage which is decided by process control) to the roller. The ac voltage helps to ensure that the charge given to the drum is as uniform as possible.

The machine automatically controls the charge roller voltage if automatic process control is enabled (i.e., if SP3-125-001 is set to 0). However, if process control is switched off, (i.e., if SP3-125-001 is set to 1), the dc voltage is the value stored in SP2-001-1 to -9 (do not adjust in the field unless advised to do so).

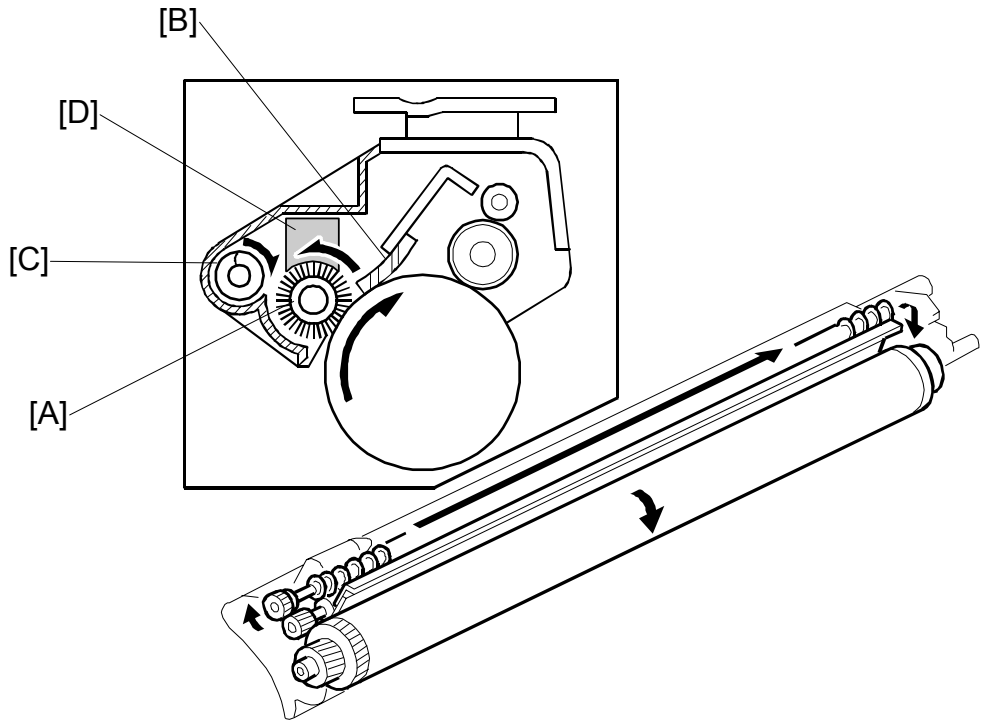
The diameter of the roller is 11.14 mm (circumference about 35 mm). The gap between a drum and the corresponding charge roller is about 50 μm.

The cleaning roller [B], which always contacts the charge roller, cleans the charge roller.

The charge roller can generate small amounts of nitrogen oxide gases (known as NOx), which may be absorbed by the surface of the drum. This can cause unfocused copies. To avoid this, the film of NOx is removed at power on, at the end of a job (if more than 200 prints), and when a toner cartridge has been replaced. SP3-920-001 to 004 determine when this procedure (known as "refresh mode") is done. It can also be executed at any time (using SP3-920-5) if the prints are smeared.

Quenching is done by illuminating the whole area of the drum with the laser at the end of every job.

6.4.3 DRUM CLEANING

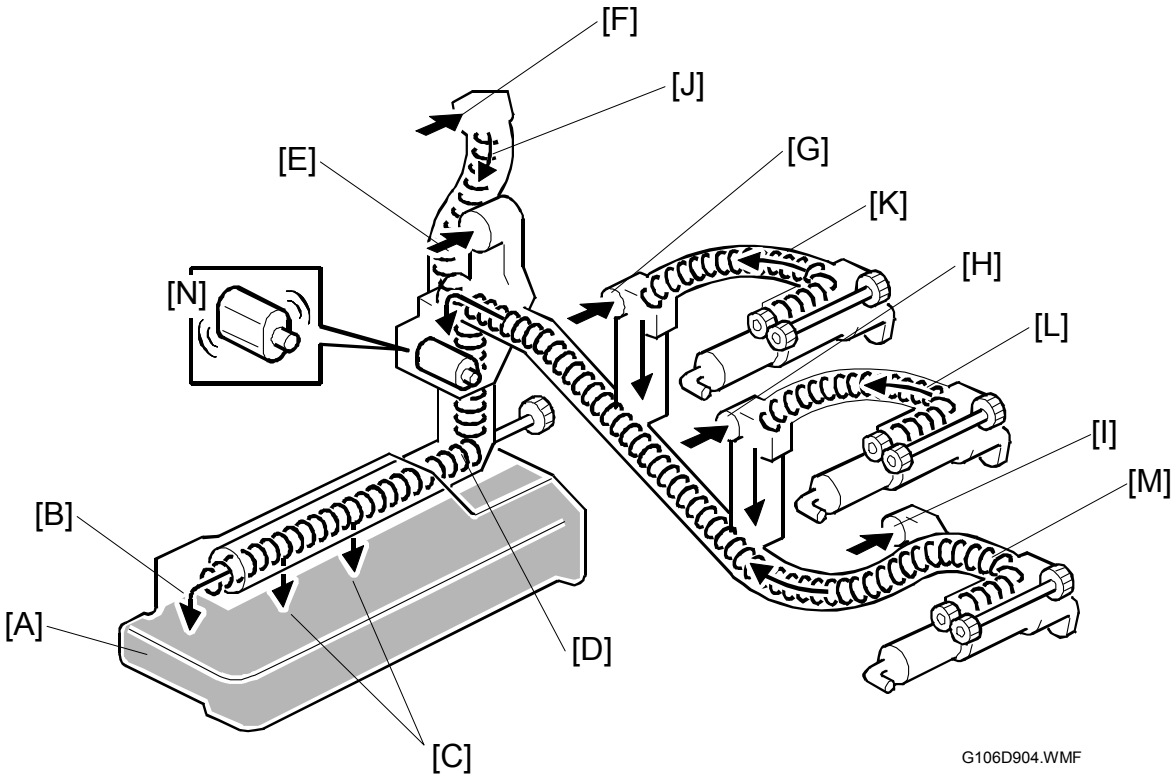


G106D903.WMF

The cleaning brush [A] spreads out the waste toner remaining on the drum. The cleaning blade [B] then scrapes it off. The toner collection auger [C] transports the toner towards the waste toner collection duct.

The lubricant bar [D] is on the cleaning brush. The cleaning brush rubs against the lubricant bar and lubricates the drum surface. Excess lubricant is removed by the cleaning blade and sent to the waste toner collection duct.

6.4.4 WASTE TONER COLLECTION



Waste Toner Path

The waste toner from the collection augers in the four PCUs drops into the waste toner collection duct from the four openings [F][G][H][I] at the rear of the PCUs. The toner collection coils [J][K][L][M] in the duct transport this waste toner towards the waste toner bottle [A]. The coil [J] is driven by the development drive motor–K. The coils [K][L][M] are driven by development drive motor-CMY. The openings and PCUs correspond as follows: black → [F], yellow → [G], cyan → [H], magenta → [I].

The waste toner from the transfer belt cleaning unit drops into the waste toner collection duct from another opening [E].

The end of the waste toner collection duct is in the waste toner bottle [A]. There are three openings [B][C] and one collection coil [D] in this part. The waste toner drops into the bottle through the openings. The collection coil [D] is driven by drum drive motor-K.

NOTE: This mechanism also removes excess lubricant (☛ 6.4.3).

Waste Toner Vibrator

The waste toner vibrator contains one motor [N]. The motor operates for about one second at a time. Its vibration prevents the waste toner from clogging the waste toner path. The table lists the conditions under which the motor operates.

Machine status	Motor operation
During machine start (machine initialization)	Two times
At the beginning of the process control	One time
Printing jobs that output five or less papers	At the job end if 3 or more papers have been output since the previous operation (of the motor) (①)
Printing jobs that output 6 or more papers	Every five papers and at the job end (②)

Suppose: The printer executes two jobs. The first job outputs one paper, and the second job outputs two papers. In this case, the motor operates one time at the end of the second job (see ①).

Suppose: The printer executes one job, and the job outputs 12 papers. In this case, the motor operates one time during the fifth printing, one time during the tenth printing, and one more time at the job end (see ②).

Suppose: The printer executes two jobs. The first job outputs one paper, and the second job outputs 12 papers. In this case, the motor operates one time during the fifth printing of the second job, one time during the tenth printing of the second job, and one more time at the end of the second job (see ②; This case does not satisfy condition ①).

6.5 PAPER FEED LINE SPEED

This machine has three process line speeds (for feed from registration roller to fusing unit) depending on the selected resolution

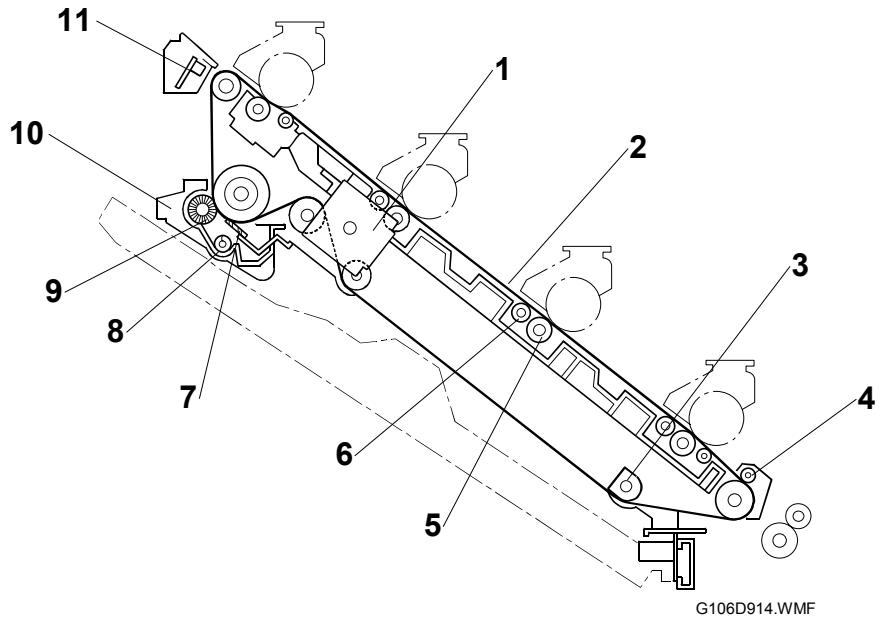
Mode	Resolution (dpi)	Line speed (mm/s)	Print speed (ppm)
B/W	600 x 600 1,200 x 600	162	35
	1,200 x 1,200	62.5	14
Color	600 x 600 1,200 x 600	162	35
	1,200 x 1,200	62.5	14
OHP/Thick	600 x 600 1,200 x 600 1,200 x 1,200	62.5	10

During a monochrome print job, the machine changes the line speed if there is a page with color in the middle of the job. However, it will not change the line speed if there is a monochrome page in the middle of a color print job.

	Line speed (mm/s)
Paper feed from tray to registration roller	230
Fusing, paper exit to standard tray, and mailbox	A bit slower than “Process line speed”
Duplex invert and feed	370
Finisher	450

6.6 IMAGE TRANSFER AND PAPER SEPARATION

6.6.1 OVERVIEW



1. Transfer unit drive motor
2. Transfer belt
3. Rotation encoder
4. Paper attraction roller
5. Transfer roller
6. Back-up roller
7. Cleaning blade
8. Toner collection auger
9. Cleaning brush
10. Cleaning unit
11. ID sensor

Paper is fed to the transfer belt before image transfer begins. The paper attraction roller charges the paper to ensure that the paper is attracted to the belt.

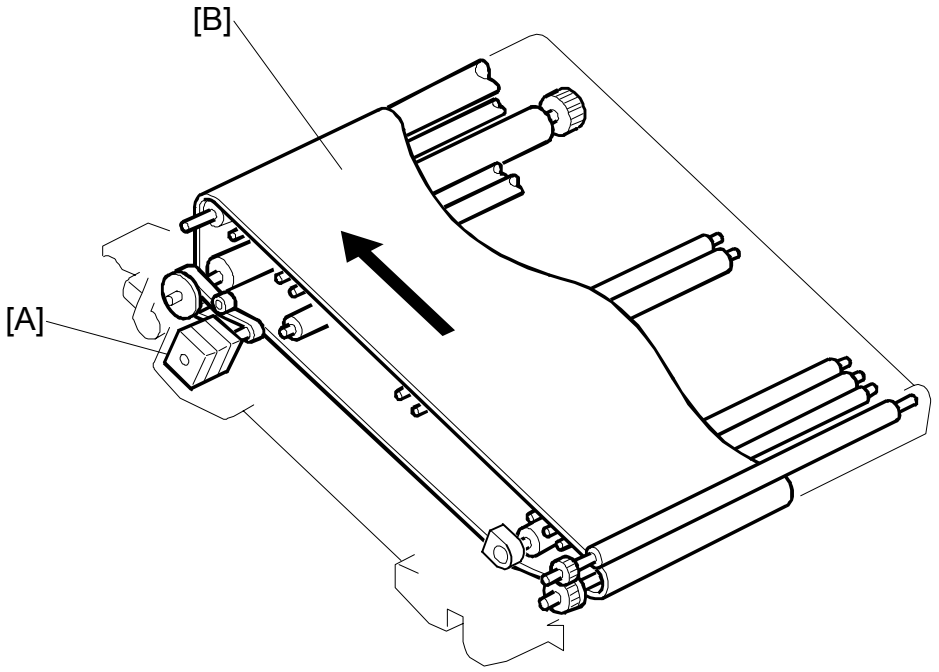
The magenta, cyan, yellow, and black color images transfer to the paper while the transfer belt feeds the paper past the drums towards the fusing unit. A positive charge is applied to the paper under the transfer belt, opposite each drum, to transfer the toner from the drums onto the paper. The back-up roller ensures that the contact area between the drum and belt is sufficient.

The cleaning unit in the transfer unit cleans the belt surface with the cleaning blade and brush. The waste toner collected from the belt is transported to the waste toner bottle.

There are three ID sensors (front, center, and rear). Only the center ID sensor detects the image density of the patterns generated on the transfer belt for process control. The other function of the ID sensors is for automatic line position adjustment. All ID sensors are used for this.

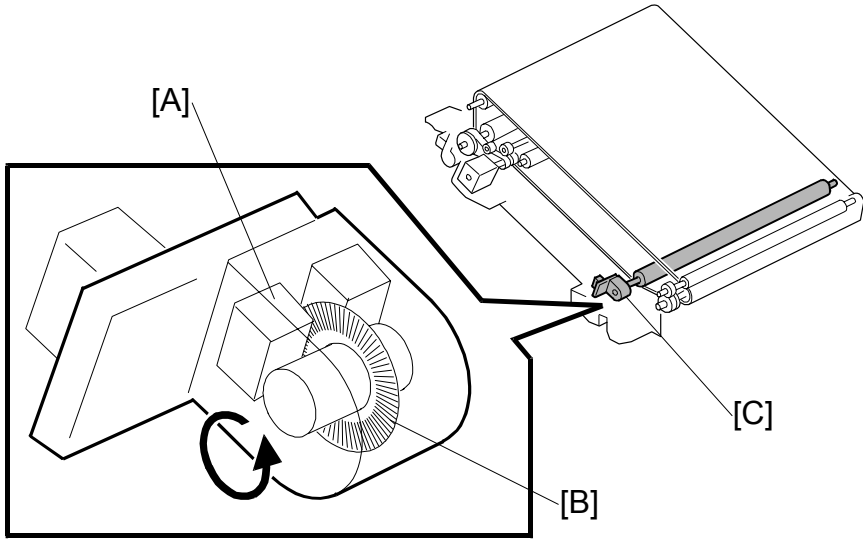
6.6.2 TRANSFER BELT DRIVE

Drive Motor



The transfer unit drive motor [A] drives the transfer belt [B] and the cleaning unit via the timing belt and gears. The speed of transfer belt drive depends on the process line speed.

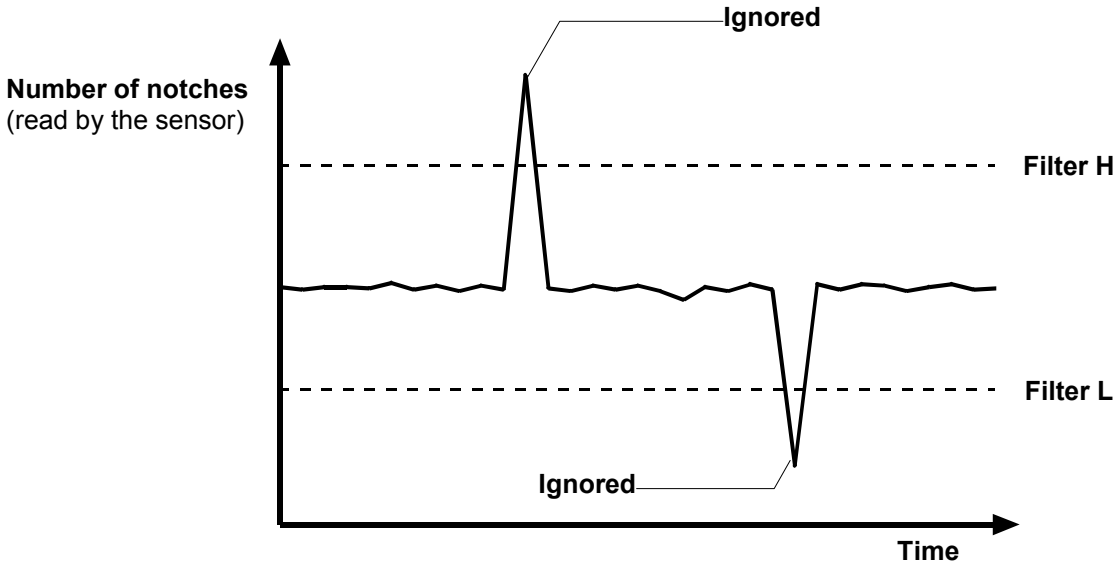
Rotation Encoder



G106D918.WMF

An encoder [C] is on one of the rollers. This encoder checks the rotation speed of the transfer belt. The controller analyzes the signals from the encoder, and adjusts the rotation speed of the transfer belt.

The encoder contains a disk that has 300 notches on its surface [B]. These notches are read by the sensor [A]. The controller counts the number of notches that the sensor has read in the unit of time. If the sensor has read an unusually large number of notches or an unusually small number of notches, the controller ignores such unusual signals. Thanks to this feature, incorrect reading does not affect the rotation speed.

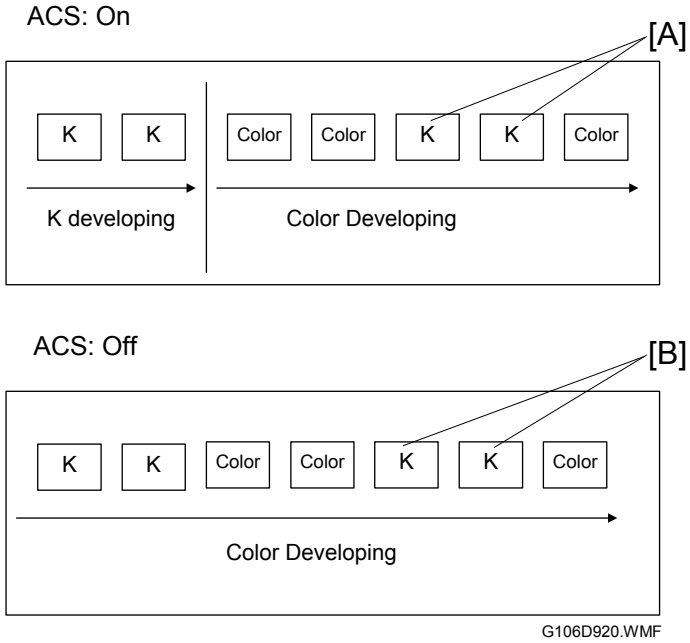


G106D919.WMF

Filter H: The number of notches read by the sensor when the rotation speed of the transfer belt is at its possible highest.

Filter L: The number of notches read by the sensor when the rotation speed of the transfer belt is at its possible lowest.

ACS (Auto Color Sensing) Mode



G106D920.WMF

The machine can print in the color or monochrome mode (selected with the printer driver). In the color mode, ACS can be switched on or off with a user tool (default: on).

If ACS is on, the transfer belt stays in the default position (against the K drum only) until a page with color data on it appears. The transfer belt then moves against all four drums and stays there until the end of the job, even if some K only pages appear.

If ACS is off and the color mode is selected, all data is printed with the transfer belt positioned against all four drums. The belt does not move even if a K only page appears, even if it is at the start of the job.

Regardless of the ACS mode setting, this machine counts a K only page as a black-and-white page. Because of this, the K only pages (with the ACS mode on) [A] and the K only pages (with the ACS mode off) [B] are each counted as black-and-white pages.

6.7 FUSING

6.7.1 FUSING TEMPERATURE CONTROL

Fusing Temperatures

When the main switch turns on, the CPU turns on the fusing lamp. The lamp stays on until the thermistor detects the standby temperature. Then the CPU raises the temperature to the printing temperature.

The fusing temperature for each mode is as follows.

Mode	Resolution (dpi)	Temperature of Heating Roller	Temperature of Pressure Roller	Note
Energy saver level 1		100°C	150°C	
Standby mode		175°C	155°C	If SP1-104-025 is set to 1
Color	1200 x 1200	145°C	125°C	
	1200 x 600 600 x 600	185°C	160°C	
Black and white	1200 x 1200	145°C	125°C	
	1200 x 600 600 x 600	185°C	160°C	
OHP	All	160°C	145°C	
Thick	All	170°C	150°C	
Color (duplex)	1200 x 1200	140°C	120°C	
	1200 x 600 600 x 600	180°C	155°C	
Black and white (duplex)	1200 x 1200	140°C	120°C	
	1200 x 600 600 x 600	180°C	155°C	

The heating and pressure roller temperatures for fusing are stored in SP1-105-004 to 028 and SP1-105-051 to 054.

When the machine is switched on, the fusing lamp temperatures increase to those specified by SP1-104-025.

The print ready temperature is slightly less than the fusing temperature. The difference is specified by SP1-105-001 and 002.

Temperature Corrections

To prevent excessive glossiness caused by fusing temperature overshoot, the following SP modes are available:

- 1-913: Fusing temperature is reduced after this number of pages during the job.
- 1-914: This shows how much the temperature is reduced

If a job using OHP or thick paper starts while the fusing unit is still warm, the fusing temperature could be higher than the target for this type of paper, causing marks on the output. To prevent this problem, we have the following SP modes:

- 1-996-004, 005: These SPs specify a limit, above which printing will not start.

Overheat Protection

If the heating roller temperature is more than 220°C, the CPU cuts off the power to the fusing lamp and SC543 occurs.

If the pressure roller temperature is more than 200°C, the CPU cuts off the power to the fusing lamp and generates SC553 occurs.

If thermistor overheat protection fails, there are the thermostat for the heating roller and two thermofuses for the pressure roller in series with the common ground line of the fusing lamp.

- If the thermostat temperature becomes higher than 225°C, the thermostat opens, removing power from the fusing lamp.
- If either of the two thermofuses temperature becomes higher than 126°C, the thermofuse opens, removing power from the fusing lamp.

NOTE: These thermofuses make a series circuit.

In either case, the machine stops operation.

6.7.2 ENERGY SAVER MODE

When the machine is not being used, the energy saver feature reduces power consumption by switching off the fusing lamps. This machine has two energy saver modes.

Level 1 Energy Saver Mode

The default of the level 1 energy saver mode is “Off.” If the user enables it, the level 1 energy saver mode starts 30 seconds after the machine has completed a print. In this mode, the fusing lamps are intermittently turned on and off to keep the heating roller at 100°C and pressure roller at 150°C.

The machine leaves this mode when one of the following happens:

- Print command received from a PC
- Any cover opened and closed
- Any operation panel key pressed

Level 2 Energy Saver Mode

The level 2 energy saver mode starts after the machine has been idle for a certain time. This time is specified by a user tool as listed below. During the level 2 energy saver mode, both lamps are off.

- Off (energy saver mode never activates)
- 5 minutes
- 15 minutes
- 30 minutes
- 45 minutes
- 60 minutes (default)

When the machine is in this mode, the machine turns off +24 V, +12 V, and +5 V lines. However, only +5 VE lines, for the controller and GAPCI (voltage monitoring ASIC) on the BCU, are still active.

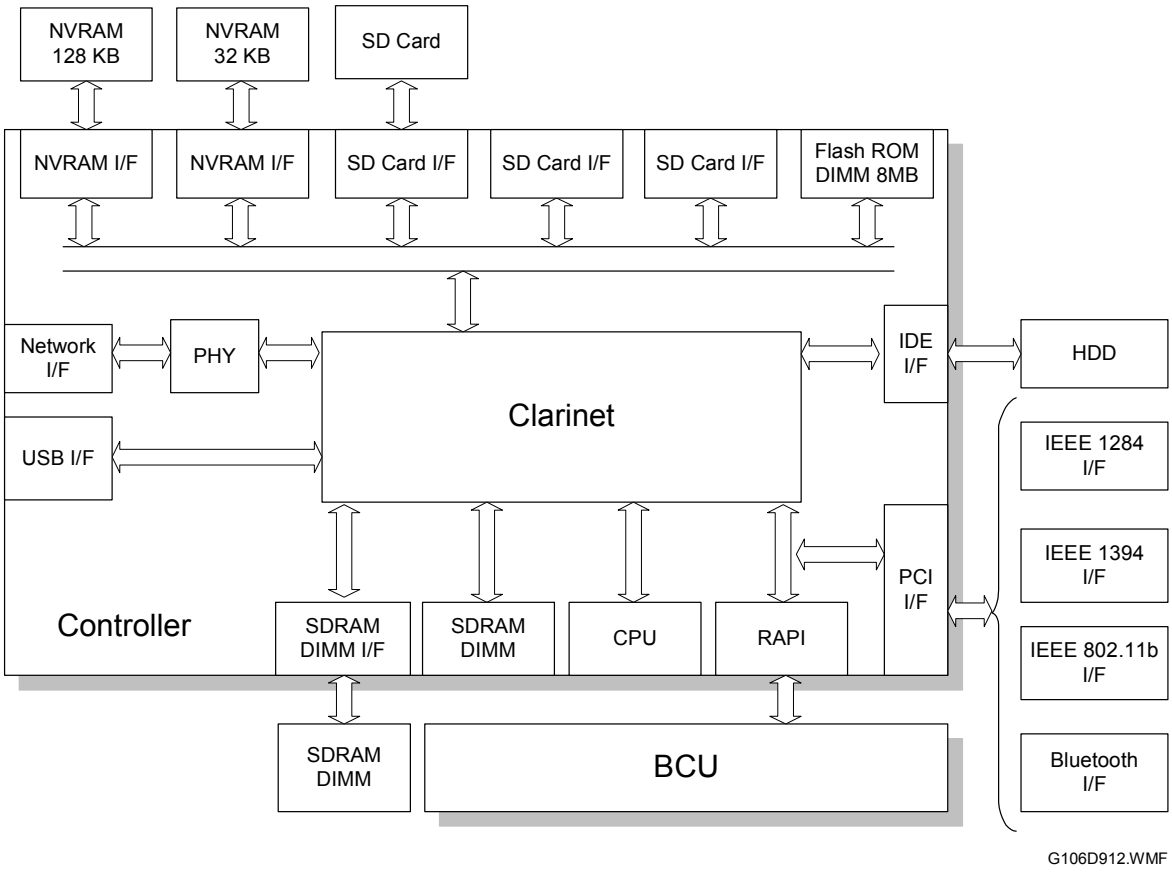
The machine leaves this energy saver mode when one of the following happens:

- Print command received from a PC
- Any operation panel key pressed

NOTE: The machine does not leave the level 2 energy saver mode when covers are opened and closed, because the CPU on the BCU is not active.

6.8 CONTROLLER

6.8.1 OVERVIEW

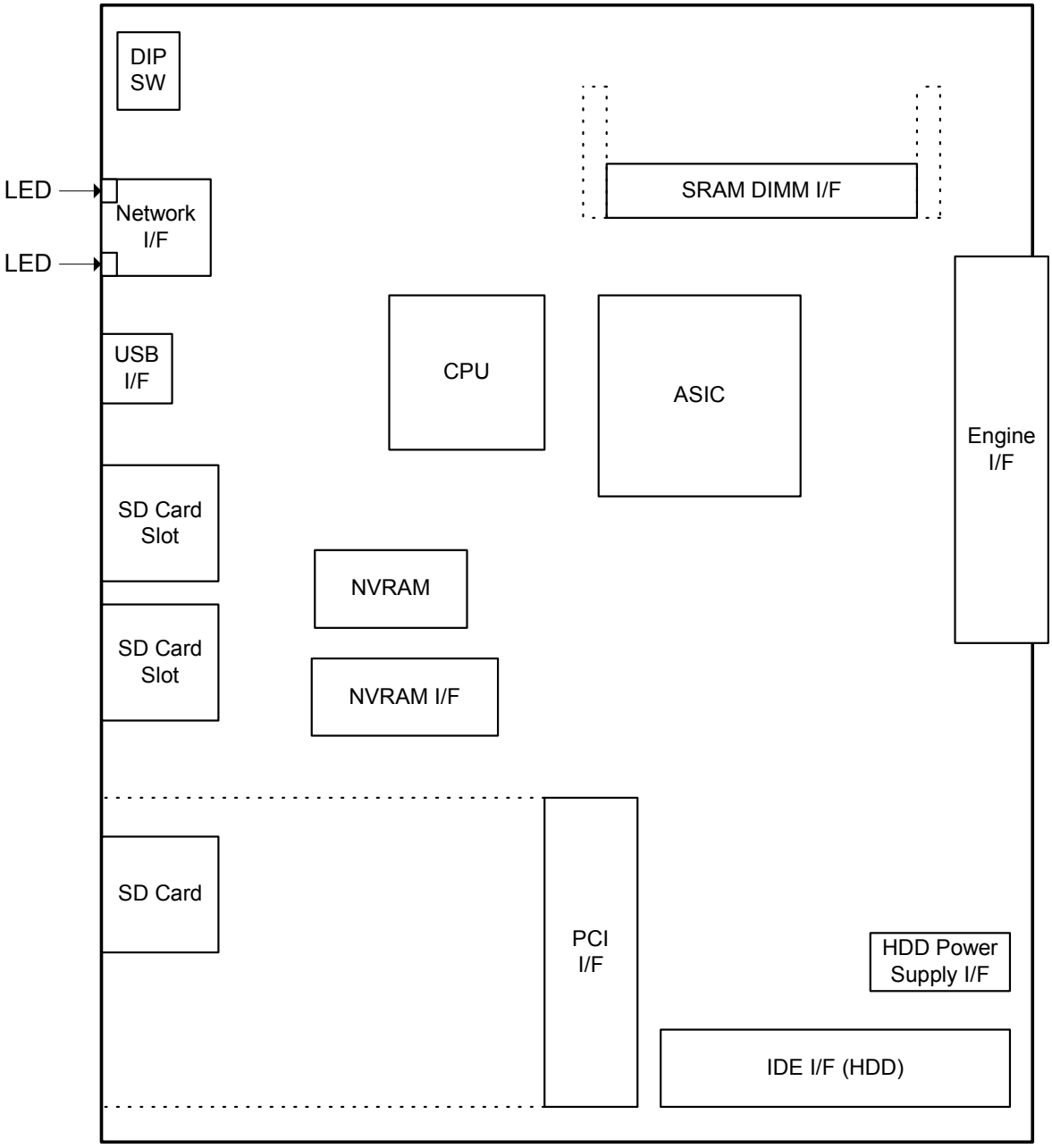


Architecture:	Ground Work Architecture (GW Architecture)
CPU:	RM7065C (600 MHz)
ASIC:	Clarinet and Cymbals (Bus Clock: 120 MHz)
RAM:	PC133 SDRAM DIMM Standard: 128 MB (not removable) Optional (1 slot): 64/128/256 MB
Program ROM:	On-Board Flash ROM (4 MB)
Font ROM:	None*
IC Card:	Not supported
SD Card Slots:	3 (Printer application programs, Maintenance work)
NVRAM	Standard: 32 KB Optional: 128 KB (RTC supported)
Hard Disk Drive:	Standard: None Optional: 40 GB
Interface:	Standard: 100Base-TX/10Base-T, USB 2.0 Optional: IEEE 1284, IEEE 1394, IEEE 802.11b (Wireless LAN), Bluetooth

* The fonts are stored in the SD card with the printer application program.

Detailed Descriptions

6.8.2 BOARD LAYOUT



6.8.3 CONTROLLER FUNCTIONS

Paper Output Tray

You can select the default output tray with this user tool: Menu > System > Output Tray. If the printer driver does not specify an output tray (or if the driver specifies the default tray), the default output tray is used.

Output Tray Selected

- If the printer cannot use the selected output tray, it uses the default output tray.
- If paper overflow is detected at the selected output tray, the controller stops printing.

Stapling

The optional two-tray finisher and booklet finisher can staple outputs. Both finishers support the following stapling positions:

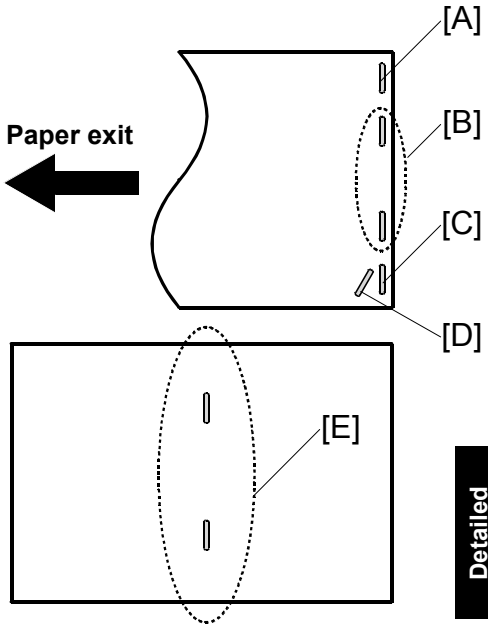
[A]: One staple (vertical) at the rear right corner
[B]: Two staples (vertical) at the right middle edge
[C]: One staple (vertical) at the front right corner

The two-tray finisher supports the following stapling position (the booklet finisher does not):

[D]: One staple (slant) at the front right corner

The booklet finisher supports the following stapling position (the two-tray finisher does not):

[E]: Two staples (vertical) at the center



G106D921.WMF

The table lists the number of sheets that the finishers can staple.

	Position	Paper size	
		A4, B5, LT	A3, Ledger, Legal
Two-tray finisher	[A][B][C][D]	50 sheets	30 sheets
Booklet finisher	[A][B][C]	50 sheets	25 sheets
	[E]	—	10 sheets

NOTE: For the paper sizes, see the specifications.

Punching

You must install an optional punch unit on the finisher. Each punch unit needs a dedicated punch unit. Note that these punch units are not interchangeable with each other. For example, to make two holes on a sheet of paper, you must install the two-hole type. The table shows the types that you can install on your finisher.

Finisher model	Two holes	Three holes	Four holes
North America	✖	✖	N/A
Europe (excluding North Europe)	✖	N/A	✖
North Europe	N/A	N/A	✖

✖: Available
N/A: Not available

6.9 HARD DISK

An optional 40-GB hard disk is available.

Area	Use	Size (MB)	Volatile/ Nonvolatile	Capacity
File System 1	Font download, Form registration	500	Nonvolatile	
File System 2	Job spooling	1000	Volatile	150 jobs
Temporary image data	Shared	1700	Volatile	1000 pages
	Electronic sort	200	Volatile	100 pages
	Test print, Classified print	200	Volatile	100 pages
Job log	Job logs	10	Nonvolatile	
Swap/log area	Swapping, Debugging, Debugging logs	364	Nonvolatile	

SPECIFICATIONS

1. GENERAL SPECIFICATIONS

Configuration: Desktop

Print Process: Dry electrostatic transfer system

Printer Languages: RPCS (Refined Printing Command Stream),
PCL5c,
Adobe PostScript 3

Resolution: True 1200 x 1200 dpi, 1200 x 600 dpi,
600 x 600 dpi, 600 x 600 dpi (2 bit)

NOTE: The resolution 600 x 600 dpi (2 bit) is supported only by PCL5c.

Gradation 1 bit/pixel

Printing speed:

	Resolution	Plain paper	Thick/OHP
Monochrome	600 x 600 dpi	35 ppm	10 ppm
	1200 x 600 dpi	35 ppm	10 ppm
	1200 x 1200 dpi	14 ppm	10 ppm
Color	600 x 600 dpi	35 ppm	10 ppm
	1200 x 600 dpi	35 ppm	10 ppm
	1200 x 1200 dpi	14 ppm	10 ppm

Resident Fonts: PCL5c:
35 Intelli fonts
10 TrueType fonts
1 bitmap font
Adobe PostScript 3:
136 fonts (24 Type 2 fonts, 112 Type 14 fonts)

Host Interfaces:
USB ..... Standard
Ethernet (100 Base-TX/10 Base-T) ..... Standard
Bi-directional IEEE1284 parallel x 1 ..... Optional
IEEE 1394 ..... Optional
IEEE 802.11b (Wireless LAN) ..... Optional
Bluetooth (Wireless) ..... Optional

Network Protocols: TCP/IP, IPX/SPX, NetBEUI, AppleTalk

First Print Speed: 8 seconds or less (from tray 1)

Warm-up Time Less than 99 seconds (at 23°C/50%)

Print Paper Capacity: ($80\ g/m^2$, 20 lb)
Standard tray: 500 sheets x 2
By-pass tray: 100 sheets
Optional paper feed tray: 500 sheets x 1, 500 sheets x 2,
Optional LCT: 2000 sheets

Spec.

Print Paper Size: (Refer to “Supported Paper Sizes”.)

	Minimum	Maximum
Tray 1	A4/8 1/2" x 11" (LEF)	
Tray 2	A5 (LEF)/8 1/2" x 11"	A3/11" x 17"
By-pass	90 x 148 mm	305 x 458 mm/12" x 18"
Optional Tray	A5 (LEF)/8 1/2" x 11"	A3/11" x 17"
LCT	A4/8 1/2" x 11" (LEF)	

Printing Paper Weight:
Standard tray: 60 to 105 g/m^2 (16 to 28 lb.)
Optional paper tray: 60 to 105 g/m^2 (16 to 28 lb.)
By-pass tray: 60 to 163 g/m^2 (16 to 43 lb.)

Output Paper Capacity:
Standard exit tray: 500 sheets (face down)
External exit tray: 100 sheets (face up)

Memory: Standard 128 MB, up to 384 MB with optional DIMM

Power Source:
120 V, 60 Hz: More than 12 A (for North America)
220 V – 240 V, 50/60 Hz: More than 7.0 A (for Europe)

Power Consumption:

	120V	230V
Maximum	1500 W or less	1680 W or less
Energy Saver	15 W or less	15 W or less

Noise Emission:
(Sound Power Level)

	Mainframe Only	Full System
Printing	68 dB or less	72 dB or less
Stand-by	44 dB or less	
Low power mode	40 dB or less	

NOTE: The above measurements were made in accordance with Ricoh standard methodology.

Dimensions (W x D x H): 575 x 678 x 745 mm (22.6" x 26.7" x 29.3")

Weight: Less than 85 kg (187 lb.)

2. SUPPORTED PAPER SIZES

2.1 PAPER FEED

Paper	Size (W x L)	North America			Europe/Asia			By-pass Tray
		Tray 1	Tray 2/3/4	LCT	Tray 1	Tray 2/3/4	LCT	
A3 W	12" x 18"	N	N	N	N	N	N	Y#
A3 SEF	297 x 420 mm	N	Y	N	N	Y	N	Y#
A4 SEF	210 x 297 mm	N	Y#/Y*	N	N	Y	N	Y#
A4 LEF	297 x 210 mm	Y*	Y	Y*	Y	Y	Y	Y#
A5 SEF	148 x 210 mm	N	N	N	N	N	N	Y#
A5 LEF	210 x 148 mm	N	Y	N	N	Y	N	Y#
A6 SEF	105 x 148 mm	N	N	N	N	N	N	Y#
B4 SEF	257 x 364 mm	N	Y#/Y*	N	N	Y	N	Y#
B5 SEF	182 x 257 mm	N	Y#/Y*	N	N	Y#/Y*	N	Y#
B5 LEF	257 x 182 mm	N	Y	N	N	Y	N	Y#
B6 SEF	128 x 182 mm	N	N	N	N	N	N	Y#
Ledger	11" x 17"	N	Y	N	N	Y	N	Y#
Letter SEF	8.5" x 11"	N	Y	N	N	Y#/Y*	N	Y#
Letter LEF	11" x 8.5"	Y	Y	Y	Y*	Y	Y*	Y#
Legal SEF	8.5" x 14"	N	Y	N	N	Y#/Y*	N	Y#
Half Letter SEF	5.5" x 8.5"	N	N	N	N	N	N	Y#
Executive SEF	7.25" x 10.5"	N	Y#	N	N	Y#	N	Y#
Executive LEF	10.5" x 7.25"	N	N	N	N	N	N	Y#
F SEF	8" x 13"	N	Y#	N	N	Y#	N	Y#
Foolscap SEF	8.5" x 13"	N	Y#	N	N	Y#	N	Y#
Folio SEF	8.25" x 13"	N	Y#	N	N	Y#	N	Y#
8K	267 x 390 mm	N	Y#	N	N	Y#	N	Y#
16K SEF	195 x 267 mm	N	Y#	N	N	Y#	N	Y#
16K LEF	267 x 195 mm	N	Y#	N	N	Y#	N	Y#
Custom	Minimum: 90 x 148 mm Maximum: 305 x 458 mm	N	N	N	N	N	N	Y#
Com10 Env.	4.125" x 9.5"	N	N	N	N	N	N	Y#
Monarch Env.	3.875" x 7.5"	N	N	N	N	N	N	Y#
C6 Env.	114 x 162 mm	N	N	N	N	N	N	Y#
C5 Env.	162 x 229 mm	N	N	N	N	N	N	Y#
DL Env.	110 x 220 mm	N	N	N	N	N	N	Y#

Remarks:

Y	Supported: the sensor detects the paper size.
Y#	Supported: the user specifies the paper size.
Y*	Supported: depends on a technician adjustment
N	Not supported

2.2 PAPER EXIT

Paper	Size (W x L)	Internal Tray (Face Down)	External Tray (Face Up)	Finisher	Duplex
A3 W	12" x 18"	N	Y	N	N
A3 SEF	297 x 420 mm	Y	Y	Y	Y
A4 SEF	210 x 297 mm	Y	Y	Y	Y
A4 LEF	297 x 210 mm	Y	Y	Y	Y
A5 SEF	148 x 210 mm	Y	Y	N	N
A5 LEF	210 x 148 mm	Y	Y	Y	Y
A6 SEF	105 x 148 mm	Y	Y	N	N
B4 SEF	257 x 364 mm	Y	Y	Y	Y
B5 SEF	182 x 257 mm	Y	Y	Y	Y
B5 LEF	257 x 182 mm	Y	Y	Y	Y
B6 SEF	128 x 182 mm	Y	Y	N	N
Ledger	11" x 17"	Y	Y	Y	Y
Letter SEF	8.5" x 11"	Y	Y	Y	Y
Letter LEF	11" x 8.5"	Y	Y	Y	Y
Legal SEF	8.5" x 14"	Y	Y	Y	Y
Half Letter SEF	5.5" x 8.5"	Y	Y	N	N
Executive SEF	7.25" x 10.5"	Y	Y	Y	Y
Executive LEF	10.5" x 7.25"	Y	Y	N	N
F SEF	8" x 13"	Y	Y	Y	Y
Foolscap SEF	8.5" x 13"	Y	Y	Y	Y
Folio SEF	8.25" x 13"	Y	Y	Y	Y
8K	267 x 390 mm	Y	Y	Y	Y
16K SEF	195 x 267 mm	Y	Y	Y	Y
16K LEF	267 x 195 mm	Y	Y	Y	Y
Custom	Minimum: 90 x 148 mm Maximum: 305 x 458 mm	Y	Y	N	N
Com10 Env.	4.125" x 9.5"	N	Y	N	N
Monarch Env.	3.875" x 7.5"	N	Y	N	N
C6 Env.	114 x 162 mm	N	Y	N	N
C5 Env.	162 x 229 mm	N	Y	N	N
DL Env.	110 x 220 mm	N	Y	N	N

Remarks:

Y	Supported
N	Not supported

3. SOFTWARE ACCESSORIES

The printer drivers and utility software are provided on one CD-ROM. An auto-run installer allows you to select which components to install.

3.1 PRINTER DRIVERS

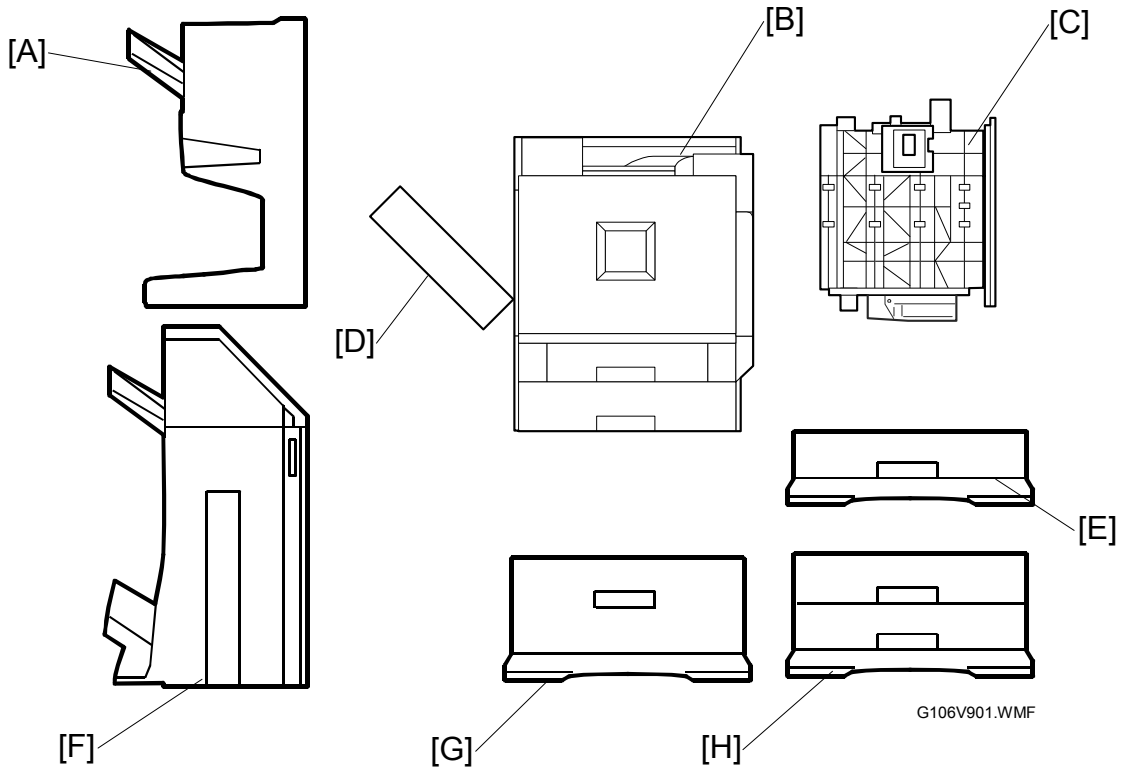
Printer Language	Windows 95/98/ME	Windows NT4.0	Windows 2000	Windows XP	Macintosh OS 8/9	Macintosh OS X
PCL 5c	Yes	Yes	Yes	Yes	No	No
PS3	Yes	Yes	Yes	Yes	Yes	Yes
RPCS	Yes	Yes	Yes	Yes	No	No

NOTE: 1) The printer drivers for Windows NT 4.0 are only for the Intel x86 platform. There is no Windows NT 4.0 printer driver for the PowerPC, Alpha, or MIPS platforms.
2) The PS3 drivers are all genuine AdobePS drivers, except for Windows 2000, which uses Microsoft PS. A PPD file for each operating system is provided with the driver.
3) The PS3 driver for Macintosh supports Mac OS 8.6 or later versions.

3.2 UTILITY SOFTWARE

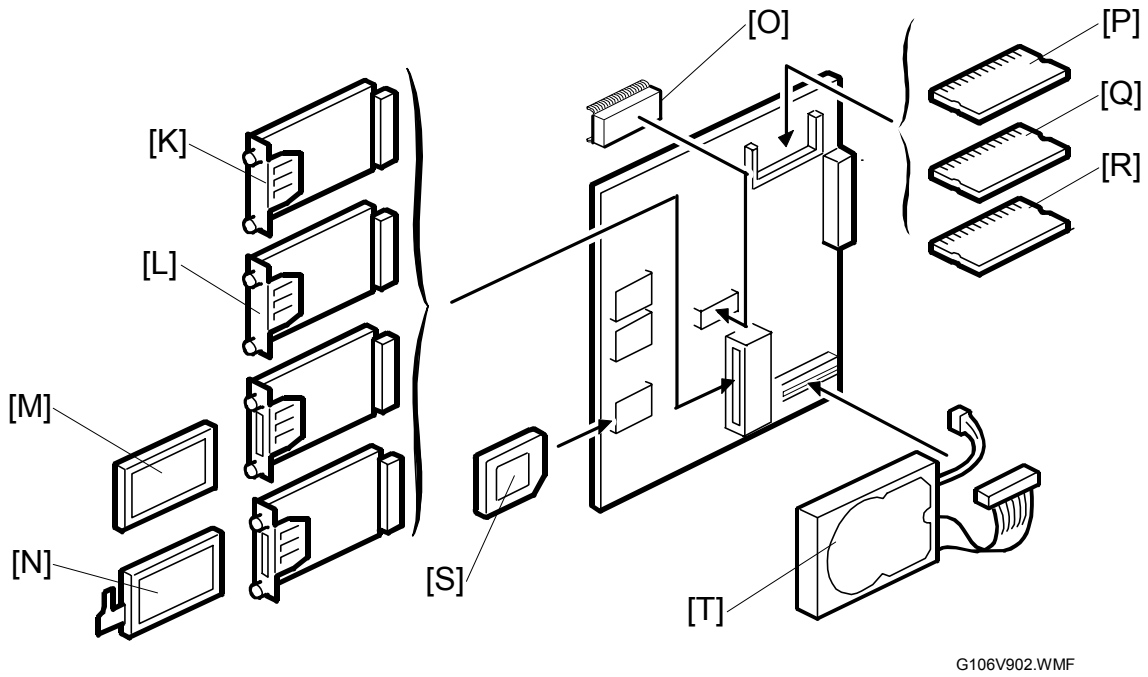
Software	Description
Agfa Font Manager 2000 (Win95/98/ME, 2000/XP, NT4)	A font management utility with screen fonts for the printer.
SmartDeviceMonitor for Admin (Win95/98/ME, 2000/XP, NT4)	A printer management utility for network administrators. NIB setup utilities are also available.
SmartDeviceMonitor for Client (Win95/98/ME, 2000/XP, NT4)	• A printer management utility for client users. • A utility for peer-to-peer printing over a NetBEUI or TCP/IP network. • A peer to peer print utility over a TCP/IP network. This provides the parallel printing and recovery printing features.
PS Utility for Mac (Mac)	This software provides several convenient functions for printing from Macintosh clients.
IEEE1394 Utility (Win2000)	This utility solves problems with Windows 2000.
DeskTopBinder V2 Lite (Win95/98/ME, 2000/XP, NT4)	DeskTopBinder V2 Lite itself can be used as personal document management software and can manage both image data converted from paper documents and application files saved in each client's PC.

4. MACHINE CONFIGURATION



Unit	M'Code	Diagram	Remarks
Printer*	G106	B	
Two-Tray Finisher	G565	F	• Requires ① the HDD or 128 MB DIMM memory, ② the duplex unit, and ③ a paper feed unit or the LCT. • You cannot install the two-tray finisher and the booklet finisher on the same machine.
Punch Unit (for G565)	B377		Requires the two-tray finisher.
Booklet Finisher	B602	A	• Requires ① the duplex unit ② and a paper feed unit or the LCT. • You cannot install the two-tray finisher and the booklet finisher on the same machine.
Punch Unit (for B602)	B647		Requires the booklet finisher.
Paper Feed Unit (500 x 1)*	G567	E	You can install one of these three
Paper Feed Unit (500 x 2)*	G568	H	
LCT*	G569	G	
Duplex Unit (Inverter Unit)*	G382	D	
Duplex Unit (Feed Unit)*		C	

* The user can install the unit.



Controller

Unit	M'Code	Diagram	Remarks
Printer Application Program	—	S	
64 MB DIMM Memory	G330	P	
128 MB DIMM Memory	G331	Q	
256 MB DIMM Memory	G332	R	
NVRAM Memory	G383	O	
IEEE 1284	B679	K	
IEEE 1394	B581	L	
IEEE 802.11b	B582	M	
Bluetooth	G377	N	
HDD	G381	T	

Others

Maintenance Kit A	G222-17	Includes CMY PCUs.
Maintenance Kit B	G219	Includes CMY development units.
Maintenance Kit C	G223	Includes the fusing unit.
Maintenance Kit D	G220	Includes K development unit and dust filter.
Maintenance Kit E	G767	Includes the used toner bottle.
Maintenance Kit F	G222-57	Includes the K PCU.
Maintenance Kit G	G210	Includes the fusing oil supply unit.

5. OPTIONAL EQUIPMENT

5.1 500-SHEET TRAY

Paper Size:	Maximum: A3/11" x 17" (SEF) Minimum: A5 (LEF)/8 1/2" x 11"
Paper Weight:	60 to 105 g/m^2 (16 to 28 lb.)
Tray Capacity:	500 sheets (80 g/m^2, 20 lb.)
Paper Feed System:	FRR system
Paper Height Detection:	3 steps (100%, 50%, Near End)
Power Source:	DC 24V, 5V (from the main unit)
Power Consumption:	50 W
Dimensions (W x D x H):	540 x 600 x 172 mm (21.3" x 23.7" x 6.8")
Weight	18 kg (39.7 lb.)

5.2 1000-SHEET TRAY

Paper Size:	Maximum: A3/11" x 17" (SEF) Minimum: A5 (LEF)/8 1/2" x 11"
Paper Weight:	60 to 105 g/m^2 (16 to 28 lb.)
Tray Capacity:	500 sheets x 2 (80 g/m^2, 20 lb.)
Paper Feed System:	FRR system
Paper Height Detection:	3 steps (100%, 50%, Near End)
Power Source:	DC 24V, 5V (from the main unit)
Power Consumption:	50 W
Dimensions (W x D x H):	540 x 600 x 270 mm (21.3" x 23.7" x 10.7")
Weight	25 kg (55.2 lb.)

5.3 2000-SHEET LARGE CAPACITY TRAY

Paper Size:	A4/8 1/2" x 11" (LEF)
Paper Weight:	60 to 105 g/m^2 (16 to 28 lb.)
Tray Capacity:	2000 sheets (80 g/m^2, 20 lb.)
Paper Feed System:	FRR system
Paper Height Detection:	5 steps (100%, 75%, 50%, 25%, Near End)
Power Source:	DC 24V, 5V (from the main unit)
Power Consumption:	30 W
Dimensions (W x D x H):	540 x 600 x 270 mm (21.3" x 23.7" x 10.7")
Weight	25 kg (55.2 lb.)

5.4 TWO-TRAY FINISHER & PUNCH UNIT

Print Paper Size:

No punch mode:
A3/11" x 17" to A5 (LEF)/8 1/2" x 11"
Punch mode:
2 holes: A3/11" x 17" to A4/8 1/2" x 11" (SEF)
A4/8 1/2" x 11" to A5 (LEF)
3 holes: A3, B4, 11" x 17" (SEF)
A4, B5, 8 1/2" x 11" (LEF)
4 holes (Europe): A3, B4, 11" x 17" (SEF)
A4, B5, 8 1/2" x 11" (LEF)
4 holes (North Europe): A3, B4, 11" x 17" (SEF)
A4, B5, 8 1/2" x 11" (LEF)
Staple mode:
A3/11" x 17" to B5/8 1/2" x 11"

Paper Weight:

No punch mode:
60 to 105 g/m^2 (16 to 28 lb.)
Punch mode:
60 to 105 g/m^2 (16 to 28 lb.)
Staple mode:
64 to 90 g/m^2 (17 to 23 lb.)
Label/Thick paper/OHP cannot be stapled

Tray Capacity:

Upper tray:
500 sheets: A4, 8 1/2" x 11" , B5, A5 (LEF)
250 sheets: 11" x 17", A3, 8 1/2" x 14", B4
Lower tray (default mode – stapled output only goes to tray 2):
2000 sheets: A4, 8 1/2" x 11" (LEF)
750 sheets: A3, B4, A4, B5, 8 1/2" x 14", 11" x 17", 8 1/2" x 11" (SEF)
500 sheets: A5 (LEF)
Lower tray (multi-tray staple mode – stapled output can go to either tray):
1500 sheets: A4, 8 1/2" x 11" (LEF)
750 sheets: A3, B4, A4, B5, 8 1/2" x 14", 11" x 17", 8 1/2" x 11" (SEF)
500 sheets: A5 (LEF)

Staple capacity:

Single size:
50 sheets: A4, 8 1/2" x 11" , B5
30 sheets: A3, B4, 8 1/2" x 14", 11" x 17"
Mixed size:
30 sheets: A4 (LEF) & A3, B5 (LEF) & B4, 8 1/2" x 11" (LEF) & 11" x 17"

Staple position:

7 positions
1-staple: 4 positions (Top Left, Top Right, Top Left-Oblique, Top Right-Oblique)
2-staples: 3 positions (Left, Top, Right)

Spec.

Staple replenishment:	Cartridge (5000 staples)	
Power consumption:	48 W	
Dimensions (W x D x H):	680 x 620 x 1030 mm (26.8" x 24.4" x 40.6")	
Weight	Without punch unit:	53 kg (116.9 lb.)
	With punch unit:	55 Kg (121.3 lb.)

5.5 BOOKLET FINISHER

Paper Size:	A3, A4, B4, B5, DLT, LG, LT
Booklet Paper Size:	A3, B4, A4 SEF, DLT, LG, LT SEF
Paper Weight:	Stack/Sort mode: 60 to 128 g/m^2 (16 to 34 lb.) Staple mode: 64 to 90 g/m^2 (17 to 24 lb.) Booklet mode: 64 to 80 g/m^2 (17 to 21 lb.)
Tray Capacity:	1,000 sheets: A4, LT, B5 500 sheets: A3, B4, DLT, LG
Booklet Tray Capacity:	2 to 5 sheets/booklet: 20 6 to 10 sheets/booklet: 10
Staple capacity:	A4, B5, LT: 50 sheets A3, B4, DLT, LG: 25 sheets
Booklet capacity:	10 sheets
Staple position:	3 positions (excluding booklet mode) 1-staple: 2 positions (Top right, Top left) 2-staples: 1 positions (Left)
Staple replenishment:	Cartridge (5000 staples)