Circuit diagrams&Service manuals.

2. SERVICE PROGRAM MODE

2.1 SERVICE PROGRAM MODE OPERATION

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

2.1.1 Service Program Access Procedure

There are three ways to access an SP mode.

1) By key operation (for customers and sales representatives)
2) By key operation (for service representatives)
3) By turning on DPS101-4 on the main board (for service representatives)

Access Procedure 1 - Key Operation
(for customers and sales representatives)

Accessible SP modes: SP10, SP11, SP13, SP15, SP16, SP17, SP18, SP19, SP20, SP21, SP26, SP34, SP63, SP65, SP78, SP86, SP90, SP91, SP92, SP93, and SP96 (Refer to the service program mode table for details.)

1. Turn on the main switch.
2. Press the Energy Saver/Clear Modes.
3. Press the Clear/Stop key.
4. Press the Recall/Enter key. "5" will blink in the copy counter and the ADS indicator will blink.
5. Enter the desired SP mode number using the number keys.

   NOTE: To cancel an SP mode number after entering it, press the Clear/Stop key.
6. Press the Recall/Enter key.

   NOTE: To enter a different SP mode number, press the Recall/Enter key and follow steps 5 and 6.
7. To leave SP mode, press the Energy Saver/Clear Modes key.

Access Procedure 2 - Key Operation (for service representatives)

Accessible SP modes: All SP modes except for SP27, SP98, and SP99

1. Turn on the main switch.
2. Press the Energy Saver/Clear Modes key.
3. Press the Clear/Stop key.
4. Press the Recall/Enter key. "5" will blink in the copy counter and the ADS indicator will blink.
5. Enter the desired SP mode number using the number keys.

   NOTE: a) To cancel an SP mode number after entering it, press the Clear/Stop key.
   b) "." is displayed instead of "1" in the Copy Counter when SP mode numbers over "100" are entered. The maximum number is "131".

6. Press the Recall/Enter key while holding down the Point (".") key to view data.

   NOTE: To enter a different SP mode number, press the Recall/Enter key and follow steps 5 and 6.

7. To leave SP mode, press the Energy Saver/Clear Modes key.

Access Procedure 3 - DPS 101-4 (for service representatives)

Accessible SP modes: All SP modes including SP27, SP98, and SP99

1. Turn the main switch off.
2. Remove the rear cover and turn on DPS101-4, then turn on the main switch. "5" will blink in the copy counter and the ADS indicator will blink.
3. Enter the desired SP mode number using the number keys.

   NOTE: a) To cancel an already entered program, press the Clear/Stop key.
   b) "." is displayed instead of "1" in the Copy Counter when SP mode numbers over "100" are entered. The maximum number is "131".

4. Press the Recall/Enter key to view data.

   NOTE: To enter a different SP mode number, press the Recall/Enter key and follow steps 3 and step 4.

5. To leave SP mode, turn off DPS101-4.

2.1.2 Change Adjustment Values or Modes

1. Follow steps 1 to 6 in Access Procedure 1 and 2, or steps 1 to 4 in Access Procedure 3.
2. The factory-set value/mode or the default setting will be displayed in the Magnification indicator.
3. Enter the desired value or mode using the number keys and then press the Recall/Enter key.
4. To leave SP mode, press the Energy Saver/Clear Modes key (Access Procedure 1 and 2) or turn off DPS101-4 (Access Procedure 3).

2.1.3 Memory Clear Procedure

– Clear Counters (SP98) –

NOTE: This SP mode clears the following counters:
- SP88: PM Counter Display
- SP91: User Code Counter Display
- SP100: 1st Feed Station Copies
- SP101: 2nd Feed Station Copies
- SP102: 3rd Feed Station Copies (A111 copier only)
- SP105: Duplex Copies
- SP106: DF Originals
- SP120: Total Service Calls
- SP121: Optics Section Service Calls
- SP122: Exposure Lamp Service Calls
- SP124: Fusing Section Service Calls
- SP125: Duplex Unit Service Calls
- SP130: Total Misfeeds
- SP131: Number of Misfeeds by Location
- User Program

1. Turn off the main switch.
2. Turn on DPS101-3 and 4 on the main board and turn on the main switch.
3. Enter "98" using the number keys and press the Recall/Enter key.
4. Enter "1" using the number keys and press the Recall/Enter key.

   NOTE: "1" blinks 4 times when the above procedure is completed.
5. Turn off the main switch.
6. Turn off DPS101-3 and 4.
7. Turn on the main switch to resume normal copier operation.

– Clear All Memory (SP99) –

CAUTION: Memory all clear mode (SP99) clears all the correction data for copy process control and software counters, and returns all the modes and adjustments to the default settings. Normally, this SP mode should no be performed.

This procedure is required only when the copier malfunctions due to a damaged RAM pack or when replacing the RAM pack.

1. Turn off the main switch.
2. Turn on DPS101-3 and 4 on the main board and turn on the main switch.
3. Enter "99" using the number keys and then press the Recall/Enter key.
4. Enter "1" using the number keys and press the Recall/Enter key.

   NOTE: The data "1" blinks 5 times when the above procedure is completed.
5. Turn off the main switch and DPS101-3 and 4.
6. Replace the OPC drum with a new one.

CAUTION: Since the drum rotation time (SP58) for the drum wear correction and the drum counter (SP69) for the Vp correction have been cleared, the old drum cannot be used. If the old drum is used after all memory is cleared, dirty backgrounds or toner scattering may occur.

7. Replace the developer with a new one.

CAUTION: Since the toner density level data (black toner: SP64, red toner: SP80, green toner: SP81, blue toner: SP82) and the developer counter (no SP mode display) for the Vd correction have been cleared, the old developer cannot be used. If the old developer is used after all memory is cleared, dirty backgrounds, toner scattering, or light copies may occur.

8. Clean the optics, sensors, and the inside of the copier.
9. Turn on the main switch.

10. Refer to the "SP MODE FACTORY SETTING DATA" sheet located in the left inner cover and enter the data in the following SP modes:
    (1) SP40: Registration Buckle - 3rd Feed
    (2) SP41: Lead Edge Erase Margin Adjustment
    (3) SP42: Registration Adjustment
    (4) SP43: Vertical Magnification Adjustment
    (5) SP44: Horizontal Magnification Adjustment
    (6) SP45: Registration Buckle - 1st Feed
    (7) SP46: Registration Buckle - 2nd Feed
    (8) SP47: Focus Adjustment
    (9) SP60: Standard Image Density Grid Voltage
    (10) SP62: Standard ID Sensor Grid Voltage

11. Perform the following SP modes in sequence:
    (1) SP66: Drum Initial Setting
    (2) SP65: Black Developer Initial Setting
        SP10: Color Developer Initial Setting
    (3) SP54: Vsg Adjustment
    (4) SP48: Light Intensity Adjustment
    (5) SP56: ADS Reference Voltage Adjustment

12. Check copy quality and perform the necessary adjustments.



2.2 SERVICE PROGRAM MODE TABLE

1. A "❒" after the mode name means that copies can be made in SP mode.
   1) After the following SP mode numbers are entered, the copier goes automatically into copy mode when the Recall/Enter key is pressed while holding down the Point (".") key.
      SP mode numbers: SP5, SP6, SP52, SP55, and SP59
   2) After the following SP mode numbers are entered and the Recall/Enter key is pressed while holding down the Point (".") key, enter the desired input numbers or the data number for adjustment by the number keys. The copier goes automatically into copy mode when the Recall/Enter key is pressed.
      SP mode numbers: SP8, SP37, SP40, SP41, SP42, SP43, SP44, SP45, SP46, SP47, SP48, and SP79

   To make copies, enter the desired copy quantity, select the ID level and paper feed station, and then press the Start key.
2. A "○" before the mode number means that the mode can be accessed by customers and sales representatives.
3. In the *Function* column, comments (extra information) are in italics.
4. In the *Data* column, the default value is printed in bold letters.

Mode No.		Function	Data
5	Exposure Lamp OFF ❒	Exposure lamp OFF	
		Turn on DPS101-1, then press the Start key to start free run. Press the C/S key to stop free run. Press the R/# key in Ready mode to turn off this mode. *Use this mode for the scanner movement check. To save toner, remove the development unit.*	
6	Misfeed Detection Off ❒	Copies are made without misfeed detection.	
		Press the Start key to make a copy. Press the R/# key in Ready mode to turn off this mode. *Use this mode to check whether the paper misfeed was caused by a sensor malfunction.* *The total counter increments when copies are made in this mode.*	
8	Input Check ❒	Displays the input data from sensors and switches.	For data, see page 4-24 and 25.
9	Output Check	Electrical components turn on.	For data, see page 4-26 and 27.

Mode No.		Function	Data
°10	Color Developer Initial Setting	Used to set the new color developer condition. ***Initial setting is required when new developer is installed.*** *After color developer conditioning (20 cycles) is completed, the copier automatically returns to normal mode.*	
°11	All Indicators ON	Turns on all the indicators on the operation panel. *To turn off the indicators, press the R/# key.*	
°13	Side Edge Erase	Selects the width of the side erase margin in Erase Edge mode (Program key + "7" + R/# key) or Erase Center and Edge mode (Program key + "8" + R/# key). *0: 13.5 mm (B4, B5, 10" x 14")* *13 mm (A3, A4, *)* *12 mm (8 1/2" x 14", 8 1/2" x 13", 8 1/2" x 11", 8 1/2" x 5 1/2")* *11 mm (A4R, A5, 8" x 13", 8" x 10 1/2", 8" x 10", 11" x 17", 11" x 8 1/2", 11" x 15")* *10 mm (B5R, B6)* *1: 7.5 mm (B4, B5, 10" x 14")* *6 mm (8 1/2" x 14", 8 1/2" x 13", 8 1/2" x 11", 8 1/2" x 5 1/2", A4R, A5, 8" x 13", 8" x 10 1/2", 8" x 10")* *5.5 mm (A3, A4, *)* *5 mm (B5R, B6)* *3.5 mm (11" x 17", 11" x 8 1/2", 11" x 15")*	**0: Normal** 1: Narrower
°15	Auto Reset Time	Selects auto reset time of 1 or 3 minutes, or cancels this mode.	**0: 1 min.** 1: 3 min. 2: None
°16	Count Up/Down	Selects count up or count down.	**0: Up** 1: Down ("1" is the default for NRG.)
°17	Auto Feed Station Shift	Selects auto feed station shift mode. *Copier automatically shifts to the paper feed station holding same size paper when paper runs out.*	**0: Auto Shift** 1: Manual
°18	Lead and Trail Edge Erase	Selects the width of the lead and trail edge erase margins in Erase Edge mode (Program key + "7" + R/# key) or Erase Center and Edge mode (Program key + "8" + R/# key).	**0: 10 mm** 1: 5 mm 2: 15 mm 3: 20 mm
°19	ADS Priority	Specifies whether the copier defaults to ADS or manual mode when the main switch is turned on.	**0: ADS** 1: Manual

Mode No.		Function	Data
°20	APS Priority (Copier)	Specifies whether the copier defaults to APS or manual mode when the main switch is turned on. *This mode is used only on the A111 copier.*	**0: APS** 1: Manual
°21	APS Priority (ADF)	Specifies whether the copier defaults to APS or manual mode when the original is set on the DF. *DF must be installed on the machine.*	**0: APS** 1: Manual
22	SADF Shut-off Time	Selects shut-off time for SADF mode. *DF must be installed on the machine.*	**0: 5 sec.** 1: 60 sec.
23	ADF Free Size	Enables originals of various sizes to be fed from the same size stack. *DF must be installed on the machine.*	**0: No** 1: Yes
25	Margin Adjustment in Duplex Mode	Sets the margin (5 mm) on the right side of the reverse page. *The duplex unit must be installed on the machine.* *When 1 sided original mode is selected, the back margin (5 mm) is automatically added on the right side of the reverse page.*	**0: Yes** 1: No ("1" is the default for SAVIN.)
°26	Center Erase	Selects the width of the center erase margin in Erase Center mode (Program key + "6" + R/# key) or Erase Center and Edge mode (Program key + "8" + R/# key).	**0: 20 mm** 1: 10 mm 2: 15 mm 3: 25 mm
27	A3/11" x 17" Double Count	Selects single or double count for the total counter in A3/11" x 17" copies. ***Dip SW101-4 on the main board must be turned on to change the data.*** *Double count is not applied for copies from the manual feed table. Double count is not applied to the user code counter.*	**0: Single** 1: Double
28	Auto Sort Select	Sort mode is automatically selected when more than 1 original is set on the DF table and the entered copy quantity is greater than 1 and less than 11. *The sorter and DF must be installed on the machine. When in duplex mode (1-sided original mode), more than 2 originals must be set.*	**0: Manual** 1: Auto Sort
29	Fusing Temperature Control	Selects fusing temperature control mode. *After selecting the control mode and turning the main switch off/on, the fusing temperature control is changed.*	**0: ON/OFF control** 1: Phase control
30	Black Toner Supply Mode	Selects black toner supply system. *See SP31/SP32 for toner supply ratio.*	**0: Detect Mode** 1: Fixed Mode
31	Black Toner Supply Ratio (Detect Mode)	Selects black toner supply ratio in detect mode.	**0: 15%** 1: 7% 2: 30% 3: 60%

Mode No.		Function	Data
32	Black Toner Supply Ratio (Fixed Mode)	Selects black toner supply ratio in fixed mode.	**0: 7.0%** 1: 3.5% 2: 10.5% 3: 14.0%
33	ID Sensor Bias (Black)	Sets the development bias voltage applied to the development roller for the ID Sensor Pattern. *0: Vo 3: Vo–40V* *1: Vo+40V 4: Vo+80V* *2: Vo–20V 5: Vo–60V*	Toner Density **0: Normal (Vo)** 1: Low 2: High 3: Higher 4: Lower 5: Highest
°34	ADS Level	Selects the image density level in ADS mode. *Data: 1* *Decreases development bias voltage (+40V).* *Exposure lamp data is not changed.* *Data: 2* *Increases exposure lamp data (+2).* *Development bias voltage is not changed.*	**0: Normal** 1: Darker 2: Lighter
35	ID Detection Interval (Black)	Toner density detection is performed every 5 copies or 10 copies. *If low image density occurs in the near end condition, change the data to "1".*	**0: 10 copies** 1: 5 copies
37	Image Bias Adjustment ❒ (Black)	Adjusts image development bias voltage. *Use this SP mode, if the image density at level 4 cannot be adjusted by Light Intensity Adjustment (SP48).* *0: Vo 3: Vo–20V* *1: Vo+40V 4: Vo–40V* *2: Vo+20V*	**0: Normal (Vo)** 1: Darkest 2: Darker 3: Lighter 4: Lightest
40	Registration Buckle - 3rd Feed ❒	Adjust the amount of paper buckle in the registration area. *0.5 mm per step. (max. –5.0 mm to +2.0 mm)*	1–15 **Default = 11**
41	Lead Edge Erase Margin Adjustment ❒	Adjusts the lead edge erase margin. *0.5 mm per step. (max. –3.5 mm to 3.5 mm)*	1–15 **Default = 8**
42	Registration Adjustment ❒	Adjusts registration. *0.5 mm per step. (max. +3.5 mm to –3.5 mm)*	1–15 **Default = 8**
43	Vertical Magnification Adjustment ❒	Adjusts magnification in the paper feed direction. *0.2% per step. (max. –1.4% to +1.4%)*	1–15 **Default = 8**
44	Horizontal Magnification Adjustment ❒	Adjusts magnification perpendicular to the direction of paper feed. *0.2% per step. (max. –3.0% to +3.0%)*	1–31 **Default = 16**
45	Registration Buckle - 1st Feed ❒	Adjust the amount of paper buckle in the registration area. *0.5 mm per step. (max. –3.5 mm to +3.5 mm)*	1–15 **Default = 8**
46	Registration Buckle - 2nd Feed ❒		

Mode No.		Function	Data
47	Focus Adjustment ❒	Adjusts the 4th/5th mirror position to correct focus. *This mode must be done after vertical and horizontal magnification adjustments (SP43 and SP44).*	1–80 **Default = 40**
48	Light Intensity Adjustment ❒	Adjusts the exposure lamp voltage. *The exposure lamp voltage is adjusted on the production line.*	100–150 **Default = 126**
49	Fusing Temperature Adjustment	Adjusts fusing temperature.	175–190°C **Default = 185°C** 180–195°C **Default = 190°C** for European version
51	Exposure Lamp Data Display	Displays the exposure lamp data with a reference number. *The exposure lamp, and optics cooling fans turn on for 10 seconds. Press the C/S key to turn this mode off. Do not repeat more than 5 times to avoid overheating the optics cavity.*	100–170
52	Fusing Temperature Display ❒	Displays the fusing temperature.	
54	Vsg Adjustment	Adjusts Vsg. *Adjust Vsg to 4.0 ± 0.2 V using VR102 on the main board. The main motor, the QL, the PTL, the erase lamp, and the ID sensor LED turn on.*	
55	Vsg & Vsp Display ❒	Display the Vsg and Vsp readings. The Vsg reading is displayed while the "0" key is held down. *When making copies, the Vsp and Vsg voltage readings are updated every 10 or 5 copies depending on SP35 (ID Detection Interval).*	
56	ADS Reference Voltage Adjustment	Adjusts ADS. *After adjusting the light intensity, place 6 or more sheets of A3 or 11" x 17" white paper on the exposure glass and select this mode. Adjust ADS voltage to 2.5 ± 0.1 V using VR101 on the main board.*	
57	Machine On Time	Displays the total hours that the main switch is on. *The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.* ***This counter is reset when the V_L correction Reset (SP94) is performed after the optics is cleaned.***	

Mode No.		Function	Data
58	Drum Rotation Time	Displays the total hours that the drum has rotated. *The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.*	
59	Bias Voltage Display ❒	Displays development bias voltage. *Press the Start key to display the voltage.*	
60	Standard Image Density Grid Voltage	Factory use ***Do not change data.*** *Data will vary depending on factory setting. Refer to "SP MODE FACTORY SETTING DATA" sheet located on the left inner cover.*	1: –840 volts 2: –860 volts 3: –880 volts 4: –900 volts **5: –920 volts** 6: –940 volts 7: –960 volts 8: –980 volts 9: –1000 volts
61	VL Correction Interval	Sets the interval of VL correction. *The exposure lamp data increases by +1 at set interval of machine on time.* ***Do not change the data more than one (1) step at a time.***	**0: every 70 hours** 1: every 140 hours 2: every 40 hours 3: every 20 hours 4: every 10 hours 5: every 5 hours 6: No correction
62	Standard ID Sensor Grid Voltage	Factory use ***Do not change data.*** *Data will vary depending on factory setting. Refer to "SP MODE FACTORY SETTING DATA" sheet located on the left inner cover.*	1: –480 volts 2: –500 volts 3: –520 volts 4: –540 volts **5: –560 volts** 6: –580 volts 7: –600 volts 8: –620 volts 9: –640 volts 10: –660 volts 11: –680 volts 12: –700 volts 13: –720 volts 14: –740 volts



Service Tables

Mode No.		Function	Data
°63	Black Toner Forced Supply	Used to recover low toner concentration. *The main motor starts turning and the development bias voltage (–200 volts) is applied to the development roller.* *Hold down or release the "0" key to turn on or off the toner supply clutch.* *Press the R/# key or the C/S key to stop and return to normal mode.*	
	Color Toner Supply Unit Initial Setting	Used to supply toner from the toner cartridge to the toner supply unit. ***This SP mode must be performed when the machine is installed and when the color toner supply unit is replaced to prevent the toner end condition from being detected in error.***	
64	Black Toner Density Level Display	Displays the black toner density level detected by initial setting (SP65). *Data Vsp/Vsg (%)* *0: 12–15* *1: 0–7* *2: 8–11* *3: 16–21* *4: 22–100*	**0**–4
°65	Black Developer Initial Setting	Used to set the new black developer condition. *"20" is displayed on the copy counter when the R/# key is pressed. Press the Start key to start the initial setting.* ***Initial setting must be done when new developer is installed.*** *The copier automatically returns to normal mode after black developer conditioning (20 cycles) is completed.*	
66	Drum Initial Setting	Used to set new drum condition. ***Initial setting must be done when a new drum is installed.*** *The drum rotation time (SP58) and the drum counter (SP69) are cleared when the R/# key is pressed after "66" is entered.*	
67	Vr Ratio Display	Displays the present Vr ratio. *L = Vrp/Vsg x 100* *L(%) Grid voltage* *100 to 89 Vo* *88 to 76 Vo–40V* *75 to 62 Vo–80V* *61 to 45 Vo–120V* *44 to 0 Vo–160V*	**0**–100

Mode No.		Function	Data
68	Vr Forced Detection	Detects Vrp and perform Vr correction. *The copier returns to normal mode after the R/# key is pressed while the "." key is held down.* *The detection is performed in the first 5 copy cycles after this SP mode is performed.*	
69	Drum Counter	Shows the total number of copies made with the drum installed on the machine. *The first three digits are displayed in the magnification indicator. Hold down the "." key to display the last three digits.*	
70	Color Toner Supply Ratio (Fixed Mode)	Selects the color toner supply ratio.	**0: 14%** 1: 7% 2: 21% 3: 28%
71	Sorter Operation	Enables sorter operation. *Sorter Mode 1: U4 is displayed when the sorter is opened.* *Sorter Mode 2: U4 is displayed when Sort/Stack mode is selected and the sorter is opened.*	**0: No sorter** 1: Sorter Mode 1 2: Sorter Mode 2
72		Not used (Do not change the data.)	**0: Normal** 1: APS disabled.
73	Color Copy Counter	Displays the total number of copies (Red + Green + Blue). *The first three digits are displayed in the magnification indicator. Hold down the "." key to display the last three digits.*	
74	ID Detection Interval (Color)	Toner density detection is performed every 5 copies or 10 copies. *If low image density occurs in the near end condition, change the data to "1".*	**0: 10 copies** 1: 5 copies
75	ID Sensor Bias (Color)	Sets the development bias voltage applied to the development roller for the ID Sensor Pattern. *Red / Blue / Green* *0: –240V / –320V / –300V* *1: –200V / –280V / –260V* *2: –260V / –340V / –320V* *3: –280V / –360V / –340V*	Toner Density **0: Normal** 1: Low 2: High 3: Higher
76	Sorter Bin Capacity	Sets the stock quantity limits. *When the data "1" is selected:*	0: No limits **1: Limits**
77	ADF Odd Number Originals (Duplex mode)	Sets the copier to eject the final copy if an odd number of originals is set. *When "Yes", the final copy is fed out; when "No", the copy stays in the duplex unit.*	**0: Yes** 1: No
°78	Auto Energy Saver Mode	Selects the "Automatic Energy Saver" mode. *The copier automatically goes to Energy Saver mode at the auto reset time selected (SP15).*	**0: No** 1: Yes

Service Tables

Mode No.		Function	Data
79	Image Bias Adjustment (Color) ❒	Adjusts image development bias voltage. *Use this SP mode, if the image density at level 4 cannot be adjusted by Light Intensity Adjustment (SP48).* *0: Vo 3: Vo –20V* *1: Vo +40V 4: Vo –40V* *2: Vo +20V*	**0: Normal (Vo)** 1: Darkest 2: Darker 3: Lighter 4: Lightest
80	Red Toner Density Level Display	Displays the red toner density level detected by initial setting (SP10). *Toner Density Level (%) = Vsp/Vsg x 100*	
81	Green Toner Density Level Display	Displays the red toner density level detected by initial setting (SP10). *Toner Density Level (%) = Vsp/Vsg x 100*	
82	Blue Toner Density Level Display	Displays the red toner density level detected by initial setting (SP10). *Toner Density Level (%) = Vsp/Vsg x 100*	
83 84 85		Not used	
°86	Energy Saving Ratio	Selects energy saving ratio. *The greater the saving ratio, the longer the waiting time until the copier returns to the ready condition.* *Saving Ratio Waiting Time* *0: 56% 30 sec.* *1: 34% 20 sec.* *2: 28% 10 sec.* *3: 10% 0 sec.*	0: 56% 1: 34% **2: 28%** 3: 10%
87	PM Interval Setting	Sets the interval of the PM counter. *When the PM counter exceeds the set interval, the Magnification indicator blinks.*	**0: No PM** 1: 40K 2: 60K 3: 80K 4: 100K
88	PM Counter Display	Displays contents of the PM counter. *The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.*	
89	PM Counter Reset	Resets the PM counter. *Enter "1" by the number keys and then press the R/# key to clear the counter.*	**0: No** 1: Yes
°90	User Code Mode	Enables user code mode. ***JP101 on the main board must be cut.*** *If this mode is set, operators must enter a code to make copies. The user codes are the following 20 numbers:* *1101, 1202, 1303, 1404, 1505, 1606, 1707, 1808, 1909, 2010, 2111, 2212, 2313, 2414, 2515, 2616, 2717, 2818, 2919, 3020*	**0: No** 1: Yes

Mode No.		Function	Data
°91	User Code Counter Display	Displays the contents of each user code counter. *Use the Zoom keys ("+" or "–") to select a user code. The last two digits of the user code are displayed in the copy counter. User counters count from 0 to 999999.* *The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.*	
°92	User Code Counter Clear	Resets counters of all the user codes (SP91). *To reset, press "1" then the "Enter" key.*	**0: No** 1: Yes
°93	Copy Limit	Limits the maximum copy quantity that can be entered.	1–99 **99=default**
94	VL Correction	Clears the VL correction factor of the exposure lamp data and the machine on time (SP57). ***SP94 must be performed whenever the mirrors, lens, and green color filter are cleaned, before the light intensity (SP48) is adjusted.***	**0: No** 1: Yes
95		Not used	
°96	Special Paper Size Setting	Sets the appropriate paper size for special paper loaded in the 2nd or the 3rd paper feed station. ***The "*" mark on the paper size detection block must be selected to use this special feature. (Duplex modes cannot be selected.)*** *When the 2nd or the 3rd feed station is selected, the appropriate paper size or "*" mark will be displayed and the copier will operate according to the set paper size.*	**0: Universal** 1: A3 3: B4 4: A4 5: A4 6: B5 7: B5 8: A5 16: 11" x 17" 17: 11" x 8 1/2" 18: 11" x 15" 19: 10" x 14" 20: 8 1/2" x 14" 21: 8 1/2" x 13" 22: 8 1/2" x 11" 24: 8 1/4" x 14 or 13 25: 8" x 13" 26: 8" x 10 1/2" 27: 8" x 10"

Mode No.		Function	Data
98	Clear Counters	Clears the following counters and the User Program: • SP88: PM Counter Display • SP91: User Code Counter Display • SP100: 1st Feed Station Copies • SP101: 2nd Feed Station Copies • SP102: 3rd Feed Station Copies • SP105: Duplex Copies • SP106: DF Originals • SP120: Total Service Calls • SP121: Optics Section Service Calls • SP122: Exposure Lamp Service Calls • SP124: Fusing Section Service Calls • SP125: Duplex Unit Service Calls • SP130: Total Misfeeds • SP131: Number of Misfeeds by Location • User Program	**0: No** 1: Yes
		DPS101-3 and 4 on the main board must be on to perform this SP mode. To clear, press "1" then the "R/#" key.	
99	Clear All Memory	Clears all the correction data for copy process control and software counters, and returns all modes and adjustments to the default settings.	**0: No** 1: Yes
		Normally, this SP mode should not be performed. *DPS101-3 and 4 on the main board must be on to perform this SP mode.* *To clear, press "1" then the "R/#" key.*	
100	1st Feed Station Copies	Displays the total number of copies fed from the 1st feed station (cassette and manual feed table).	
		The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.	
101	2nd Feed Station Copies	Displays the total number of copies fed from the 2nd feed station.	
		The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.	
102	3rd Feed Station Copies (A111 copier only)	Displays the total number of copies fed from the 3rd feed station.	
		The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.	
103 104		Not used	

Mode No.		Function	Data
105	Duplex Copies	Displays the total number of copies made in duplex mode. *The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.*	
106	DF Originals	Displays the total number of originals fed from the DF. *The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.*	
111 112 113 114		Not used	
120	Total Service Calls	Displays the total number of the service call conditions.	
121	Optics Section Service Calls	Displays the total number of "optics section" service call conditions.	
122	Exposure Lamp Service Calls	Displays the total number of "exposure lamp" service call conditions.	
123		Not used	
124	Fusing Section Service Calls	Displays the total number of "fusing section" service call conditions.	
125	Duplex Unit Service Calls	Displays the total number of "duplex unit" service call conditions.	
130	Total Misfeeds	Displays the total number of paper misfeed excluding original misfeeds in the DF. *The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.*	
131	Number of Misfeeds by Location	Displays the total number of paper misfeeds in each area. *Use the Zoom key ("+" or "–") to select the desired number.* *1: Paper Feed 4: DF* *2: Exit 5: Duplex* *3: Sorter* *The first three digits are displayed in the Magnification indicator. Hold down the "." key to display the last three digits.*	

2.3 SP-8 SENSOR/SWITCH DATA CHECK

– How to check sensor/switch data –

1. Press "8", then press the Recall/Enter key while pressing the Point (".") key.
2. Enter the desired input number by the number keys. The input numbers are given in the following table.
3. Press the Recall/Enter key again.
4. Enter the number of copies and press the Start key.

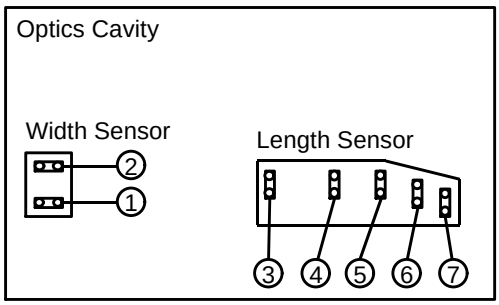
   NOTE: The ON/OFF status can also be checked manually.
5. The data (0 or 1) will be displayed in the magnification indicator.

Input No.	Sensor/Switch/Signal	Data	
		0	1
1	Registration Sensor	Paper not detected (HIGH)	Paper detected (LOW)
2	Exit Sensor		
3	Paper Lift Sensor	Sensor feeler down (HIGH)	Sensor feeler up (LOW)
4	1st Paper End Sensor	Sensor feeler down (Paper end) (HIGH)	Sensor feeler up (LOW)
5	2nd Paper End Sensor		
6	3rd paper End Sensor **(A111 copier only)**		
9	Manual Feed Table Switch	Table closed (HIGH)	Table open (LOW)
10	Right Cover Switch	Cover closed (HIGH)	Cover open (LOW)
14	Relay Sensor **(A111 copier only)**	Paper not detected (HIGH)	Paper detected (LOW)
17	Scanner HP Sensor	Sensor actuated (HIGH)	Sensor not actuated (LOW)
18	Lens HP Sensor		
19	4th/5th Mirror HP Sensor		
20	Toner End Sensor	Sensor actuated (HIGH)	Sensor not actuated (LOW)
21	Toner Overflow Sensor	Sensor feeler up (HIGH) (Used toner tank full)	Sensor feeler down (LOW)
22	Color Switch - 1	Switch actuated (LOW)	Switch not actuated (HIGH)
23	Color Switch - 2		
24	Duplex Entrance Sensor	Paper not detected (HIGH)	Paper detected (LOW)
25	Duplex Turn Sensor		
26	Duplex Paper End Sensor		
27	Duplex Jogger HP Sensor	Sensor not actuated (Home position)	Sensor actuated
28	Sorter Paper Sensor	Paper not detected (High)	Paper detected (Low)
29	Sorter Wheel Switch	Switch not actuated	Switch actuated
30	Sorter HP Switch	Switch actuated	Switch not actuated
31	Sorter Switch	Sorter opened	Sorter closed

Input No.	Sensor/Switch/Signal	Data	
		0	1
32	ADF ON Line	ADF not installed	ADF installed
33	ADF Lift Sensor	ADF closed	ADF opened
34	APS Sensors **(A111 copier only)**	Refer to the following explanation.	

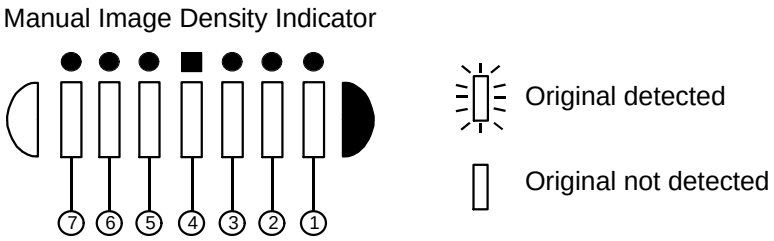
Input No. 34

The A111 Copier has 7 (6 for the inch version) different sensors for detecting the original length and width in APS and ARE modes. The platen cover position sensor (DF position sensor) and the platen cover closed switch are used for the original size detection timing.

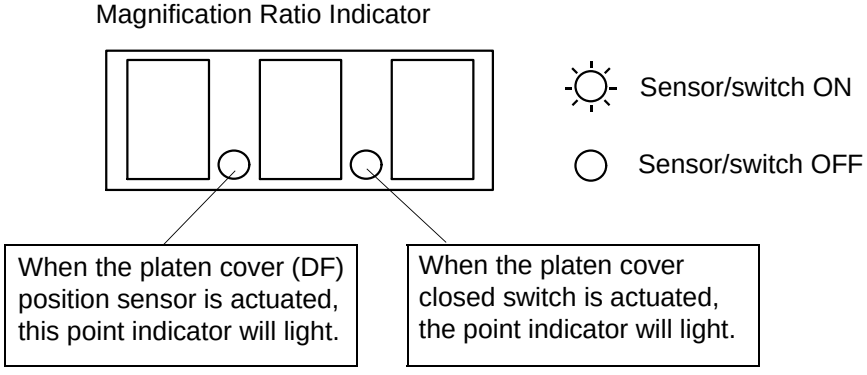


NOTE: The inch version does not have sensor ⑤.

1) When an original length sensor or an original width sensor detects the original, the manual image density indicator (7 LEDs) corresponding to the sensor will light.



2) When the platen cover position sensor or the platen cover closed switch is turned on, the point indicator in the magnification indicator will light.



2.4 SP-9 ELECTRICAL COMPONENT CHECK

– How to turn electrical components on/off –

1. Enter "9", then press the Recall/Enter key while pressing the Point (".") key.
2. Enter the desired output number by the number keys. The output numbers are given in the following table.
3. Press the Start key to turn on the electrical component.
4. Press the Clear/Stop key to turn off the electrical component.

Output No.	Electrical Component
1	Main Motor (PTL and Quenching Lamp)
2	Charge Corona + Standard Grid (Grid Voltage = –920 volts)
3	Charge Corona + ID Sensor Grid (Grid Voltage = –660 volts + Vp Correction Factor)
4	Charge Corona + Vrp Grid (Grid Voltage = –500 volts)
5	Transfer Corona (first side copy)
6	Transfer Corona (second side copy)
8	Separation Corona
9	ID Sensor LED
10	Development Clutch Solenoid
11	Toner Supply Clutch
14	Sorter Roller Drive Motor
15	Sorter Wheel Motor (Bin up)
16	Sorter Wheel Motor (Bin down)
17	Registration Clutch
18	1st Paper Feed Clutch Solenoid
19	Relay Roller Clutch
23	2nd Paper Feed Clutch
24	3rd Paper Feed Clutch **(A111 copier only)**
27	Paper Lift Clutch
28	Duplex Gate Solenoid
29	Pick-up Roller Release Solenoid
30	Duplex Feed Motor (Stack)
31	Duplex Feed Motor (Feed)
32	Duplex Jogger Motor (Home Position)
33	Duplex Jogger Motor (A4 size)
34	Duplex Jogger Motor (B5 size)
35	Duplex Jogger Motor (11" x 8 1/2")

Output No.	Electrical Component
37	Erase Lamp
39	Optics Cooling Fans
40	Exposure Lamp + Optics Cooling Fans
42	Charge Corona + Standard Grid + Transfer Corona + Separation Corona
43	Charge Corona + ID Sensor Grid + Transfer Corona + Separation Corona
44	Charge Corona + Vrp Grid + Transfer Corona + Separation Corona
50 - 57	Applies bias voltage in 40 V steps starting at –120 V
60 - 67	Applies grid voltage in 60 V steps starting at –560 V