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OPTION

3,000-SHEET FINISHER (B302)

LCT (B303)

A3/DLT TRAY KIT (B331)

CHANGES MADE FROM THE A294 I / A295 I MODELS

4. SERVICE TABLES

4.1 GENERAL CAUTIONS

Do not turn off either of the power switches while any of the electrical components are active. Doing so might cause damage to units such as the transfer belt, drum, and development unit when they are pulled out of or put back into the copier.

4.1.1 DRUM

An organic photoconductor (OPC) drum is more sensitive to light and ammonia gas than a selenium drum. Follow the cautions below when handling an OPC drum.

1. Never expose the drum to direct sunlight.
2. Never expose the drum to direct light of more than 1,000 Lux for more than a minute.
3. Never touch the drum surface with bare hands. When the drum surface is touched with a finger or becomes dirty, wipe it with a dry cloth or clean it with wet cotton. Wipe with a dry cloth after cleaning with wet cotton.
4. Never use alcohol to clean the drum; alcohol dissolves the drum surface.
5. Store the drum in a cool, dry place away from heat.
6. Take care not to scratch the drum as the drum layer is thin and is easily damaged.
7. Never expose the drum to corrosive gases such as ammonia gas.
8. Always keep the drum in the protective sheet when keeping the drum unit, or the drum itself, out of the copier. Doing so avoids exposing it to bright light or direct sunlight, and will protect it from light fatigue.
9. Dispose of used drums in accordance with local regulations.
10. When installing a new drum, do the Auto Process Control Data Adjustment (SP 2-962).

4.1.2 DRUM UNIT

1. Before pulling out the drum unit, place a sheet of paper under the drum unit to catch any spilt toner.
2. Make sure that the drum unit is set in position and the drum stay is secured with a screw before the main switch is turned on. If the drum unit is loose, poor contact of the drum connectors may cause electrical noise, resulting in unexpected malfunctions (RAM data change is the worst case).
3. To prevent drum scratches, remove the development unit before removing the drum unit.

4.1.3 TRANSFER BELT UNIT

1. Never touch the transfer belt surface with bare hands.
2. Take care not to scratch the transfer belt, as the surface is easily damaged.
3. Before installing the new transfer belt, clean all the rollers and the inner part of the transfer belt with a dry cloth to prevent the belt from slipping.

4.1.4 SCANNER UNIT

1. When installing the exposure glass, make sure that the white paint is at the rear left corner.
2. Clean the exposure glass with alcohol or glass cleaner to reduce the amount of static electricity on the glass surface.
3. Use a cotton pad with water or a blower brush to clean the mirrors and lens.
4. Do not bend or crease the exposure lamp flat cable.
5. Do not disassemble the lens unit. Doing so will throw the lens and the copy image out of focus.
6. Do not turn any of the CCD positioning screws. Doing so will throw the CCD out of position.

4.1.5 LASER UNIT

1. Do not loosen the screws that secure the LD drive board to the laser diode casing. Doing so would throw the LD unit out of adjustment.
2. Do not adjust the variable resistors on the LD unit, as they are adjusted in the factory.
3. The polygon mirror and F-theta lenses are very sensitive to dust. Do not open the optical housing unit.
4. Do not touch the glass surface of the polygon mirror motor unit with bare hands.

4.1.6 CHARGE CORONA

1. Clean the corona wires with a dry cloth. Do not use sandpaper or solvent.
2. Clean the charge corona casing with water first to remove NOx based compounds. Then clean it with alcohol if any toner still remains on the casing.
3. Clean the end block with a blower brush first to remove toner and paper dust. Then clean with alcohol if any toner still remains.
4. Do not touch the corona wires with bare hands. Oil stains from fingers may cause uneven image density on copies.
5. Make sure that the wires are correctly between the cleaner pads and that there is no foreign material (iron filings, etc.) on the casing.
6. When installing new corona wires, do not bend or scratch the wire surface. Doing so may cause uneven charge. Also be sure that the corona wires are correctly positioned in the end blocks. (See Charge Corona Wire Replacement)
7. Clean the grid plate with a blower brush (not with a dry cloth).
8. Do not touch the charge grid plate with bare hands. Also, do not bend the charge grid plate or make any dent in it. Doing so may cause uneven charge.

4.1.7 DEVELOPMENT

1. Be careful not to nick or scratch the development roller.
2. Place the development unit on a sheet of paper after removing it from the copier.
3. Never disassemble the development roller assembly. The position of the doctor plate is set with special tools and instruments at the factory to ensure the proper gap between the doctor blade and the development roller.
4. Clean the drive gears after removing used developer.
5. Dispose of used developer in accordance with local regulations.
6. Never load types of developer and toner into the development unit other than specified for this model. Doing so will cause poor copy quality and toner scattering.
7. Immediately after installing new developer, the TD sensor initial setting procedure should be performed to avoid damage to the copier. Do not perform the TD sensor initial setting with used developer. Do not make any copies before doing the TD sensor initial setting.
8. When using a vacuum cleaner to clean the development unit casing, always ground the casing with your fingers to avoid damaging the toner density sensor with static electricity.
9. When replacing the TD sensor, the developer should be replaced and then the TD sensor initial setting procedure (SP2-801) should be done, followed by process control initialization (SP2-962).

4.1.8 CLEANING

1. When servicing the cleaning section, be careful not to damage the edge of the cleaning blade.
2. Do not touch the cleaning blade with bare hands.
3. Before disassembling the cleaning section, place a sheet of paper under it to catch any toner falling from it.

4.1.9 FUSING UNIT

1. After installing the fusing thermistor, make sure that it is in contact with the hot roller and that it is movable.
2. Be careful not to damage the edges of the hot roller strippers or their tension springs.
3. Do not touch the fusing lamp and rollers with bare hands.
4. Make sure that the fusing lamp is positioned correctly and that it does not touch the inner surface of the hot roller.

4.1.10 PAPER FEED

1. Do not touch the surface of the pick-up, feed, and separation rollers.
2. To avoid paper misfeeds, the side fences and end fence of the paper tray must be positioned correctly to align with the actual paper size.

4.1.11 USED TONER

1. We recommend checking the amount of used toner at every EM.
2. Dispose of used toner in accordance with local regulations. Never throw toner into an open flame, for toner dust may ignite.

4.2 SERVICE PROGRAM MODE

4.2.1 SERVICE PROGRAM MODE OPERATION

The service program (SP) mode is used to check electrical data, change modes, and adjust values.

Service Program Access Procedure

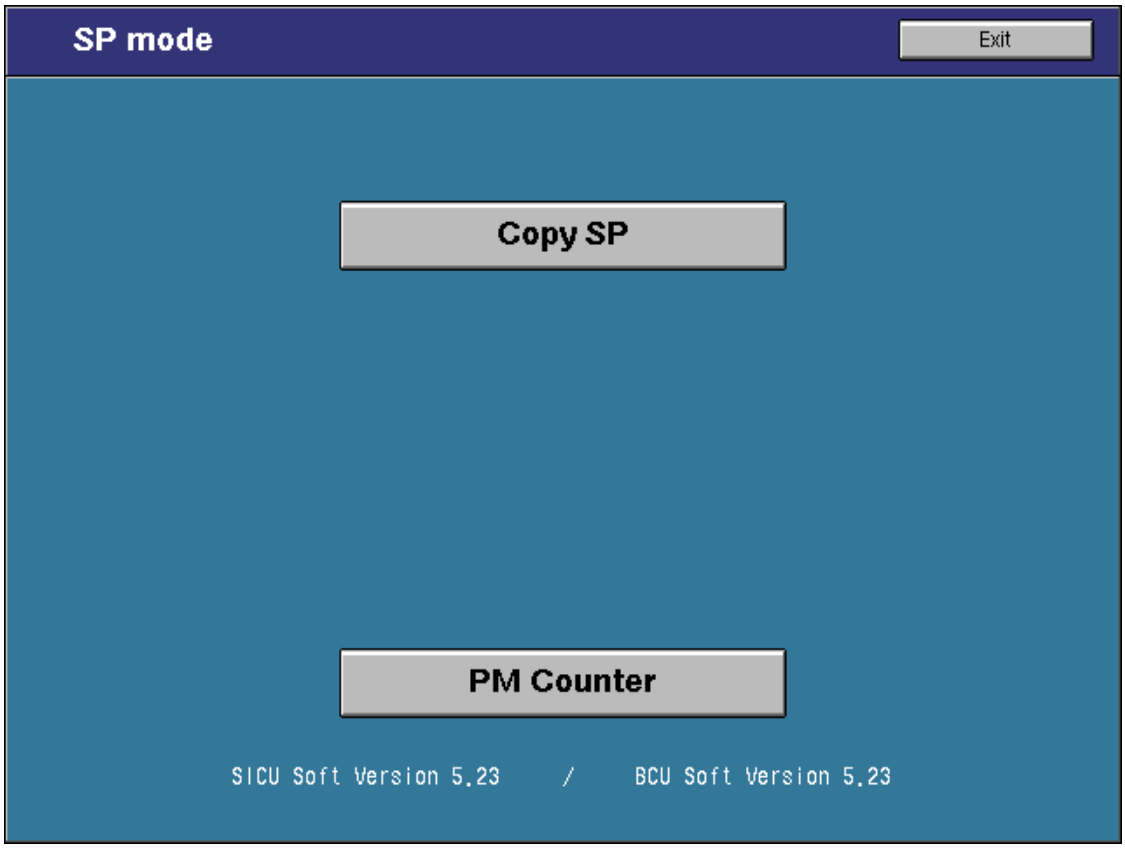
Entering SP mode

1) Press the following keys in sequence.

   C/T → 1 → 0 → 7 → C/T

   Hold the C/T key for more than 3 seconds.

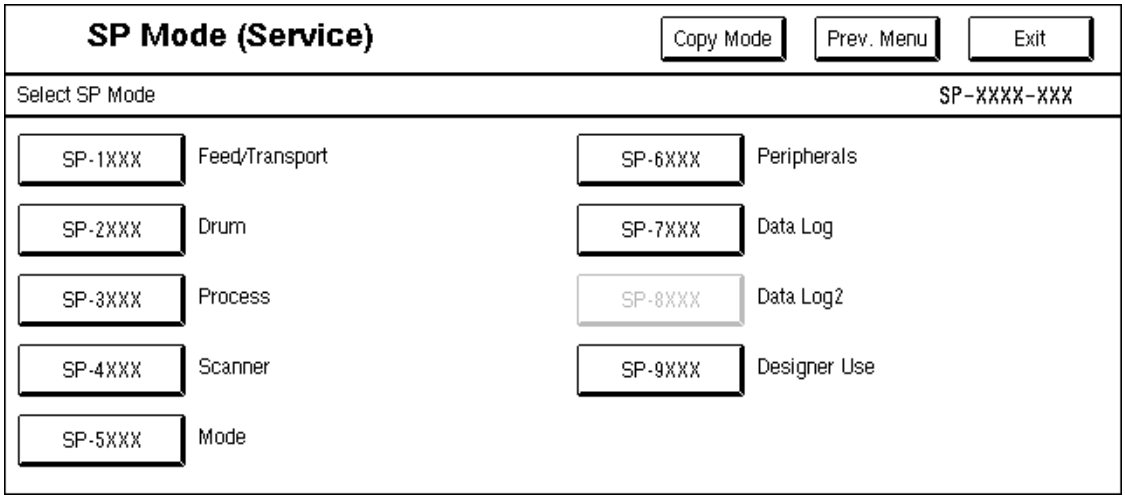
2) A menu of SP modes is displayed on the LCD.



A294M001.PCX

NOTE: The installed applications appear as Copy SP and Printer SP. If the printer application is not installed, its name does not appear.

3) Touch the application which you need. Then, the application's SP mode display will appear, as shown.



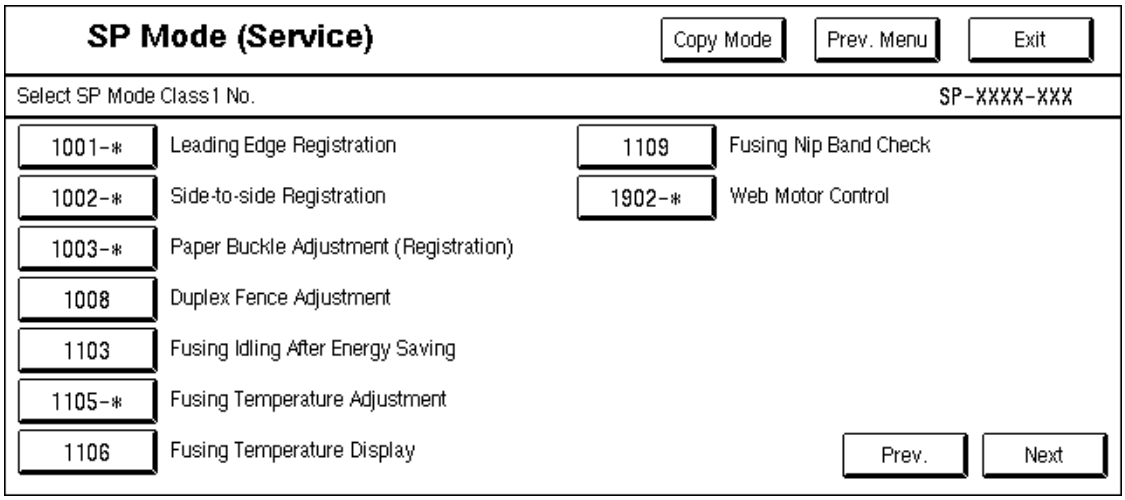
A294M002.PCX

Exiting SP mode

1) Touch the "Exit" keys to return to the standby mode display.

Accessing Copy Mode from within an SP Mode

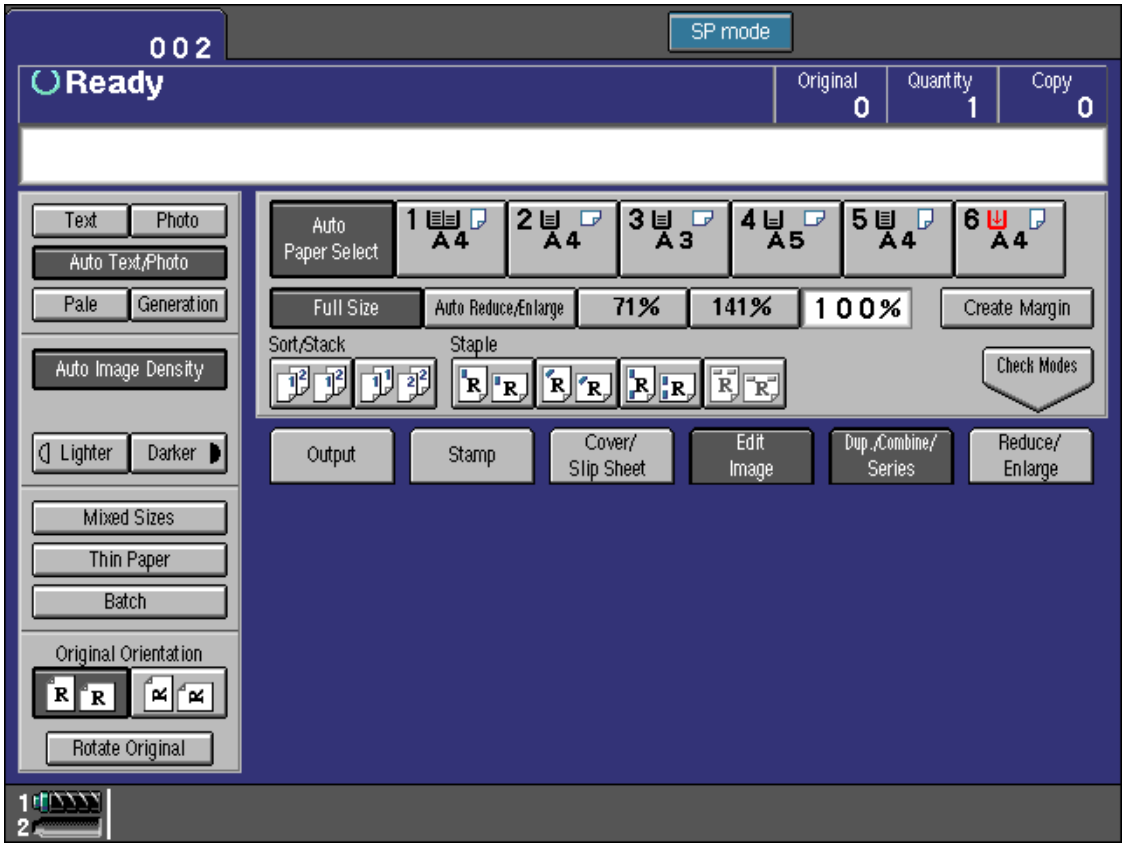
1) Touch the “Copy Mode” key.



A294M003.PCX

2) Select the appropriate copy mode and make trial copies.

3) To return to the SP mode, touch the “SP mode” key.



A294M004.PCX

Service Tables

Selecting the Program Number

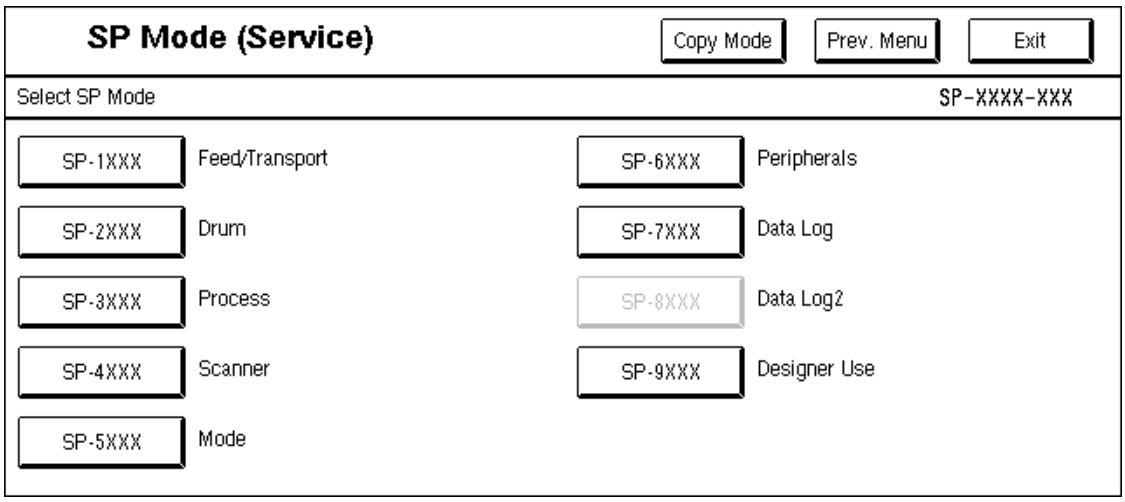
Program numbers are composed of two or three levels.
There are two ways to select the program number.

Ten-key Pad

Input the required program number.

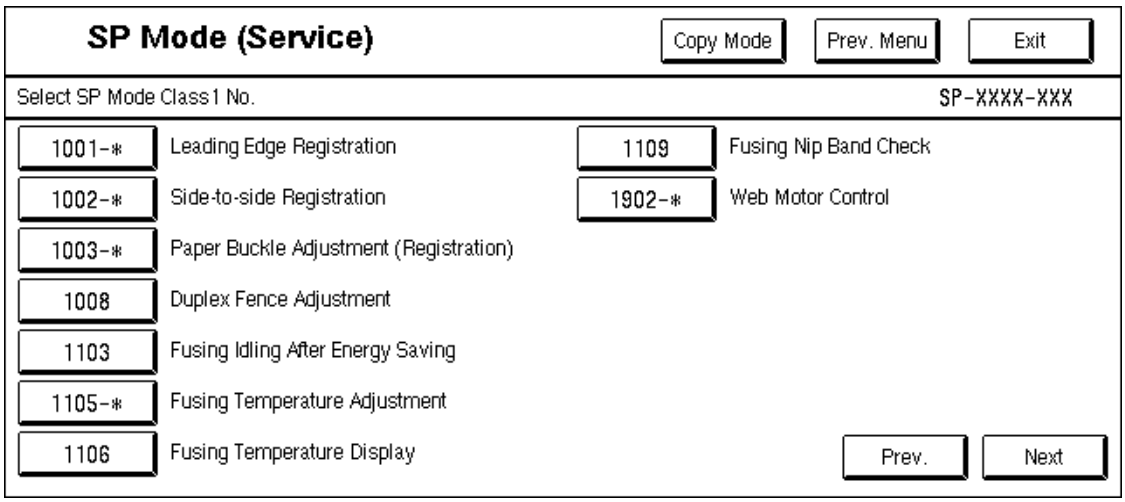
Touch Panel

1) Touch the 1st level program.



A294M002.PCX

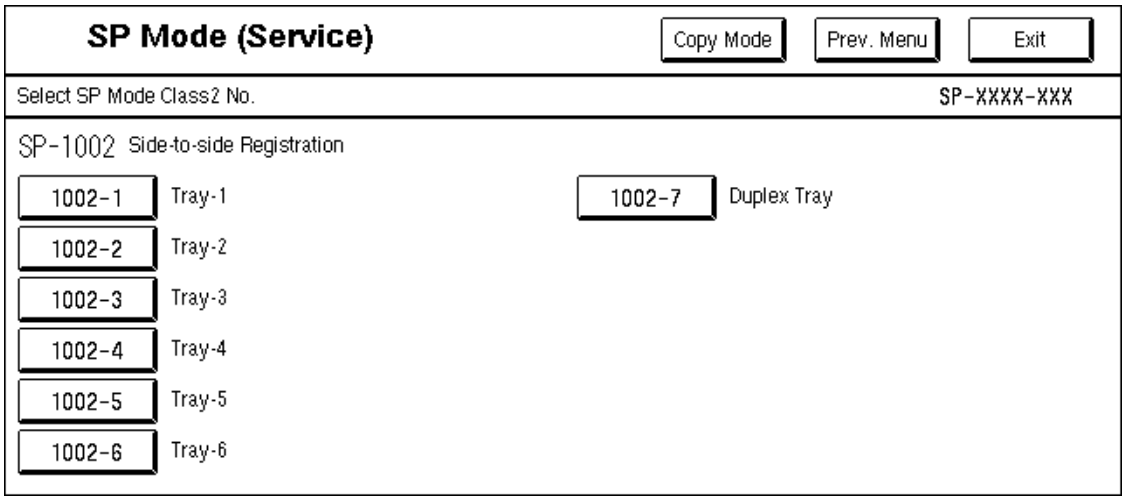
2) Touch the 2nd level program.



A294M003.PCX

NOTE: A "*" mark indicates that there are 3rd level programs.

3) Touch the 3rd level program.



A294M005.PCX

Inputting a Value or Setting for an SP Mode

1. Select the required program mode as explained on the previous page.
2. Enter the required setting using the ten-key pad, then touch the “Start” key or OK key or # key.

   NOTE: 1) If you forget to touch the “Start” key or OK key, the previous value remains.
   2) Change between “+” and “–” using the “•” key before entering the required value.
3. Exit SP mode.

4.2.2 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.
4) [A294 I], [A295 I], [A294 II] and [A295 II] in the Settings column mean the following product types:
[A294 I]: Existing 85 cpm model. [A295 I]: Existing 105 cpm model.
[A294 II]: Enhanced 85 cpm model. [A295 II]: Enhanced 105 cpm model.

Mode No. (Class 1, 2 and 3)				Function	Settings
1-001	Leading Edge Registration				
	1	Paper Tray (Copier and LCT)	B	Adjusts the printing leading edge registration for feeding from the trays using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 3 ± 2 mm.* *See "Replacement and Adjustment – Copy Image Adjustments" for details.*	+9 ~ –9 0.1 mm/step **+3.0 mm**
	2	Duplex Tray	B	Adjusts the printing leading edge registration for the duplex feeding using the trimming area pattern (SP2-902-3, No.15). *Use the "•" key to toggle between + and – before entering the value.* *The specification is 3 ± 2 mm.* *See "Replacement and Adjustment – Copy Image Adjustments" for details.*	
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**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
1-002	Side-to-Side Registration				
	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**
	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 +ve 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 **0.0 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

Mode No. (Class 1, 2 and 3)				Function	Settings
1-105	Fusing Temperature Adjustment				
	1	Fusing Temperature in Waiting Condition	B	Adjusts the fusing temperature for stand-by.	[A294 I & II] 168 ~ 178 1°C/step **173°C** [A295 I & II] 173 ~ 178 1°C/step **178°C**
	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.***	[A294 I & II] 157 ~ 163 1°C/step **163°C** [A295 I & II] 157 ~ 167 1°C/step **167°C**
	3	Fusing Temperature Correction (<A4/LT)	B	Specifies the amount to raise the fusing temperature from standby mode to print on A4/LT or smaller width paper.	+0 ~ +20 1°C/step [A294 I & II] **+15°C** [A295 I & II] **+20°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 width.	–5 ~ +20 1°C/step [A294 I] **+10°C** [A295 I] **+15°C** [A294 II] **+5°C (US)** **+10°C (EU)** [A295 II] **+5°C (US)** **+15°C (EU)**
1-106	Fusing Temperature Display				
				Displays the fusing temperature.	
1-109	Fusing Nip Band Check				
				Feeds a sheet from a paper tray and stops the sheet when it is between the hot roller and the pressure roller. Use an OHP sheet. After keeping the sheet there for 30 seconds, the sheet is automatically fed out. For details, see Replacement and Adjustment – Fusing.	
1-902	Web Motor Control				
	1	Web Consumption	B	Displays the percentage of the web consumption in 1% steps (0% ~ 107%). The value can be manually input using number keys.	

Mode No. (Class 1, 2 and 3)				Function	Settings
1-902	Web Motor Control				
	2	Web Motor Drive Interval	B	Change the interval of copy operation time after which the web motor is driven	[A294/A295 I] 15 ~ 130 1 s/step **[A294 I] 42 s** **[A295 I] 34 s** [A294/A295 II] 3 ~ 130 1 s/step [A294 II] **11 s (EU)** **21 s (US)** [A295 II] **9 s (EU)** **17 s (US)**
	3	Web Motor Drive Time	B	Changes the time that the web motor is driven.	[A294/A295 I] 0.1 ~ 3.0 0.1 s/step **0.8 s** [A294/A295 II] 0.3 ~ 3.5 0.1 s/step **2.8 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 ~ 105 1%/step [A294/A295 I] **100%** [A294/A295 II] **86% (EU)** **90% (US)**
1-906	Duplex Stop Position – Right				
			B	Changes the paper stop position in the duplex unit after passing duplex transport sensor 2. ***For designer use only.***	–10 ~ 10 2 mm/step **–8 mm**
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.*	–600 ~ –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.*	–600 ~ –1,300 10 V/step **–800 V**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-001	Charge Corona Bias Adjustment				
	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)	–600 ~ –1,300 10 V/step [A294/A295 I] **–1,000 V** [A294/A295 II] **–950 V**
	4	Grid Voltage for Transparent Sheet	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 translucent paper. Normally there is no need to adjust this. See 2-001-1.	–600 ~ –1,300 10 V/step [A294/A295 I] **–1,070 V** [A294/A295 II] **–950 V**
	5	Total Corona Current	B	Adjusts the current applied to the charge corona wire except for Photo mode.	–1,400 ~ –2,800 100μA/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 100μA/step **–1,600 μA**
	7	V_D (Auto Process Control)	B	Adjusts the target V_D voltage for Process Control Initial Setting.	–800 ~ –1,000 10 V/step [A294/A295 I] **–970 V** [A294/A295 II] **–850 V**
2-101	Printing Erase Margin				
	1	Leading Edge	S	Adjusts the leading edge erase margin. *See "Replacement and Adjustment – Copy Image Adjustments" for more on SP2-101.*	0.0 ~ 9.0 0.1 mm/step **2.5 mm**
	2	Trailing Edge	S	Adjusts the trailing edge erase margin.	0.0 ~ 9.0 0.1 mm/step **2.5 mm**
	3	Left	S	Adjusts the left side erase margin.	0.0 ~ 9.0 0.1 mm/step **2.0 mm**
	4	Right	S	Adjusts the right side erase margin.	0.0 ~ 9.0 0.1 mm/step **2.0 mm**
2-103	LD Power Adjustment				
	1	LD1 - 600dpi	B	Adjusts the power of LD1. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**
	2	LD2 - 600dpi	B	Adjusts the power of LD2. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
2-103	LD Power Adjustment				
	3	LD3 - 600dpi	B	Adjusts the power of LD3. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**
	4	LD4 - 600dpi	B	Adjusts the power of LD4. ***Do not change the value.***	–127 ~ +127 1/step 1 = 1.1 μW **+0**
	5	LD1 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
	6	LD2 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
	7	LD3 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
	8	LD4 Power Adjustment (Start/End)	B	***Factory use only. Do not use this SP mode.***	Start Stop
2-104	LD Power Adjustment (for ID pattern)				
			B	Selects the LD power for making the ID pattern when auto process control is switched on. Do not use unless advised.	0 ~ 7 1/step **4**
2-114	Printer Dot Edge Parameter Setting				
	1	Leading Dot Level Setting (Left Edge)	S	Changes the LD power level for the left edge pixel in printer mode, if FCI is off.	20 ~ 100% 1% step **50%**
	2	Trailing Dot Level Setting (Right Edge)	S	Changes the LD power level for the left edge pixel in printer mode, if FCI is off.	20 ~ 100% 1% step **50%**
	3	Multiple Dot Level Setting	S	Changes the LD power level for continuous pixels in printer mode, if FCI is off.	20 ~ 100% 1% step **100%**
	4	Independent Dot Level Setting	S	Changes the LD power level for independent dots in printer mode, if FCI is off.	20 ~ 100% 1% step **50%**
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 [A294/A295 I] **–530 V** [A294/A295 II] **–650 V**
	2	ID Sensor Pattern	B	Adjusts the development bias for making the ID sensor pattern for V_{SP} measurement when the auto process control is set to off. *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**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-201	Development Bias Adjustment				
	3	Transparent Sheet	B	Adjusts the development bias for copying onto translucent sheets.	–200 ~ –700 10 V/step [A294/A295 I] **–530 V** [A294/A295 II] **–650 V**
	4	ID Sensor Development Potential	B	Adjusts the development potential for making the ID sensor pattern for VSP measurement when the auto process control is set on.	180 ~ 380 1 V/step **280 V**
2-207	Forced Toner Supply				
	1	Forced Toner Supply		Forces toner supply for 7 seconds from the toner bank through the toner hopper to the development unit. *This mode finishes automatically after the toner is supplied 7 times (1 s for each time).*	Start
	2	Toner Bank Toner Setup		Turns on the main motor, development motor, development bias, toner supply motor and charge corona. Then turns on the toner supply coil clutch to supply toner to the toner hopper, but not to the development unit. It takes about 7 minutes. *This mode should be used to fill the toner transport path with toner after cleaning the toner supply unit, or at installation.*	Start
2-208	Toner Supply Mode				
			B	Selects the toner supply mode. *Use image pixel count mode only as a temporary countermeasure if the ID or TD sensor is defective.*	**Sensor Control** Pixel Count Control
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 [A294 I & II] **800 mg/s** [A295 I & II] **1000 mg/s**
2-210	ID Sensor Pattern Interval				
			B	Changes the interval for making the ID sensor pattern (VSP/VSG detection). *If the user normally makes copies with a high proportion of black, reduce the interval.*	0 ~ 500 1 copy/step **10 copies**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
2-220	VREF Manual Setting				
			B	Adjusts the TD sensor reference voltage (VREF). *Change this value after replacing the development unit with another one that already contains toner.* *For example, when using a development unit from another machine for test purposes, do the following:* *1. Check the value of SP2-220 in both the machine containing the test unit and the machine that you are going to move it to.* *2. Install the test development unit, then input the VREF for this unit into SP2-220.* *3. After the test, put back the old development unit, and change SP2-220 back to the original value.*	0 ~ 5.0 0.01 V/step **2.5 V**
2-223	VT Display				
			B	Displays the current TD sensor output voltage.	
2-226	Toner Bank Toner Discharge				
				This SP removes toner from the toner bank to the toner hopper. After turning the toner supply motor and the toner bank motor on, the toner supply coil clutch turns on and off at 2 second intervals. The motors and clutch stop when the toner near-end sensor (in the toner bank unit) detects no toner. Even if the sensor continues to detect toner, this operation stops when the clutch has been turned on and off 10 times, so this SP may have to be repeated to clean out the system completely.	Start
2-227	Toner Supply Mode Display				
				Displays the toner supply mode used for the last copy. 1: ID Sensor and TD Sensor (from the 11th copy, using VT – VREF) 2: ID Sensor and TD Sensor (using VSP/VSG) – before the 10th copy of a job 3: TD Sensor – temporary mode when ID sensor output is abnormal 4: Image Pixel Count	
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.	10 ~ 200 1 μA/step [A294 I & II] **120 μA** [A295 I & II] **140 μA**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-301	Transfer Current Adjustment				
	2	Thick Paper	B	Adjusts the current applied to the transfer belt during copying on thick paper. *See above.*	10 ~ 200 1 μA/step [A294 I & II] **120 μA** [A295 I & II] **140 μA**
	3	OHP Sheet	B	Adjusts the current applied to the transfer belt during copying on OHP sheet. See above. If the user normally feeds thicker paper from the bypass tray, use a higher setting.	10 ~ 200 1 μA/step **140 μA**
	4	Transparent Paper	B	Adjusts the current applied to the transfer belt during copying on translucent paper.	10 ~ 200 1 μA/step [A294 I & II] **120 μA** [A295 I & II] **140 μA**
	5	2nd Copy	B	Adjusts the current applied to the transfer belt during copying on the 2nd side of the paper.	10 ~ 200 1 μA/step [A294 I & II] **120 μA** [A295 I & II] **140 μA**
	6	Between Pages	B	Adjusts the current applied to the transfer belt between the pages.	10 ~ 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 a long job. Normally keep at 'No', because the 'Yes' setting causes the machine to stop copying every 15 minutes, which may cause problems for the customer.	1: No **2: Yes**
	2	Interval	B	Selects the interval at which multi copy jobs are stopped.	1 ~ 100 1 minute/step **30 minutes**
2-801	TD Sensor Initial Setting				
			B	Performs the TD sensor initial setting. This SP mode controls the voltage applied to the TD sensor to make the TD sensor output about 2.5 V. After finishing this, the TD sensor output voltage is displayed. *Use this mode only after changing the TD sensor or the developer.*	Start

Mode No. (Class 1, 2 and 3)				Function	Settings
2-803	Corona Wire Cleaner On				
				Turns on the corona wire cleaner manually.	Start
				When copy density across the paper is uneven at EM, clean the wire with this mode.	
2-804	Charge Corona Cleaner Setting				
	1	Corona Wire Cleaner Operation Setting	B	Selects when automatic corona wire cleaning is done. 0: Corona wire cleaning is not done. 1: When process control initial setting is done, if the copy number after the last cleaning operation is over the number set in SP2-804-2. 2: At the period set in SP2-804-2.	[A294/A295 I] 0: Not done **1: Done** 2:Periodically [A294/A295 II] 0: Not done 1: Done **2:Periodically**
	2	Operation Interval	B	Selects the interval for automatic corona wire cleaning.	100 ~ 10,000 100 print/step **5,000**
2-813	Printer Gamma Setting				
			S	Select if printer gamma correction is applied or not.	**0: Applied** 1: Not applied
				This SP mode is for designer use only.	
2-902	Printing Test Pattern				
	2	IPU Test Pattern Selection (for Scanner)		Prints the test patterns for the IPU chip. See section 4.2.3. for how to print test patterns.	
				This SP mode is useful for finding whether the SICU or the SBU is defective. If the printout is not OK, the SICU is defective.	
	3	Printing Test Pattern		Prints the printer test patterns. See section 4.2.3. for how to print test patterns. Example: 15. Trimming Area	
				This SP mode is useful for finding whether the LDDR or the SICU is defective. If the printout is not OK, the LDDR is defective.	
	4	Outer I/F Block Test Pattern		Prints the test patterns for the IPU chip. See section 4.2.3. for how to print test patterns.	
				This SP mode is useful for finding whether the SICU or the printer application is defective. If the printout is not OK, the SICU is defective.	
	5	Frequency Pattern Density		Designer use only.	
2-906	Vcont Manual Setting				
			B	***Factory use only.***	**9.7 V**
2-909	Main Scan Magnification				
	1	Copier	S	Adjusts the magnification in the main scan direction for copy mode.	–2.0 ~ +2.0 0.1%/step **+0.0%**
				Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.	

Mode No. (Class 1, 2 and 3)				Function	Settings
2-909	Main Scan Magnification				
	2	Printer	S	Adjusts the magnification in the main scan direction when printing from a personal computer. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–2.0 ~ +2.0 0.1%/step **+0.0%**
2-910	Writing Sub Scan Magnification				
			S	Adjusts the magnification in the sub scan direction. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–1.0 ~ +1.0 0.1%/step **+0.0%**
2-911	Transfer Current On/Off Timing				
	1	La (ON)	B	Adjusts the transfer current on timing at the leading edge.	–30 ~ +30 1 mm/step **0 mm**
	2	Lb (On/Off exchange timing)	B	Adjusts the transfer current on/off exchange timing. (A294/A295 II models only)	[A294/A295 II] 0 ~ +60 1 mm/step **+45 mm**
	3	Lc (OFF)	B	Adjusts the transfer current off timing (for example: –5 mm is 5 mm after the trailing edge).	–30 ~ +30 1 mm/step **0 mm**
2-912	Drum Reverse Rotation Interval				
			B	**This SP mode is for designer use only. Do not change the value.**	0 ~ 10 1/step **2**
2-913	Test Pattern ID Adjustment				
				Adjusts the image density for printing test patterns (with SP2-902). Usually this SP mode is only used by designers. *The value is cleared when the main power switch is turned off and on.*	0 ~ 15 1/step **15**
2-920	LD Off Check				
				Checks whether the LD turns off or on when the front door is opened. 0: On 1: Off ***Factory use only.***	**0: ON** 1: OFF
2-930	Transfer Pre-cleaning				
				Designer use only	
2-940	Leading Edge Transfer Current Adjustment				
	1	Tray-1	B	Adjusts the leading edge transfer current for each paper feed station. (A294/A295 II models only)	10 ~ 200 1 μA/step [A294 II] **120 μA** [A295 II] **140 μA**
	2	Tray-2			
	3	Tray-3			
	4	Tray-4 (LCT)			
	5	Tray-5 (LCT)			
	6	Tray-6 (LCT)			
	7	Duplex Tray			

Service Tables

Mode No. (Class 1, 2 and 3)			Function	Settings
2-941	Transfer Current for Semi-thick Paper			
		B	Determines that the transfer current for semi-thick paper is handled as Plain paper or Thick paper	**0: Plain paper** 1: Thick paper
			• *Setting this mode to "Thick paper" is effective when image at the leading edge is not good.* • *To use this mode, "Recycled paper" should be selected in the User Tools for semi-thick paper.* • *Selecting "Thick paper" in the User Tools is the same effect as this mode. But selecting "Thick paper" in the User Tools does not allow the duplex or punch mode.*	
2-961	Developer Initialization (Factory)			
			Factory use only.	
2-962	Auto Process Control			
		B	Automatically adjusts the following process control factors. 1. Drum potential sensor 2. ID sensor 3. Charge grid voltage (by changing V_D) 4. LD power (by changing V_H) Before using this SP, auto process control should be on (SP3-901).	Start
			After changing the drum, ID sensor, drum potential sensor, LD unit, charge corona wires, or toner density sensor, this SP should be used.	
2-966	Periodical Auto Process Control			
		B	Selects whether auto process control is done after the first job since 24 hours is finished. This setting is required for a customer who keeps the main switch on all day.	**ON** OFF
2-967	Auto Image Density Adjustment			
		B	Selects whether auto image density adjustment is done during machine warm up. This mode is to counter dirty background that occurs when a machine is used in an area that contains ammonia.	**OFF** ON
			If Periodical Auto Process Control (SP2-966) is used, this adjustment is done also after the auto process control is finished.	

Mode No. (Class 1, 2 and 3)				Function	Settings
2-968	Toner Density Correction				
			B	To prevent the image density dropping during continuous copying after a long interval (this is caused by a sudden increase of Q/M), VREF is changed by – 0.06 V every (100 X (SP2-974 value + 1)) prints. This correction is applied from when the auto process control is done, until "(the number of prints set in this SP mode) X (SP2-974 value +1)" has been made.	0 ~ 20 k 1 k prints/step **0**
2-969	ID Sensor Pattern Interval – Multicopy				
			B	Twenty ID patterns are made in a 1-minute interval during a continuous copy process just after the process control is completed. Image density will be stabilized. However, the printing productivity will be decreased.	**OFF** ON
2-970	Toner Suction System				
				Displays whether the toner suction system is installed in order to distinguish between A294/A295 I and A294/A295 II.	[A294/A295 I] 0: Not installed [A294/A295 II] 1: Installed
2-971	Collected Toner Level Check				
	Check this mode when "Waste toner full" pop-up message comes up or "Near full" message is displayed.				
	1	Left Toner Collection Bottle		Display whether the used toner collection bottle is full or not.	0: Not full 2: Full
	2	Toner Collection Bottle		Display whether the sucked toner collection bottle is full or not. (A294/A295 II models only)	0: Not full 1: Near full 2: Full
	3	Toner Suction Motor		Displays whether the toner suction motor needs to be replaced or not. (A294/A295 II models only)	0: Not needed 1: Needed soon 2: Needed
2-972	Sucked Toner Collection Bottle Operation Time				
			B	Displays the total operation time of the toner suction motor to maintain the sucked toner collection bottle replacement. <Preset Values> Near full: 280 hours, Full: 300 hours *Reset the value to 0 (zero) by pressing 0 and # (Enter) keys when the bottle is replaced.*	XXX hours
2-973	Toner Suction Motor Operation Time				
			B	Displays the total operation time of the toner suction motor to maintain the toner suction motor replacement. <Preset Values> Near full: 570 hours, Full: 600 hours *Reset the value to 0 (zero) by pressing 0 and # (Enter) keys when the bottle is replaced.*	XXX hours

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
2-974	Toner Supply Interval				
				Adjusts the interval of toner supply. (Once every how many prints)	0: 1/1 (every print) **1: 1/2 (every 2 prints)** 2: 1/3 (every 3 prints) 3: 1/4 (every 4 prints)
				• *The operation of SP2-968 has been changed.* • *The VREF update interval has been changed from "every 100 prints" to "every (100 X (SP2-974 value + 1)) prints".*	
3-001	ID Sensor Initial Setting				
	1	ID Sensor PWM Setting	B	This SP mode is added to recover the machine when an SC condition occurs because ID Sensor Initial Setting is not done after doing an NVRAM Clear or replacing the NVRAM. Reset this SP to the factory setting in this case.	0 ~ 255 1/step **72**
				The PWM data is stored when ID Sensor Initial Setting is done.	
3-001	ID Sensor Initial Setting				
	2	Initialization	B	Performs the ID sensor initial setting. The ID sensor output for the bare drum (VSG) is adjusted to 4.0 ± 0.2 V.	Start
				This SP mode should be performed after: *1. Replacing or cleaning the ID sensor* *2. Replacing the NVRAM or doing an NVRAM clear.*	
3-103	ID Sensor Output Display				
	1	VSG	B	Displays the current VSG and VSP output.	
	2	VSG Initial (Designer Use)		*If the ID sensor does not detect the ID pattern, "VSP = 5.0 V/VSG = 5.0 V" is displayed and an SC code is generated.* *If the ID sensor does not detect the bare area of the drum, "VSP = 0.0 V/VSG = 0.0 V" is displayed and an SC code is generated.*	
	3	VSP			
	4	VSP Initial (Designer Use)			
3-901	Auto Process Control Setting				
			B	Decides whether or not the machine checks and corrects the drum potential (VD) and LD power when the fusing temperature is lower than 100°C at power-up.	**ON** OFF
3-902	Process Control Data Display				
	1	Auto Process Control (O: OFF, 1: ON)	B	Displays whether auto process control is on or off.	
3-902	Process Control Data Display				
	2	VD	B	Displays the drum potential.	
	3	Half Tone VH	B	Displays the drum potential in areas illuminated by the laser during LD power adjustment (auto process control).	
	4	VG	B	Displays the charge grid voltage which resulted from the latest VD adjustment.	

Mode No. (Class 1, 2 and 3)				Function	Settings
3-902	Process Control Data Display				
	5	LD Power (Correction)	B	Displays the LD power correction value which resulted from the latest V_H adjustment.	
	6	VID	B	Displays the latest drum surface voltage measured on the ID sensor pattern.	
	7	VM200	B	Displays the drum potential sensor output when 200 V is applied during potential sensor correction.	
	8	VM700	B	Displays the drum potential sensor output when 700 V is applied during potential sensor correction.	
	9	V_D Correction	B	Displays whether the V_D correction is being performed. The target value of the V_D correction is "SP2-001-7 value + 50". (A294/A295 II models only)	0: Not performed 1: Performed
3-903	V_D Correction Counter				
			B	Adjusts the starting point for the V_D Correction. Displays whether the V_D correction is being performed. The target value of the V_D correction is "SP2-001-7 value + 50". (A294/A295 II models only) *The counter to control the V_D correction is automatically reset to 0 (zero) when SP2-801 is performed.*	0 ~ 999 1 k prints/step **100 k prints**
4-008	Scanner Sub Scan Magnification				
			S	Adjusts the magnification in the sub scan direction for scanning. If this value is changed, the scanner motor speed is changed. *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–0.9 ~ +0.9 0.1 %/step **+0.0 %**
4-010	Scanner Side-to-Side Registration				
			S	Adjusts the leading edge registration for scanning. *(–): The image moves in the direction of the leading edge* *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–9.0 ~ +9.0 0.1 mm/step **+0.0 mm**
4-011	Scanner Side-to-Side Registration				
			S	Adjusts the side-to-side registration for scanning. *(–): The image disappears at the left side.* *(+): The image appears at the left side.* *Use the "•" key to toggle between + and –. See "Replacement and Adjustment – Copy Image Adjustments" for details.*	–6.0 ~ +6.0 0.1 mm/step **+0.0 mm**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
4-012	Scanner Erase Margin				
	1	Leading Edge	S	Adjusts the leading edge erase margin for scanning. *Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
	2	Trailing Edge	S	Adjusts the trailing edge erase margin for scanning. *See the comment for SP4-012-1.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
	3	Right	S	Adjusts the right side erase margin for scanning. *See the comment for SP4-012-1.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
	4	Left	S	Adjusts the left side erase margin for scanning. *See the comment for SP4-012-1.*	0.0 ~ 0.9 0.1 mm/step **0.5 mm**
4-013	Scanner Free Run				
				Performs a scanner free run with the exposure lamp on.	**0: Stop** 1: Start
4-015	Scanner Speed Adjustment				
			S	Displays the value of the scanner speed fine adjustment. This setting can be changed using the number keys. *The scanner speed fine adjustment is automatically done when the main switch is turned on, and the current setting is overwritten.*	–20 ~ +20 1/step **0**
4-301	APS Sensor Output Display				
				Displays the APS sensor output signals when an original is placed on the exposure glass	
4-303	APS A5/HLT Size Original Detection				
			S	Selects whether or not the copier determines that the original is A5/HLT size when the APS sensor does not detect the size. *If "A5 length/5 1/2" x 8 1/2"" is selected, paper sizes that cannot be detected by the APS sensors are regarded as A5 lengthwise or 5 1/2" x 8 1/2".* *If "Not detected" is selected, "Cannot detect original size" will be displayed.*	**0: Not detected** 1: A5 length/ 5 1/2" x 8 1/2" 2: Not detected 3: A5 length/ 5 1/2" x 8 1/2" (Setting 2 or 3 is required if 267 x 390 and 267 x 195 paper is used.)
4-428	Scanner Adjustment				
	1	Flag Display	S	Displays whether or not the standard white level adjustment has been done.	Adjusted **Not adjusted**
	2	Standard		Corrects the standard white level from the white plate. ***This SP mode is for factory use only. Do not use this SP mode.***	Start

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	1	Image data Path Setting	S	Changes the image data path in the SBU. ***This SP mode is for factory use only. Do not use this SP mode.***	0 ~5 1/step **0**
	2	ASIC ID Display		Displays the ASIC ID of the SBU. ***This SP mode is for factory use only.***	
	3	E/O Adjustment - First Side	S	Checks the difference value of the black level for the first side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **128**
	4	E/O Adjustment - Last Side	S	Checks the difference value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **128**
	7	Black Level - First Side	S	Checks the value of the black level for the first side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **170**
	8	Black Level - Last Side	S	Checks the value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **170**
	15	Range Adjustment - First Side	S	Checks the AGC gain range of the white level for the first side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **80**
	16	Gain Range Adjustment - Last Side	S	Checks the AGC gain value of the white level for the last side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **80**
	19	Gain Adjustment - First Side E-ch	S	Checks the AGC gain value of the white level for the EVEN channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**
	20	Gain Adjustment - First Side O-ch	S	Checks the AGC gain value of the white level for the ODD channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**
	21	Gain Adjustment - Last Side E-ch	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	22	Gain Adjustment - Last Side O-ch	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only. Do not use this SP mode.***	0 ~ 255 1/step **0**
	25	Reference Voltage Adjustment	S	Checks the value of the standard white level after adjusting the white level. ***This SP mode is for factory use only. Do not use this SP mode.***	0 ~ 255 1/step **117**
	31	E/O Adjustment - First Side (Memory)	S	Checks the difference value of the black level for the First side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~255 1/step **128**
	32	E/O Adjustment - Last Side (Memory)	S	Checks the difference value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~255 1/step **128**
	35	Black Level - First Side (Memory)	S	Checks the value of the black level for the first side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **170**
	36	Black Level - Last Side (Memory)	S	Checks the value of the black level for the last side after adjusting the black level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **170**
	43	Range Adjustment - First Side (Memory)	S	Checks the AGC gain value of the white level for the EVEN channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	44	Range Adjustment - Last Side (Memory)	S	Checks the AGC gain value of the white level for the ODD channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	47	Gain Adjustment - F/E ch (Memory)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	48	Gain Adjustment - F/O ch (Memory)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	49	Gain Adjustment - L/E ch (Memory)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	50	Gain Adjustment - L/O ch (Memory)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	53	Reference Voltage Adjustment (Memory)	S	Checks the value of the standard white level after adjusting the white level. ***This SP mode is for factory use only.***	0 ~ 255 1/step **117**
	59	Standard White Level		Checks either the maximum or minimum white shading data. ***This SP mode is for designer use only.***	0: Maximum 1: Minimum
	61	Range F (Factory Setting)	S	Checks the AGC gain value of the white level for the EVEN channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **80**
	62	Gain Adjustment - First Side O ch (Factory Setting)	S	Checks the AGC gain value of the white level for the ODD channel of the first side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **80**
	65	Range L (Factory Setting)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	66	Gain F-O ch (Factory Setting)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	67	Gain L/F ch (Factory Setting)	S	Checks the AGC gain value of the white level for the EVEN channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	68	Gain L-O ch (Factory Setting)	S	Checks the AGC gain value of the white level for the ODD channel of the last side after adjusting the white level at power-up. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	71	Reference Voltage (Factory Setting)	S	Checks the value of the standard white level after adjusting the white level. ***This SP mode is for factory use only.***	0 ~ 255 1/step **117**
	75	Overflow Flag		Checks the overflow flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 1023 1/step **0**
	76	Time Out Flag		Checks the time out flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 1023 1/step **0**
	78	SBU Reset Error Flag		Checks the error flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 15 1/step **0**
	79	Error Flag		Checks the error flag data during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	80	E/O Adjustment Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-902	SBU Setting				
	81	Black Adjustment Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	0 ~ 255 1/step **0**
	82	Gain F/L Difference Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	83	Black Reading Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	84	White Reading Error Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	85	Retry Error Fault Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	86	Retry Error Success Count	S	Counts the errors during the automatic scanner adjustment. ***This SP mode is for designer use only.***	
	87	White Reading Value - F/E ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	88	White Reading Value - F/O ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	89	White Reading Value - L/E ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	90	White Reading Value - L/O ch	S	Displays the white peak level when the main switch is turned on. ***This SP mode is for designer use only.***	
	91	BIPU IO	S	***This SP mode is for designer use only.***	
4-903	Filter Setting				
	5	Full Size Mode		Selects whether the copy is always in full size mode even if the magnification ratio has been changed. *Set to 1 when checking the magnification in the main scan direction. If the magnification is not 100%, something is wrong with the image processing circuits.*	**0: Normal operation** 1: Always full size mode
	7	Image Shift in Magnification		Adjusts the pixel shift amount in the main scan direction in magnification mode. ***This SP mode is for designer use only.***	0 ~ 8191 1/step **0**
	9	Filter Type Selection - Photo Mode	S	Selects the filter type for Photo mode. *Coefficients used:* *0: SP4-903-36 1: SP4-903-37* *If "0" is selected, the image will be sharper. However, dot screen areas will be faint.* *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0: MTF **1: Smoothing**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	10	Pre-filter Type (Text mode 25% ~ 49%)	S	Selects the pre-filter type. 0: None 1: Smoothing (Normal) 2: Smoothing (Weak) 3 ~ 5: Special smoothing filters which reduce moiré but do not weaken the edges of low contrast text. A suitable filter should be selected depending on the original type. 6: MTF (Weak) 7: MTF (Normal) 8 ~ 10: Special smoothing filters only for the main scan direction. These filters should be used if the edges of lines that are parallel to the sub scan line are weakened when a filter from 3 ~ 5 is selected. A suitable filter should be selected depending on the original type. This SP is ignored unless the user selects 'Service Mode' in UP mode.	0 ~ 10 1/step **1**
	11	Pre-filter Type (Text mode 50% ~ 154%)	S		0 ~ 10 1/step **0**
	12	Pre-filter Type (Photo mode)	S		0 ~ 10 1/step **1**
	13	Pre-filter Type (Text/Photo mode 25% ~ 49%)	S		0 ~ 10 1/step **1**
	14	Pre-filter Type (Text/Photo mode 50% ~ 154%)	S		0 ~ 10 1/step **0**
	15	Pre-filter Type (Pale mode)	S		0 ~ 10 1/step **1**
	16	Pre-filter Type (Generation mode)	S		0 ~ 10 1/step **1**
	20	Filter Level - Text (25% ~ 49%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 25% ~ 49% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	21	Filter Level - Text (25% ~ 49%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 25% ~ 49% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	22	Filter Strength - Text (25% ~ 49%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 25% ~ 49% reduction for text mode. 0: Weak 6:Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	23	Filter Strength - Text (25% ~ 49%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 25% ~ 49% magnification for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	24	Filter Level - Text (50% ~ 154%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 50% ~ 154% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	25	Filter Level - Text (50% ~ 154%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 50% ~ 154% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	26	Filter Strength - Text (50% ~ 154%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 50% ~ 154% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **2**
	27	Filter Strength - Text (50% ~ 154%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 50% ~ 154% magnification for text mode. 0: Weak 6: Strong. *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	28	Filter Level - Text (155% ~ 256%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 155% ~ 256% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	29	Filter Level - Text (155% ~ 256%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 155% ~ 256% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	30	Filter Strength - Text (155% ~ 256%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 155% ~ 256% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **5**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	31	Filter Strength - Text (155% ~ 256%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 155% ~ 256% magnification for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	32	Filter Level - Text (257% ~ 400%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 256% ~ 400% reduction for text mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	33	Filter Level - Text (257% ~ 400%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 257% ~ 400% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	34	Filter Strength - Text (257% ~ 400%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 257% ~ 400% reduction for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **5**
	35	Filter Strength - Text (257% ~ 400%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 257% ~ 400% magnification for text mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	36	MTF Filter in Photo Mode	S	Selects the MTF filter coefficient for photo mode, if MTF is enabled for this mode with SP4-903-9. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	37	Smoothing Filter in Photo mode	S	Selects the smoothing filter coefficient for photo mode, if smoothing is enabled for this mode with SP4-903-9. 0: Weak 4: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 4 1/step **1**
	38	Filter Strength in Photo mode	S	Selects the smoothing filter coefficient for photo mode, if MTF is enabled for this mode with SP4-903-9. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	39	Filter Level - Text/Photo (25% ~ 49%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 25% ~ 49% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	40	Filter Level - Text/Photo (25% ~ 49%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 25% ~ 49% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	41	Filter Strength - Text/Photo (25% ~ 49%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 25% ~ 49% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **0**
	42	Filter Strength - Text/Photo (25% ~ 49%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 25% ~ 49% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **0**
	43	Filter Level - Text/Photo (50% ~ 154%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 50% ~ 154% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	44	Filter Level - Text/Photo (50% ~ 154%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 50% ~ 154% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	45	Filter Strength - Text/Photo (50% ~ 154%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 50% ~ 154% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	46	Filter Strength - Text/Photo (50% ~ 154%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 50% ~ 154% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	47	Filter Level - Text/Photo (155% ~ 256%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 155% ~ 256% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	48	Filter Level - Text/Photo (155% ~ 256%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 155% ~ 256% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	49	Filter Strength - Text/Photo (155% ~ 256%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 155% ~ 256% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	50	Filter Strength - Text/Photo (155% ~ 256%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 155% ~ 256% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	51	Filter Level - Text/Photo (257% ~ 400%) Main Scan Direction	S	Selects the MTF filter coefficient in the main scan direction for 257% ~ 400% magnification for text areas in text/photo mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	52	Filter Level - Text/Photo (257% ~ 400%) Sub Scan Direction	S	Selects the MTF filter coefficient in the sub scan direction for 257% ~ 400% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	53	Filter Strength - Text/Photo (257% ~ 400%) Main Scan Direction	S	Selects the MTF strength in the main scan direction for 257% ~ 400% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **1**
	54	Filter Strength - Text/Photo (257% ~ 400%) Sub Scan Direction	S	Selects the MTF strength in the sub scan direction for 257% ~ 400% magnification for text areas in text/photo mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	55	Filter Level in Pale Mode	S	Selects the table of the MTF filter coefficient for pale original mode Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **3**
	56	Filter Strength in Pale Mode	S	Selects the table of the MTF filter strength for pale original mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	57	Filter Level in Generation Mode	S	Selects the table of the MTF filter coefficient for pale original mode. Settings 0 to 6 are MTF filters, and settings 7 to 13 are moiré erase filters. 0: Weak 6: Strong 7: Weak 13: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 13 1/step **13**
	58	Filter Strength in Generation Mode	S	Selects the table of the MTF filter strength for generation original mode. 0: Weak 6: Strong *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 6 1/step **3**
	60	Independent Dot Erase - Text Mode	S	Selects the independent dot erase level for text mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Section Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**
	62	Independent Dot Erase - Text/Photo Mode	S	Selects the independent dot erase level for text/photo mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Sectional Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	63	Independent Dot Erase - Pale Mode	S	Selects the independent dot erase level for pale mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Section Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**
	64	Independent Dot Erase - Generation Copy Mode	S	Selects the independent dot erase level for generation copy mode. *A larger number erases more dots. 0 means disabled. Refer to "Detailed Sectional Description – Independent Dot Erase" for details.*	0 ~ 14 1/step **3**
	65	Scanner Gamma Thresh Level - Text	S	Adjust the threshold level for the background erase function in letter mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-70.*	0 ~ 255 1/step **0**
	66	Scanner Gamma Thresh Level - Photo	S	Adjust the threshold level for the background erase function in photo mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-71.*	0 ~ 255 1/step **0**
	67	Scanner Gamma Thresh Level - Text/Photo	S	Adjust the threshold level for the background erase function in text/photo mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-72.*	0 ~ 255 1/step **0**
	68	Scanner Gamma Thresh Level - Pale	S	Adjust the threshold level for the background erase function in pale mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-73.*	0 ~ 255 1/step **0**
	69	Scanner Gamma Thresh Level - Generation	S	Adjust the threshold level for background erase in generation copy mode. *A larger value reduces dirty background. This SP is ignored unless 1 or 2 is selected with SP4-903-74.*	0 ~ 255 1/step **0**
	70	Background Erase Mode Text	S	Selects the background erase function setting in text mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-65.) 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-65.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	71	Background Erase Mode Photo	S	Selects the background erase function setting in photo mode. 0: Not done 1: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-66.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 1 1/step **0**
	72	Background Erase Mode Text/Photo	S	Selects the background erase function setting in text/photo mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-67.) 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-67.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**
	73	Background Erase Mode Pale	S	Selects the background erase function setting in pale mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-68.) 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-68.) *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**
	74	Background Erase Mode Generation	S	Selects the background erase function setting in generation mode. 0: Not done 1: Weak background erase (the MTF filter is not used if the pixel is below the threshold selected with SP4-903-69. 2: Strong background erase (the pixel is changed to 0 if it is below the threshold level selected with SP4-903-69. *This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 2 1/step **0**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	75	Line Thickness Correction - Setting in Generation Mode	S	Selects the line thickness setting in generation mode. 0: Main Scan: No Correction; Sub Scan: No Correction 1: Main Scan: No Correction; Sub Scan: Thinner 1 2: Main Scan: No Correction; Sub Scan: Thinner 2 3: Main Scan: No Correction; Sub Scan: Thicker 4: Main Scan: Thinner 1; Sub Scan: No Correction 5: Main Scan: Thinner 1; Sub Scan: Thinner 1 6: Main Scan: Thinner 1; Sub Scan: Thinner 2 7: Main Scan: Thinner 1; Sub Scan: Thicker 8: Main Scan: Thinner 2; Sub Scan: No Correction 9: Main Scan: Thinner 2; Sub Scan: Thinner 1 10: Main Scan: Thinner 2; Sub Scan: Thinner 2 11: Main Scan: Thinner 2; Sub Scan: Thicker 12: Main Scan: Thicker; Sub Scan: No Correction 13: Main Scan: Thicker; Sub Scan: Thinner 1 14: Main Scan: Thicker; Sub Scan: Thinner 2 15: Main Scan: Thicker; Sub Scan: Thicker Line Thickness: Thicker > No Correction > Thinner 1 > Thinner 2 *Refer 'Line Width Correction' in section 2.*	0 ~ 15 1/step **5**
	76	Line Thickness Correction Threshold - in Generation Main Scan Direction	S	Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-75 becomes stronger.	0 ~ 5 1/step **2**
	77	Line Thickness Correction - Generation Mode - Sub Scan Direction	S	Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-75 becomes stronger.	0 ~ 5 1/step **2**

Service Tables

<table>
<tr><th colspan="4">Mode No.
(Class 1, 2 and 3)</th><th>Function</th><th>Settings</th></tr>
<tr><td>4-903</td><td colspan="5">Filter Setting</td></tr>
<tr><td></td><td>78</td><td>Line Thickness Correction - Setting in Text Mode</td><td>S</td><td>Selects the line thickness setting in generation mode.
<table><tr><th></th><th>Main Scan</th><th>Sub Scan</th></tr><tr><td>0:</td><td>No Correction</td><td>No Correction</td></tr><tr><td>1:</td><td>No Correction</td><td>Thinner 1</td></tr><tr><td>2:</td><td>No Correction</td><td>Thinner 2</td></tr><tr><td>3:</td><td>No Correction</td><td>Thicker</td></tr><tr><td>4:</td><td>Thinner 1</td><td>No Correction</td></tr><tr><td>5:</td><td>Thinner 1</td><td>Thinner 1</td></tr><tr><td>6:</td><td>Thinner 1</td><td>Thinner 2</td></tr><tr><td>7:</td><td>Thinner 1</td><td>Thicker</td></tr><tr><td>8:</td><td>Thinner 2</td><td>No Correction</td></tr><tr><td>9:</td><td>Thinner 2</td><td>Thinner 1</td></tr><tr><td>10:</td><td>Thinner 2</td><td>Thinner 2</td></tr><tr><td>11:</td><td>Thinner 2</td><td>Thicker</td></tr><tr><td>12:</td><td>Thicker</td><td>No Correction</td></tr><tr><td>13:</td><td>Thicker</td><td>Thinner 1</td></tr><tr><td>14:</td><td>Thicker</td><td>Thinner 2</td></tr><tr><td>15:</td><td>Thicker</td><td>Thicker</td></tr></table>Line Thickness:
Thicker > No Correction > Thinner 1 > Thinner 2
Refer ‘Line Width Correction’ in section 2.</td><td>0 ~ 15
1/step
5</td></tr>
<tr><td></td><td>79</td><td>Line Thickness Correction - Threshold in Text Mode - Main Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-78 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
<tr><td></td><td>80</td><td>Line Thickness Correction - Threshold in Text Mode - Sub Scan Direction</td><td>S</td><td>Selects the threshold to determine if line thickness correction is applied for a pixel. If a higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-78 becomes stronger.</td><td>0 ~ 5
1/step
2</td></tr>
</table>

Mode No. (Class 1, 2 and 3)				Function	Settings
4-903	Filter Setting				
	81	Line Thickness Correction - Setting in Text/Photo Mode	S	Selects the line thickness setting in generation mode. 0: Main Scan: No Correction, Sub Scan: No Correction 1: Main Scan: No Correction, Sub Scan: Thinner 1 2: Main Scan: No Correction, Sub Scan: Thinner 2 3: Main Scan: No Correction, Sub Scan: Thicker 4: Main Scan: Thinner 1, Sub Scan: No Correction 5: Main Scan: Thinner 1, Sub Scan: Thinner 1 6: Main Scan: Thinner 1, Sub Scan: Thinner 2 7: Main Scan: Thinner 1, Sub Scan: Thicker 8: Main Scan: Thinner 2, Sub Scan: No Correction 9: Main Scan: Thinner 2, Sub Scan: Thinner 1 10: Main Scan: Thinner 2, Sub Scan: Thinner 2 11: Main Scan: Thinner 2, Sub Scan: Thicker 12: Main Scan: Thicker, Sub Scan: No Correction 13: Main Scan: Thicker, Sub Scan: Thinner 1 14: Main Scan: Thicker, Sub Scan: Thinner 2 15: Main Scan: Thicker, Sub Scan: Thicker Line Thickness: Thicker > No Correction > Thinner 1 > Thinner 2 *Refer 'Line Width Correction' in section 2.*	0 ~ 15 1/step **5**
	82	Line Thickness Correction Threshold in Text/Photo Mode - Main Scan Direction	S	Selects the threshold to determine if line thickness correction is applied for a pixel. If higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-81 becomes stronger.	0 ~ 5 1/step **2**
	83	Line Thickness Correction Threshold in Text/Photo Mode - Sub Scan Direction	S	Selects the threshold to determine if line thickness correction is applied for a pixel. If higher number is selected, the effectiveness of the line thickness correction selected with SP4-903-81 becomes stronger.	0 ~ 5 1/step **2**
	84	Scanner Gamma Setting in Text Mode	S	Selects the scanner and printer gamma settings used when 'Service Mode' for Text mode is selected. 0: Scanner gamma for 'Soft' is used. 1: Scanner gamma for 'Normal' is used. 2: Scanner gamma for 'Sharp' is used.	0 ~ 5 1/step **1**
	85	Scanner Gamma Selection in Text/Photo Mode	S	Selects the scanner and printer gamma settings used when 'Service Mode' for Text/Photo mode is selected. 0: Scanner gamma for 'Photo Priority' is Sused. 1: Scanner gamma for 'Normal' is used. 2: Scanner gamma for 'Text Priority' is used.	0 ~ 5 1/step **1**

Service Tables

Mode No. (Class 1, 2 and 3)				Function	Settings
4-904	IPU Setting-1				
	2	Gradation Processing Selection - Photo	S	Selects the gradation processing procedure. 0: Three-gradation error diffusion 1: Four-gradation error diffusion 2: 8" x 8" dither matrix 3: 6" x 6" dither matrix 4: 4" x 4" dither matrix *A larger dither matrix gives coarser reproduction of halftones. This SP is ignored unless the user selects 'Service Mode' in UP mode.*	0 ~ 4 **1**
	3	Gradation Processing Selection - Text/Photo	S	Selects the gradation processing procedure. 0: Three-gradation error diffusion 1: Four-gradation error diffusion This SP is ignored unless the user selects 'Service Mode' in UP mode.	0 ~ 1 **1**
	4	Forced Binary Mode	S	1: Binary processing is done for all image modes.	**0: No** 1: Yes
	5	Laser Pulse Positioning in Text/Photo Mode	S	Selects whether phase control is done in text/photo mode or not. *This mode is available when 0 is selected with SP4-904-003.*	**0: No** 1: Yes
	6	Smoothing Filter Level in Photo Mode	S	Selects the smoothing filter level in photo mode. 0: None 1: Weak 5: Strong	0 ~ 5 **2**
	7	Texture Erase Filter Level in Text/Photo Mode	S	Selects the strength of the filter for erasing texture from the image in text/photo mode. 0: None 1: Weak 2: Strong	0 ~ 2 **0**
	20	Thin Line Mode in Laser Writing - Text	S	Selects thin line mode level in laser writing for text mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode - Strong	0 ~ 2 **1**
	22	Thin Line Mode in Laser Writing - Text/Photo	S	Selects thin line mode level in laser writing for text/photo mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode - Strong	0 ~ 2 **1**
	23	Thin Line Mode in Laser Writing - Pale	S	Selects thin line mode level in laser writing for pale mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode – Strong	0 ~ 2 **1**

Mode No. (Class 1, 2 and 3)				Function	Settings
4-904	IPU Setting-1				
	24	Thin Line Mode in Laser Writing - Generation	S	Selects thin line mode level in laser writing for generation mode. 0: None 1: Thin Line Mode - Weak 2: Thin Line Mode – Strong	0 ~ 2 **1**
4-905	Image Data Path				
	1	Image Data Path - Filtering/ Magnification	S	Selects one of the following video data outputs, which will be used for printing. 0: Magnification → Filtering 1: Filtering → Magnification 2: Pre-filter → Magnification → Filtering 3: Pre-filter → Filtering → Magnification **4: Normal operation**	
				Do not change the value.	
	4	Printout Type selection	S	Selects one of the following video data outputs, which will be used for the printer controller **0: Normal operation** 1: Black/White 2: Not printed out 3: Application through	
				Do not change the value.	
4-906	Image Processing Priority in Text/Photo Mode				
			S	Selects either text priority or photo priority for text/photo mode. Photo priority: Background erase is off Letter priority: Background erase is on.	0: Photo priority **1: Text priority**
				This SP is ignored unless the user selects 'Service Mode' in UP mode.	
4-909	IPU Setting-2				
			S	***Designer use only. Do not change the value.***	
4-910	Data Compression				
	3	ABS Core	S	***Designer use only. Do not change the value.***	

Mode No. (Class 1, 2 and 3)				Function	Settings
4-911	HDD 1 Front (Black)				
	1	HDD 1 Media Check	S	Checks for bad sectors on hard disk 1 that develop during machine use. This takes 4 minutes. **All the image data on this disk is erased, and the stamp data is erased from both disks.** *This SP mode should be done when an abnormal image is printed. There is no need to do this at installation because the hard disk firmware already contains bad sector information, and damage is not likely during transportation.* *Bad sectors detected with this SP mode will be stored in the NVRAM with the bad sector data copied across from the firmware.* *If the machine detects over 50 bad sectors, SC364 will be generated. At this time, use SP4-911-2.*	
	2	HDD 1 Formatting	S	Formats hard disk 1. This takes 4 minutes. ***Do not turn off the main power switch during this process.***	Start
	6	HDD 1 Bad Sector Information Reset		Resets the bad sector information which is stored in the NVRAM. *This SP should be used when the hard disk is replaced.*	
	7	HDD 1 Bad Sector Display	S	Displays the number of bad sectors there are on hard disk 1. *If the machine detects a total of over 50 bad sectors on the disk, SC364 will be generated. At this time, use SP4-911-2.*	Total: 0 Copy: 0 Printer: 0 AF (Copy Server): 0
	8	HDD 1 Model Name Display		Displays the model name of HDD 1. *If the HDD is not installed or the HDD connector is not connected, SC360 will be displayed. However, the user can make single copies.*	

Mode No. (Class 1, 2 and 3)				Function	Settings
4-912	HDD 2 Rear (Gray)				
	1	HDD 2 Media Check		Checks for bad sectors on hard disk 2 that develop during machine use. This takes 4 minutes. **All the image data on this disk is erased, and the stamp data is erased from both disks.** *This SP mode should be done when an abnormal image is printed. There is no need to do this at installation because the hard disk firmware already contains bad sector information, and damage is not likely during transportation.* *Bad sectors detected with this SP mode will be stored in the NVRAM with the bad sector data copied across from the firmware.* *If the machine detects over 50 bad sectors, SC365 will be generated. At this time, use SP4-912-2.*	
	2	HDD 2 Formatting		Formats hard disk 2. This takes 4 minutes. ***Do not turn off the main power switch during this process.***	Start
	6	HDD 2 Bad Sector Information Reset		Resets the bad sector information which is stored in the NVRAM. *This SP should be used when the hard disk is replaced.*	
	7	HDD 2 Bad Sector Display	S	Displays the number of bad sectors there are on hard disk 2. *If the machine detects a total of over 50 bad sectors on the disk, SC365 will be generated. At this time, use SP4-912-2.*	Total: 0 Copy: 0 Printer: 0 AF (Copy Server): 0
	8	HDD 2 Model Name Display		Displays the model name of HDD 2. *If the HDD is not installed or the HDD connector is not connected, SC361 will be displayed. However, the user can make single copies. (See Detailed Section Descriptions – Others for details on the use of the two hard disks.)*	
4-913	HDD Interface Type Selection				
			S	***Designer use only. Do not change this setting.***	**0: Ultra DMA/33 I/F** 1: Multiword DMA I/F
4-914	Forced HDD Selection				
				Designer use only. Do not change this setting.	**0: Default** 1: HDD1 2: HDD2

Mode No. (Class 1, 2 and 3)				Function	Settings
5-019	Tray Paper Size Selection				
	1	1st Tray	B	Selects the paper size in the 1st tray.	A4 8 1/2" x 11" A3 B4 A4R 11" x 17" 8 1/2" x 14"R 8 1/2" x 11"R
	6	6th Tray	B	Selects the paper size in the 6th tray (tray 3 of the optional LCT).	A4 B5 A5 A5R 8 1/2" x 11" 5 1/2" x 8 1/2" 5 1/2" x 8 1/2"R
5-024	mm/inch Display Selection				
			S	Selects what unit is used. *After selecting the unit, turn the main power switch off and on.*	**0: mm** 1: inch
5-038	Job Memory in Sample Copy				
			S	Selects whether Next Job can be set before sample copy is finished. 0: Next Job cannot be set until sample copy is finished. 1: Next Job can be set before sample copy is finished.	
5-104	A3/DLT Double Count				
			S	Specifies whether the counter is doubled for A3/11" x 17" paper. *If "1" is selected, the total counter and the current user code counter count up twice when A3/11" x 17" paper is used.*	**NO** YES
5-106	ID Level Setting				
	6	ADS Level Selection	S	Selects the image density level that is used in ADS mode.	1 ~ 9 1 notch/step **5**
5-112	Non-standard Paper Selection				
			S	Selects whether a non-standard paper size can be input for trays 2 and 3 (universal tray) or not. *If "Yes" is selected, the customer will be able to input a non-standard paper size using a UP mode.*	**NO** YES
5-113	Optional Counter Type				
			S	***This SP is for Japan only. Do not change the value.***	0 ~ 5 1/step **0**
5-118	Disable Copying				
			S	Disables copying. *The setting should always be "0".*	**0: No** 1: Yes

Mode No. (Class 1, 2 and 3)				Function	Settings
5-120	Mode Clear-Opt. Controller Removal				
			S	*This function is for Japanese machines only.*	**0: Yes** 1: Stand-by 2: No
5-121	Counter Up Timing				
			S	Determines the key counter count up timing. 0: The key counter counts up at paper feed timing. 1: The key counter counts up when the paper exits to the finisher tray. *This setting does not affect the timing of the copier total counter.*	**0: Feed** 1: Exit
5-127	APS Mode				
			S	Selects the availability of APS mode. 0: APS can be used 1: APS cannot be used	**0: Yes** 1: No
5-131	Paper Size Type Selection				
			B	Selects the paper size type (for originals and copy paper). (The default setting depends on the settings of DIP SW 1 and 2 on the SICU.) *After changing the value, turn the main power switch off and on.*	0: Japan **1: North America** **2: Europe** **3: China**
5-212	Paper Print Setting				
	3	Page Print Position Side - Side to Side	S	Adjusts the page print position for the reverse side when compared to the front side. –10 (To the right) ~ 10 (To the left)	–10 ~ 10 mm 1 mm/step **0**
	4	Page Print Position Up and Down	S	Adjusts the page print position for the reverse side when compared to the front side. –10 (Upper) ~ 10 (Lower)	–10 ~ 10 mm 1 mm/step **0**
5-501	PM Alarm Interval				
			S	Set the PM alarm interval. A message is displayed on the screen when the PM counter reaches this value x 1,000. *The message can be turned off by the following procedure: Clear Modes key – 0 – Clear key – 0 – Clear key (hold for more than 3 seconds). However, the PM counter is not cleared. To clear the PM counter, use SP7-804.*	0 ~ 999 (k) **0 (No PM Alarm)**
5-504	Jam Alarm Interval (RDS Function)				
	1	Jam Alarm Level	S	***Japanese version only. Do not change the setting.***	0: Z 1: L 2: M **3: H**
	2	Jam Alarm Long Time	S	***Japanese version only. Do not change the setting.***	0: OFF **1: ON**
5-505	Error Alarm (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	0 ~ 255 (k) **30 k**

Mode No. (Class 1, 2 and 3)				Function	Settings
5-513	PM Call Interval (RDS Function)				
	1	Copy Paper Standard	S	***Japanese version only. Do not change the setting.***	0 ~ 9999 k **300 k** 1 k step
	2	Original Paper Standard	S	***Japanese version only. Do not change the setting.***	0 ~ 9999 k **300 k** 1 k step
5-514	PM Call On/Off Setting				
	1	Copy Paper Standard	S	***Japanese version only. Do not change the setting.***	0: No **1: Yes**
	2	Original Paper Standard	S	***Japanese version only. Do not change the setting.***	**0: No** 1: Yes
5-590	Auto Call Setting (RSS Function)				
	2	Door Open	S	***Japanese version only. Do not change the setting.***	0: OFF **1: ON**
	3	Paper Supply	S	***Japanese version only. Do not change the setting.***	**0: OFF** 1: ON
	4	Staple Supply	S	***Japanese version only. Do not change the setting.***	**0: OFF** 1: ON
	5	Toner Supply	S	***Japanese version only. Do not change the setting.***	**0: OFF** 1: ON
5-801	Memory All Clear				
	1	ALL		Resets all correction data for process control and all software counters. Also, returns all modes and adjustments to the default settings. Settings for the SICU and BCU can be cleared separately (marked with an S or a B in the Mode No column of this table). See the “Memory All Clear” section for how to use this SP mode correctly. Touch “Start” for over 3 seconds, then turn the main power switch off and on.	Start
	2	SICU			
	3	BCU			
				Normally, this SP mode should not be used. *It is used only after replacing the NVRAM, or when the copier malfunctions due to a damaged NVRAM.* *The LCD coordinates are also cleared, see “Touch Screen Calibration”.*	
5-802	Printer Free Run				
				Press “On” on the display, then go to copy mode. Input the required settings, then press the “Start” key to start the free run. The free run stops when the simulation for the set number of copies is finished.	
				Before starting the free run, disconnect the finisher connector. Otherwise, a paper jam is detected.	
5-803	Input Check				
				Displays the signals received from sensors and switches. See the “Input Check” section for details.	

Mode No. (Class 1, 2 and 3)				Function	Settings
5-804	Output Check				
				Turns on the electrical components individually for test purposes. See the "Output Check" section for details.	ON OFF
5-811	Machine Serial Number				
	1	Machine Serial Number	S	Displays the machine serial number. The number can be reinput using the number keys.	
	3	ID 2 Code	S	*This function is for Japanese machines only.*	
5-812	Phone No. Setting for Servicing				
	1	Phone No. for Servicing	S	Use this to input the telephone number of the service representative (this is displayed when a service call condition occurs.)	
				Press the "•" key to input a pause. *Press the "Clear modes" key to delete the telephone number.*	
	2	Fax No. for SMC Report	S	Use this to input the telephone number of the service representative. This number is printed on the SMC print.	
5-816	CSS Function (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	
5-821	CSS PI Device Code (RDS Function)				
			S	***Japanese version only. Do not change the setting.***	0 ~ 4 **0**
5-907	Plug and play				
				This SP mode is for designer use only.	
5-914	Printer Counter Display				
			S	Selects whether or not the total printer counter is displayed in the UP mode.	**Off** On
5-915	Mechanical Counter Detection				
				Checks whether the mechanical counter inside the inner cover is connected or not.	0: Not detected 1: Detected 2: Unknown
5-917	GPC Counter				
				Japanese version only. Do not change the setting.	
5-918	A3/DLT Counter Display				
			S	Selects whether the A3/DLT counter is displayed in UP mode or when the "Total Counter" key is pressed.	
5-954	Copy Server Password Check				
			S	If "1" is selected, when a file in the copy server is selected, the password for that file is displayed.	**0: Normal** 1: Display the password.
5-965	Delete All the Saved Files				
				Deletes all the copy server files stored in the HDD.	

Mode No. (Class 1, 2 and 3)				Function	Settings
5-967	Copy Server: Disable Function				
			S	If "1" is selected, the copy server function is disabled. *Turn the main switch off and on after changing the setting.*	**0: Normal** 1: Disable copy server
5-968	Delete All the Stored Files in CD				
				Deletes all the copy server files stored in the CD currently in the CD-RW.	
5-990	SMC Print				
	1	All		Prints all the system parameter lists. See the "System Parameter and Data Lists" section for how to print the lists.	Start
	2	SP		Prints the SP mode data list. See the "System Parameter and Data Lists" section for how to print the lists.	Start
	3	User Program		Prints the UP mode data list. See the "System Parameter and Data Lists" section for how to print the lists.	Start
	4	Logged Data		Prints the machine status history data list. See the "System Parameter and Data Lists" section for how to print the lists.	Start
6-006	DF Registration Adjustment				
	1	Side-to-Side	B	Adjusts the printing side-to-side registration in the ADF mode. *Use the "•" key to toggle between + and –.*	–3 ~ +3 0.1 mm/step **+0.0 mm**
	2	Leading Edge (Thin Original)	B	Adjusts the original stop position. *Use the "•" key to toggle between + and –.*	–10 ~ +10 0.13 mm/step **+0.0 mm**
	3	Leading Edge (Duplex-1st)	B	Adjusts the original stop position against the original left scale in one-sided original mode. *Use the "•" key to toggle between + and –.*	–29 ~ +29 0.13 mm/step **+0.0 mm**
	4	Leading Edge (Duplex-2nd)	B	Adjusts the original stop position against the original left scale in two-sided original mode. *Use the "•" key to toggle between + and –.*	–29 ~ +29 0.13 mm/step **+0.0 mm**
6-007	ADF Input Check				
	1	Group 1		Displays the signals received from sensors and switches of the ADF. See the "Input Check" section for details.	
	2	Group 2		Displays the signals received from sensors and switches of the ADF. See the "Input Check" section for details.	
	3	Group 3		Displays the signals received from sensors and switches of the ADF. See the "Input Check" section for details.	
6-008	ADF Output Check				
				Turns on the electrical components of the ADF individually for test purposes. See the "Output Check" section for details.	

Mode No. (Class 1, 2 and 3)				Function	Settings
6-009	DF Free Run (Two-sided Original)				
				Performs an ADF free run in two-sided original mode. Press "1" to start.	**OFF** ON
				This is a general free run controlled from the copier. For more detailed free run modes, see the 'Test Points/Dip Switches/LEDs' section.	
6-016	ADF Motor Speed Adjustment				
				After pressing the Start key, the machine automatically adjusts the speeds of the ADF motors in the following order: Feed-in motor → Transport Belt Motor → Feed-out Motor (High) → Feed-out Motor (Low)	
6-105	Staple Position Adjustment				
				Adjusts the stapling position in the main scan direction	–1~ +3.5 0.5 mm/step **+0.0 mm**
			B	*Use the "•" key to toggle between + and –. A larger value causes the stapling position to shift outward.*	
6-107	Finisher Free Run				
	1	Staple Mode		The finisher simulates staple mode operation. Press [1] to start the free run. To stop the free run, press [0].	
	2	Shift Mode		The finisher simulates staple mode free run with tray shifting (without stapling). Press [1] to start the free run.	
6-113	Punch Hole Position Adjustment				
				Adjusts the punch hole position in the sub-scan direction for the punch unit.	–7.5 ~ +7.5 0.5 mm/step **0 mm**
			B	*Use the "•" key to toggle between + and –. A larger value shifts the punch holes towards the edge of the paper.*	
6-116	Sheet Conversion (Thick Paper)				
			B	Multiply the normal limit by this number to determine the staple limit number for thick paper mode.	1 ~ 3 **3**
6-117	Finisher Input Check				
	1	Group 1		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	
	2	Group 2		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	
	3	Group 3		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	
	4	Group 4		Displays the signals received from sensors and switches of the finisher. See the "Input Check" section for details.	

Mode No. (Class 1, 2 and 3)				Function	Settings
6-118	Finisher Output Check				
				Turn on the electrical components of the finisher individually for test purposes. See the “Output Check” section for details.	
6-119	Punch Function Enabled (Thick Paper)				
			B	Determines whether punch mode is enabled or not in thick paper mode.	**0: No** 1: Yes
6-801	Communication Test - Tandem Job				
				This SP mode is for designer use only.	
7-001	Main Motor (Drum Motor) Operation Time				
			B	Displays the total drum rotation time.	Min.
7-002	Original Counter				
	1	Total	S	Displays the total number of fed originals.	
	2	Copy	S	Displays the total number of fed originals in copy mode.	
	3	Copy Server	S	Displays the total number of fed originals in copy server mode.	
7-003	Copy/Printer Counter				
	1	Total Count	S	Displays the total number of prints in all modes.	
	2	Copy	S	Displays the total number of prints in copy mode.	
	4	Printer	S	Displays the total number of prints in printer mode.	
7-006	GPC Counter				
	1	GPC Total	S	Japanese version only.	
	2	GPC Copy	S		
	3	GPC Printer	S		
7-009	Rental GPC Counter				
	1	GPC Total	S	Japanese version only.	
	2	GPC Copy	S		
	3	GPC Printer	S		
7-101	Copy Counter by Paper Size				
	5	A4 Sideways	S	Displays the total number of prints by paper size.	
	6	A5 Sideways	S		
	14	B5 Sideways	S		
	38	LT Sideways	S		
	44	HLT Sideways	S		
	128	Other Sizes	S		
	132	A3	S		
	133	A4 Lengthwise	S		
	134	A5 Lengthwise	S		
	141	B4	S		
	142	B5 Lengthwise	S		
	160	DLT	S		
	164	LG	S		
	166	LT Lengthwise	S		
	172	HLT Lengthwise	S	Displays the total number of prints by paper size.	

Mode No. (Class 1, 2 and 3)				Function	Settings
7-201	Total Scan Count				
			S	Displays the total number of scanned originals.	
7-202	Original Counter by Size				
	4	A3	S	Displays the total number of scanned originals by original size.	
	5	A4	S		
	6	A5	S		
	13	B4	S		
	14	B5	S		
	32	DLT	S		
	36	LG	S		
	38	LT	S		
	44	HLT	S		
	128	Other Sizes	S		
7-204	Copy Counter by Paper Tray				
	1	1st Paper Tray	S	Displays the total number of sheets fed from each paper feed tray.	
	2	2nd Paper Tray	S		
	3	3rd Paper Tray	S		
	4	4th Paper Tray	S		
	5	5th Paper Tray	S		
7-204	Copy Counter – Paper Tray				
	6	6th Paper Tray	S	Displays the total number of sheets fed from each paper feed tray.	
7-205	Total ADF Counter				
			S	Displays the total number of originals fed by the ADF.	
7-206	Staple Counter				
			S	Displays the total number of staples used.	
7-207	Punch Counter				
			S	Displays the total number of hole punch operations.	
7-301	Total Copies By Reproduction Ratio				
	1	32% ~ 49%	S	Displays the total number of prints by reproduction ratio.	
	2	50% ~ 99%	S		
	3	100%	S		
	4	101% ~ 200%	S		
	5	201% ~ 400%	S		
	6	Direct Mag.	S		
	7	Direct Size Mag.	S		
	8	Size Mag.	S		
	9	Fixed Mag.	S		
7-304	Total Copies By Copy Mode				
	1	Letter	S	Displays the total number of prints by copy mode.	
	2	Letter/Photo	S		
	3	Photo	S		
	4	Generation	S		
	5	Pale	S		
	6	Punch	S		
	7	Multiple Copy	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-304	Total Copies By Copy Mode				
	8	Sort	S	Displays the total number of prints by copy mode.	
	9	Staple	S		
	10	Combine	S		
	11	Erase Copy	S		
	12	Duplex Copy	S		
	13	ADF	S		
	14	Double	S		
	15	2-sided Original	S		
	16	Interrupt	S		
	17	Combine Mode - 1 Side	S		
	18	Combine Mode - 2 Side	S		
	19	Mini Book Mode	S		
	20	Magazine Mode	S		
	21	Batch (SADF) Mode	S		
	22	Mixed Size Mode	S		
	23	Thin Original	S		
7-305	Total Copies in Multiple Copy Mode				
	1	1 to 1	S	Displays the total number of prints by multiple copy quantity.	
	2	1 to 2 ~ 5	S		
	3	1 to 6 ~ 10	S		
	4	1 to 11 ~ 20	S		
	5	1 to 21 ~ 50	S		
	6	1 to 51 ~ 100	S		
	7	1 to 100 ~ 300	S		
	8	1 to 301 ~	S		
7-306	Copy: Each Mode Job				
	1	Sort	S	Displays the total number of copy jobs that have been done for various modes.	
	2	Staple	S		
	3	Punch	S		
	4	Next Job	S		
	5	Sample Copy	S		
7-320	Copy Server: Scanned Storage				
	1	Number of Scan	S	Displays the total number of stored originals in the copy server.	
7-321	Copy Server: Original Counter by Size				
	4	A3	S	Displays the total number of stored originals in the server by size.	
	5	A4	S		
	6	A5	S		
	13	B4	S		
	14	B5	S		
	32	DLT	S		
	36	LG	S		
	38	LT	S		
	44	HLT	S		
	128	Other Size	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-323	Copy Server: Each Size of Copies				
	5	A4 Sideways	S	Displays the total number of prints made from the copy server by paper size.	
	6	A5 Sideways	S		
	14	B5 Sideways	S		
	38	LT Sideways	S		
	44	HLT Sideways	S		
	128	Other Sizes	S		
	132	A3	S		
	133	A4 Lengthwise	S		
	134	A5 Lengthwise	S		
	141	B4	S		
	142	B5 Lengthwise	S		
	160	DLT	S		
	164	LG	S		
	166	LT Lengthwise	S		
	172	HLT Lengthwise	S		
7-324	Copy Server: Print Job Counter				
	1	Duplex Job	S	Displays the total number of copy jobs made from the copy server.	
	2	Sort Job	S		
	3	Staple Print Job	S		
	4	Punch Print Job	S		
	5	Sample Copy	S		
	6	First Page Print	S		
7-325	Copy Server: Print Job Page Distribution				
	1	1	S	Displays the number of jobs by number of pages, made from the copy server.	
	2	2	S		
	3	3 - 5	S		
	4	6 - 10	S		
	5	11 -	S		
7-326	Copy Server: Print Job File Distribution				
	1	1	S	Displays the number of jobs by the number of consecutive files in the job, made from the copy server.	
	2	2 - 5	S		
	3	6 - 10	S		
	4	11 -	S		
7-327	Copy Server: Print Job Set Distribution				
	1	1 to 1	S	Displays the total number of prints by multiple copy quantity, using the copy server.	
	2	1 to 2 ~ 5	S		
	3	1 to 6 ~ 10	S		
	4	1 to 11 ~ 20	S		
	5	1 to 21 ~ 50	S		
	6	1 to 51 ~ 100	S		
	7	1 to 100 ~ 300	S		
	8	1 to 301 ~	S		
7-328	Copy Server: Copy Number of Each Job				
	1	Duplex Copy	S	Displays the total number of duplex prints of one-sided originals from the copy server.	
	2	Duplex Original	S	Display the total number of prints of two-sided originals from the copy server.	

Mode No. (Class 1, 2 and 3)				Function	Settings
7-330	Tandem Job				
			S	Displays the number of jobs made as the master in tandem mode.	0
7-331	Tandem: Copy				
	1	Master: Copy	S	Displays the number of copies made in tandem mode as the master.	
	2	Slave: Copy	S	Displays the number of copies made in tandem mode as the slave.	
7-332	Tandem/Master: Copy				
	1	Original Mode: Text	S	Displays the number of copies made in each master mode.	
	2	Original Mode: Text/Photo	S		
	3	Original Mode: Photo	S		
	4	Original Mode: Generation	S		
	5	Original Mode: Pale	S		
	6	Punch	S		
	7	Repeat	S		
	8	Sort	S		
	9	Staple	S		
	10	Series	S		
	11	Erase	S		
	12	Duplex Copy	S		
	13	ADF Mode	S		
	14	Double Copy	S		
	15	Duplex Original	S		
	16	Interrupt	S		
	17	Combine 1 Side	S		
	18	Combine 2 Side	S		
	19	Booklet	S		
	20	Magazine	S		
	21	Batch Mode	S		
	22	Mixed Sizes	S		
	23	Thin	S		
7-333	Tandem/Slave: Copy				
	1	Original Mode: Text	S	Displays the number of copies made in each slave mode.	
	2	Original Mode: Text/Photo	S		
	3	Original Mode: Photo	S		
	4	Original Mode: Generation	S		
	5	Original Mode: Pale	S		
	6	Punch	S		
	7	Repeat	S		
	8	Sort	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-333	Tandem/Slave: Copy				
	9	Staple	S	Displays the number of copies made in each slave mode.	
	10	Series	S		
	11	Erase	S		
	12	Duplex Copy	S		
	13	ADF Mode	S		
	14	Double Copy	S		
	15	Duplex Original	S		
	16	Interrupt	S		
	17	Combine 1 Side	S		
	18	Combine 2 Side	S		
	19	Booklet	S		
	20	Magazine	S		
	21	Batch Mode	S		
	22	Mixed Sizes	S		
	23	Thin	S		
7-401	Total SC Counter				
			S	Displays the total number of service calls that have occurred.	
7-403	SC History				
	1	Latest	S	Displays the latest 10 service call codes.	
	2	Latest 1st	S		
	3	Latest 2nd	S		
	4	Latest 3rd	S		
	5	Latest 4th	S		
	6	Latest 5th	S		
	7	Latest 6th	S		
	8	Latest 7th	S		
	9	Latest 8th	S		
	10	Latest 9th	S		
7-501	Total Jam Counter				
			S	Displays the total number of copy jams and original jams.	
7-502	Total Copy Jam Counter				
			S	Displays the total number of copy jams.	
7-503	Total Original Jam Counter				
			S	Displays the total number of original jams.	

Mode No. (Class 1, 2 and 3)				Function	Settings
7-504	Copy Jam Counter by Jam Location				
	These are jams when the paper does not activate the sensor.				
	1	At Power On	S	Displays the total number of copy jams by location. The information in brackets shows the sensors that are used to detect these jams.	
	3	1st Paper Tray	S	(1st Paper Feed Sensor)	
	4	2nd Paper Tray	S	(2nd Paper Feed Sensor)	
	5	3rd Paper Tray	S	(3rd Paper Feed Sensor)	
	6	4th Paper Tray	S	(4th Paper Feed Sensor)	
	7	5th Paper Tray	S	(5th Paper Feed Sensor)	
	8	6th Paper Tray	S	(6th Paper Feed Sensor)	
	9	LCT Relay Sensor	S		
	10	LCT Exit Sensor	S		
	12	Relay Sensor	S		
	13	Registration Sensor	S		
	15	Fusing Exit Sensor	S		
	16	Exit Sensor	S		
	19	Duplex Entrance Sensor	S		
	20	Duplex Transport Sensor 1	S		
	21	Duplex Transport Sensor 2	S		
	22	Duplex Transport Sensor 3	S		
	23	Inverter Tray Paper Sensor	S		
	25	Entrance Sensor - Fin.	S		
	26	Upper Tray Exit Sensor - Fin.	S		
	27	Shift Tray Exit Sensor - Fin.	S		
	28	Stapler Tray Entrance Sensor - Fin.	S		
	29	Stapler Tray Paper Sensor - Fin.	S		
	35	Entrance Sensor - FIN Staple Tray	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-504	Copy Jam Counter by Jam Location				
	These are jams when the paper stays at the sensor.				
	53	1st Paper Tray	S	(1st Paper Feed Sensor)	
	54	2nd Paper Tray	S	(2nd Paper Feed Sensor)	
	55	3rd Paper Tray	S	(3rd Paper Feed Sensor)	
	56	4th Paper Tray	S	(4th Paper Feed Sensor)	
	57	5th Paper Tray	S	(5th Paper Feed Sensor)	
	58	6th Paper Tray	S	(6th Paper Feed Sensor)	
	59	LCT Relay Sensor	S		
	60	LCT Exit Sensor	S		
	62	Relay Sensor	S		
	63	Registration Sensor	S		
	65	Fusing Exit Sensor	S		
	66	Exit Sensor	S		
	69	Duplex Entrance Sensor	S		
	70	Duplex Transport Sensor 1	S		
	71	Duplex Transport Sensor 2	S		
	72	Duplex Transport Sensor 3	S		
	73	Inverter Tray Paper Sensor	S		
7-505	Original Jam Counter by Jam Location				
	1	At Power On	S		
	3	ADF Feed-in Sensor	S	Detected by the entrance and registration sensors	
	4	ADF Feed-out Sensor	S	Detected by the exit and inverter sensors.	
7-506	Jam Counter by Copy Size				
	5	A4 Sideways	S	Displays the total number of copy jams by paper size.	
	6	A5 Sideways	S		
	14	B5 Sideways	S		
	38	LT Sideways	S		
	44	HLT Sideways	S		
	128	Other Size	S		
	132	A3	S		
	133	A4 Lengthwise	S		
	134	A5 Lengthwise	S		
	141	B4 Lengthwise	S		
	142	B5 Lengthwise	S		
	160	DLT	S		

Mode No. (Class 1, 2 and 3)				Function	Settings
7-506	Jam Counter by Copy Size				
	164	LG	S	Displays the total number of copy jams by paper size.	
	166	LT Lengthwise	S		
	172	HLT Lengthwise	S		
7-507	Jam History				
	1	Copy: Latest	S	Displays the following items for the most recent 10 jams. 1. Last 5 digits of the total counter value 2. Paper size 3. Detected position 4. Stuck or not fed	
	2	Latest 1st	S		
	3	Latest 2nd	S		
	4	Latest 3rd	S		
	5	Latest 4th	S		
	6	Latest 5tht	S		
	7	Latest 6th	S		
	8	Latest 7th	S		
	9	Latest 8th	S		
	10	Latest 9th	S		
	11	Original: Latest	S		
	12	Latest 1st	S		
	13	Latest 2nd	S		
	14	Latest 3rd	S		
	15	Latest 4th	S		
	16	Latest 5th	S		
	17	Latest 6th	S		
	18	Latest 7th	S		
	19	Latest 8th	S		
	20	Latest 9th	S		
7-617	Parts PM Alarm Counter Display				
	1	Copy Paper Standard	S	***This counter is used for the Japanese market only.***	
	2	Original Paper Standard		***This counter is used for the Japanese market only.***	
7-618	Parts PM Alarm Counter Clear				
	1	Copy Paper Standard		Clears the counter of SPS7-617-1.	
	2	Original Paper Standard		Clears the counter of SPS7-617-2.	
7-801	ROM Version Display				
				Displays the ROM versions. 001: SICU 002: BCU 003: CSS (P1) – Japan only 004: HDC (Hard disk controller) 005: Scanner 006: ADF 007: Finisher 008: Printer	
7-803	PM Counter Display				
			S	Displays the PM counter since the last PM.	
7-804	PM Counter Reset				
				Resets the PM counter.	Start

Mode No. (Class 1, 2 and 3)				Function	Settings
7-807	SC/Jam Counter Reset				
				Resets the SC and jam counters. Press "Start" to reset.	Start
7-808	Counter Clear				
				Resets all counters, except for the total counters (SP 7-003): Press "Start" to reset.	Start
7-810	Access Code Clear				
				Resets both the key operator code and the weekly timer code ('key operator code for off setting'). Press "Start" to reset.	Start
7-816	Copy Counter Clear- Paper Tray				
	1	Paper Tray 1		Resets the total copy counter by paper tray. These SP modes can be used after replacing the pick-up, feed, and separation rollers in the paper feed stations.	Start
	2	Paper Tray 2			
	3	Paper Tray 3			
	4	Paper Tray 4			
	5	Paper Tray 5			
	6	Paper Tray 6			
7-817	Total ADF Counter Reset				
				Resets the ADF Counter (SP7-205). Press "Start" to reset.	Start
7-822	Copy Counter Clear - Magnification				
				Resets all counters of SP7-301.	Start
7-825	Total Counter Clear				
				Resets the electrical total counter.	Start
				Usually, this SP mode is done at installation. This SP mode works only once when the counter value is negative.	
7-826	Option Counter Error Counter				
	1	Total	S	For Japanese version only.	
	2	Staple	S		
7-827	Option Counter Error Counter Clear				
				For Japanese version only.	
7-828	Punch Counter Clear				
				Resets the punch counter (SP7-207)	
7-829	Rental GPC Counter Clear				
				For Japanese version only.	
7-902	SC Details				
				Displays details about the latest SCs. Not all SCs have these details. For designer use only.	
7-904	Copy Counter Clear – Copy Mode				
				Resets all counters of SP7-304, 7-331, 7-332, and 7-333.	Start
7-905	Copy Counter Clear – Multiple Copy Mode				
				Resets all counters of SP7-305.	Start
7-906	Original Counter Clear – Size				
				Resets all counters of SP7-202.	Start
7-907	Job Counter Clear				
				Resets all counters of SP7-306, and 7-330.	Start

Mode No. (Class 1, 2 and 3)			Function	Settings
7-908	Copy: Original Counter Clear			
			Resets SP7-002-2.	Start
7-920	Copy Server: Scanned Storage Counter Clear			
			Resets the counter of SP7-320.	Start
7-921	Copy Server: Original Counter Clear - Size			
			Resets all counters of SP7-321.	Start
7-923	Copy Server: Print Counter Clear			
			Resets all counters of SP7-323.	Start
7-924	Copy Server: Print Job Counter Clear			
			Resets all counters of SP7-324.	Start
7-925	Copy Server Print Job Page Distribution Clear			
			Resets all counters of SP7-325.	Start
7-926	Copy Server: Print Job File Distribution Clear			
			Resets all counters of SP7-326.	Start
7-927	Copy Server: Print Job Set Distribution Clear			
			Resets all counters of SP7-327.	Start
7-928	Copy Server: Copy Counter Clear – Copy Mode			
			For Japanese machines only.	
7-990	SC990 Information			
		S	Designer use only.	

5. PREVENTIVE MAINTENANCE SCHEDULE

5.1 PM PARTS

NOTE: The amount mentioned as the PM interval indicates the number of prints, unless stated otherwise.

Symbol key: **R,** r: Replace on a PM part counter basis (refer to Service Tables – PM Counter)
R: The counter counts up every copy, in the same way as the copy counter
r: The counter only counts up if that part was used for the copy
I: Inspect, and clean and/or lubricate
i: Inspect, and clean and/or lubricate only if necessary

Description	Activity Type	Interval	Note/Remarks
OPTICS			
Exposure Glass	i	300 k	
1st ~ 3rd Mirrors	i	300 k	Optical cloth
APS Sensor	i	300 k	Dry cloth
Scanner Rail	i	300 k	Dry cloth
Scanner Filter	**I**	600 k	Blower brush
Toner Shield Glass	**I**	300 k	Optical cloth
LD Filter	**I**	300 k	Blower brush
White Patch	i	300 k	Dry cloth
DEVELOPMENT UNIT			
Side Seal	**I**	300 k	Blower brush or dry cloth
Development Unit	i	300 k	Blower brush or dry cloth
Development Roller	**I**	300 k	Blower brush and dry cloth
Entrance Seal	**I**	300 k	Blower brush or dry cloth
Toner Hopper (Outside)	i	300 k	Blower brush or dry cloth
Gears (All Gears)	i	300 k	Blower brush
Toner Filter (Center)	r	400 k	
Toner Filter (Front)	r	400 k	
Developer	r	300 k	TD sensor initial setting (SP2-801)
Waste Toner Collection Bottle	r	2,400k	A4 6% Chart
Sucked Toner Collection Bottle	r	1,200 k	A4 6% Chart
Development Suction Motor Ass'y	r	2,500 k	A4 6% Chart
AROUND THE DRUM			
Side Seal	i	300 k	Blower brush or dry cloth
Ground Plate/Screw	i	300 k	Electrical connection check Alcohol or water

Description	Activity Type	Interval	Note/Remarks
Drum Filter	**I**	380 k	Blower brush
Cleaning Brush Seal	i	300 k	Blower brush or dry cloth
Cleaning Entrance Seal	**I**	300 k	Blower brush or dry cloth
ID Sensor	**I**	300 k	Blower brush or dry cloth
Transfer Unit Entrance Stay	**I**	300 k	Blower brush or dry cloth
Corona Wire Casing	**I**	300 k	Damp cloth
Drum Potential Sensor	**I**	300 k	Blower brush
Quenching Lamp	**I**	300 k	Blower brush or dry cloth
Cleaning Brush	**R**	300 k	
Toner Filter	**R**	300 k	
Transfer Belt Cleaning Blade	**R**	450 k	
Cleaning Blade	**R**	300 k	
Grid Plate	r	300 k	
Charge Corona Wire	r	300 k	
Wire Cleaner	r	300 k	
Wire Cushion	r	300 k	
Pick-off Pawls	**R**	300 k	
Transfer Belt	**R**	450 k	
Transfer Belt Bias Brush	**I**	450 k	Blower brush
Rear Casing Guide	**I**	300 k	Dry cloth
Exit Bias Plate	**I**	300 k	Blower brush
Belt Drive Roller	**I**	450 k	Alcohol
Belt Roller	**I**	450 k	Alcohol
Cleaning Bias Roller	**I**	450 k	Alcohol
Ozone Filter	r	1,500 k	
Carrier Catcher	i	300 k	
FUSING UNIT			
Pressure Roller Cleaning Roller Bearings	i	600 k	Inspect only
Pressure Roller Cleaning Roller	**R**	600 k	
Fusing Entrance Guide	**I**	300 k	Water or alcohol
Oil Supply & Cleaning Web	**R**	300 k (EU) 600 k (US)	
Hot Roller	r	600 k	
Hot Roller Stripper	**I** r	300 k 600 k	Dry cloth
Pressure Roller Stripper		600 k	Dry cloth
Fusing Exit Roller		600 k	Water or alcohol
Pressure Roller	r	500 k	
Pressure Roller Cleaning Roller Cleaner	r	600 k	
Hot Roller Ball Bearing	i	600 k	Inspect only

Description	Activity Type	Interval	Note/Remarks
Pressure Roller Ball Bearing	i	700 k	Inspect only
Hot Roller Bushing	i	600 k	Inspect only
Pressure Roller Busing	i	700 k	Inspect only
Hot Roller Gear	**l**	300 k	Grease (Barrierta)
Fusing Exit Guide Plates	**l**	300 k	Water or alcohol
Fusing Web Brake Pad	r	600 k	
PAPER FEED			
Relay Roller	**l**	300 k	Damp cloth
Paper Feed Guide Plate	i	300 k	Damp cloth
Registration Rollers	**l**	300 k	Damp cloth
Registration Sensor	**l**	300 k	Blower brush
Relay Sensor	**l**	300 k	Blower brush
Paper Dust Remover	**l**	300 k	Damp cloth
Paper Feed Sensor	**l**	300 k	Blower brush
Paper Feed Rollers	r	300 k	
DUPLEX			
Feed and Transport Rollers	**l**	300 k	Damp cloth
Reverse and Inverter Rollers	**l**	300 k	Damp cloth
Entrance Sensor	**l**	300 k	Blower brush
Entrance Anti-static Brush	i	300 k	Blower brush
Duplex Transport Sensor	**l**	300 k	Dry cloth
Duplex Inverter Sensor	**l**	300 k	Dry cloth

Description	Activity Type	Interval	Note/Remarks
ADF			
Transport Belt	r	80 k	Belt cleaner
Feed Belt	r	80 k	Belt cleaner
Separation Roller	r	80 k	Dry or damp cloth
Pick-up Roller	r	80 k	Dry or damp cloth
Sensors	i	80 k	Blower brush
Drive Gears	i	80 k	Grease G501

Description	Activity Type	Interval	Note/Remarks
LCT			
Paper Feed Roller	r	300 k	
Pick-up Roller	r	300 k	
Separation Roller	r	300 k	
Bottom Plate Pad	i	300 k	Dry or damp cloth

Description	Activity Type	Interval	Note/Remarks
3,000-SHEET FINISHER			
Rollers	i	300 k	Clean with water or alcohol.
Brush Roller	i	300 k	Inspect only. Replace if necessary.
Discharge Brush	i	300 k	Clean with a dry cloth.
Sensors	i	300 k	Blower brush
Jogger Fences	i	300 k	Inspect only. Replace if necessary.
Punch Waste Hopper	i	300 k	Empty the hopper.

NOTE: PM parts should be replaced on a PM counter basis. The PM counter corresponding to the replaced part should be cleared (refer to Service Tables – PM Counter).

7. TROUBLESHOOTING

7.1 SERVICE CALL CONDITIONS

7.1.1 SUMMARY

There are 4 levels of service call conditions.

Level	Definition	Reset Procedure
A	To prevent the machine from being damaged, the SC can only be reset by a service representative (see the note below). The copier cannot be operated at all.	Enter SP mode, then turn the main power switch off and on.
B	The SC can be reset by turning the main power switch off and on if the SC was caused by incorrect sensor detection.	Turn the operation switch or main power switch off and on. A level B' SC can only be reset by turning the main power switch off and on.
C	The copier can be operated as usual except for the unit related to the service call.	Turn the operation switch off and on.
D	The SC history is updated. The machine can be operated as usual.	The SC will not be displayed. All that happens is that the SC history is updated.

NOTE: 1) If the problem concerns electrical circuit boards, first disconnect then reconnect the connectors before replacing the PCBs.
2) If the problem concerns a motor lock, first check the mechanical load before replacing motors or sensors.
3) When a Level A or B SC occurs while in an SP mode, the display does not indicate the SC number. If this occurs, check the SC number after leaving the SP mode. This does not apply to Level B' codes.

7.1.2 SC CODE DESCRIPTIONS

SC101: Exposure Lamp Error

Definition [B]

The standard white level was not detected properly when scanning the white plate.

Possible Causes

- Exposure lamp defective
- Lamp stabilizer defective
- Exposure lamp connector defective
- Dirty standard white plate
- Dirty scanner mirror or scanner mirror out of position
- SBU board defective
- SBU connector defective
- Lens block out of position

SC120: Scanner Home Position Error 1

Definition [B]

The scanner home position sensor does not detect the on condition during initialization or copying.

Possible Causes

- Scanner home position sensor defective
- Scanner motor defective
- MCU defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective

SC121: Scanner Home Position Error 2

Definition [B]

The scanner home position sensor does not detect the off condition during initialization or copying.

Possible Causes

- Scanner home position sensor defective
- Scanner drive motor defective
- MCU defective
- Scanner home position sensor connector defective
- Scanner drive motor connector defective
- Scanner drive wire, timing belt out of position

SC124: Scanner Motor Error 1

Definition [B]

The feedback signal from the scanner motor is not detected within 200 ms after the scanner motor turns on.

Possible Causes

- Scanner motor defective
- Poor connection of the connector for the feedback signal
- Poor connection of the connector for the scanner motor power line

SC125: Scanner Motor Error 2

Definition [B]

1) The scanner motor speed is less than 300 mm/s when the scanner home position sensor turns on.
2) The scanner motor stops before scanner home position when the scanner returns.

Possible Causes

- Scanner motor defective
- Large load on the scanner drive

SC126: Scanner Motor Error 3

Definition [B]

The scanner motor does not stop within 12 mm after the scanner home position sensor turns on when the scanner returns.

Possible Causes

- Scanner motor defective
- MCU defective

SC127: Scanner Motor Error 4

Definition [B]

The scanner motor rotates in the opposite direction from the signal from the MCU.

Possible Causes

- Scanner motor defective

SC128: Scanner Motor Error 5

Definition [B]

The scanner motor speed does not reach the target speed within a certain time after the scanner motor starts.

Possible Causes

- Scanner motor defective
- MCU defective
- Scanner drive mechanism defective

SC129: Scanner Motor Error 6

Definition [B]

The scanner motor speed is not controlled properly.

Possible Causes

- Scanner motor defective
- PSU defective
- Scanner unit defective

SC130: SBU Error

Definition [B]

The SICU does not receive the correct signal from the SBU.

Possible Causes

- SICU defective
- SBU defective
- Poor connection between SICU and SBU

SC300: Charge Corona Output Error 1

Definition [B]

A feedback voltage for the charge corona of more than 4.5 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC301: Charge Corona Output Error 2

Definition [B]

A feedback voltage for the charge corona of less than 1.5 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC303: Charge Grid Output Error 1

Definition [B]

A feedback voltage for the grid of more than 4.5 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC304: Charge Grid Output Error 2

Definition [B]

A feedback voltage for the grid of less than 1.0 V was detected from the charge/bias/grid power pack 9 times consecutively.

Possible Causes

- Charge/bias/grid power pack defective
- Poor charge corona unit connection

SC305: Charge Corona Wire Cleaner Error 1

Definition [B]

The charge corona wire cleaner does not return to its home position.

Possible Causes

- Charge corona wire cleaner motor defective
- BCU defective

SC306: Charge Corona Wire Cleaner Error 2

Definition [D]

The charge corona wire cleaner motor connector is not connected.

Possible Causes

- Poor connection or disconnected charge corona wire cleaner motor connector

SC310: Drum Potential Sensor Error 1

Definition [D]

When calibrating the drum potential sensor during process control initial setting, the drum potential sensor output voltage is out of specification.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective

SC311: Drum Potential Sensor Error 2

Definition [D]

When calibrating the drum potential sensor during process control initial setting, the rate of change of drum potential sensor output with voltage on the drum is out of specification.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective

SC312: Drum Potential Sensor Error 3

Definition- [D]

When adjusting V_D for the unexposed drum during process control initial setting, –1,000 V is applied to the charge grid, but the drum potential sensor detects that V_D is more than –970 V.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum unit and the BCU
- Charge/bias/grid power pack defective
- Dirty or worn charge corona wire

SC313: Drum Potential Sensor Error 4

Definition [D]

When adjusting the drum potential (V_D) during process control initial setting, the drum potential sensor detects that V_D is more than V_G (grid voltage).

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective
- Dirty or worn charge corona wire

SC314: Drum Potential Sensor Error 5

Definition [D]

When adjusting the drum potential (V_H) for LD power adjustment during process control initial setting, the first time the V_H pattern is made, the drum potential sensor detects that V_H is more than 500 V.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- LDB defective

SC315: Drum Potential Sensor Error 6

Definition [D]

When adjusting V_D for the unexposed drum during process control initial setting, V_D does not reach –900 $\pm$ 20 V even if V_G has been adjusted 5 times.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the BCU
- BCU defective
- Charge/bias/grid power pack defective

SC316: Drum Potential Sensor Error 7

Definition [D]

When adjusting the drum potential (V_H) for half tone during process control initial setting, the drum potential sensor detects that V_H does not become –265 $\pm$ 20 V even though the LD power has been changed twenty times.

Possible Causes

- Drum potential sensor defective
- Poor connection between the drum potential sensor and the IBCU
- BCU defective
- LDB defective
- Poor drum cleaning

SC321: Laser Writing Signal (F-gate) Error

Definition- [B]

The laser writing signal (F-gate) does not go to LOW for more than 15 seconds after the copy paper reaches the registration sensor.

Possible Causes

- SICU board defective
- Poor connection of the printer controller
- Printer controller defective

SC322: Laser Synchronization Error

Definition [B']

The laser synchronization signal cannot be detected from the synchronization detector even if the laser diodes are activated.

Possible Causes

- Poor connection between the laser synchronization detector and the LDB
- Laser synchronization detector out of position
- Laser synchronization detector defective
- LDB defective
- SICU defective
- Front door safety switches defective

SC323: Excessive LD Drive Current

Definition [B']

The LDB applies more than 110 mA to the LD.

Possible Causes

- LDB defective (not enough power, due to aging)
- Poor connection between the LDB and the SICU board
- High temperature of LD on LDB

SC335: Polygonal Mirror Motor Error 1

Definition [B]

The polygonal mirror motor does not reach its operating speed within 20 seconds after the polygonal mirror motor turns on, or the polygonal mirror motor speed is changed.

Possible Causes

- Polygonal mirror motor defective
- Poor connection between the polygonal mirror motor drive board and the SICU board
- Polygonal mirror motor drive board defective
- SICU board defective

SC336: Polygonal Mirror Motor Error 2

Definition [B]

The SICU does not receive the stop signal from the polygonal mirror motor for more than 20 seconds after the polygonal mirror motor turns off.

Possible Causes

- Polygonal mirror motor defective
- Poor connection between the polygonal mirror motor drive board and the SICU board
- Polygonal mirror motor drive board defective
- SICU board defective

SC337: Polygonal Mirror Motor Error 3

Definition [B]

The polygonal mirror motor status is changed even though no signal is sent from the SICU.

Possible Causes

- Polygonal mirror motor defective
- Electrical noise
- Polygonal mirror motor drive board defective
- SICU board defective

SC338: Polygonal Mirror Motor Error 4

Definition [B]

1) The polygonal mirror motor operating speed does not become stable for 20 seconds after the polygonal mirror motor is turned on, or the polygonal mirror motor speed is changed.
2) The stop signal from the polygonal mirror motor does not become stable for 20 seconds after the polygonal mirror motor is turned off.

Possible Causes

- Polygonal mirror motor defective
- Poor connection between the polygonal mirror motor drive board and the SICU board
- Polygonal mirror motor drive board defective
- SICU board defective

SC340: TD Sensor Error 1

Definition [B]

The TD sensor output voltage is less than 0.5 V or more than 4.0 V 10 times consecutively during copying.

Possible Causes

- TD sensor defective
- Poor connection between the TD sensor and the BCU
- BCU defective
- Toner supply defective

SC341: TD Sensor Error 2

Definition [B]

One of the following TD sensor output voltages is detected during TD sensor initial setting.

1) Less than 2.5 V when the maximum PWM (255) is applied to the TD sensor.
2) 2.5 V or more when minimum PWM (0) is applied to the TD sensor.

Possible Causes

- TD sensor defective
- Poor connection between the TD sensor and the BCU
- BCU defective
- Toner supply defective

SC342: TD Sensor Error 3

Definition [B]

The TD sensor output voltage is not adjusted to 2.5 $\pm$ 0.1 V within 20 seconds during TD sensor initial setting.

Possible Causes

- TD sensor defective
- Poor connection between the TD sensor and the BCU
- BCU defective
- Toner supply defective

SC345: Development Bias Leak

Definition [B]

Maximum PWM for the development bias signal is applied 10 times consecutively.

Possible Causes

- Poor connection between the development bias terminal and the charge/bias/grid power pack
- Charge/bias/grid power pack

SC350: ID Sensor Error 1

Definition [D]

One of the following ID sensor output voltages was detected when checking the ID sensor pattern.

1) $V_{SP} \geq 2.5$ V
2) $V_{SP} = 0$ V

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid power pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC351: ID Sensor Error 2

Definition [D]

The following two conditions were detected at the same time when checking the ID sensor pattern.

1) $V_{SG} \leq 2.5$ V or $V_{SG} = 0$ V
2) The ID sensor output voltage is 5.0 V and the PWM signal input to the ID sensor is 0

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC352: ID Sensor Error 3

Definition [D]

The ID sensor pattern edge voltage is not at 2.5 V for 1.5 seconds during the ID sensor pattern check.

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC353: ID Sensor Error 4

Definition [D]

One of the following ID sensor output voltages is detected at ID sensor initialization.

1) $V_{SG} < 4.0$ V when the maximum PWM input (255) is applied to the ID sensor.
2) $V_{SG} \geq 4.0$ V when the minimum PWM input (0) is applied to the ID sensor.

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC354: ID Sensor Error 5

Definition [D]

V_{SG} is not adjusted within the target (4.0 ± 0.2 V) within 20 seconds during V_{SG} checking.

Possible Causes

- ID sensor defective
- ID sensor connector defective
- Poor ID sensor connector connection
- BCU defective
- Charge/bias/grid pack defective
- Dirty ID sensor
- Defect on the drum at the ID sensor pattern writing area

SC355: ID Sensor Voltage Error

Definition [B]

The ID sensor voltage (V_P) exceeds 700 V, 10 times consecutively.

Possible Causes

- Drum potential sensor defective
- IO Board defective
- Poor connection of the drum unit connector
- LD defective
- Poor drum cleaning
- Dirty optics
- Drum wear

SC360: Hard Disk Drive Error 1

Definition [B]

The machine does not detect the connection signal from HDD 1 when the main switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC361: Hard Disk Drive Error 2

Definition [C]

The machine does not detect the connection signal from HDD 2 when the main switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC362: Hard Disk Drive Error 3

Definition [C]

The machine does not detect the connection signal from HDD 1 when the operation switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC363: Hard Disk Drive Error 4

Definition [C]

The machine does not detect the connection signal from HDD 2 when the operation switch is turned on.

Possible Causes

- Poor connection between the HDD and SICU
- The dc power connector to the HDD is disconnected
- HDD defective
- SICU defective

SC364: Hard Disk Drive Error 5

Definition [C]

The image data stored in HDD 1 cannot be output properly.

Possible Causes

- When this SC occurs only once, this problem will be solved after turning the main power switch off and on.
- When this SC occurs while performing SP4-911-1 (HDD 1 media check), it can be cured by doing SP4-911-2 (HDD 1 formatting).
- HDD 1 defective

SC365: Hard Disk Drive Error 6

Definition [C]

The image data stored in HDD 2 cannot be output properly.

Possible Causes

- When this SC occurs only once, this problem will be solved after turning the main power switch off and on.
- When this SC occurs while performing SP4-912-1 (HDD 2 media check), it can be cured by doing SP4-912-2 (HDD 2 formatting).
- HDD 2 defective

SC366: Hard Disk Drive Error 7

Definition [C]

The number of bad sectors in HDD 1 exceeds the maximum value.

Possible Causes

- NVRAM defective
- HDD 1 defective

SC367: Hard Disk Drive Error 8

Definition [C]

The number of bad sectors in HDD 2 exceeds the maximum value.

Possible Causes

- NVRAM defective
- HDD 2 defective

SC370, 371, 372, 373, 374, 375: IMAC (Image Compression IC) Error 1

Definition [B]

An error occurs during image processing in the IMAC, which handles image compression and image data transfer between the machine's components.

Possible Causes

- SICU defective

SC376, 377: IMAC (Image Compression IC) Error 2

Definition [B]

While image data is transferred in tandem mode, an error occurs during image processing in the IMAC, which handles image compression and image data transfer between the machine's components.

Possible Causes

- SICU defective

SC380, 381, 382, 383: Image Data Transfer Timeout

Definition [B]

The image data could not be transferred to the memory within 20 seconds.

Possible Causes

- SICU defective
- Printer controller defective
- SBU defective

SC384, 385: Image Data Transfer Timeout in Tandem Mode

Definition [B]

The image data could not be transferred to the memory within 20 seconds in tandem mode.

Possible Causes

- SICU defective
- Printer controller defective
- SBU defective
- Interface board defective

SC386, 387: Image Data Transfer Timeout (HDD)

Definition [B]

The image data could not be transferred to the HDD within 15 seconds.

Possible Causes

- SICU defective
- Printer controller defective
- SBU defective
- Interface board defective

SC390: Tandem Image Data Transfer Error

Definition [B]

The image data sent from the master does not match the data received by slave.

Possible Causes

- SICU defective
- Interface board defective
- Electrical noise

SC391, 392: Image Storage Address Error

Definition [B]

The SICU receives an image data output request signal for data that is not stored in memory.

Possible Causes

- SICU defective

SC395: CD-R/RW Control CPU Error

Definition [C] (All copier functions can be used except for “Document Editor”).

The CD-R/RW control CPU on the interface board generates an abnormal signal.

Possible Causes:

- Interface board defective

SC397: CD Access Error

Definition [C] (All copier functions can be used except for “Document Editor”).

The CD-R/RW generates an abnormal signal during data transmittion between the copier HDD and the CD-R/RW.

Possible Causes:

- CD-R/RW defective
- CD-R/RW media defective

SC397: CD-R/RW Data Transmission Error

Definition [C] (All copier functions can be used except for “Document Editor”).

Data transmission between the copier HDD and the CD-R/RW is not completed within 105 seconds.

Possible Causes:

- CD-R/RW defective
- CD-R/RW media defective

SC400: Transfer Bias Roller Leak

Definition [B]

Abnormal feedback data from the transfer power pack is detected 6 times consecutively.

Possible Causes

- Transfer power pack defective
- Poor connection between the transfer current terminal and the transfer power pack.

SC401: Transfer roller open error

Definition [B]

The following conditions are detected at the same time 6 times consecutively.

1) The transfer bias roller feedback data is less than the minimum target.
2) Maximum PWM for the transfer bias roller is applied.

Possible Causes

- Transfer power pack defective
- Poor connection between the transfer current terminal and the transfer power pack.

SC430: Quenching Lamp Error

Definition [D]

When finishing the process control initial setting, the drum potential which is detected by the drum potential sensor is out of the normal range.

Possible Causes

- Quenching lamp defective
- Poor connection between quenching lamp and charge/bias/grid power pack

SC440: Drum Motor Lock

Definition [B]

The drum motor lock signal is longer than 2 seconds while the drum motor is on.

Possible Causes

- Too much load on the drive mechanism
- Drum motor defective
- Poor drum motor connector connection
- BCU defective

SC441: Development Motor Lock

Definition [B]

The development motor lock signal is longer than 2 seconds while the development motor is on.

Possible Causes

- Too much load on the drive mechanism
- Development motor defective
- Poor development motor connector connection
- BCU defective

SC491: Polygonal Mirror Motor Cooling Fan Motor Lock

Definition [B]

The polygonal mirror motor cooling fan motor lock signal is longer than 5 seconds while the polygonal mirror motor cooling fan motor is on.

Possible Causes

- Too much load on the drive mechanism
- Polygonal mirror motor cooling fan motor defective

SC495: Toner Bottle Unit Error

Definition [B]

The toner hopper sensor cannot detect toner even if the toner supply coil clutch turns on for 2 seconds x 10 times during toner supply during copying.

Possible Causes

- Toner supply motor defective
- Toner supply coil clutch defective
- Toner supply motor connector connection
- Toner supply coil clutch connector connection
- Toner near-end sensor (in the toner bank) defective
- Toner hopper sensor defective
- Toner clogged in the supply system

SC496: Toner Collection Bottle Error

Definition [B]

The used toner collection bottle or sucked toner collection bottle sensor remains off for 3 seconds.

Possible Causes

- Used toner collection bottle or sucked toner collection bottle is incorrectly set
- Used toner collection bottle or sucked toner collection bottle connector is loose or sensor defective

SC501: 1st Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the 1st tray.

1) The 1st lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The 1st lift sensor is already activated when the 1st tray is placed in the machine.

Possible Causes

- 1st lift sensor defective
- 1st tray lift motor defective
- Poor 1st pick-up solenoid connection
- Poor 1st tray lift motor connection

SC502: 2nd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the 2nd tray.

1) The 2nd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The 2nd lift sensor is already activated when the 2nd tray is placed in the machine.

Possible Causes

- 2nd lift sensor defective
- 2nd tray lift motor defective
- Poor 2nd pick-up solenoid connection
- Poor 2nd tray lift motor connection

SC503: 3rd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the 3rd tray.

1) The 3rd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The 3rd lift sensor is already activated when the 3rd tray is placed in the machine.

Possible Causes

- 3rd lift sensor defective
- 3rd tray lift motor defective
- Poor 3rd pick-up solenoid connection
- Poor 3rd tray lift motor connection

SC504: LCT 1st Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the LCT 1st tray.

1) The LCT 1st lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The LCT 1st lift sensor is already activated when the LCT 1st tray is placed in the machine.

Possible Causes

- LCT 1st lift sensor defective
- LCT 1st tray lift motor defective
- Poor LCT 1st pick-up solenoid connection
- Poor LCT 1st tray lift motor connection

SC505: LCT 2nd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the LCT 2nd tray.

1) The LCT 2nd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The LCT 2nd lift sensor is already activated when the LCT 2nd tray is placed in the machine.

Possible Causes

- LCT 2nd lift sensor defective
- LCT 2nd tray lift motor defective
- Poor LCT 2nd pick-up solenoid connection
- Poor LCT 2nd tray lift motor connection

SC506: LCT 3rd Tray Lift Malfunction

Definition [C]

One of the following conditions is detected in the LCT 3rd tray.

1) The LCT 3rd lift sensor is not activated for 10 seconds after the tray lift motor turned on.
2) The LCT 3rd lift sensor is already activated when the LCT 3rd tray is placed in the machine.

Possible Causes

- LCT 3rd lift sensor defective
- LCT 3rd tray lift motor defective
- Poor LCT 3rd pick-up solenoid connection
- Poor LCT 3rd tray lift motor connection

SC510: Paper Feed Motor Lock

Definition [B]

A paper feed motor lock signal is detected for more than 50 ms during rotation.

Possible Causes

- Paper feed motor defective
- Too much load on the drive mechanism
- Poor paper feed motor connector connection

SC511: LCT Motor Lock (Optional LCT)

Definition [B]

An LCT motor lock signal is detected for more than 50 ms during rotation.

Possible Causes

- LCT motor defective
- Too much load on the drive mechanism
- Poor LCT motor connector connection

SC515: Tandem Rear Fence Drive Motor Error

Definition [C]

One of the following conditions is detected in the tandem tray.

1) The rear fence return sensor and the rear fence HP sensor are on at the same time.
2) It takes 10 seconds or more for the rear fence return sensor to detect the on condition after the rear fence drive motor starts.
3) It takes 10 seconds or more for the rear fence HP sensor to detect the on condition after this fence starts moving to the home position.

Possible Causes

- Rear fence drive motor defective
- Too much load on the drive mechanism
- Poor motor connector connection

SC520: Jogger Motor Error 1

Definition [C]

When the jogger fence moves to the home position, the jogger HP sensor does not turn on even if the jogger fence motor has moved the jogger fence 153.5 mm.

Possible Causes

- Jogger fence motor defective
- Too much load on the drive mechanism
- Poor motor connector connection

SC521: Duplex Jogger Motor Error 2

Definition [C]

When the jogger fence moves from the home position, the jogger fence HP sensor does not turn off even if the jogger motor has moved the jogger fence 153.5 mm.

Possible Causes

- Jogger fence motor defective
- Too much load on the drive mechanism
- Poor motor connector connection

SC531: Fusing/Duplex Motor Lock

Definition [B]

A fusing/duplex motor lock signal is detected for more than 2 seconds during rotation.

Possible Causes

- Fusing/duplex motor defective
- Too much load on the drive mechanism
- Poor fusing/duplex motor connector connection
- BCU defective
- Front door safety switches defective

SC532: Relay Motor Lock

Definition [C]

A relay motor lock signal is detected for more than 2 seconds during rotation.

Possible Causes

- Relay motor defective
- Too much load on the drive mechanism
- Poor relay motor connector connection
- BCU defective

SC541: Fusing Thermistor Open

Definition [A]

The fusing temperature detected by the thermistor was below 7°C for 15 seconds.

Possible Causes

- Fusing thermistor defective or out of position
- Poor thermistor terminal connection

SC542: Fusing Temperature Warming-up Error

Definition [A]

The fusing temperature does not reach the fusing standby temperature within 6 minutes after the main power switch is turned on, or after the front doors are closed.

Possible Causes

- Fusing thermistor defective or out of position
- Fusing lamp open
- Fusing thermofuse open
- BCU defective
- AC drive board defective
- Poor fusing unit connection

SC543: Fusing Overheat Error 1

Definition [A]

A fusing temperature of over 220°C is detected for 5 seconds by the fusing thermistor.

Possible Causes

- Fusing thermistor defective
- BCU defective

SC544: Fusing Overheat Error 2

Definition [A]

The fusing temperature monitoring circuit defects abnormal fusing temperature.

Possible Causes

- Fusing thermistor defective
- BCU defective

SC545: Fusing Overheat Error 3

Definition [A]

The fusing lamp stays on at full power for 45 seconds while in the stand-by condition after warming-up is completed.

Possible Causes

- Fusing thermistor out of position

SC546: Fusing Ready Temperature Malfunction

Definition [A]

The fusing temperature twice consecutively is detected 20°C lower or 20°C higher than the temperature 1 second earlier.

Possible Causes

- Poor thermistor connector connection
- Poor fusing unit connection

SC547: Zero Cross Signal Malfunction

Definition [A]

When one of the following conditions is detected 10 times consecutively.

1) More than 66 or fewer than 45 zero-cross signals in 500 ms.
2) An interval between zero-cross signals shorter than 7.5 ms is detected 3 times in 500 ms.

Possible Causes

- Noise on the ac power line

SC550: Oil Supply/Cleaning Web End

Definition [A]

The oil supply/cleaning web end sensor stays on for 500 ms after the oil supply/web end motor starts.

Possible Causes

- Oil supply/cleaning web end
- Oil supply/cleaning web motor defective

SC591: Toner Supply Motor Lock

Definition [B]

The used toner supply motor sensor status or development suction motor sensor does not change for 1 second while the toner supply motor is energized.

Possible Causes

- Used toner supply motor or development suction motor defective
- Used toner supply motor sensor or development suction motor sensor defective
- BCU defective

SC592: Toner Bank Motor Error

Definition [B]

The BCU receives an abnormal signal from the toner bank motor.

Possible Causes

- Toner bank motor defective
- Too much load on the drive mechanism
- BCU defective

SC601: Communication Error Between SICU and SBU

Definition [B']

The SICU cannot communicate with the SBU board properly.

Possible Causes

- Poor connection between the SICU and SBU
- SBU defective
- SICU defective

SC602: Communication Error Between SICU and HDD Controller

Definition [B]

The SICU cannot communicate with the HDD controller properly.

Possible Causes

- Poor connection between the SICU board and HDD
- SICU board defective

SC620: Communication Error between BCU and ADF 1

Definition [B']

The TXD and RXD signals between BCU and ADF main board do not stabilize.

Possible Causes

- Poor connection between the BCU board and the ADF main board
- Noise on interface cable

SC621: Communication Error between BCU and ADF 2

Definition [B']

The TXD and RXD signals between BCU and ADF main board do not stabilize.

Possible Causes

- Poor connection between the BCU board and the ADF main board
- ADF main board defective
- BCU board defective

SC622: Communication Error between BCU and ADF 3

Definition- [B']
Software error after abnormal user operation.

Possible Causes
- Software error

SC625, 626: Communication Error between BCU and Finisher

Definition [B]
The BCU cannot communicate with the finisher properly.

Possible Causes
- Poor connection between the BCU board and the finisher main board
- Finisher main board defective
- BCU board defective
- Noise on the interface cable

SC630: CSS (RSS) Communication Error between Line Adapter and CSS Center

- Japan only

SC640: Communication Error between SICU and BCU (CH1) 1

Definition [B]
The SICU cannot communicate with the BCU properly.

Possible Causes
- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC641: Communication Error between SICU and BCU (CH1) 2

Definition [A]
The BCU cannot receive the data from the SICU properly.

Possible Causes
- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC642: Communication Error between SICU and BCU (CH1) 3

Definition [B]

The SICU cannot receive the data from the BCU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC643: Communication Error between SICU and BCU (CH2) 1

Definition [B]

The SICU cannot communicate with the BCU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC644: Communication Error between SICU and BCU (CH2) 2

Definition [A]

The BCU cannot receive the data from the SICU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC645: Communication Error between SICU and BCU (CH2) 3

Definition [B]

The SICU cannot receive the data from the BCU properly.

Possible Causes

- Poor connection between the SICU and BCU boards
- SICU board defective
- BCU board defective
- Noise on the interface cable

SC646: SICU Error

Definition [B]
The BICU detects a defective SICU.

Possible Causes
- SICU board defective

SC650: Optional Counter Error 1

- Japanese version only

SC651: Optional Counter Error 2

- Japanese version only

SC652: Optional Counter Error 3

- Japanese version only

SC653: Optional Counter Error 4

- Japanese version only

SC701: ADF Pick-up Roller Release Malfunction

Definition [B']
The pick-up roller HP sensor does not activate or de-activate when the pick-up motor turns on.

Possible Causes
- Pick-up roller HP sensor defective
- Pick-up motor defective
- ADF main board defective

SC702: ADF Feed-in Motor Error

Definition [B]
The feed-in motor does not turn properly.

Possible Causes
- Feed-in motor defective
- ADF main board defective
- Poor connection between the feed-in motor and ADF main board
- Too much load

SC703: ADF Transport Belt Motor Error

Definition [B]

The transport belt motor does not turn properly.

Possible Causes

- Transport belt motor defective
- ADF main board defective
- Poor connection between the transport motor and ADF main board
- Too much load

SC704: ADF Feed-out Motor Error

Definition [B']

The feed-out motor does not turn properly

Possible Causes

- Feed-out motor defective
- ADF main board defective
- Poor connection between the feed-out motor and ADF main board
- Too much load

SC705: ADF Original Table Lift Malfunction

Definition [B]

One of the following conditions was detected.

1) The bottom plate position sensor does not activate when the original table motor lifts the original table.
2) The bottom plate HP sensor does not activate when the bottom plate motor lowers the original table.

Possible Causes

- Bottom plate H.P sensor defective
- Bottom plate motor defective
- ADF main board defective
- Bottom plate position sensor defective

SC720: Finisher Lower Transport Motor Error

Definition [B']

The lower transport motor does not turn properly

Possible Causes

- Lower transport motor defective
- Finisher main board defective
- Poor connection between the lower transport motor and finisher main board
- Too much load

SC722: Finisher Jogger Motor Error

Definition [B]

1) The finisher jogger HP sensor remains de-activated for more than a certain time when returning to home position.
2) The finisher jogger HP sensor remains activated for more than a certain time when moving away from home position.

Possible Causes

- Jogger H.P sensor defective
- Jogger motor defective
- Poor connection between the jogger motor and finisher main board
- Too much load

SC724: Finisher Staple Hammer Motor Error

Definition [B]

Stapling does not finish within a certain time after the staple hammer motor turned on.

Possible Causes

- Staple hammer motor defective
- Staple jam
- Too much load on the stapling mechanism
- Poor hammer motor cable connection

SC725: Finisher Stack Feed-out Motor Error

Definition [B]

The stack feed-out belt HP sensor does not activate within a certain time after the stack feed-out motor turned on.

Possible Causes

- Stack feed-out HP sensor defective
- Stack feed-out motor defective
- Too much load
- Poor stack feed-out motor cable connection

SC726: Finisher Shift Motor Error

Definition [B]

The shift tray half-turn sensor status does not change within 1 second after the shift motor turns on.

Possible Causes

- Shift motor defective
- Shift tray half-turn sensor defective
- Too much load

SC727: Finisher Stapler Rotation Motor Error

Definition [B]

1) Stapler rotation does not finish within a certain time after the stapler rotation motor turned on.
2) The stapler does not return to its home position within a certain time after stapling finished.

Possible Causes

- Stapler rotation motor defective
- Poor stapler rotation motor connection
- Staple rotation HP sensor defective
- Too much load

SC729: Finisher Punch Motor Error

Definition [B]

The punch HP sensor is not activated within a certain time after the punch motor turned on.

Possible Causes

- Punch motor defective
- Punch HP sensor defective
- Poor punch motor connection

SC730: Finisher Stapler Motor Error

Definition [B]

1) The stapler HP sensor stays on for longer than normal when the stapler motor turns on to return the stapler to its home position.
2) The stapler HP sensor does not turn on within a certain time after the stapler motor turned on to move the stapler away from home position.

Possible Causes

- Stapler motor defective
- Stapler HP sensor defective
- Poor stapler motor connection

SC735: Finisher Paper Stack Plate Motor Error

Definition [B]

The stack plate HP sensor does not turn on within a certain time after the stack plate motor turned on.

Possible Causes

- Stack plate motor defective
- Stack plate HP sensor defective
- Poor stack plate motor connection

SC735: Finisher Exit Guide Motor Error

Definition [B]

The exit guide open sensor does not change within 750 mm after the exit guide motor is energized.

Possible Causes

- Exit guide motor defective
- Exit guide open sensor defective
- Poor exit guide motor connection

SC737: Full Finisher Staple Hopper

Definition [B]

The staple waste hopper is full.

Possible Causes

- Full staple waste hopper
- Staple waste hopper sensor defective

SC738: Finisher Shift Tray Lift Motor Error

Definition [B]

The stack height sensor does not activate within a certain time after the shift tray lift motor turned on.

Possible Causes

- Shift tray lift motor defective
- Too much load

SC900: Electrical Total Counter Error

Definition [A]

The total counter contains something that is not a number.

Possible Causes

- NVRAM defective

SC901: Mechanical Total Counter Error

Definition [B]

The mechanical total counter is disconnected.

Possible Causes

- Mechanical total counter defective

SC951: F-gate Signal Error

Definition [B']

When the IPU has already received the F-gate signal (laser writing start trigger signal), the IPU receives another F-gate signal.

Possible Causes

- SICU defective

SC953: Scanner Image Setting Error

Definition [B']

The settings that are required for image processing using the scanner are not sent from the IPU.

Possible Causes

- Software defective

SC954: Printer Image Setting Error

Definition [B']

The settings that are required for image processing using the printer controller are not sent from the IPU.

Possible Causes

- Software defective

SC955: Memory Setting Error

Definition [B']

The settings that are required for image processing using the memory are not sent from the IPU.

Possible Causes

- Software defective

SC964: Printer Ready Error

Definition [B']

The print ready signal is not generated for more than 17 seconds after the IPU received the print start signal.

Possible Causes

- Software defective

SC966: Polygon Mirror Motor Ready Error

Definition [B]

The polygon mirror motor does not reach ready status within 15 seconds after the copy paper is detected by the registration sensor.

Possible Causes:

- Polygon mirror motor defective
- Poor connection between the polygon mirror motor drive board and SICU board
- Polygon mirror motor drive board defective
- SICU board defective

SC970: Scanner Ready Error

Definition [B']

The scan ready signal is not generated by the MCU for more than 10 seconds after the read start signal is sent to the MCU.

Possible Causes

- Poor connection between SICU and MCU
- MCU software error

SC980: HDD Access Error

Definition [B]

Incorrect parameter sent to the HDD controller.

Possible Causes

- Software defective
- SICU defective

SC982: HDD Construction Error

Definition [B']

A HDD that does not have the correct specifications has been installed.

Possible Causes

- HDD defective
- Incorrect HDD type

SC984: HDD 1 Data Transfer Error 1

Definition [B']

The data transfer from the DRAM to HDD 1 is not completed within 15 seconds.

Possible Causes

- HDD 1 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 1

SC985: HDD 2 Data Transfer Error 2

Definition [B']

The data transfer from the DRAM to HDD 2 is not completed within 15 seconds.

Possible Causes

- HDD 2 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 2

SC986: HDD 1 Data Transfer Error 2

Definition [B']

The data transfer from HDD 1 to the DRAM is not completed within 15 seconds.

Possible Causes

- HDD 1 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 1

SC987: HDD 2 Data Transfer Error 2

Definition [B']

The data transfer from HDD 2 to the DRAM is not completed within 15 seconds.

Possible Causes

- HDD 2 defective
- SICU defective
- Software defective
- Poor connection between the SICU and HDD 2

SC990: Software Performance Error

Definition [B']

The software performs an unexpected function.

Possible Causes

- Software defective

7.2 ELECTRICAL COMPONENT DEFECTS

7.2.1 SENSORS

Component (Symbol)	CN	Condition	Symptom
Scanner Home Position (S1)	CN555-2 (MCU)	Stays On	SC121 is displayed.
		Stays Off	SC120 is displayed.
Original Width (S2)	CN555-6.7.8 (MCU)	Stays On	The CPU cannot detect the original size properly. APS and ARE (Auto Reduce/Enlarge) do not function correctly.
		Stays Off	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
Original Length 1 (S3)	CN555-11 (MCU)	Stays On	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
		Stays Off	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
Original Length 2 (S4)	CN555-14 (MCU)	Stays On	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
		Stays Off	The CPU cannot detect the original size properly. APS and ARE do not function correctly.
Drum Potential Sensor (S5)	CN609-10 (BCU)	Open	The machine quits auto process control and goes to auto process control off mode.
		Shorted	
Toner Density (S6)	CN610-B6 (BCU)	Stays On	SC340 is displayed.
		Stays Off	SC340 is displayed.
Image Density (S7)	CN609-5 (BUC)	Open	SC350 is displayed after copying.
		Shorted	SC350 is displayed after copying.
Toner Supply Motor (S9)	CN613-B8 (BCU)	Stays On	SC591 is displayed.
		Stays Off	
Upper Toner Bottle (S10)	CN623-A2 (BCU)	Stays On	A toner bottle is detected in the upper position even if there is no toner bottle there.
		Stays Off	The toner bottle in the upper position is not detected.
Lower Toner Bottle (S11)	CN623-B2 (BCU)	Stays On	A toner bottle is detected in the lower position even if there is no toner bottle there.
		Stays Off	The toner bottle in the lower position is not detected.
Upper Bottle Inner Cap (S12)	CN623-A5 (BCU)	Stays On	Normally, the machine works properly because the current status of the toner bottle cap is stored in the memory.
		Stays Off	

Component (Symbol)	CN	Condition	Symptom
Lower Bottle Inner Cap (S13)	CN623-B5 (BCU)	Stays On	Normally, the machine works properly because the current status of the toner bottle cap is stored in the memory.
		Stays Off	
Toner Near End (S16)	CN610-B9 (BCU)	Open	"Toner End" is displayed even if there is enough toner in the toner entrance tank.
		Shorted	"Toner End" is not displayed even if there is no toner in the toner entrance tank.
Toner Collection Bottle (S14)	CN624-11 (BCU)	Stays On	The machine cannot detect a no toner collection bottle condition.
		Stays Off	SC496 is displayed.
Toner Overflow (S15)	CN624-8 (BCU)	Stays On	"Waste Toner Bottle Full" is detected and printing is disabled.
		Stays Off	"Waste Toner Bottle Full" is detected and printing is disabled.
Toner Hopper (S8)	CN624-14 (BCU)	Stays On	SC495 is displayed.
		Stays Off	Toner is not supplied to the toner hopper, and toner end is detected even if there is enough toner in the toner bottle.
1st Paper Feed (S17)	CN514-2 (IOB)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
2nd Paper Feed (S18)	CN511-A2 (IOB)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
3rd Paper Feed (S19)	CN511-B2 (IOB)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
1st Tray Lift (S20)	CN514-8 (IOB)	Stays On	SC501 is displayed.
		Stays Off	SC501 is displayed.
2nd Tray Lift (S21)	CN511-A8 (IOB)	Stays On	SC502 is displayed.
		Stays Off	SC502 is displayed.
3rd Tray Lift (S22)	CN511-B8 (IOB)	Stays On	SC503 is displayed.
		Stays Off	SC503 is displayed.
1st Paper End (S23)	CN514-5 (IOB)	Stays On	"Paper End" is displayed even if there is paper in the 1st paper tray.
		Stays Off	"Paper End" is not displayed even if there is no paper in the 1st paper tray.
2nd Paper End (S24)	CN511-A5 (IOB)	Stays On	"Paper End" is displayed even if there is paper in the 2nd tray.
		Stays Off	"Paper End" is not displayed even if there is no paper in the 2nd tray.

Component (Symbol)	CN	Condition	Symptom
3rd Paper End (S25)	CN511-B5 (IOB)	Stays On	"Paper End" is displayed even if there is paper in the 3rd tray.
		Stays Off	"Paper End" is not displayed even if there is no paper in the 3rd tray.
Rear Fence HP (S26)	CN515-5 (IOB)	Stays On	SC515 is displayed
		Stays Off	SC515 is displayed
Rear Fence Return (S27)	CN515-9 (IOB)	Stays On	SC515 is displayed
		Stays Off	SC515 is displayed
Front Side Fence Open (S28)	CN516-A3 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Front Side Fence Closed (S29)	CN516-A6 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Rear Side Fence Open (S30)	CN516-A9 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Rear Side Fence Closed (S31)	CN516-A12 (IOB)	Stays On	Wrench mark appears in the 1st tray indicator.
		Stays Off	
Base Plate Down (S32)	CN516-B13 (IOB)	Stays On	The bottom plate lift lever locks at the lowest position.
		Stays Off	The bottom plate is not lowered when paper on the left tray needs to be moved to the right tray and paper is set in the incorrect position.
1st Tray Paper Height 1 (S33)	CN516-B10 (IOB)	Stays On	"Paper Near End" is not displayed even if the tray is almost empty.
		Stays Off	"Paper Near End" is displayed even if there is enough paper in the paper tray.
1st Tray Paper Height 2 (S34)	CN516-B8 (IOB)	Stays On	"Paper Near End" is not displayed even if the tray is almost empty.
		Stays Off	"Paper Near End" is displayed even if there is enough paper in the paper tray.
1st Tray Paper Height 3 (S35)	CN516-B7 (IOB)	Stays On	"Paper Near End" is not displayed even if the tray is almost empty.
		Stays Off	"Paper Near End" is displayed even if there is enough paper in the paper tray.
1st Tray Paper Height 4 (S36)	CN516-B6 (IOB)	Stays On	"Paper Near End" is not displayed even if the tray is almost empty.
		Stays Off	"Paper Near End" is displayed even if there is enough paper in the paper tray.
Left 1st Tray Paper (S37)	CN516-B10 (IOB)	Stays On	The rear fence moves back and forth continuously.
		Stays Off	The paper in the left tray is not moved to the right tray.

Component (Symbol)	CN	Condition	Symptom
Right 1st Tray Paper (S38)	CN515-12 (IOB)	Stays On	"Paper Jam" is displayed after the last sheet is fed from the right 1st tray.
		Stays Off	Paper end is detected in the 1st tray even if there is paper in the tray. If there is paper in the left tray, the rear plate locks and SC515 is displayed.
Inverter Tray Paper (S39)	CN611-A3 (BCU)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
Duplex Entrance (S40)	CN611-A11 (BCU)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
Duplex Transport 1 (S41)	CN611-A5 (BCU)	Stays On	"Paper Jam" is displayed whenever a copy is made.
		Stays Off	"Paper Jam" is displayed even if there is no paper.
Duplex Transport 2 (S42)	CN611-A7 (BCU)	Stays On	"Paper Jam" is displayed whenever a copy is made.
		Stays Off	"Paper Jam" is displayed even if there is no paper.
Duplex Transport 3 (S43)	CN611-A9 (BCU)	Stays On	"Paper Jam" is displayed whenever a copy is made.
		Stays Off	"Paper Jam" is displayed even if there is no paper.
Duplex Jogger HP (S44)	CN611-A10 (BCU)	Stays On	SC521 is displayed.
		Stays Off	SC520 is displayed.
LCT Relay (S45)	CN602-A7 (BCU)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
Relay (S46)	CN602-A4 (BCU)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
Registration (S47)	CN602-A9 (BCU)	Stays On	"Paper Jam" is displayed even if there is no paper.
		Stays Off	"Paper Jam" is displayed whenever a copy is made.
Guide Plate Position (S48)	CN602-4 (BCU)	Stays On	A paper jam will occur when the guide plate is opened.
		Stays Off	"Guide Plate Close" is displayed after the front door is closed even if the guide plate is closed.

Component (Symbol)	CN	Condition	Symptom
Oil Supply/ Cleaning Web End (S49)	CN603-A6 (BCU)	Stays On	Cleaning web end is not detected.
		Stays Off	SC550 is displayed.
Fusing Exit (S50)	CN602-A11 (BCU)	Stays On	"Paper Jam" is displayed whenever a copy is made.
		Stays Off	"Paper Jam" is displayed even if there is no paper.
Exit (S51)	CN602-A14 (BCU)	Stays On	"Paper Jam" is displayed whenever a copy is made.
		Stays Off	"Paper Jam" is displayed even if there is no paper.

NOTE: For a photointerrupter, "Stays on" means that the actuator is in the sensor.

7.2.2 SWITCHES

Component (Symbol)	CN	Condition	Symptom
Main Power (SW1)	CN703-1, 3 (PSU)	Open	The machine does not turn on.
		Shorted	The machine does not turn off.
Right Front Door Safety 1 (SW2)	CN625-1 (BCU)	Open	The door open indicator does not turn off.
		Shorted	The door open condition is not detected.
Right Front Door Safety 2 (SW3)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Right Front Door Safety 3 (SW4)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Right Front Door Safety 4 (SW5)	CN715-2 (PSU)	Open	SC531 is displayed.
		Shorted	
Left Front Door Safety 1 (SW6)	CN625-3 (BUC)	Open	The door open indicator does not turn off.
		Shorted	The door open condition is not detected.
Left Front Door Safety 2 (SW7)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Left Front Door Safety 3 (SW8)	CN404-3 (LDB)	Open	SC322 is displayed.
		Shorted	
Left Front Door Safety 4 (SW9)	CN715-2 (PSU)	Open	SC531 is displayed.
		Shorted	
2nd Tray Paper Size (SW10)	CN510-A8, A9, A10, A11, A12	Open	The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made.
		Shorted	
3rd Tray Paper Size (SW11)	CN510-A2, A3, A4, A5, A6	Open	The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made.
		Shorted	

7.3 BLOWN FUSE CONDITIONS

Fuses are not used for the output lines from the PSU. An electronic current cut-off method is used instead.

The PSU consists of three converters; 1st converter, 2nd converter, and Energy saver converter. Each converter has an LED which indicates the status of the converter.

LED No.	**LED 1**	**LED 2**	**LED 3**
Converter	Energy saver	1st Converter	2nd Converter
Output	Vcc1	Vcc2, Vmm	Vaa, Vca, Vcb
In Stand-by Condition	On	On	On
In Energy Saver Mode	On	Off	Off
LED status when a converter is defective			
Energy saver	Off	Off	Off
1st	On	Off	Off
2nd	On	On	Off

When the 1st converter is defective, the output of the 2nd converter is also stopped. When the energy saver converter is defective, all the outputs are stopped.

There is a circuit breaker CB1 on the PSU which cuts all the power from the PSU when excess current flows.

Additionally, there is a fuse only for the AC input line of the energy saver converter.

Fuse	**Symptom when turning on the main power switch**
Power Supply Board	
FU404	No response

CHANGES MADE FROM THE A294 I / A295 I MODELS

1. DETAILED SECTION DESCRIPTIONS

1.1 TONER AND DEVELOPER

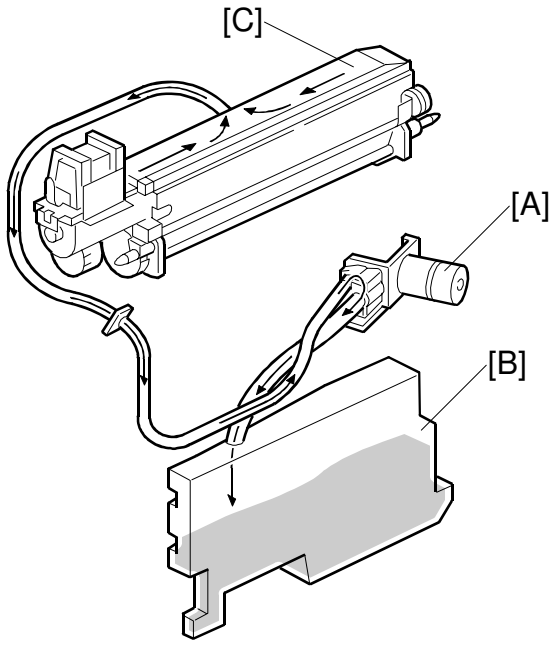
The toner and developer have been changed over to a finer-grained type.

	A294 I / A295 I	A294 II / A295 II
Toner	9.5µ	6.8µ
Developer	80µ	65µ

These changes were made to maximize the reproduction in halftone areas and the evenness of the image density in black solid areas.

1.2 NEWLY ADDED: DEVELOPMENT SUCTION MOTOR AND SUCKED TONER COLLECTION BOTTLE

In order to ensure that the new granular toner does not scatter, a development suction motor [A] has been added to decrease the pressure inside the development unit [B]. This motor is on whenever the development motor is on. When air is sucked out of the development unit by the motor, there is also some toner included (although very minimal). A sucked toner collection bottle [C] has been added to collect this toner.



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The new bottle and motor have Near End/End and replacement time conditions, respectively. The display for the existing waste toner bottle Near End/End is used. As the alerts can only be displayed for one component at a time, when displayed, use SP2971 to confirm which component it is referring to.

The target replacement intervals are as follows:

	Target Replacement Interval
Development Suction Motor	600 hours (corresponding to 2,400K prints)
Sucked Toner Collection Bottle	300 hours (corresponding to 1,200K prints)

NOTE: The End condition alert is a pop-up window, and the Near End alert is a 1-line display.

1.3 DEVELOPMENT UNIT

1. Grounding of the development roller doctor blade.
   This is to further ensure that the development roller surface stays clean, i.e. the development bias is properly maintained at the target level.
2. Thinning of the development unit entrance seals.
   This is to further ensure that vertical black lines do not occur.
3. Increased reliability of the development unit.
   To ensure that the new fine-grained toner does not cause a shaft lock, fluorine-type seals are now used around the roller shaft.
4. Air tube newly added (development unit filter deleted).
   This tube has been added to carry the air/toner sucked out by the new development suction motor.
   It has been attached in the area where the development filter was, and so this filter has been deleted.
5. SP mode newly added for controlling the toner supply interval.
   SP2974 (Toner Supply Interval) determines the copy interval for toner supply.

Settings	0	1 (default)	2	3
Interval	1/1	1/2	1/3	1/4

This SP mode normally does not need to be used. However, depending on the customer's operating conditions and installation environment, the following two symptoms can occur. SP2974 could then be utilized to solve them:

- If the following symptoms appear with a setting of 1, changing the setting to 2 can minimize them:
  1) Dirty background near the leading edge
  2) The leading edge (face) of the copy stack is dirty with toner

NOTE: Please use setting 3 only when these two symptoms occur on most of the extremely low image area originals used by the customer.

- If the following symptoms appear with a setting of 1, changing the setting to 0 can minimize them:
  1) Low image density in originals with a large image area
  2) Low image density when Vsp has stabilized at 0.5 or higher.

Reference: With the addition of SP2974, the operation of SP2968 (Toner Density Correction) has been changed as follows:

1. Number of copies

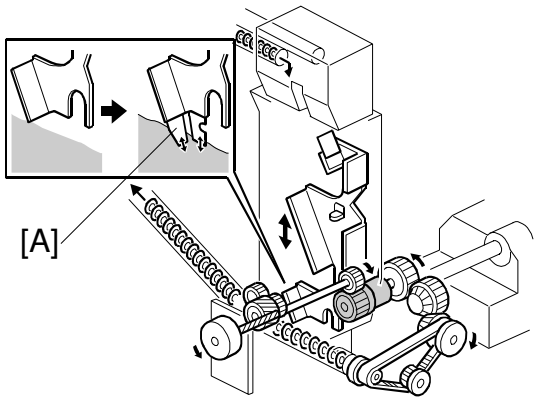
   Previous: Applied to number of copies set in SP2968
   New: *Applied to (number of copies set in SP2968) X (SP2974 value + 1)*

2. Vref

   Previous: Vref changed every 100 copies
   New: *Vref changed every (100) X (SP2974 value + 1) copies*

1.4 TONER BANK UNIT

1. The toner bottle gear has been modified so that it is not possible to set the existing toner bottle. Only the new bottle can be set.
2. To ensure that toner clumps/blockage do not occur in the bank unit, mylars [A] have been added to the toner agitator.



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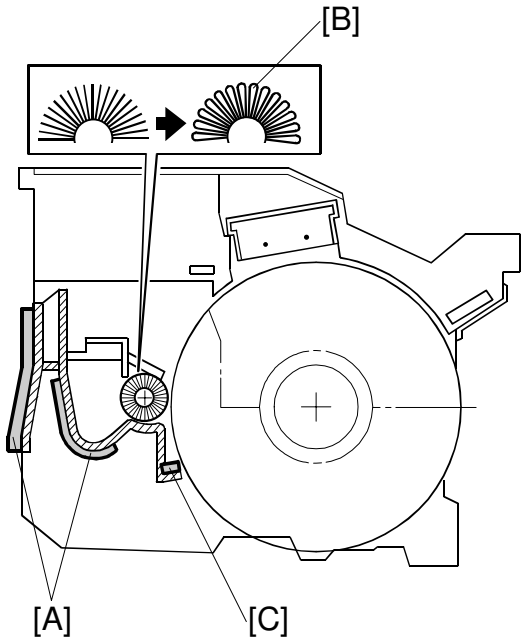
1.5 CLEANING UNIT

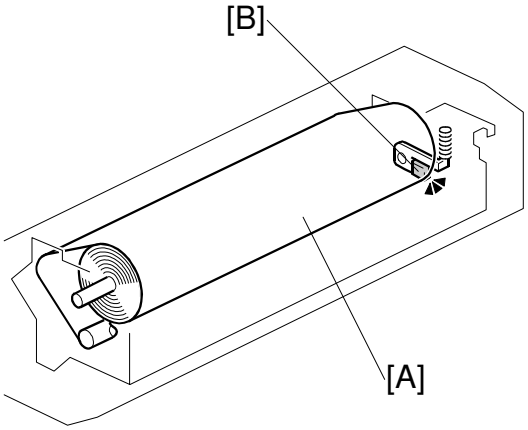
1. Insulating layers added
   To ensure that small white spots does not occur, which can result from the affect of the heat from the fusing unit on the cleaning unit, insulating layers [A] have been added.
2. Cleaning brush modification
   To ensure that Medaka images do not occur, the cleaning brush [B] has been changed to a looped fiber type, increasing the efficiency of brush.
3. Magnet added
   To ensure that carrier is not attracted to the drum, a magnet [C] has been added to the cleaning unit. This will attract the carrier particles toward the unit instead.
   The magnet can be removed to clean if necessary. (The recommended interval to check and clean is every 300K prints.)
4. Shape change in transfer unit entrance stay
   To minimize toner and other particles on the drum surface, the gap between the drum and stay has been increased.



A294D734.WMF

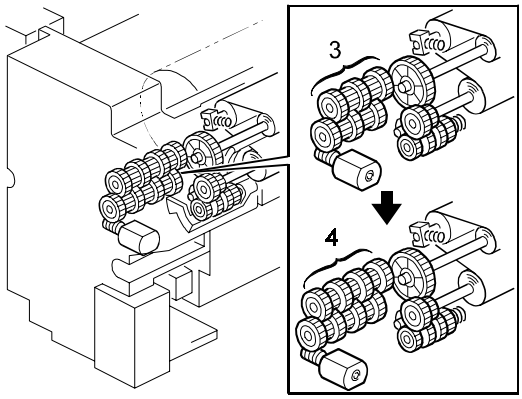
1.6 FUSING UNIT

1. Web length increased
   The length of the web [A] has been increased from 10m to 20m. This new 20m web cannot be installed on the A294/A295 models, as there have been changes in the machine's frame. In addition, a stopper (Web Break Pad) [B] made of rubber has been added to the web unit shaft to ensure that slack does not develop in the 20m web while rolling (Web Break Pad is a 600K replacement part). Note that this part is only for the 20m web. Also note that the upgrade kit uses a 14m web.



A294D736.WMF

2. Web drive modification
   With the increased length of the web, the number of gears has been increased from 6 to 8 in order to maintain the balance between motor rotation (unchanged) and the amount of web that is rolled/unrolled.
   In addition, these gears allow the machine to switch over to a fine-precision drive control when the web is full and when it has run out.



A294D733.WMF

3. Web rolling/unrolling control modification
   - SP1902-2 (Web Motor Drive Interval)

		Interval	
Destination	**PPM**	**A294 I / A295 I**	**A294 II / A295 II**
US	85	42 sec	21 sec
	105	34 sec	17 sec
Europe, Asia	85	42 sec	11 sec
	105	34 sec	9 sec

   - SP1902-3 (Web Motor Drive Time)

A294 I / A295 I	**A294 II / A295 II**
0.8 sec	2.8 sec

4. Pressure roller changed from a nonconductive to a conductive type.
   Since the new toner is more sensitive to static electricity, which can lead to black spots on copies, the pressure roller has been changed to one with a conductive surface to ensure this does not occur. The new roller has a black surface with visible wrinkles, however these wrinkles have no effect on image quality.

1.7 NEW ADDITIONS TO TRANSFER CURRENT CONTROL

With the adoption of the new toner, the transfer current for the leading edge has been decreased to further ensure that separation pawls do not leave marks on copies. Compared to the 2 predecessor A294 I / A295 I models, this can have the effect of slightly reducing the image density in solid image areas 10mm from the leading edge (no effect on text and halftone). However, since this tends to occur with certain types of paper (relatively smooth but not stiff), a new SP mode (SP2940) has been added so that the leading edge transfer current can be set individually for each paper feed tray.

Since OHP transparencies and thick paper have a relatively high stiffness and are therefore not prone to pawl marks, leading edge transfer current control is disabled when either of these paper types is selected in User Tools. Also, an additional SP mode (SP2941) has been added so that leading edge transfer current control can be performed (or not performed) when using semi-thick paper with which the duplex and punch modes can be selected. In order to do this, please select “Thick” in SP2941 and “Recycle” in User Tools.

Please use SP2941 when the leading edge transfer current for semi-thick paper seems to be insufficient. The machine will then treat the paper the same as if it were thick paper. Note that if “Thick” were selected in User Tools, the machine imposes functional restrictions (cannot use duplex, punch-hole, etc.).

1.8 CHARGE CORONA UNIT

Since changes made to the development bias have the effect of decreasing the consistency of the charge applied to the drum, the following charge corona unit modifications were applied to ensure even charging:

1. The material of the charge wire cleaner pad has been changed to ensure more efficient physical removal of particles on wire.
2. Changed the default value of SP2804 (Charge Corona Cleaner Setting) from 1 to 2 so that cleaning is performed every 5000 prints. However, the cleaning is only performed at the end of a job. Copying is inhibited during this operation however original scanning is possible.

	A294 I / A295 I	**A294 II / A295 II**
SP2804-1	1: Done	2: Periodically
SP2804-2	5,000	5,000

3. Drum charge is increased by +50V once a certain number of copies have been made (default: 100K). To control this, the following SP modes have been added:

   *SP3903 (Charge Bias (Vd) Correction Start Setting):
   Sets the starting print counter for performing Vd correction.

   *SP3902-9 (Charge Bias (Vd) Correction Display):
   Displays whether or not the machine is currently operating with the +50V correction. (0: Not applied, 1: Applied).

NOTE: The firmware contains a counter that keeps track of the number of prints made and then compares this value with the value set in SP3903, however the counter value is cleared to 0 when SP2801 (Developer Initialization) is performed at developer replacement.

1.9 ELECTRICAL COMPONENTS

The I/O board has been modified to accommodate the connector necessary for the new toner suction motor. Please note that if the new I/O board is used on the 2 predecessor models, this will cause SC496 (Toner Collection Bottle Error).

In addition, a harness has been added to the DC harness group.

1.10 SOFTWARE

The firmware is common for the new and predecessor models. The modified I/O board detects whether or not the machine is an A294 I / A295 I or an A294 II / A295 II.

Please note the following 3 points:

1. Since the software is common between the A294 I / A295 I and A294 II / A295 II models, the default settings of the target values of the PM parts list in the SP mode are for the A294 II / A295 II models.

   When performing “clear PM settings” on an A294 I / A295 I model, the target values are returned to the default settings which are for the A294 II / A295 II models. Therefore, please manually change these values.

   The target values for the oil supply & cleaning roller and web cleaning roller are initially set to "0" and the PM yield indicators for these parts are set to "not indicated". Please manually set the PM target values according to the following figures:

Model	Target
A294 I / A295 I (10m roll)	All: 300K
A294 I / A295 I + Enhancement kit (14m roll)	US: 360K, EU: 180K
A294 II / A295 II (20m roll)	US: 600K, EU: 300K

2. SC496 (Toner Collection Bottle Error) and SC591 (Toner Supply Motor Lock).

   These 2 SP modes exist on the predecessor machines as well, however with the addition of the new development suction motor and sucked toner collection bottle, the new parts have been incorporated into the detection conditions/possible causes for SC496 and SC591. Input and output checks can be used to trace down the cause.

   SP496 (Toner Collection Bottle Error):

   Definition:

   The waste toner collection bottle or sucked toner collection bottle sensor remains off for 3 seconds.

   Possible causes:

   - Waste toner collection bottle or Sucked toner collection bottle is set incorrectly.
   - Waste toner collection bottle or Sucked toner collection bottle connector is loose or sensor defective.

SC591 (Toner Supply Motor Lock):

Detection:

The toner supply pump sensor status or development suction pump sensor does not change for 1 second while drive is being supplied to one of the pumps.

Possible causes:

- Toner supply pump or development suction pump defective
- Toner supply pump sensor or development suction pump sensor defective
- BCU defective

3. Change in Photo Mode processing (Default Setting → Image Adjustment).
The image processing for Glossy Photo mode of Photo mode in the user tools has been changed so that it produces a sharper image.
NOTE: No change made to any other modes.

2. SERVICE TABLES

2.1 SERVICE PROGRAM MODE

NOTE: 4) [A294 I], [A295 I], [A294 II] and [A295 II] in the Settings column mean the following product types:
[A294 I]: Existing 85 cpm model. [A295 I]: Existing 105 cpm model.
[A294 II]: Enhanced 85 cpm model. [A295 II]: Enhanced 105 cpm model.

Mode No. (Class 1, 2 and 3)				Function	Settings
1-105	Fusing Temperature Adjustment				
	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 width.	–5 ~ +20 1°C/step [A294 I] **+10°C** [A295 I] **+15°C** [A294 II] **+5°C (US)** **+10°C (EU)** [A295 II] **+5°C (US)** **+15°C (EU)**
1-902	Web Motor Control				
	2	Web Motor Drive Interval	B	Change the interval of copy operation time after which the web motor is driven	[A294/A295 I] 15 ~ 130 1 s/step **[A294 I] 42 s** **[A295 I] 34 s** [A294/A295 II] 3 ~ 130 1 s/step [A294 II] **11 s (EU)** **21 s (US)** [A295 II] **9 s (EU)** **17 s (US)**
	3	Web Motor Drive Time	B	Changes the time that the web motor is driven.	[A294/A295 I] 0.1 ~ 3.0 0.1 s/step **0.8 s** [A294/A295 II] 0.3 ~ 3.5 0.1 s/step **2.8**

Mode No. (Class 1, 2 and 3)				Function	Settings
1-902	Web Motor Control				
	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 ~ 105 1%/step [A294/A295 I] **100%** [A294/A295 II] **86% (EU)** **90% (US)**
2-001	Charge Corona Bias Adjustment				
	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)	–600 ~ –1,300 10 V/step [A294/A295 I] **–1,000 V** [A294/A295 II] **–950 V**
	4	Grid Voltage for Transparent Sheet	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 translucent paper. Normally there is no need to adjust this. See 2-001-1.	–600 ~ –1,300 10 V/step [A294/A295 I] **–1,070 V** [A294/A295 II] **–950 V**
	7	VD (Auto Process Control)	B	Adjusts the target VD voltage for Process Control Initial Setting.	–800 ~ –1,000 10 V/step [A294/A295 I] **–970 V** [A294/A295 II] **–850 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 [A294/A295 I] **–530 V** [A294/A295 II] **–650 V**
	3	Transparent Sheet	B	Adjusts the development bias for copying onto translucent sheets.	–200 ~ –700 10 V/step [A294/A295 I] **–530 V** [A294/A295 II] **–650 V**
2-804	Charge Corona Cleaner Setting				
	1	Corona Wire Cleaner Operation Setting	B	Selects when automatic corona wire cleaning is done. 0: Corona wire cleaning is not done. 1: When process control initial setting is done, if the copy number after the last cleaning operation is over the number set in SP2-804-2. 2: At the period set in SP2-804-2.	[A294/A295 I] 0: Not done **1: Done** 2:Periodically [A294/A295 II] 0: Not done 1: Done **2:Periodically**

Mode No. (Class 1, 2 and 3)				Function	Settings
2-911	Transfer Current On/Off Timing				
	2	Lb (On/Off exchange timing)	B	Adjusts the transfer current on/off exchange timing. (A294/A295 II models only)	[A294/A295 II] 0 ~ +60 1 mm/step **+45 mm**
2-940	Leading Edge Transfer Current Adjustment				
	1	Tray-1	B	Adjusts the leading edge transfer current for each paper feed station. (A294/A295 II models only)	10 ~ 200 1 μA/step [A294 II] **120 μA** [A295 II] **140 μA**
	2	Tray-2			
	3	Tray-3			
	4	Tray-4 (LCT)			
	5	Tray-5 (LCT)			
	6	Tray-6 (LCT)			
	7	Duplex Tray			
2-941	Transfer Current for Semi-thick Paper				
			B	Determines that the transfer current for semi-thick paper is handled as Plain paper or Thick paper	**0: Plain paper** 1: Thick paper
				• *Setting this mode to "Thick paper" is effective when image at the leading edge is not good.* • *To use this mode, "Recycled paper" should be selected in the User Tools for semi-thick paper.* • *Selecting "Thick paper" in the User Tools is the same effect as this mode. But selecting "Thick paper" in the User Tools does not allow the duplex or punch mode.*	
2-968	Toner Density Correction				
			B	To prevent the image density dropping during continuous copying after a long interval (this is caused by a sudden increase of Q/M), V_{REF} is changed by –0.06 V every (100 X (SP2-974 value + 1)) prints. This correction is applied from when the auto process control is done, until "(the number of prints set in this SP mode) X (SP2-974 value +1)" has been made.	0 ~ 20 k 1 k prints/step **0**
2-970	Toner Suction System				
				Displays whether the toner suction system is installed in order to distinguish between A294/A295 I and A294/A295 II.	[A294/A295 I] 0: Not installed [A294/A295 II] 1: Installed
2-971	Collected Toner Level Check				
	Check this mode when "Waste toner full" pop-up message comes up or "Near full" message is displayed.				
	1	Left Toner Collection Bottle		Display whether the used toner collection bottle is full or not.	0: Not full 2: Full
	2	Toner Collection Bottle		Display whether the sucked toner collection bottle is full or not. (A294/A295 II models only)	0: Not full 1: Near full 2: Full

Mode No. (Class 1, 2 and 3)				Function	Settings
2-971	Collected Toner Level Check				
	3	Toner Suction Motor		Displays whether the toner suction motor needs to be replaced or not. (A294/A295 II models only)	0: Not needed 1: Needed soon 2: Needed
2-972	Sucked Toner Collection Bottle Operation Time				
			B	Displays the total operation time of the toner suction motor to maintain the sucked toner collection bottle replacement. <Preset Values> Near full: 280 hours, Full: 300 hours	XXX hours
				Reset the value to 0 (zero) by pressing 0 and # (Enter) keys when the bottle is replaced.	
2-973	Toner Suction Motor Operation Time				
			B	Displays the total operation time of the toner suction motor to maintain the toner suction motor replacement. <Preset Values> Near full: 570 hours, Full: 600 hours	XXX hours
				Reset the value to 0 (zero) by pressing 0 and # (Enter) keys when the bottle is replaced.	
2-974	Toner Supply Interval				
				Adjusts the interval of toner supply. (Once every how many prints)	0: 1/1 (every print) **1: 1/2 (every 2 prints)** 2: 1/3 (every 3 prints) 3: 1/4 (every 4 prints)
				• *The operation of SP2-968 has been changed.* • *The VREF update interval has been changed from "every 100 prints" to "every (100 X (SP2-974 value + 1)) prints".*	
3-902	Process Control Data Display				
	9	VD Correction	B	Displays whether the VD correction is being performed. The target value of the VD correction is "SP2-001-7 value + 50". (A294/A295 II models only)	0: Not performed 1: Performed
3-903	VD Correction Counter				
			B	Adjusts the starting point for the VD Correction. Displays whether the VD correction is being performed. The target value of the VD correction is "SP2-001-7 value + 50". (A294/A295 II models only)	0 ~ 999 1 k prints/step **100 k prints**
				The counter to control the VD correction is automatically reset to 0 (zero) when SP2-801 is performed.	

3. PREVENTIVE MAINTENANCE SCHEDULE

3.1 PM PARTS

Symbol key: **R,** r: Replace on a PM part counter basis (refer to Service Tables – PM Counter)
R: The counter counts up every copy, in the same way as the copy counter
r: The counter only counts up if that part was used for the copy
I: Inspect, and clean and/or lubricate
i: Inspect, and clean and/or lubricate only if necessary

3.1.1 NEWLY ADDED PM PARTS

Description	Activity Type	Interval	Note/Remarks
Sucked Toner Collection Bottle	r	1,200 k	A4 6% Chart
Development Suction Motor Ass'y	r	2,500 k	A4 6% Chart
Ozone Filter	r	1,500 k	
Carrier Catcher	i	300 k	
Hot Roller Gear	**I**	300 k	Grease (Barrierta)
Fusing Web Brake Pad	r	600 k	

3.1.2 PM PARTS WITH NEW INTERVAL VALUES

Description	Activity Type	Interval	Note/Remarks
Developer	r	300 k	TD sensor initial setting (SP2-801)
Grid Plate	r	300 k	
Charge Corona Wire	r	300 k	
Wire Cleaner	r	300 k	
Wire Cushion	r	300 k	
Oil Supply & Cleaning Web	**R**	300 k (EU) 600 k (US)	See below
Pressure Roller	r	500 k	

NOTE: The target value on the PM parts list in the SP mode is initially set to "0". Please manually change the value to an appropriate one at installation or when the enhancement kit is installed.

The PM yield indicator for this part is initially set to "not indicated". Please manually change the setting to "indicated" when necessary.

4. TROUBLESHOOTING

4.1 SERVICE CALL CONDITIONS

4.1.1 SC CODE DESCRIPTIONS

SC496: Toner Collection Bottle Error

Definition [B]

The used toner collection bottle or sucked toner collection bottle sensor remains off for 3 seconds.

Possible Causes

- Used toner collection bottle or sucked toner collection bottle is incorrectly set
- Used toner collection bottle or sucked toner collection bottle connector is loose or sensor defective

SC591: Toner Supply Motor Lock

Definition [B]

The used toner supply motor sensor status or development suction motor sensor does not change for 1 second while the toner supply motor is energized.

Possible Causes

- Used toner supply motor or development suction motor defective
- Used toner supply motor sensor or development suction motor sensor defective
- BCU defective