CP660

SERVICE HANDBOOK

REVISION 0

Canon

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Prepared by

OFFICE IMAGING PRODUCTS TECHNICAL SUPPORT DEPARTMENT 3
OFFICE IMAGING PRODUCTS TECHNICAL SUPPORT DIVISION

CANON INC.

5-1, Hakusan 7-chome, Toride-shi, Ibaraki 302-8501 Japan

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CHAPTER 1 MAINTENANCE AND SERVICING

A. SERVICING CHART

The machine does not have parts requiring maintenance on a periodical basis. However, to prolong the service lives of the parts and the product, it is recommended that the following be performed at time of a visit (as for replacing durable parts).

1. READER

Item	Parts	Remarks
Externals	Copyboard glass	Use lint-free paper or alcohol.
	Copyboard cover	
	No. 1 through No. 3 mirrors	Use a blower brush.*
	Reflecting shade (scanning lamp)	
	Scanner rail	Clean with alcohol, and apply lubricant.
	Lens CCD	Use a blower brush.*
	Standard white plate	Use lint-free paper or alcohol.

*Do not touch the mirrors and lenses; moreover, do not subject the CCD to dust.

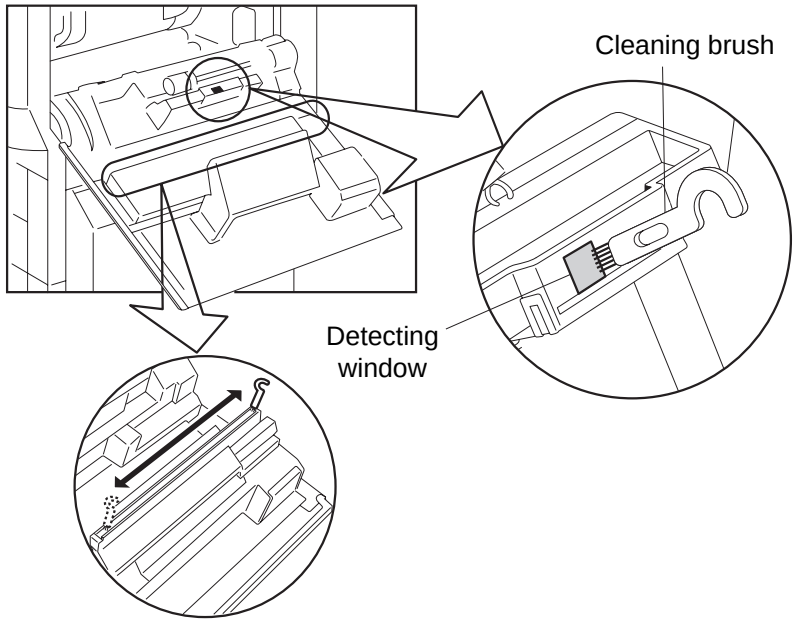
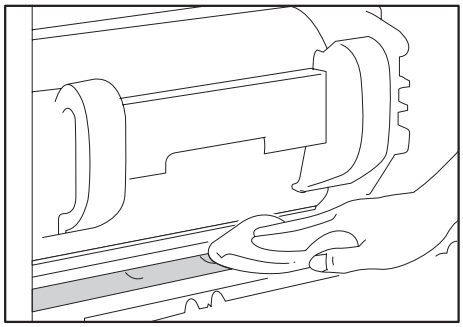
2. PRINTER

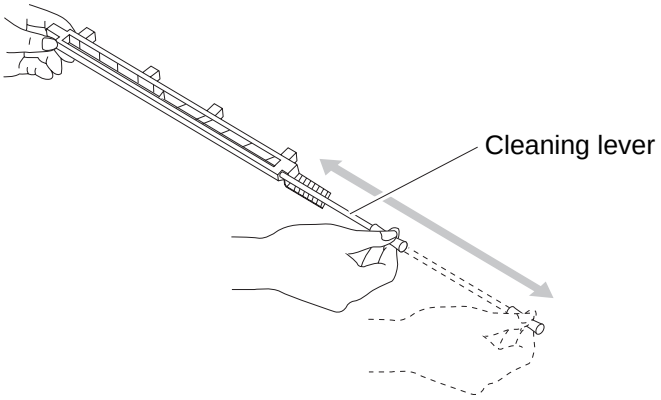
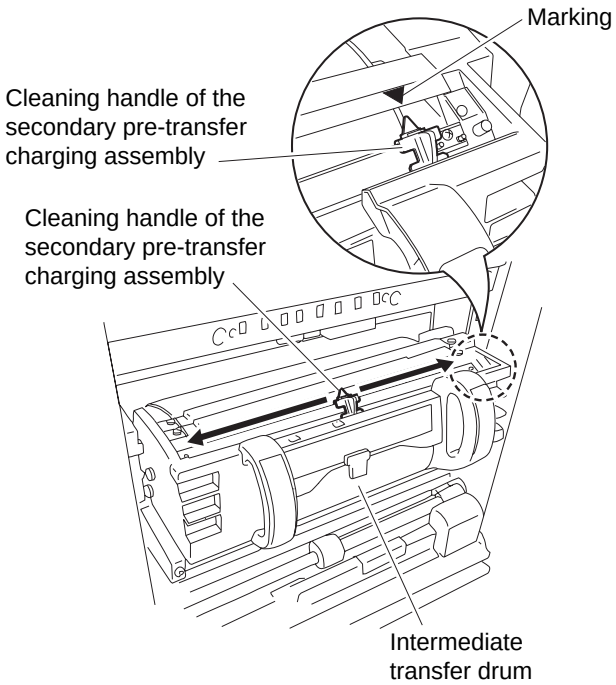
Unit	Part	Remarks
Pick-up feeding	Multifeeder roller Cassette pick-up roller Feeding roller 1 Feeding roller 2 Separation roller	Use lint-free paper or alcohol.
	Separation pad	Use lint-free paper.
	Registration roller assembly	Use lint-free paper. If the dirt cannot be removed, use alcohol on the rubber area and solvent on other areas. Do not remove the spring when cleaning; a displaced spring will cause skew movement of paper or jams. Correct the spring if displaced.
	Separation guide Transparency sensor 1/2	Use lint-free paper. Use a blower brush.
Development	Sub cover sheet	Use lint-free paper or alcohol.
	Toner catch tray	Remove any cake of toner.
Fixing assembly	Fixing assembly inlet guide	Use solvent.
	Upper/lower fixing separation guide	Use solvent to remove cakes of toner. (Do not force.)
Intermediate transfer drum	Density sensor	Use the special brush.
	Pre-exposure LED assembly	
Charging assembly	Secondary pre-transfer charging assembly	Use a cleaning lever.
	Separation static assembly	

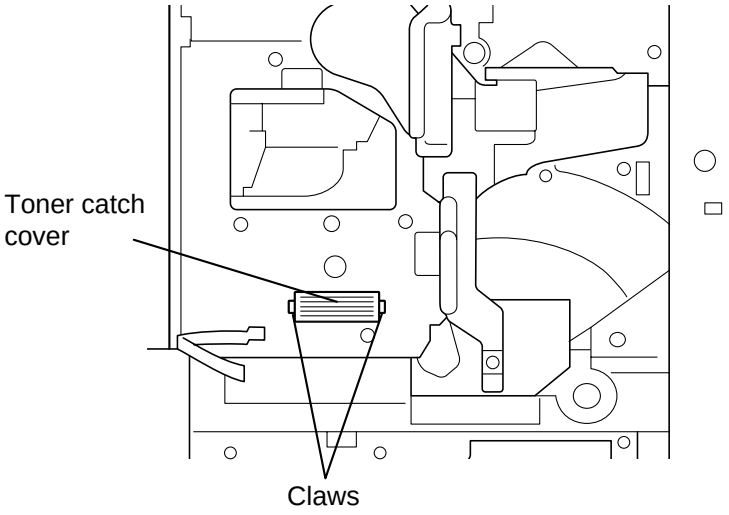
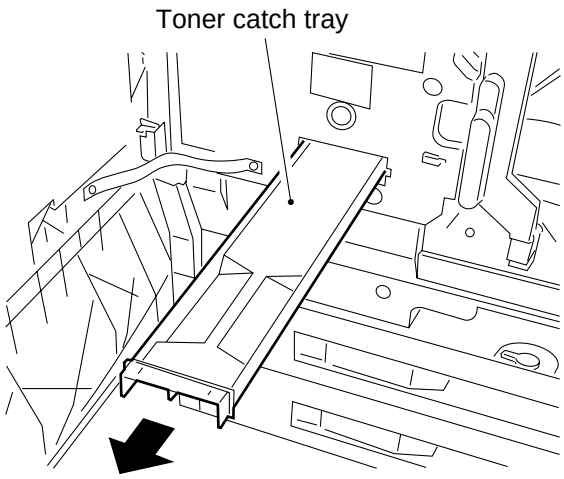
Note:

1. As a rule, do not clean the following:
   - ITD cleaning roller
   - Photosensitive drum cartridge
   - Secondary transfer belt assembly
2. The surface of the intermediate transfer drum may develop condensation during installation work. If such happens, dry wipe the surface with lint-free paper. If the output images are soiled, suspect dirt on the surface of the intermediate transfer drum. To correct, wipe it with a flannel cloth moistened with water, and then dry wipe it with lint-free paper.

Work as follows:

Item	Description
Density sensor Pre-exposure LED assembly	Use the density sensor cleaning brush attached to the printer unit to clean the detecting window of the sensor. For the pre-exposure LED assembly, move the same brush in the direction of the arrow to clean each LED. 
Registration roller assembly	When replacing each drum cartridge, clean the registration roller assembly. 

Item	Description
Separation static eliminating	Remove the separation static eliminator from the printer unit. Then, move the cleaning lever in the direction of the arrow several times to clean it.  **Note:** After cleaning, be sure to fit the cleaning lever in the static eliminator before mounting it back to the printer unit.
Secondary pre-transfer charging assembly	Move the cleaning handle of the secondary pre-transfer charging assembly in the direction of the arrow several times to clean the secondary pre-transfer charging assembly  **Note:** After cleaning, be sure to move the cleaning handle of the secondary pre-transfer charging assembly to the right end where a marking is found.

Item	Description
Toner catch tray	Disengage the two claws of the toner catch tray cover, and slid out the toner catch tray.   Remove any cake of toner. However, if the cake of toner cannot be removed, replace the toner catch tray.

B. PERIODICALLY REPLACED PARTS

The machine does not have parts that require replacement on a periodical basis.

C. CONSUMABLES AND DURABLES

1. READER

As of December 31, 1998

No.	Parts name	Parts No.	Q'ty	Life (copies)	Remarks
1	Scanning lamp (fluorescent lamp)	FH7-3336-000	1	500 hr	About 75,000 copies (period of activation). See Note 1 for replacement; see Note 2 for warning indication.
2	Power supply cooling fan (FM4)	FH-1462-0000	1	30,000 hr	Based on the period of operation.
3	Control panel (back-light)	FG6-0365-000	1	10,000 hr	Based on the period of operation.

The values in the table are estimates only, and are subject to change based on future data.

Note:

1. Be sure to perform the following when replacing the scanning lamp. (For details, see p. 2-11.)
   - Clean the No. 1/2/3 mirror, re5flecting shade, and standard white plate.
   - Clean/lubricate the scanner rail.
   - Execute scanning lamp intensity adjustment in service mode (FUNCTION>MISC-R>LAMP>ADJ).
   - Execute CCD adjustment in service mood (FUNCTION>CCD>CCD-ADJ).
2. Make checks in service mode (DISPLAY>MISC>FL-LIFE).

2. PRINTER

As of December 31, 1998

No.	Parts ame	Parts Nol.	Q'ty	Life (copies)	Remarks
1	Intermediate transfer drum unit	RG5-3039-000	1	37,500	
2	Fixing assembly	RG5-3995-000	1	50,000	100/120V
		RG5-3996-000	1	50,000	220/240V
3	Secondary transfer belt assembly	RG5-3047-000	1	37,500	
4	Intermediate transfer drum (ITD) cleaning roller	RG5-3975-000	1	75,000	
5	Separation static eliminating assembly	RG5-3973-000	1	150,000	
6	Multifeeder pick-up roller	RB1-9526-000	1	200,000	Must be replaced simultaneously.
7	Multifeeder separation pad	RF5-1989-000	1	200,000	
8	Cassette feeding roller	RF5-1834-000	2	150,000	Cassettes 1 and 2 are interchangeable. Feeding roller and separation roller must be replaced simultaneously.
9	Cassette separation roller	RF5-1834-000	2	150,000	
10	Air filter (FM1)	RB1-9807-000	1	5,800	Must be replaced simultaneously with drum cartridge.
11	Air filter (FM2)	RB1-9808-000	1	5,800	
12	Ozone filter (FM3)	RB1-9836-000	1	75,000	
13	Heat discharge fan 1 (FM1)	RH7-1330-000	1	30,000 hr	Reference only; in terms of hours used.
14	Heat discharge fan 2 (FM2)	RH7-1373-000	1	30,000 hr	
15	Heat discharge fan 3 (FM3)	RH7-1393-000	1	30,000 hr	
16	Toner catch tray	RB1-9804-000	1		See Note.

Note:

The toner catch tray must be cleaned to prevent caking of toner by the heat from fixing. Replace the tray only when the cake of toner cannot be removed.

CHAPTER 2 STANDARDS AND ADJUSTMENTS

A. MECHANICAL

1. Non-Image Width

The non-image width is correct if it is as follows (on copies made in Direct).

Leading edge: 5.0 ±2.0 mm
Left/right: 5.0 ±2.0 mm
Trailing edge: 5.0 ±2.0 mm

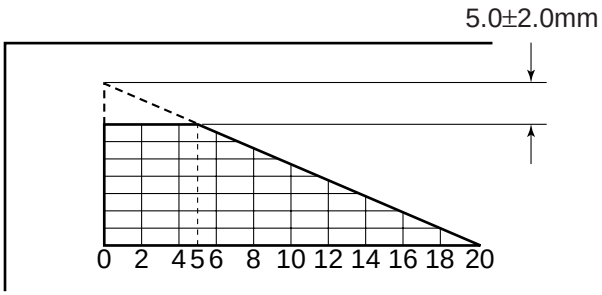


Figure 2-1 Non-Image Width on the Leading Edge

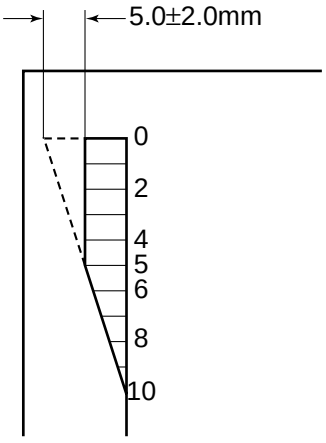


Figure 2-2 Non-Image Width on the Left/Right

2. Image Margin

The image margin is correct if it is as follows (on copies made in Direct):

Leading edge: 5.0 ±2.0 mm
Left/right: 5.0 ±2.0 mm
Trailing edge: 5.0 ±2.0 mm

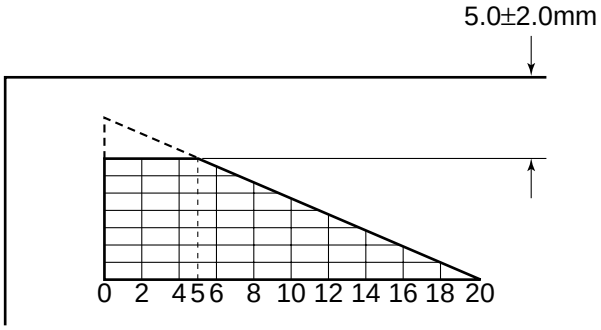


Figure 2-3 Image Margin on the Leading Edge

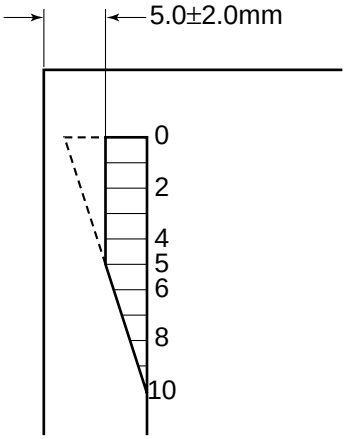


Figure 2-4 Margin on the Left/Right

3. Adjusting the Non-Image Width and Margin

Make adjustments in the following order:
- Adjusting the registration for leading edge margin adjustment (COPIER>ADJUST>FEED-ADJ>**REGIST, REGIST2**)

Caution:

Keep in mind that the new settings will become effective when the machine has been turned off and on.

- Adjusting the image left/right margin (COPIER>ADJUST>BLANK>**BLANK-L/R**)
- Adjusting the leading/trailing edge non-image width (COPIER>ADJUST>BLANK>**BLANK-T, B**)
- Adjusting the image read start (COPIER>ADJUST>ADJ-XY>**ADJ-X, Y**)
- Checking the image margin

4. Adjusting the Reader Unit Horizontal Registration

If the lines of a grid pattern do not cross at a right angle or are distorted, adjust the horizontal registration as follows for the reader unit. (Normally, such a problem is not likely, as adjustments are made at the factory.)

1) Enter '6' under COPIER>TEST>PG>TYPE in service mode, and make a test print (grid).
2) Make a copy of the test print (grid).
3) If the lines are distorted, adjust the horizontal registration for the reader unit as shown in the figure. (Use the adjustment wrench FY9-1027-000).

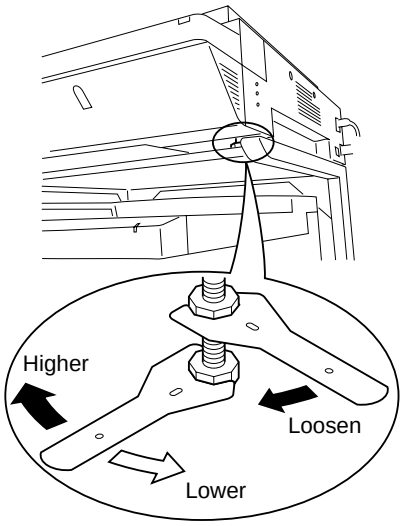


Figure 2-5

4) Make a test print once again to end the work.

5. Routing the Scanner Drive Cable

For routing the scanner drive cable, see the Reader Unit Service Manual.

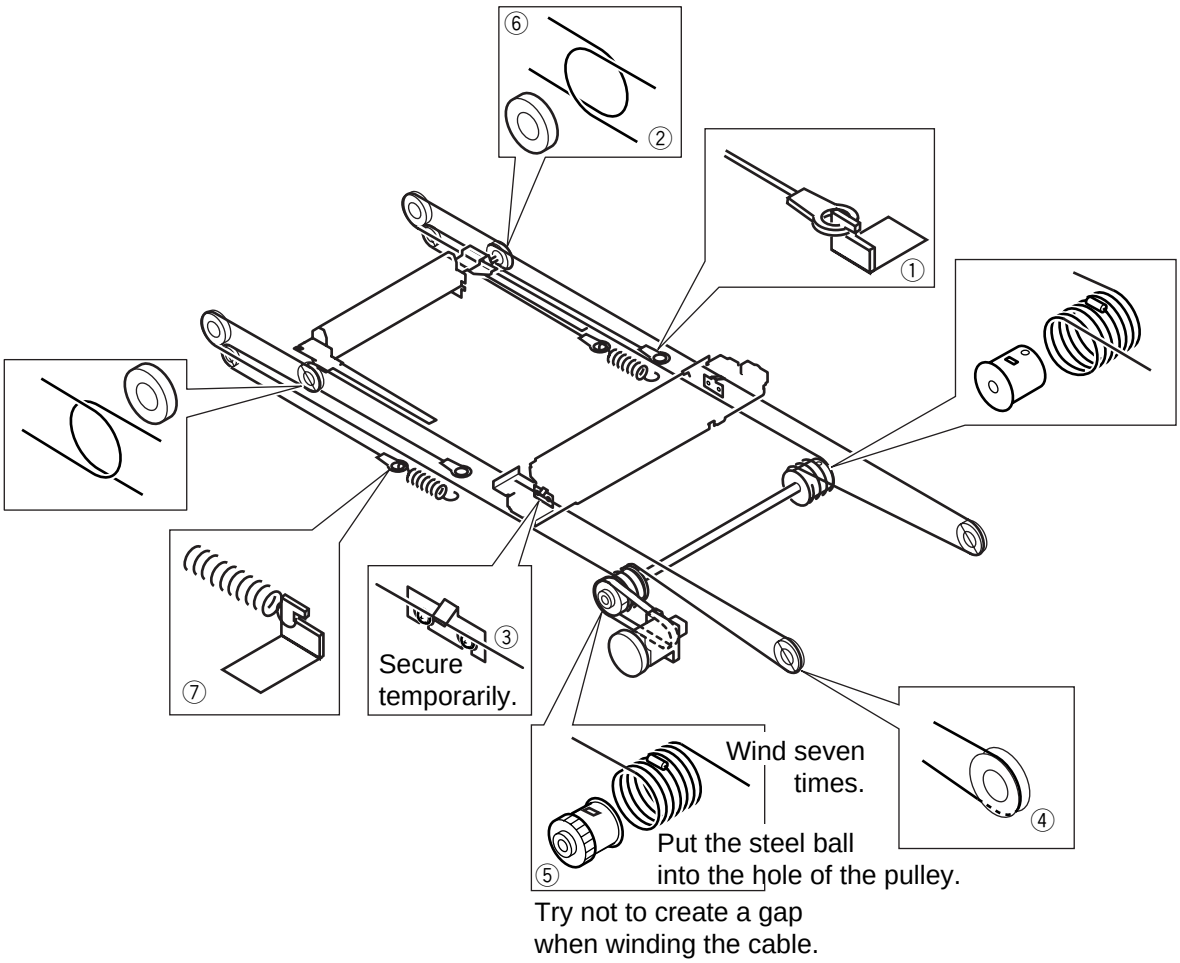


Figure 2-6

Caution:

1. Check to make sure that the scanner drive cable is not twisted and it has not ridden over the pulley.
2. Move the No. 1 mirror mount and the No. 2 mirror mount by hand to make sure that it moves smoothly. At this time, take care not to touch the reflecting plate.
3. Take care not to damage the cable with the edge of the metal plate.

B. ELECTRICAL

1. When Replacing the Reader Controller PCB

Caution:

Do not mount a reader controller PCB equipped with an EEPROM to a different machine.

1) Remove the two screws, and remove the two face plates; then, detach the reader unit lower front cover.
2) If you can make a check in service mode,
   • Record the settings of the items (15 in total) shown in service mode on the reader unit service label, and go to step 3). (You will have to remove the reader unit lower front cover.)
   If you cannot make a check in service mode,
   • Go to step 3).
3) Remove the reader controller PCB as shown in V.B.1. "Removing the Reader Controller PCB" in Chapter 4. Then, detach the EEPROM from the old reader controller PCB.
4) Mount the EEPROM removed in step 3) to the new reader controller PCB.

Caution:

Be sure to use the EEPROM removed in step 3).

5) Mount back the parts except the cover removed in step 1).
6) Connect the reader unit power plug to the power outlet, and turn on the rear power switch and the control panel power soft switch in the order indicated.
   At this time, the control panel will indicate 'E353' (mismatch of serial Nos. between the rear controller PCB and the EEPROM).
7) Under OPTION>USER>**SERIAL** in service mode, enter the five-digit serial No. of the reader unit using the keypad, and press the OK key.
8) See that the copier will automatically turn off and then on.
   • If you entered the wrong EEPROM serial No., the control panel will indicate 'E353' (mismatch of serial Nos. between the rear controller PCB and the EEPROM). If so, enter the correct reader unit serial No. once again in service mode (OPTION>USER>**SERIAL**).
9) Initialize the RAM on the reader controller PCB in service mode (FUNCTION>CLEAR>**R-CON**).
10) Enter the settings you recorded on the reader unit service label in service mode (COPIER>ADJUST>**ADJ-XY**, **CCD**; the same settings entered in step 2); thereafter, be sure to press the OK key).
    If you did not make a check in service mode in step 2), enter the settings indicated on the service mode.
11) Select COPIER>FUNCTION>MISC-R>**USE-LAMP** in service mode.
12) Turn the scanning lamp adjusting VR clockwise/counterclockwise until a beep is heard; then, press the OK key on the control panel.
    (See II.B.7. "When Replacing the Intensity Detection PCB" in Chapter 12.)
13) Select COPIER>FUNCTION<**CCD-ADJ** in service mode.

14) See that **CCD-ADJ** is highlighted. Press the OK key on the control panel to start CCD auto adjustment.
15) See that END is indicated to indicate that CCD auto adjustment has ended. (The notation at the top of the screen will change as follows: READY>SERVICE>READY.)
16) Mount the lower front cover (with the service label) removed in step 1).
17) Turn off and then on the reader unit rear power switch, and turn on the control panel power soft switch.
18) Execute auto gradation correction in user mode.
19) End.

2. Upgrading the Reader Unit

The reader unit may be upgraded by replacing the ROM DIMM on the reader controller PCB or replacing the contents of the ROM DIMM by downloading.

a. Replacing the ROM DIMM on the Reader Controller PCB

1. Removing the ROM DIMM
Remove the ROM DIMM as shown in the Reader Unit Service Manual.

2. Mounting the ROM DIMM
1) Mount the ROM DIMM as shown in the Reader Unit Service Manual.
2) Mount back the parts.
3) Go to step 8) of the previous section 1. "When Replacing the Reader Controller PCB."

b. Replacing the Contents of the DIMM by Downloading

Note:

You will need the following for downloading operation:
- Utility program for upgrading and a PC to which the contents for the DIMM have been stored
- Bi-Centronics cable (IEEE 1284 Std-compliant).

■ Making Connections

1) Turn off the copier's control panel power soft switch and the reader unit rear power switch.
2) Remove the reader unit lower front cover, and the anti-noise plate on the switch.
3) Connect the copier (downloading connector) and the PC with a bi-Centronics cable.
   - Be sure that the PC is off.
   - Be sure to connect the 25-pin connector of the bi-Centronics cable to the PC, and the 36-pin connector to the copier.
4) Slide the switch shown in the figure to LOAD position.

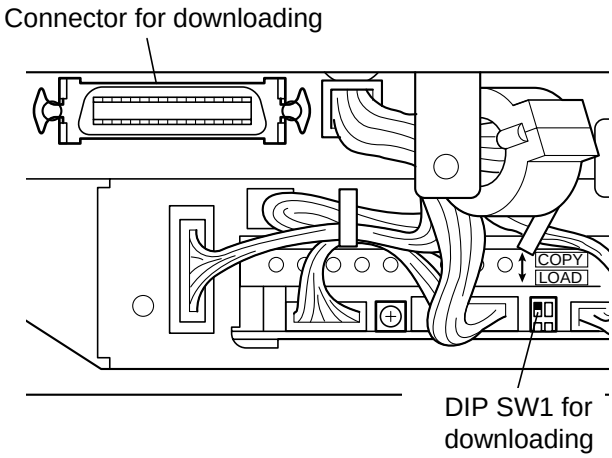
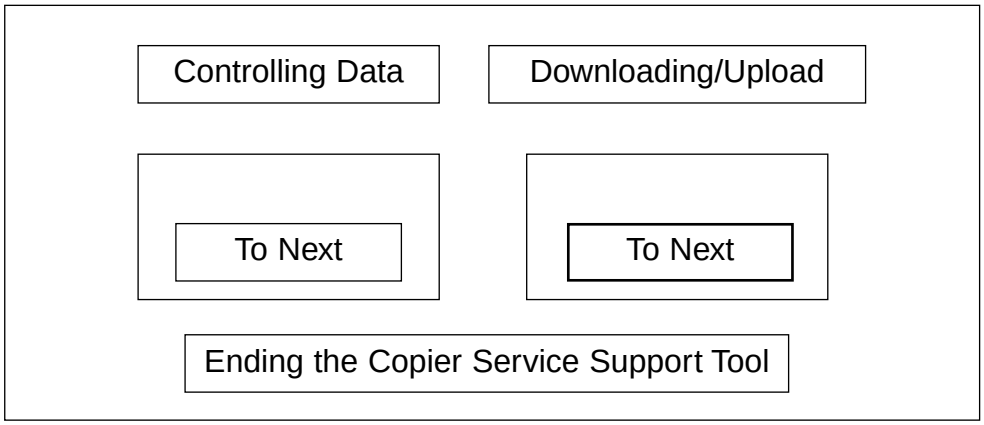


Figure 2-7

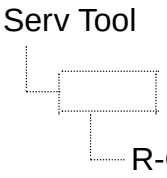
5) Turn on the PC, and start the copier service support tool.
6) Connect the copier's power plug to the power outlet, and turn on the reader unit rear power switch and the control panel power switch.

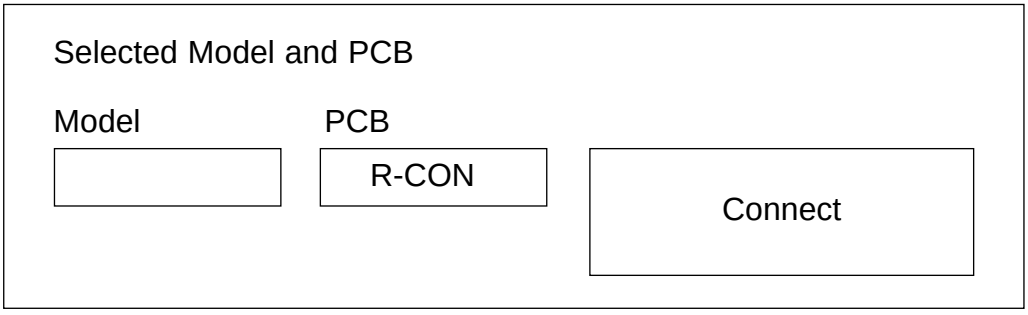
■ Downloading

1) Select 'To Main Menu' on the start-up menu (copier service support tool).
2) Select 'To Next' under 'Downloading/Upload'.



3) Select the model and the PCB for downloading, and select 'Connect'.





4) Follow the instructions on the PC screen to download the contents to the flash ROM.
5) When downloading has ended, turn off the PC as follows:
OK>To PCB Select Menu>To Main Menu>End Copier Service Support Tool>End

■ After Downloading

1) Turn off the machine's control panel power soft switch and the reader rear power switch, and disconnect the power plug.
2) Disconnect the bi-Centronics cable from the PC and the machine.
3) Slide the downloading switch (DIP SW1) to COPY position.

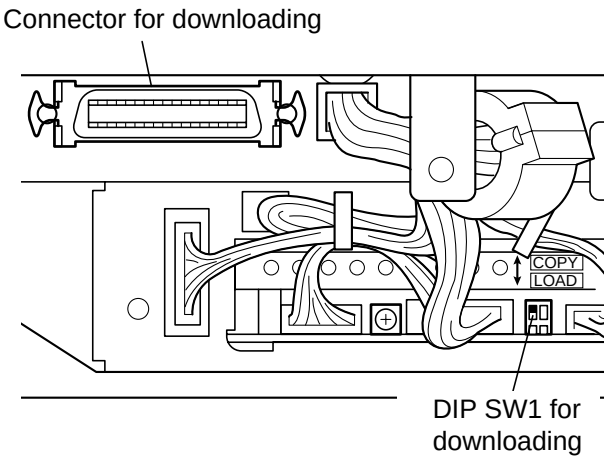


Figure 2-8

4) Connect the machine's power plug to the power outlet, and turn on the reader unit rear power switch and the control panel power soft switch.
5) Start service mode, and check the ROM version.
   COPIER>DISPLAY>**VERSION**
6) After a check, mount the anti-noise plate and the lower front cover.

3. When Replacing the DC Controller PCB

a. Without the Reader Unit Installed (with the printer board installed)

1) Connect the power plug to the power outlet; and while holding on the “Menu key, Enter/Online key, and Cancel key” on the control panel at the same time until ”Start SELF-TEST” displays. The panel displays will show “Display” to indicate that service mode has started after the printer unit checks itself.
2) Using the Menu key on the control panel, select “READ MEMORY”.
3) Press the ENTER key to select “READ FROM DCON”.
4) Using the ∧ or ∨ key, select ‘YES’.
5) Press the ENTER key to execute.
6) See that “READ FROM DCON EXECUTING>” is indicated.
7) Turn off the printer unit power switch and disconnect the power plug.
8) Perform the steps under VIII.C.4 “Removing the DC Controller PCB” in Chapter 4 to remove the DC controller PCB and mount the new DC controller PCB.
9) Put back the parts that have been removed. (However, it is better not to mount the rear cover of the printer unit until after checking to see that copier operates normally.)
10) Connect the power plug to the power outlet; and enter the service mode once agein.
11) Using the Menu key on the control panel, select “WRITE MEMORY”.
12) Press the ENTER key to select “WRITE TO DCON”.
13) Using the ∧ or ∨ key, select ‘YES’.
14) Press the ENTER key to execute.
15) See that “WRITE TO DCON EXECUTING>” is indicated.
16) End.

b. With the Reader Unit Installed

1) Remove the DC controller PCB.
2) Mount the new DC controller PCB.
3) Mount back the parts. (However, do not mount the printer unit rear cover until you have made sure that the machine operates normally.)
4) Connect the power plug to the power outlet, and turn on the reader rear power switch and the control panel power soft switch in the order indicated.
5) Select COPIER>FUNCTION>MISC-P>**DC-LOAD** in service mode to highlight, and press the OK key.
6) End service mode, and turn off and then on the control panel power soft switch to load the data (all items of ADJUST>IMG-REG, FEED-ADJ, HV-TR) backed up on the reader controller PCB to the DC controller PCB.
7) Check to make sure that settings have been entered under ADJUST>IMG-REG, FEED-ADJ, HV-TR in service mode. If settings are missing, go back to step 5); if settings are still missing, enter the values indicated on the printer unit service label for ADJUST>IMG-REG, FEED-ADJ, and enter the standard value for ADJUST>HV-TR.
8) Execute auto gradation correction in user mode.
9) End.

4. When Replacing the CCD Unit

1) Record the values (**AL-RG, AL-GB**) shown on the CCD unit to the service label attached to the reader unit lower front cover.
2) Turn off the copier, and mount the new CCD unit to the copier.
3) Turn on the copier.
4) Enter the new settings in ADJUST>CCD>**AL-RG, AL-GB** in service mode.
5) Execute CCD auto adjustment in FUNCTION>CCD>**CCD-ADJ** in service mode.
6) Mount the reader unit lower front cover.
7) Execute auto gradation correction in user mode.
8) End.

5. When Replacing the Scanning Lamp

1) Replace the scanning lamp as shown in the Reader Unit Service Manual; then, mount back the parts.
2) Turn on the rear power switch/control panel power soft switch.
3) Remove the two face covers and two screws; then, detach the reader unit lower front cover.
4) Turn on the control panel power soft switch, and wait about 5 min (so that the scanning lamp warms).
5) Select COPIER>FUNCTION>MISC-R>**LAMP-ADJ** in service mode, and press the OK key. (The notation at the top will be 'SERVICE'.)
6) When the scanning lamp has turned on, turn the scanning lamp adjusting VR clockwise/counterclockwise until a beep is heard.

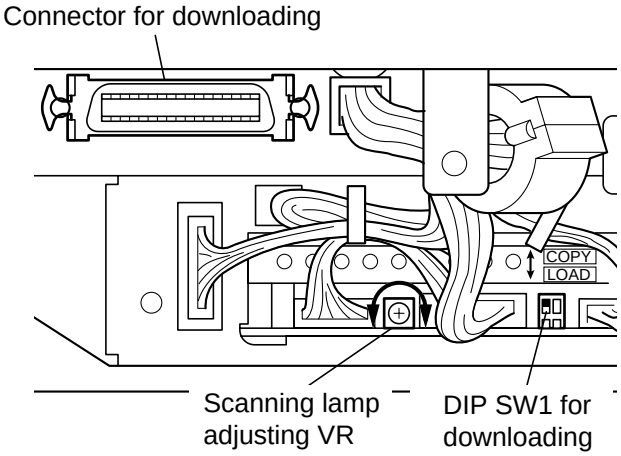


Figure 2-9

7) Press the OK key on the control panel screen. (The notation at the top will be 'READY'.)
8) Select COPIER>FUNCTION>CCD>**CCD-ADJ** in service mode.
9) When '**CCD-ADJ**' is highlighted, press the OK key on the control panel screen to start CCD auto adjustment.
10) See that 'END' has appeared on the screen to indicate that CCD auto adjustment has ended. (The notation at the top will be 'READY', 'SERVICE', and then 'READY'.)
11) Mount the lower front cover removed in step 3).
12) Execute auto gradation correction in user mode.
13) End.

6. When Removing/Mounting the Scanning Lamp or When Replacing the Intensity Detection PCB

1) Mount back the removed scanning lamp. Or, replace the intensity detection PCB as shown in the Reader Unit Service Manual, and mount back the parts.
2) Turn on the rear power switch/control panel power soft switch.
3) Remove the two face covers and the two screws; then, detach the reader unit lower front cover.
4) Turn on the control panel power soft switch, and wait about 5 min (so that the scanning lamp warms up).
5) Select COPIER>FUNCTION>MIS-R>**USE-LAMP**, and press the OK key. (The notation at the top will be 'SERVICE'.)
6) When the scanning lamp has turned on, turn the scanning lamp adjusting VR clockwise/counterclockwise until a beep is heard.

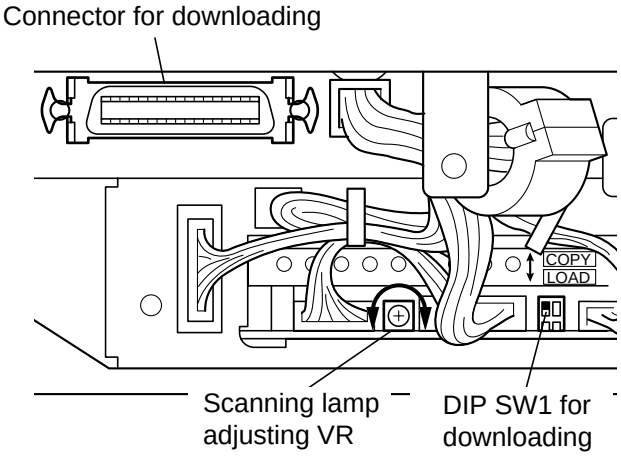


Figure 2-10

7) Press the OK key on the control panel screen. (The notation at the top will be 'READY'.)
8) Select COPIER>FUNCTION>**CCD>CCD-ADJ**.
9) When 'CCD-ADJ' is highlighted, press the OK key on the control panel screen to start CCD auto adjustment.
10) See that 'END' has appeared on the screen to indicate that CCD auto adjustment has ended. (The notation at the top will be 'READY', 'SERVICE', and then 'READY'.)
11) Mount the lower front cover removed in step 3).
12) Execute auto gradation correction in user mode.
13) End.

7. When Replacing the Standard White Plate

1) Select COPIER>ADJUST>CCD in service mode to bring up the input screen.
2) Enter the settings shown on the new standard white plate in COPIER>ADJUST>CCD>**W-PLT-X, W-PLT-Y, W-PLT-Z** in service mode, and press the OK key.

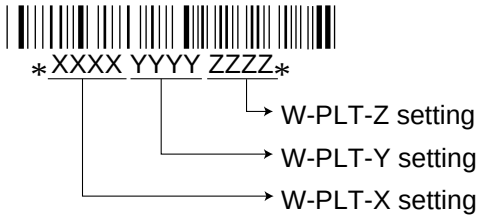


Figure 2-11

3) Turn off the control panel power soft switch and the rear power switch, and mount the new standard white plate to the copier.
4) Turn on the rear power switch, and then turn on the control panel power soft switch.
5) Select COPIER>FUNCTION>CCD>**CCD-ADJ** in service mode.
6) When '**CCD-ADJ**' is highlighted, press the OK key on the control panel screen to start CCD auto adjustment.
7) See that 'END' has appeared on the screen to indicate that CCD auto adjustment has ended. (The notation at the top will be 'READY', 'SERVICE', and then 'READY'.)
8) Execute auto gradation correction in user mode.
9) End.

8. When Replacing the AP-IP PCB

1) Select COPIER>FUNCTION>CCD>CCD-ADJ in service mode.
2) When 'CCD-ADJ' is highlighted, press the OK key on the control panel screen to start CCD auto adjustment.
3) See that 'END' has appeared on the screen to indicate that CCD auto adjustment has ended. (The notation at the top will be 'READY', 'SERVICE', and then 'READY'.
4) Execute auto gradation correction in user mode.
5) End.

9. Checking the Photointerrupters

The machine's photointerrupers may be checked either using a conventional meter or in service mode (by operating on the control panel of the printer unit). (If the reader unit is installed, you may use the control panel of the reader unit.)

a. Using a Meter
1) SET the meter range to 30 VDC.
2) Connect the - probe of the meter to GND on the DC controller PCB.
3) Connect the + probe of the meter to the terminals (on the DC controller PCB) indicated on the pages that follow.
4) Make checks as indicated. (See the tables on pp. 2-16 ff.)

b. Using Service Mode
• Without the Reader Unit Installed (with the printer board installed)
1) Connect the power plug to the power outlet; and while holding on the "Menu key, Enter/Online key, and Cancel key"on the control panel at the same time until "Start SELF-TEST" displays. The panel displays will show "Display" to indicate that service mode has started after the printer unit checks itself.
2) Using the Menu key on the control panel, select "SENSOR MONITOR".
3) Press the ENTER key to select "SENSOR MONITORING".
4) Check to make sure that "SENSOR MONITORING" has appeared on the first row of the display, indicating that at the mode in question has been selected.
5) Turn on the sensor in question manually so that the result of monitoring will appear on the second row of the display.
• The result of monitoring is indicated by means of a hexadecimal code (2 digits; either xx or yy group).

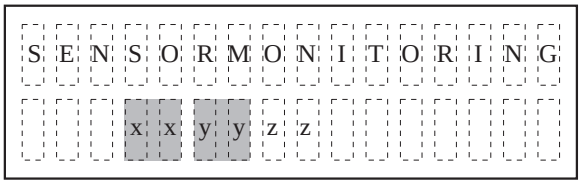


Figure 2-12 Control Panel of the Printer Unit

Note:

1. The notation “zz” shown on the display (2nd row) is for use at the factory for checks and is not relevant to servicing work.
2. Each sensor has its own response time, some requiring as much as about 5 sec. Be sure to allow an adequate period of time before making a decision on each sensor.
3. If multiple sensors are turned on at the same time, the result will be the sum of the codes obtained for all sensors (in hexadecimal notation).
4. To execute sensor monitor mode, be sure to remove the intermediate transfer drum, all cartridges, and secondary transfer belt assembly before starting service mode. (Otherwise, you could inadvertently touch operating parts.)

Further, you need to remove the following parts for respective sensors in view of the type of work to perform:

- For PS1903 and PS5, the fixing assembly.
- For PS11, the upper cover assembly.
- For PS1207, the cassette 1.
- For PS1208, the cassette 2.

• With the Reader Unit Installed

1) Start service mode.
2) Select COPIER>I/O>DC-CON or R-CON in sequence to bring up the screen shown in Figure 2-13.
3) Make checks as shown. (See pp. 2-16 ff.)

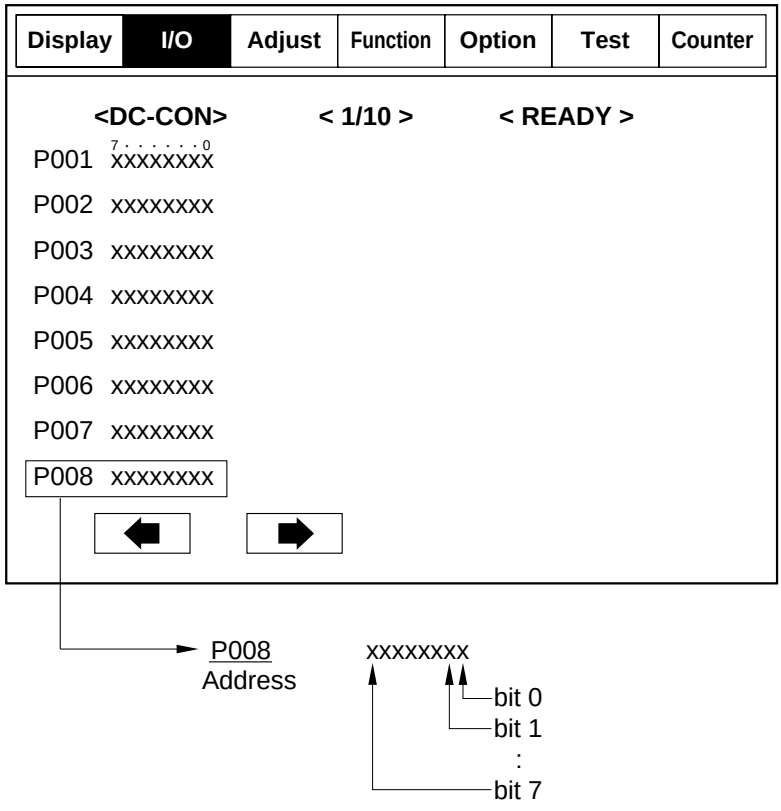


Figure 2-13

No.		PS1	PS3 *1	PS5
Name		Registration paper sensor	Developing rotary position sensor	Separation sensor
Meter probe (+)		J212-10	J207-5	J212-7
Service mode	Printer unit panel	01 (display reading), xx (display position)		C4 (display reading), xx (display position)
	Reader unit panel	DC-CON, P001 bit 0		DC-CON, P001 bit 2
Checks (normal as described)		While in standby, when the detecting lever is • pushed down, '0'. • not pushed down, '1'.	While in standby, press the turret button to turn the color cartridge. When the color cartridge is • at rest (Y), '1'. • otherwise, '0'.	While in standby, when the detecting lever is • pushed down, '0'. • not pushed down, '1'.

No.		PS10	PS11	PS17
Name		Face-down tray full sensor	Face-down try delivery sensor	Pick-up assembly paper sensor
Meter probe (+)		J220-A3	J207-5	J210-8
Service mode	Printer unit panel		10 (display reading), xx (display position)	02 (display reading), xx (display position)
	Reader unit panel		DC-CON, P001 bit 4	DC-CON, P001 bit 1
Checks (normal as described)		While in standby, when the light-blocking plate is • moved to PS10, '1'.	While in standby, the light-blocking plate is • moved to PS11, '1'.	While in standby, paper is • put over PS17, '0'.

No.		PS18	PS19 *2	PS23
Name		Pick-up unit cover sensor	Multifeeder tray last sheet sensor	Duplexing feeding roller 1 home position sensor
Meter probe (+)		J210-16	J208-3	J2007-6 *2
Service mode	Printer unit panel			
	Reader unit panel		DC-CON, P002 bit 0	
Checks (normal as described)		While in standby, the pick-up unit cover is • opened, '0'. • closed, '1'.	While in standby, when the roll under PS19 is rotated, alternately '0' and '1'.	While in standby, remove the duplexing unit, and move the light-blocking plate to the sensor, and put the duplexing unit back in. When the light-blocking plate is • moved over the sensor, '1'. • not moved over the sensor, '0'.

No.		PS24	PS25	PS26
Name		Duplexing unit paper sensor	Horizontal registration guide home position sensor	Reversal paper sensor
Meter probe (+)		J2008-3 *3	J2006-3 *3	J2007-3 *3
Service mode	Printer unit panel			
	Reader unit panel	DC-CON, P002 bit 4		DC-CON, P002 bit 5
Checks (normal as described)		While in standby, when paper is • put over PS24, '0'.	While in standby, remove the duplexing unit, and move the light-blocking plate to the sensor, and put the duplexing unit back in. When the light-blocking plate is • moved over the sensor, '1'. • not moved over the sensor, '0'.	While in standby, when paper • is put over PS26, '0'.

No.		PS30	PS101 *4	PS102 *4
Name		Upper left cover sensor	Original scanner home position sensor	Copyboard cover open/closed sensor
Meter probe (+)		J220-A4	J1609-A2	J1609-A5
Service mode	Printer unit panel			
	Reader unit panel		Display > SENSOR > SC-HP	R-CON, P004 bit 0
Checks (normal as described)		While in standby, when the upper cover is • opened, '0'. • closed, '1'.	While in standby, move the No,1 mirror mount. When the light-blocking plate. • is moved over PS101, '1'	While in standby, the copyboard cover. • is opende, '0'. • is closed, '1'.

No.		PS1201	PS1202
Name		Cassette 2 sensor	Cassette 1 sensor
Meter probe (+)		J210-10	J210-6
Service mode	Printer unit panel		
	Reader unit panel		
Checks (normal as described)		While in standby, when the cassette 2 is • slid out, '0'. • slid in, 1'	While in standby, when the cassette 1 is • slid out, '0'. • slid in, '1'.

No.		PS1203	PS1204
Name		Cassette 2 paper level sensor 2	Cassette 2 paper levels sensor 1
Meter probe (+)		J210-12	J210-13
Service mode	Printer unit panel		
	Reader unit panel		
Checks (normal as described)		While in standby, put one sheet of paper in the cassette 2. When the cassette is slid in, • J210-12 is '0', and J210-13 is '1'. Put about 100 sheets of paper. When the cassette is slid in, • J210-12 is '1', and J210-13 is '1'. Put about 500 sheets of paper. When the cassette is slid in, • J210-12 is '0', and J21013 is '0'.	

No.		PS1205	PS1206	PS1207
Name		Cassette 1 paper level sensor 2	Cassette 1 paper level sensor 1	Cassette 2 paper absent sensor
Meter probe (+)		J210-14	J210-15	J210-11
Service mode	Printer unit panel			08 (display reading), yy (display position)
	Reader unit panel			DC-CON, P002 bit 3
Checks (normal as described)		While in standby, put one sheet of print paper in the cassette. When the cassette is slid in, • J210-14 is '0', and J210-15 is '1'. Put about 100 sheets of paper. When the cassette is slid in, • J210-14 is '1', and J210-15 is '1. Put about 500 sheets of paper. When the cassette is slid in, • J210-14 is '0', and J210-15 is '0'.		While in standby, when the cassette 2 • contains paper, '0'. • does not contain paper, '1'.

No.		PS1208	PS1301	PS1302 *1
Name		Cassette 1 paper absent sensor	Multifeeder tray paper sensor	Holding plate position sensor
Meter probe (+)		J210-5	J213-7	J213-6
Service mode	Printer unit panel	02 (display reading), yy (display position)	01 (display reading), yy (display position)	
	Reader unit panel	DC-CON, P002 bit 1		
Checks (normal as described)		While in standby, when the cassette 1 • contains paper, '0'. • does not contain paper, '1'.	While in standby, when the multifeeder • contains paper, '0'. • does not contain paper, '1'.	While in standby, when the light-blocking plate is moved over PS1302, '0'. (The cam gear is turned on to lower the holding plate.)

No.		PS1903
Name		Fixing delivery sensor
Meter probe (+)		J207-12
Service mode	Printer unit panel	
	Reader unit panel	DC-CON, P001 bit 3
Checks (normal as described)		While in standby, the white lever over the fixing delivery sensor is • pushed, '1'. • not pushed, '0'. Note that this sensor is a photosensor.

*1 Normally, remove the video interface cable and the video interface PCB before connecting the tester probe to the DC controller PCB of the printer unit. However, when checking the developing rotary position sensor (PS3), do not remove either of them. (For removal, see the Printer Unit Service Manual.)

*2 Open the right cover, and use the door switch actuator. (For details, see the Printer Unit Service Manual.)

*3 Found on the duplexing unit driver PCB. (For removal, see the Printer Unit Service Manual.)

*4 For the original scanner home position sensor (PS101) and the copyboard cover open/closed sensor (PS102), connect the probe to the reader controller PCB, requiring removal of the reader unit lower front cover and checking the operation from the copier's front.

CHAPTER 3 ARRANGEMENT AND FUNCTIONS OF THE ELECTRICAL PARTS

A. SENSORS

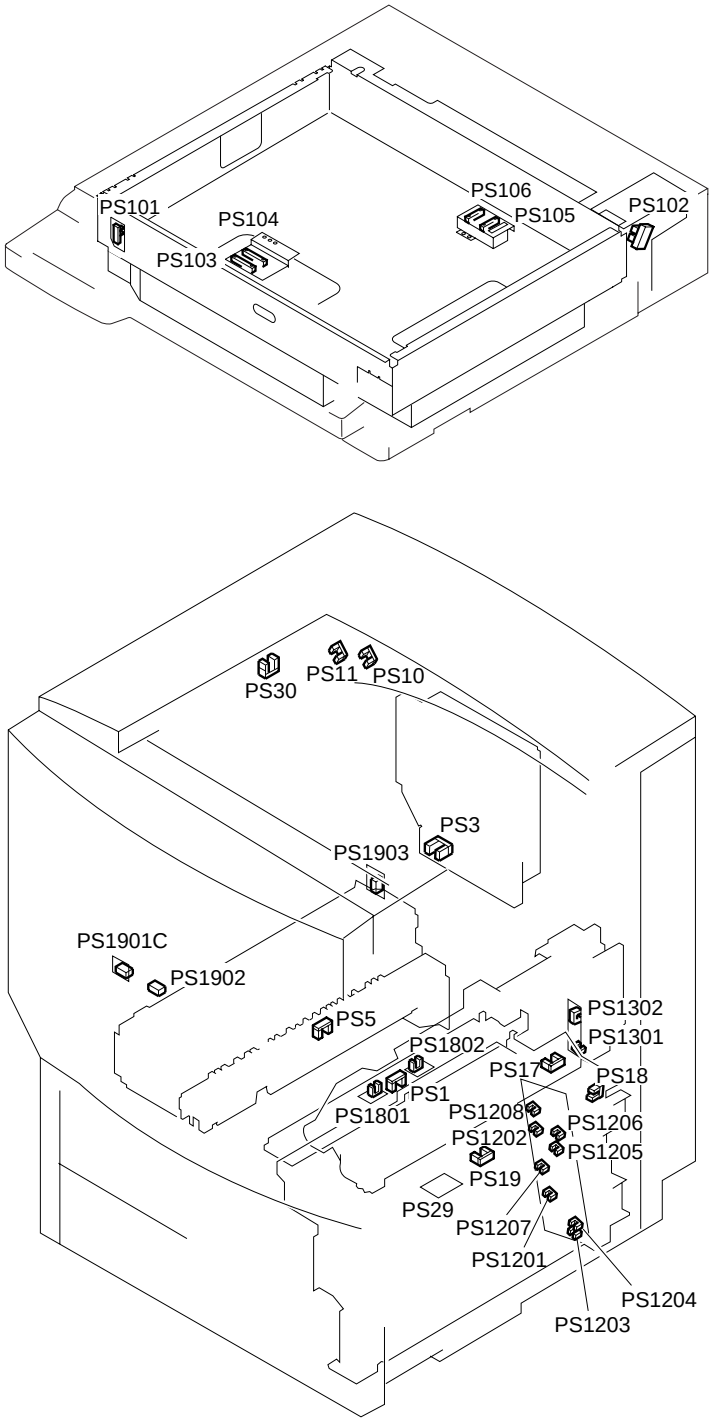


Figure 3-1

Symbol	Name	Notation	Description
	Photo-interrupter Photosensor	PS101	Scanner home position sensor
		PS102	Copyboard cover open/closed sensor
		PS103	Original size sensor 1
		PS104	Original size sensor 2
		PS105	Original size sensor 3
		PS106	Original size sensor 4

Symbol	Name	Notation	Description
	Photo-interrupter	PS1	Registration paper sensor
		PS3	Developing rotary position sensor
		PS5	Separation sensor
		PS10	Face-down tray full paper sensor
		PS11	Face-down tray delivery paper sensor
		PS17	Pick-up assembly paper sensor
		PS18	Pick-up unit cover sensor
		PS19	Multifeeder tray last sheet sensor
		PS30	Upper left cover sensor
		PS1201	Cassette 2 sensor
		PS1202	Cassette 1 sensor
		PS1203	Cassette 2 paper level sensor 2
		PS1204	Cassette 2 paper level sensor 1
		PS1205	Cassette 1 paper level sensor 2
		PS1206	Cassette 1 paper lever sensor 1
		PS1207	Cassette 2 paper absent sensor
		PS1208	Cassette 1 paper absent sensor
		PS1301	Multifeeder tray paper sensor
		PS1302	Holding plate position sensor
	Photosensor	PS29	Cassette 1 last paper sensor
		PS1801	Transparency sensor 1
		PS1802	Transparency sensor 2
		PS1903	Fixing delivery sensor
		PS1902	Color toner cartridge releasing lever sensor
		PS1901C	Color toner cartridge sensor

Table 3-1

B. THERMISTORS, LAMP, AND HEATERS

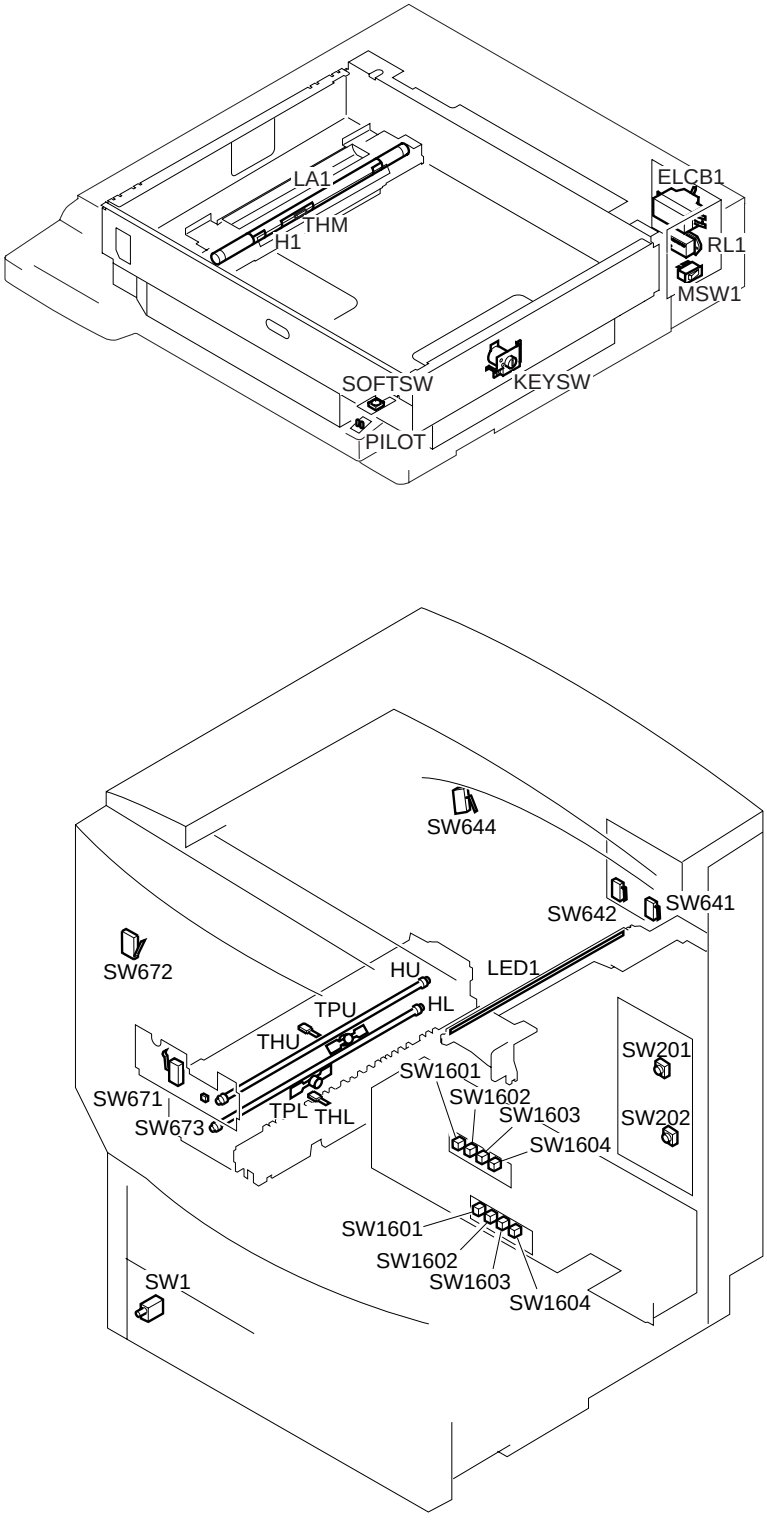


Figure 3-2

Symbol	Name	Notation	Description
	Thermistor	THM	Scanning lamp thermistor
	Lamp	LA1	Scanning lamp
	Heater	H1	Scanning lamp heater
	Relay	RL1	Power cut relay
	Leakage breaker	ELCB1	Leakage breaker
		MSW1	Reader unit rear power switch
		KEYSW	Key switch

Symbol	Name	Notation	Description
	Thermistor	THU	Upper fixing thermistor
		THL	Lower fixing thermistor
	Thermal switch	TPU	Upper fixing thermal switch
		TPL	Lower fixing thermal switch
	Lamp	LED1	Pre-exposure LED assembly
	Heater	HU	Upper fixing heater
		HL	Lower fixing heater
	Switch	SW1	Printer unit power switch
		SW201	Test print switch
		SW202	Reset switch
		SW641	Right cover switch
		SW642	Drum cartridge switch
		SW644	Black toner cartridge switch
		SW671	Delivery cover/front cover switch
		SW672	Toner cartridge cover switch
		SW673	Turret button switch
		SW1601	Cassette 2 size detecting switch 1
		SW1602	Cassette 2 size detecting switch 2
		SW1603	Cassette 2 size detecting switch 3
		SW1604	Cassette 2 size detecting switch 4
		SW1601	Cassette 1 size detecting switch 1
		SW1602	Cassette 1 size detecting switch 2
		SW1603	Cassette 1 size detecting switch 3
		SW1604	Cassette 1 size detecting switch 4

Table 3-2

C. CLUTCHES AND SOLENOIDS

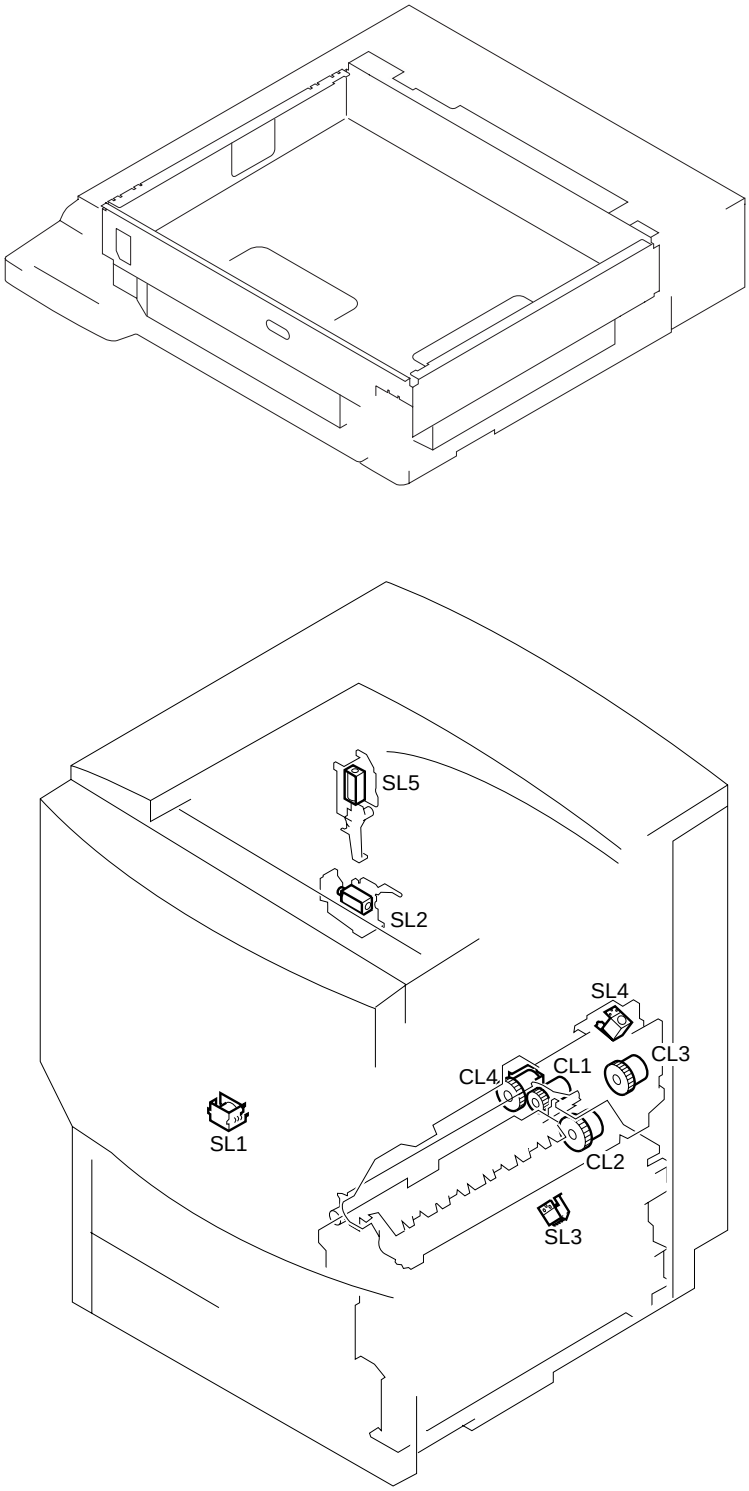


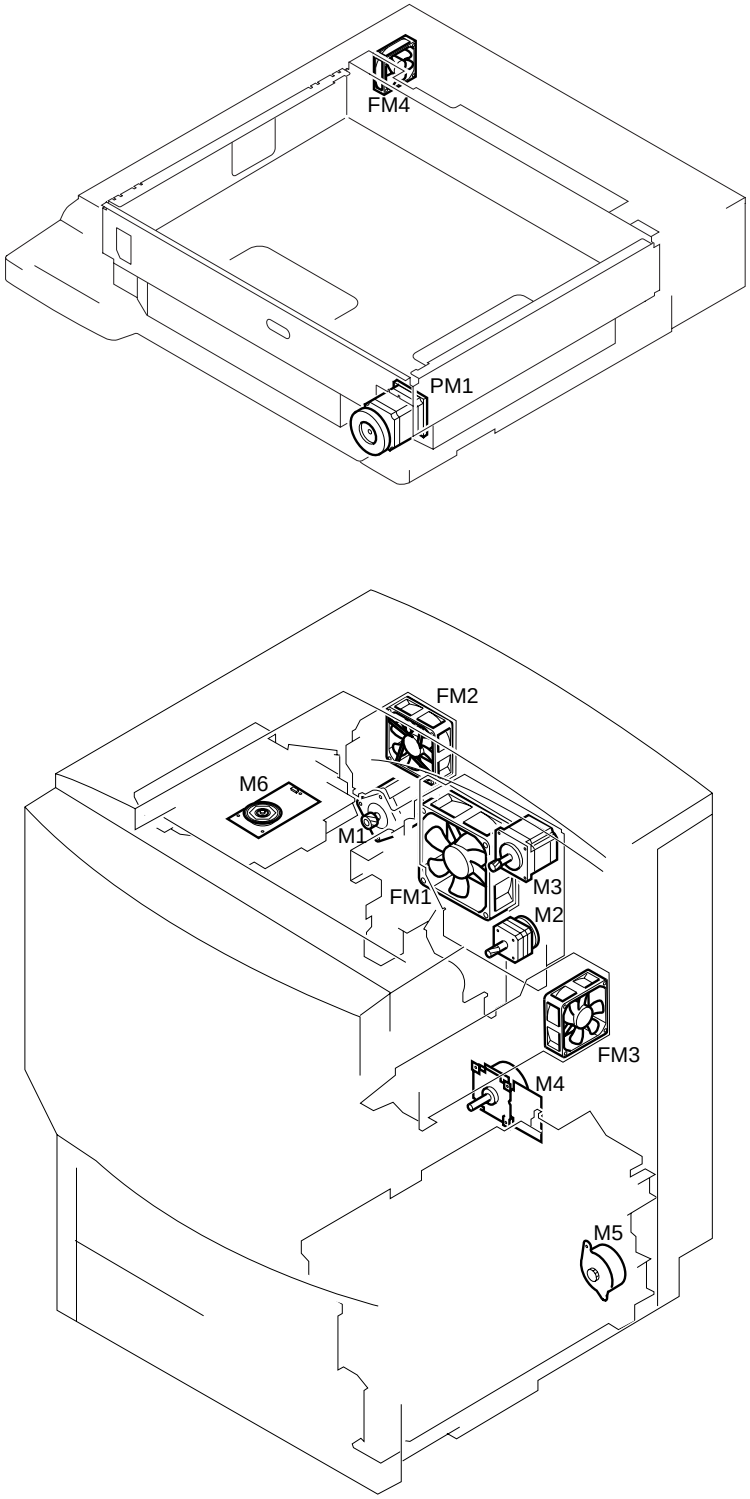
Figure 3-3

Symbol	Name	Notation	Description
	Clutch	CL1	Registration clutch
		CL2	Feeding clutch
		CL3	Multifeeder pick-up clutch
		CL4	Secondary transfer belt clutch
	Solenoid	SL1	ITD cleaning roller solenoid
		SL2	Face-up solenoid
		SL3	Cassette pick-up solenoid
		SL4	Holding plate solenoid
		SL5	Developing rotary stopper solenoid

Table 3-3

D. FANS, MOTORS, AND HEATERS

Figure 3-4



Symbol	Name	Notation	Description
	Fan	FM4	Power supply cooling fan
	Motor	PM1	Scanner motor

Symbol	Name	Notation	Description
	Fan	FM1	Heat discharge fan 1
		FM2	Heat discharge fan 2
		FM3	Heat discharge fan 3
	Motor	M1	Developing rotary motor
		M2	Drum motor
		M3	Cartridge motor
		M4	Main motor
		M5	Pick-up motor
		M6	Laser scanner motor

Table 3-4

E. PCBs

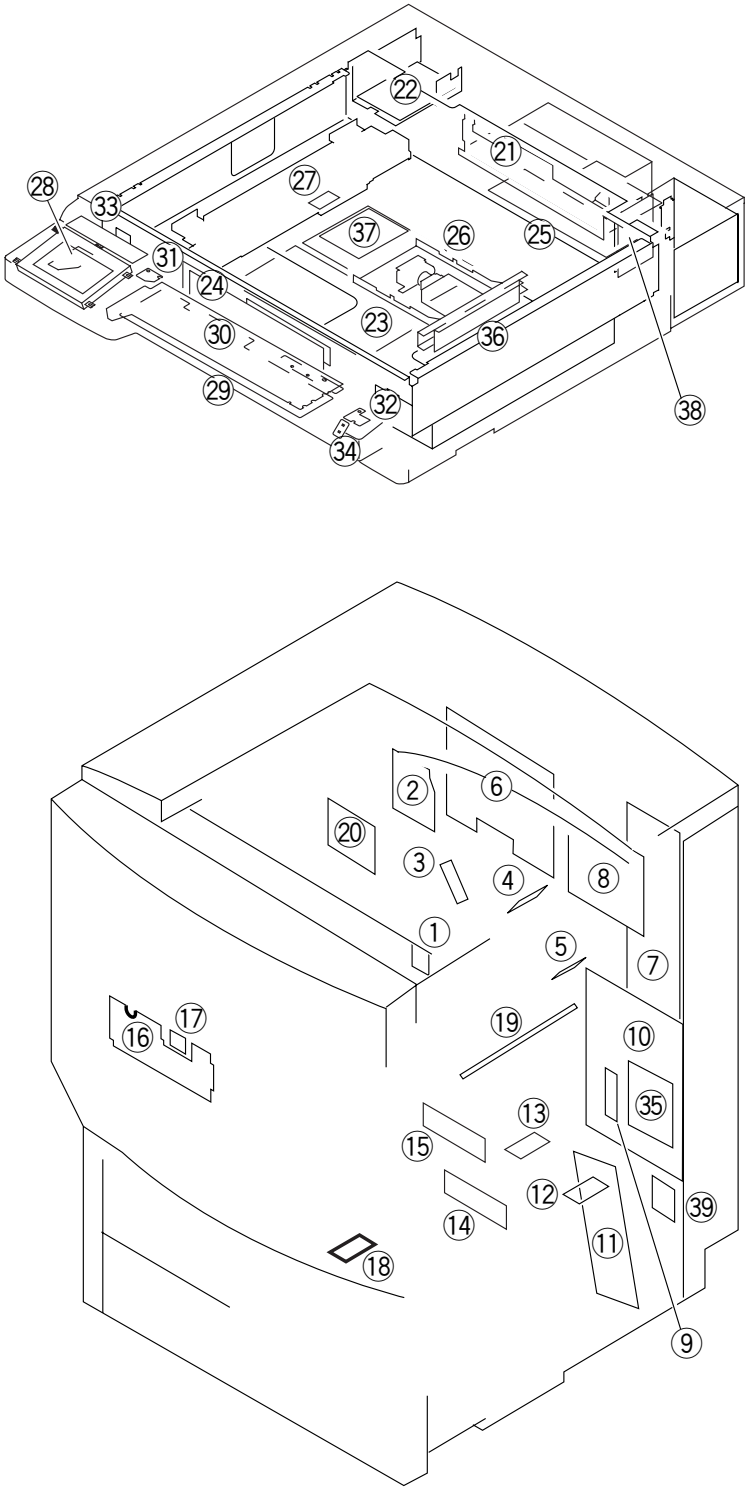


Figure 3-5

Ref.	Name	Description
㉑	Reader unit main power supply PCB	Supplies power to the reader unit.
㉒	Accessories power supply PCB	Supplies power to the accessories.
㉓	Reader controller PCB	Controls the reader unit operation sequence.
㉔	Scanner motor driver PCB	Controls the scanner motor drive.
㉕	Inverter PCB	Dives the scanning lamp.
㉖	AP-IP PCB	Controls analog/digital image processing.
㉗	Intensity detection PCB	Checks the intensity of the scanning lamp.
㉘	Control panel inverter PCB	Controls display indications.
㉙	Control panel CPU PCB	Controls the control panel operation sequence.
㉚	Keypad PCB	Controls the keypad.
㉛	LCD contrast adjustment PCB	Controls the screen contrast.
㉜	Control panel soft switch PCB	Controls the control panel soft switch.
㉝	Functions key PCB	Controls the functions key.
㉞	Control panel pilot lamp PCB	Controls the pilot lamp.
㊱	CCD/CCD driver PCB	Drives the CCD.
㊲	ECO PCB	Controls digital image processing.
㊳	Noise filter PCB	Removes noise from the power line.

Table 3-5 (a)

Ref.	Name	Description
①	Fixing delivery detection PCB	Detects paper passing through the fixing assembly.
②	Developing rotary motor PCB	Controls the rotation of the developing rotary.
③	Color toner level detection PCB	Detects the level of color toner.
④	Waste toner full detection PCB (light-receiving)	Detects the waste toner cartridge (when full; light-receiving section).
⑤	Waste toner full detection PCB (light-emitting)	Detects the waste toner cartridge (when full; light-emitting section).
⑥	High-voltage PCB 1	Controls the primary charging bias, black developing bias, and color developing bias.
⑦	High-voltage PCB 2	Controls the primary transfer bias, secondary transfer bias, secondary pre-transfer charging bias, fixing separation bias, and ITD cleaning roller bias.
⑧	Main relay PCB	Relays data among PCBs.
⑨	Multifeeder tray PCB	Controls the load on the multifeeder pick-up mechanism.
⑩	DC controller PCB	Controls the laser scanner, controls the video interface, and controls the temperature of the fixing assembly.
⑪	Pick-up PCB	Controls the load on the cassette pick-up mechanism.
⑫	Multifeeder tray paper width detection PCB	Detects the width of paper when the multi-feeder tray is selected.
⑬	Density detection PCB	Detects the density of toner (each color).
⑭	Cassette 2 paper size detection PCB	Detects the size of paper in the cassette 2.
⑮	Cassette 1 paper size detection PCB	Detects the size of paper in the cassette 1.
⑯	Sub relay PCB	Relays data among loads.
⑰	Color cartridge detection PCB	Detects the presence/against of each color toner cartridge.
⑱	Temperature/humidity detection PCB	Checks the environment inside the machine.
⑲	Pre-exposure LED relay PCB	Relays data among loads.
⑳	Separation static eliminating bias PCB	Controls the separation static eliminating bias.
㉟	Video interface PCB	Relays data between reader unit and DC controller PCB.
㊴	ECO2 PCB	Assists the DC controller PCB.

Table 3-5 (b)

F. DUPLEXING UNIT

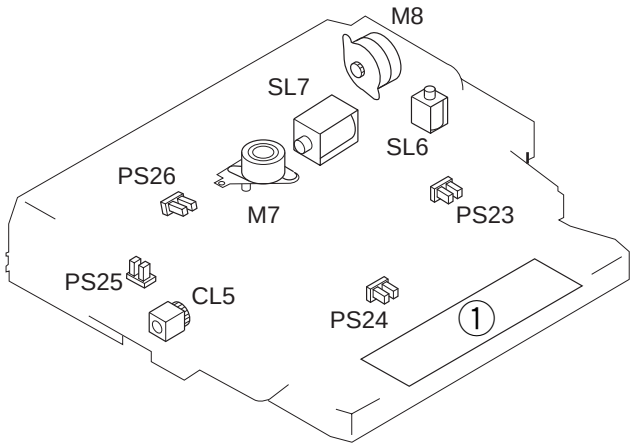


Figure 3-6

Symbol	Name	Notation	Description
CL	Clutch	CL5	Duplexing feeding clutch
	Photointer-rupter	PS23	Duplexing feeding roller 1 home positioner
		PS24	Duplexing unit paper sensor
		PS25	Horizontal registration guide home position sensor
		PS26	Reversal paper sensor
SL	Solenoid	SL6	Duplexing flapper solenoid
		SL7	Reversing roller releasing solenoid
M	Motor	M7	Horizontal registration motor
		M8	Duplexing motor

Ref.	Name	Description
①	Duplexing driver PCB	Controls various loads in the duplexing unit and checks various items.

Table 3-6

G. VARIABLE RESISTORS (VR), LIGHT-EMITTING DIODES (LED), AND CHECK PINS BY PCB

Of the variable resistors (VR), light-emitting diodes (LED), and check pins used in the copier, those that are used in the field are discussed.

Caution:

Do not touch VRs and check pins that are not discussed herein. They are for factory use and require special tools and highly accurate adjustment.

Note:

1. Some LEDs emit dim light even when off. This is a normal condition, and must be kept in mind.
2. VRs that may be used in the field… 
   VRs that must not be used in the field … 

1. Reader Controller PCB

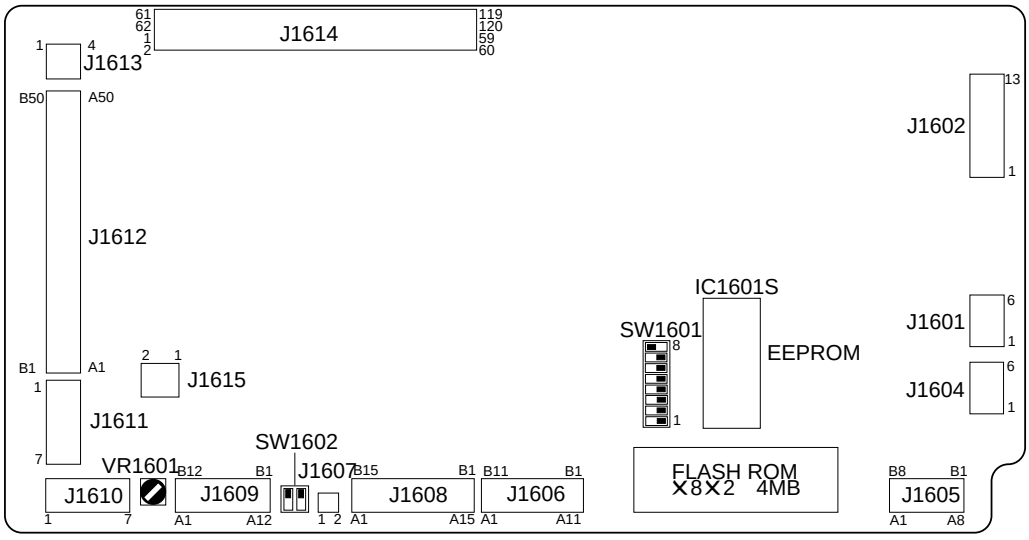


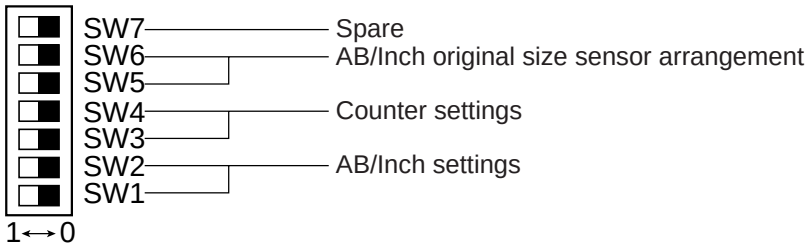
Figure 3-7

Notation	Name	Description
VR1601	VR for scanning lamp adjustment	Use it when replacing the scanning lamp, intensity detection PCB, or standard white plate.
SW1601	DIP SW for settings	See next page.
SW1602	DIP SW for downloading	Shift the left DIP SW up (COPY) for normal copying mode. Shift the left DIP SW down (LOAD) for downloading mode. Do not touch the right DIP SW. It is for factory use only.

Table 3-7

Details of SW1601

SW1601



• AB/Inch Settings

Configuration	SW1	SW2
AB	0	0
Inch	1	0
A	0	1
AB/Inch	1	1

• Counter Settings

Country	SW3	SW4
Japan	0	0
USA	1	0
TWN, Others	0	1
UK, CA, FRN, GER, AM, ITA	1	1

• AB/Inch Original Size Sensor Arrangement

Configuration	SW5	SW6
AB	0	0
Inch	1	0
A	0	1
None	1	1

• Spare (default)

SW7
0

2. AP-IP PCB

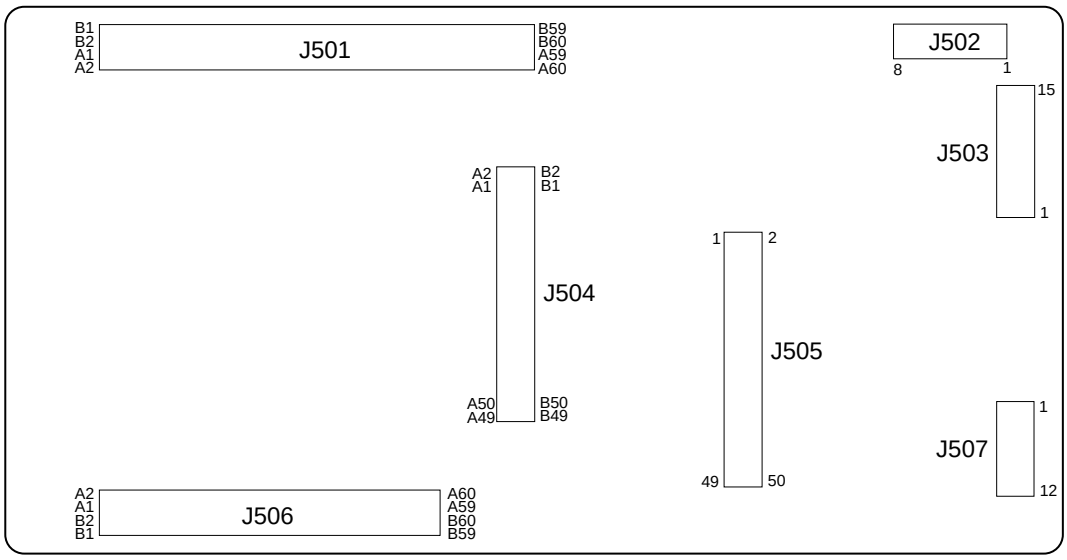


Figure 3-8

3. Scanner Motor Driver PCB

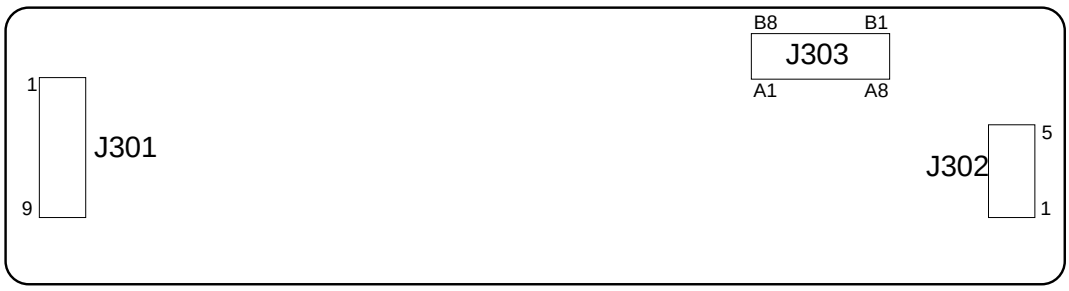


Figure 3-9

4. Video Interface PCB

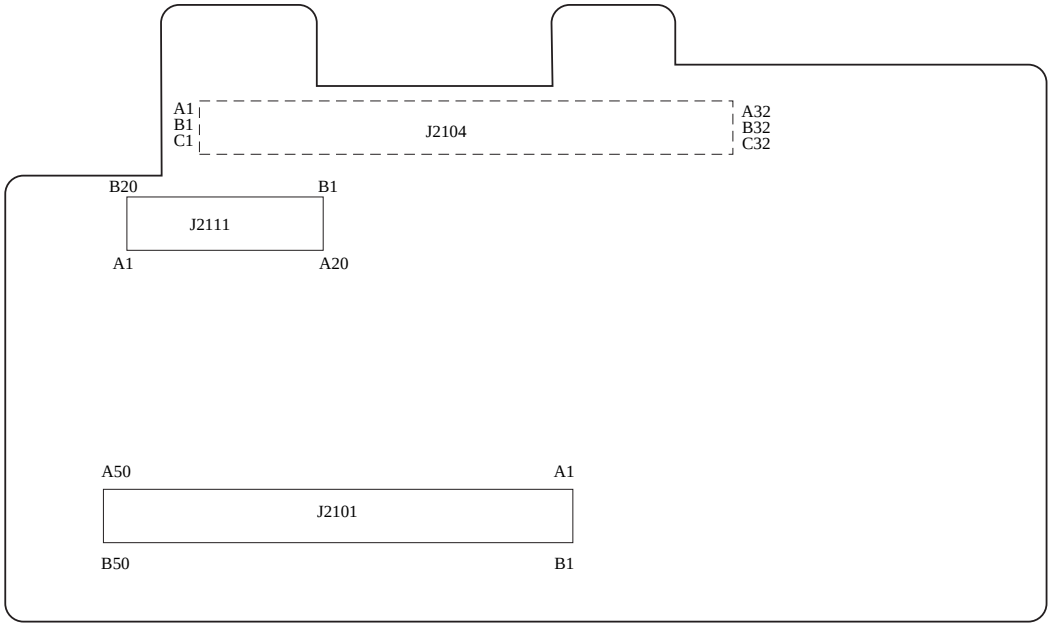


Figure 3-10

5. DC Controller PCB

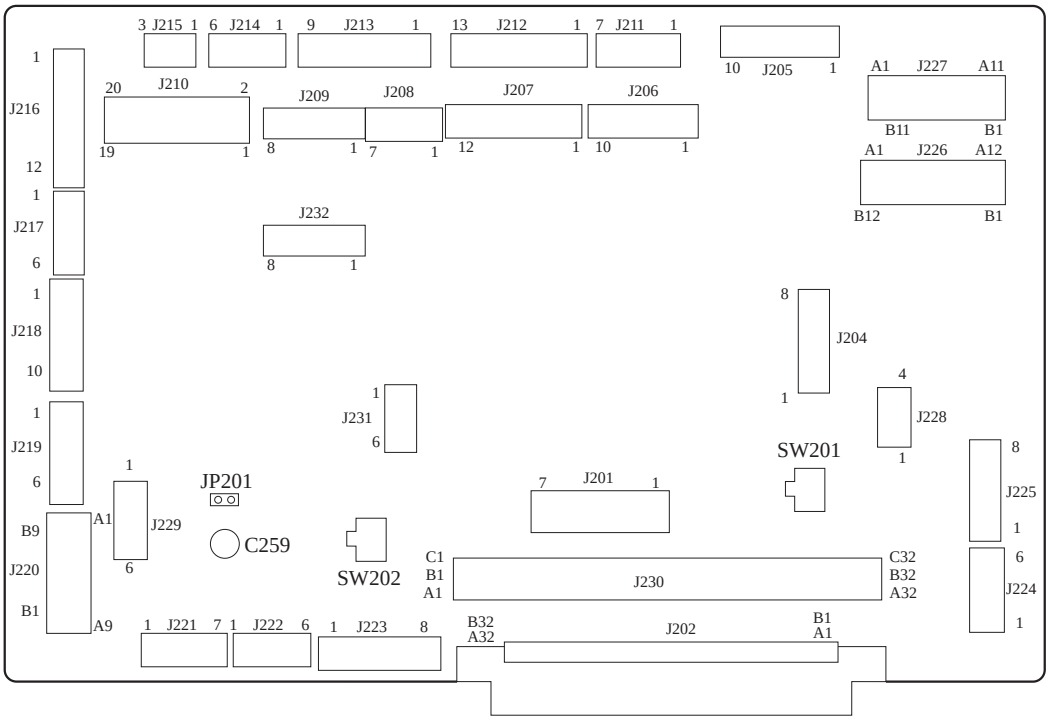


Figure 3-11

SW No.	Name	Remarks
SW201	Test print switch	
SW202	Reset switch	For factory.

Table 3-8

Caution:

If E001 or E003 occurs, the error data may have been stored in the error memory capacitor (C259) on the DC controller PCB. Be sure to discharge the capacitor after removing the cause of the problem. (Short J201 on the DC controller PCB to discharge the capacitor.)

6. Main Relay PCB

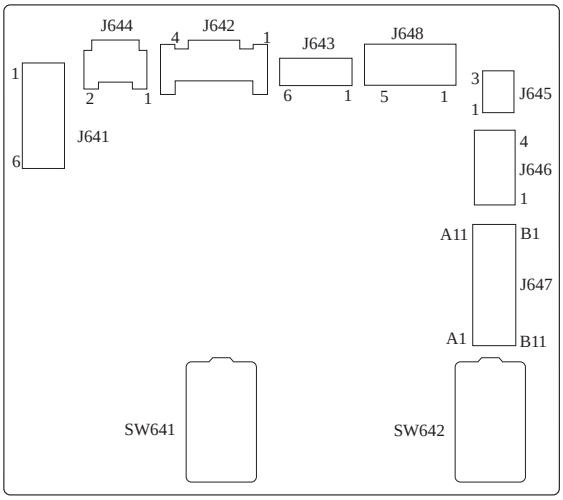


Figure 3-12

SW No.	Name
SW641	Right cover switch
SW642	Drum cartridge detecting switch

Table 3-9

7. Sub Relay PCB

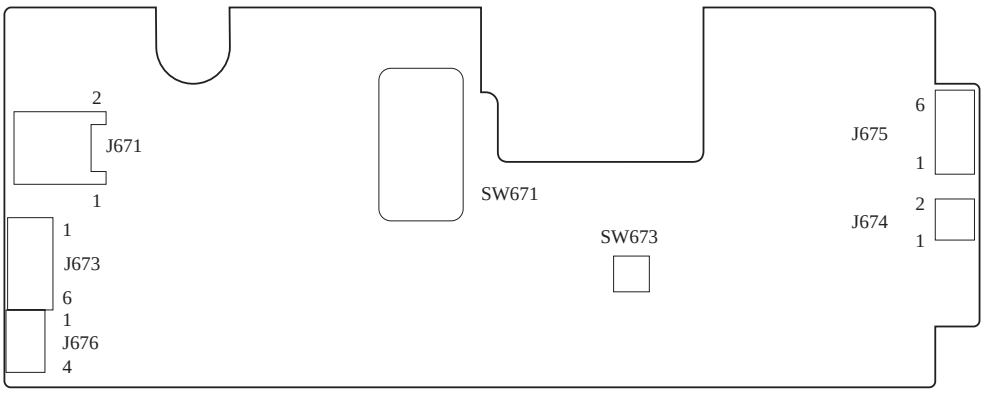


Figure 3-13

SW No.	Name
SW671	Delivery cover/front cover switch
SW672	Turret button switch

Table 3-10

8. Cassette Size Detection PCB

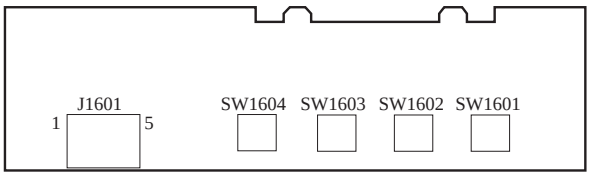


Figure 10-511

SW No.	Name
SW1601	Cassette detecting switch
SW1602	
SW1603	
SW1604	

Table 3-11

CHAPTER 4 SERVICE MODE

• With the Reader Unit Installed

Caution:
You cannot start service mode when the User screen indicates the "Wait" message after turning on the power. Start service mode when the "Wait (Select Auto Start)" or "Enter Group ID and ID No." message has appeared.

A. OUTLINE

The copier's service mode is divided into the following two major items, each with its own Initial screen:

No.	Initial item	Mode
1	COPIER	Copier
2	FEEDER	Feeder

Table 4-1

Each of these major items, further, consists of the following seven sub-items indicated on the Initial screens.

No.	Level 1 item	Mode
1	DISPLAY	Control Display mode
2	I/O	I/O mode
3	ADJUST	Adjust mode
4	FUNCTION	Run/Check mode
5	OPTION	Settings mode
6	TEST	Test Print mode
7	COUNTER	Counter mode

Table 4-2

1. Starting Service Mode and Making Selections

1) Press the User Mode key on the control panel.
2) Press the '2' and '8' on the keypad at the same time.
3) Press the User Mode key on the control panel.
   • The display changes to the screen shown in Figure 8-601.
4) Select an item on the touch panel.
   • The screen for the selected item will appear.

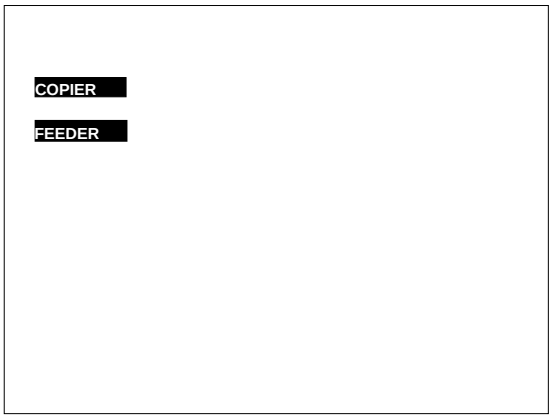


Figure 4-1

2. Ending Service Mode

A press on the Reset key will bring up the Service Mode Initial screen (Figure 4-1). Another press will end service mode, and the User screen will return.

3. Backing Up the RAM

Figure 4-2 shows the label attached behind the lower front cover (reader unit) and at the top of the inside cover (printer unit).

Each machine is adjusted at the factory, and the adjustment settings are recorded on these labels.

You must perform the following whenever you have replaced the reader controller PCB, replaced the DIMM, initialized the RAM, or replaced the DC controller PCB:

COPIER/ADJUST		Factory	1	2	3	4	5
ADJ-XY	ADJ-X						
	ADJ-Y						
CCD	W-PLT-X						
	W-PLT-Y						
	W-PLT-Z						
	A-RG						
	B-RG						
	A-GB						

COPIER/ADJUST		Factory	1	2	3	4	5
CCD	B-GB						
	AL-RG						
	AL-GB						
Body No.		Date.			FB4-0866		

Service Label (inside the lower front cover of the reader unit)

COPIER/ADJUST		Fact.	1	2	3	4
IMG-REG	REG-V-Y					
	REG-V-C					
	REG-V-K					
	REG2-V-Y					
	REG2-V-C					
	REG2-V-K					
FEED-ADJ	REGIST					
	ADJ-C1					
	ADJ-C2					
	ADJ-MF					
	REGIST2					
Body No.		Date.				

Service Label (top of the inside cover 1 of the printer unit)

Figure 4-2

4. Basic Operation

The screens are arranged in layers: Level 1/Level 2 screen and Level 3 screen.

a. Initial Screen

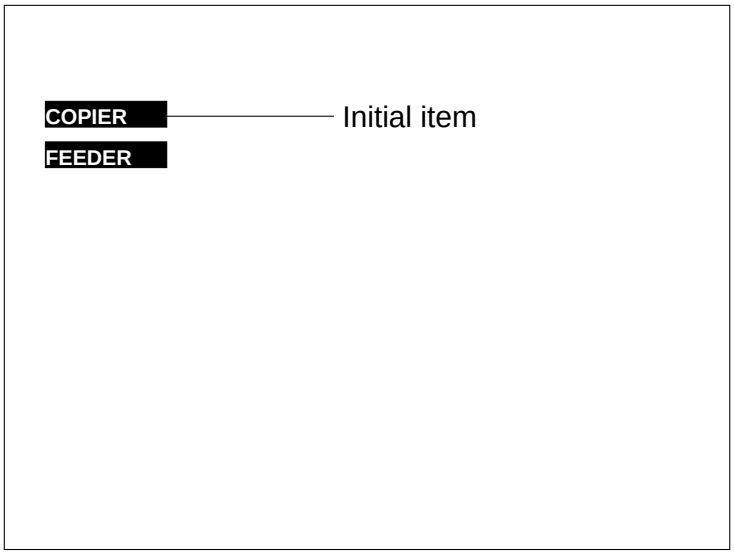


Figure 4-3

- To select an initial item, press the item (white text on a black background).

b. Level 1/Level 2 Item Screen

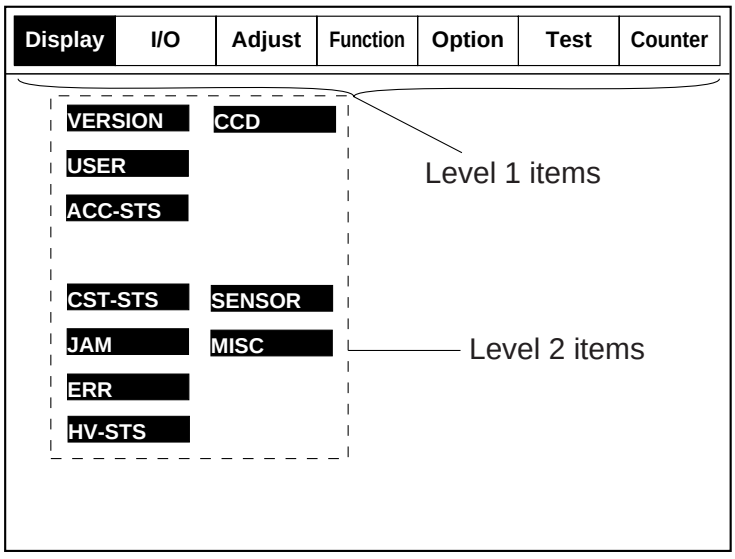


Figure 4-4

- To select a Level 1 item, press an item shown across the top of the screen.
- To select a Level 2 item, select an item shown as white text on a black background.

c. Level 3 Item Screen

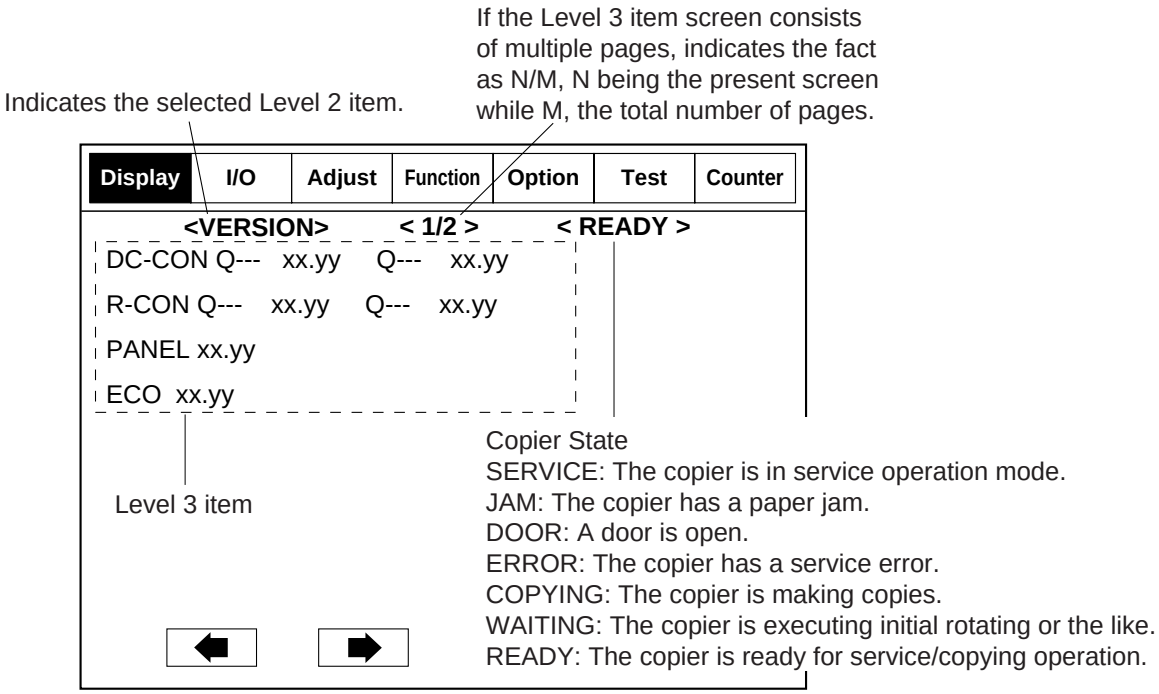


Figure 4-5

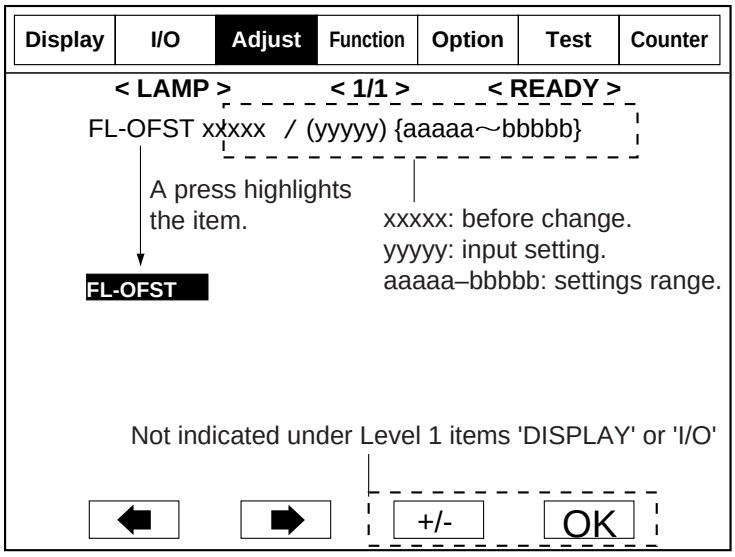


Figure 4-6

• To select a Level 3 item, press an item to highlight.

d. Selecting a Screen

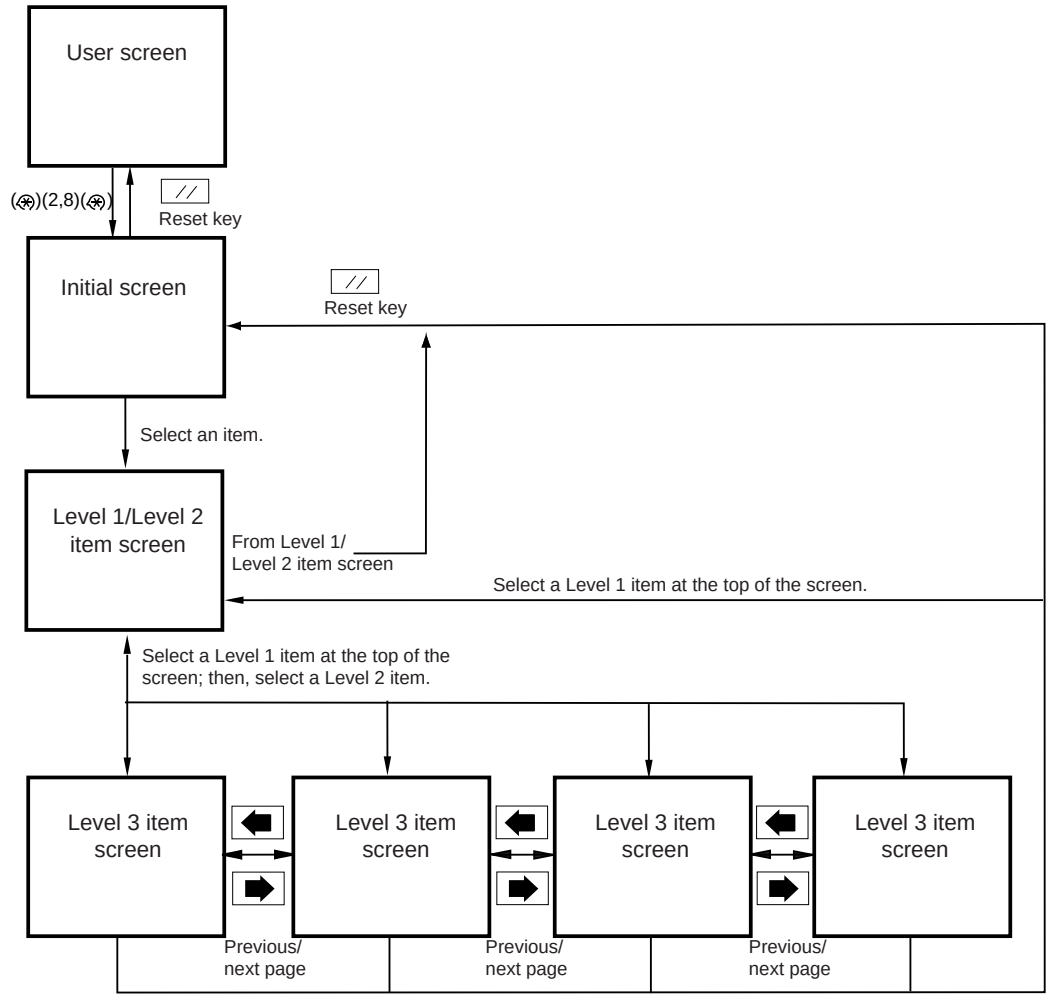


Figure 4-7

e. Keys

1. Keypad : Use it to enter a setting (0 through 9).
2. User Mode key : Use it to start service mode.
3. Reset key : Use it to end service mode.
4. Stop key : Use it to stop the ongoing operation.
5. Clear key : Use it to enter a setting or soft counter reading in service mode.
6. Copy Start key : Use it to make copies without leaving service mode after making adjustments.
7. ◀ Previous Page key : Use it to move back to the previous page.
8. ▶ Next Page key : Use it to move to the next page.
9. +/- +/- key : Use it to switch between + and -.
10. OK OK key : Use it to store a new setting.

B. DISPLAY MODE (DISPLAY)

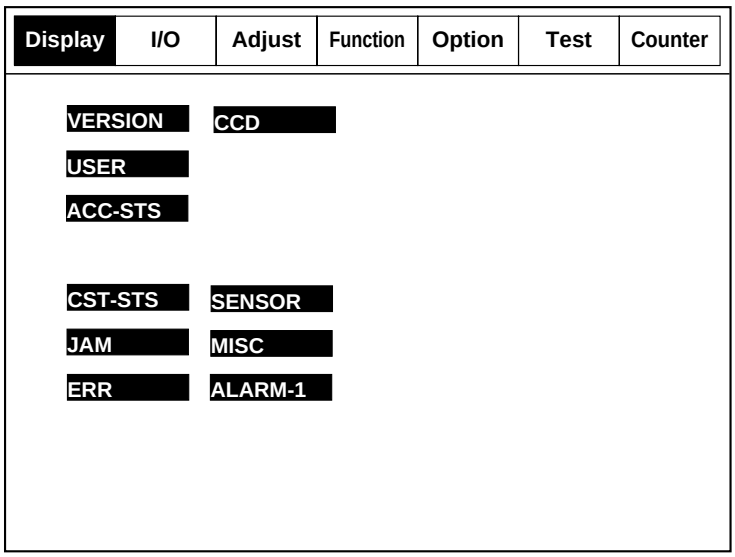


Figure 4-8

1	VERSION	Indicates the ROM versions of the PCBs used in the machine and accessories.
2	USER	Indicates items related to the User screen and the user.
3	ACC-STS	Indicates the state of connection of accessories (only if installed).
4	CST-STS	Indicates the state of use of cassettes and multifeeder.
5	JAM	Indicates jam data.
6	ERR	Error code/alarm code
7	CCD	Indicates measured readings of the CCD.
8	SENSOR	Indicates the state of sensors (important to servicing work).
9	MISC	Others
10	ALARM-1	Indicates the latest alarm for the feeder.

Level 2 item	Level 3 item	Outline
VERSION	DC-CON	Indicates the ROM version of the DC controller PCB.
	R-CON	Indicates the DIMM version of the reader controller PCB.
	PANEL	Indicates the ROM version of the control panel controller PCB.
	ECO	Indicates the ROM version of the ECO PCB.
	FEEDER	Indicates the ROM version of the feeder PCB.
	SORTER	Indicates the ROM version of the sorter driver PCB.
	DECK	Indicates the ROM version of the deck driver PCB (if installed).
	OP-CON	Indicates the ROM version of the accessories controller PCB.
USER	LANGUAGE	Indicates the selected language.
ACC-STS	FEEDER	Indicates the state of connection of the feeder.
	SORTER	Indicates the state of connection of the sorter.
	DECK	Indicates the state of connection of the paper deck.
	EDITOR	Indicates the state of connection of the editor.
	CARD	Indicates the state of connection of the control card.
	DATA-CON	Indicates the state of connection of the copy data controller.
	PCB	Indicates the state of connection of various boards.
CST-STS	WIDTH-C1	Indicates the width of paper in the cassette 1 in terms of paper size.
	WIDTH-C2	Indicates the width of paper in the cassette 2 in terms of paper size.
	WIDTH-C3	Indicates the width of paper in the cassette 3 in terms of paper size.
	WIDTH-C4	Indicates the width of paper in the cassette 4 in terms of paper size.
	WIDTH-MF	Indicates the width of paper in the multifeeder in terms of paper size.
	WIDTH-DK	Indicates the width of paper in the deck in terms of paper size.
JAM		Indicates the jam history.
ERR		Indicates the error history.
CCD	TARGET-B	Indicates the shading target value for blue.
	TARGET-G	Indicates the shading target value for green.
	TARGET-R	Indicates the shading target value for red.
	BOF-B	Indicates the blue CCD output (for when the scanning lamp is off).
	BOF-G	Indicates the output value of the green CCD (for when the scanning lamp is off).
	BOF-R	Indicate the output value of the red CCD (for when the scanning lamp is off).

Level 2 item	Level 3 item	Outline
CCD	OFST-OB	Indicates the offset level (SH-SW=0) of blue for CCD odd-numbered bits.
	OFST-OG	Indicates the offset level (SH-SW=0) of green for CCD odd-numbered bits.
	OFST-OR	Indicates the offset level (SH-SW=0) of red for CCD odd-numbered bits.
	OFST-EB	Indicates the offset level (SH-SW=0) of blue for CCD odd-numbered bits.
	OFST-EG	Indicates the offset level (SH-SW=0) of green for CCD odd-numbered bits.
	OFST-ER	Indicates the offset level (SH-SW=0) of red for CCD odd-numbered bits.
	GAIN-OB	Indicates the offset level (SH-SW=0) of blue for CCD odd-numbered bits.
	GAIN-OG	Indicates the offset level (SH-SW=0) of green for CCD odd-numbered bits.
	PGAIN-OR	Indicates the offset level (SH-SW=0) of red for CCD odd-numbered bits.
	GAIN-EB	Indicates the offset level (SH-SW=0) of blue for CCD even-numbered bits.
	GAIN-EG	Indicates the offset level (SH-SW=0) of green for CCD even-numbered bits.
	GAIN-ER	Indicates the offset level (SH-SW=0) of red for CCD even-numbered bits.
	POFST-OB	Indicates the offset level (SH-SW=1) of blue for CCD odd-numbered bits.
	POFST-OG	Indicates the offset level (SH-SW=1) of green for CCD odd-numbered bits.
	POFST-OR	Indicates the offset level (SH-SW=1) of red for CCD odd-numbered bits.
	POFST-EB	Indicates the offset level (SH-SW=1) of blue for CCD even-numbered bits.
	POFST-EG	Indicates the offset level (SH-SW=1) of green for CCD even-numbered bits.
	POFST-ER	Indicates the offset level (SH-SW=1) of red for CCD even-numbered bits.
	PGAIN-OB	Indicates the offset level (SH-SW=1) of blue for CCD odd-numbered bits.
	PGAIN-OG	Indicates the offset level (SH-SW=1) of green for CCD odd-numbered bits.
	PGAIN-OR	Indicates the offset level (SH-SW=1) of red for CCD odd-numbered bits.
	PGAIN-EB	Indicates the offset level (SH-SW=1) of blue for CCD even-numbered bits.
	PGAIN-EG	Indicates the offset level (SH-SW=1) of green for CCD even-numbered bits.
	PGAIN-ER	Indicates the offset level (SH-SW=1) of red for CCD even-numbered bits.
	CCD-TYPE	Indicates CCD or analog processor. (0: CCD, 1: analog processor)
	TAR2-B	Indicates the shading target value for blue.
	TAR2-G	Indicates the shading target value for green.
	TAR2-R	Indicates the shading target value for red.

Level 2 item	Level 3 item	Outline
SENSOR	SC-HP	Indicates the output of the scanner home position sensor. (0: HP, 1: non-HP)
	W-TONER	Indicates that the waste toner case is about to become full (0: normal, 1: full warning)
DOC-SZ		Indicates the original size detected by the original size sensor.
	DRUMLIFE	Indicates the life of the drum cartridge. (0: normal, 1: warning 1 (70%), 2: warning 2 (100%), 4: memory error)
MISC	DSNS-ALM	Indicates that the value is outside the stable image guarantee range for the printer unit. (0: normal, 1: error)
	Y-OUTRNG	Indicates that the value is outside the stable Y image guarantee range for the printer unit. (0: normal, 1: error)
	M-OUTRNG	Indicates that the value is outside the stable M image guarantee range for the printer unit. (0: normal, 1: error)
	C-OUTRNG	Indicates that the value is outside the stable C image guarantee range for the printer unit. (0: normal, 1: error)
	K-OUTRNG	Indicates that the value is outside the stable K image guarantee range for the printer unit. (0: normal, 1: error)
	ENV-DENS	Indicates the site environment (for density control). (0: N/N, 1: H/H, 2: N/L, 3: L/L)
	ENV-TR	Indicates the site environment (for transfer control). (0: H/H, 2: N/L, 3: L/L)
	FL-LIFE	Indicates the life of the scanning lamp. (0: normal, 1: end of life)
ALARM-1	DF	Indicates the latest alarm of the feeder.

1. VERSION (ROM versions of the PCBs of the machine and accessories)

Items	Description	Remarks
DC-CON	Indicates the ROM version of the DC controller PCB. 'DC-CON xx.yy/XX.YY' 'xx.yy' Indicates the version of the ROM which controls the communication between the video controller (LIPS, PS/PCL) PCB on the DC controller PCB, controls high voltage, and controls some loads. 'XX.YY' Indicates the version of the ROM which controls loads on the DC controller PCB (mechanical workings).	xx: version number yy: R&D number XX: version number YY: R&D number
R-CON	Indicates the version of the ROM on the reader controller PCB. 'R-CON: xx.yy'	xx: version number yy: R&D number
PANEL	Indicates the version of the ROM on the control panel controller PCB. 'PANEL xx.yy'	
ECO	Indicates the version of the ROM on the ECO PCB. 'ECO xx.yy'	
FEEDER	Indicates the version of the ROM on the feeder controller PCB. 'FEEDER xx.yy'	
SORTER	Indicates the version of the ROM on the sorter driver PCB. 'SORTER xx.yy'	
DECK*	Indicates the version of the ROM on the deck driver PCB. 'DECK xx.yy'	
OP-CON	Indicates the version of the ROM on the ACC controller PCB. 'OP-CON xx.yy'	

* DECK may be the 2×500 Sheet Paper Deck-C1, 2000 Sheet Paper Deck-N1, or 1000 Sheet Paper Deck-D1, and the indication represents the version of the driver PCB of the installed deck.

2. USER (User-screen and user-related items)

Items	Description	Remarks
LANGUAGE	Indicates the selected language: 'LANGUAGE xx.yy,zz,aa' xx (first 2 digits): country code yy (last 2 digits): language code zz: destination code aa: series code	For the country code, see Table 4-3. For the language code, see Table 4-4. For the destination code, see Table 4-5. For the series code, see Table 4-6.

Country Code

Code	Country
JP	Japan
TW	Taiwan
KR	Korea
IT	Italy
US	North America
SG	General
GB	United Kingdom
AU	Australia
FR	France
DE	Germany
NL	Europe

Table 4-3 (by JIS)

Language Code

Code	Language
JA	Japanese
EN	English
FR	French
DE	German
IT	Italian

Table 4-4 (by ISO639)

Destination Code

Code	Destination
00	CANON
01	Others

Table 4-5

Configuration Code

Code	Configuration
00	AB
01	Inch
02	A
03	All configurations

Table 4-6

3. ACC-STS (state of connection of accessories)

Items	Description	Remarks
FEEDER	Indicates the state of connection of the feeder.	0: Not connected, 1: connected.
SORTER	Indicates the state of connection of the sorter.	
DECK	Indicates the state of connection of the deck.	
PRJ	Indicates the state of connection of the projector.	
EDITOR	Indicates the state of connection of the editor.	
CARD	Indicates the state of connection of the control card.	
DATA-CON	Indicates the state of connection of the copy data controller.	
PCB	Indicate the state of connection of various boards.	4: PS/PCL Board. 9: Accessories control PCB.

4. CST-STS (state of use of cassettes and multifeeder)

Items	Description	Remarks
WIDTH-C1	Indicates the width of paper in the cassette 1 in terms of a converted value or paper size.	
WIDTH-C2	Indicates the width of paper in the cassette 2 in terms of a converted value or paper size.	
WIDTH-C3	Indicates the width of paper in the cassette 3 (top of a 2-cassette feeding unit) in terms of a converted value or paper size.	Supports only the following: 2x500-Sheet Paper Deck and 200-Sheet Paper Deck.
WIDTH-C4	Indicates the width of paper in the cassette 4 (bottom of a 2-cassette feeding unit) in terms of a converted value or paper size.	Support only the following: 2000-Sheet Paper Deck.
WIDTH-MF	Indicates the width of paper in the multifeeder in terms of a converted value or paper size.	
WIDTH-DK	Indicates the width of paper in the deck (if installed) in terms of a converted value or paper size.	Support only the following: 1000-Sheet Paper Deck.

5. JAM (jam data)

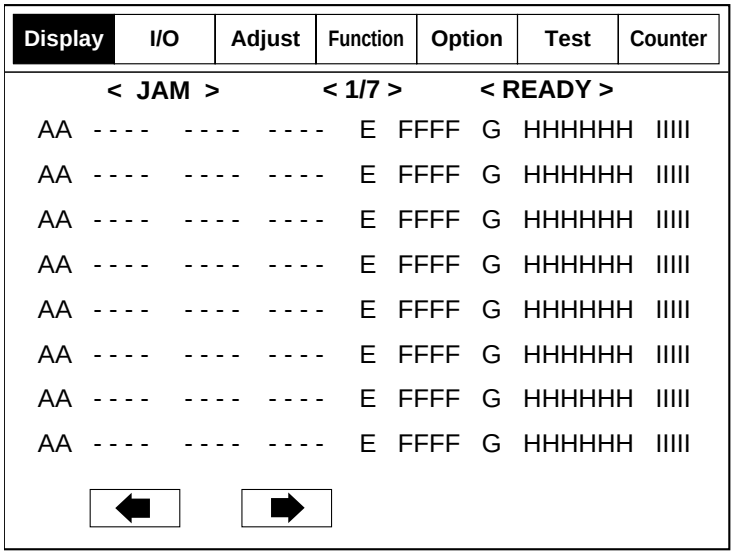


Figure 4-9

Items	Description
AA	1 through 50 (A higher number indicates an older jam.)
E	Location 0: copier, 1: feeder, 2: sorter
FFFF	Jam code first 2 digits: indicates the type of jam. (Table 4-7) last 2 digits: indicates the sensor that detected the jam. (Table 4-8)
G	Indicates the location of pick-up. (Table 4-9)
HHHHHH	Indicates the soft counter reading of the source of paper.
IIIII	Indicates the paper size.

First 2 Digits of FFFF (type of jam)

Code	Description
01	Delay jam
02	Stationary jam
10	Residual jam at power-on
11	Door open/close during copying

Table 4-7

Last 2 Digits of FFFF (jam sensor)

Code	Description	Notation
01	Registration paper sensor	PS1
02	Separation sensor	PS5
03	Face-down tray delivery sensor	PS11
04	Pick-up assembly paper sensor	PS17
05	Transparency sensor 1/2	PS1801, PS1802
06	Fixing delivery sensor	PS1903
07	Duplexing unit paper sensor	PS24
08	Reversal paper sensor	PS26
10	Separation sensor, face-down tray delivery sensor, pick-up assembly paper sensor, or fixing delivery sensor.	PS5, PS11, PS17, or PS1903
11	Registration paper sensor, separation sensor, face-down tray delivery sensor, pick-up assembly paper sensor, transparency sensor 1/2, or fixing delivery sensor.	PS1, PS, PS11, PS17, PS1801, PS1802, or PS1903

Table 4-8

G (pick-up position)

Code	Description
1	Cassette 1
2	Cassette 2
3	Cassette 3 *1
4	Cassette 4 *2
8	Multifeeder
9	Duplexing unit (accessory)

Table 4-9

The machine distinguishes 14 types of jams (including jams in the duplexing unit). See Table 4-10 for combination of codes.

First 2 digits	Last 2 digits	Jam type
01	01	Pick-up delay jam 2
	02	Intermediate transfer drum jam
	03	Face-down delivery outlet delay jam
	04	Pick-up delay jam 1
	06	Fixing delivery delay jam
	07	Duplexing feeding assembly delay jam
	08	Reversing assembly delay jam
01	01	Delivery long-length paper jam
	03	Face-down delivery outlet stationary jam
	05	Non-default size paper feeding jam
	06	Fixing delivery stationary jam
	08	Reversing assembly stationary jam
10	10	Internal residual jam
11	11	Door open jam

Table 4-10

*1: Supports the 2x500-Sheet Paper Deck and 2000-Sheet Paper Deck.
*2: Supports the 2x500-Sheet Paper Deck.

6. ERR (error codes)

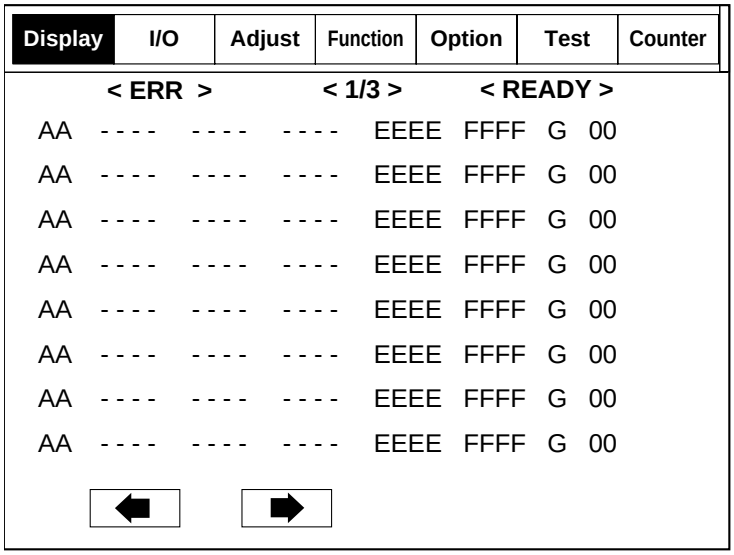


Figure 4-10

Items	Description
AA	1 through 20 (A higher number indicates an older error/alarm.)
EEEE	Indicates an error code. 'Exxx'
FFFF	Indicates a detail code. (If not available, '0000'.)
G	Indicates the location. (0: copier, 1: feeder, 2: sorter)

EEEE: For codes, Chapter 5. "Self Diagnosis."

7. CCD (CCD-related measured readings)

Items	Description	Remarks
TARGET-B	Indicates the shading target value for blue.	
TARGET-G	Indicates the shading target value for green.	
TARGET-R	Indicates the shading target value for red.	
BOF-B	Indicates the output value of the blue CCD for when the scanning lamp if off. 'BOF-B xx/yy'	xx: odd-numbered bit. yy: even-numbered bit.
BOF-G	Indicates the output value of the green CCD for when the scanning lamp is off. 'BOF-G xx/yy'	
BOF-R	Indicates the output value of the red CCD for when the scanning lamp is off. 'BOF-R xx/yy'	
OFST-OB	Indicates the offset level adjustment value of blue for CCD odd-numbered bits.	When '0' is set to COPIER>OPTION> BODY>SH-SW.
OFST-OG	Indicates the offset level adjustment value of green for CCD odd-numbered bits.	
OFST-OR	Indicates the offset level adjustment value of red for CCD odd-numbered bits.	
OFST-EB	Indicates the offset level adjustment value of blue for CCD even-numbered bits.	
OFST-EG	Indicates the offset level adjustment value of green for CCD even-numbered bits.	
OFST-ER	Indicates the offset level adjustment value of red for CCD even-numbered bits.	
GAIN-OB	Indicates the gain level adjustment value of blue for CCD odd-numbered bits.	
GAIN-OG	Indicates the gain level adjustment value of green for CCD odd-numbered bits.	
GAIN-OR	Indicates the gain level adjustment value of red for CCD odd-numbered bits.	
GAIN-EB	Indicates the gain level adjustment value of blue for CCD even-numbered bits.	
GAIN-EG	Indicates the gain level adjustment value of green for CCD even-numbered bits.	
GAIN-ER	Indicates the gain level adjustment value of red for CCD even-numbered bits.	

Items	Description	Remarks
POFST-OB	Indicates the offset level adjustment value of blue for CCD odd-numbered bits.	When '1' is set to COPIER>OPTION>BODY>SH-SW.
POFST-OG	Indicates the offset level adjustment value of green for CCD odd-numbered bits.	
POFST-OR	Indicates the offset level adjustment value of red for CCD odd-numbered bits.	
POFST-EB	Indicates the offset level adjustment value of blue for CCD even-numbered bits.	
POFST-EG	Indicates the offset level adjustment value of green for CCD even-numbered bits.	
POFST-ER	Indicates the offset level adjustment value of red for CCD even-numbered bits.	
PGAIN-OB	Indicates the gain level adjustment value of blue for CCD odd-numbered bits.	
PGAIN-OG	Indicates the gain level adjustment value of green for CCD odd-numbered bits.	
PGAIN-OR	Indicates the gain level adjustment value of red for CCD odd-numbered bits.	
PGAIN-EB	Indicates the gain level adjustment value of blue for CCD even-numbered bits.	
PGAIN-EG	Indicates the gain level adjustment value of green for CCD even-numbered bits.	
PGAIN-ER	Indicates the gain level adjustment value of red for CCD even-numbered bits.	
CCD-TYPE	Distinguishes between CCD and analog processor.	0: old version 1: new version Standard: 1
TAR2-B	Indicates the shading target value for blue.	Needed when '1' is set to COPIER>OPTION>BODY>SH-SW, i.e., when the lamp intensity is decreased.
TAR2-G	Indicates the shading target value for green.	
TAR2-R	Indicates the shading target value for red.	

8. SENSOR (state of sensors needed for servicing work)

Items	Description	Remarks
SC-HP	Indicates the output of the scanner home position sensor.	0: home position 1: non-home position
W-TONER	Indicates that the waste toner case inside the drum cartridge is about to become full (when full, 'E013').	0: normal 1: full warning
DOC-SZ	Indicates the size of the original detected by the original size sensor.	xxxx: A4, A3, B4, B5, etc.
DRUMLIFE	Indicates the life of the photosensitive drum inside the drum cartridge (at 126%, 'E814'). Note that '2: warning 2 (100%)' indicates that the copier may not be able to ensure a normal level of quality.	0: normal 1: warning 1 (70%) 2: warning 2 (100%) 4: drum cartridge memory error

9. MISC (others)

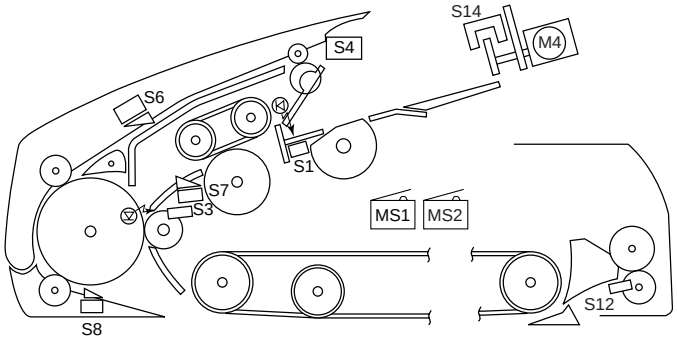
Items	Description	Remarks
DSNS-ALM	Indicates the lamp density sensor is faulty on the printer side.	0: normal 1: error In response, check the sensors and the condition of the intermediate transfer drum. (If the warning remains, density control will fail, bringing about gradual deterioration of image quality.)
Y-OUTRNG	Indicates that the value is outside the stable Y image guarantee range on the printer side.	
M-OUTRNG	Indicates that the value is outside the stable M image guarantee range on the printer side.	
C-OUTRNG	Indicates that the value is outside the stable C image guarantee range on the printer side.	
K-OUTRNG	Indicates that the value is outside the stable K image guarantee range on the printer side.	
ENV-DENS	Checks the environment (temperature, humidity) inside the printer, and indicates the environment range for transfer control.	0: normal temperature/normal humidity 1: high temperature/high humidity 2: normal temperature/low humidity 3: low temperature/low humidity
ENV-TR	Checks the environment (temperature/humidity) inside the printer unit, and indicates the environmental range for density control.	
FL-LIFE	Indicates that the scanning lamp is approaching the end of its life. (When the end is reached, 'E219' will be indicated.)	0: normal 1: warning

10. ALARM-1 (latest feeder alarm)

Use it to indicate the latest feeder alarm.

Items	Description	Remarks
DF	Indicates the feeder latest alarm. If none, indicates '00'. For DADF alarms, see the following diagram.	

■ Detecting Jams in the DADF



S1 ....Original tray paper sensor
S3 ....Registration paper sensor
S4 ....Upper cover sensor
S6 ....Delivery sensor 1
S7 ....Pick-up sensor
S8 ....Reversal sensor
S12 ..Delivery sensor 2
S14 ..Re-circulation sensor
MS1..RF switch
MS2..Upper cover switch

Figure 4-11

	Type of original jam1	Sensor	Description	Code
Pick-up	Original extraction	S1, S7	The sensor S7 does not detect the leading edge of an original 1500 msec after pick-up motor M1 has turned on and, in addition, the sensor S1 does not detect an original.	0001
	Pick-up delay	S7	The sensor S7 does not detect the leading edge of an original 1500 msec after the pick-up motor M1 has turned on.	0002
	Registration delay	S3, S7	The sensor S3 does not detect the leading edge of an original 350 msec after the sensor S7 has detected the leading edge of an original.	0003

Original placement	Sensor	Description	RF operation	Code
Re-circulation lever idle rotation	S1	The re-circulation lever rotates idly without coming into contact with an original immediately after the re-circulation motor (M4) turns on.	Stops operating upon detection.	01
Pick-up failure	S7	The sensor S7 does not detect the leading edge of an original in 1500 msec during pick-up.	The separation belt, feeding roller, and pick-up roller stop immediately. The DADF stops after discharging the preceding originals.	03
Paper overriding the stopper plate	S7	The original has overridden when placed.	Stops operating upon detection.	05
Different number of originals after jam removal	S3	The number of originals placed on the original tray has changed as follows*: [Number at end of copying] > [Number set on original tray]	Stops operating upon detection.	11
Unidentified number of originals	S3	The re-circulating bar does not fall below the original tray, not enabling the detection of the last original. Reference: Normally, the original tray is capable of holding 50 sheets of A5, STMT, A4, B5, or LTRR; 25 sheets of A3, B4, 279x432mm (11”x17”), or LGL.	Stops operating after counting up to 100 sheets.	12
Original extraction	S14	The re-circuiting drops on the original tray while an original is being processed.	Stops operating upon detection.	13
Wrong original size	S3	The size of the original which is picked up is not of a default size.	Stops operating upon detection.	14
Wrong original size or mixed original sizes in reduced page composition (Note 1)	S3	1. The original which has been picked up is not of a size supported by reduced image composition mode. 2. The size of the original which has been picked up is of a size different from the first original.	Stops operating upon detection.	15

Note1: To reset, remove the originals from the original tray, and open the DADF.

C. I/O MODE (I/O)

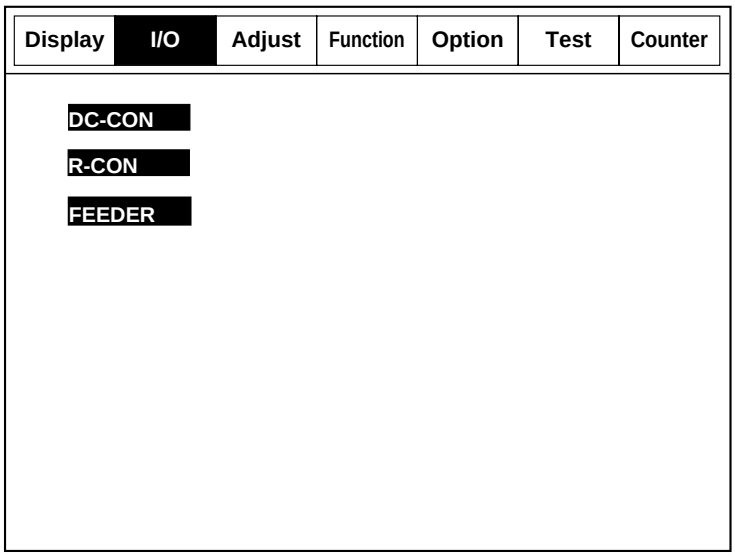


Figure 4-12

1	DC-CON	Indicates the input/output state of the CPU on the DC controller PCB.
2	R-CON	Indicates the input/output state of the CPU on the reader controller PCB.
3	FEEDER	Indicates the state of the CPU on the feeder controller PCB.

1. DC-CON (input/output state of the DC controller PCB)

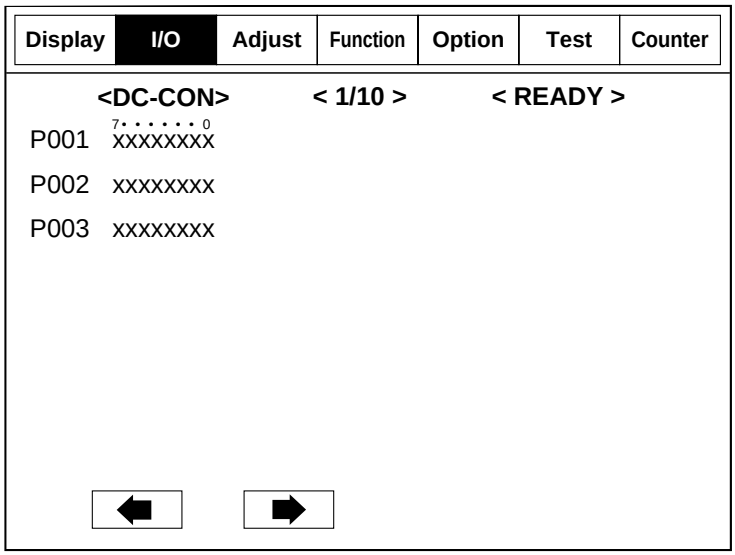
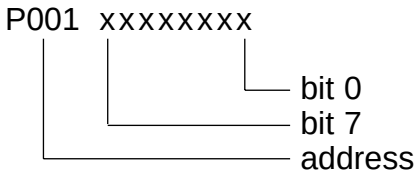


Figure 4-13

Items	Description	Remarks
P001 to P003	Indicates the input ports of the DC controller PCB.	

Guide to the Screens



Of all the addresses, those needed in the field are shown in Table 4-11.

Address		Item	Description	Remarks
P001	4	FDOUT*	Face-down tray delivery paper sensor (PS11)	When paper is detected, '1'.
	3	FXOUTS	Fixing delivery sensor (PS1903)	When paper is detected, '1'.
	2	SEPS*	Separation sensor (PS5)	When paper is detected, '1'.
	1	FEEDS*	Pick-up paper sensor (PS17)	When paper is detected, '1'.
	0	REGS*	Registration paper sensor (PS1)	When paper is detected, '1'.
P002	5	SWBKS*	Duplexing unit reversal paper sensor (PS26) (See Note.)	When paper is detected, '1'.
	4	DUPPS*	Duplexing unit paper sensor (PS24) (See Note.)	When paper is detected, '1'.
	3	LDECKS*	Cassette 2 paper sensor (PS1207) (See Note.)	When paper is detected, '1'.
	1	UPDECKS*	Cassette 1 paper absent sensor(PS1208) (See Note.)	When paper is detected, '1'.
	0	MPDFS*	Multifeeder tray last paper sensor (PS19)	When no more than one sheet is set, '1'.
P003	1	TMPSNS	Temperature humidity sensor X X bit 0 bit 1 00: normal temperature/normal humidity, 01: high temperature/ high humidity, 10: normal temperature/low humidity, 11: low temperature/low humidity	
	0	HUMSNS		

Table 4-11

Note: For bits 4 and 5 of P002, the door must not be "open." Use the door switch actuator to simulate the closed state of the door.

2. R-CON (input/output state of the reader controller PCB)

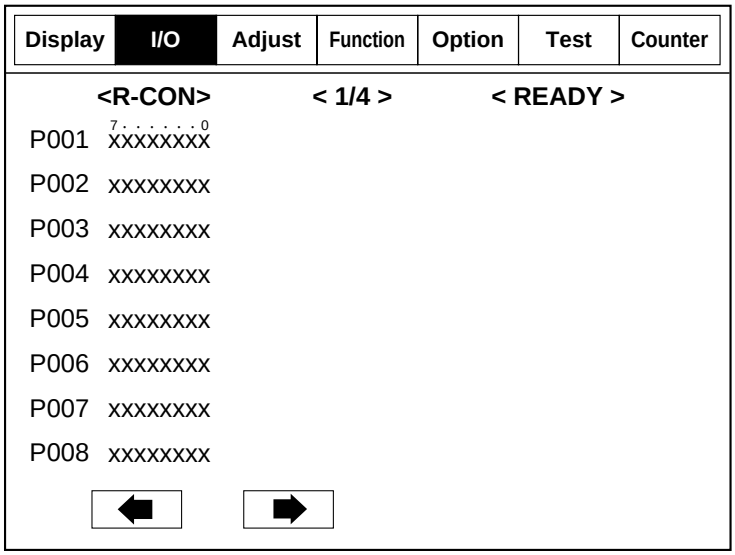
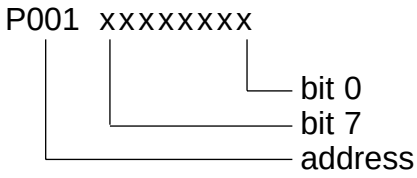


Figure 4-14

Items	Description	Remarks
P001 to P030	Indicates the input ports of the reader controller PCB.	

Guide to the Screens



Of all the addresses, those needed in the field are shown in Table 4-12.

Address		Item	Description	Remarks
P001	6	–	SW7 of SW1601	See p. 3-15.
	5	–	SW6 of SW1601	
	4	–	SW5 of SW1601	
	3	–	SW4 of SW1601	
	2	–	SW3 of SW1601	
	1	–	SW2 of SW1601	
	0	–	SW1 of SW1601	
P002	7	DSZ4	Original size sensor 4 (PS106)	See the Reader Unit Service Manual
	6	DSZ3	Original size sensor 3 (PS105)	
	5	DSZ2	Original size sensor 2 (PS104)	
	4	DSZ1	Original size sensor 1 (PS103)	
P003	5	FLPWN	Scanning lamp activation	
P004	7	FLERR	Scanning lamp error signal	If error, '1'.
	3	CCIVCONE*	Control card connected signal	When connected, '1'.
	1	FM4DEC	Power supply fan locked signal	When locked, '1'.
	0	CBCC	Copyboard cover open/close sensor (PS102)	When closed, '1'
P005	2	KEYSW	Control key switch signal	When ON, '1'.
P006	7	ACCON	Accessories power supply connected signal	When connected, '1'.
	6	YON	Scanning lamp pre-heat ON signal	–
	5	FLONOUT	Scanning lamp ON signal	–
	1	MMIRST	LCD control panel rest signal	–
P008	4	LPHTON	Scanning lamp heater ON signal	–
	1	FM4ON	Power supply fan (FM4) drive signal	When rotating, '1'.
	0	BLON*	LCD control panel back-light ON signal	When ON, '0'.
P009	2	ASTCNT	Copy data control counter signal	–
	1	CCIVCNT	Control card counter signal	–
P013	0	FL_TH	Scanning lamp thermistor signal	–
P022	2	SOFSWON	Power soft switch ON signal	When ON, '1'.

Table 4-12

3. FEEDER (input/output state of the feeder controller PCB)

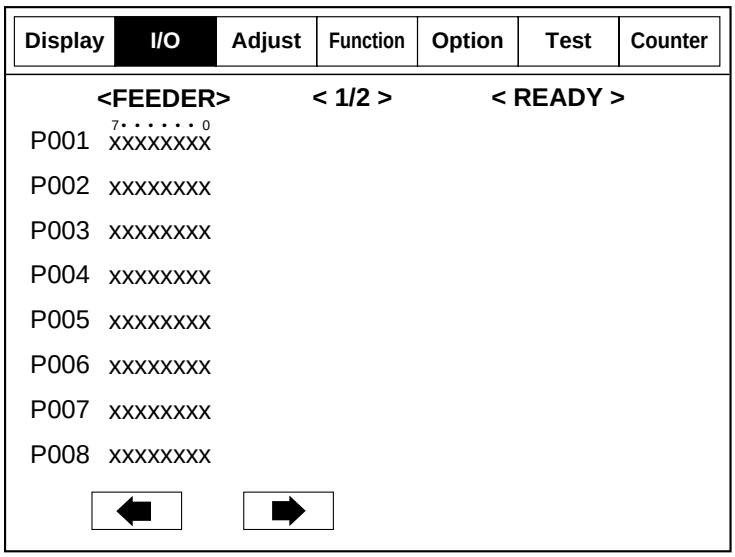
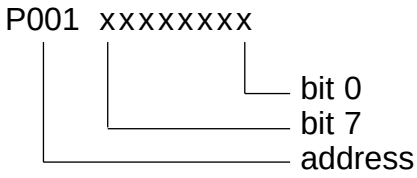


Figure 4-15

Items	Description	Remarks
P001 to P010	Indicates the input ports of the feeder controller PCB.	

Guide to the Screens



Of all the addresses, those needed in the field are shown in Table 4-13.

Address		Item	Description	Remarks
P001	3	BDIR	Belt motor (M3) rotation direction signal	When in right delivery mode, '1'.
	2	SMPSL	Stamp solenoid (SL4) drive	When '1', ON.
	1	FLPSL1	Paper deflecting plate solenoid (SL3) drive	When '1', ON.
	0	STPSL	Stopper plate solenoid (SL1) drive	When '1', ON.
P002	2	SPRS	Pick-up sensor (S7)	When paper is present, '1'.
	1	EJTS1	Delivery sensor 1 (S6)	When paper is present, '1'.
	0	TLIRNS	Reversal sensor (S8)	When paper is present, '1'.
P003	5	RSS	Re-circulation sensor (S14)	When paper is present, '1'.
P004	4	DCTS	Pick-up roller sensor (S13)	When at the home position, '1'.
	3	ECLK	Delivery motor clock sensor (S13)	While rotating, alternates '0' and '1'.
	2	RCLK	Registration roller clock sensor (S11)	While rotating, alternates '0' and '1'.
	1	BCLK	Belt motor clock sensor (S10)	While rotating, alternates '0' and '1'.
	0	FCLK	Feeder motor clock sensor (S9)	While rotating, alternates '0' and '1'.
P006	7	SMON	Pick-up motor (M1) drive signal	When '1', ON.
	6	SMPWM	Pick-up motor (M1) speed signal	'0' or '1' according to speed.
	4	FMPWM	Feeding motor (M2) speed signal	'0' or '1' according to speed.
	3	BMON	Belt motor (M3) drive signal	When '1', ON.
	2	BMPWM	Belt motor (M3) speed signal	'0' or '1' according to speed.
P007	7	WGTSL	Paper holding plate solenoid (SL2)	When '1', ON.
	6	CL	Clutch (CL) drive	When '1', ON.
	5	BK	Brake (BK) dive	When '1', ON.
	3	ORGLED	Original indicator LED (LED101, LED102)	When '0', ON.
	2	RSDRV	Re-circulation motor (M5) drive signal	When '1', ON.
	1	SDIR	Pick-up motor (M1) direction signal	When in top separation mode, '1'.
	0	EMPWM	Delivery motor (M5) speed signall	'0' or '1' according to speed.
P008	7	–	SW1 on feeder controller PCB	When pushed, '1'.
	6	–	SW2 on feeder controller PCb	When pushed, '1'.
	5	–	SW3 on feeder controller PCB	When pushed, '1'.
	4	EJTS2	Delivery sensor 2 (S12)	When paper is present, '1'.
	3	UPCC1, CVRSW	Upper cover switch (MS2) Upper cover sensor (S4)	When the upper cover is opened, '0'.
	2	RFC	Feeder switch (MS1)	When the feeder is opened, '0'.

Table 4-13(a)

Address		Item	Description	Remarks
P009	7	–	LED2 on feeder controller PCB	When '0', ON.
	6	–	LED1 on feeder controller PCB	When '0', ON.
P010	7	–	DSW1-1 on feeder controller PCB	When '1', ON.
	6	–	DSW1-2 on feeder controller PCB	When '1', ON.
	5	–	DSW1-3 on feeder controller PCB	When '1', ON.
	4	–	DSW1-4 on feeder controller PCB	When '1', ON.
	3	–	DSW1-5 on feeder controller PCB	When '1', ON.
	2	–	DSW1-6 on feeder controller PCB	When '1', ON.
	1	–	DSW1-7 on feeder controller PCB	When '1', ON.
	0	–	DSW1-8 on feeder controller PCB	When '1', ON.

Figure 4-13(b)

D. ADJUST MODE (ADJUST)

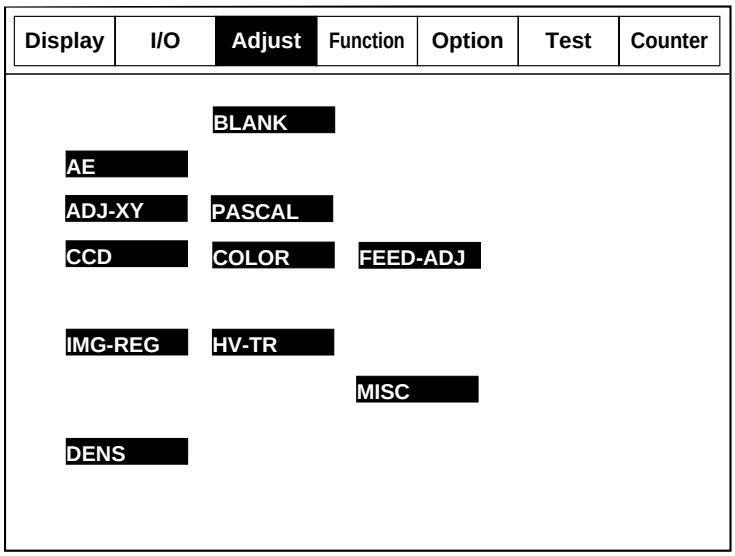


Figure 4-16

1	AE	Use it to adjust AE mode.
2	ADJ-XY	Use it to adjust the image read start position.
3	CCD	Use it to adjust CCD-/shading-related items.
4	IMG-REG	Use it to correct color displacement.
5	DENS	Use it to adjust developing density-related items.
6	BLANK	Use it to adjust the image leading edge/trailing edge margin.
7	PASCAL	Use it to execute auto gradation correction control.
8	COLOR	Use it to adjust color balance.
9	HV-TR	Use it to adjust transfer charging bias output by condition.
10	FEED-ADJ	Use it to adjust feeder-related items.
11	MISC	Others

Level 2 item	Level 3 item	Range	Outline
AE	AE-TBL	+1~+9	Use it if the text is too light with priority on speed in AE mode (black-and-white text mode only).
	BE-TBL	+1~+9	Use it if the text is too light with priority on image in AE mode (black-and-white text mode only).
ADJ-XY	ADJ-X	0~+32	Use it to adjust the image area start position (X direction).
	ADJ-Y	0~+255	Use it to adjust the image read start position (Y direction).
CCD	W-PLT-X	+2000 to +11997	Standard white plate X signal data
	W-PLT-Y		Standard white plate Y signal data
	W-PLT-Z		Standard white plate Z signal data
	A-RG	-9~+9	Use it to correct color displacement in sub scanning direction dependent on R-G ratio.
	B-RG	-9~+9	Use it to correct color displacement in sub scanning direction not dependent on R-G ratio.
	A-GB	-9~+9	Use it to correct color displacement in sub scanning direction dependent on G-B ratio.
	B-GB	-9~+9	Use it to correct color displacement in sub scanning direction not dependent on G-B ratio.
	AL-RG	-9~+9	Use it to correct color displacement in sub scanning direction dependent on R-G ratio for the lens unit.
	AL-GB	-9~+9	Use it to correct color displacement in sub scanning direction dependent on G-B ratio for the lens unit.
IMG-REG	REG-V-Y	-7~+8	Use it to adjust the Y pattern start position (1st page, sub scanning direction) when M is the color of reference.
	REG-V-C	-7~+8	Use it to adjust the C pattern start position (1st page, sub scanning direction) when M is the color of reference.
	REG-V-K	-7~+8	Use it to adjust the K pattern start position (1st page, sub scanning direction) when M is the color of reference.
	REG2-V-Y	-7~+8	Use it to adjust the Y pattern start position (2nd page, sub scanning direction) when M is the color of reference.
	REG2-V-C	-7~+8	Use it to adjust the C pattern start position (2nd page, sub scanning direction) when M is the color of reference.
	REG2-V-K	-7~+8	Use it to adjust the K pattern start position (2nd page, sub scanning direction) when M is the color of reference.
DENS	DM-FIX-Y	-7~+8	Use it to adjust Y density (toner deposit) for the printer unit to correct fixing faults.
	DM-FIX-M	-7~+8	Use it to adjust M density (toner deposit) for the printer unit to correct fixing faults.
	DM-FIX-C	-7~+8	Use it to adjust C density (toner deposit) for the printer unit to correct fixing faults.
	DM-FIX-K	-7~+8	Use it to adjust K density (toner deposit) for the printer unit to correct fixing faults.
	DM-TR-Y	-7~0	Use it to adjust Y density (toner deposit) for the printer unit to correct transfer faults.
	DM-TR-M	-7~0	Use it to adjust M density (toner deposit) for the printer unit to correct transfer faults.
	DM-TR-C	-7~0	Use it to adjust C density (toner deposit) for the printer unit to correct transfer faults.
	DM-TR-K	-7~0	Use it to adjust K density (toner deposit) for the printer unit to correct transfer faults.

Level 2 item	Level 3 item	Range	Outline
BLANK	BLANK-T	0~+65535	Use it to adjust the leading edge non-image width.
	BLANK-L	0~+65535	Use it to adjust the left margin.
	BLANK-R	0~+65535	Use it to adjust the right margin.
	BLANK-B	+118~+65535	Use it to adjust the trailing edge non-image width.
PASCAL	LUT-P-Y	-4~+3	Use it to fine-adjust the gradation control level (correction table) for Y.
	LUT-P-M	-4~+3	Use it to fine-adjust the gradation control level (correction table) for M.
	LUT-P-C	-4~+3	Use it to fine-adjust the gradation control level (correction table) for C.
	LUT-P-K	-4~+3	Use it to fine-adjust the gradation control level (correction table) for K.
	LUT-P-1	-4~+3	Use it to fine-adjust the gradation control level (correction table, image processing pattern A).
	LUT-P-2	-4~+3	Use it to fine-adjust the gradation control level (correction table, image processing pattern B).
	LUT-P-3	-4~+3	Use it to fine-adjust the gradation control level (correction table, image processing pattern C).
COLOR	ADJ-Y	-8~+8	Use it to adjust the color balance for Y for the user.
	ADJ-M	-8~+8	Use it to adjust the color balance for M for the user.
	ADJ-C	-8~+8	Use it to adjust the color balance for C for the user.
	ADJ-K	-8~+8	Use it to adjust the color balance for K for the user.
	OFST-Y	-8~+8	Use it to adjust the color balance and the density of light areas of Y.
	OFST-M	-8~+8	Use it to adjust the color balance and the density of light areas of M.
	OFST-C	-8~+8	Use it to adjust the color balance and the density of light areas of C.
	OFST-K	-8~+8	Use it to adjust the color balance and the density of light areas of K.

Level 2 item	Level 3 item	Range	Outline
HV-TR	TR-N1M	0~+15	For a N/N environment, use it to adjust the secondary transfer bias for single-sided printing or first side printing of double-sided printing on plain paper.
	TR-N1H	0~+15	For a H/H environment, use it to adjust the secondary transfer bias for single-sided printing or first side printing of double-sided printing on plain paper.
	TR-N1L	0~+15	For a L/L environment, use it to adjust the secondary transfer bias for single-sided printing or first side printing of double-sided printing on plain paper.
	TR-N2M	0~+15	For a N/N environment, use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.
	TR-N2H	0~+15	For a H/H environment, use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.
	TR-N2L	0~+15	For a L/L environment, use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.
	TR-N1N/L	0~+15	For a N/L environment, use it to adjust the secondary transfer bias for single-sided printing or first side printing of double-sided printing on plain paper.
	TR-N2N/L	0~+15	For a N/L environment, use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.
	TR-TSM	0~+15	For a N/N environment, use it to adjust the secondary transfer bias for thick, small-size paper.
	TR-TSH	0~+15	For a H/H environment, use it to adjust the secondary transfer bias for thick, small-size paper.
	TR-TSL	0~+15	For a L/L environment, use it to adjust the secondary transfer bias for thick, small-size paper.
	TR-TSN/L	0~+15	For a N/L environment, use it to adjust the secondary transfer bias for thick, small-size paper.
	TR-TLM	0~+15	For a N/N environment, use it to adjust the secondary transfer bias for thick, large-size paper.
	TR-TLH	0~+15	For a H/H environment, use it to adjust the secondary transfer bias for thick, large-size paper.
	TR-TLL	0~+15	For a L/L environment, use it to adjust the secondary transfer bias for thick, large-size paper.
	TR-TLN/L	0~+15	For a N/L environment, use it to adjust the secondary transfer bias for thick, large-size paper.
	TR-OSM	0~+15	For a N/N environment, use it to adjust the secondary transfer bias for a small-size transparency.
	TR-OSH	0~+15	For a H/H environment, use it to adjust the secondary transfer bias for a small-size transparency.
	TR-OSL	0~+15	For a L/L environment, use it to adjust the secondary transfer bias for a small-size transparency.
	TR-OSN/L	0~+15	For a N/L environment, use it to adjust the secondary transfer bias for a small-size transparency.
	TR-OLM	0~+15	For a N/N environment, use it to adjust the secondary transfer bias for a large-size transparency.
	TR-OLH	0~+15	For a H/H environment, use it to adjust the secondary transfer bias for a large-size transparency.
	TR-OLL	0~+15	For a L/L environment, use it to adjust the secondary transfer bias for a large-size transparency.
	TR-OLN/L	0~+15	For a N/L environment, use it to adjust the secondary transfer bias for a large-size transparency.

Level 2 item	Level 3 item	Range	Outline
FEED-ADJ	REGIST	0~+52	Use it to adjust the timing at which the registration clutch turns on (1st sheet).
	ADJ-C1	1~+62	Use it to adjust the image write start position in main scanning direction for the cassette 1.
	ADJ-C2	1~+62	Use it to adjust the image write start position in main scanning direction for the cassette 2.
	ADJ-MF	1~+62	Use it to adjust the image write start position in main scanning direction for the multifeeder.
	REGIST2	0~+52	Use it to adjust the timing at which the registration clutch turns on (2nd and subsequent sheets).
MISC	SEG-ADJ	-4~+4	Use it to adjust the degree of distinction between text and photo in text/photo/map mode.
	K-ADJ	-3~+3	Use it to adjust the degree of black for black text identification.
	ACS-ADJ	-3~+3	Use it to adjust the area of color recognition for ACS.
	ACS-EN	-2~+2	Use it to make adjustments for ACS identification for ACS.
	ACS-CNT	-2~+2	Use it to adjust the area in which pixels are counted for identification of chromatic components for ACS.

1. AE (AE mode)

Items	Description	Remarks
AE-TBL	Use it if the density of text is too low (light) when AE mode is used with priority on speed (black-and-white text mode only).	A higher setting makes prints darker. Settings: +1 to +9 Standard: +5
BE-TBL	Use it if the density of text is too high (dark) when AE mode is used with priority on image quality (black-and-white text mode only).	

2. ADJ-XY (image read start position)

Items	Description	Remarks
ADJ-X	Use it to adjust the image read start position (X direction).	Unit: mm (See Caution.) Settings: 0 to +32
ADJ-Y	Use it to adjust the image read start position (Y direction).	Unit: mm (See Caution.) Settings: 0 to +255

Caution:

These items will return to the standard settings when the reader controller PCB is replaced, the RAM on the reader controller PCB is initialized, or the DIMM is replaced, requiring you to enter the settings newly. Be sure to record any new settings on the service label on the reader unit if you have changed the settings.

3. CCD (CCD-/shading-related items)

Items	Description	Remarks
W-PLT-X	Use it to set standard white plate X signal data.	Settings: +2000 to +11997 (See Caution.)
W-PLT-Y	Use it to set standard white plate Y signal data.	
W-PLT-Z	Use it to set standard Z signal data.	

Caution:

These items will require you to enter the values indicated on the bar code of the new standard white plate if you have replaced the plate. Enter the value in service mode, and record the value on the service label on the reader unit.

Items	Description		Remarks
A-RG	Use it to correct displacement of color in sub scanning direction caused by the scanner by compensating R-G and G-B of the 3-line CCD sensor.	Use it to correct color displacement in sub scanning direction dependent on R-G ratio.	Settings: -9 to +9
B-RG		Use it to correct color displacement in sub scanning direction not dependent on R-G ratio.	
A-GB		Use it to correct color displacement in sub scanning direction dependent on G-B ratio.	
B-GB		Use it to correct color displacement in sub scanning direction not dependent on G-B ratio.	
AL-RG		Use it to correct color displacement in sub scanning direction dependent on R-G ratio for the lens unit.	
AL-GB		Use it to correct color displacement in sub scanning direction dependent on G-B ratio for lens unit.	

4. IMG-REG (color image color displacement)

Items	Description	Remarks
REG-V-Y	Use it to fine-adjust the write start position in sub scanning direction on the intermediate transfer drum for a Y pattern with M as reference. (1st sheet of 1-/2-sheet retention).	Unit: 1 pixel A higher setting will move the pattern toward the rear. Setting: -7 to +8 Reference: 0 1. Enter a setting, and press the OK key. 2. Select FUNCTION>MISC-P>DC-LOAD; then, press the OK key. 3. Turn off and then on the control panel power soft switch to execute.
REG-V-C	Use it to fine-adjust the write start position in sub scanning direction on the intermediate transfer drum for a C pattern with M as reference (1st sheet of 1-/2-sheet retention).	
REG-V-K	Use it to fine-adjust the write start position in sub scanning direction on the intermediate transfer drum for a K pattern with M as reference (1st sheet of 1-/2-sheet retention).	
REG2-V-Y	Use it to fine-adjust the write start position in sub scanning direction on the intermediate transfer drum for a Y pattern with M as reference (2nd and subsequent sheets of 1-/2-sheet retention).	
REG2-V-C	Use it to fine-adjust the write start position in sub scanning direction on the intermediate transfer drum for a Y pattern with M as reference (2nd and subsequent sheets of 1-/2-sheet retention).	
REG2-V-K	Use it to fine-adjust the write start position in sub scanning direction on the intermediate transfer drum for a Y pattern with M as reference (2nd and subsequent sheets of 1-/2-sheet retention).	

Caution:

If you are replacing the DC controller PCB, all settings must be saved on the reader controller PCB and downloaded to the new DC controller as follows:

1) Start service mode.
2) Select FUNCTION>MISC-P>DC-SAVE.
3) Press the OK key to save all settings to the reader controller PCB.
4) End service mode, and turn off the power.
5) Mount the new DC controller PCB.
6) Turn on the power, and start service mode.
7) Select FUNCTION>MISC-P>DC-LOAD.
8) Press the OK key so that all settings will be downloaded to reader controller PCB.
9) End.

However, you must enter a setting once again if the DC controller PCB is faulty. If you changed the setting, be sure to record the new setting on the service label of the printer unit.

5. DENS (developing density)

Items	Description	Remarks
DM-FIX-Y	Use it to fine-adjust the Y color density (toner deposit) for the printer unit (effective for fixing faults).	Settings: -7 to +8 Reference: 0 A higher setting increases the toner deposit, and vice versa. Effective only during copying operation.
DM-FIX-M	Use it to fine-adjust the M color density (toner deposit) for the printer unit (effective for fixing faults).	
DM-FIX-C	Use it to fine-adjust the C color density (toner deposit) for the printer unit (effective for fixing faults).	
DM-FIX-K	Use it to fine-adjust the K color density (toner deposit) for the printer unit (effective for fixing faults).	
DM-TR-Y	Use it to fine-adjust the Y color density (toner deposit) for the printer unit (effective for fixing faults).	Settings: -7 to +8 Reference: 0 A higher setting increases the toner deposit, and vice versa. Effective only during copying operation.
DM-TR-M	Use it to fine-adjust the M color density (toner deposit) for the printer unit (effective for transfer faults).	
DM-TR-C	Use it to fine-adjust the C color density (toner deposit) for the printer unit (effective for transfer faults).	
DM-TR-K	Use it to fine-adjust the K color density (toner deposit) for the printer unit (effective for transfer faults)	

Reference:

These items are adjusted by varying the amount of toner deposit, i.e., the developing contrast potential is varied in reference to the result of adding a specific value to the developing bias and the primary bias determined by "image density correction control," performed in the printer unit.

6. BLANK (image leading edge/trailing edge margin)

Items	Description	Remarks
BLANK-T	Use it to adjust the leading edge non-image width. A higher setting will increase the non-image width.	Settings: 0 to +65535 Unit: 4.2 mm = 100
BLANK-L	Use it to adjust the left margin. A higher setting will increase the margin.	
BLANK-R	Use it to adjust the right margin. A higher setting will increase the margin.	
BLANK-B	Use it to adjust the trailing edge non-image width. A higher setting will increase the non-image width.	Settings: +118 to +65535 Unit: 4.2 mm = 100

7. PASCAL (auto gradation correction control)

Items	Description	Remarks
LUT-P-Y	The density of Dhalf after auto gradation correction control and the density of Dhalf during image gradation correction control are compared to adjust the LUT gain for correction of each color.	Settings: -4 to +3 Standard: 0
LUT-P-M		
LUT-P-C		
LUT-P-K		
LUT-P-1	The density of Dhalf after auto gradation correction control and the density of Dhalf during image gradation correction control are compared to adjust the LUT gain for image processing patterns A, B, and C. (The image processing patterns A, B, and C correspond to Test Prints 1, 2, and 3 used in auto gradation correction control.)	
LUT-P-2		
LUT-P-3		

8. COLOR (color balance)

Items	Description	Remarks
ADJ-Y	Use it to adjust the color balance for Y for the user.	A higher setting will make the images darker and vice versa. Settings: -8 to +8 Standard: 0
ADJ-M	Use it to adjust the color balance for M for the user.	
ADJ-C	Use it to adjust the color balance for C for the user.	
ADJ-K	Use it to adjust the color balance for K for the user.	
OFST-Y	Use it to adjust the color balance and the density of light areas of Y.	A lower setting will decrease fogging. Settings: -8 to +8 Reference: 0
OFST-M	Use it to adjust the color balance and the density of light areas of M.	
OFST-C	Use it to adjust the color balance and the density of light areas of C.	
OFST-K	Use it to adjust the color balance and the density of light areas of K.	

9. HV-TR (transfer charging bias output by condition)

Items	Description	Remarks
TR-N1M	For a N/N environment (normal humidity), use it to adjust the secondary transfer bias for single-sided printing or first side printing of double-sided printing on plain paper.	Settings: 0 to +15 Standard: 8 1. Enter a setting, and press the OK key. 2. Select FUNCTION>MISC-P>DC-LOAD; then, press the OK key. 3. Turn off and then on the control panel power soft switch to execute. Adjustment in the field is not usually needed.
TR-N1H	For a H/H environment (high humidity), use it to adjust the secondary transfer bias for single-sided printing or first side printing of double-sided printing on plain paper.	
TR-N1L	For a L/L environment (low humidity), use it to adjust the secondary transfer bias for single-sided printing or first side printing of double-sided printing on plain paper.	
TR-N2M	For a N/N environment (normal humidity), use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.	
TR-N2H	For a H/H environment (high humidity), use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.	
TR-N2L	For a L/L environment, (low humidity), use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.	
TR-N1N/L	For a N/L environment, use it to adjust the secondary transfer bias for single-sided printing and first side printing of double-sided printing on plain paper.	
TR-N2N/L	For a N/L environment, use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.	
TR-TSM	For a N/N environment (normal humidity), use it to adjust the secondary transfer bias for thick, small-size paper.	
TR-TSH	For a H/H environment (high humidity), use it to adjust the secondary transfer bias for thick, small-size paper.	
TR-TSL	For a L/L environment (low humidity), use it to adjust the secondary transfer bias for thick, small-size paper.	
TR-TSN/L	For a N/L environment, use it to adjust the secondary transfer bias for thick, small-size paper.	

Items	Description	Remarks
TR-TLM	For a N/N environment (normal humidity), use it to adjust the secondary transfer bias for thick, large-size paper.	Settings: 0 to +15 Standard: 8 1. Enter a setting, and press the OK key. 2. Select FUNCTION>MISC-P>DC-LOAD; then, press the OK key. 3. Turn off and then on the control panel power soft switch to execute. Adjustment in the field is not usually needed.
TR-TLH	For a H/H environment (high humidity), use it to adjust the secondary transfer bias for thick, large-size paper.	
TR-TLL	For a L/L environment (low humidity), use it to adjust the secondary transfer bias for thick, large-size paper.	
TR-TLN/L	For a N/L environment, use it to adjust the secondary transfer bias for thick, large-size paper.	
TR-OSM	For a N/N environment (normal humidity), use it to adjust the secondary transfer bias for a small-size transparency.	
TR-OSH	For a H/H environment (high humidity), use it to adjust the secondary transfer bias for a small-size transparency.	
TR-OSL	For a L/L environment (low humidity), use it to adjust the secondary transfer bias for a small-size transparency.	
TR-OSN/L	For a N/L environment, use it to adjust the secondary transfer bias for a small-size transparency.	
TR-OLM	For a N/N environment (normal humidity), use it to adjust the secondary transfer bias for a large-size transparency.	
TR-OLH	For a H/H environment (high humidity), use it to adjust the secondary transfer bias for a large-size transparency.	
TR-OLL	For a L/L environment (low humidity), use it to adjust the secondary transfer bias for a large-size transparency.	
TR-OLN/L	For a N/L environment, use it to adjust the secondary transfer bias for a large-size transparency.	

Caution:

If you are replacing the DC controller PCB, all settings must be saved on the reader controller PCB and downloaded to the new DC controller as follows:

1) Start service mode.
2) Select FUNCTION>MISC-P>DC-SAVE.
3) Press the OK key to save all settings to the reader controller PCB.
4) End service mode, and turn off the power.
5) Mount the new DC controller PCB.
6) Turn on the power, and start service mode.
7) Select FUNCTION>MISC-P>DC-LOAD.
8) Press the OK key so that all settings will be downloaded to reader controller PCB.
9) End.

However, you must enter a setting once again if the DC controller PCB is faulty. If you changed the setting, be sure to record the new setting on the service label of the printer unit.

10. FEED-ADJ (feeding system)

Items	Description	Remarks
REGIST	Use it to adjust the timing at which the registration clutch turns on (1st page of 1-page mode and 1st page of 2-page mode only). A higher setting will decrease the leading edge margin.	Settings: 0 to +52 Standard: +18 1. Enter a setting, and press the OK key. 2. Select FUNCTION>MISC-P>DC-LOAD; then, press the OK key. 3. Turn off and then on the control panel power soft switch to execute.
ADJ-C1	Use it to adjust the image start position in main scanning direction when the cassette 1 is used.	Settings: 1 to +62 Standard: +32 Unit: 0.17mm 1. Enter a setting, and press the OK key. 2. Select FUNCTION>MISC-P>DC-LOAD; then, press the OK key. 3. Turn off and then on the control panel power soft switch to execute.
ADJ-C2	Use it to adjust the image start position in main scanning direction when the cassette 2 is used.	
ADJ-MF	Use it to adjust the image start position in main scanning direction when the multifeeder is used.	
REGIST2	Use it to adjust the timing at which the registration clutch turns on (2nd and subsequent pages in 1-page mode or 2nd and subsequent pages in 2-page mode). A higher setting will decrease the leading edge margin.	1. Enter a setting, and press the OK key. 2. Select FUNCTION>MISC-P>DC-LOAD; then, press the OK key. 3. Turn off and then on the control panel power soft switch to execute.

Caution:

If you are replacing the DC controller PCB, all settings must be saved on the reader controller PCB and downloaded to the new DC controller as follows:

1) Start service mode.
2) Select FUNCTION>MISC-P>DC-SAVE.
3) Press the OK key to save all settings to the reader controller PCB.
4) End service mode, and turn off the power.
5) Mount the new DC controller PCB.
6) Turn on the power, and start service mode.
7) Select FUNCTION>MISC-P>DC-LOAD.
8) Press the OK key so that all settings will be downloaded to reader controller PCB.
9) End.

However, you must enter a setting once again if the DC controller PCB is faulty. If you changed the setting, be sure to record the new setting on the service label of the printer unit.

11. MISC (others)

Items	Description	Remarks
SEG-ADJ	Use it to adjust the degree of distinction between text and photo in text/photo/map mode +: tends to identify as a photo -: tends to identify as text.	Settings: -4 to +4 Standard: 0
K-ADJ	Use it to adjust the degree of black identification for black text processing. A higher setting tends to identify text as black.	Settings: -3 to +3 Standard: 0
ACS-ADJ	Use it to adjust the degree of color identification for ACS. +: tends to identify as a black original. -: tends to identify as a color original.	Settings: -3 to +3 Standard: 0
ACS-EN	When an image is being read for ACS, a large area of displaced color in a leading edge/trailing edge/side width (main scanning direction) can cause wrong identification. Use it to limit the area of ACS: +: increases the area (affected more by color displacement). -: decreases the area (affected less by color displacement).	Settings: -2 to +2 Standard: 0
ACS-CNT	Use it to adjust the area in which pixels are counted for ACS (for identification of chromatic pixels): +: increases the area. (Fine colored lines may be identified as part of a color original, but identification is affected more by color displacement.) -: decreases the area. (The absence of chromatic pixels in a wide area of an original will prevent identification of the original as being colored, but identification is affected less by color displacement.)	Settings: -2 to +2 Standard: +1

E. RUN/CHECK MODE (FUNCTION)

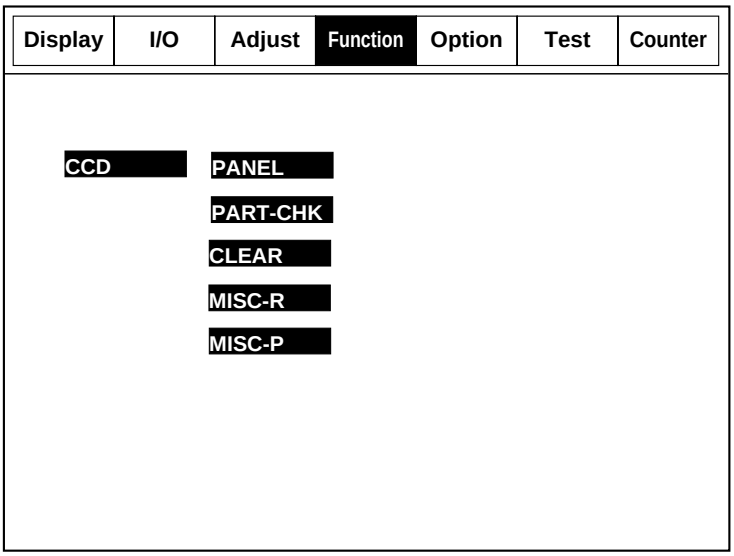


Figure 4-17

1	CCD	Use it to execute automatic adjustment of CCD-/shading related items.
2	PANEL	Use it to check the control panel.
3	PART-CHK	Use it to check the various electrical parts.
4	CLEAR	Use it to initialize RAM and jam/error code histories.
5	MISC-R	Use it to check the reader unit.
6	MISC-P	Use it to check the printer unit.

Level 2 item	Level 3 item	Outline
CCD	CCD-ADJ	Use it to execute shading adjustment.
	FILT-B	Use it to make sure that the B signal is generated by the CCD correctly.
	FILT-G	Use it to make sure that the G signal is generated by the CCD correctly.
	FILT-R	Use it to make sure that the R signal is generated by the CCD correctly.
PANEL	LCD-CHK	Use it to check the control panel LCD for missing dots.
	LED-CHK	Use it to check the LEDs on the control panel.
	LED-OFF	Use it to turn off the LEDs on the control panel.
	KEY-CHK	Use it to check the keys on the control panel.
	TOUCHCHK	Use it to adjust the position of coordinates on the analog touch panel.
PART-CHK	FAN-ON	Use it to start the fan (power supply cooling fan FM4 only).
CLEAR	ERR	Use it to initialize error codes.
	R-CON	Use it to initialize the RAM on the reader control PCB.
	JAM-HIST	Use it to initialize the jam history.
	ER-HIST	Use it to initialize the error codes.
	CNT-ERR	–
	CNT-CLR	–
	E354-CLR	–
MISC-R	SCANLAMP	Use it to check the activation of the scanning lamp.
	SC-MOVE	Use it to check the scanner.
	LAMP-ADJ	Use it to adjust the intensity of light of the new scanning lamp.
	USE-LAMP	Use it to adjust the intensity of light when replacing the rear controller PCB/light intensity detection PCB.
MISC-P	IP-CHK	Use it to run self diagnosis on the AP-IP PCB.
	POWEROFF	Use it to check operation of the auto power-off mechanism.
	DEV-DRV	Use it to drive the developing rotary and the sleeve motor for a specific time.
	PPR-FEED	Use it to run paper feeding test.
	MAIN-DRV	Use it to drive the intermediate transfer drum and the photosensitive drum for a specific time.
	DC-SAVE	Use it to save settings (high-voltage) to the reader controller when replacing the DC controller PCB.
	DC-LOAD	Use it to load the settings (high-voltage) from the reader controller PCB when replacing the DC controller.

The state of the machine will be indicated in the upper right corner of the screen. Take note of the indications. While this mode is being executed, the indications will be as follows:

<READY> The machine is ready for servicing/printing operations.

<SERVICE> The machine is executing servicing operations (as when a check is made on operation run ins service mode).

1. CCD (CCD-/shading-related items; automatic)

Items	Description		Remarks
CCD-ADJ	Use it to start auto adjustment.		Press the item to highlight; then, press the OK key to start execution. At the end of automatic adjustment, the notation 'END' will appear on the screen.
FILT-B	Use it to start the CCD output for R, G, and B.	Use it to generate images expressed by blue signals using cyan only (of all the CCD output signals).	Press the items to highlight; then, place a color original on the copyboard, and press the OK key to make CCD outputs (R, G, and B) using cyan only.
FILT-G		Use it to generate images expressed by green signals using cyan only (of all the CCD output signals).	
FILT-R		Use it to generate images expressed by red signals using cyan only (of all CCD output signals).	

2. PANEL (control panel)

Items	Description	Remarks
LCD-CHK	Use it to check the LCD for missing dots. (The entire face of the LCD will turn white for several seconds, and blue for several seconds. This sequence is repeated to enable a check.)	Press the item to highlight; then, press the OK key to execute the operation. To stop the operation, press the Stop key.
LED-CHK	Use it to start a check on the LEDs on the control panel.	Press the item to highlight; then, press the OK key to execute the operation so that the LEDs will turn on in sequence.
LED-OFF	Use it to end a check on the control panel LEDs.	
KEY-CHK	Use it to start key inputs. (To select a different item, press the highlighted notation KEY-CHK once again.)	The number/name of the input key will be indicated. For details, see Table 4-14.
TOUCHCHK	Use it to adjust coordinates on the control panel touch panel, i.e., to match the points pressed and the coordinates indicated on the LCD. (To select a different item, press the highlighted notation TOUCHCHK once again.)	Press the + marking on the LCD so that the next + marking will appear. This sequence will be repeated nine times.

Key	Notation on the screen	key	Notation on the screen	Key	Notation on the screen
Copy	COPY	Interrupt	INTERRUPT	Full Color	F-COLOR
Extend	ETC	0~9, #, *	0~9, #, *	Black	BLACK
Reset	RESET	Clear	CLEAR	Start	START
Guide	?	ID	ID	Stop	STOP
Use Mode	M	ACS	ACS	Save Power	STAND BY

Table 4-14

3. PART-CHK (checks on various electrical parts)

Items	Description	Remarks
FAN-ON	Use it to start the power supply cooling fan (FM4).	Press the item to high-light; then, press the OK key so that the fan will switch from half-speed to high-speed rotation. Press the OK key once again to return it to half-speed rotation.

4. CLEAR (RAM and jam/error code initialization)

Items	Description	Remarks
ERR	Use it to initialize error codes (E000, E001, E003, E004, E009, E211, E215, E217, E717, E808).	Press the item to high-light; then, press the OK key, and turn off and then on the main power switch manually.
R-CON	Use it to initialize the RAM on the reader controller PCB (except some) or the control panel CPU PCB (user mode).	Press the item to high-light; then, press the Ok key to initialize.
JAM-HIST	Use it to initialize the jam history.	
ERR-HIST	Use it to initialize the error code history.	
CNT-ERR	–	
CNT-CLR	–	
E354-CLR	–	

5. MISC-R (reader unit)

Items	Description	Remarks
SCANLAMP	Use it to start a check on the scanning lamp.	Press the item to highlight; then, press the OK key so that the lamp will turn on for 1 sec.
SC-MOVE	Use it to check the scanner. Indication Operation 1: HP → A 2: HP → B 3: HP → C 4: HP	Press the item to highlight; then, press the OK key to execute '1. HP->A'. Press the OK key once again to execute '2. HP->B'. This sequence will be repeated for 3. and 4.
LAMP-ADJ	Use it to adjust the intensity of light of the new scanning lamp.	Press the item to highlight; then, press the OK key to turn on the scanning lamp. When the scanning lamp replacement VR is turned slowly, a beep will be heard when the optimum intensity is approached. Press the OK key in response to the beep to end the work.
USE-LAMP	Use it to adjust the intensity of the scanning lamp after removing and then mounting the lamp back or when replacing the reader controller PCB or the light intensity detection PCB.	

Caution:

Be sure to wait until the intensity of the lamp has stabilized (about 5 min) before adjusting it (LAMP-ADJ, USE-LAMP).

6. MISC-P (printer unit)

Items	Description	Remarks
IP-CHK	Use it to run self diagnosis on the AP-IP PCB.	Press the item to highlight; then, press the OK key to start operation. At the end of self diagnosis, 'OK' or 'NG' will appear to the right of 'IP-CHK'.
POWEROFF	Use it to check the auto power-off mechanisms.	Press the item to highlight; then, press the OK, and turn off and then on the power to start the mechanism.
DEV-DRV	Use it to drive the developing rotary and the sleeve motor or about 25 sec.	Press the item to select; then, press the OK key, and turn off and then on the power to start the mechanism.
PPR-FEED	Use it to run a paper feeding test. Select the source of paper (cassette 1/2, multifeeder) and mode of delivery (face-up, face-down) in user mode.	Press the item to highlight, and select face-up or face-down delivery. Press the OK key, and turn off and then on the power to start the mechanisms.
MAIN-DRV	Use it to drive the intermediate transfer drum and the photosensitive drum for about 10 sec.	Press the item to highlight; then, press the OK key, and turn on and then off the power to start the mechanism.
DC-SAVE DC-LOAD	Use it to save the registration settings and high-voltage settings* of the old DC controller PCB to the reader controller PCB when replacing the DC controller PCB. Thereafter, load the settings from the reader controller PCB to the new DC controller PCB. *See Note. Steps 1) Press 'DC-SAVE' to highlight; then, press the OK key. 2) Turn off the power, and mount the new DC controller PCB. 3) Turn on the power, and start service mode once attain. 4) Press 'DC-LOAD' to highlight; then, press the OK key. 5) Check to make sure that the settings have been stored on the DC controller PCB.	For instructions on how to replace the DC controller PCB, see p. 8-9.

Note:

Registration Settings
- All items under ADJUST>IMG-REG
- All items under ADJUST>FEED>ADJ

High-Voltage Settings
- All items under ADJUST>HV-TR

F. MACHINE SETTINGS (OPTION)

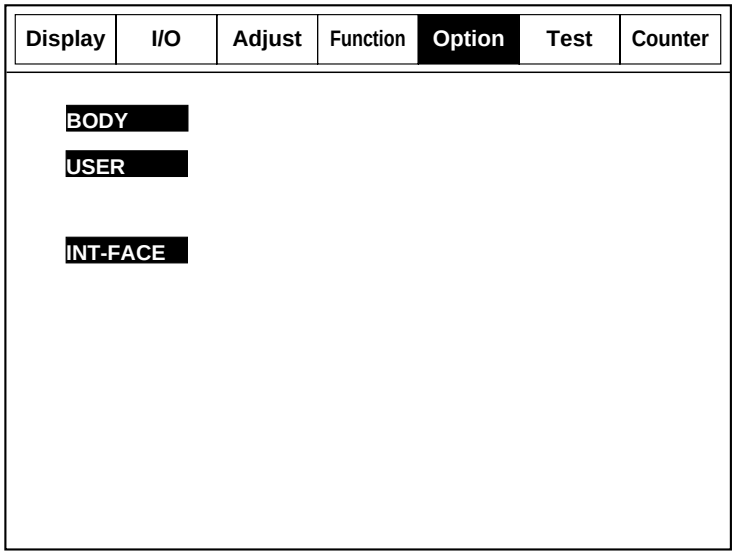


Figure 4-18

1	BODY	Use it to make settings related to the copier.
2	USER	Use it to make settings related to user mode under 'BODY'.
3	INT-FACE	Use it to set conditions for connection of an external controller.

Level 2 item	Level 3 item	Outline
BODY	MODEL-SZ	Use it to switch between AB and Inch. (0: AB, 1: Inch, 2: A, 3: AB/Inch)
	FIX-TEMP	Use it to enable/disable the fixing improvement mechanism for black halftone. (0: off, 1: on)
	PASCAL	Use it to enable/disable contrast potential/gradation correction data. (0: disable, 1: enable)
	PLT-TYPE	Use it to switch between the standard white plate and white paper. (0: standard white plate, 1: white paper)
	SH-SW	Use it to select the method of shading. (0: standard white plate, 1: white paper)
	DH-SW	Use it to switch modes for image gradation correction control. (0: OFF, 1: as needed, 2: execute, 3: reserved)
	DM-MODE	Use it to enable/disable Dmax control for auto gradation correction. (0: disable, 1: enable)
	ITD-CLN	Use it to enable/disable ITD cleaning rotation insertion mode. (0: disable for all modes, 1: enable for enlarge page separation/page separation, 2; enable for all modes)
	SP-1-SW	Use it to enable/disable separation static elimination for 1st side printing (0: disable, 1: enable)
	SP-2-SW	Use it to enable/disable separation static elimination for 2nd side printing (0: disable, 1: enable)
	TR-ON-SW	Use it to adjust the timing at which secondary transfer bias is turned on, thereby preventing separation faults as when paper wraps around the intermediate transfer drum.
	RE-TR-SW	Use it to select a re-transfer fault correction mode for a high-humidity environment. (0: disable remedy, 1: enable remedy in H/H; 2: enable remedy in H/H and N/N
	EC-GLASS	Use it to specify the use of EC-coat glass. (0: not used, 1: used)
USER	COPY-LIM	Use it to change the print count upper limit. (1 to 100)
	SERIAL	Use it to enter the serial No. indicated on the Soft Counter screen.
	TX-PT-ON	Use it to enable indication of text/photo items when text/photo/map is selected on the User screen. (0: do not indicate 'text/photo', 1: indicate 'text/photo')
	COUNTER1	Use it to set the soft counter 1 indication.
	COUNTER2	Use it to set the soft counter 2 indication.
	COUNTER3	Use it to set the soft counter 3 indication.
	COUNTER4	Use it to set the soft counter 4 indication.
	COUNTER5	Use it to set the soft counter 5 indication.
	COUNTER6	Use it to set the soft counter 6 indication.
	CONTROL	Use it to enable copying, printing, or scanning without the control key, control card, or ID No.
	S/U-SW	Use it to switch between user maintenance or service maintenance. (0: service, 1: user)
INT-FACE	B-CLR	Use it to indicate connection/disconnection of a copy data controller. (0: not connected, 1: connected)

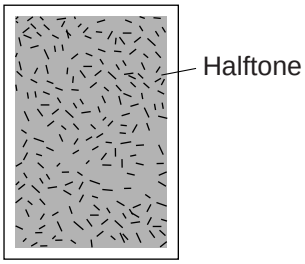
1. BODY (copier-related machines)

Items	Description	Remarks
MODEL-SZ	Use it to select paper configuration.	0: B 1: Inch 2: A 3: AB/Inch
FIX-TEMP	Use it to enable/disable copy down sequence for the fixing assembly. (Set it to '1' to improve fixing of black halftone. However, note that doing so will increase the first copy time by about 45 sec.)	0: disable 1: enable Standard: 0
PASCAL	Use it to enable/disable the use of gradation correction data obtained by auto gradation correction control.	0: disable 1: enable Standard: 1
PLT-TYPE	Use it to switch between the standard white plate and the aluminum while plate. (The setting need not be changed in the field.)	0: standard white plate 1: aluminum plate Standard: 0
SH-SW	Use it to select the method of shading when the standard white plate is used. (The setting need not be changed in the field.)	0: standard white plate 1: standard while plate with a different hue Standard: 0
DH-SW	Use it to switch modes for image gradeation correction control to suit the needs of the user for image quality. Executing image gradation correction control ensures good gradation of images. When making a decision, keep in mind that both “image density correction control” and “image gradation correction control” require about one minute each.	0: OFF 1: execute after image gradation correction control as needed 2: execute after image gradation correction control always 3: reserved Standard: 0
DM-MODE	Use it to execute image density correction for auto gradation correction. Image density correction control is executed during PG output of auto gradation correction; auto gradation correction is executed with the adjusted image density correction value servicing as the copier's density control standard, thereby improving the accuracy of gradation control. The images are likely to improve, but the auto gradation correction time will increase appreciably.	0: disable 1: enable Standard: 0
ITD-CLN	Use it to execute ITD cleaning rotation insertion mode as when correcting ITD cleaning faults. Normally, Y1 → M1→, C1 → K1 → Y2 → M2 → C2 → K2 → cleaning rotating When enabled, Y1 → M1 → C1 → K1 cleaning rotation → Y2 → M2 → C2 → K2 → cleaning rotation (Use it if the image of a 1st page is found conspicuously on a 2nd page as when printing in enlargement page separation/page separation.)	0: disable 1: enable in enlargement page separation/page separation 2: enable for all modes Standard: 1

<table>
<tr><th>Items</th><th>Description</th><th>Remarks</th></tr>
<tr><td>SP-1-SW</td><td>Enable separation static elimination if claw-like lines* or tread-like lines** occur because of low humidity when generating (copying/printing) a 1st page in a normal temperature/normal humidity environment.
<table>
<tr><th></th><th>H/H</th><th>N/N</th><th>N/L</th><th>L/L</th></tr>
<tr><td>1st page</td><td>OFF</td><td>Enable/ disable using this mode.</td><td>ON</td><td>ON</td></tr>
</table></td><td>0: disable.
1: enable.
Standard: 0</td></tr>
<tr><td>SP-2-SW</td><td>Enable/disable separation static elimination if brush-like lines*** occur on some types of paper when copying/printing a 2nd side in double-sided mode using auto/multifeeder mode in a high-temperature/high-humidity environment or when copying/printing a 2nd side in double-sided mode using auto/multifeeder mode in a high-temperature/high-humidity environment.
<table>
<tr><th></th><th>H/H</th><th>N/N</th><th>N/L</th><th>L/L</th></tr>
<tr><td>Auto double-sided</td><td rowspan="2">For these three items enable/ disable the mechanism using this mode.</td><td>ON</td><td>ON</td><td>ON</td></tr>
<tr><td>Manual double-sided</td><td></td><td>ON</td><td>ON</td></tr>
</table></td><td>0: disable (if brush-like occur)
1: enable (if claw-like lines occur)
Standard: 1</td></tr>
<tr><td>TR-ON-SW</td><td>Use it to set the secondary transfer bias application timing if paper wraps around the intermediate transfer drum or separation faults occur.</td><td>Settings: 0 to +3
Standard: 1</td></tr>
</table>

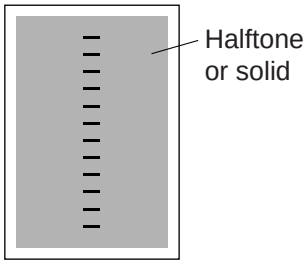
Items	Description	Remarks
RE-TR-SW	Use it to enable/disable the use of a remedy against re-transfer occurring in a high humidity environment. The Dmax control parameter will change, consequently changing the primary charging bias and the primary transfer bias to the appropriate settings. Steps 1) Enter the setting in service mode. 2) End service mode, and turn off and then on the control panel power soft switch. 3) Execute auto graduation correction in user mode. 4) End.	0: disable remedy. 1: enable remedy in H/H. 2: enable remedy in H/H and N/N. Standards: 0
EC-GLASS	Use it to specify the use of EC coated glass.	0: not used. 1: used. Standard: 1

*Claw-like lines



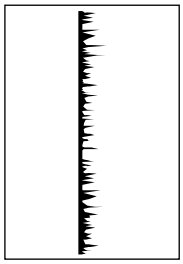
Numerous claw-like lines occur in a halftone image.

**Tread-like lines.



Tread-like lines occur in a halftone or solid image at intervals equal to the ribs on the feeding guide (in the secondary transfer belt assembly).

***Brush-like lines.



Distorted black lines and text occur across the paper.

2. USER (machine settings related to user mode under BODY)

Items	Description	Remarks
COPY-LIM	Use it to change the copy count upper limit.	Settings: 1 to 100 (unit: pages) Standards: 100
SERIAL	Use it to enter the 5-digit serial No. of the reader unit when replacing the reader controller PCB.	
TX-PT-ON	Use it to disable indication of 'text/photo'.	0: enable indication. 1: disable indication. Standard: 0
COUNTER1	Use it to set the soft counter 1 for the User Mode screen. (Table 4-15)	Settings: 0 to +95 Standard: depends on country. (Table 4-16)
COUNTER2	Use it to set the soft counter 2 for the User Mode screen. (Table 4-15)	
COUNTER3	Use it to set the soft counter 3 for the User Mode screen. (Table 4-15)	
COUNTER4	Use it to set the soft counter 4 for the User Mode screen. (Table 4-15)	
COUNTER5	Use it to set the soft counter 5 for the User Mode screen. (Table 4-15)	
COUNTER6	Use it to set the soft counter 6 for the User Mode screen. (Table 4-15)	

<table>
<tr><th>Items</th><th>Description</th><th>Remarks</th></tr>
<tr><td>CONTROL</td><td>Use it to enable copying, or printing with conditions by changing the last 3 digits of the appropriate input in the absence of the control key, control card, or ID No.
• In Place of the Control Key
<table>
<tr><th>1st digit of CONTROL</th><th>Black-and-white copy</th><th>Black-and-white print</th><th>Color print</th></tr>
<tr><td>0</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>1</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>2</td><td>X</td><td>O</td><td>O</td></tr>
<tr><td>3</td><td>O</td><td>X</td><td>X</td></tr>
<tr><td>4</td><td>O</td><td>O</td><td>O</td></tr>
</table>
• In Place of a Control Card
<table>
<tr><th>2nd digit of CONTROL</th><th>Black-and-white copy</th><th>Black-and-white print</th><th>Color print</th></tr>
<tr><td>0</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>1</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>2</td><td>X</td><td>O</td><td>O</td></tr>
<tr><td>3</td><td>O</td><td>X</td><td>X</td></tr>
<tr><td>4</td><td>O</td><td>O</td><td>O</td></tr>
</table>
• In Place of an ID No.
<table>
<tr><th>3rd digit of CONTROL</th><th>Black-and-white copy</th><th>Black-and-white print</th><th>Color print</th></tr>
<tr><td>0</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>1</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>2</td><td>X</td><td>O</td><td>O</td></tr>
<tr><td>3</td><td>O</td><td>X</td><td>X</td></tr>
<tr><td>4</td><td>O</td><td>O</td><td>O</td></tr>
</table>
O: enable. X: disable
• If '2' is set to CONTROL, black-and-white/color printing will be possible without the control key; without a control card and a control card, none is allowed.
• If '421' is set to CONTROL, all will be prohibited without the control key; black-and-white/color printing will be allowed without a control card; and black-and-white copying/black-and-white/color printing will be possible without an ID No.</td><td>Settings: 0 to 4
(for each)
Standard: 0 (for each)
Guide to Indication
CONTORL XXX
1st digit
2nd digit
3rd digit</td></tr>
<tr><td>S/U-SW</td><td>Use it to switch between user maintenance or service maintenance at time of installation. (The User screen will differ depending on the method of maintenance).
0: service maintenance.
1: user maintenance.</td><td>Settings: 0, 1
Standards: 1 (US)
0 (non US)</td></tr>
</table>

• Soft Counter Specifications

No.	Counter	Function	Color	Paper size	Count for double-sided	Count for large-size
0	None					
1	Total counter 1	C+P	All	M	–	1
2	Total counter 2	C+P	All	M	–	2
3	Total counter (full color 1)	C+P	4C	M	–	1
4	Total counter (full color 2)	C+P	4C	M	–	2
5	Total counter (mono color)	C+P	Mono	M	–	1
6	Total counter (black-and-white 1)	C+P	Bk	M	–	1
7	Total counter (black-and-white 2)	C+P	Bk	M	–	2
8	Total counter (large-size)	C+P	All	L	–	1
9	Total counter (small size)	C+P	All	S	–	–
10	Copy counter 1	C	All	M	–	1
11	Copy counter 2	C	All	M	–	2
12	Copy counter (full color 1)	C	4C	M	–	1
13	Copy counter (full color 2)	C	4C	M	–	2
14	Copy counter (mono color 1)	C	Mono	M	–	1
15	Copy counter (mono color 2)	C	Mono	M	–	2
16	Copy counter (black-and-white 1)	C	Bk	M	–	1
17	Copy counter (black-and-white 2)	C	Bk	M	–	2
18	Copy counter (full color, large-size)	C	4C	L	–	1
19	Copy counter (full color, small-size)	C	4C	S	–	–
20	Copy counter (mono color, large-size)	C	Mono	L	–	1
21	Copy counter (mono color, small-size)	C	Mono	S	–	–
22	Copy counter (black-and-white, large-size)	C	Bk	L	–	1
23	Copy counter (black-and-white, small size)	C	Bk	S	–	–
24	Copy counter (full color, large-size, double-sided)	C	4C	L	O	1
25	Copy counter (full color, small-size, double-sided)	C	4C	S	O	–
26	Copy counter (mono color, large-size, double-sided)	C	Mono	L	O	1
27	Copy counter (mono color, small-size, double-sided)	C	Mono	S	O	–
28	Copy counter (black-and-white, large-size, double-sided)	C	Bk	L	O	1
29	Copy counter (black-and-white, small-size, double-sided)	C	Bk	S	O	–
30	Print counter 1	P	All	M	–	1
31	Print counter 2	P	All	M	–	2
32	Print counter (full color 1)	P	4C	M	–	1
33	Print counter (full color 2)	P	4C	M	–	2
34	Print counter (mono color 1)	P	Mono	M	–	1
35	Printer counter (mono color 2)	P	Mono	M	–	2
36	Print counter (black-and-white 1)	P	Bk	M	–	1
37	Print counter (black-and-white 2)	P	Bk	M	–	2

Table 4-15(a)

No.	Counter	Function	Color	Paper size	Count for double-sided	Count for large-size
38	Print counter (full color, large-size)	P	4C	L	–	1
39	Print counter (full color, small-size)	P	4C	S	–	–
40	Print counter (mono color, large-size)	P	Mono	L	–	1
41	Print counter (mono color, small-size)	P	Mono	S	–	–
42	Print counter (black-and-white, large-size)	P	Bk	L	–	1
43	Print counter (black-and-while, small-size)	P	Bk	S	–	–
44	Print counter (full color, large-size, double-sided)	P	4C	L	O	1
45	Print counter (full color, small-size, double-sided)	P	4C	S	O	–
46	Print counter (mono color, large-size, double-sided)	P	Mono	L	O	1
47	Print counter (mono color, small-size, double-sided)	P	Mono	S	O	–
48	Print counter (black-and-white, large-size, double-sided)	P	Bk	L	O	1
49	Print counter (black-and-white, small-size, double-sided)	P	Bk	S	O	–
54	Copy scan counter (full color, large-size)	S	4C	L	–	1
55	Copy scan counter (full color, small-size)	S	4C	S	–	–
56	Copy scan counter (black-and-white, large-size)	S	Bk	L	–	1
57	Copy scan counter (black-and-white, small-size)	S	Bk	S	–	–
58	Copy + print (full color, large-size)	C+P	4C	L	–	1
59	copy + print counter (full color, small-size)	C+P	4C	S	–	–
60	Copy + print counter (black-and-white, large-size)	C+P	Bk	L	–	1
61	Copy + print counter (black-and-white, small-size)	C+P	Bk	S	–	–
62	Copy + print counter (black-and-white 2)	C+P	Bk	M	–	2
63	Copy + print counter (black-and-white 1)	C+P	Bk	M	–	1
64	Copy + print counter (full color + mono color, large-size)	C+P	4C+Mono	L	–	1
65	Copy + print counter (full color + mono color, small-size)	C+P	4C+Mono	S	–	–
66	Copy + print counter (full color + mono color 2)	C+P	4C+Mono	M	–	2
67	Copy + print counter (full color + mono color 1)	C+P	4C+Mono	M	–	1
68	Copy counter (full color + mono color, large-size)	C	4C+Mono	L	–	1
69	Copy counter (full color + mono color, small-size)	C	4C+Mono	S	–	–
70	Copy counter (full color + mono color 2)	C	4C+Mono	M	–	2
71	Copy counter (full color + mono color 1)	C	4C+Mono	M	–	1
72	Print counter (full color + mono color, large-size)	P	4C+Mono	L	–	1
73	Print counter (full color + mono color, small-size)	P	4C+Mono	S	–	–
74	Print counter (full color + mono color 2)	P	4C+Mono	M	–	2
75	Print counter (full color + mono color 1)	P	4C+Mono	M	–	1
76	Copy + print counter (large-size)	C+P	All	L	–	1
77	Copy + print counter (small-size)	C+P	All	S	–	–
78	Copy + print counter 2	C+P	All	M	–	2
79	Copy + print counter 1	C+P	All	M	–	1

Table 4-15(b)

No.	Counter	Function	Color	Paper size	Count for double-sided	Count for large-size
80	Copy counter (large-size)	C	All	L	–	1
81	Copy counter (small-size)	C	All	S	–	–
82	Print counter (large-size)	P	All	L	–	1
83	Print counter (small-size)	P	All	S	–	–
84	Total counter (mono color, large-size)	C+P	Mono	L	–	1
85	Total counter (mono color, small-size)	C+P	Mono	S	–	–
86	Total counter (black-and-white, large-size)	C+P	Bk	L	–	1
87	Total counter (black-and-white, small-size)	C+P	Bk	S	–	–
88	Copy scan counter (full color)	S	4C	M	–	–
89	Copy scan counter (black-and-white)	S	Bk	M	–	–
90	Copy scan counter (large-size)	S	All	L	–	–
91	Copy scan counter (small-size)	S	All	S	–	–
92	Copy scan counter (total)	S	All	M	–	–
93	Copy scan counter (large-size 4)	S	All	L	–	–
94	Copy scan counter (small-size 4)	S	All	S	–	–
95	Copy scan counter (total 4)	S	All	M	–	–

Table 4-15(c)

Model	Model No.	Counter 1	Counter 2	Counter 3	Counter 4	Counter 5	Counter 6
120V(USA)	F13-5731	1	6	68	69	72	73
120V(TWN)	F13-5701	1	6	58	59	5	0
230V(Others)	F13-5741	1	6	58	59	5	0
230V(UK)	F13-5751	1	64	65	77	60	61
230V(CA)	F13-5761	1	6	68	69	72	73
230V(FRN)	F13-5771	1	64	65	77	60	61
230V(GER)	F13-5781	1	64	65	60	61	95
230V(AMS)	F13-5791	1	6	68	69	72	73
230V(ITA)	F13-5721	1	6	68	69	72	73

Table 4-16

Guide to Terms

• Functions
C stands for copying; P, for printing; and S, for scanning.

• Color
4C standards for 4 full colors; MONO, for yellow, magenta, cyan, blue, green, red, and brown; BK, for black; ALL, for 4C, MONO, BK.

• Paper Size
L stands for large-size (larger than B4); S, for small-size (smaller than B4); M, for large- and small-sizes.

• Count for Double-Sided
O: by a signal count (by 1).
–: as in normal copying.

• Count for large-Size
1: by a single count (by 1).
2: by a double count (by 2).

3. INT-FACE (conditions for settings when a connection is mode to an external controller)

Items	Description	Remarks
B-CLR	Clearing E717 1) Install the copy data control. 2) Turn on the power, and execute error clear in service mode. 3) Set B-CLR to '0'. You can "disconnect" the copy data controller temporarily by performing these steps.	0: not connected. 1: connected.

G. TEST PRINT MODE (TEST)

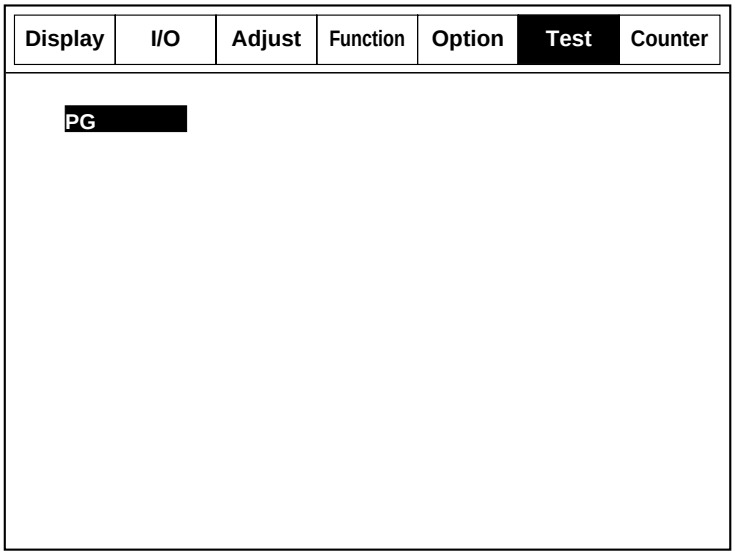


Figure 4-19

1	PG	Use it to select a type of test print, and generate it.

1. PG (test print type selection and generation)

Items	Description	Remarks
TYPE	Use it to enter a number. Then, press the Copy Start key to generate a test print.	For the test print No., see table 4-17.
TXPH	Use it to switch between text mode and photo mode.	3: text/photo/map. 4: film photo. 5: printed photo. 6: text/photo. 7: black-and-white text. Note that these settings are effective in test print mode only.
THRU	Use it to enable/disable the use of the gate array of the laser controller PCB.	0: disable gate array. 1: enable gate array. These settings are effective in test print mode only.
DENS-Y	Use it to adjust the density of Y at TYPE=5.	Settings: 0 to +255 These settings are effective in test print only.
DENS-M	Use it to adjust the density of M at TYPE=5.	
DENS-C	Use it to adjust the density of C at TYPE=5.	
DENS-K	Use it to adjust the density of K at TYPE=5.	
COLOR-Y	Use it to enable/disable generation of Y for each TYPE.	0: disable. 1: enable. These settings are effective in test print only.
COLOR-M	Use it to enable/disable generation of M for each TYPE.	
COLOR-C	Use it to enable/disable generation of C for each TYPE.	
COLOR-K	Use it to enable/disable generation of K for each TYPE.	
F/M-SW	Use it to switch between full color and mono color for PG generation. Fo mono color, set '1', and select the output color under 'COLOR-Y/M/C/K'.	0: full color 1: mono color

No.	Test print
00	Image from the CCD (normal coping)
01	For R&D
02	256 colors
03	256 gradations
04	16 gradations
05	Entire face in halftone
06	Grid
07	For R&D
08	Fro R&D
09	For R&D
10	YMCK horizontal stripe (laser FF activation)
11	Fro R&D
12	YMCK 64 gradations
13	BGR 64 gradations
14	Full-color 16 gradations
15	Full-color light area 16 gradations
16	YMCK horizontal stripes (laser A0 activation)

Table 4-17

H. COUNTER MODE (COUNTER)

1	TOTAL	Total counter
2	SCANNER	Scan counter
3	PICK-UP	Pick-up counter
4	FEEDER	Feeder counter
5	JAM	Jam counter

1. TOTAL (total counter)

Items	Description	Remarks
SERVICE1	Total counter 1 for servicing	After '99999999', returns to '00000000'. *Only when the printer board (PS/PCL) is installed.
SERVICE2	Total counter 2 for servicing	
TTL	Total counter (copy + print* + combination)	
L-TTL	Large-size total counter (copy + print* + combination)	
S-TTL	Small-size total counter (copy + print* + combination)	
C-L-TTL	Color large-size total counter (copy + print* + combination)	
C-S-TTL	Color small-size total counter (copy + print* + combination)	
K-L-TTL	Black large-size total counter (copy + print* + combination)	
K-S-TTL	Black small-size total counter (copy + print* + combination)	
COPY	Total copy counter	
L-COPY	Large-size total copy counter	
S-COPY	Small-size total copy counter	
C-L-COPY	Color large-size total copy counter	
C-S-COPY	Color small-size total copy counter	
K-L-COPY	Black large-size total coy counter	
K-S-COPY	Black small-size total copy counter	
PRNT	Total print counter*	
L-PRNT	Large-size total print counter*	
S-PRNT	Small-size total print counter*	
C-L-PRNT	Color large-size total print counter*	
C-S-PRNT	Color small-size total print counter*	
K-L-PRNT	Black large-size total print counter*	
K-S-PRNT	Black small-size total printer counter*	
4C-TTL	4-color total copy counter	
Y-COPY	Y mono copy counter	
M-COPY	M mono copy counter	
C-COPY	C mono copy counter	
K-COPY	K mono copy counter	

2. SCANNER (scanner-related counter)

Items	Description	Remarks
SC-TTL	Scanner total scan counter	After '99999999', returns to '00000000'.
SC-COPY	Scan counter for copying	

3. PICK-UP (pick-up-related counter)

Items	Description	Remarks
C1	Cassette 1 pick-up total counter	After '99999999', returns to '00000000'.
L-C1	Large-size cassette 1 pick-up total counter	
S-C1	Small-size cassette 1 pick-up total counter	
C2	Cassette 2 pick-up total counter	
L-C2	Large-size cassette 2 pick-up total counter	
S-C2	Small-size cassette 2 pick-up total counter	
C3*1	Cassette 3 pick-up total counter	
L-C3*1	Large-size cassette 3 pick-up total counter	
S-C3*1	Small-size cassette 3 pick-up total counter	
C4*2	Cassette 4 pick-up total counter	
L-C4*2	Large-size cassette 4 pick-up total counter	
S-C4*2	Small-size cassette 4 pick-up total counter	
MF	Multifeeder pick-up total counter	
L-MF	Large-size multifeeder pick-up total counter	
S-MF	Small-size multifeeder pick-up total counter	
DK*3	External paper deck pick-up total counter	
L-DK*3	Large-size external paper deck pick-up total counter	
S-DK*3	Small-size external paper deck pick-up total counter	
2-SIDE	2nd side in double-sided mode total counter	
L-2-SIDE	Large-size 2nd side in double-sided mode total counter	
S-2-SIDE	Small-size 2nd size in double-sided mode total counter	

*1: For the 2×500 Sheet Paper Deck, 2000 Sheet Paper Deck.
*2: For the 2×500 Sheet Paper Deck.
*3: For the 1000 Sheet Paper Deck.

4. FEEDER (feeder-related counter)

Items	Description	Remarks
FEED	Feeder pick-up total counter	After '99999999', returns to '00000000'.
L-FEED	Large-size original feeder pick-up total counter	
S-FEED	Small-size original feeder pick-up total counter	
PICKUP-L	Left pick-up total counter	

5. JAM (jam-related counter)

Items	Description	Remarks
TOTAL	Indicates the total number of jams in the copier.	After '99999999', returns to '00000000'. *Only when the printer board (PS/PCL) is installed.
PRINT*	Indicates the total number of print jams in the copier.	
FEEDER	Indicates the total number of jams in the feeder.	
SORTER	Indicates the total number of jams in the sorter.	

I. FEEDER

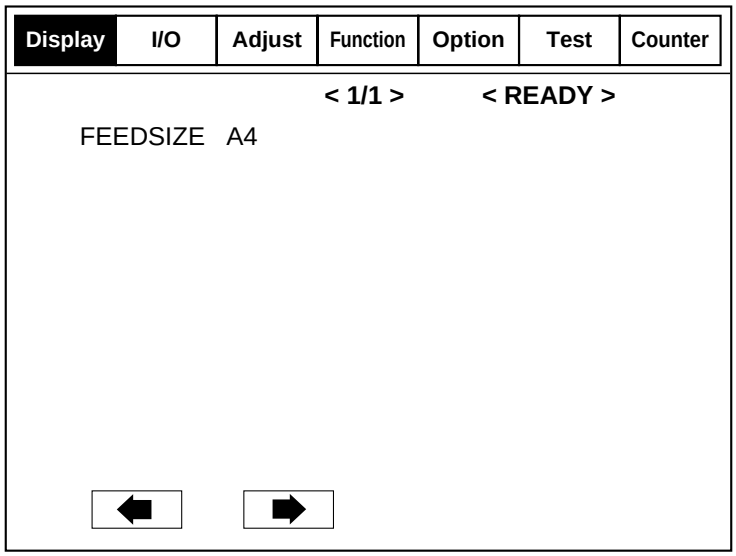


Figure 4-20

Level 1 item	Level 3 item	Outline
DISPLAY	FEEDSIZE	Use it to indicate the size of the original detected by the feeder.
ADJUST	DOCST	Use it to adjust the original stop position for top pick-up mode.
	DOCST-RP	—
	P-INTL-U	Use it to adjust the sheet-to-sheet distance for top pick-up mode.
	P-INTL-D	—
FUNCTION	SENS-INT	Use it to adjust the ADF sensor auto sensitivity (initialization).
	UBLT-CLN	Use it to execute separation belt cleaning mode for top pick-up for the DADF.
	DBLT-CLN	—
OPTION	SIZE-SW	Use it to enable/disable the size mix mechanism (AB-/Inch-size originals).
	DOC-DELI	—

Note:

For FEEDER items, I/O, Test, or Counter modes are not used.

<DISPLAY>

Items	Description	Remarks
FEEDSIZE	Use it to indicate the size of the original detected by the feeder in terms of paper sizes; e.g., A, LTR.	

<ADJUST>

Items	Description	Remarks
DOCST	Use it to adjust the original stop position for top pick-up mode. After selecting this mode, place an original on the DADF original tray, and press the OK key. When the original has been fed, open the feeder, and check the position of the original stopped on the copyboard glass. If it is to the left of the V marking, increase the setting. If it is to the right of the V marking, decreases the setting.	Unit: 0.5 mm
DOCST-RP	—	
P-INTL-U	Use it to adjust the sheet-to-sheet distance for top pick-up. 1) Select the mode, and place two originals on the original tray. 2) Press the OK key so that the original will be picked up and stopped on the copyboard glass. 3) Adjust the sheet-to-sheet distance. If it is small, increase the setting. If it is large, decrease the setting.	Unit: 0.5 mm
P-INTL-D	—	

<FUNCTION>

Items	Description	Remarks
SENS-INT	Use it to adjust the feeder sensor auto sensitivity (initialization). Execute this mode if you have replaced the feeder controller PCB, original tray paper sensor (S1), or registration sensor (S3). However, keep in mind that you must perform additional steps if you have replaced the DADF controller PCB. The contents of this adjustment are the same as making adjustments using the DIP switch on the feeder controller PCB. 1) Remove the feeder controller cover, and check the position of LED1/2. 2) Select this mode, and press the OK key. 3) See that the copier executes the mode and stops automatically.	See "Standards and Adjustments" in the Feeder Service Manual.
UBLT-CLN	Use it to execute separation belt cleaning mode for feeder top pick-up mode. ■ Steps 1) Select 'UBLT-CLN' to highlight. 2) Moisten the center of paper with solvent, and set it on the original tray of the feeder. 3) Press the OK key so that the paper will be picked up and then stopped in the middle, and the top pick-up separation belt rotates idly. 4) Press the OK key to stop the operation. 5) Open the upper cover of the feeder, remove the paper, and close the upper cover.	
DBLT-CLN	—	

<OPTION>

Items	Description	Remarks
SIZE-SW	Use it to enable detection of a mix of AB- and Inch-size originals. 0: disable detection. 1: enable detection.	Standard: 0
DOC-DELI	—	

• Without the Reader Unit Installed

The modes discussed herein are effective when the printer board (PS/PCL) is installed, and may be started by operating on the control panel of the printer unit.

If the reader unit is installed, service mode may be started by operating on the control panel of the reader unit.

J. ENTERING THE SERVICE MODE

To start service mode, turn on the printer unit while holding on the “Menu key, Enter/Online key, and Cancel key” on the control panel at the same time until “Start SELF-TEST” displays. The panel display will show “DISPLAY” to indicate that service mode has started after the printer unit checks itself.

K. MENU STRUCTURE AND KEY ASSIGNMENT

There are following keys on the printer control panel. Basic function of each key is also described.

Name of the key	Function in main menu	Function in sub menu
UP	-	change the item to previous value
DOWN	-	change the item to next value
LEFT	-	-
RIGHT	-	-
CANCEL	exit service mode and reboot	switch to main menu
MENU	switch to next item of main menu	switch to main menu
ENTER/ONLINE	enter sub menu	display next item of sub menu

Table 4-18

Caution:

1. Do not disconnect the power cord while the printer is in service mode. (Be sure to turn off the power first to end service mode; however, do not turn off the power while test mode, read memory mode, or write memory mode is under way.)
2. When the power is turned on normally, various adjustment data in the EEPROM on the DC controller PCB is mounted to the printer unit and the paper is turned on normally, the data stored on the printer board will be lost. If you are replacing the DC controller PCB, be sure to write the various adjustment data in read memory mode to the RAM on the printer board, and then write it to the EEPROM on the new DC controller PCB in write memory mode.

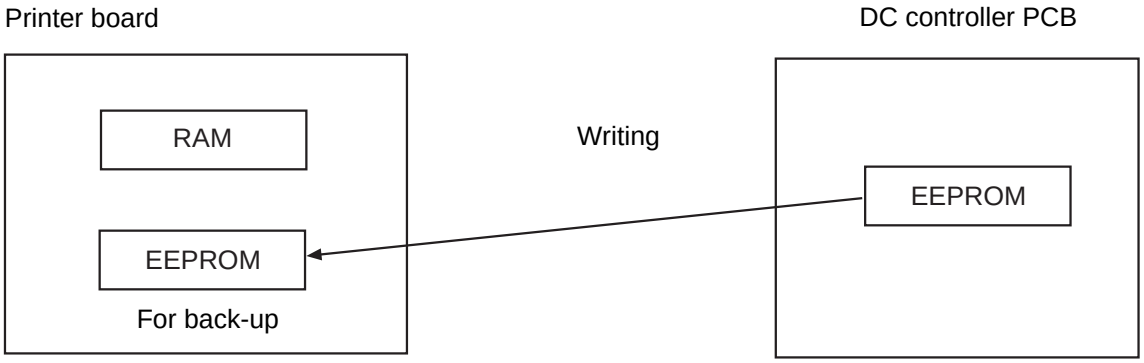


Figure 4-21

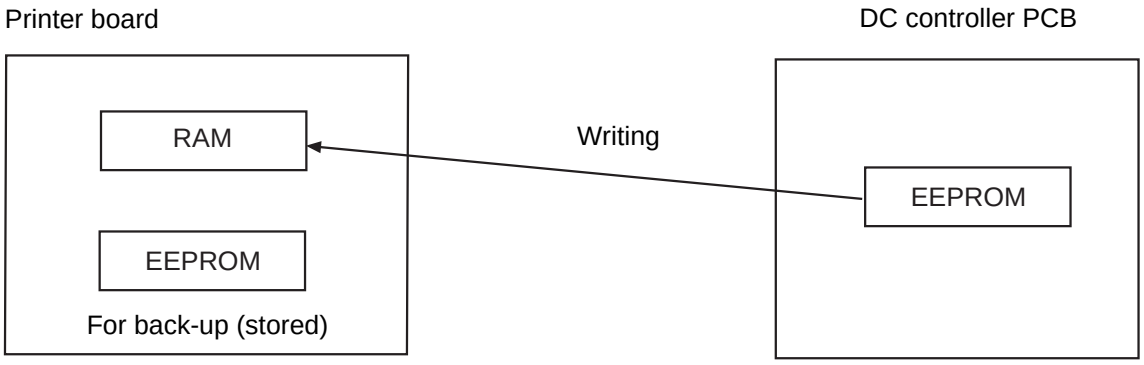


Figure 4-22

L. MAIN MENU

No.	Main Menu
1	DISPLAY
2	SENSOR MONITOR
3	TEST
4	PAPER FEED
5	READ MEMORY
6	PARAMETER
7	BIAS
8	WRITE MEMORY

Table 4-19

- After entering the service mode, the following message is displayed on LCD “DISPLAY”.
- If the “MENU” key is pressed, the next item of main menu is displayed on LCD.
- If the “MENU” key is pressed while “MESSAGE/NAME” is displayed, “DISPLAY” is displayed again.
- If the “MENU” key is pressed, go to the sub menu of each main menu items. For details, see the detail information of each main menu item.
- If the “CANCEL” key is pressed, exit service mode and reboot.

1. DISPLAY

Display mode is for displaying the status/configuration of the printer.

Sub Menu	Description	Remarks
DCON VERSION	Indicates the ROM version of the DC controller PCB. ‘DCON VERSION MC:xx.yy DC:XX.YY’ Indicates the version of the ROM which controls loads on the DC controller PCB (mechanical workings). ‘XX.YY’ Indicates the version of the ROM which control the communication between the video controller (PS/PCL) PCB on the DC controller PCB, controls high voltage, and controls some loads.	xx: version number yy: R&D number XX: version number YY: R&D number
DRUM LIFE	Indicates the life of the photosensitive drum inside the drum cartridge (at 126%, ‘E814’). Note that ‘2: warning 2 (100%)’ indicates that the copier may not be able to ensure a normal level of quality.	0: normal 1: warning 1 (70%) 2: warning 2 (100%) 4: drum cartridge memory error

2. SENSOR MONITOR

Sensor monitor mode is for displaying the state of the sensors in the paper path of the printer unit.

Sub Menu	Description	Remarks
SENSOR MONITORING	Use it to monitor the state of the sensors used in the printer unit. Turn on the sensor manually; the results of execution will be indicated on the control panel. For 'xx yy zz', see Table 4-20.	

Table 4-20 shows the display position and the display reading of each sensor.

Sensor	Display reading (hexadecimal)	Display position
Face-down tray delivery sensor (PS11)	10	xx
Fixing delivery sensor (PS1903)	08	
Separation sensor (PS5)	04	
Pick-up assembly sensor (PS17)	02	
Registration paper sensor (PS1)	01	
Lower cassette paper absent sensor (PS1207)	08	yy
Upper cassette paper absent sensor (PS1208)	02	
Multifeeder tray paper sensor (PS1301)	01	

Table 4-20

Caution:

1. The notation "zz" in the display panel (2nd row) is for checks at the factory, and is not relevant for servicing work.
2. Each sensor has its own response time, some requiring as much as 5 sec. Be sure to allow adequate time before making a decision.
3. If multiple sensors are turned on at once, the reading will be the sum of the results in hexadecimal notation.
4. Execution sensor monitor mode can drive some major parts. To avoid contact and, therefore, injuries, be sure to remove the intermediate transfer drum, various cartridges, and secondary transfer belt assembly before starting service mode.
   In view of the work, remove the following for each respective sensor:
   • For PS1903 and PS5, remove the fixing assembly.
   • For PS11, remove the upper cover assembly.
   • For PS1207, remove the cassette 1.
   • For PS1208, remove the cassette 2.

3. TEST

Test mode is for checking while operating the printer unit.

Sub Menu	Description	Remarks
DEV-DRV	IUse it to rotate the developing rotary cartridge and the cylinder for a specific period of time.	1. Select 'DEV-DRV'. 2. Using the ∧ or ∨ key, select 'YES'. 3. Press the ENTER key to execute.
MAIN-DRV	Use it to rotate the intermediate transfer drum and the photosensitive drum for a specific period of time.	1. Select 'MAIN-DRV'. 2. Using the ∧ or ∨ key, select 'YES'. 3. Press the ENTER key to execute.

Caution:

1. If you want to execute test mode while keeping the door covers open, use the door switch actuators to keep the door switches on.
2. Do not put your hand or face inside when checking the operation of the engine while the door cover is open.
3. Do not execute operation/inspection mode until the engine stops operation.

4. PAPER FEED

Use it to pick up one sheet of paper from the selected pick-up slot and deliver to the selected delivery slot.

Sub Menu	Description	Remarks
PAPER FEED	Before executing PAPER FEED mode, selectthe source of paper (cassette 1, cassette 2, multi-feeder).	1. Select 'PAPER FEED'. 2. Using the ∧ or ∨ key, select the source of paper. 3. Press the ENTER key to execute. 4. Using the ∧ or ∨ key, select the destination. 5. Press the ENTER key to execute.
OUTPUT FACE	Before executing PAPER FEED mode, select the destination (face-down delivery, face-up delivery).	

Caution:

1. If you want to execute test mode while keeping the door covers open, use the door switch actuators to keep the door switches on.
2. Do not put your hand or face inside when checking the operation of the engine while the door cover is open.
3. Do not execute operation/inspection mode until the engine stops operation.

5. READ MEMORY

This mode is stored in the EEPROM on the printer board, and is used to read various backup data items (e.g., PARAMETER, BIAS) to the work area.

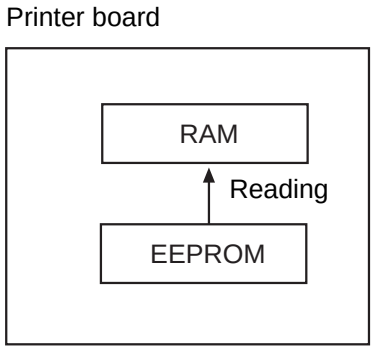


Figure 4-23

- **Using READ MEMORY**
  1) Select <READ MEMORY>.
  2) Press the ENTER key to select <READ FROM DCON>.
  3) Using the ∧ or ∨ key, select 'YES'.
  4) Press the ENTER key to execute.
  5) See that 'READ FROM DCON EXECUTING>' is indicated
  6) Turn off and then on the power to end.

6. PARAMETER

Parameter mode is for checking the adjustment data specific to each printer unit and stored in the EEPROM on the DC controller PCB at time of shipment. Normally, it is the data stored in the RAM on the printer board.

Changing each data item and executing memory write mode thereafter will update the data in the EEPROM on the DC controller PCB.

Sub Menu	Description	Remarks
REG-V-Y	Use it to fine-adjust the write start position (sub scanning) on the intermediate transfer drum for the Y pattern using M as reference. (1st page of 1-page mode, and 1st and 2nd pages of 2-page mode).	Unit: 1 pixel A higher setting will shift the pastern toward the rear. Settings: -7 to +8 Standard: 0 Enter setting, and execute 'WRITE MEMORY'.
REG-V-C	Use it to fine-adjust the write start position (sub scanning) on the intermediate transfer drum for the C pattern using M as reference. (1st page of 1-page mode, and 1st and 2nd pages of 2-page mode).	
REG-V-K	Use it to fine-adjust the write start position (sub scanning) on the intermediate transfer drum for the K pattern using M as reference. (1st page of 1-page mode, and 1st and 2nd pages of 2-page mode).	
REG2-V-Y	Use it to fine-adjust the write start position (sub scanning) on the intermediate transfer drum for the Y pattern using M as reference. (2nd and subsequent pages of 1-page mode, and 3rd and subsequent pages of 2-page mode).	
REG2-V-C	Use it to fine-adjust the write start position (sub scanning) on the intermediate transfer drum for the Y pattern using C as reference. (2nd and subsequent pages of 1-page mode, and 3rd and subsequent pages of 2-page mode).	
REG2-V-K	Use it to fine-adjust the write start position (sub scanning) on the intermediate transfer drum for the Y pattern using K as reference. (2nd and subsequent pages of 1-page mode, and 3rd and subsequent pages of 2-page mode).	
REG-V-M	Use it to set the leading edge registration for M to serve as a reference.Åi1st page of 1-page mode, and 1st and 2nd pages of 2-page mode).	
REG2-V-M	Use it to set the leading edge registration for M to serve as a reference.Åi2nd and subsequent pages of 1-page mode, and 3rd and subsequent pages of 2-page mode).	

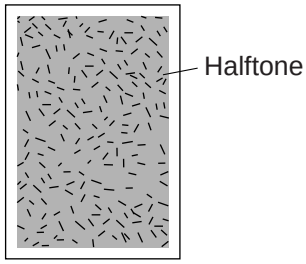
Sub Menu	Description	Remarks
ADJ-C1	Use it t adjust the image write start position in main scanning direction when using the cassette 1.	Settings: 0 to +63 Standard: +32 Enter setting, and execute 'WRITE MEMORY'.
ADJ-C2	Use it t adjust the image write start position in main scanning direction when using the cassette 2.	
ADJ-MF	Use it t adjust the image write start position in main scanning direction when using the multifeeder.	
RE-TR-SW	Use it to enable/disable the use of a remedy against re-transfer occurring in a high humidity environment. The Dmax control parameter will change, consequently changing the primary charging bias and the primary transfer bias to the appropriate settings.	0: disable remedy. 1: enable remedy in H/H. 2: enable remedy in H/H and N/N. Standard: 0 Enter setting, and execute 'WRITE MEMORY'.
TR-ON-SW	Use it to set the secondary transfer bias application timing if paper wraps around the intermediate transfer drum or separation faults occur.	Settings: 0 to +3 Standard: +1 Enter setting, and execute 'WRITE MEMORY'.
SP-1-SW	Enable separation static elimination if claw-like lines* or tread-like lines** occur because of low humidity when generating (printing) a 1st page in a normal temperature/normal humidity environment.	0: disable 1: enable Standard: 0 Enter setting, and execute 'WRITE MEMORY'.
SP-2-SW	Enable/disable separation static elimination if brush-like lines*** occur on some types of paper when printing a 2nd side in double-sided mode using auto/multifeeder mode in a high-temperature/humidity environment or when printing a 2nd side in double-sided mode using auto/multifeeder mode in a high-temperature/high-humidity environment.	0: disable (if brush-like occur) 1: enable (if claw-like lines occur) Standard: 1 Enter setting, and execute 'WRITE MEMORY'.
FIX-TEMP	Use it to enable/disable the fixing improvement mechanism for black halftone. (Set it to '1' to improve fixing of black halftone. However, note that doing so will increase the first print time by about 45 sec.)	0: disable 1: enable Standard: 0 Enter setting, and execute 'WRITE MEMORY'.

Note:

1. The term “1st page” means the first image formed on the intermediate transfer drum. In 2nd page mode, a 2nd page image is formed at the same time; as such, the term “1st page” is used to mean the first and second images formed on the drum.
2. The term “2nd page” means the second image formed on the intermediate transfer drum. In 2nd page mode, however, two pages of images are formed at the same time; as such, the term is used to mean the third and subsequent images formed on the drum.

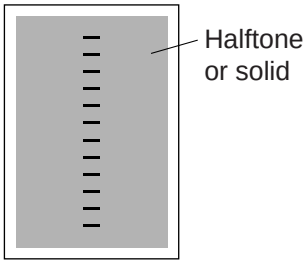
Reference:

*Claw-like lines



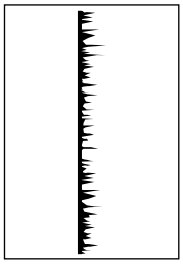
Numerous claw-like lines occur in a halftone image.

**Tread-like lines.



Tread-like lines occur in a halftone or solid image at intervals equal to the ribs on the feeding guide (in the secondary transfer belt assembly).

***Brush-like lines.



Distorted black lines and text occur across the paper.

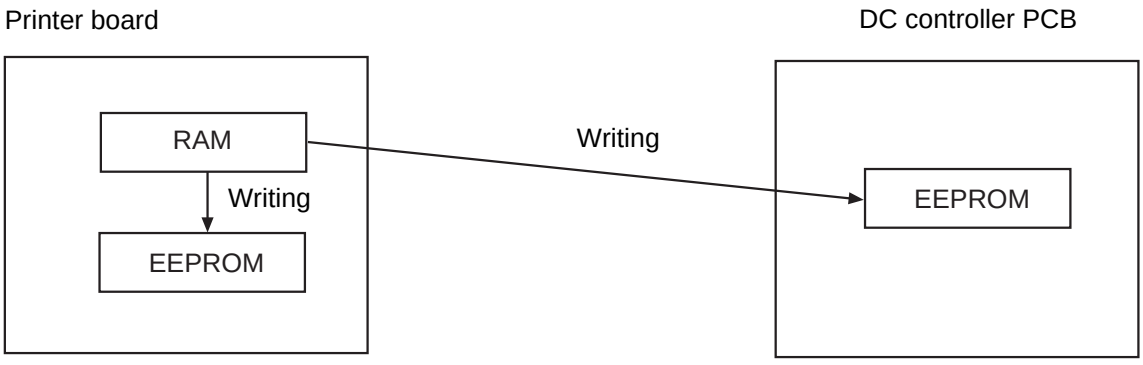
7. BIAS

Use this item when adjusting the level of the secondary transfer bias to suit various environmental and printing conditions.

Sub Menu	Description	Remarks
TR-N1H	For a H/H environment, use it to adjust the secondary transfer bias for single-sided printing or first side printing of double-sided printing on plain paper.	Settings: 0 to +15 Standard: +8 Enter setting, and execute 'WRITE MEMORY'. Adjustment in the field is not usually needed.
TR-N2M	For a N/N environment, use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.	
TR-N2H	For a H/H environment, use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.	
TR-N2L	For a L/L environment, use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper	
TR-N2N/L	For a N/L environment, use it to adjust the secondary transfer bias for second side printing of double-sided printing on plain paper.	

8. WRITE MEMORY

This memory is used to write the various adjustment data items (e.g., PARAMETER, BIAS) read into the RAM on the printer board to the EEPROM on the printer board and the EEPROM on the DC controller PCB.



- **Using WRITE MEMORY**
  1) Select <WRITE MEMORY>.
  2) Press the ENTER key to select <WRITE TO DCON>.
  3) Using the ∧ or ∨ key, select 'YES'.
  4) Press the ENTER key to execute.
  5) See that 'WRITE TO DCON EXECUTING>' is indicated.
  6) Turn off and then on the power to end.

CHAPTER 5 SELF DIAGNOSIS

The AP-IP PCB and the microprocessor on the DC controller PCB of the printer unit are quipped with a self diagnostic mechanism which checks the condition of the copier (in particular, condition of the sensors). The mechanism runs a check as needed and, upon detection of an error, will indicate an error code on the machine's control panel.

A. SELF DIAGNOSIS

Code	Cause	Description
E000	The fixing assembly warm-up is faulty.	When the time taken to reach the standby temperature from 20°C after the fixing heater has been turned on is longer than the reference time.
E001	The fixing assembly has overheated.	The fixing temperature during stand-by or copying exceeds about 230°C.
E003	The fixing temperature is abnormally low.	The fixing assembly temperature drops below 120°C after it has reached the target value.
E004	The upper/lower fixing heater has an open circuit.	A check is made for an open circuit at the start of temperature control. The AC current expected in the fixing heater is absent.
E009	The fixing assembly type is wrong.	The rated voltage of the copier's power supply and that of the fixing assembly do not match.
E010	The main motor start-up is faulty.	The revolution of the main motor fails to reach a specific value.
E011	The main motor rotation is faulty.	The revolution of the main motor deviates from a specific value.
E013	The waste toner case is full.	A specific number of copies have been made after the waste toner case full warning has been issued (DISPLAY>SENSOR>W-TONER).
E019	The waste toner detection assembly operation is faulty.	At time of power-on or while the drum motor is rotating during printing operation, the light-receiving cell of the waste toner sensor does not detect light for a specific time even when the waste toner case is not full.
E020	The density sensor is faulty.	During image stabilization correction control, the LED intensity signal (LEDCNT) is not generated or, if generated, is not received by the diode 1/2 normally.

Code	Cause	Description
E021	The developing rotary assembly is faulty.	• The developing rotation position sensor (PS3) does not detect the rotation position flag even when the developing rotary motor has rotated for a specific time. • The developing rotary position sensor (PS3) detects a faulty or wrong rotation position flag width.
E032 *1	The counter for the copy data controller fails to operate.	The illegal prevention bit of the control device goes '0' when the open circuit detection mechanism is not disabled.
E040	The holding plate lifter (multifeeder) is faulty.	During multifeeder pick-up, the holding plate position sensor (PS1302) does not detect the holding plate even when the DC controller PCB has generated the holding plate solenoid (SL4) ON signal.
E054	The duplexing roller of the duplexing unit drive mechanism is faulty. (The duplexing unit is an accessory.)	The duplexing feeding roller 1 home position sensor (PS23) does not detect the home position of the duplexing feeding roller 1 when copy paper is being fed to the duplexing unit.
E055	The horizontal registration guide mechanism of the duplexing unit is faulty. (The duplexing unit is an accessory.)	The duplexing driver PCB has detected that the horizontal registration guide has moved in excess of the maximum distance from when the home position has been detected.
E066	The temperature/humidity sensor is faulty.	During image stabilization control, the DC controller PCB cannot detect the temperature sensor signal (TMPSNS) or the humidity sensor signal (HUMSNS).
E100	The laser of the scanner unit is faulty.	The DC controller PCB detects BDERR for 2.5 sec or more after the scanner motor has rotated at a specific speed.
E110	The laser scanner motor is faulty.	• The scanner motor fails to reach a specific revolution within 10 sec after it has started to rotate. • The BD PCB detects an error within 2.5 sec after the scanner motor has rotated at a specific revolution.
E196	The EEPROM on the DC controller PCB is faulty.	The EEPROM (IC212) on the DC controller PCB has an error.

Code	Cause	Description
E197	The internal communication has an error.	A machine internal communication error occurs more than once. Or, the reception interruption on the DC controller side does not occur for a specific time for internal communication.
E198	The IC on the DC controller PCB has an error.	The IC on the DC controller PCB has an error.
E202 • No code is indicated. • The control panel keys lock.	The scanner home position cannot be detected: • The scanner home position sensor (PS101) is faulty. • The scanner motor (PM1)/scanner motor driver PCB is faulty.	The scanner does not return to the home position when it has been started.
E203	The scanner motor driver PCB or the scanner motor is faulty.	• The scanner home position is detected during back-scanning (not requiring return to the scanner home position sensor). • A deviation occurs during back-scanning (returning to the scanner home position sensor).
E211	The thermistor of the scanning lamp (fluorescent lamp) has an open circuit.	• The temperature does not reach 10°C after supplying the scanning lamp heater with power for 2 min (starting at 0°C or less). • The temperature drops to 0°C or less during temperature control.
E215	The scanning lamp (fluorescent lamp) thermistor has a short circuit.	The thermistor of the scanning lamp detects 170°C or more when the florescent lamp ON signal (FLON) is off (including power-on).
E216	The scanning lamp (fluorescent lamp) fails to turn on when the power has been turned off and then on.	The intensity sensor does not detect light from the scanning lamp in 15 sec.
E217	The scanning lamp heater is out of order.	The temperature does not exceed the setting when the lamp heater is powered for 3 min or more while the scanning lamp heater is put through constant temperature control.
E218	• The scanning lamp (fluorescent lamp) is absent. • The inverter PCB (reader unit) is faulty.	• Activation is attempted when the scanning lamp is not mounted. • The filament of the lamp is broken.
E219	The scanning lamp (fluorescent lamp) has reached the end of its life.	The thermistor of the scanning lamp detects 150°C or more while the scanning lamp is on.

Code	Cause	Description
E240	• The communication between the DC controller PCB and the reader controller PCB is faulty. • The communication between the DC controller PCB and the PS/PCL board or between the reader controller PCB and the PS/PCL board is faulty	• The DPPRDY signal is not sent for 0.25 sec or more from the reader controller to the DC controller PCB after the DC controller PCB is supplied with power. • The signals between the PS/PCL board and the DC controller PCB or between the PS/PCL board and the reader controller PCB cannot be exchanged for a specific time after the PS/PCL board is supplied with power.
E243	The control panel CPU has a communication error.	The communication between the control panel CPU PCB and the reader controller PCB is not possible 20 sec or more after power-on.
E351	• The ECO PCB is faulty. • The power is shut off abnormally.	The power is shut off abnormally at power-on.
E353	The serial No. of the EEPROM on the reader controller PCB and that of the SRAM ON the reader controller PCB do not match.	A mismatch was detected at power-on.
E355	The serial Nos. of the reader unit, reader controller PCB (SRAM), and EEPROM do not match.	When the serial No. of the reader unit is entered in service mode and the OK key is pressed, it is found that the serial Nos. of the reader unit, reader controller PCB (SRAM), and EEPROM do not match.
E401 *2	• The pick-up motor (M1) fails to rotate. • The pick-up roller sensor (S5) is faulty.	A flag is attached to the spindle of the pick-up motor (M1), and the rotation of the motor is checked in reference to the flag blocking the pick-up roller sensor (S5). This error is identified when the sensor does not turn on and off twice or more within 1 sec.
E402 *2	• The belt motor (M3) fails to rotate. • The belt motor clock sensor (S10) is faulty.	The number of belt motor clock pulses within 200 msec is less than a specific value.
E403 *2	• The feeder motor (M2) fails to rotate. • The feeder motor clock sensor (S9) is faulty.	The number of feeder motor clock pulses within 200 msec is less than a specific value.
E404 *2	• The delivery motor (M5) fails to rotate. • The delivery motor clock sensor (S13) is faulty.	The number of feeder motor clock pulses within 200 msec is less than a specific value.
E411 *2	• The original tray paper sensor (S1) is faulty. • The registration sensor (S3) is faulty.	The sensor output is 2.3 V or more in the absence of paper.

Code	Cause	Description
E545 *4	The bin flapper 1 of the sorter-H1 is faulty.	The bin flapper solenoid sensor (PI12) does not detect solenoid operation even when the solenoid (SL3) is driven during initialization or face-down delivery. Or, the bin flapper sensor remains on even when the solenoid has stopped operation.
E546 *4	The bin flapper 2 of the Sorter-H1 is faulty.	The bin flapper solenoid sensor (PI12) does not detect solenoid operation even when the solenoid (SL4) is driven during initialization or face-down delivery. Or, the bin flapper sensor remains on even when the solenoid has stopped operation.
E677 *3	The initial communication between the ACC controller PCB and an accessory has an error.	• The ACC controller PCB and the accessory fail to become ready for communication in 4 sec (possibly, a problem in the power supply). • An initial communication error with each accessory has occurred.
E678 *3	The communication between the ACC controller PCB and an accessory has been interrupted.	• The accessory is turned off in the middle of communication. • The cable of the accessory has been disconnected in the meddle of communication.
E679 *3	The protocol used for communication between the ACC controller PCB and an accessory has an error.	The read/write/parity check of data is faulty, and communication fails to end within a specific time.
E710	The IPC (initialization) error has occurred.	The IPC sync register for the reader unit and the reader unit-related accessories fail to go '1' within a specific time (3 sec).
E711	The IPC (initialization) error has occurred.	In the communication between the reader unit and the reader unit-related accessories, data has been written 10 times or more to the error register within as specific time (1.5 sec).
E712 *3	The IC for communication on the feeder side is faulty.	The communication with the reader unit has been interrupted for 5 sec or more.
E717 *1	The IC for communication on the copy data controller side is faulty.	• The communication is not resumed in a specific time (3 sec). • The device is removed and the copier is started without disabling open circuit detection.
E805	The heat discharge fan 1 (FM); used for the fixing assembly and area near the feeding assembly) is faulty.	The motor lock signal (FAN1LK) goes '1' for 1.5 sec or more while the fan is rotating.

Code	Cause	Description
E806	The heat discharge fan (FM2; used for the area around the intermediate transfer drum) is faulty.	The fan motor lock signal (FAN2LK) goes '1' for 1.5 sec or more while the fan is rotating.
E807	The heat discharge fan (FM3; used for the area around the scanner) is faulty.	The fan motor lock signal (FAN3LK) goes '1' for 1.5 sec or more while the fan is oration.
E808	The fixing drive circuit/power unit is faulty.	The fixing heater safety circuit has detected a fault in the upper/lower fixing heater.
E809	The power supply cooling fan (FM4; used for the area around the reader unit main power supply) is faulty.	The fan error signal (FANERR) goes '0' for 1.5 sec or more while the fan is rotating.
E810	The drum cartridge is absent.	The drum cartridge detecting switch does not turn on at power-on or when the cover is opened/closed.
E812	The intermediate transfer drum (ITD) is absent.	The intermediate transfer drum (ITD) home position is not detected within a specific time (about 10 sec).
E813	The fixing assembly is absent.	Both the upper fixing roller temperature detection signal (FXTHU) and the lower fixing roller temperature detection signal (FXTHL) indicate -10°C or less.
E814	The photosensitive drum in the drum cartridge has reached the end of its life.	A specific number of copies have been counted after issuing the photosensitive drum end of life warning.
E903 *5	The paper deck lifter is faulty.	• An error has been detected of the paper deck lifter motor. • The lifter upward movement takes longer than a specific time. • The paper level change time is in excess of a specific value while the lifter is moving up.

*1: See the Copy Data Controller Service Manual.
*2: See the Feeder Service Manual.
*3: See the ACC Controller Service Manual.
*4: See the 7-Bin Sorter Service Manual.
*5: See the Paper Deck Service Manual.

Caution:

1. When the self diagnosis mechanism has turned on, the copier may be reset by turning it off and then on. However, perform the following if E000, E001, E003, E004, E009, E211, E215, E217, E717, or E808 is indicated:

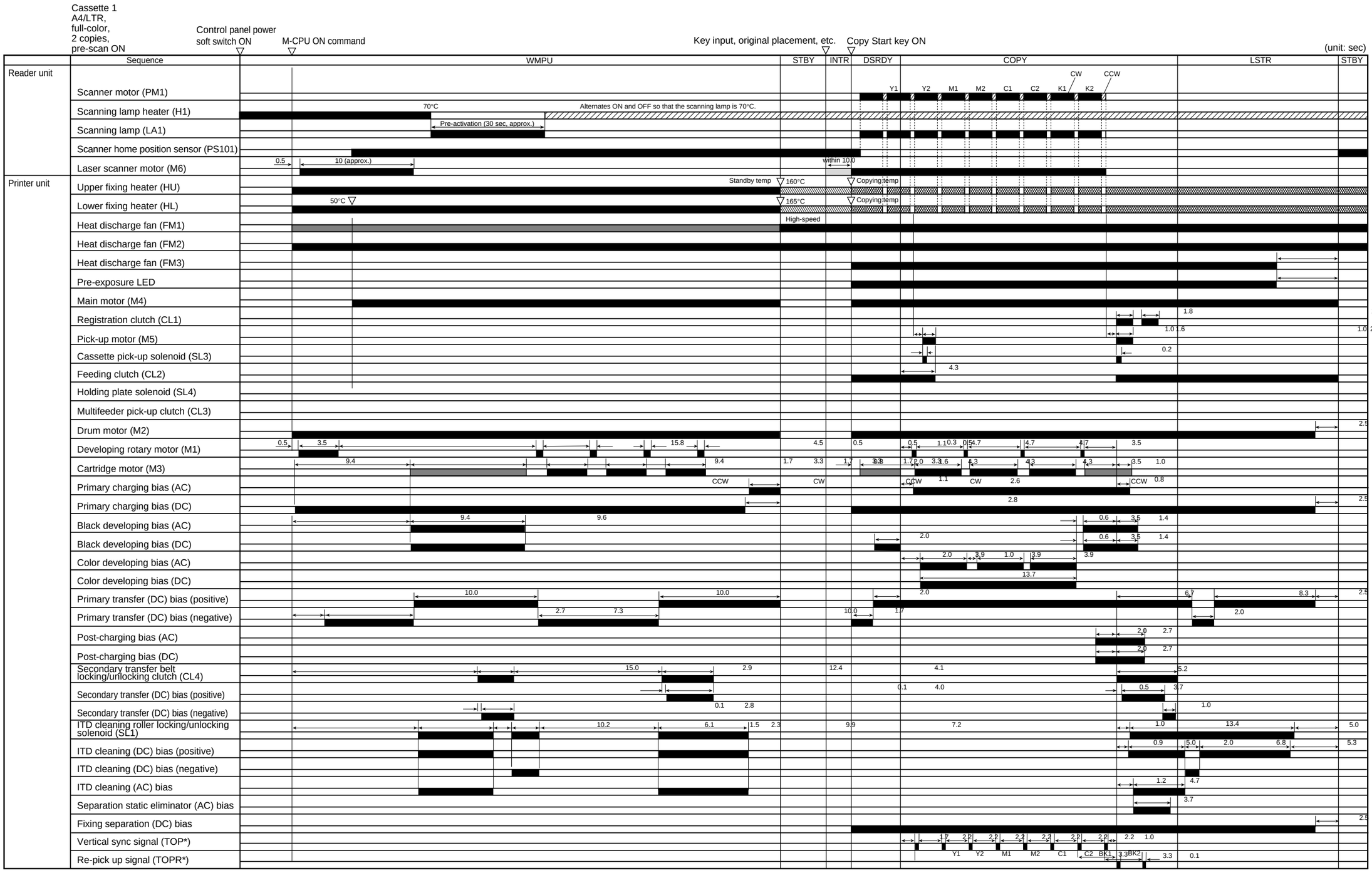
   1) Select FUNCTION>CLEAR in service mode.
   2) Press 'ERR' to highlight.
   3) Press the OK key, and turn on and off the rear power switch manually; then, turn on the control panel soft switch to clear the E code.
   4) See that the message on the control panel has disappeared and the Copy Mode screen has appeared.

2. For E000, E001, E003, E004, E009, and E808, the copier will turn off in 20 sec after detection of the error.

3. If E001 or E003 has occurred, the error data may be retained in the error memory capacitor (C259) the DC controller PCB of the printer unit. Be sure to discharge the capacity after removing the cause. (To do so, short JP201 on the DC controller PCB; for details, see the Printer Unit Service Manual.)

4. Select DISPLAY>ERR to check the error history.

A. GENERAL TIMING CHART



B. SIGNALS AND ABBREVIATIONS

1. Input/Output Signals (reader controller PCB)

Connector	Pin	Abbreviation	Signal name
J1602	1	FM4DEC	Power supply cooling fan locked signal
	2	FM4ON	Power supply cooling fan drive signal
	4	REMOON	
	5	FLCLK*	Scanning lamp clock signal
	6	FLERR*	Scanning lamp error signal
	7	YON	Pre-heat ON signal
	8	YPWM	Pre-heat PWM signal
	9	FLONOUT	Scanning lamp ON signal
	11	FLPWN	Scanning lamp activation signal
	12	ACCON	Accessories power ON signal
J1604	3	ASTCNT	Copy data controller counter signal
	4	AST_TXD	Copy data controller transmission data signal
	5	AST_RXD	Copy data controller reception data signal
J1607	2	BLON*	CD control panel back light ON signal
J1608	A2	MMIRST	CD controller panel reset signal
	A4	SOFSWON*	Power soft switch ON signal
	A6	CP	
	A9	UD0	
	A10	UD1	
	A12	UD2	
	A14	UD3	
	B2	MMITXD*	CD control panel transmission data signal
	B4	MMIRXD*	CD control panel reception data signal
	B6	LCDENB	
	B8	M	
	B10	FLM	
	B12	LP	
J1609	AS	SCHP	Scanner home position sensor signal
	A5	CBCC	Copyboard cover open/closed sensor signal
	A8	DSZ1	Originals size detection signal 1
	A11	DSZ2	Original size detection signal 2
	B2	DSZ3	Original size detection signal 3
	B5	DSZ4	Original size detection signal 4
	B7	KEYSW	Control key switch signal
J1610	2	FL_S	Scanning lamp intensity signal
	6	FL_TH	Scanning lamp thermistor signal
J1613	1	CCIVCNT	Control card counter signal
	21	CCIVCONE*	Control card connection signal
J1615	2	RL1ON*	Power cut relay (RL1) ON signal

Connector	Pin	Abbreviation	Name
J202	A20	LSYNC*	horizontal sync signal
	A21	RDY*	ready signal
	A22	CPRDY*	controller power ready signal
	A23	SBSY*	status busy signal
	A24	CBSY*	command busy signal
	A25	SDM*	data mode setting signal
	A26	SPCHG*	reserved
	A27	PRNT*	print signal
	A28	FP0*	control panel signal 0
	A31	FP5*	control panel signal 5
	B1	VCLK	video clock signal
	B3	VDOE*	image enable signal
	B4	VDO0*	video signal
	B5	VDO1*	video signal
	B6	VDO2*	video signal
	B7	VDO3*	video signal
	B8	VDO4*	video signal
	B9	VDO5*	video signal
	B10	VDO6*	video signal
	B11	VDO7*	video signal
	B19	CCLK*	controller clock signal
	B20	TOPR*	registration drive signal
	B21	PPRDY*	printer power ready signal
	B22	TOP*	vertical sync signal
	B23	CCRT*	status change signal
	B24	STS*	status signal
	B25	CMD*	command signal
	B26	PFED*	paper feed signal
	B27	PDLV*	paper discharge signal
	B28	FP1*	control panel signal 1
	B29	FP2*	control panel signal 2
	B30	FP3*	control panel signal 3
	B31	FP4*	control panel signal 4
J203	A3	TR2DC	secondary transfer DC (positive) bias drive signal
	A4	RVTR2DC	secondary transfer DC (negative) bias drive signal
	A5	25KHz	high-voltage drive frequency output signal 3
	A6	50KHzB	high-voltage drive frequency output signal 2

Connector	Pin	Abbreviation	Name
J203	A7	TR2PWM	secondary transfer bias control signal
	A8	TR1PWM	primary charging transfer bias control signal
	A9	LSYNC*	ITD cleaning bias control signal
	B3	FIXDC	fixing separation DC bias drive signal
	B4	TR1DC	primary transfer DC (positive) bias drive signal
	B5	RVTR1DC	primary transfer DC (negative) bias drive signal
	B6	CLNDC	ITD cleaning DC (positive) bias drive signal
	B7	RVCLNDC	ITD cleaning DC (negative) bias drive signal
	B8	CLNAC	ITD cleaning AC bias drive signal
	B9	CORDC	secondary pre-transfer charging DC bias drive signal
	B10	CORAC	secondary pre-transfer charging AC bias drive signal
J204	2	IOTR*	IOT status signal
	4	IOTT*	IOT command signal
	5	TSEL4*	for factory adjustment
	6	TSEL3*	for factory adjustment
	7	TSEL2*	for factor adjustment
	8	TSEL1*	for factory adjustment
J205	1	PD	laser emission main motor signal
	3	LENB*	image enable signal
	5	BSAMPLE	APC sampling timing signal 1
	6	BSAMPLE*	APC sampling timing signal 2
	8	DBATA	PWM video data signal 1
	9	DBATA*	PWm video data signal 2
J206	1	TMPSNS	machine internal temperature detection signal
	3	HUMSNS	machine internal humidity detection signal
	5	+24UH	
	7	DNS	toner density detection signal
	8	DENREF	received light feedback signal
	9	LEDCNT	LED emission setting signal
J207	1	FUSLD*	face-up solenoid drive signal
	5	DEVHP	developing rotary position detection signal
	6	RLOCKS	cartridge releasing lever detection signal
	12	FXOUTS	fixing delivery detection signal
J208	3	MPDFS*	multifeeder tray last paper detection signal
	5	MPTWID	multifeeder ray paper width detection signal
J209	1	MDI1	cartridge memory data input signal
	2	MDO1	cartridge memory date output signal
	3	MSK1	cartridge memory serial clock signal
	4	MSC1	cartridge memory selection signal
	5	MPWR	cartridge memory power supply signal
	6	OPCSNS	drum cartridge detection signal

Connector	Pin	Abbreviation	Name
J210	1	FEDPHA*	pick-up motor drive signal
	2	FEDPHA	pick-up motor drive signal
	3	FEDPHB*	pick- motor drive signal
	4	FEDPHB	pick-up motor drive signal
	5	UDECKS*	cassette paper absent detection signal
	6	UDECKC*	cassette 1 detection signal
	7	FEDCLD*	feeding clutch drive signal
	8	FFEDS*	pick-up assembly paper detection signal
	9	PUPSLD*	cassette pick-up solenoid drive signal
	10	LDECKC*	cassette 2 detection signal
	11	LDECKS*	cassette 2 paper absent detection signal
	12	LPVS2*	cassette 2 paper level detection signal 2
	13	LPVS1*	cassette 2 paper level detection signal 1
	14	UPVS2*	cassette 1 paper level detection signal 2
	15	UPVS1*	cassette 1 paper level detection signal 1
	16	RDOORS*	pick-up cassette cover detection signal
J211	2	BD*	horizontal sync signal
	5	SCMFG	scanner motor speed signal
	7	SCND	scanner motor drive signal
J212	1	STRCLD*	secondary transfer belt clutch drive signal
	3	REGCLD*	registration clutch drive signal
	7	SEPS*	separation detection signal
	10	REGS*	registration paper detection signal
J213	4	MPTCLD*	multifeeder pick-up clutch drive signal
	5	MPTSLD*	holding plate solenoid drive signal
	6	MPTLS*	holding plate position detection signal
	7	MPTPS*	multifeeder tray paper detection signal
J214	3	OHPSNS1*	transparency detection signal 1
	6	OHPSNS2*	transparency detection signal 2
J215	3	UCEDFS	cassette 1 last paper detection signal
J216	2	FXSTS	fixing heater status detection signals
	3	FXSTS	fixing heater status detection signal
	4	FXLONS	lower fixing heater anti-rush current PCB drive signal
	5	FXLON	lower fixing heater drive signal
	6	FXUONS	upper fixing heater anti-rush current PCB drive signal
	7	FXUON	upper fixing heater drive signal
	8	FXENB	temperature enable signal
	9	FXRON	relay drive signal
	11	FXTHL	lower fixing roller temperature detection signal
	12	FXTHU	upper fixing roll temperature detection signal

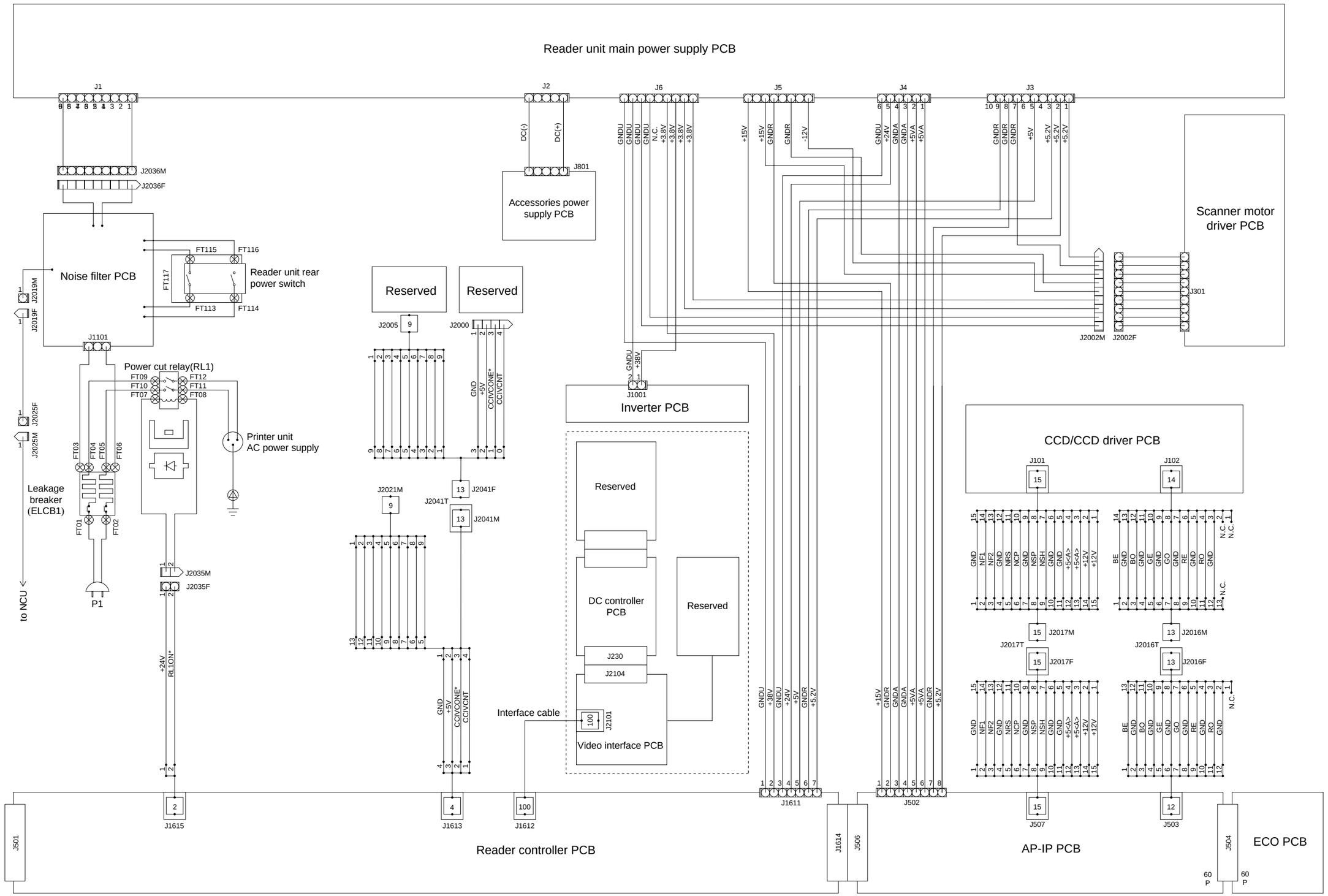
Connector	Pin	Abbreviation	Name
J217	3	ACTYP	power supply type detection signals
	4	POFF	power-off detection signal
	5	PCONT	power-off control signal
J218	2	LSIZE4	cassette 2 size detection signal
	3	LSIZE3	cassette 2 size detection signal
	4	LSIZE2	cassette 2 size detection signal
	5	LSIZE1	cassette 2 size detection signal
	7	USIZE4	cassette 1 size detection signal
	8	USIZE3	cassette 1 size detection signal
	9	USIZE2	cassette 1 size detection signal
	10	USIZE1	cassette 1 size detection signal
J219	1	MSPED1	main motor speed switch signal 1
	2	MSPED2	main motor speed switch signal 2
	3	MRDY*	main motor ready signal
	4	MON*	main motor drive signal
J220	A1	FAN1LK*	fan motor 1 lock detection signal
	A2	FAN2LK*	fan motor 2 lock detection signal
	A3	FDFULL	face-down tray full detection signal
	A4	FMCOPN*	left cover detection signal
	A6	RLSROT	developing rotary stopper releasing signal
	A7	DEVICH1	developing rotary motor current switch signal 1
	A8	DEVPHB	developing rotary motor drive signal
	A9	DEVPHA	developing rotary motor drive signal
	B1	DEVPHA*	developing rotary motor drive signal
	B2	DEVPHB*	developing rotary motor dive signal
	B3	DEVICH2	developing rotary motor current switch signal 2
	B4	STPROT	developing rotary stopper signal
	B6	FDOUT*	face-down tray delivery detection signal
	B8	FAN2ON*	fan motor 2 drive signal
	B9	FAN1ON*	fan motor 1 drive signal
J221	1	CTNLED	color toner detection LED drive signal
	4	CTNSNS	color toner level detection signal 1
	5	WTNLED	waste toner detection LED drive signal
	7	WTNFUL	waste toner detection signal
J222	1	FXTHU	upper fixing roller temperature detection signal (to DC power supply safety circuit 1)
	3	FXTHL	lower fixing roller temperature detection signal (to DC power supply safety circuit 1)
	5	FXTYP	fixing assembly type setting signal

Connector	Pin	Abbreviation	Name
J223	3	DUPIDS*	duplexing unit detection signal
	4	DUPSTS*	duplexing unit status signal
	5	DUPCMD*	duplexing unit command signal
	6	DUPCLK	duplexing unit clock signal
J224	3	DRMPHA	drum motor drive signal
	4	DRMPHA*	drum motor drive signal
	5	DRMPHB	drum motor drive signal
	6	DRMPHB*	drum motor drive signal
J225	2	FP5*	front panel signal 5
	3	FP4*	front panel signal 4
	4	FP3*	front panel signal 3
	5	FP2*	front panel signal 2
	6	FP1*	front panel signal 1
	7	FP0*	front panel signal 0
J226	A1	BTNSNS	black toner level detection signal
	A2	BDEVAC	black developing AC bias drive signal
	A3	BDEVDC	black developing DC bias drive signal
	A4	CDEVAC	color developing AC bias drive signal
	A5	CEDVDC	color developing DC bias drive signal
	A8	SLVICH	toner cartridge motor current switch signal
	A9	SLVPHA*	toner cartridge motor dive signal
	A10	SLVPHA	toner cartridge motor drive signal
	A11	CHGAC	primary charging AC bias drive signal
	A12	CHGDC	primary charging Dc bias drive signal
	B1	FCHG	high voltage drive frequency output signal 1
	B2	CHGPWM	primary charging bias control signal
	B3	SLVPHB	toner cartridge motor drive signal
	B4	SLVPHB*	toner cartridge motor dive signal
	B5	50KHZB	high-voltage drive frequency output signal 2
	B6	BDEVPWM	black developing bias control signal
	B7	CDEVPWM	color developing bias control signal
	B8	25KHz	high-voltage delivery output signal 3
	B9	50KHzA	high-voltage delivery output signal 4
	B10	125KHz	high-voltage delivery output signal 5
	B11	FCOLOR	high-voltage delivery output signal 6
	B12	FBK	high-voltage delivery output signal 7

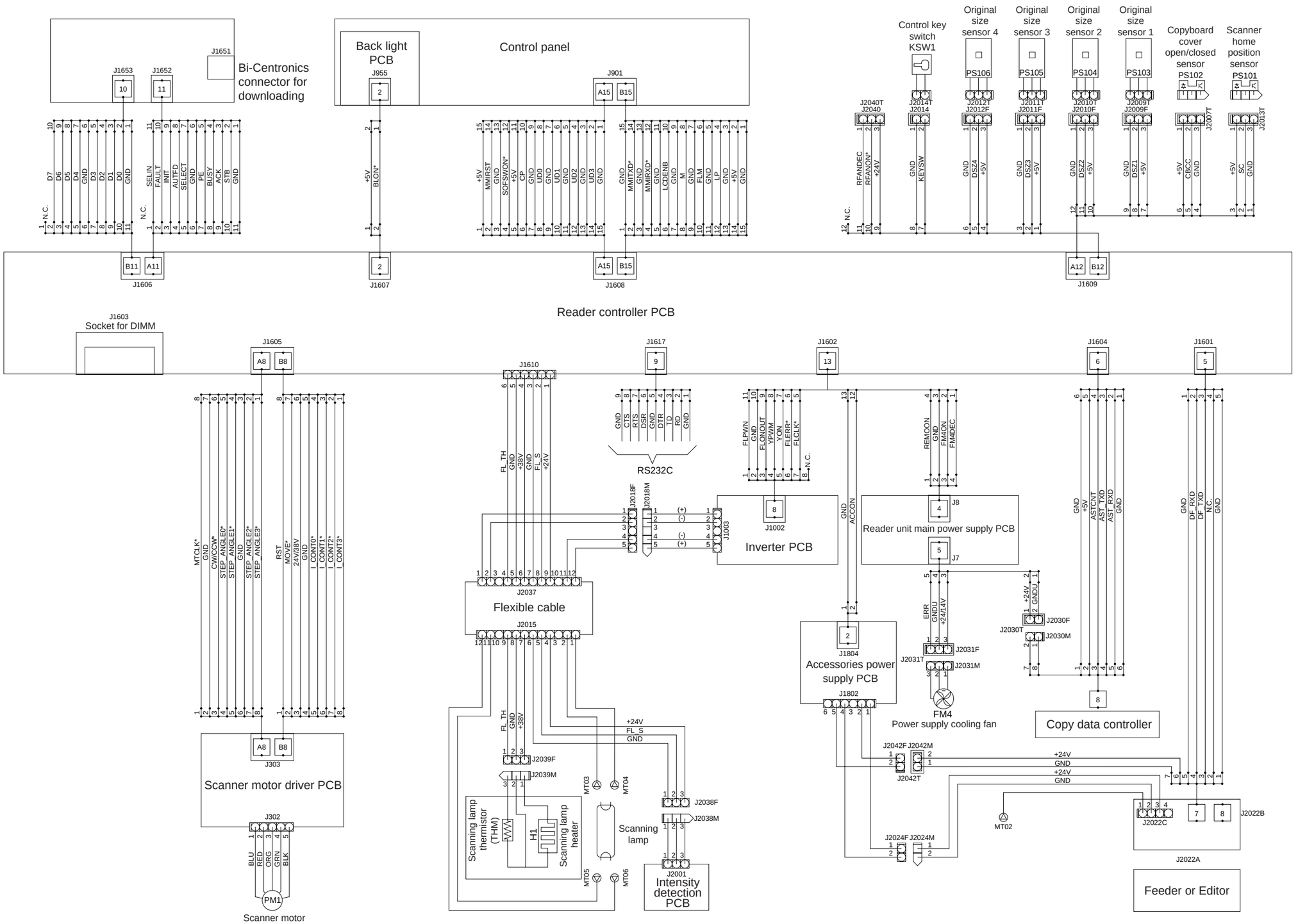
Connector	Pin	Abbreviation	Name
J227	A1	CCRGSNS	color cartridge detection signal
	A2	FAN3LK*	fan motor 3 lock detection signal
	A3	DSW1	delivery cover/front cover detection signal
	A4	DSW2	right cover detection signal
	A5	DSW3	black toner cartridge detection signal
	A6	CLNRON	ITD cleaning roller clutch drive signal
	B6	PSAVE*	
	B7	EXSW*	turret button switch signal
	B8	DSW5	drum cartridge switch signal
	B9	DSW4	toner cartridge cover switch signal
	B10	FAN3ON*	fan motor 3 drive signal
	B11	CCRGLED	color cartridge LED drive signal

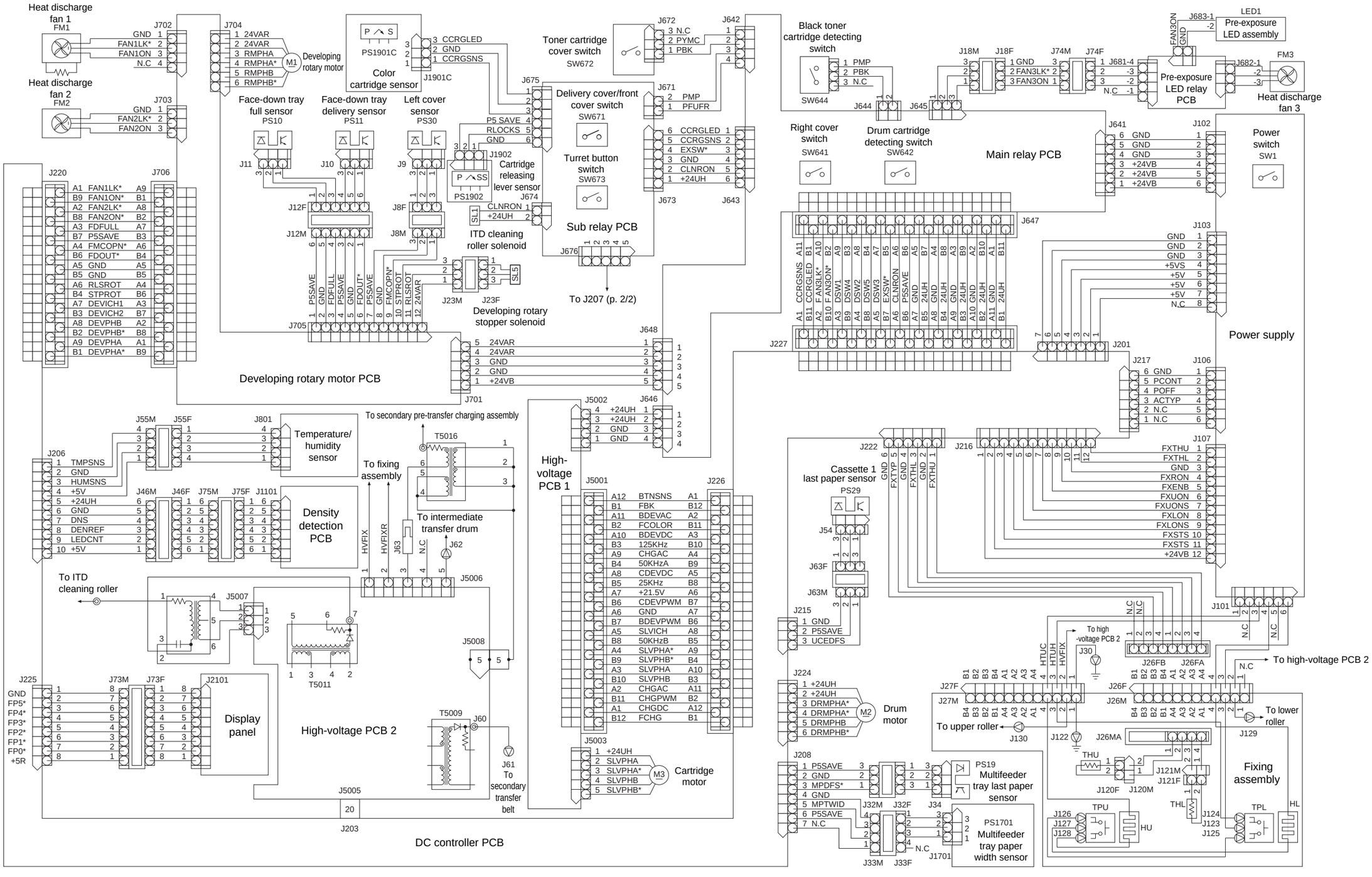
2. Inputs to and Outputs of the Duplexing Driver PCB

Connector	Pin	Abbreviation	Name
J2001	3	DUPIDS*	duplexing unit detection signal
	4	DUPSTS*	duplexing unit status signal
	5	DUPCMD	duplexing unit command signal
	6	DUPCLK*	status clock signal
J2002	1	DUPSLD*	duplexing flapper solenoid drive signal
J2003	1	DUPCLD*	duplexing feeding clutch drive signal
J2004	1	SWBAD	duplexing motor control signal
	2	SWBAND	duplexing motor control signal
	3	SWBBD	duplexing motor control signal
	4	SWBBND	duplexing motor control signal
J2005	1	HRGCOMA	horizontal registration motor control signal
	2	HRGCOMB	horizontal registration motor control signal
	3	HRGAD	horizontal registration motor control signal
	4	HRGAND	horizontal registration motor control signal
	5	HRGBD	horizontal registration motor control signal
	6	HRGBND	horizontal registration motor control signal
J2006	3	HREGS	horizontal registration guide home position detection signal
J2007	3	SWBKS*	reversal paper detection signal
	6	DRPS	duplexing feeding roller 1 home position detection signal
J2008	3	DUPPS*	duplexing unit paper detection signal
J2009	1	PRRESLD	reversing roller releasing solenoid drive signal

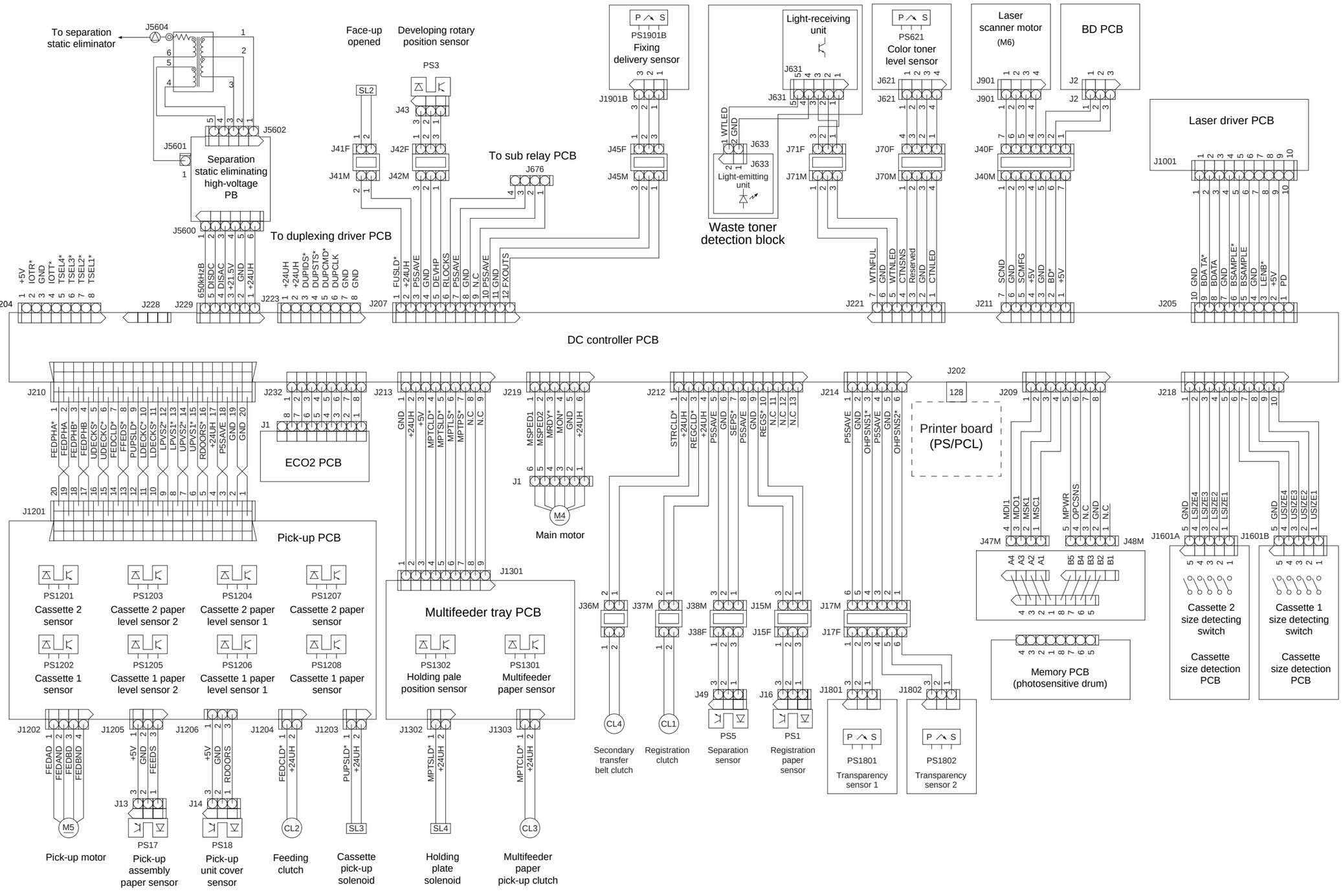

Reader unit main power supply PCB
J1
J2036M
J2036F
Noise filter PCB
J2019M
J2019F
J1101
FT115
FT116
FT117
FT113
FT114
Reader unit rear power switch
Power cut relay(RL1)
FT09
FT10
FT07
FT12
FT11
FT08
J2025F
J2025M
FT03
FT04
FT05
FT06
FT01
FT02
Leakage breaker (ELCB1)
Printer unit AC power supply
to NCU
P1
J2035M
J2035F
+24V
RL1ON*
J2
DC(-)
DC(+)
J801
Accessories power supply PCB
Reserved
Reserved
J2005
9
J2000
GND
+5V
CCIVCONE*
CCIVCNT
J2021M
9
J2041T
13
J2041F
13
J2041M
GND
+5V
CCIVCONE*
CCIVCNT
Interface cable
100
J2101
Video interface PCB
J230
J2104
DC controller PCB
Reserved
Reserved
J6
GNDU
GNDU
GNDU
GNDU
N.C.
+3.8V
+3.8V
+3.8V
+3.8V
J5
+15V
+15V
GNDR
GNDR
-12V
J4
GNDU
+24V
GNDA
GNDA
+5VA
+5VA
J3
GNDR
GNDR
GNDR
+5V
+5.2V
+5.2V
+5.2V
J2002M
J2002F
Scanner motor driver PCB
J301
GNDU
+38V
J1001
Inverter PCB
CCD/CCD driver PCB
J101
15
J102
14
GND
NF1
NF2
GND
NRS
NCP
GND
NSP
NSH
GND
GND
+5<A>
+5<A>
+12V
+12V
N.C.
N.C.
BE
GND
BO
GND
GE
GND
GO
GND
RE
GND
RO
GND
N.C.
J2017M
J2017T
J2017F
J2016M
J2016T
J2016F
GNDU
+38V
GNDU
+24V
+5V
GNDR
+5.2V
+15V
GNDR
GNDA
GNDA
+5VA
+5VA
GNDR
+5.2V
J1611
J502
J1615
J1613
J1612
J501
J1614
J506
J507
J503
J504
Reader controller PCB
AP-IP PCB
ECO PCB
60 P
60 P

READER UNIT (2/2)




Heat discharge fan 1
FM1
J702
GND 1
FAN1LK* 2
FAN1ON 3
N.C 4
Heat discharge fan 2
FM2
J703
GND 1
FAN2LK* 2
FAN2ON 3
J704
1 24VAR
2 24VAR
3 RMPHA
4 RMPHA*
5 RMPHB
6 RMPHB*
M1
Developing rotary motor
PS1901C
Color cartridge sensor
J1901C
3 CCRGLED
2 GND
1 CCRGSNS
Face-down tray full sensor
PS10
Face-down tray delivery sensor
PS11
Left cover sensor
PS30
J11
J10
J9
J12F
J12M
J8F
J8M
J705
P5SAVE
GND
FDFULL
P5SAVE
GND
FDOUT*
P5SAVE
GND
FMCOPN*
STPROT
RLSROT
24VAR
J1902
P5 SAVE 4
RLOCKS 5
GND 6
PS1902
Cartridge releasing lever sensor
J675
Toner cartridge cover switch
SW672
J672
3 N.C
2 PYMC
1 PBK
J642
Delivery cover/front cover switch
SW671
J671
2 PMP
1 PFUFR
Turret button switch
SW673
J673
6 CCRGLED 1
5 CCRGSNS 2
4 EXSW* 3
3 GND 4
2 CLNRON 5
1 +24UH 6
J643
J674
CLNRON 1
+24UH 2
SL1
ITD cleaning roller solenoid
J23M
J23F
SL5
Developing rotary stopper solenoid
Sub relay PCB
J676
To J207 (p. 2/2)
Black toner cartridge detecting switch
SW644
1 PMP
2 PBK
3 N.C
J644
J645
Right cover switch
SW641
Drum cartridge detecting switch
SW642
Main relay PCB
J18M
J18F
1 GND
2 FAN3LK*
3 FAN3ON
J74M
J74F
J681-4
-2
-3
N.C -1
FAN3ON
GND
J683-1
-2
LED1
Pre-exposure LED assembly
Pre-exposure LED relay PCB
J682-1
-2
-3
FM3
Heat discharge fan 3
J641
6 GND
5 GND
4 GND
3 +24VB
2 +24VB
1 +24VB
J102
Power switch
SW1
J647
J103
GND 1
GND 2
GND 3
+5VS 4
+5V 5
+5V 6
+5V 7
N.C 8
Power supply
J227
J201
J217
J106
6 GND
5 PCONT
4 POFF
3 ACTYP
2 N.C
1 N.C
J648
5 24VAR
4 24VAR
3 GND
2 GND
1 +24VB
J701
J646
4 +24UH
3 +24UH
2 GND
1 GND
J5002
To secondary pre-transfer charging assembly
Developing rotary motor PCB
J220
J706
A1 FAN1LK* A9
B9 FAN1ON* B1
A2 FAN2LK* A8
B8 FAN2ON* B2
A3 FDFULL A7
B7 P5SAVE B3
A4 FMCOPN* A6
B6 FDOUT* B4
A5 GND A5
B5 GND B5
A6 RLSROT A4
B4 STPROT B6
A7 DEVICH1 A3
B3 DEVICH2 B7
A8 DEVPHB A2
B2 DEVPHB* B8
A9 DEVPHA A1
B1 DEVPHA* B9
J55M
J55F
J801
Temperature/ humidity sensor
J206
1 TMPSNS
2 GND
3 HUMSNS
4 +5V
5 +24UH
6 GND
7 DNS
8 DENREF
9 LEDCNT
10 +5V
J46M
J46F
J75M
J75F
J1101
Density detection PCB
To fixing assembly
T5016
To intermediate transfer drum
HVFIX
HVFIXR
J63
N.C
J62
J5006
High-voltage PCB 1
J5001
A12 BTNSNS A1
B1 FBK B12
A11 BDEVAC A2
B2 FCOLOR B11
A10 BDEVDC A3
B3 125KHz B10
A9 CHGAC A4
B4 50KHzA B9
A8 CDEVDC A5
B5 25KHz B8
A7 +21.5V A6
B6 CDEVPWM B7
A6 GND A7
B7 BDEVPWM B6
A5 SLVICH A8
B8 50KHzB B5
A4 SLVPHA* A9
B9 SLVPHB* B4
A3 SLVPHA A10
B10 SLVPHB B3
A2 CHGAC A11
B11 CHGPWM B2
A1 CHGDC A12
B12 FCHG B1
J226
J5003
1 +24UH
2 SLVPHA
3 SLVPHA*
4 SLVPHB
5 SLVPHB*
M3
Cartridge motor
To ITD cleaning roller
J5007
T5011
J5008
J225
GND
FP5*
FP4*
FP3*
FP2*
FP1*
FP0*
+5R
J73M
J73F
J2101
Display panel
High-voltage PCB 2
T5009
J60
J61
To secondary transfer belt
J5005
20
J203
DC controller PCB
J222
GND 6
FXTYP 5
GND 4
FXTHL 3
GND 2
FXTHU 1
Cassette 1 last paper sensor
PS29
J54
J63F
J63M
J215
1 GND
2 P5SAVE
3 UCEDFS
J216
J107
FXTHU 1
FXTHL 2
GND 3
FXRON 4
FXENB 5
FXUON 6
FXUONS 7
FXLON 8
FXLONS 9
FXSTS 10
FXSTS 11
+24VB 12
J101
N.C
HTUC
HTUH
HVFIX
To high -voltage PCB 2
J30
J26FB
J26FA
To high-voltage PCB 2
J27F
J27M
J26F
J26M
J224
1 +24UH
2 +24UH
3 DRMPHA*
4 DRMPHA*
5 DRMPHB
6 DRMPHB*
M2
Drum motor
To upper roller
J130
J122
J26MA
THU
J120F
J120M
J121M
J121F
THL
To lower roller
J129
Fixing assembly
TPU
TPL
HU
HL
J126
J127
J128
J124
J123
J125
J208
1 P5SAVE
2 GND
3 MPDFS*
4 GND
5 MPTWID
6 P5SAVE
7 N.C
PS19
Multifeeder tray last paper sensor
J32M
J32F
J34
PS1701
Multifeeder tray paper width sensor
N.C
J1701
J33M
J33F

PRINTER UNIT (2/2)



D. SPECIFICATIONS

1. Reader Unit

a. Type

Body	Desk-top
Copyboard	Fixed
Light source	Fluorescent lamp
Lens	Array of lenses
Image reader	Photocells (RGB 3-line CCD)

b. Performance

Original type		Sheet, book, 3-D object (2 kg max.)
Maximum original size		A3/11 × 17
Reproduction ratio		Default:direct (±0.5%), enlarge/reduce (±1.0%; Table A-2) Zoom: 25% to 400% (±1.0%)
Resolution	Main scanning direction	600 dpi
	Sub scanning direction	600 lpi
Continuous copying		100 copies max.
Auto clear		Yes (2 min standard; may be varied in user mode, may be disabled)
Auto color select		Yes (identifies color original to select 4-color copy or black mono-color)
AE		Yes
Auto paper select		Auto zoom
One-touch adjust		Yes (nuance, highlight reproduction, aging-effect black-and-white)
Color adjust		Yes (color balance, density range YMCBk adjustment)
Sharp		Yes
Auto power save		Yes (30 min standard; may be varied in user mode, may be disabled)
Low power		Yes (1 hr standard; may be varied in user mode)
Original mode		Yes (text/photo/map, print photo, photo, black-and-white text)
Frame erase		Yes
Bind margin		Yes
Auto gradation correction		Yes

c. Others

Operating environment	Temperature range: See Figure A-1. Humidity range: See Figure A-1. Atmospheric pressure: 810.6 to 1013.3 hPa	
Power supply (voltage ±10%)	Rating	Serial No.
	120V(USA)	NLP*****
	120V(TWN)	NLR*****
	230V(KOR)	PLB*****
	230V(Others)	PLD*****
	230V(UK)	QLB*****
	230V(CA)	RLB*****
	230V(FRN)	SLN*****
	230V(GER)	TLN*****
	230V(AMS)	ULN*****
	230V(ITA)	PLQ*****
Power consumption* (reader unit + printer unit)	1.5 kW or less (max.)	
Noise* (reader unit + printer unit)	74 dB (copying) 62 dB (standby)	Sound power level by ISO method
Ozone* (reader unit + printer unit)	0.05 ppm or less (max.) 0.02 ppm or less (average)	
Dimensions* (reader unit + printer unit)	Width:650 mm Depth:781 mm Height:1074 mm (w/ rack)	
Weight* (reader unit + printer unit)	158.3 kg (reader unit: 36 kg; printer unit: 91.6 kg; rack: 30.7 kg)	

*Includes the printer unit, as the reader unit is not likely to be used apart from the printer unit.

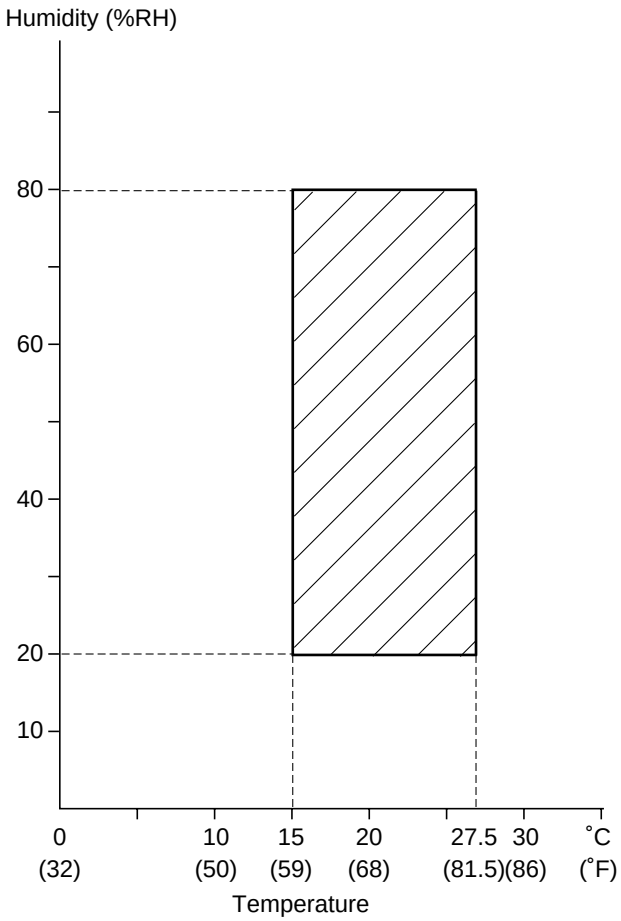


Figure A-1 Site Environment

Area	Reduction		Enlargement	
Japan (6R5E)		0.250	B4→A3	
	A3→A4R B4→B5R	0.707	B5R→A4R B5→A4	1.153
	B4→A4R	0.815	A4R→B4, A5→B5	1.223
	A3→B4 A4R→B5R	0.865	A4R→A3 B5R→B4	1.414
	A3→A5	0.500	A5→A3	2.000
	A3→B5	0.611		4.000
North America/Central-South America (5R4E)		0.250	LGL→11x17	1.214
		0.500		
	11x17→LTRR	0.647	LTRR→11x17	1.294
	11x17→LGL	0.733	MINIT→LTRR	2.000
	LGL→LTRR	0.786	MIRITR→11x17	4.000
Europe (3R3E)		0.250	A4R→A3	1.414
	A3→A4R	0.707	A5→A3	2.000
	A3→A5	0.500		4.000
Asia, Oceania, South America (6R5E) 6R5E		0.250	B4→A3	
		0.500	B5R→A4R	
	A3→B5	0.611	B5→A4/LTR	
	A3→A4R/LTRR B4→B5R	0.707	A4R/LTRR→B4 A5→B5	1.223
			A4R/LTRR→A3 B5R→B4	1.414
	B4→A4R/LTRR	0.815		
	A3→B4 A4R/LTRR→B5R	0.865		2.000
				4.000

Table A-1 Default Ratios

2. Printer Unit

a. Type

Body	Desk-top page printer (console when installed to a paper deck)
Photosensitive medium	OPC drum (62-mm dia.)

b. System

Printing	Laser beam indirect photostatic reproduction (using an intermediate transfer drum)
Laser	Semiconductor laser
Scanning system	Scanning by 6-facet mirror
Charging	Roller charging
Exposure	Laser beam
Contrast adjustment	Auto
Development	Toner projection
Toner	Non-magnetic, single-component dry toner (Y, M, C) Magnetic, single-component dry toner (Bk)
Toner supply	By replacement of Y, M, C, and Bk toner cartridges
Pick-up	Special front cassette (2 holders), multifeeder
Transfer	Primary transfer: rubber blade Intermediate transfer drum: cleaning roller
Fixing	Heat roller (top: 595 W; bottom: 595 W (100/120 V)) (top: 550 W; bottom: 550 W (220/240 V))

c. Functions

Wait time		5 min or less	
First print time		See Table A-2.	
Printing speed		See Table A-3.	
Cassette		Universal cassette: about 500 sheets of 80 g/m^2 R cassette (accessory): about 500 sheets of 80 g/m^2	
Multifeeder tray		about 10 mm in height (about 100 sheets of 80 g/m^2)	
Duplexing unit		Through-path (accessory)	
Delivery tray		Face-down: about 300 sheets (80 g/m^2 paper), w/ limit sensor Face-up: about 100 sheets (80 g/m^2 paper)	
Print size	Cassette 1	Universal cassette: LGL, B4, LTR, A4 Special cassette (accessory): LTRR, A4R, B5R, A5R	
	Cassette 2	Universal cassette: 11×17, A3, LGL, B4, LTR, A4	
	Multifeeder	Envelope, A3 (11×17) to A5 (if B5 and A5, horizontal only); 12×18.5	
Print paper	Cassette	Plain paper (60 to 105 g/m^2), colored paper, recycled paper	
	Multifeeder	Plain paper (60 to 105 g/m^2), transparency (special), thick paper (106 to 135 g/m^2), label sheet (special), envelope, colored paper, recycled paper	
	Double-sided printing	Duplexing unit (if installed) : A3 to B5R plain paper (60 to 105 g/m^2)	
Image margin		Single-sided	Double-sided
		Leading edge: 5.0 ±2.0 mm Trailing edge: 5.0 ±2.0 mm Left/right: 5.0 ±2.0 mm	Leading edge: 5.0 ±2.0 mm Trailing edge: 5.0 ±2.0 mm Left/right: 5.0 ±2.0 mm
Non-image width		Single-sided	Double-sided
		Leading edge: 5.0 ±2.0 mm Trailing edge: 5.0 ±2.0 mm Left/right: 5.0 ±2.0 mm	Leading edge: 5.0 ±2.0 mm Trailing edge: 5.0 ±2.0 mm Left/right: 5.0 ±2.0 mm
Resolution	Main scanning direction	600 dpi (dots per inch)	
	Sub scanning direction	600 lpi (lines per inch)	

d. Others

Power supply (rated voltage ±10%)	Power supply		Serial No.
	120V	(USA)	NLQ xxxxx
	120V	(TWN)	NLX xxxxx
	230V	(KOR)	PLC xxxxx
	230V	(Others)	PLF xxxxx
	230V	(CA)	
	230V	(UK)	ULL xxxxx
	230V	(FRN)	
	230V	(GER)	
	230V	(AMS)	
	230V	(ITA)	
Weight (printer unit only)	91.6 kg (including drum cartridge weighing about 2.3 kg; black toner cartridge, about 1.5 kg; each color toner cartridge, about 1.2 kg) The duplexing unit weighs about 3.5 kg.		

(unit: sec or less)*

		4-color	Mono-color (YMCK)
Plain paper	A4/LTR	34	18
Thick paper	A4/LTR	50	35
Transparency	A4/LTR	57	41

Table A-2 First Print Time

*A4, Direct, cassette 1, face-up delivery, no pre-scanning if face-down delivery, add 3 sec for plain paper, 6 sec for thick paper, and 7 sec for transparency.

(copies/min)

	Source	Size	4-color	Mono-color (YMCK)
Plain paper	Cassette Multifeeder	A3/B4/A4R/B5/A5R/ 11×17/LGL/LTRR	3	12
		A4/LTR	6	24
Thick paper	Multifeeder	A3/11×17	1.2	1.7
		A4/LTR	2.4	3.4
Transparency	Multifeeder	A4/LTR	2.1	2.8

Table A-3 Printing Speed

The above specifications are subject to change for product improvement.

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