Model: Bellini	Date: 26-May-00	No.: RA294012

Subject: 105 CPM Version Information	Prepared by: H.K.
From: Technical Services Dept., GTS Division	

Classification:	☐ Troubleshooting	☐ Part information	☐ Action required
	☐ Mechanical	☐ Electrical	☒ Service manual revision
	☐ Paper path	☐ Transmit/receive	☐ Retrofit information
	☐ Other ( )		

Introduction

To facilitate servicing the 105cpm (A295) model in the field, this RTB describes the differences from the 85cpm (A294) model.

Major Parts

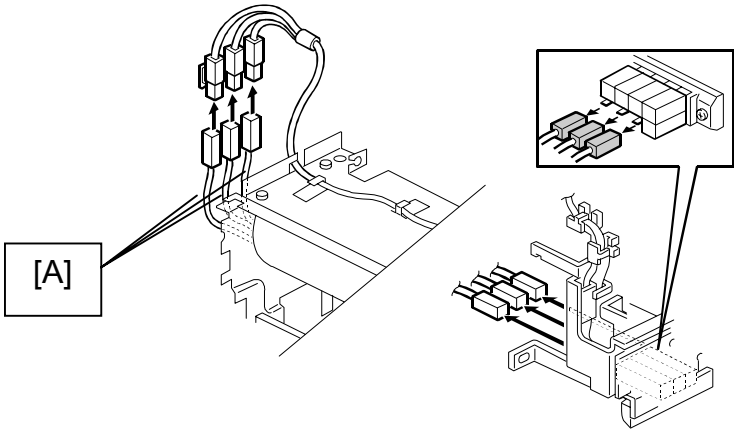
Fusing Lamps:

85 CPM	AX430052	Fusing Lamp – 230V/530W
105 CPM	AX430055	Fusing Lamp – 230V/630W

The wattage of the fusing lamps has been increased from 530 to 630W to improve fusing. To distinguish these two lamps, the colors of the front harnesses [A] are as follows:

530W: Blue
630W: Red

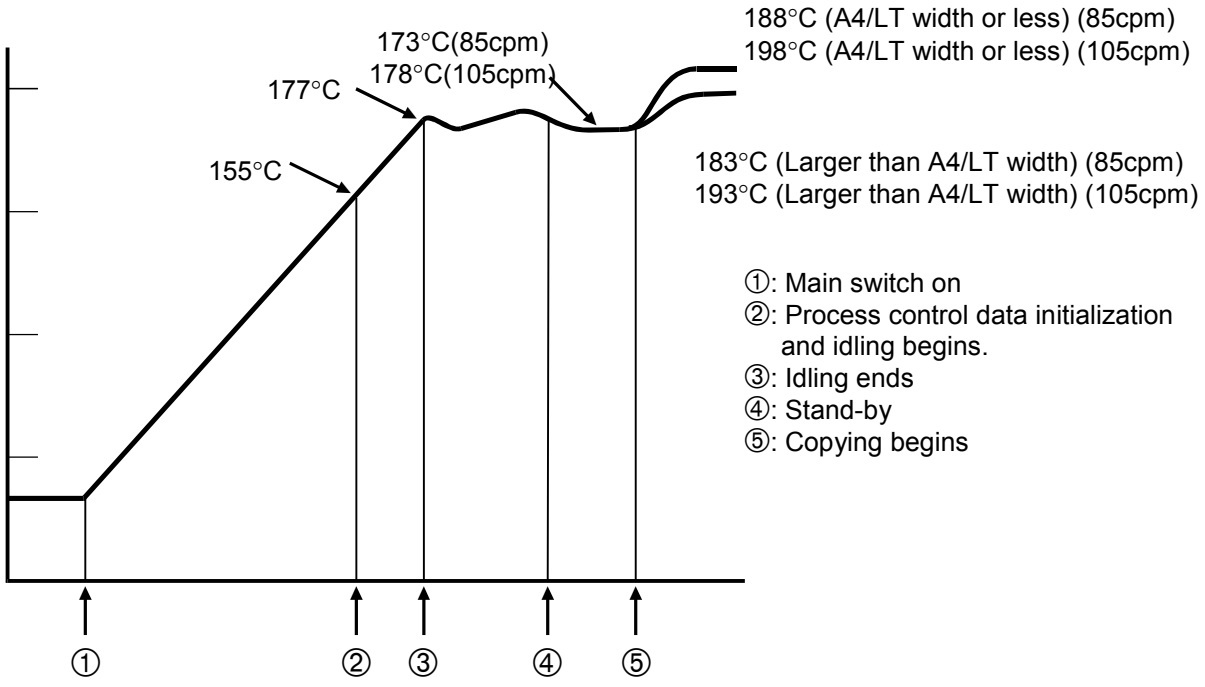
The connectors for both the lamps have the same color. The following note for re-assembly has not been changed:



Note on 6-87
At the front, connect the white fusing lamp connectors to the white connectors on the cable. At the rear, connect the green fusing lamp connectors to the green connectors on the cable.

Fusing Lamp Control:

The fusing temperature control for the 105cpm model is different from that of the 85cpm model.



A294D627.WMF

The CPU turns on all three fusing lamps after the main switch is turned on, with a one-second interval between each. This prevents the power from the AC line from dropping too quickly.

When the fusing temperature reaches 155°C, the machine starts the process control data initialization. However, this is not performed if the fusing temperature is already above 100°C at the time the main switch is turned on.

When the fusing temperature reaches 155°C, the copier starts fusing idling. However, the idling is not performed if the fusing temperature is already above 100°C at the time the main switch is turned on

When the temperature reaches 177°C, the warm-up period is completed and the “Ready” indicator turns on. After this, the machine maintains a fusing temperature of 173°C (85 cpm model) and **178°C (105cpm model)**.

In stand-by mode, one of the fusing lamps turns on intermittently in order to maintain ready temperature. During the copy cycle, all three fusing lamps are used to maintain operating temperature. The machine will turn the lamps on one at a time, with a one-second interval between each.

The CPU changes the interval that the fusing lamp is on depending on the temperature measured by the thermistor. This is to maintain the fusing temperature as close to the target value as possible.

Even if one of the lamps fails during copying, the machine will continue to function. However, if it detects a broken lamp just after being switched on, an SC error occurs and copying is not possible.

The machine uses the fusing lamp on/off control mode to maintain the fusing temperature as close to the target value as possible. Even if thick paper mode is selected, fusing temperature control does not change.

SP1-902-2 Default setting (42 seconds: 85 cpm, 34 seconds: 105 cpm):

Page 2-105, second paragraph:

Every 42 seconds (85cpm) or **34 seconds (105cpm)** during printing, the oil supply/cleaning web motor turns for 0.8 seconds to move the oil supply and cleaning web felt. This 42 or 34-second cycle starts when the first copy reaches the fusing exit sensor and ends 2 seconds after the last copy has passed this sensor. Both the motor rotation cycle and on-time are adjusted by SP1-902-2 / 3.

Hard Disk:

85 CPM	A6915879	Hard Disk Drive
105 CPM	A2955172	Hard Disk - Fireball Plus KX

For printing out with the 105 cpm model, it is necessary to use a hard disk with a faster rotation speed in order to conform to the higher copy speed of the machine. The hard disks used for both models are as follows:

	Seek Time	Rotation Velocity	Capacity
85cpm	9.5 ms	5400 rpm	4.3 GB
105cpm	8.5 ms	7200 rpm	6.8 GB

HDD Control (S/M 2-127):

UP Setting for "Memory Allocation"	HDD 1 (Front)	HDD 2 (Rear)
Copier Priority	Copy Jobs: 0.82 GB Copy Server Jobs: 3.08 GB (85 CPM) 5.00 GB (105 CPM) Printer Jobs: 0.20 GB	Copy Jobs: 3.35 GB Copy Server Jobs: Not used Printer Jobs: 0.76 GB
Max. Memory for Document Server	Copy Jobs: 1.23 GB Copy Server Jobs: 2.57 GB (85 CPM) 5.00 GB (105 CPM) Printer Jobs: 0.31 GB	Copy Jobs: 1.23 GB Copy Server Jobs: 2.57 GB (85 CPM) 5.00 GB (105 CPM) Printer Jobs: 0.31 GB

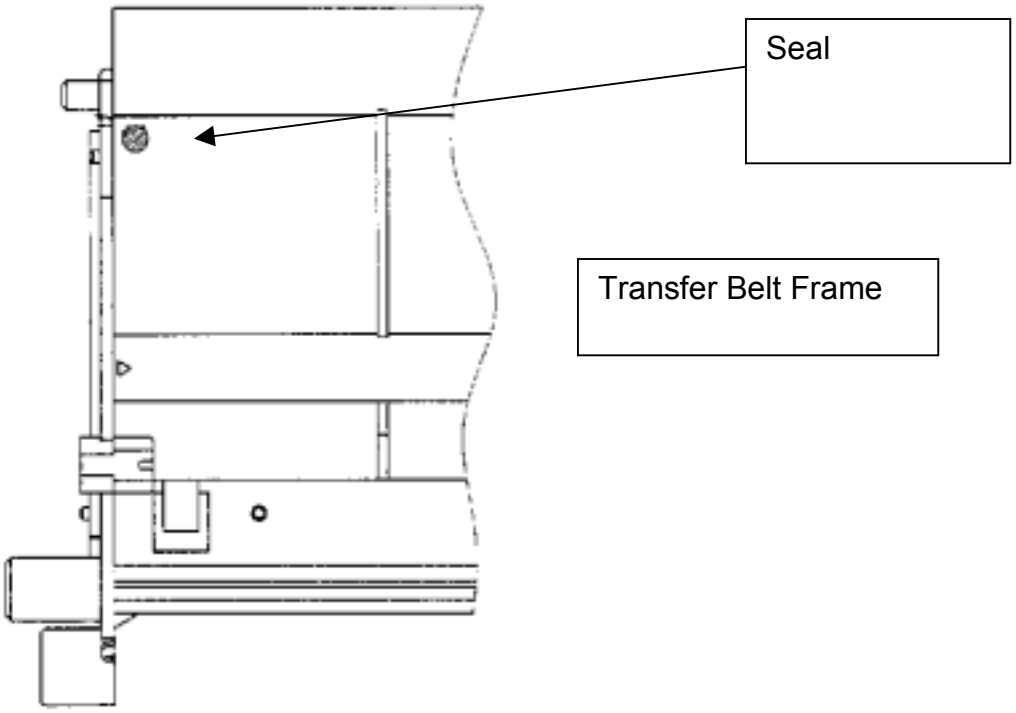
Model: Bellini	Date: 26-May-00	No.: RA294012

Transfer Belt:

85 CPM	A229 3852	Transfer Belt
	A2943810	Transfer Belt Unit
105 CPM	A229 3899	Transfer Belt
	A2953810	Transfer Belt Unit

To achieve a higher copy speed than the 85cpm model, the transfer belt in the 105cpm model is given a higher transfer current. With higher transfer current, black lines have a greater tendency to appear in half-tone areas on the copy. To compensate for this, the transfer belt used in the 105cpm model has a lower resistance.

To distinguish between the two transfer belt units, a seal is attached to the transfer belt frame for the 105cpm model as shown. Note that the belt for the 105cpm model can also be used for the 85cpm model.



Specifications

The additional items added to the specifications of the 105cpm model are listed on page 7/16 of this bulletin.

SP Mode

The SP modes that have been revised or added for the 105cpm model are listed on page 11/16 of this bulletin. All information from Class 1 of the 85cpm model is also listed along with these new additions/revisions.

Unique parts

An MB for information on the 105cpm model will be issued containing a list of the parts that are unique to this model.

Input Voltage Level:

The input voltage for the 85cpm model listed on page 3-2 of the Service Manual is incorrect. Please correct your manuals as follows:
North America:
240V, 60 Hz: More than 10A (85cpm)
240V, 60 Hz: More than 12A (105cpm)
Europe/Asia:
220 ~240V, 50/60 Hz: More than 10A (85cpm)
220 ~240V, 50/60 Hz: More than 12A (105cpm)

Finisher ROM interchangeability

Although the finisher itself is interchangeable between both the 85cpm and 105cpm models, the EPROM firmware must be updated to version E or newer for fnishers produced before April 2000. The cut-in serial numbers for April 2000 production are as follows:

L0670040001 (B302-14)
H3800400001 (B302-17)
4B20400001 (B302-26)

OVERALL MACHINE INFORMATION

SPECIFICATIONS

COPIER ENGINE

Configuration: Console

Copy Process: Dry electrostatic transfer system

Originals: Sheet/Book

Original Size: Maximum: A3/11" x 17"
Minimum: A5, 5 1/2"x 8 1/2" (using ADF)

Original Alignment: Rear left corner

Paper Size/Weight:

Size:
Mainframe, Tray 1 (Tandem Tray):
A4 sideways and LT sideways
Mainframe, Trays 2 and 3 (Universal Trays):
Europe/Asia:
A5 - A3 lengthwise,
8-kai sideways, 16-kai
N. America:
5 1/2" x 8 1/2" sideways - 11" x 17" lengthwise
LCT, Trays 4 ~ 6:
A4 sideways, B5 sideways, LT sideways, A5, HLT
Duplex Tray: A5/HLT (lengthwise or sideways) to A3/DLT. Tab paper cannot be used.

Weight:
Mainframe, Trays 1 to 3:
52 to 163 g/m^2
16 to 40 lbs Bond
50 to 60 lbs Cover
90 lbs Index (no Tab)
LCT, Trays 4 and 5:
52 to 216 g/m^2
16 to 40 lbs Bond
50 to 80 lbs Cover
90 to 110 lbs Index
LCT, Tray 6:
Same as Mainframe, Trays 1 to 3
Duplex Tray:
64 to 163 g/m^2
20 to 40 lbs Bond
50 to 60 lbs Cover
90 lbs Index (no Tab)

Reproduction ratios: 7 reduction and 5 enlargement

	Metric Version	Inch Version
Enlargement	400% 200% 141% 122% 115%	400% 200% 155% 129% 121%
Full Size	100%	100%
Reduction	93% 82% 75% 71% 65% 50% 25%	93% 85% 78% 73% 65% 50% 25%

Zoom: 25 ~ 400%

Copy Speed: 85 cpm: Max. 85 cpm (A4/8 1/2" x 11" sideways)
105 cpm: Max. 105 cpm (A4/8 1/2" x 11" sideways)

Resolution: Scanning: 600 dpi
Printing: 600 dpi

Gradation: 256 levels

Warm-up Time: Less than 360 s (from Off mode)

First Copy Time:
(1st Tray, A4 sideways)

Finisher upper tray: face down
85 cpm: Less than 5.4 s
105 cpm: Less than 4.9 s
Finisher upper tray: face up
85 cpm: Less than 4.1 s
105 cpm: Less than 3.8 s
Copier: face down
85 cpm: Less than 4.5 s
105 cpm: Less than 4.2 s
Copier: face up
85 cpm: Less than 3.2 s
105 cpm: Less than 2.9 s

Copy Number Input: Ten-key pad, 1 to 9999

Copy Paper Capacity: 1st Tray: 1,000 sheets (2,000 when used as a tandem tray)
2nd/3rd Tray: 500 sheets each
4th/5th Tray (LCT): 1,000 sheets each
6th Tray (LCT): 2,550 sheets

Memory Capacity: RAM: 48 MB x 2
HDD: 4.3 GB x 2 (85 CPM), 6.8 GB x2 (105 CPM)

Toner Replenishment: Cartridge exchange (1,450 g/cartridge)

Toner Yield: 53 k copies
(A4 sideways, 6% full black, 1 to 25 copying)

Power Source: North America: 240 V, 60 Hz, 20 A
Europe/Asia: 220 ~ 240 V, 50Hz/60 Hz, 16 A

Power Consumption:

N. America Version

85 cpm

	Mainframe Only	**Full System *1**
Warm-up	about 1.96 kW	about 1.98 kW
Stand-by	about 0.79 kW	about 0.8 kW
Copying	about 2.24 kW	about 2.3 kW
Maximum	less than 2.35 kW	less than 2.38 kW

*1: Mainframe with Finisher, Large Capacity Tray

105 cpm

	Mainframe Only	**Full System *1**
Warm-up	about 2.51 kW	about 2.52 kW
Stand-by	about 0.93 kW	about 0.95 kW
Copying	about 2.67 kW	about 2.68 kW
Maximum	less than 2.77 kW	less than 2.84 kW

*1: Mainframe with Finisher, Large Capacity Tray

Europe Version

85 cpm

	Mainframe Only	**Full System *1**
Warm-up	about 1.89 kW	about 1.9 kW
Stand-by	about 0.75 kW	about 0.77 kW
Copying	about 2.14 kW	about 2.18 kW
Maximum	less than 2.24 kW	less than 2.26 kW

*1: Mainframe with the finisher, large capacity tray

105 cpm

	Mainframe Only	**Full System *1**
Warm-up	about 2.38 kW	about 2.39 kW
Stand-by	about 0.89 kW	about 0.9 kW
Copying	about 2.52 kW	about 2.54 kW
Maximum	less than 2.64 kW	less than 2.7 kW

*1: Mainframe with Finisher, Large Capacity Tray

Noise Emission *1: 85 cpm

Sound Power Level

	Mainframe Only	Complete System *3
Warm-up	about 74 dB (A)	78 dB (A)
Stand-by	about 59 dB (A)	58 dB (A)

Sound Pressure Level *2

	Mainframe Only	Complete System *3
During printing	59 dB (A)	68 dB (A)

*1: Actual values in accordance with ISO 7779 standards.
*2: Measured from the position of the bystander or operator during printing.
*3: Mainframe with all options installed.

Noise Emission *1: 105 cpm

Sound Power Level

	Mainframe Only	Complete System *3
Warm-up	75 dB (A)	78 dB (A)
Stand-by	59 dB (A)	58 dB (A)

Sound Pressure Level *2

	Mainframe Only	Complete System *3
During printing	61 dB (A)	67 dB (A)

*1: Actual values in accordance with ISO 7779 standards.
*2: Measured from the position of the bystander or operator during printing.
*3: Mainframe with all options installed.

Dimensions: (W x D x H)	870 x 735 x 1,476 mm (34.3" x 28.9" x 58.1") (without options)
Weight:	252 kg (without options)
Optional Equipment:	Refer to Machine Configuration

SERVICE PROGRAM MODE TABLES

NOTE: 1) In the Function column, comments are in italics.
2) In the Settings column, the default value is in bold letters.
3) S and B in the right hand side of the mode number column means that this mode is stored in the NVRAM on the SICU (S) or BCU (B). If you do a RAM reset, all these SP modes will be reset to their factory settings.

Mode No. (Class 1, 2 and 3)				Function	Settings
1-002	Side-to-Side Registration				
	1	Tray-1	B	Adjusts the printing side-to-side registration from the 1st paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *See "Replacement and Adjustment – Copy Image Adjustments" for details on SP1-002.*	+9 ~ –9 0.1 mm/step **–1.5 mm**
	2	Tray-2	B	Adjusts the printing side-to-side registration from the 2nd paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **–1.5 mm**
	3	Tray-3	B	Adjusts the printing side-to-side registration from the 3rd paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **–1.5 mm**
	4	Tray-4 (LCT)	B	Adjusts the printing side-to-side registration from the 4th paper feed station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **–2.5 mm**
	5	Tray-5 (LCT)	B	Adjusts the printing side-to-side registration from the 5th paper station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ± 2.0 mm.*	+9 ~ –9 0.1 mm/step **–2.5 mm**
	6	Tray-6 (LCT)	B	Adjusts the printing side-to-side registration from the 6th paper station using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ±2.0 mm.*	+9 ~ –9 0.1 mm/step **–2.5 mm**

Mode No. (Class 1, 2 and 3)				Function	Settings
1-002	Side-to-Side Registration				
	7	Duplex Tray	B	Adjusts the printing side-to-side registration from the duplex tray using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 0 ±2.0 mm.*	+9 ~ –9 0.1 mm/step **–3.0 mm**
1-003	Paper Buckle Adjustment (Registration)				
	1	Copier Paper Tray	B	Adjusts the relay clutch timing at registration. The relay clutch timing determines the amount of paper buckle at registration. (A positive setting leads to more buckling.)	+9 ~ –9 1 mm/step **+4.0 mm**
	2	LCT Tray	B		
	3	Duplex Tray	B		
1-008	Duplex Fence Adjustment				
			B	Adjusts the distance between the front and rear fences.	+4 ~ –4 0.5 mm/step **0 mm**
1-103	Fusing Idling After Low Power Mode				
			B	Selects whether fusing idling is done or not when recovering from the low power mode.	**0: Not done** 1: Done
1-105	Fusing Temperature Adjustment				
	1	Fusing Temperature in Waiting Condition	B	Adjusts the fusing temperature for stand-by.	170 ~ 200 1°C/step **173°C** **(85 CPM)** **178°C** **(105CPM)**
	2	Fusing Temperature Lower Limit	B	Adjusts the fusing temperature lower limit. When the fusing unit falls below this temperature, the machine stops copying. Copying automatically restarts when the fusing temperature recovers. ***This SP mode is for designer's use only.***	157 ~ 167 1°C/step **163°C** **(85 CPM)** **167°C** **(105 CPM)**
	3	Fusing Temperature Correction (<A4/LT)	B	Specifies the amount to raise the fusing temperature from standby mode to print on A4/LT long edge or smaller width paper.	+0 ~ +20 1°C/step **+15°C**
	4	Fusing Temperature Correction (A4/LT)	B	Specifies the amount to raise the fusing temperature from standby mode to print on paper of A4/LT long edge width.	+0 ~ +25 1°C/step **+10°C**
1-902	Web Motor Control				
	1	Web Consumption	B	Displays the percentage of the web consumption in 1% steps (0% ~ 100%). The value can be manually input using number keys.	
	2	Web Motor Drive Interval	B	Change the interval of copy operation time after which the web motor is driven	15 ~ 130 1 s/step **42 s** **(85 CPM)** **34 s** **(105 CPM)**

Mode No. (Class 1, 2 and 3)				Function	Settings
1-902	Web Motor Control				
	3	Web Motor Drive Time	B	Changes the time that the web motor is driven.	0.1 ~ 3.0 0.1 s/step **0.8 s**
	4	Web Near End Setting	B	Changes the web consumption ratio at which web near end is displayed. About 40k A4 copies can be made after the web consumption reaches 100%.	0 ~ 100 1%/step **100%**
2-001	Charge Corona Bias Adjustment				
	1	Image Area (Auto Process Control OFF)	B	Adjusts the voltage applied to the grid plate during copying when auto process control is **off**. *Normally, there is no need to adjust this. If there is an ID or TD sensor problem, the machine goes into fixed toner supply mode. After replacing the drum or charge corona wire, change this value to the default.*	–650 ~ –1,300 10 V/step **–1,000 V**
	2	ID Sensor Pattern (Auto Process Control OFF)	B	Adjusts the voltage applied to the grid plate when making the ID sensor pattern, when auto process control is switched off. *Normally, there is no need to adjust this. If the user wants high density copies, the sensor pattern must be lighter, so this voltage must be a higher negative voltage.*	–650 ~ –1,300 10 V/step **–800 V**
	3	Image Area (Auto Process Control ON)	B	Adjusts the voltage applied to the grid plate during copying when auto process control is switched **on**. This voltage changes every time auto process control starts up (every time the machine is switched on)	–650 ~ –1,300 10 V/step **–1,000 V**
	4	Grid Voltage for Transparencies (OHP)	B	Adjusts the voltage applied to the grid plate when translucent mode is selected. Use this if there is a copy quality problem when making copies on transparencies. Normally there is no need to adjust this. See 2-001-1.	–650 ~ –1,300 10 V/step **–1,070 V**
	5	Total Corona Current	B	Adjusts the current applied to the charge corona wire except for Photo mode.	–1,400 ~ –2,800 100 μA/step **–1,400 μA**
	6	Total Corona Current (Photo mode)	B	Adjusts the current applied to the charge corona wire for Photo mode.	1,400 ~ –2,800 100 μA/step **–1,600 μA**
	7	V_D (Auto Process Control)	B	Adjust the target V_D voltage for Process Control Initial Setting.	–900 ~ –1,000 10 V/step **–970 V**
2-201	Development Bias Adjustment				
	1	Image Area	B	Adjusts the development bias for copying. *This can be adjusted as a temporary measure if faint copies appear due to an aging drum.*	–200 ~ –700 10 V/step **–530 V**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-201	Development Bias Adjustment				
	2	ID Sensor Pattern	B	Adjusts the development bias for making the ID sensor pattern for VSP measurement. *This should not be used in the field, because it affects ID sensor pattern density, which affects toner supply.*	–200 ~ –700 10 V/step **–400 V**
	3	Transparencies (OHP)	B	Adjusts the development bias for copying onto transparencies.	–200 ~ –700 10 V/step **–530 V**
	4	ID Sensor Development Potential	B	Adjusts the development potential for making the ID sensor pattern for VSP measurement. Do not adjust.	-180 ~ -380 1 V/step **-280 V**
2-209	Toner Supply Rate				
			B	Adjusts the toner supply rate from the hopper. *Increasing this value reduces the toner supply roller clutch on time. Use a lower value if the user tends to make lots of copies that have a high proportion of black.*	100 ~ 2,000 10 mg/s/step **800 mg/s (85 CPM)** **1,000 mg/s (105 CPM)**
2-301	Transfer Current Adjustment				
	1	1st Copy Side	B	Adjusts the current applied to the transfer belt during copying on the 1st side of the paper. If the user uses thicker paper, the current may have to be increased to ensure sufficient transfer of toner.	15 ~ 200 1 μA/step **120 μA (85 CPM)** **140 μA (105 CPM)**
2-301	Transfer Current Adjustment				
	2	Thick Paper	B	Adjusts the current applied to the transfer belt during copying on thick paper. *See above.*	15 ~ 200 1 μA/step **120 μA (85 CPM)** **140 μA (105 CPM)**
	3	Transparencies (OHP)	B	Adjusts the current applied to the transfer belt during copying on transparencies. See above. If the user normally feeds thicker paper from the bypass tray, use a higher setting.	15 ~ 200 1 μA/step **140 μA**
	4	Translucent Sheet	B	Adjusts the current applied to the transfer belt during copying on translucent sheet.	15 ~ 200 1 μA/step **120 μA (85 CPM)** **140 μA (105 CPM)**
	5	2nd Copy	B	Adjusts the current applied to the transfer belt during copying on the 2nd side of the paper.	15 ~ 200 1 μA/step **120 μA (85 CPM)** **140 μA (105 CPM)**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-301	Transfer Current Adjustment				
	6	Between Pages	B	Adjusts the current applied to the transfer belt between the pages.	15 ~ 200 1 μA/step **20 μA**
2-506	Cleaning Interval – Multiple Copy				
	1	On/Off	B	Selects whether multiple copy jobs are stopped at regular intervals for the following purposes. 1. Stop and turn the drum motor in reverse to clean the cleaning blade edge 2. Make an ID sensor pattern to correct the toner density control. The interval depends on SP2-506-2. Use if the drum gets dirty or images get too pale or too dark during long jobs.	1: No **2: Yes**
	2	Interval	B	Selects the interval at which multi copy jobs are stopped.	1 ~ 100 1 minute/step **30 minutes**
2-969	ID Sensor Pattern Interval – Multicopy				
			B	If this is enabled, an ID pattern is made every minute if the machine is being used during the first 20 minutes after process control is done. This stabilizes image density just after the machine has been switched on. However, the printing productivity will be decreased.	**OFF** ON
4-915	CD-RW				
	1	CD-RW Model Name Display		Displays the CD-R/RW model name and firmware version.	
	2	CD-RW F/W Version Display			
5-923	Border Erase Area Selection				
			S	Selects the standard for edge erase. 0: The margin is erased from the original data. 1: The margin is erased from the data sent to the laser diode. Note that the output resulting from each of the settings will be different when reduction/enlargement is used.	**0: Original Standard** 1: Copy Standard

Mode No. (Class 1, 2 and 3)				Function	Settings
5-924	Margin Per Original				
	1	Margin Per Original	S	Margin adjustment for each scanned original can be adjusted when the settings of the following SP modes. This change was a result of special requests from the Japanese domestic market. The following remarks will be added as machine limitations. As a general rule, the settings should not be changed. • Printing productivity for the 1st set of originals will be decreased after the margin is adjusted. • The margin in Magazine Mode and in Combine Mode cannot be adjusted in this SP mode. • After scanning an original in the sample copy mode or after select setting key is pressed when printing file using the document server, the margin adjust key can be changed. However, the key changed will not affect any margin adjustment. • When different margins are selected for the front original and rear original in Designate or Chapter Mode (Duplex copy), copying may not meet the expectation. • When the margin is changed in Tab Sheet in Tab Mode, copying may not meet the expectation.	**NO** YES
	2	Per Original Priority	S		**0: OFF** 1: ON
6-120	Staple Jogger Adjustment				
	1	A3	S	Adjusts the staple jogger positions for each paper size.	+1.5 ~ –1.5 0.5mm/step **0 mm**
	2	B4			
	3	A4 L			
	4	A4 S			
	5	B5 L			
	6	B5 S			
	7	DLT L			
	8	LG L			
	9	LT L			
	10	LT S			
	11	Others			