# RKyロCera 

# FS-6525MFP FS-6530MFP 

SERVICE

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## CAUTION

## RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

It may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for proper disposal.

## ATTENTION

IL Y A UN RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACEE PAR UN MODELE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES UTILISEES SELON LES INSTRUCTIONS DONNEES.

Il peut être illégal de jeter les batteries dans des eaux d'égout municipales. Vérifiez avec les fonctionnaires municipaux de votre région pour les détails concernant des déchets solides et une mise au rebut appropriée.

## Revision history

| Revision | Date | Replaced pages | Remarks |
| :---: | :---: | :--- | :--- |
| 1 | 20 June 2012 | $1-3-12,1-4-20$, Address | - |
| 2 | 20 August 2012 | $1-3-65,1-3-121,1-3-122,2-4-12$ | - |

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## 

## Safety precautions

This booklet provides safety warnings and precautions for our service personnel to ensure the safety of their customers, their machines as well as themselves during maintenance activities. Service personnel are advised to read this booklet carefully to familiarize themselves with the warnings and precautions described here before engaging in maintenance activities.

## Safety warnings and precautions

Various symbols are used to protect our service personnel and customers from physical danger and to prevent damage to their property. These symbols are described below:

A DANGER: High risk of serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

WARNING: Serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

A CAUTION: Bodily injury or damage to property may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

## Symbols

The triangle ( $\quad$ ) symbol indicates a warning including danger and caution. The specific point of attention is shown inside the symbol.




Warning of high temperature.
"-indicates a prohibited action. The specific prohibition is shown inside the symbol.


indicates that action is required. The specific action required is shown inside the symbol.


General action required.
Remove the power plug from the wall outlet.

Always ground the copier.

## 1. Installation Precautions

## A WARNING

- Do not use a power supply with a voltage other than that specified. Avoid multiple connections to one outlet: they may cause fire or electric shock. When using an extension cable, always check that it is adequate for the rated current.

- Connect the ground wire to a suitable grounding point. Not grounding the copier may cause fire or electric shock. Connecting the earth wire to an object not approved for the purpose may cause explosion or electric shock. Never connect the ground cable to any of the following: gas pipes, lightning rods, ground cables for telephone lines and water pipes or faucets not approved by the proper authorities.



## ACAUTION:

- Do not place the copier on an infirm or angled surface: the copier may tip over, causing injury. $\qquad$

- Do not install the copier in a humid or dusty place. This may cause fire or electric shock. $\qquad$

- Do not install the copier near a radiator, heater, other heat source or near flammable material. This may cause fire. $\qquad$

- Allow sufficient space around the copier to allow the ventilation grills to keep the machine as cool as possible. Insufficient ventilation may cause heat buildup and poor copying performance.

- Always handle the machine by the correct locations when moving it. $\qquad$
- Always use anti-toppling and locking devices on copiers so equipped. Failure to do this may cause the copier to move unexpectedly or topple, leading to injury.

- Avoid inhaling toner or developer excessively. Protect the eyes. If toner or developer is accidentally ingested, drink a lot of water to dilute it in the stomach and obtain medical attention immediately. If it gets into the eyes, rinse immediately with copious amounts of water and obtain medical attention. $\qquad$
- Advice customers that they must always follow the safety warnings and precautions in the copier's instruction handbook.



## 2. Precautions for Maintenance

## A WARNING

- Always remove the power plug from the wall outlet before starting machine disassembly.
- Always follow the procedures for maintenance described in the service manual and other related brochures. $\qquad$

- Under no circumstances attempt to bypass or disable safety features including safety mechanisms and protective circuits.

- Always use parts having the correct specifications. $\qquad$

- Always use the thermostat or thermal fuse specified in the service manual or other related brochure when replacing them. Using a piece of wire, for example, could lead to fire or other serious accident.

- When the service manual or other serious brochure specifies a distance or gap for installation of a part, always use the correct scale and measure carefully.

- Always check that the copier is correctly connected to an outlet with a ground connection. $\qquad$

- Check that the power cable covering is free of damage. Check that the power plug is dust-free. If it is dirty, clean it to remove the risk of fire or electric shock.

- Never attempt to disassemble the optical unit in machines using lasers. Leaking laser light may damage eyesight.

- Handle the charger sections with care. They are charged to high potentials and may cause electric shock if handled improperly.



## $\triangle$ CAUTION

- Wear safe clothing. If wearing loose clothing or accessories such as ties, make sure they are safely secured so they will not be caught in rotating sections.

- Use utmost caution when working on a powered machine. Keep away from chains and belts.

- Handle the fixing section with care to avoid burns as it can be extremely hot.

- Check that the fixing unit thermistor, heat and press rollers are clean. Dirt on them can cause abnormally high temperatures $\qquad$

- Do not remove the ozone filter, if any, from the copier except for routine replacement. $\qquad$
- Do not pull on the AC power cord or connector wires on high-voltage components when removing them; always hold the plug itself.

- Do not route the power cable where it may be stood on or trapped. If necessary, protect it with a cable cover or other appropriate item

- Treat the ends of the wire carefully when installing a new charger wire to avoid electric leaks. $\qquad$
- Remove toner completely from electronic components.

- Run wire harnesses carefully so that wires will not be trapped or damaged. $\qquad$
- After maintenance, always check that all the parts, screws, connectors and wires that were removed, have been refitted correctly. Special attention should be paid to any forgotten connector, trapped wire and missing screws

- Check that all the caution labels that should be present on the machine according to the instruction handbook are clean and not peeling. Replace with new ones if necessary.

- Handle greases and solvents with care by following the instructions below: $\qquad$
- Use only a small amount of solvent at a time, being careful not to spill. Wipe spills off completely. Ventilate the room well while using grease or solvents.
Allow applied solvents to evaporate completely before refitting the covers or turning the power switch on.
Always wash hands afterwards.
- Never dispose of toner or toner bottles in fire. Toner may cause sparks when exposed directly to fire in a furnace, etc.

- Should smoke be seen coming from the copier, remove the power plug from the wall outlet immediately.



## 3. Miscellaneous


#### Abstract

A WARNING - Never attempt to heat the drum or expose it to any organic solvents such as alcohol, other than the specified refiner; it may generate toxic gas. - Keep the machine away from flammable liquids, gases, and aerosols. A fire or an electric shock might occur.




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Installation Guide
PF-470/471 (Paper feeder)
DF-470/AK-470 (Document finisher)
FAX System(U)

## 1-1-1 Specifications

## Machine

| Item |  | Specifications |  |
| :---: | :---: | :---: | :---: |
|  |  | 25ppm | 30ppm |
| Type |  | Desktop |  |
| Printing method |  | Electrophotography by semiconductor laser, single drum system |  |
| Originals |  | Sheet, Book, 3-dimensional objects (maximum original size: A3/Ledger) |  |
| Original feed system |  | Fixed |  |
| Paper weight | Cassette | 60 to $163 \mathrm{~g} / \mathrm{m}^{2}$ (Duplex: 60 to $163 \mathrm{~g} / \mathrm{m}^{2}$ ) |  |
|  | MP tray | 45 to $256 \mathrm{~g} / \mathrm{m}^{2}$, (Sizes is larger than A4/Letter: 52 to $163 \mathrm{~g} / \mathrm{m}^{2}$ ) |  |
| Paper type | Cassette | Plain, Preprinted, Bond, Recycled, Vellum, Rough, Letter Head, Color, Prepunched, Thick, High quality, Custom1 to 8 (Duplex: Same as simplex) |  |
|  | MP tray | Plain, Preprinted, Bond, Recycled, Vellum, Rough, Letter Head, Color, Prepunched, Thick, High quality, Envelope, Cardstock, Transparency, Labels, Custom1 to 8 |  |
|  | Cassette | A3, A4, A5, B4, B5, Ledger, Letter, Legal, Statement, Oficio II, Folio, 8K, 16K |  |
| Paper size | MP tray | A3, A4, A5, A6, B4, B5, ISO B5, B6, Ledger, Letter, Legal, Statement, Executive, Oficio II, Folio, 8K, 16K, Envelope \#10, Envelope \#9, Envelope \#6, Envelope Monarch, Envelope DL, Envelope C4, Envelope C5, Postcards, Return postcard, Youkei 2, Youkei 4, Custom |  |
| Zoom level |  | Manual mode: 25 to $400 \%, 1 \%$ incrementsAuto mode $:$$: 400 \%, 200 \%, 141 \%, 122 \%, 115 \%, 86 \%, 81 \%, 70 \%, 50 \%, ~$ <br> $25 \%$ |  |
| Copying speed (Cassette) (Simplex) | When the DP is not used | A4/Letter $: 25$ sheets $/ \mathrm{min}$ <br> A4/LetterR : 18 sheets $/ \mathrm{min}$ <br> A3/Ledger $: 12$ sheets $/ \mathrm{min}$ <br> B4/Legal$: 12$ sheets $/ \mathrm{min}$, | A4/Letter $: 30$ sheets $/ \mathrm{min}$  <br> A4/LetterR : $: 22$ sheets $/ \mathrm{min}$  <br> A3/Ledger $: 15$ sheets $/ \mathrm{min}$  <br> B4/Legal $: ~: 15$ sheets $/ \mathrm{min}$  <br> B5 $: 30$ sheets $/ \mathrm{min}$ <br> B5R $: 20$ sheets $/ \mathrm{min}$ <br> A5R $: 15$ sheets $/ \mathrm{min}$ |
|  | When using the DP | A4/Letter $: 20$ sheets $/ \mathrm{min}$  <br> A4/LetterR $: 14$ sheets $/ \mathrm{min}$  <br> A3/Ledger $: 10$ sheets $/ \mathrm{min}$  <br> B4/Legal $: 11$ sheets $/ \mathrm{min}$ <br> B5 $: 20$ sheets $/ \mathrm{min}$ <br> B5R $: 16$ sheets $/ \mathrm{min}$ <br> A5R $: 12$ sheets $/ \mathrm{min}$ | A4/Letter $: 20$ sheets $/ \mathrm{min}$  <br> A4/LetterR $: 14$ sheets $/ \mathrm{min}$  <br> A3/Ledger $: 10$ sheets $/ \mathrm{min}$  <br> B4/Legal $: 11$ sheets $/ \mathrm{min}$ <br> B5 $: 20$ sheets $/ \mathrm{min}$ <br> B5R $: 16$ sheets $/ \mathrm{min}$ <br> A5R $: 15$ sheets $/ \mathrm{min}$ |
| First copy time <br> (A4, feed from cassette) |  | When the DP is not used : 7.8 s or less When using the DP : 9.2 s or less |  |
| $\begin{array}{r} \text { Warm-t } \\ \left(22^{\circ} \mathrm{C} / 71.6\right. \end{array}$ | up time <br> ${ }^{\circ} \mathrm{F}, 60 \% \mathrm{RH}$ ) | Power on $: 20 \mathrm{~s}$ or less <br> Low power mode $: 10 \mathrm{~s}$ or less <br> Sleep mode $: 20 \mathrm{~s}$ or less |  |



Document processor

| Item | Specifications |
| :---: | :--- |
| Original feed method | Automatic feed |
| Supported original types | Sheet originals |
| Original sizes | Maximum: A3/Ledger <br> Minimum : A5/Statement |
| Original weights | Simplex: 45 to $160 \mathrm{~g} / \mathrm{m}^{2}$ <br> Duplex: 50 to $120 \mathrm{~g} / \mathrm{m}^{2}$ |
| Loading capacity | 50 sheets $\left(50\right.$ to $\left.80 \mathrm{~g} / \mathrm{m}^{2}\right)$ or less |

Printer

| Item |  | Specifications |  |
| :---: | :---: | :---: | :---: |
|  |  | 25ppm | 30ppm |
| Printing speed (Cassette) | Simplex | A4/Letter $: 25$ sheets/min  <br> A4/LetterR $: 18$ sheets/min  <br> A3/Ledger $: 12$ sheets/min  <br> B4/Legal $:$ $: 12$ sheets/min <br> B5 $: 25$ sheets/min <br> B5R $: 16$ sheets/min <br> A5R $: 12$ sheets/min | A4/Letter : 30 sheets/min <br> A4/LetterR : 22 sheets/min <br> A3/Ledger : 15 sheets/min <br> B4/Legal : 15 sheets/min <br> B5 : 30 sheets/min <br> B5R : 20 sheets/min <br> A5R : 15 sheets/min |
|  | Duplex | A4/Letter $: 25$ sheets/min  <br> A4/LetterR $: 11$ sheets/min  <br> A3/Ledger $: 9$ sheets/min  <br> B4/Legal $:$ $: 9$ sheets/min <br> B5 $: 25$ sheets $/ m i n$ <br> B5R $: 11$ sheets/min <br> A5R $: 12$ sheets $/ m i n$ | A4/Letter $: 28$ sheets/min  <br> A4/LetterR $: 12$ sheets/min  <br> A3/Ledger $: 10$ sheets/min  <br> B4/Legal $: 10$ sheets/min  <br> B5 $: 28$ sheets/min <br> B5R $: 12$ sheets/min <br> A5R $: 15$ sheets/min |
| First print time <br> (A4, feed from cassette) |  | 8.5 s or less |  |
| Resolution |  | $600 \times 600$ dpi, Fast 1200 |  |
| Operating system |  | Windows2000, WindowsXP(32bit), Windows XP Professional x64 Edition, Windows Server 2003 (32-Bit x86), Windows Server 2003 x64 Edition, Windows Vista x86 Edition, Windows Vista x64 Edition, Windows Server 2008 (32-Bit x86), Windows Server 2008 x64 Edition, Windows 7 (32-Bit x86), Windows 7 (64-Bit x64), Mac OS 9.x, Mac OS X |  |
| System requirements |  | IBM PC/AT compatible <br> CPU: Celeron 266 MHz or higher <br> RAM: It is based on the recommend environment of each OS. HDD free space: 20 MB or more |  |
| Page description language |  | PRESCRIBE |  |

Scanner

| Item |  | Specifications |
| :---: | :---: | :---: |
| Operating system |  | Windows XP (32bit/64bit), Windows Vista (32bit/64bit), Windows 7 (32bit/64bit), Windows Server 2003 (32bit/64bit), Windows Server 2008 (32bit/64bit), Windows Server 2008 R2 |
| Resolution |  | $600 \mathrm{dpi}, 400 \mathrm{dpi}, 300 \mathrm{dpi}, 200 \mathrm{dpi}, 200 \times 100 \mathrm{dpi}, 200 \times 400 \mathrm{dpi}$ |
| File format |  | JPEG, TIFF, PDF, XPS |
| Scanning speed | Simplex | B/W : 40 images/min <br> Color: 20 images/min <br> (A4 landscape,300 dpi, Image quality: Text/Photo original) |
|  | Duplex | B/W : 14 images/min <br> Color: 9 images/min <br> (A4 landscape, 300 dpi , Image quality: Text/Photo original) |
| Network protocol |  | TCP/IP |
| Transmission system |  | ```PC transmission SMB :Scan to PC FTP transmission FTP, FTP over SSL :Scan to FTP E-mail transmission SMTP :Scan to E-mail USB transmission USB :Scan to USB TWAIN SCAN TWAIN, WIA * WSDScan WSD-SCAN``` |

* Available operating system: Windows Vista (32bit/64bit), Windows 7 (32bit/64bit),

NOTE: These specifications are subject to change without notice.

## 1-1-2 Parts names

## (1) Machine (front side)



Figure 1-1-1

1. Cassette
2. Paper width guides
3. Paper length guide
4. MP (multi purpose) tray
5. MP tray extension
6. MP Paper width guides
7. Inner tray
8. Operation panel
9. DP top cover
10. DP paper feed roller
11. DP forwarding roller
12. DP separation pully
13. DP original width guides
14. Original table
15. USB memory slot


Figure 1-1-2
16. Front cover
17. Toner container
18. Waste toner box
19. Right cover 1
20. MP paper feed roller
21. Registration roller
22. Transfer roller
23. Feed shift guide
24. Drum unit
25. Developing unit
26. Toner container lever
27. Fuser unit

## (2) Machine (rear side)



Figure 1-1-3
28. Scanner lock lever
29. Main power switch
30. Filter cover
31. DP interface connector
32. Controller box cover
33. DF interface connector
34. Cassette heater switch (cover)
35. Outlet connector
36. Inlet connector
37. Option interface slot 1
38. Option interface slot 2
39. Network interface connector
40. USB port
41. USB interface connector

## (3) Operation panel



Figure 1-1-4

1. Message display
2. Interrupt key / LED
3. Numeric keys
4. Logout key / LED
5. Energy saver / LED
6. Reset key
7. Power key / LED
8. Main power LED
9. Clear key
10. Quick No.search key
11. Enter key
12. Start key / LED
13. Stop key
14. System menu/Counter key / LED
15. Status/Job cancel / LED
16. Copy key / LED
17. Favorite/Application key /

## LED

18. Send key / LED
19. Document box key / LED
20. FAX key / LED
21. Job separator LED
22. Processing LED
23. Memory LED
24. Attention LED

## 1-1-3 Machine cross section



Figure 1-1-5

1. Cassette
2. Drum unit
3. Image scanner unit (ISU)
4. Cassette paper feed section
5. Developer unit
6. Laser scanner unit (LSU)
7. MP tray paper feed section
8. Toner container
9. Document processor (DP)
10. Conveying section
11. Fuser unit
12. Transfer/Separation section
13. Eject section
14. Charger roller unit
15. Duplex/conveyning section

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## 1-2-1 Installation environment

1. Temperature: 10 to $32.5^{\circ} \mathrm{C} / 50$ to $90.5^{\circ} \mathrm{F}$
2. Humidity: 15 to $80 \%$ RH
3. Power supply: 120 V AC, 12.0 A
220-240 V AC, 6.5 A
4. Power supply frequency: $50 \mathrm{~Hz} \pm 2 \% / 60 \mathrm{~Hz} \pm 2 \%$
5. Installation location

Avoid direct sunlight or bright lighting. Ensure that the photoconductor will not be exposed to direct sunlight or other strong light when removing paper jams.
Avoid locations subject to high temperature and high humidity or low temperature and low humidity; an abrupt change in the environmental temperature; and cool or hot, direct air.
Avoid places subject to dust and vibrations.
Choose a surface capable of supporting the weight of the machine.
Place the machine on a level surface (maximum allowance inclination: $1^{\circ}$ ).
Avoid air-borne substances that may adversely affect the machine or degrade the photoconductor, such as mercury, acidic of alkaline vapors, inorganic gasses, NOx, SOx gases and chlorine-based organic solvents.
Select a well-ventilated location.
6. Allow sufficient access for proper operation and maintenance of the machine.


Figure 1-2-1

## 1-2-2 Unpacking and installation

## (1) Installation procedure



## Unpacking



Figure 1-2-2

1. Bottom case
2. Bottom pad R
3. Bottom pad L
4. Machine cover $(740 \times 700)$
5. Machine
6. Inner case R
7. Inner case L
8. Spacer A
9. Plastic bag $(630 \times 730)$
10. Spacer B
11. Outer case
12. Upper pad R
13. Upper pad L
14. Power cord
15. Toner container
16. Plastic bag $(400 \times 600)$
17. CD-ROM *1
18. Installation guide, etc.
19. Plastic bag
20. Job separator tray
21. Plastic bag $(400 \times 600)$
22. Hinge joints
23. Inner case $F$
24. Inner case B
*1 Excluding 230V AC model
Place the machine on a level surface.

## Remove the tapes and spacer

1. Remove four tapes.


Figure 1-2-3
2. Open the DP top cover.
3. Slide two DP original width guides and then remove the pad.
4. Close the DP top cover.


Figure 1-2-4
5. Open the DP.
6. Remove the protective sheet and paper.


Figure 1-2-5
7. Remove the tape.


Figure 1-2-6
8. Peel off two protective sheets.
9. Remove the spacer.


Figure 1-2-7

## Install the job separator tray

1. Gently push the job separator tray into the machine along the guides.


Figure 1-2-8

## Release the scanner lock lever

1. Pull the scanner lock lever in the direction of the arrow. This will unlock the scanner mechanism.


Figure 1-2-9

## Install the optional paper feeder (option)

1. Install the optional paper feeder as required.


Figure 1-2-10

## Load paper

1. Pressing the paper width adjusting tab as shown, move the paper width guides to fit the paper size.


Figure 1-2-11
2. Adjust the paper length guide to fit the paper size.


Figure 1-2-12
3. Align the paper so that it is abut with the right end of the cassette.
4. Insert the cassette size plate.
5. Gently push the cassette back in.


Figure 1-2-13

## Install the toner container

1. Open the front cover.
2. Hold the toner container vertically and tap the upper part five times or more. Turn the toner container upside down and tap the upper part five times or more.


Figure 1-2-14
3. Shake the toner container up and down five times or more.
Turn the toner container upside down and shake it five times or more.


Figure 1-2-15
4. Shake the toner container approximately five or six times in the horizontal direction to stir toner.


Figure 1-2-16
5. Gently push the toner container into the machine.
Push the container all the way into the machine until it locks in place.


Figure 1-2-17

## Switch the cassette heater switch

1. Release the hook and then remove the switch cover.
2. Turn the cassette heater switch on.

Note: When the cassette heater is used, it turns it on.
3. Refit the switch cover.


Figure 1-2-18

## Install the other optional devices

1. Install the optional devices (Document finisher, Fax kit, etc.) as required.

## Connect the power cord

1. Connect the power cord to the connector on the machine.
2. Insert the power plug into the wall outlet.

## Installing toner

1. Turn the main power switch on.

The machine automatically starts to feed toner in the developer unit.
Note: When the main power switch is turned on for the first time, it takes about ten minutes until entering the state that can be copied.
2. The drive chain is disengaged when toner installation is completed.

Output an own-status report (maintenance item U000)

1. Enter 000 using the numeric keys and press the start key.
2. Select Maintenance and press the start key to output a list of the current settings of the maintenance items.
3. Press the stop key.

## Exit maintenance mode

1. Enter "001" using the numeric keys and press the start key.

Print out a user setting list

1. Select [Report Print] to print a user setting list.

Make test copies

1. Place an original and make test copies.

Attaching the language label (Excluding 240V AC)

1. Attach the corresponding language label as required.

Installation is completed.

## (2) Setting initial copy modes

Factory settings are as follows:

| Maintenance <br> item No. | Contents | Factory setting |
| :---: | :--- | :---: |
| U253 | Switching between double and single counts | Double count <br> (A3/Ledger) |
| U260 | Selecting the timing for copy counting | Eject |
| U285 | Setting service status page | On |
| U326 | Setting the black line cleaning indication | On/8 |
| U343 | Switching between duplex/simplex copy mode | Off |

## 1-2-3 Install the expansion memory (option)

## Procedure

1. Turn off the main power switch. Caution: Do not insert or remove expansion memory while machine power is on.
Doing so may cause damage to the machine and the expansion memory.
2. Remove the controller box cover.
3. Remove two screws.

Figure 1-2-19
4. Remove the memory slot cover.
5. Insert the expansion memory into the memory socket so that the notches on the memory align with the corresponding protrusions in the slot.
6. Refit the memory slot cover.
7. Refit the screw.
8. Refit the controller box cover.
9. Print a status page to check the memory expansion.
If memory expansion has been properly performed, information on the installed memory is printed with the total memory capacity has been increased. Standard memory capacity 1 GB .


Figure 1-2-20

## 1-2-4 Option composition



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## 1-3-1 Maintenance mode

The machine is equipped with a maintenance function which can be used to maintain and service the machine.

## (1) Executing a maintenance item



## (2) Maintenance modes item list

| Section | Item No. | Content of maintenance item | Initial setting |
| :---: | :---: | :---: | :---: |
| General | U000 | Outputting an own-status report | - |
|  | U001 | Exiting the maintenance mode | - |
|  | U002 | Setting the factory default data | - |
|  | U004 | Setting the machine number | - |
|  | U019 | Displaying the ROM version | - |
| Initialization | U021 | Memory initializing | - |
| Drive, paper feed and paper conveying system | U030 | Checking the operation of the motors | - |
|  | U031 | Checking switches and sensors for paper conveying | - |
|  | U032 | Checking the operation of the clutches | - |
|  | U033 | Checking the operation of the solenoids | - |
|  | U034 | Adjusting the print start timing Leading edge registration Center line | $\begin{gathered} 0 / 0 / 0 \\ 0 / 0 / 0 / 0 / 0 \end{gathered}$ |
|  | U035 | Setting the printing area for folio paper | 330/210 |
|  | U037 | Checking the operation of the fan motors | - |
|  | U051 | Adjusting the deflection in the paper | 0/0/0/0 |
|  | U053 | Setting the adjustment of the motor speed | -2/-2/-6/0/0 |
| Optical | U063 | Adjusting the shading position | 0 |
|  | U065 | Adjusting the scanner magnification | 0/0 |
|  | U066 | Adjusting the scanner leading edge registration | 0/0 |
|  | U067 | Adjusting the scanner center line | 0/0 |
|  | U068 | Adjusting the scanning position for originals from the DP | 0/0 |
|  | U070 | Adjusting the DP magnification | 0/0 |
|  | U071 | Adjusting the DP scanning timing | 0/0/0/0 |
|  | U072 | Adjusting the DP center line | 0/0 |
|  | U089 | Outputting a MIP-PG pattern | - |
|  | U099 | Adjusting original size detection | 40/30/20/19 |
|  |  |  | 50/50/50/49 <br> (when DP is installed) |


| Section | $\begin{array}{c}\text { Item } \\ \text { No. }\end{array}$ | Content of maintenance item | $\begin{array}{c}\text { Initial } \\ \text { setting }\end{array}$ |
| :--- | :--- | :--- | :---: |
|  | U100 | Setting the main high voltage | $-/-/ 0 / 0$ |
|  |  |  | $-/-/ 1800$ |
|  |  |  |  |$]$


| Section | Item No. | Content of maintenance item | Initial setting |
| :---: | :---: | :---: | :---: |
| Image processing | U402 | Adjusting margins of image printing | 3.0/2.5/2.5/5.0 |
|  | U403 | Adjusting margins for scanning an original on the contact glass | 2.0/2.0/2.0/2.0 |
|  | U404 | Adjusting margins for scanning an original from the DP | 3.0/2.5/3.0/4.0 |
|  | U407 | Adjusting the leading edge registration for memory image printing | 0 |
|  | U411 | Adjusting the scanner automatically | - |
|  | U425 | Setting the target | - |
|  | U432 | Setting the center offset for the exposure | 0/0/0 |
| Image processing | U470 | Setting the JPEG compression ratio Copy <br> Send <br> System | $85 / 85$ $85 / 85$ $15 / 25 / 60 / 15 / 25 / 60$ $30 / 40 / 51 / 70 / 90 /$ $30 / 40 / 51 / 70 / 90$ $30 / 40 / 51 / 70 / 90 /$ $30 / 40 / 51 / 70 / 90$ $90 / 90$ |
| Fax | U600 | Initializing all data | - |
|  | U601 | Initializing permanent data | - |
|  | U603 | Setting user data 1 | DTMF |
|  | U604 | Setting user data 2 | $\begin{gathered} 2(120 \mathrm{~V}) \\ 1(220-240 \mathrm{~V}) \end{gathered}$ |
|  | U605 | Clearing data | - |
|  | U610 | Setting system 1 <br> Setting the number of lines to be ignored when receiving a fax at 100\% magnification Setting the number of lines to be ignored when receiving a fax in the auto reduction mode Setting the number of lines to be ignored when receiving a fax (A4R/LetterR) in the auto reduction mode | $\begin{aligned} & 0 \\ & 3 \\ & 0 \end{aligned}$ |
|  | U611 | Setting system 2 <br> Setting the number of adjustment lines for automatic reduction <br> Setting the number of adjustment lines for automatic reduction when A4 paper is set <br> Setting the number of adjustment lines for automatic reduction when letter size paper is set | 7 $22$ $26$ |
|  | U612 | Setting system 3 <br> Selecting if auto reduction in the auxiliary direction is to be performed Setting the automatic printing of the protocol list | On <br> Off |
|  | U615 | Setting system 6 | Ledger |
|  | U620 | Setting the remote switching mode | One |


| Section | Item No. | Content of maintenance item | Initial setting |
| :---: | :---: | :---: | :---: |
| Fax | U625 | Setting the transmission system 1 Setting the auto redialing interval <br> Setting the number of times of auto redialing | $\begin{gathered} 3(120 \mathrm{~V}) \\ 2(220-240 \mathrm{~V}) \\ 2(120 \mathrm{~V}) \\ 3(220-240 \mathrm{~V}) \end{gathered}$ |
|  | U630 | Setting communication control 1 <br> Setting the communication starting speed <br> Setting the reception speed <br> Setting the waiting period to prevent echo problems at the sender <br> Setting the waiting period to prevent echo problems at the receiver | $\begin{gathered} \text { 14400bps/V17 } \\ 14400 \mathrm{bps} \\ 300 \\ \\ 75 \end{gathered}$ |
|  | U631 | Setting communication control 2 <br> Setting ECM transmission <br> Setting ECM reception <br> Setting the frequency of the CED signal | $\begin{gathered} \text { On } \\ \text { On } \\ 2100 \end{gathered}$ |
|  | U632 | Setting communication control 3 Setting the DIS signal to 4 bytes Setting the CNG detection times in the fax/telephone auto select mode | $\begin{gathered} \text { Off } \\ \text { 2Time } \end{gathered}$ |
|  | U633 | Setting communication control 4 <br> Enabling/disabling V. 34 communication <br> Setting the number of times of DIS signal reception Setting the number of times of DIS signal reception Setting the reference for RTN signal output | On <br> On <br> Once <br> 15\% |
|  | U634 | Setting communication control 5 | 0 |
|  | U640 | Setting communication time 1 <br> Setting the one-shot detection time for remote switching Setting the continuous detection time for remote switching | $\begin{gathered} 7 \\ 80 \end{gathered}$ |
|  | U641 | Setting communication time 2 Setting the TO time-out time Setting the T1 time-out time Setting the T2 time-out time Setting the Ta time-out time Setting the Tb1 time-out time Setting the Tb2 time-out time Setting the Tc time-out time Setting the Td time-out time | $\begin{gathered} 56 \\ 36 \\ 69 \\ 30 \\ 20 \\ 80 \\ 60 \\ 9(120 \mathrm{~V}) \\ 6(220-240 \mathrm{~V}) \end{gathered}$ |
|  | U650 | Setting modem 1 <br> Setting the G3 transmission cable equalizer Setting the G3 reception cable equalizer Setting the modem detection level | $\begin{gathered} 0 \mathrm{~dB} \\ 0 \mathrm{~dB} \\ -43 \mathrm{dBm} \end{gathered}$ |


| Section | Item No. | Content of maintenance item | Initial setting |
| :---: | :---: | :---: | :---: |
| Fax | U651 | Setting modem 2 <br> Modem output level <br> DTMF output level (main value) <br> DTMF output level (level difference) | $\begin{gathered} -11(120 \mathrm{~V}) \\ -11(220-240 \mathrm{~V}) \\ 6(120 \mathrm{~V}) \\ 8(220-240 \mathrm{~V}) \\ 2(120 \mathrm{~V}) \\ 2(220-240 \mathrm{~V}) \\ \hline \end{gathered}$ |
|  | U660 | Setting the NCU <br> Setting the connection to PBX/PSTN <br> Setting PSTN dial tone detection <br> Setting busy tone detection <br> Setting for a PBX <br> Setting the loop current detection before dialing | PSTN <br> On <br> On <br> Loop <br> On |
|  | U670 | Outputting lists | - |
|  | U695 | FAX function customize | On/Off |
|  | U699 | Setting the software switches | - |
| Others | U901 | Checking copy counts by paper feed locations | 0/0/0/0/0 |
|  | U903 | Checking/clearing the paper jam counts | 0/0 |
|  | U904 | Checking/clearing the call for service counts | 0/0 |
|  | U905 | Checking counts by optional devices | 0/0/0/0 |
|  | U910 | Clearing the print coverage data | 0 |
|  | U917 | Setting backup data reading/writing | - |
|  | U927 | Clearing the all copy counts and machine life counts (one time only) | - |
|  | U935 | Relay board maintenance | - |
|  | U942 | Setting of deflection for feeding from DP | 0/0 |
|  | U977 | Data capture mode | - |
|  | U984 | Checking the developing unit number | - |
|  | U985 | Displaying the developer history | - |

## (3) Contents of the maintenance mode items

| Item No. | Description |
| :---: | :---: |
| U000 | Outputting an own-status report <br> Description <br> Outputs lists of the current settings of the maintenance items and paper jam and service call occurrences. Outputs the event log. Also sends output data to the USB memory. <br> Purpose <br> To check the current setting of the maintenance items, or paper jam or service call occurrences. Before initializing or replacing the backup RAM, output a list of the current settings of the maintenance items to reenter the settings after initialization or replacement. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be output using the cursor up/down keys. <br> 3. Select On or Off using the cursor left/right keys or numeric keys. |
|  | Display $\quad$ Output list |
|  | Maintenance List of the current settings of the maintenance modes <br> Event Outputs the event log <br> All Outputs the all reports |
|  | 4. Press the start key. A list is output. <br> Method: Send to the USB memory <br> 1. Press the power key on the operation panel, and after verifying the main power indicator has gone off, switch off the main power switch. <br> 2. Insert USB memory in USB memory slot. <br> 3. Turn the main power switch on. <br> 4. Enter the maintenance item. <br> 5. Press the start key. <br> 6. Select the item to be send. <br> 7. Select [Text] or [HTML]. |
|  | Display Output list |
|  | Print Outputs the report <br> USB (Text) Sends output data to the USB memory (text type) <br> USB (HTML) Sends output data to the USB memory (HTML type) |
|  | 8. Press the start key. <br> Output will be sent to the USB memory. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |



Figure 1-3-1

| Item No. | Description |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| U000 | Detail of event log |  |  |  |  |
|  | No. | Items | Description |  |  |
|  | (1) | System version |  |  |  |
|  | (2) | System date |  |  |  |
|  | (3) | Engine soft version |  |  |  |
|  | (4) | Engine boot version |  |  |  |
|  | (5) | Operation panel mask version |  |  |  |
|  | (6) | Machine serial number |  |  |  |
|  | (7) | Paper Jam Log | \# | Count. | Event |
|  |  |  | Remembers 1 to 16 of occurrence. If the occurrence of the previous paper jam is less than 16, all of the paper jams are logged. When the occurrence excesseds 16, the oldest occurrence is removed. | The total page count at the time of the paper jam. | Log code (hexadecimal, 5 categories) <br> (a) Cause of a paper jam <br> (b) Paper source <br> (c) Paper size <br> (d) Paper type <br> (e) Paper eject |
|  |  |  | (a) Cause of paper jam (Hexadecimal) |  |  |
|  |  |  | Refer to P.1-4-1 for paper jam location <br> 0000: Initial jam <br> 0100: Secondary paper feed request time out <br> 0101: Waiting for process package to be ready <br> 0104: Waiting for conveying package to be ready <br> 0106: Paper feeding request for duplex printing time out <br> 0107: Waiting for fuser package to be ready <br> 0110: Right cover open <br> 0111: Front cover open <br> 0120: Receiving a duplex paper feeding request while paper is empty <br> 0121: Exceeding number of duplex pages circulated <br> 0210: Right lower cover open <br> 0501: No paper feed from cassette 1 <br> 0502: No paper feed from cassette 2 <br> 0503: No paper feed from cassette 3 <br> 0508: No paper feed from duplex section <br> 0509: No paper feed from MP tray <br> 0511: Multiple sheets in cassette 1 <br> 0512: Multiple sheets in cassette 2 <br> 0513: Multiple sheets in cassette 3 <br> 0518: Multiple sheets in duplex section <br> 0519: Multiple sheets in MP tray <br> 1403: PF feed sensor 1 non arrival jam <br> 1413: PF feed sensor 1 stay jam <br> 4002: Registration sensor non arrival jam (cassette 2) <br> 4003: Registration sensor non arrival jam (cassette 3) |  |  |


| Item No. |  |  | Description |
| :---: | :---: | :---: | :---: |
| U000 |  |  |  |
|  | No. | Items | Description |
|  | $\begin{gathered} \text { (7) } \\ \text { cont. } \end{gathered}$ | $\begin{aligned} & \text { Paper Jam } \\ & \text { Log } \end{aligned}$ | 4012: Registration sensor stay jam (cassette 2) <br> 4013: Registration sensor stay jam (cassette 3) <br> 4201: Eject sensor non arrival jam (cassette 1) <br> 4202: Eject sensor non arrival jam (cassette 2) <br> 4203: Eject sensor non arrival jam (cassette 3) <br> 4208: Eject sensor non arrival jam (duplex) <br> 4209: Eject sensor non arrival jam (Mp tray) <br> 4211: Eject sensor stay jam (cassette 1) <br> 4212: Eject sensor stay jam (cassette 2) <br> 4213: Eject sensor stay jam (cassette 3) <br> 4218: Eject sensor stay jam (duplex) <br> 4219: Eject sensor stay jam (MP tray) <br> 4301: Duplex sensor non arrival jam (cassette 1) <br> 4302: Duplex sensor non arrival jam (cassette 2) <br> 4303: Duplex sensor non arrival jam (cassette 3) <br> 4309: Duplex sensor non arrival jam (MP tray) <br> 4311: Duplex sensor stay jam (cassette 1) <br> 4312: Duplex sensor stay jam (cassette 2) <br> 4313: Duplex sensor stay jam (cassette 3) <br> 4319: Duplex sensor stay jam (MP tray) <br> 4901: Bridge conveying sensor 1 non arrival jam (cassette 1) <br> 4902: Bridge conveying sensor 1 non arrival jam (cassette 2) <br> 4903: Bridge conveying sensor 1 non arrival jam (cassette 3) <br> 4908: Bridge conveying sensor 1 non arrival jam (duplex) <br> 4909: Bridge conveying sensor 1 non arrival jam (MP tray) <br> 4911: Bridge conveying sensor 1 stay jam (cassette 1) <br> 4912: Bridge conveying sensor 1 stay jam (cassette 2) <br> 4913: Bridge conveying sensor 1 stay jam (cassette 3) <br> 4918: Bridge conveying sensor 1 stay jam (duplex) <br> 4919: Bridge conveying sensor 1 stay jam (MP tray) <br> 5001: Bridge conveying sensor 3 non arrival jam (cassette 1) <br> 5002: Bridge conveying sensor 3 non arrival jam (cassette 2) <br> 5003: Bridge conveying sensor 3 non arrival jam (cassette 3) <br> 5008: Bridge conveying sensor 3 non arrival jam (duplex) <br> 5009: Bridge conveying sensor 3 non arrival jam (MP tray) <br> 5011: Bridge conveying sensor 3 stay jam (cassette 1) <br> 5012: Bridge conveying sensor 3 stay jam (cassette 2) <br> 5013: Bridge conveying sensor 3 stay jam (cassette 3) <br> 5018: Bridge conveying sensor 3 stay jam (duplex) <br> 5019: Bridge conveying sensor 3 stay jam (MP tray) <br> 6023: Staple cover open <br> 6043: DF top cover open6103: DF paper conveying sensor non arrival jam <br> 6113: DF paper conveying sensor stay jam <br> 6123: DF paper conveying sensor remaining jam <br> 6413: DF eject paper sensor stay jam <br> 6423: DF eject paper sensor remaining jam <br> 6803: Front adjustment plate operation ON error |


| Item No. | Description |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | (7) cont. | Paper Jam Log | 6813: Front adjustment plate operation OFF error <br> 6903: Rear adjustment plate operation ON error <br> 6913: Rear adjustment plate operation OFF error <br> 7013: Staple operation error <br> 7023: Staple initialoperation error <br> 7913: Sequence error 1 (operation prohibited) <br> 7923: Sequence error 2 (initialoperation error) <br> 7933: Sequence error 3 (Error in the reception of backup data) <br> 7943: Sequence error 4 (standby) <br> 7953: Sequence error 5 (Error in between copies) <br> 9000: No original feed <br> 9001: DP original conveying jam <br> 9004: DP original swichback jam <br> 9010: DP open <br> 9011: DP top cover open <br> 9110: DP paper feed sensor stay jam <br> 9200: DP registration sensor non arrival jam <br> 9400: DP timing sensor non arrival jam <br> 9410: DP timing sensor stay jam |  |  |
|  |  |  | (b) Detail of paper source (Hexadecimal) |  |  |
|  |  |  | 00: MP tray <br> 01: Cassette 1 <br> 02: Cassette 2 (paper feeder 1) <br> 03: Cassette 3 (paper feeder 2) <br> 04 to 09: Reserved |  |  |
|  |  |  | (c) Detail of paper size (Hexadecimal) |  |  |
|  |  |  | 00: (Not specified) 01: Monarch 02: Business 03: International DL 04: International C5 05: Executive 06: Letter-R 86: Letter-E 07: Legal 08: A4R 88: A4E 09: B5R 89: B5E 0A: A3 | OB: B4 <br> OC: Ledger <br> OD: A5R <br> OE: A6 <br> 0F: B6 <br> 10: Commercial \#9 <br> 11: Commercial \#6 <br> 12: ISO B5 <br> 13: Custom size <br> 1E: C4 <br> 1F: Postcard <br> 20: Reply-paid postcard <br> 21: Oficio II | 22: Special 1 <br> 23: Special 2 <br> 24: A3 wide <br> 25: Ledger wide <br> 26: Full bleed paper $(12 \times 8)$ <br> 27: 8 K <br> 28: 16K-R <br> A8: 16K-E <br> 32: Statement-R <br> B2: Statement-E <br> 33: Folio <br> 34: Western type 2 <br> 35: Western type 4 |


| Item No. | Description |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | (7) cont. | Paper Jam Log | (d) Detail of paper type (Hexadecimal) |  |  |
|  |  |  | 01: Plain <br> 02: Transparency <br> 03: Preprinted <br> 04: Labels <br> 05: Bond <br> 06: Recycled <br> 07: Vellum <br> 08: Rough <br> 09: Letterhead | 0A: Color <br> 0B: Prepunched <br> 0C: Envelope <br> 0D: Cardstock <br> 0E: Coated <br> 0F: 2nd side <br> 10: Thick <br> 11: High quality | 15: Custom 1 <br> 16: Custom 2 <br> 17: Custom 3 <br> 18: Custom 4 <br> 19: Custom 5 <br> 1A: Custom 6 <br> 1B: Custom 7 <br> 1C: Custom 8 |
|  |  |  | (e) Detail of paper eject location (Hexadecimal) |  |  |
|  |  |  | 01: Face down (FD) <br> 02: Face up (FU)/Document finisher face up (FU)/ <br> 03: Document finisher face down (FD) |  |  |
|  | (8) | Service Call Log | \# | Count. | Service Code |
|  |  |  | Remembers 1 to 8 of occurrence of self diagnostics error. If the occurrence of the previous diagnostics error is less than 8 , all of the diagnostics errors are logged. | The total page count at the time of the self diagnostics error. | Self diagnostic error code (See page 1-4-7) <br> Example: <br> 01.6000 <br> 01: Self diagnostic error 6000: Self diagnostic error code number |
|  | (9) | Maintenance Log | \# | Count. | Item |
|  |  |  | Remembers 1 to 8 of occurrence of replacement. If the occurrence of the previous replacement of toner container is less than 8, all of the occurrences of replacement are logged. | The total page count at the time of the replacement of the toner container. | Code of maintenance replacing item <br> (1 byte, 2 categories) <br> First byte (Replacing item) <br> 01: Toner container <br> Second byte <br> (Type of replacing item) <br> 00: Black <br> First byte (Replacing item) 02: Maintenance kit Second byte (Type of replacing item) <br> 01: MK-477/475/479 |


| Item No. | Description |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | (10) | Unknown Toner Log | \# | Count. | Item |
|  |  |  | Remembers 1 to 5 of occurrence of unknown toner detection. If the occurrence of the previous unknown toner detection is less than 5 , all of the unknown toner detection are logged. | The total page count at the time of the toner empty error with using an unknown toner container. | Unknown toner log code <br> (1 byte, 2 categories) <br> First byte <br> 01: Toner container <br> (Fixed) <br> Second byte <br> 00: Black |
|  | (11) | Counter Log | (f) Paper jam | (g) Self diagnostic error | (h) Maintenance item replacing |
|  |  | Comprised of three log counters including paper jams, self diagnostics errors, and replacement of the toner container. | Indicates the log counter of paper jams depending on location. <br> Refer to Paper Jam Log. <br> All instances including those are not occurred are displayed. | Indicates the log counter of self diagnostics errors depending on cause. <br> (See page 1-3-7) <br> Example: <br> C6000: 4 <br> Self diagnostics error 6000 has happened four times. | Indicates the log counter depending on the maintenance item for maintenance. <br> T: Toner container 00: Black <br> M: Maintenance kit <br> 01: MK-477/475/479 <br> Example: <br> T00: 1 <br> The toner container has |


| Item No. | Description |
| :---: | :---: |
| U001 | Exiting the maintenance mode <br> Description <br> Exits the maintenance mode and returns to the normal copy mode. <br> Purpose <br> To exit the maintenance mode. <br> Method <br> Press the start key. The normal copy mode is entered. |
| U002 | Setting the factory default data <br> Description <br> Restores the machine conditions to the factory default settings. <br> Purpose <br> To move the mirror frame of the scanner to the position for transport <br> Method <br> 1. Press the start key. <br> 2. Select [Mode1(AII)]. <br> 3. Press the start key. <br> The mirror frame of the scanner returns to the position for transport. <br> 4. Turn the main power switch off and on. <br> *: An error code is displayed in case of an initialization error. <br> When errors occurred, turn main power switch off then on, and execute initialization using maintenance item U002. <br> Error codes |
|  | Codes  Description <br> 0001 Entity error  <br> 0002 Controller error  <br> 0020 Engine error  <br> 0040 Scanner error  |



| Item No. | Description |
| :---: | :---: |
| U019 | Displaying the ROM version <br> Description <br> Displays the part number of the ROM fitted to each PWB. <br> Purpose <br> To check the part number or to decide, if the newest version of ROM is installed. <br> Method <br> 1. Press the start key. The ROM version are displayed. <br> 2. Change the screen using the cursor up/down keys. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :---: |
| U021 | Memory initializing <br> Description <br> Initializes all settings, except those pertinent to the type of machine, namely each counter, service call history and mode setting. Also initializes backup RAM according to region specification selected in maintenance item U252 Setting the destination. <br> Purpose <br> To return the machine settings to their factory default. <br> Method <br> 1. Press the start key. <br> 2. Select [Execute]. <br> 3. Press the start key. All data other than that for adjustments due to variations between machines is initialized based on the destination setting. <br> 4. Turn the main power switch off and on. <br> * : An error code is displayed in case of an initialization error. <br> When errors occurred, turn main power switch off then on, and execute initialization using maintenance item U021. <br> Error codes |
|  | Codes Description |
|  | 0001 Entity error <br> 0002 Controller error <br> 0020 Engine error <br> 0040 Scanner error |


| Item No. | Description |
| :---: | :---: |
| U030 | Checking the operation of the motors <br> Description <br> Drives each motor. <br> Purpose <br> To check the operation of each motor. <br> Method <br> 1. Press the start key. <br> 2. Select the motor to be operated. <br> 3. Press the start key. The operation starts. <br> 4. To stop operation, press the stop key. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U031 | Checking switches and sensors for paper conveying <br> Description <br> Displays the on-off status of each paper detection switch or sensor on the paper path. <br> Purpose <br> To check if the switches and sensors for paper conveying operate correctly. <br> Method <br> 1. Press the start key. <br> 2. Turn each switch or sensor on and off manually to check the status. When a switch or sensor is detected to be in the ON position, the display for that switch or sensor will be " 1 ". <br> *: 0:100V (Fuser phase control) / 1:Excluding 100V (Fuser half wave control)) <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :---: |
| U032 | Checking the operation of the clutches <br> Description <br> Turns each clutch on. <br> Purpose <br> To check the operation of each clutch. <br> Method <br> 1. Press the start key. <br> 2. Select the clutch to be operated. <br> 3. Press the start key. The operation starts. <br> 4. Press the stop key. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U033 | Checking the operation of the solenoids <br> Description <br> Turns each solenoid on. <br> Purpose <br> To check the operation of each solenoid. <br> Method <br> 1. Press the start key. <br> 2. Select the solenoid to be operated. <br> 3. Press the start key. The operation starts. <br> 4. Press the stop key. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :--- | :--- |
| U034 | Adjusting the print start timing <br> Description <br> Adjusts the leading edge registration or center line. <br> Purpose <br> Make the adjustment if there is a regular error between the leading edges of the copy image and <br> original. <br> Make the adjustment if there is a regular error between the center lines of the copy image and <br> original. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be adjusted. <br> Display <br> LSU Out Top <br> LSU Out Left |

Adjustment: Leading edge registration adjustment

1. Press the system menu key.
2. Press the start key to output a test pattern.
3. Press the system menu key.
4. Select the item to be adjusted.

| Display | Description | Setting <br> range | Initial <br> setting | Change in <br> value per step |
| :--- | :--- | :--- | :--- | :--- |
| MPT(L) | Paper feed from MP tray <br> (when large size paper is used) | -128 to 127 | 0 | 0.1 mm |
| Cassette(L) | Paper feed from cassette <br> (when large size paper is used) | -128 to 127 | 0 | 0.1 mm |
| Duplex(L) | Duplex mode (second) <br> (when large size paper is used) | -128 to 127 | 0 | 0.1 mm |

Large size: 218 mm or more in width of paper.


| Item No. | Description |
| :---: | :---: |
| U034 | 5. Change the setting value using the cursor left/right keys or numeric keys. <br> For output example 1, increase the value. For output example 2, decrease the value. <br> Figure 1-3-3 <br> 6. Press the start key. The value is set. <br> Caution <br> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :---: |
| U035 | Setting the printing area for folio paper <br> Description <br> Changes the printing area for copying on folio paper. <br> Purpose <br> To prevent cropped images on the trailing edge or left/right side of copy paper by setting the actual printing area for folio paper. <br> Setting <br> 1. Press the start key. <br> 2. Select the item to be set. <br> 3. Change the setting value using the cursor left/right keys. <br> 4. Press the start key. The value is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U037 | Checking the operation of the fan motors <br> Description <br> Drives each fan motor. <br> Purpose <br> To check the operation of each fan motor. <br> Method <br> 1. Press the start key. <br> 2. Select the fan motor to be operated. <br> 3. Press the start key. The operation starts. <br> To stop operation, press the stop key. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |



Figure 1-3-4
7. Press the start key. The value is set.

## Completion

Press the stop key. The indication for selecting a maintenance item No. appears.

| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U053 | Setting the adjustment of the motor speed <br> Description <br> Performs fine adjustment of the speeds of the motors. <br> Purpose <br> To adjust the speed of the respective motors when the magnification is not correct. <br> Method <br> 1. Press the start key. <br> 2. Press the system menu key. <br> 3. Place an original and press the start key to make a test copy. <br> 4. Press the system menu key. <br> 5. Select the item to be adjusted. |  |  |  |
|  | Display | Description | Setting range | Initial setting |
|  | Main <br> Main(MPT) <br> Main(Duplex) <br> Polygon <br> Exit | Main motor (MM) speed adjustment Main motor (MM) speed adjustment in MPT output <br> Main motor (MM) speed adjustment in duplex output <br> Polygon motor (PM) speed adjustment <br> Eject motor (EM) speed adjustment | -50 to 50 <br> -50 to 50 <br> -50 to 50 <br> -20 to 20 <br> -40 to 40 | $\begin{aligned} & -2 \\ & -2 \\ & -6 \\ & 0 \\ & 0 \end{aligned}$ |
|  | 6. Change the setting value using the cursor left/right keys or numeric keys. <br> 7. Press the start key. The value is set. <br> Completion <br> Press the stop key. The indication for selecting a maintenance item No. appears. |  |  |  |


| Item No. | Description |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| U063 | Adjusting the sh <br> Description <br> Changes the shad <br> Purpose <br> Used when the wh cleaned. <br> This is due to flaw tion should be ch <br> Setting <br> 1. Press the sta <br> 2. Select [Positio <br> 3. Change the s | ing position <br> g position of the scanner <br> line continue to appear <br> or stains inside the shad ged so that shading is $p$ <br> ey. <br> ing value using the curs | nally on the <br> To prevent thout being <br> keys or $n$ | age after <br> is problem fected by <br> eric keys | the shading plate is the shading posithe flaws or stains. |
|  | Display | Description | Setting range | Initial setting | Change in value per step |
|  | Position | Shading position | -6 to 18 | 0 | 0.091 mm |
|  | Supplement <br> While this maintenance item is being executed, copying from an original is available in interrupt copying mode (which is activated by pressing the system menu key). <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |  |  |  |  |


| Item No. | Description |
| :--- | :--- |

U065 Adjusting the scanner magnification

## Description

Adjusts the magnification of the original scanning.

## Purpose

Make the adjustment if the magnification in the main scanning direction is incorrect.
Make the adjustment if the magnification in the auxiliary scanning direction is incorrect.

## Caution

Adjust the magnification of the scanner in the following order.

| $\begin{gathered} \text { U053 } \\ \text { ( P.1-3-25) } \end{gathered}$ | $\underset{\substack{\mathrm{U} 065 \\ \text { main scan- } \\ \text { ning direction }}}{ }$ | U065 <br> auxiliary scan- <br> ning direction | U067 (P.1-3-30) | $\begin{gathered} \text { U070 } \\ \text { (P.1-3-33) } \end{gathered}$ |
| :---: | :---: | :---: | :---: | :---: |

## Method

1. Press the start key.
2. Press the system menu key.
3. Place an original and press the start key to make a test copy.
4. Press the system menu key.
5. Select the item to be adjusted.

| Display | Description | Setting <br> range | Initial <br> setting | Change in <br> value per step |
| :---: | :--- | :--- | :--- | :--- |
| Y Scan Zoom | Scanner magnification in the <br> main scanning direction <br> X Scan Zoom | Scanner magnification in the <br> auxiliary scanning direction | -125 to 125 | 0 |
| $0.02 \%$ |  |  |  |  |

## Adjustment: [Y Scan Zoom]

1. Change the setting value using the cursor left/right keys or numeric keys.

For copy example 1, increase the value. For copy example 2, decrease the value.


Figure 1-3-5
2. Press the start key. The value is set.


Figure 1-3-6
2. Press the start key. The value is set.

## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.

## U066 Adjusting the scanner leading edge registration

## Description

Adjusts the scanner leading edge registration of the original scanning.

## Purpose

Make the adjustment if there is a regular error between the leading edges of the copy image and original.

## Adjustment

1. Press the start key.
2. Press the system menu key.
3. Place an original and press the start key to make a test copy.
4. Press the system menu key.
5. Select the item to be adjusted.

| Display | Description | Setting <br> range | Initial <br> setting | Change in <br> value per step |
| :--- | :--- | :--- | :--- | :--- |
| Front | Scanner leading edge registra- <br> tion <br> Rotate | Scanner leading edge registra- <br> tion (rotate copying) | -45 to 45 | 0 |
| 0.091 mm |  |  |  |  |

6. Change the setting value using the cursor left/right keys or numeric keys.
For copy example 1, increase the value. For copy example 2, decrease the value.


Figure 1-3-7
7. Press the start key. The value is set.

## Caution

Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.


## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.


Figure 1-3-8
7. Press the start key. The value is set.

## Caution

Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.


## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.


| Item No. | Description |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| U070 | Adjusting the DP magnification <br> Description <br> Adjusts the DP original scanning speed. <br> Purpose <br> Make the adjustment if the magnification is incorrect in the auxiliary scanning direction when the DP is used. <br> Adjustment <br> 1. Press the start key. <br> 2. Press the system menu key. <br> 3. Place an original on the DP and press the start key to make a test copy. <br> 4. Press the system menu key. <br> 5. Select the item to be adjusted.I |  |  |  |  |
|  | Display | Description | Setting range | Initial setting | Change in value per step |
|  | Y Scan Zoom(F) X Scan Zoom(B) | Magnification in the main scanning direction <br> Magnification in the auxiliary scanning direction | -125 to 125 -125 to 125 | 0 0 | 0.02 \% 0.02 \% |

## Adjustment: [Y Scan Zoom]

1. Change the setting value using the cursor left/right keys or numeric keys.

For copy example 1, increase the value. For copy example 2, decrease the value.


Figure 1-3-9
2. Press the start key. The value is set.

## Adjustment: [X Scan Zoom]

1. Change the setting value using the cursor left/right keys or numeric keys.

For copy example 1, increase the value. For copy example 2, decrease the value.


Figure 1-3-10
2. Press the start key. The value is set.

| Item No. | Description |
| :---: | :---: |
| U070 | Caution <br> Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| U071 | Adjusting the DP <br> Description <br> Adjusts the DP or <br> Purpose <br> Make the adjustm nal and the copy <br> Method <br> 1. Press the start <br> 2. Press the sys <br> 3. Place an origi <br> 4. Press the sys <br> 5. Select the item | canning timing <br> nal scanning timing. <br> t if there is a regular error age when the DP is used. <br> ey. <br> menu key. <br> on the DP and press the stat <br> $m$ menu key. <br> o be adjusted.I | n the leadi <br> y to make | or trailing <br> est copy. | edges of the origi- |
|  | Display | Description | Setting range | Initial setting | Change in value per step |
|  | Front Head | Leading edge registration (first side) | -80 to 80 | 0 | 0.119 mm |
|  | Front Tail | Trailing edge registration (first side) | $-80 \text { to } 80$ | 0 | $0.119 \mathrm{~mm}$ |
|  | Back Head | Leading edge registration (second side) | $-80 \text { to } 80$ | 0 | 0.119 mm |
|  | Back Tail | Trailing edge registration (second side) | -80 to 80 | 0 | 0.119 mm |

## Adjustment: Leading edge registration

1. Change the setting value using the cursor left/right keys or numeric keys.

For copy example 1, increase the value. For copy example 2, decrease the value.


Figure 1-3-11
2. Press the start key. The value is set.

## Caution

If the first side is adjusted, check the second side and if adjustment is required, carry out the adjustment.
Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.


## Item No.

## Description

U071 Adjustment: Trailing edge registration

1. Change the setting value using the cursor left/right keys or numeric keys.

For copy example 1, increase the value. For copy example 2, decrease the value.


Figure 1-3-12
2. Press the start key. The value is set.

## Caution

If the first side is adjusted, check the second side and if adjustment is required, carry out the adjustment.
Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.


## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.
Item No.

## Description

U072
Adjusting the DP center line

## Description

Adjusts the scanning start position for the DP original.

## Purpose

Make the adjustment if there is a regular error between the centers of the original and the copy image when the DP is used.

## Adjustment

1. Press the start key.
2. Press the system menu key.
3. Place an original on the DP and press the start key to make a test copy.
4. Press the system menu key.
5. Select the item to be adjusted.I

| Display | Description | Setting <br> range | Initial <br> setting | Change in <br> value per step |
| :--- | :--- | :--- | :--- | :--- |
| Front | DP center line (first side) | -80 to 80 | 0 | 0.119 mm |
| Back | DP center line (second side) | -80 to 80 | 0 | 0.119 mm |

6. Change the setting value using the cursor left/right keys or numeric keys.
For copy example 1, increase the value. For copy example 2, decrease the value.


Figure 1-3-13
7. Press the start key. The value is set.

## Caution

If the first side is adjusted, check the second side and if adjustment is required, carry out the adjustment.
Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.


## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.

| Item No. | Description |  |  |
| :---: | :---: | :---: | :---: |
| U089 | Outputting a MIP-PG pattern <br> Description <br> Selects and outputs the MIP-PG pattern created in the machine. <br> Purpose <br> To check copier status other than scanner when adjusting image printing, using MIP-PG pattern output (with-out scanning). <br> Method <br> 1. Press the start key. <br> 2. Select the MIP-PG pattern to be output and press the start key. |  |  |
|  | Display | PG pattern to be output | Purpose |
|  | Gray Scale |  | To check the laser scanner unit engine output characteristics |
|  | Mono1 <br> (Output density: 0) |  | To check the drum quality |
|  | Mono4 <br> (Output density: 70) |  | To check the drum quality |
|  | 256-Level <br> 3. Press the system me <br> 4. Press the start key. A <br> Completion <br> Press the stop key. The s | u key. <br> MIP-PG pattern is output. <br> reen for selecting a mainten | To check resolution reproducibility in printing <br> nance item No. is displayed. |


| Item No. | Description |
| :---: | :--- |
| U099 | Adjusting original size detection <br> Description <br> Checks the operation of the original size sensor and sets the sensing threshold value. <br> Purpose <br> To adjust the sensitiveness of the sensor and size judgement time if the original size sensor mal- <br> functions frequently due to incident light or the like. <br> Method <br> 1. Press the start key. <br> 2. Select the item. The screen for executing each item is displayed. |
| Display Data1  <br>  B/W Level1 <br> Data2 Displaying original size sensor transmission data <br> B/W LEVEL setting original size sensor threshold value <br> Setting original size judgment time <br> Displaying original size sensor transmission data <br> (when DP is installed) |  |

## Method: [Data1/Data2]

1. Place the original and close the original cover or DP. The detection sensor transmission data is displayed.

| Display | Description |
| :--- | :--- |
| Original Area (dot) | Detected original width size (dot) |
| Original Area (mm) | Detected original width size (mm) |
| Size SW L | Displays the original size sensor (OSS) ON/OFF |

## Setting: [B/W Level1]

1. Select an item to be set.
2. Change the setting value using the cursor left/right keys or numeric keys.l

| Display | Description | Setting <br> range | Initial <br> setting |  |
| :--- | :--- | :--- | :--- | :--- |
| Original 1 | Original threshold value | 0 to 255 | 40 | $50^{*}$ |
| Original 2 | Original threshold value | 0 to 255 | 30 | $50^{*}$ |
| Original 2 | Original threshold value | 0 to 255 | 20 | $50^{*}$ |
| Light Source | Light source threshold value | 0 to 255 | 19 | $49^{*}$ |

*: When DP is installed.
Note: A smaller value increases the sensor sensitivity, and a larger value decreases it.
3. Press the start key. The value is set.

## Completion

Press the stop key. The screen for maintenance item No. is displayed.


| Item No. |  | Description |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U100 | Setting: [Idc Bias] <br> 1. Select an item to be set. <br> 2. Change the setting value using the cursor left/right keys or numeric keys. |  |  |  |
|  | Display | Description | Setting range | Initial setting |
|  | Full <br> Half <br> Adj Freq | Idc bias regulations value at the full speed (Only the display) <br> Idc bias regulations value at the half speed (Only the display) <br> Setting value of bias frequency | $0 ? 255$ $0 ? 255$ $1000 ? 4000$ | $1800$ |
|  | 3. Press the start key. The value is set. <br> Setting: [Set Low Temp] <br> 1. Select an item to be set. |  |  |  |
|  | Display | Description |  |  |
|  | On <br> Off | Setting of main charger :On (At the low temperature) <br> Setting of main charger :Off (At the low temperature) |  |  |
|  | 2. Press the start key. The value is set. <br> Completion <br> Press the stop key when main charger output stops. The screen for selecting a maintenance item No. is displayed. |  |  |  |


| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U101 | Setting the voltage for the primary transfer <br> Description <br> Sets the control voltage for the primary transfer. <br> Purpose <br> To change the setting when any density problems, such as too dark or light, occur. <br> Setting <br> 1. Press the start key. <br> 2. Select the item to be set. <br> 3. Change the setting value using the cursor left/right keys or numeric keys. |  |  |  |
|  | Display | Description | Setting range | Initial setting |
|  | On Timing Off Timing Pre On Timing Pre Bias <br> Rev Bias <br> Bias(L) <br> Bias(M) <br> Bias(S) <br> Bias Half(L) <br> Bias Half(M) <br> Bias Half(S) | Transfer bias ON timing <br> Transfer bias OFF timing <br> Transfer bias Pre ON timing <br> Pre Transfer bias <br> Rev Transfer bias <br> Transfer bias for large sizes <br> Transfer bias for medium sizes <br> Transfer bias for small sizes <br> Half Transfer bias for large sizes <br> Half Transfer bias for medium sizes <br> Half Transfer bias for small sizes | -1000 to 1000 <br> -1000 to 1000 <br> -1000 to 1000 <br> 0 to 2000 <br> 0 to 2000 <br> 0 to 2000 <br> 0 to 2000 <br> 0 to 2000 <br> 0 to 2000 <br> 0 to 2000 <br> 0 to 2000 | 0 0 0 0 190 650 900 1100 450 650 750 |
|  | Increasing the setting makes the transfer voltage higher, and decreasing it makes the voltage lower. <br> large sizes:(more than 220 mm wide), <br> medium sizes (more than 170 to under 220 mm wide),small sizes: (under 170 mm wide) <br> 4. Press the start key. The value is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |  |  |  |




| Item No. | Description |
| :---: | :---: |
| U127 | Checking/clearing the transfer count <br> Description <br> Displays and clears the counts of the transfer counter. <br> Purpose <br> To check the count after replacement of the transfer roller. Also to clear the counts after replacing transfer roller. <br> Method <br> 1. Press the start key. The current counts of the transfer counter is displayed. <br> Clearing <br> 1. Select [Clear]. <br> 2. Press the start key. The counter value is cleared. <br> Setting <br> 1. Change the counter value using the cursor left/right keys or numeric keys. <br> 2. Press the start key. The counter value is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U139 | Displaying the temperature and humidity outside the machine <br> Description <br> Displays the detected temperature and humidity outside the machine. <br> Purpose <br> To check the temperature and humidity outside the machine. <br> Method <br> 1. Press the start key. The detected temperature and humidity are displayed. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |



| Item No. | Description |
| :---: | :---: |
| U147 | Setting for toner applying operation <br> Description <br> Sets the mode for removing charged toner in the developer unit (T7 control: Toner applying operation). <br> Purpose <br> Changing settings are not required. However, when the documents with lower print density (e.g. less than $2 \%$ ) should customarily printed in a great volume, mode must be changed. <br> If the charged toner stays inside the developer unit, density decreases. <br> Setting <br> 1. Press the start key <br> 2. Select the item to be set. <br> *: Initial setting; Mode1 <br> 3. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U150 | Checking sensors for toner <br> Description <br> Displays the on-off status of each sensor or switch related to toner. <br> Purpose <br> To check if the sensors and switches operate correctly. <br> Method <br> 1. Press the start key. <br> 2. Turn each switch or sensor on and off manually to check the status. <br> When a switch or sensor is detected to be in the ON position, the display for that switch or sensor will be "1" <br> 3. To stop motor driving, press the stop key. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |



| Item No. | Description |
| :---: | :---: |
| U199 | Displaying fuser heater temperature <br> Description <br> Displays the detected fuser temperature. <br> Purpose <br> To check the fuser temperature. <br> Method <br> 1. Press the start key. The fuser temperature is displayed. <br> Completion <br> Press the stop key. The screen for selecting a maintenance mode No. is displayed. |
| U201 | Initializing the touch panel <br> Description <br> Automatically correct the positions of the X - and Y -axes of the touch panel. <br> Purpose <br> To automatically correct the display positions on the touch panel after it is replaced. <br> Method <br> 1. Press the start key. <br> 2. Select the [Initialize] or [Check]. <br> Method: [Initialize] <br> 1. Press the start key. <br> 2. Press the center of the + keys. Be sure to press three + keys displayed in order. <br> The touch panel is adjusted automatically. <br> 3. Press the indicated three + keys, and then check the display. <br> 4. Press the stop key. The screen for selecting a maintenance item No. is displayed. <br> Method: [Check] <br> 1. Press the start key. <br> 2. Press the indicated three + keys, and then check the display. <br> When adjusting the display, press [Initialize] to execute the adjustment automatically. <br> 3. Press the stop key. The screen for selecting a maintenance item No. is displayed. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |



| Item No. | Description |
| :---: | :---: |
| U207 | Checking the operation panel keys <br> Description <br> Checks operation of the operation panel keys. <br> Purpose <br> To check operation of all the keys and LEDs on the operation panel. <br> Method <br> 1. Press the start key. The screen for executing is displayed. <br> 2. [Count0] is displayed and the leftmost LED on the operation panel lights. <br> 3. As the keys lined up in the same line as the lit indicator are pressed in the order from the top to the bottom, the figure shown on the touch panel increases in increments of 1. When all the keys in that line are pressed and if there are any LEDs corresponding to the keys in the line on the immediate right, the top LED in that line will light. <br> 4. When all the keys on the operation panel have been pressed, all the LEDs light for up to 10 seconds. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U222 | Setting the IC card type <br> Description <br> Sets the type of IC card. <br> Purpose <br> To change the type of IC card. <br> Setting <br> 1. Press the start key. <br> 2. Select the item. <br> *: Initial setting: Other <br> 3. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :---: |
| U243 | Checking the operation of the DP motors <br> Description <br> Turns the motors or clutches in the DP on. <br> Purpose <br> To check the operation of the DP motors and clutches. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be operated. <br> 3. Press the start key. The operation starts. |
|  | Display Description |
|  | Conv Motor DP paper feed motor (DPPFM) is turned on <br> Rev Motor DP switchback motor (DPSBM) is turned on <br> Feed Clutch DP paper feed clutch (DPPFCL) is turned on <br> Regist Clutch DP registration clutch (DPRCL) is turned on |
|  | 4. To turn each motor off, press the stop key. <br> Completion <br> Press the stop key when operation stops. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :---: |
| U244 | Checking the DP switches <br> Description <br> Displays the status of the respective switches in the DP. <br> Purpose <br> To check if respective switches in the DP operate correctly. <br> Method <br> 1. Press the start key. <br> 2. Turn each switch or sensor on and off manually to check the status. When a switch or sensor is detected to be in the ON position, the display for that switch or sensor will be " 1 ". <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :---: |
| U250 | Checking/clearing the maintenance cycle <br> Description <br> Changes preset values for maintenance cycle and automatic grayscale adjustment. <br> Purpose <br> Provides changing the time when the message to acknowledge to conduct maintenance and automatic grayscale adjustment is periodically displayed. <br> Setting <br> 1. Press the start key. <br> 2. Select the item to be changed. <br> 3. Change the setting using the cursor left/right keys or numeric keys. <br> 4. Press the start key. The setting value is set. <br> Clearing <br> 1. Select [Clear]. <br> 2. Press the start key. The setting value is cleared. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U251 | Checking/clearing the maintenance counter <br> Description <br> Displays and clears or changes the maintenance count and automatic grayscale adjustment count. <br> Purpose <br> To verify the maintenance counter count and automatic grayscale count. Also to clear the count during maintenance service. <br> Setting <br> 1. Press the start key. <br> 2. Select the item to be changed. <br> 3. Change the setting using the cursor left/right keys or numeric keys. <br> 4. Press the start key. The setting value is set. <br> Clearing <br> 1. Select [Clear]. <br> 2. Press the start key. The setting value is cleared. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |



| Item No. | Description |
| :---: | :---: |
| U253 | Switching between double and single counts <br> Description <br> Switches the count system for the total counter and other counters. <br> Purpose <br> Used to select, according to the preference of the user (copy service provider), if folio size paper is to be counted as one sheet (single count) or two sheets (double count). <br> Setting <br> 1. Press the start key. <br> 2. Select $[B / W]$. <br> 3. Select the count system. <br> * : Initial setting: DBL (A3/Ledger) <br> 4. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U260 | Selecting the timing for copy counting <br> Description <br> Changes the copy count timing for the total counter and other counters. <br> Purpose <br> To be set according to user request. <br> Setting <br> 1. Press the start key. <br> 2. Select the copy count timing. <br> * : Initial setting: Eject <br> 3. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |



| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U326 | Setting the black line cleaning indication <br> Description <br> Sets whether to display the cleaning guidance when detecting the black line. <br> Purpose <br> Displays the cleaning guidance in order to make the call for service with the black line decrease by the rubbish on the contact glass when scanning from the DP. <br> Method <br> 1. Press the start key. <br> 2. Select the item to set. The screen for setting each item is displayed. |  |  |  |
|  | Display <br> Black Line Mode <br> Black Line Cnt | Black line cleaning guidance ON/OFF setting <br> Setting counts of the cleaning guidance indication |  |  |
|  | Setting: [Black Line Mode] 1. Select [On] or [Off]. |  |  |  |
|  | Display | Description |  |  |
|  | On <br> Off | Displays the cleaning guidance <br> Not to display the cleaning guidance |  |  |
|  | * : Initial setting: On <br> 2. Press the start key. The setting is set. <br> Setting: [Black Line Cnt] <br> 1. Select [Cnt]. <br> 2. Change the setting value using the cursor left/right keys or numeric keys. |  |  |  |
|  | Display | Description | Setting range | Initial setting |
|  | Cnt | Setting counts of the cleaning guidance indication ( x 1000 sheets) | 0 to 255 | $8$ |
|  | *: When setting is 0 , the black line cleaning indication is displayed only if the black line is detected. <br> 3. Press the start key. The value is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |  |  |  |


| Item No. | Description |
| :---: | :---: |
| U332 | Setting the size conversion factor <br> Description <br> Sets the coefficient of nonstandard sizes in relation to the A4/Letter size. The coefficient set here is used to convert the black ratio in relation to the A4/Letter size and to display the result in user simulation. <br> Purpose <br> To set the coefficient for converting the black ratio for nonstandard sizes in relation to the A4/Letter size. <br> Setting <br> 1. Press the start key. <br> 2. Select [Rate]. <br> 3. Change the setting using the cursor left/right keys or numeric keys. <br> 4. Press the start key. The value is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U341 | Specific paper feed location setting for printing function <br> Description <br> Sets a paper feed location specified for printer output. <br> Purpose <br> To use a paper feed location only for printer output. <br> A paper feed location specified for printer output cannot be used for copy output. <br> Method <br> 1. Press the start key. <br> 2. Select the paper feed location for the printer. <br> 3. Select [On] or [Off] using the cursor left/right keys. <br> * : When an optional paper feed device is not installed, the corresponding count is not displayed. <br> 4. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :---: |
| U343 | Switching between duplex/simplex copy mode <br> Description <br> Switches the initial setting between duplex and simplex copy. <br> Purpose <br> To be set according to frequency of use: set to the more frequently used mode. <br> Setting <br> 1. Press the start key. <br> 2. Select [On] or [Off]. <br> * : Initial setting: Off <br> 3. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U345 | Setting the value for maintenance due indication <br> Description <br> Sets when to display a message notifying that the time for maintenance is about to be reached, by setting the number of copies that can be made before the current maintenance cycle ends. When the difference between the number of copies of the maintenance cycle and that of the maintenance count reaches the set value, the message is displayed. <br> Purpose <br> To change the time for maintenance due indication. <br> Setting <br> 1. Press the start key. <br> 2. Select [Cnt]. <br> 3. Change the setting using the cursor left/right keys or numeric keys. <br> 4. Press the start key. The value is set. <br> Clearing <br> 1. Select [Clear]. <br> 2. Press the start key. The value is cleared. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| U402 | Adjusting margins of image printing <br> Description <br> Adjusts margins for image printing. <br> Purpose <br> Make the adjustment if margins are incorrect. <br> Adjustment <br> 1. Press the start key. <br> 2. Press the system menu key. <br> 3. Press the start key to output a test pattern. <br> 4. Press the system menu key. <br> 5. Select the item to be adjusted. |  |  |  |  |
|  | Display | Description | Setting range | Initial setting | Change in value per step |
|  | Lead <br> A Margin <br> C Margin <br> Trail | Printer leading edge margin <br> Printer left margin <br> Printer right margin <br> Printer trailing edge margin | 0 to 10.0 <br> 0 to 10.0 <br> 0 to 10.0 <br> 0 to 10.0 | $\begin{aligned} & 3.0 \\ & 2.5 \\ & 2.5 \\ & 5.0 \end{aligned}$ | 0.1 mm <br> 0.1 mm <br> 0.1 mm <br> 0.1 mm |

6. Change the setting value using the cursor left/right keys or numeric keys. Increasing the value makes the margin wider, and decreasing it makes the margin narrower.


Figure 1-3-14
7. Press the start key. The value is set.

## Caution

Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.


## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.

| Item No. |
| :---: |

## Description

U403

## Adjusting margins for scanning an original on the contact glass

## Description

Adjusts margins for scanning the original on the contact glass.

## Purpose

Make the adjustment if margins are incorrect.

## Adjustment

1. Press the start key.
2. Press the system menu key.
3. Place an original and press the start key to make a test copy.
4. Press the system menu key.
5. Select the item to be adjusted.

| Display | Description | Setting <br> range | Initial <br> setting | Change in <br> value per step |
| :--- | :--- | :--- | :--- | :--- |
| A Margin | Scanner left margin | 0 to 10.0 | 2.0 | 0.5 mm |
| B Margin | Scanner leading edge margin | 0 to 10.0 | 2.0 | 0.5 mm |
| C Margin | Scanner right margin | 0 to 10.0 | 2.0 | 0.5 mm |
| D Margin | Scanner trailing edge margin | 0 to 10.0 | 2.0 | 0.5 mm |

6. Change the setting value using the cursor left/right keys or numeric keys.

Increasing the value makes the margin wider, and decreasing it makes the margin narrower.


Figure 1-3-15
7. Press the start key. The value is set.

## Caution

Check the copy image after the adjustment. If the image is still incorrect, perform the following adjustments in maintenance mode.


## Completion

Press the stop key. The indication for selecting a maintenance item No. appears.

| Item No. | Description |
| :---: | :--- |
| U404 | Adjusting margins for scanning an original from the DP |
|  | Description <br> Adjusts margins for scanning the original from the DP. <br> Purpose <br> Make the adjustment if margins are incorrect. <br> Caution <br> Before making this adjustment, ensure that the following adjustments have been made in mainte- <br> nance mode | nance mode



## Adjustment

1. Press the start key.
2. Press the system menu key.
3. Place an original on the DP and press the start key to make a test copy.
4. Press the system menu key.
5. Select the item to be adjusted.

| Display | Description | Setting <br> range | Initial <br> setting | Change in <br> value per step |
| :--- | :--- | :--- | :--- | :--- |
| A Margin | DP left margin | 0 to 10.0 | 3.0 | 0.5 mm |
| B Margin | DP leading edge margin | 0 to 10.0 | 2.5 | 0.5 mm |
| C Margin | DP right margin | 0 to 10.0 | 3.0 | 0.5 mm |
| D Margin | DP trailing edge margin | 0 to 10.0 | 4.0 | 0.5 mm |

6. Change the setting value using the cursor left/right keys or numeric keys.

Increasing the value makes the margin wider, and decreasing it makes the margin narrower.


Figure 1-3-16
7. Press the start key. The value is set.

## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.
Item No.

## Description

U407 Adjusting the leading edge registration for memory image printing

## Description

Adjusts the leading edge registration during memory copying.

## Purpose

Make the following adjustment if there is a regular error between the leading edge of the copy image on the front face and that on the reverse face during duplex switchback copying.

## Caution

Before making this adjustment, ensure that the following adjustments have been made in maintenance mode


## Adjustment

1. Press the start key.
2. Press the system menu key.
3. Place an original and press the start key to make a test copy.
4. Press the system menu key.
5. Select [Adj Data].

| Display | Description | Setting <br> range | Initial <br> setting | Change in <br> value per step |
| :--- | :--- | ---: | :--- | :--- |
| Adj Data | Leading edge registration for <br> memory image printing | -47 to 47 | 0 | 0.1 mm |

6. Change the setting value using the cursor left/right keys or numeric keys.
For copy example 1, decrease the value. For copy example 2, increase the value.


Original


Copy example 1


Copy

Figure 1-3-17
7. Press the start key. The value is set.

## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.


| Item No. |  | Description |
| :---: | :---: | :---: |
| U411 | Method: DP <br> 1. Select [DP]. <br> 2. Set a specified original (P/N: 302AC68243) in the DP. <br> * : When running this test chart, you first must clean the feed rollers with alcohol and ensure the DP width guides are correctly positioned against the original. <br> 3. Press the start key. Auto adjustment starts. <br> * : When automatic adjustment has normally completed, [OK] is displayed. If a problem occurs during auto adjustment, [NG XX] (XX is replaced by an error code) is displayed and operation stops. Should this happen, determine the details of the problem and repeat the procedure from the beginning. <br> Error Codes |  |
|  | Codes | Description |
|  | 00 | Automatic adjustment success |
|  | 01 | Black band detection error (scanner leading edge registration) |
|  | 03 | Black band detection error (scanner main scanning direction magnification) |
|  | 04 | Black band is not detected (scanner leading edge registration) |
|  | 05 | Black band is not detected (scanner center line) |
|  | 06 | Black band is not detected (scanner main scanning direction magnification) |
|  | 07 | Black band is not detected (scanner auxiliary scanning direction magnification) |
|  | 08 | Black band is not detected (DP main scanning direction magnification far end) |
|  | 09 | Black band is not detected (DP main scanning direction magnification near end) |
|  | 0a | Black band is not detected (DP auxiliary scanning direction magnification leading edge) |
|  | Ob | Black band is not detected (DP auxiliary scanning direction magnification leading edge original check) |
|  | Oc | Black band is not detected (DP auxiliary scanning direction trailing edge) |
|  | Od | White band is not detected (DP auxiliary scanning direction trailing edge 2) |
|  | 0 e | DMA time out |
|  | Of | Auxiliary scanning direction magnification error |
|  | 10 | Auxiliary scanning direction leading edge detection error |
|  | 11 | Auxiliary scanning direction trailing edge detection error |
|  | 12 | Auxiliary scanning direction skew 1.5 error |
|  | 13 | Maintenance request error |
|  | 14 | Main scanning direction center line error |
|  | 15 | Main scanning direction skew 1.5 error |
|  | 16 | Main scanning direction magnification error |
|  | 17 | Service call error |
|  | 18 | DP paper misfeed error |



| Item No. | Description |
| :---: | :---: |
| U425 | Setting the target <br> Description <br> Enters the lab values that is indicated on the back of the chart (P/N: 7505000005) used for adjustment. <br> Purpose <br> Performs data input in order to correct for differences in originals during automatic adjustment. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be set. |
|  | 3. Select the item to be set. |
|  | 4. Enters the value that is indicated on the back of the chart using the cursor left/right keys or numeric keys. <br> 5. Press the start key. The value is set. |



Figure 1-3-18

## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.

| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U432 | Setting the center offset for the exposure <br> Description <br> Sets the offset value for the setting data for exposure centering adjustment under user simulation. For example, if the value for the exposure centering adjustment is set to -1 and you change the offset value to +2 , image processing is performed as though the exposure centering adjustment setting is +1 . <br> Purpose <br> Set according to the preference of the user. <br> Setting <br> 1. Press the start key. <br> 2. Select $[B / W]$. <br> 3. Select image quality mode to be set. <br> 4. Change the setting value using the cursor left/right keys or numeric keys. |  |  |  |
|  | Display | Description | Setting range | Initial setting |
|  | Text + Photo <br> Photo <br> Text | Offset value for the text \& photo mode Offset value for the photo mode Offset value for the text mode | $\begin{aligned} & \hline-3 \text { to } 3 \\ & -3 \text { to } 3 \\ & -3 \text { to } 3 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ |
|  | * : If the settin images is If the sett images is <br> 5. Press the sta <br> Supplement While this mainte copying mode (w <br> Completion Press the stop key | ue is increased to increase the exposur ue is decreased to decrease the exposur The value is set. <br> item is being executed, copying from activated by pressing the system men <br> screen for selecting a maintenance ite | centering ad <br> centering <br> original is a key). <br> No. is displ | stment value, ustment value, <br> ilable in interrupt <br> ed. |


| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U470 | Setting the JPEG c <br> Description <br> Sets the compressio <br> Purpose <br> To change the setting order to soften the co change the level of pression and thereb lower the image proc <br> Method <br> 1. Press the start k <br> 2. Select the item to | pression ratio <br> ratio for JPEG images in each image qua <br> in accordance with the image that the us seness of the image when making copies mpression by raising the value. Lowering ower the image quality; Raising the value sing speed. <br> be set. | mode. <br> is copying. at over 200 e value will ill increase | example, in magnification, rease the comage quality but |
|  |  Display <br> Copy  <br> Send  <br> System  |  Descrip <br> Compression ratio for copying  <br> Compression ratio for sending  <br> Compression ratio for temporary  | n <br> orage in sys | m |
|  | Setting: [Copy] <br> 1. Select the item to be set. |  |  |  |
|  | Display | Description |  |  |
|  | Photo <br> Text | Compression ratio in the photo mode Compression ratio in the text mode |  |  |
|  | 2. Select the item to be set. <br> 3. Change the setting value using the cursor left/right keys or numeric keys. |  |  |  |
|  | Display | Description | Setting range | Initial setting |
|  | Y <br> CbCr | Compression ratio of brightness Compression ratio of color differential | $\begin{aligned} & 1 \text { to } 100 \\ & 1 \text { to } 100 \end{aligned}$ | $\begin{aligned} & 90 \\ & 90 \end{aligned}$ |
|  | 4. Press the start key. The value is set. <br> Setting: [Send] <br> 1. Select the item to be set. |  |  |  |
|  | Display | Description |  |  |
|  | Photo <br> Text <br> HC-PDF | Compression ratio in the photo mode <br> Compression ratio in the text mode <br> Compression ratio of high compression PDF |  |  |



| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U600 | Initializing all data <br> Description <br> Initializes software switches and all data in the backup data on the FAX control PWB, according to the destination and OEM. <br> Executes the check of the file system, when abnormality of the file system is detected, initializes the file system, communication past record and register setting contents. <br> Purpose <br> To initialize the FAX control PWB. <br> Method <br> 1. Press the start key. <br> 2. Select [Country Code] and enter a destination code using the numeric keys. <br> Refer to the destination code list on following for the destination code. <br> OEM code is no operation necessary. <br> 3. Select [Execute]. <br> 4. Press the start key. Data initialization starts. To cancel data initialization, press the stop key. <br> 5. After data initialization, ROM version are displayed. <br> A ROM version displays three kinds, application, boot, and IPL. <br> Destination code list |  |  |  |
|  | Code | Destination | Code | Destination |
|  | 000 <br> 009 <br> 038 <br> 080 <br> 084 <br> 088 <br> 097 <br> 108 <br> 126 <br> 136 <br> 137 <br> 152 <br> 156 <br> 159 <br> 169 <br> 181 <br> 242 <br> 243 | Japan <br> Australia <br> China <br> Hong Kong <br> Indonesia <br> Israel <br> Korea <br> Malaysia <br> New Zealand <br> Peru <br> Philippines <br> Middle East <br> Singapore <br> South Africa <br> Thailand <br> U.S.A. <br> South America <br> Saudi Arabia | 253 | CTR21 (European nations) <br> Italy <br> Germany <br> Spain <br> U.K. <br> Netherlands <br> Sweden <br> France <br> Austria <br> Switzerland <br> Belgium <br> Denmark <br> Finland <br> Portugal <br> Ireland <br> Norway <br> Taiwan |


| Item No. | Description |
| :---: | :---: |
| U601 | Initializing permanent data <br> Description <br> Initializes software switches on the FAX control PWB according to the destination and OEM. <br> Purpose <br> To initialize the FAX control PWB without changing user registration data. <br> Method <br> 1. Press the start key. <br> 2. Select [Country Code] and enter a destination code using the numeric keys. Refer to the destination code list on page 1-3-72 for the destination code. <br> OEM code is no operation necessary. <br> 3. Select [Execute]. <br> 4. Press the start key. Data initialization starts. To cancel data initialization, press the back key. <br> 5. After data initialization, ROM version are displayed. <br> A ROM version displays three kinds, application, boot, and IPL. |
| U603 | Setting user data 1 <br> Description <br> Makes user settings to enable the use of the machine as a fax. <br> Purpose <br> To be executed as required. <br> Setting <br> 1. Press the start key. <br> 2. Select [Line Type]. <br> 3. Select the setting. <br> *: Initial setting: DTMF <br> 4. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :---: |
| U604 | Setting user data 2 <br> Description <br> Makes user settings to enable the use of the machine as a fax. <br> Purpose <br> Use this if the user wishes to adjust the number of rings that occur before the unit switches into fax receiving mode when fax/telephone auto-select is enabled. <br> Method <br> 1. Press the start key. <br> 2. Select $[\operatorname{Rings}(F / T)$ \#]. <br> 3. Change the setting using the cursor left/right keys or numeric keys. <br> * : If you set this to 0 , the unit will start fax reception without any ringing. <br> 4. Press the start key. The value is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U605 | Clearing data <br> Description <br> Initializes data related to the fax transmission such as transmission history. <br> Purpose <br> To clear the transmission history. <br> Method <br> 1. Press the start key. <br> 2. Select [Comm REC]. <br> 3. Press the start key. Initialization processing starts. When processing is finished, [Completed] is displayed. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :--- | :--- |
| U610 | Setting system 1 <br> Description <br> Makes settings for fax reception regarding the sizes of the fax paper and received images and <br> automatic printing of the protocol list. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be set. |
| Display Description <br> Cut Line:A4 Cut Line:100\% <br> (A4R/LetterR) in the auto reduction mode. <br> Sets the number of lines to be ignored when receiving a fax at <br> 100\% magnification. <br> Cets the number of lines to be ignored when receiving a fax in <br> the auto reduction mode.  |  |

## Setting the number of lines to be ignored when receiving a fax (A4R/LetterR) in the auto reduction mode

Sets the maximum number of lines to be ignored if the received data volume exceeds the recording capacity when the data is recorded in the auto reduction mode onto A4R or LetterR paper under the conditions below.
If the number of excess lines is below the setting, those lines are ignored. If over the setting, the entire data on a page is further reduced so that it can be recorded on the same page.

1. Change the setting using the cursor left/right keys or numeric keys.

| Description | Setting <br> range | Initial <br> setting | Change in <br> value per step |
| :--- | :--- | :--- | :--- |
| Number of lines to be ignored when <br> receiving a fax (A4R, letter) in the auto <br> reduction mode | 0 to 22 | 0 | 16 lines |

*: Increase the setting if a page received in the reduction mode is over-reduced and too much trailing edge margin is left. Decrease it if the received image does not include all transmitted data.
2. Press the start key. The value is set.

Setting the number of lines to be ignored when receiving a fax at $\mathbf{1 0 0 \%}$ magnification
Sets the maximum number of lines to be ignored if the received data volume exceeds the recording capacity when recording the data at $100 \%$ magnification. If the number of excess lines is below the setting, those lines are ignored. If over the setting, they are recorded on the next page.

1. Change the setting using the cursor left/right keys or numeric keys.

| Description | Setting <br> range | Initial <br> setting | Change in <br> value per step |
| :--- | :--- | :--- | :--- |
| Number of lines to be ignored when <br> receiving at $100 \%$ | 0 to 22 | 3 | 16 lines |

*: Increase the setting if a blank second page is output, and decrease it if the received image does not include the entire transmitted data.
2. Press the start key. The value is set.

| Item No. |  | scription |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U610 | Setting the number of lines to be ignored when receiving a fax in the auto reduction mode Sets the maximum number of lines to be ignored if the received data volume exceeds the recording capacity when the data is recorded in the auto reduction mode. If the number of excess lines is below the setting, those lines are ignored. If over the setting, the entire data on a page is further reduced so that it can be recorded on the same page. <br> 1. Change the setting using the cursor left/right keys or numeric keys. |  |  |  |
|  | Description | Setting range | Initial setting | Change in value per step |
|  | Number of lines to be ignored when receiving in the auto reduction mode | 0 to 22 | 0 | 16 lines |
|  | *: Increase the setting if a page received in the reduction mode is over-reduced and too much trailing edge margin is left. Decrease it if the received image does not include all transmitted data. <br> 2. Press the start key. The value is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |  |  |  |


| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U611 | Setting system 2 <br> Description <br> Sets the number of adjustment lines for automatic reduction. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be set. |  |  |  |
|  | Display $\quad$ Description | Description |  |  |
|  | Adj Lines Sets the num <br> Adj Lines(A4) <br> Sets the num <br> when A4 paper <br> Adines(LT) Sets the num <br> when letter siz | Sets the number of adjustment lines for automatic reduction. <br> Sets the number of adjustment lines for automatic reduction when A4 paper is set. <br> Sets the number of adjustment lines for automatic reduction when letter size paper is set. |  |  |
|  | Setting the number of adjustment lines for automatic reduction Sets the number of adjustment lines for automatic reduction. <br> 1. Change the setting using the cursor left/right keys or numeric keys. |  |  |  |
|  | Description | Setting range | Initial setting | Change in value per step |
|  | Number of adjustment lines for automatic reduction | 0 to 22 | 7 | 16 lines |
|  | 2. Press the start key. The value is set. <br> Setting the number of adjustment lines for automatic reduction when A4 paper is set Sets the number of adjustment lines for automatic reduction when A4 paper is set. <br> 1. Change the setting using the cursor left/right keys or numeric keys. |  |  |  |
|  | Description | Setting range | Initial setting | Change in value per step |
|  | Number of adjustment lines for automatic reduction when A4 paper is set | 0 to 22 | 22 | 16 lines |
|  | 2. Press the start key. The value is set. <br> Setting the number of adjustment lines for automatic reduction when letter size paper is set <br> Sets the number of adjustment lines for automatic reduction when letter size paper is set. <br> 1. Change the setting using the cursor left/right keys or numeric keys. |  |  |  |
|  | Description | Setting range | Initial setting | Change in value per step |
|  | Number of adjustment lines for automatic reduction when letter size paper is set | 0 to 26 | 26 | 16 lines |
|  | 2. Press the start key. The value is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |  |  |  |



| Item No. | Description |
| :---: | :---: |
| U615 | Setting system 6 <br> Description <br> Makes settings for fax reception regarding the sizes of the fax paper and received images. <br> Purpose <br> To set the maximum recording width and processing method when 11 " width fax paper is loaded on an inch specification machine. <br> Setting <br> 1. Press the start key. <br> 2. Select [RX Width For 11"]. <br> 3. Select the setting. <br> * : Initial setting: Ledger <br> 4. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U620 | Setting the remote switching mode <br> Description <br> Sets the signal detection method for remote switching. Be sure to change the setting according to the type of telephone connected to the machine. <br> Setting <br> 1. Press the start key. <br> 2. Select [Remort Mode]. <br> 3. Select the mode. <br> * : Initial setting: One <br> 4. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |



| Item No. | Description |
| :---: | :---: |
| U630 | Setting communication control 1 <br> Description <br> Makes settings for fax transmission regarding the communication. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be set. |
|  | Display ${ }^{\text {a }}$ Description |
|  | TX Speed Sets the communication starting speed. <br> RX Speed Sets the reception speed. <br> TX Echo Sets the waiting period to prevent echo problems at the <br> sender. <br> Rets the waiting period to prevent echo problems at the <br> receiver. |
|  | Setting the communication starting speed <br> Sets the initial communication speed when starting transmission. When the destination unit has V. 34 capability, V. 34 is selected for transmission, regardless of this setting. <br> 1. Select the setting. |
|  | Display ${ }^{\text {a }}$ Description |
|  | $14400 \mathrm{bps} / \mathrm{V} 17$ V.17, 14400 bps <br> $9600 \mathrm{bps} / \mathrm{V} 29$ V.17, 9600 bps <br> $4800 \mathrm{bps} / \mathrm{V} 27 \mathrm{ter}$ V.27ter, 4800 bps <br> $2400 \mathrm{bps} / \mathrm{V} 27$ ter V.27ter, 2400 bps |
|  | * : Initial setting: 14400bps/V17 <br> 2. Press the start key. The setting is set. <br> Setting the reception speed <br> Sets the reception speed that the sender is informed of using the DIS or NSF signal. When the destination unit has V .34 capability, V .34 is selected, regardless of the setting. <br> 1. Select the setting. |
|  | Display ${ }^{\text {a }}$ Description |
|  | 14400bps V.17, V.33, V.29, V.27ter <br> 9600bps V.29, V.27ter <br> 4800bps V.27ter <br> 2400bps V.27ter (fallback only) |
|  | *: Initial setting: 14400bps <br> 2. Press the start key. The setting is set. |


| Item No. | Description |
| :---: | :---: |
| U630 | Setting the waiting period to prevent echo problems at the sender Sets the period before a DCS signal is sent after a DIS signal is received. Used when problems occur due to echoes at the sender. <br> 1. Select the setting. |
|  | Display ${ }^{\text {a }}$ Description |
|  | 500 Sends a DCS 500 ms after receiving a DIS. <br> 300 Sends a DCS 300 ms after receiving a DIS. |
|  | * : Initial setting: 300 <br> 2. Press the start key. The setting is set. <br> Setting the waiting period to prevent echo problems at the receiver <br> Sets the period before an NSF, CSI or DIS signal is sent after a CED signal is received. Used when problems occur due to echoes at the receiver. <br> 1. Select the setting. |
|  | Display ${ }^{\text {a }}$ Description |
|  | 500 Sends an NSF, CSI or DIS 500 ms after receiving a CED. <br> 75 Sends an NSF, CSI or DIS 75 ms after receiving a CED. |
|  | *: Initial setting: 75 <br> 2. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |
| :---: | :---: |
| U631 | Setting communication control 2 <br> Description <br> Makes settings regarding fax transmission. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be set. |
|  | Display $\quad$ Description |
|  | ECM TX Sets ECM transmission. <br> ECM RX Sets ECM reception. <br> CED Freq Sets the frequency of the CED signal. |
|  | Setting ECM transmission <br> To be set to Off when reduction of transmission costs is of higher priority than image quality. This should not be set to Off when connecting to the IP (Internet Protocol) telephone line. <br> 1. Select the setting. |
|  | Display ${ }^{\text {a }}$ Description |
|  | On ECM transmission is enabled. <br> Off ECM transmission is disabled. |
|  | * : Initial setting: On <br> 2. Press the start key. The setting is set. <br> Setting ECM reception <br> To be set to Off when reduction of transmission costs is of higher priority than image quality. This should not be set to Off when connecting to the IP (Internet Protocol) telephone line. <br> 1. Select the setting. |
|  | Display ${ }^{\text {a }}$ Description |
|  | On ECM reception is enabled. <br> Off ECM reception is disabled. |
|  | * : Initial setting: On <br> 2. Press the start key. The setting is set. <br> Setting the frequency of the CED signal <br> Sets the frequency of the CED signal. Used as one of the measures to improve transmission performance for international communications. <br> 1. Select the setting. |
|  | Display ${ }^{\text {a }}$ Description |
|  | 2100 2100 Hz <br> 1100 1100 Hz |
|  | *: Initial setting: 2100 <br> 2. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |




| Item No. | Description |
| :---: | :---: |
| U633 | Setting the number of times of DIS signal reception <br> Sets the number of times to receive the DIS signal to once or twice. Used as one of the correction measures for transmission errors and other problems. <br> 1. Select the setting. <br> *: Initial setting: Once <br> 2. Press the start key. The setting is set. <br> Setting the reference for RTN signal output <br> Sets the error line rate as the reference for RTN signal output. If transmission errors occur frequently due to the quality of the line, they can be reduced by lowering this setting. <br> 1. Select the setting. <br> *: Initial setting: 15\% <br> 2. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U634 | Setting communication control 5 <br> Description <br> Sets the maximum number of error bytes judged acceptable when receiving a TCF signal. Used as a measure to ease transmission conditions if transmission errors occur. <br> Setting <br> 1. Press the start key. <br> 2. Select [TCF Check]. <br> 3. Change the setting using the cursor left/right keys or numeric keys. <br> 4. Press the start key. The value is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |  |  |
| :---: | :---: | :---: | :---: |
| U640 | Setting communication time 1 <br> Description <br> Sets the detection time when one-shot detection is selit item will be displayed, but the setting made is ineffec Sets the detection time when continuous detection is item will be displayed, but the setting made is ineffec <br> Method <br> 1. Press the start key. <br> 2. Select the item to be set. | dor remote ted for remote s | hing. (This setting tching. (This setting |
|  | Display  <br> Time (One) Sets the one-shot dete <br> Time (Cont) Sets the continuous de | Sets the one-shot detection time for remote switching. <br> Sets the continuous detection time for remote switching. |  |
|  | Setting the one-shot detection time for remote switching 1. Change the setting using the cursor left/right keys. |  |  |
|  | Description | Setting range | Initial setting |
|  | One-shot detection time for remote switching | 0 to 255 | 7 |
|  | 2. Press the start key. The value is set. <br> Setting the continuous detection time for remote switching <br> 1. Change the setting using the cursor leff/right keys. |  |  |
|  |  |  |  |
|  | Description | Setting range | Initial setting |
|  | Continuous detection time for remote switching | 0 to 255 | 80 |
|  | 2. Press the start key. The value is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |  |  |


| Item No. | Description |
| :---: | :---: |
| U641 | Setting communication time 2 <br> Description <br> Sets the time-out time for fax transmission. <br> Purpose <br> To improve transmission performance for international communications mainly. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be set. |
|  | Setting the TO time-out time <br> Sets the time before detecting a CED or DIS signal after a dialing signal is sent. <br> Depending on the quality of the exchange, or when the auto select function is selected at the destination unit, a line can be disconnected. Change the setting to prevent this problem. <br> 1. Change the setting using the cursor left/right keys. <br> 2. Press the start key. The value is set. <br> Setting the T1 time-out time <br> Sets the time before receiving the correct signal after call reception. No change is necessary for this maintenance item. <br> 1. Change the setting using the cursor left/right keys. |
|  | Description Setting range Initial setting <br> T1 time-out time 30 to 90 s 36 |


| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U641 | Setting the T2 time-out time <br> The T2 time-out time decides the following. <br> From CFR signal output to image data reception <br> From image data reception to the next signal reception <br> In ECM, from RNR signal detection to the next signal reception <br> 1. Change the setting using the cursor left/right keys. |  |  |  |
|  | Description | Setting range | Initial setting | Change in value per step |
|  | T2 time-out time | 1 to 255 | 69 | 100 ms |

2. Press the start key. The value is set.

## Setting the Ta time-out time

In the fax/telephone auto select mode, sets the time to continue ringing an operator through the connected telephone after receiving a call as a fax machine (see figure 1-3-19). A fax signal is received within the Ta set time, or the fax mode is selected automatically when the time elapses. In fax/telephone auto select mode, change the setting when fax reception is unsuccessful or a telephone fails to receive a call.

1. Change the setting using the cursor left/right keys.

| Description | Setting range | Initial setting |
| :--- | :--- | :--- |
| Ta time-out time | 1 to 255 | 30 |

2. Press the start key. The value is set.


Figure 1-3-19 Ta/Tb1/Tb2 time-out time

## Setting the Tb1 time-out time

In the fax/telephone auto select mode, sets the time to start sending the ring back tone after receiving a call as a fax machine (see figure 1-3-19). In fax/telephone auto select mode, change the setting when fax reception is unsuccessful or a telephone fails to receive a call.

1. Change the setting using the cursor left/right keys.

| Description | Setting <br> range | Initial <br> setting | Change in value <br> per step |
| :--- | :--- | :--- | :--- |
| Tb1 time-out time | 1 to 255 | 20 | 100 ms |

2. Press the start key. The value is set.

| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U641 | Setting the Tb2 time-out time <br> In the fax/telephone auto select mode, sets the time to start ringing an operator through the con nected telephone after receiving a call as a fax machine (see figure 1-3-19). In the fax/telephone auto select mode, change the setting when fax reception is unsuccessful or a telephone fails to receive a call. <br> 1. Change the setting using the cursor left/right keys. |  |  |  |
|  | Description | Setting range | Initial setting | Change in value per step |
|  | Tb2 time-out time | 1 to 255 | 80 | 100 ms |

2. Press the start key. The value is set.

## Setting the Tc time-out time

In the TAD mode, set the time to check if there are any triggers for shifting to fax reception after a connected telephone receives a call. Only the telephone function is available if shifting is not made within the set Tc time.
In the TAD mode, change the setting when fax reception is unsuccessful or a telephone fails to receive a call.

1. Change the setting using the cursor left/right keys.

| Description | Setting range | Initial setting |
| :--- | :--- | :--- |
| Tc time-out time | 1 to 255 | 60 |

2. Press the start key. The value is set.

## Setting the Td time-out time

Sets the length of the time required to determine silent status (fax), one of the triggers for Tc time check. In the TAD mode, change the setting when fax reception is unsuccessful or a telephone fails to receive a call. Be sure not to set it too short; otherwise, the mode may be shifted to fax while the unit is being used as a telephone.

1. Change the setting using the cursor left/right keys.

| Description | Setting range | Initial setting |
| :--- | :--- | :---: |
| Td time-out time | 1 to 255 | $9(120 \mathrm{~V}) / 6(220-240 \mathrm{~V})$ |

2. Press the start key. The value is set.

## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.

| Item No. | Description |
| :---: | :---: |
| U650 | Setting modem 1 <br> Description <br> Sets the G3 cable equalizer. Sets the modem detection level. <br> Purpose <br> Perform the following adjustment to make the equalizer compatible with the line characteristics. To improve the transmission performance when a low quality line is used. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be set. |
|  | Display Description |
|  | Reg G3 TX Eqr Sets the G3 transmission cable equalizer. <br> Reg G3 RX Eqr Sets the G3 reception cable equalizer. <br> RX Mdm Level Sets the modem detection level. |
|  | Setting the G3 transmission cable equalizer <br> 1. Select [ 0 dB ], $[4 \mathrm{~dB}],[8 \mathrm{~dB}]$ or $[12 \mathrm{~dB}]$. <br> *: Initial setting: 0dB <br> 2. Press the start key. The setting is set. <br> Setting the G3 reception cable equalizer <br> 1. Select [0dB], [ 4 dB$]$, $[8 \mathrm{~dB}]$ or $[12 \mathrm{~dB}]$. <br> * : Initial setting: 0dB <br> 2. Press the start key. The setting is set. <br> Setting the modem detection level <br> 1. Select [-33dBm], [-38dBm], [-43dBm] or [-48dBm] using the cursor up/down keys. <br> *: Initial setting: -43dBm <br> 2. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U651 | Setting modem 2 <br> Description <br> Sets the modem output level. <br> Sets the DTMF output level of a push-button dial telephone. <br> Purpose <br> Used if problems occur when sending a signal with a push-button dial telephone. <br> Setting <br> 1. Press the start key. <br> 2. Select the item to be set. <br> 3. Change the setting using the cursor left/right keys or numeric keys. |  |  |  |
|  | Display | Description | Setting range | Initial setting |
|  | Sgl LV Mdm DTMF LV(C) DTMF LV(D) | Modem output level <br> DTMF output level (main value) <br> DTMF output level (level difference) | 1 to 15 <br> 0 to 15.0 <br> 0 to 5.5 | $\begin{aligned} & 9(120 \mathrm{~V}) \\ & 10(220-240 \mathrm{~V}) \\ & 5(120 \mathrm{~V}) \\ & 10.5(220-240 \mathrm{~V}) \\ & 2(120 \mathrm{~V}) \\ & 2.5(220-240 \mathrm{~V}) \end{aligned}$ |
|  | 4. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |  |  |  |


| Item No. | Description |
| :---: | :---: |
| U660 | Setting the NCU <br> Description <br> Makes setting regarding the network control unit (NCU). <br> Purpose <br> To be executed as required. <br> Method <br> 1. Press the start key. <br> 2. Select the item to be set. |
|  | Display ${ }^{\text {description }}$ |
|  | Exchange Sets the connection to PBX/PSTN. <br> Dial Tone Sets PSTN dial tone detection. <br> Busy Tone Sets busy tone detection. <br> PBX Setting Setting for a PBX. <br> DC Loop Sets the loop current detection before dialing. |
|  | Setting the connection to PBX/PSTN <br> Selects if a fax is to be connected to either a PBX or public switched telephone network. <br> 1. Select the setting. |
|  | Display Description |
|  | PSTN Connected to the public switched telephone network. <br> PBX Connected to a PBX. |
|  | *: Initial setting: PSTN <br> 2. Press the start key. The setting is set. <br> Setting PSTN dial tone detection <br> Selects if the dial tone is detected to check the telephone is off the hook when a fax is connected to a public switched telephone network. <br> 1. Select the setting. |
|  | Display $\quad$ Description |
|  | On Detects the dial tone. <br> Off Does not detect the dial tone. |
|  | *: Initial setting: On <br> 2. Press the start key. The setting is set. |


| Item No. | Description |
| :---: | :--- |
| U660 | Setting busy tone detection <br> When a fax signal is sent, sets whether the line is disconnected immediately after a busy tone is <br> detected, or the busy tone is not detected and the line remains connected until T0 time-out time. <br> Fax transmission may fail due to incorrect busy tone detection. When set to 2, this problem may <br> be prevented. However, the line is not disconnected within the T0 time-out time even if the desti- <br> nation line is busy. <br> 1. Select the setting. |
| Display On Description <br> Off Detects busy tone. <br> Does not detect busy tone.  |  |

*: Initial setting: On
2. Press the start key. The setting is set.

## Setting for a PBX

Selects the mode to connect an outside call when connected to a PBX.
According to the type of the PBX connected, select the mode to connect an outside call.

1. Select the setting.

| Display | Description |
| :--- | :--- |
| Flash | Flashing mode |
| Loop | Code number mode |

* : Initial setting: Loop

2. Press the start key. The setting is set.

## Setting the loop current detection before dialing

Sets if the loop current detection is performed before dialing.

1. Select the setting.

| Display | Description |
| :--- | :--- |
| On | Performs loop current detection before dialing. |
| Off | Does not perform loop current detection before dialing. |

* : Initial setting: On

2. Press the start key. The setting is set.

## Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.


| Item No. |  | Description |
| :---: | :---: | :---: |
| U695 | FAX function custom <br> Description <br> Sets fax batch transm reception. <br> Purpose <br> To be executed as req <br> Setting <br> 1. Select the setting | N/OFF. Also changes the print size priority at the time of small size |
|  | Display | Description |
|  | FAX Bulk TX <br> A5 Pt Pri Chg | fax batch transmission On/Off <br> Change of print size priority at the time of small size reception |
|  | Setting: [FAX Bulk TX] <br> 1. Select [On] or [Off] using the cursor left/right keys. |  |
|  | Display | Description |
|  | On Off | Fax batch transmission is enabled. <br> Fax batch transmission is disabled. |
|  | *: Initial setting: On <br> 2. Press the start key. The setting is set. <br> Setting: [A5 Pt Pri Chg] <br> 1. Select [On] or [Off] using the cursor left/right keys. |  |
|  | Display | Description |
|  | On <br> Off | At the time of A 5 size reception: $\mathrm{A} 5 \rightarrow \mathrm{~B} 5 \rightarrow \mathrm{~A} 4 \rightarrow \mathrm{~B} 4 \rightarrow \mathrm{~A} 3$ <br> At the time of $A 5$ size reception: $A 5 \rightarrow A 4 \rightarrow B 5 \rightarrow A 3 \rightarrow B 4$ |
|  | *: Initial setting: Off <br> 2. Press the start key. The setting is set. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |  |


| Item No. | Description |  |  |
| :---: | :---: | :---: | :---: |
| U699 | Method <br> 1. Press the start key. <br> 2. Press [SW No.]. <br> 3. Enter the desired software switch number (3 digits) using the numeric keys and press the enter key. <br> 4. Use numeric keys 7 to 0 to switch each bit between 0 and 1 . <br> 5. Press the start key to set the value. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. <br> List of Software Switches of Which the Setting Can Be Changed <br> <Communication control procedure> |  |  |
|  | No. | Bit | Item |
|  | 36 | 7654 | Coding format in transmission |
|  |  | 3210 | Coding format in reception |
|  | 37 | 5 | 33600 bps/V34 |
|  |  | 4 | $31200 \mathrm{bps} / \mathrm{V} 34$ |
|  |  | 3 | 28800 bps/V34 |
|  |  | 2 | 26400 bps/V34 |
|  |  | 1 | $24000 \mathrm{bps} / \mathrm{V} 34$ |
|  |  | 0 | 21600 bps/V34 |
|  | 38 | 7 | $19200 \mathrm{bps} / \mathrm{V} 34$ |
|  |  | 6 | $16800 \mathrm{bps} / \mathrm{V} 34$ |
|  |  | 5 | $14400 \mathrm{bps} / \mathrm{V} 34$ |
|  |  | 4 | $12000 \mathrm{bps} / \mathrm{V} 34$ |
|  |  | 3 | 9600 bps/V34 |
|  |  | 2 | 7200 bps/V34 |
|  |  | 1 | $4800 \mathrm{bps} / \mathrm{V} 34$ |
|  |  | 0 | 2400 bps/V34 |
|  | 41 | 3 | FSK detection in V. 8 |
|  | 42 | 4 | 4800 bps when low-speed setting is active |
|  |  | 2 | FIF length in transmission of more than 4 times of DIS/DTC signal |


| Item No. | Description |  |  |
| :---: | :---: | :---: | :---: |
| U699 | <Communication time setting> |  |  |
|  | No. | Bit | Item |
|  | 53 | 76543210 | T3 timeout setting |
|  | 54 | 76543210 | T4 timeout setting (automatic equipment) |
|  | 55 | 76543210 | T5 timeout setting |
|  | 60 | 76543210 | Time before transmission of CNG ( 1100 Hz ) signal |
|  | 63 | 76543210 | T0 timeout setting (manual equipment) |
|  | 64 | 7 | Phase C timeout in ECM reception |
|  | 66 | 76543210 | Timeout 1 in countermeasures against echo |
|  | 68 | 76543210 | Timeout for FSK detection start in V. 8 |
|  | <Modem setting> |  |  |
|  | No. | Bit | Item |
|  | 89 | 76543 | RX gain adjust |
|  | <NCU setting> |  |  |
|  | No. | Bit | Item |
|  | 121 | 7654 | Dial tone/busy tone detection pattern |
|  | 122 | 7654 | Busy tone detection pattern |
|  |  | 1 | Busy tone detection in automatic FAX/TEL switching |
|  | 125 | 76543210 | Access code registration for connection to PSTN |
|  | 126 | 7654 | FAX/TEL automatic switching ring back tone ON/OFF cycle |
|  | <Calling time setting> |  |  |
|  | No. | Bit | Item |
|  | 133 | 76543210 | DTMF signal transmission time |
|  | 134 | 76543210 | DTMF signal pause time |
|  | 141 | 76543210 | Ringer detection cycle (minimum) |
|  | 142 | 76543210 | Ringer detection cycle (maximum) |
|  | 143 | 76543210 | Ringer ON time detection |
|  | 144 | 76543210 | Ringer OFF time detection |
|  | 145 | 76543210 | Ringer OFF non-detection time |
|  | 147 | 76543210 | Dial tone detection time (continuous tone) |
|  | 148 | 76543210 | Allowable dial tone interruption time |
|  | 149 | 76543210 | Time for transmitting selection signal after closing the DC circuit |
|  | 151 | 76543210 | Ringer frequency detection invalid time |



| Item No. | Description |
| :---: | :---: |
| U903 | Checking/clearing the paper jam counts <br> Description <br> Displays or clears the jam counts by jam locations. <br> Purpose <br> To check the paper jam status. Also to clear the jam counts after replacing consumable parts. <br> Method <br> 1. Press the start key. <br> 2. Select the item. <br> Method: [Cnt] <br> 1. Select [Cnt]. The count of jam code by type is displayed. <br> Codes for which the count value is 0 are not displayed. <br> 2. Change the screen using the cursor up/down keys. <br> 3. Select the count value for jam code and press [Clear]. <br> The individual counter cannot be cleared. <br> 4. Press the start key. The counter value is cleared. <br> Method: [Total Cnt] <br> 1. Select [Total Cnt]. The total number of jam code by type is displayed. <br> 2. Change the screen using the cursor up/down keys. <br> The total number of jam count cannot be cleared. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |



| Item No. | Description |
| :---: | :---: |
| U905 | Checking counts by optional devices <br> Description <br> Displays the counts of document processor or document finisher. <br> Purpose <br> To check the use of document processor or document finisher. <br> Method <br> 1. Press the start key. <br> 2. Select the device to be checked. The count of the selected device is displayed. <br> DP <br> DF <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U910 | Clearing the print coverage data <br> Description <br> Clears the accumulated data for the print coverage per A4 size paper and its period of time (as shown on the service status report). <br> Purpose <br> To clear data as required at times such as during maintenance service. <br> Method <br> 1. Press the start key. <br> 2. Select [Execute]. <br> 3. Press the start key. The print coverage data is cleared. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |


| Item No. | Description |  |
| :---: | :---: | :---: |
| U917 | Setting backup data reading/writing <br> Description <br> Retrieves the backup data to a USB memory from the machine; or writes the data from the USB memory to the machine. <br> Purpose <br> Machine information is backed up and restored. <br> Method <br> 1. Press the power key on the operation panel, and after verifying the power indicator has gone off, switch off the main power switch. <br> 2. Insert USB memory in USB memory slot. <br> 3. Turn the main power switch on. <br> Wait for 10 seconds to allow the machine to recognize the USB memory. <br> 4. Enter the maintenance item. <br> 5. Press the start key. <br> 6. Select [Export] or [Import] and press the start key. |  |
|  | Display | Description |
|  | Import Export | Writing data from the USB memory to the machine Retrieving from the machine to a USB memory |

7. Select the item.

| Display | Description | Depending data |
| :--- | :--- | :--- |
| Address Book | Address book | - |
| Job Account | Job accounting | - |
| One Touch | Information on one-touch key | Address book |
| User | User managements | Job accounting |
| Program | Program information | Job accountings and user manage- <br> ments |
| Shortcut | Shortcut information | Job accountings, user managements <br> and document box information |
| Document Box | Document box information | Job accountings and user manage- <br> ments |
| Fax Forward | FAX transfer information | Job accountings, user managements <br> and document box information |
| IC card | IC card information | - |

* : Since data are dependent with each other, data other than those assigned are also retrieved or written in.

8. Select [On] using the cursor left/right keys.
9. Press the start key. Starts reading or writing.

The progress of selected item is displayed in \%.
When an error occurs, the operation is canceled and an error code is displayed.
10. When normally completed, [Fin] is displayed.
11. Turn the main power switch off and on after completing writing when selecting [Import].

| Item No. | Description |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| U917 | Error Codes |  |  |  |
|  | Codes | Description | Codes | Description |
|  | e002 | Parameter error | e31e | User managements error |
|  | e003 | File write error | e31f | User managements open error |
|  | e004 | File initialization error | e320 | User managements error |
|  | e005 | File error | e321 | User managements open error |
|  | e006 | Processing error | e322 | User managements list error |
|  | e010 | Address book clear error (contact) | e323 | User managements list error |
|  | e011 | Address book open error (contact) | e324 | Shortcut open error |
|  | e012 | Address book list error (contact) | e325 | Shortcut list error |
|  | e013 | Address book list error (contact) | e326 | Shortcut list error |
|  | e014 | Address book clear error (group) | e410 | Box file open error |
|  | e015 | Address book open error (group) | e411 | Box error in writing |
|  | e016 | Address book list error (group) | e412 | Box error in reading |
|  | e017 | Address book list error (group) | e413 | Box list error |
|  | e110 | Job accounting clear error | e414 | Box list error |
|  | e111 | Job accounting open error | e415 | Box error |
|  | e112 | Job accounting open error | e416 | Box error |
|  | e113 | Job accounting error in writing | e417 | Box open error |
|  | e114 | Job accounting list error | e418 | Box close error |
|  | e115 | Job accounting list error | e419 | Box creation error |
|  | e210 | One-touch open error | e41a | Box creation error |
|  | e211 | One-touch list error | e41b | Box deletion error |
|  | e212 | One-touch list error | e41c | Box movement error |
|  | e310 | User managements backup error | e510 | Program error in writing |
|  | e311 | User managements clear error | e511 | Program error in reading |
|  | e312 | User managements open error | e710 | Fax memory open error |
|  | e313 | User managements open error | e711 | Fax memory initialization error |
|  | e314 | User managements open error | e712 | Fax memory list error |
|  | e315 | User managements error in writing | e713 | Fax memory error |
|  | e316 | User managements list error | e714 | Fax memory error |
|  | e317 | User managements list error | e715 | Fax memory mode error |
|  | e318 | User managements list error | e716 | Fax memory error |
|  | e319 | User managements list error | e717 | Fax memory error |
|  | e31a | User managements open error | e718 | Fax memory mode error |
|  | e31b | User managements error | e910 | File reading error |
|  | e31c | User managements error | e911 | File writing error |
|  | e31d | User managements open error | e912 | Data mismatch |



| Item No. | Description |
| :---: | :---: |
| U935 | Relay board maintenance <br> Description <br> Sets the mode when call for service (C0060) occurs. <br> Purpose <br> Sets the machine status temporarily when call for service (C0060) occurs. However, after the setting, call for service (C0060) occurs again when progress of period. <br> Setting <br> 1. Press the start key. <br> 2. Select [Mode]. <br> 3. Change the setting using the cursor left/right keys. |
|  | Display Description |
|  | Mode0 Setting mode: OFF <br> Mode1 Setting mode: ON (Usable up to three times of use) |
|  | * : Initial setting: Mode0 <br> 4. Press the start key. The setting is set. <br> 5. Turn the main power switch off and on. <br> Supplement <br> After removing the cause of the problem, be sure to change the setting in OFF. |


| Item No. | Description |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| U942 | Setting of deflection for feeding from DP <br> Description <br> Adjusts the deflection generated when the document processor is used. <br> Purpose <br> Use this mode if an original non-feed jam, oblique feed or wrinkling of original occurs when the document processor is used. <br> Setting <br> 1. Press the start key. <br> 2. Press the system menu key. <br> 3. Place an original on the DP and press the start key to make a test copy. <br> 4. Press the system menu key. <br> 5. Select the item to be adjusted. <br> 6. Change the setting value using the cursor left/right keys or numeric keys.l |  |  |  |  |
|  | Display | Description | Setting range | Initial setting | Change in value per step |
|  | Front <br> Back <br> Mix | Deflection of DP paper feed motor (DPPFM) <br> Deflection of DP switchback motor (DPSBM) <br> Set value of mixing the original | $\begin{aligned} & -31 \text { to } 31 \\ & -31 \text { to } 31 \\ & -31 \text { to } 31 \end{aligned}$ |  | 0.1758 mm <br> 0.1758 mm <br> 0.1758 mm |
|  | *: The grea deflection If an orig of origina <br> 7. Press the st <br> Completion <br> Press the stop | the value, the larger the deflectio <br> non-feed jam or oblique feed oc curs, decrease the value. key. The value is set. <br> The screen for selecting a maint | ; the smalle urs, increas nance item | the value the settin <br> is disp | the smaller the value. If wrinkling yed. |


| Item No. | Description |
| :---: | :--- |
| U977 | Data capture mode <br> Description <br> Store the print data sent to the machine into USB memory. <br> Purpose <br> In case to occur the error at printing, check the print data sent to the machine. <br> Method <br> 1. Press the power key on the operation panel, and after verifying the main power indicator has <br> gone off, switch off the main power switch. <br> 2. Insert USB memory in USB memory slot. <br> 3. Turn the main power switch on. <br> 4. Enter maintenance item U977. <br> 5. Select [Execute]. <br> 6. Press the start key. <br> 7. Send the print data to the machine. <br> Once the print data is stored into USB memory, [Finish] will be displayed. <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |
| U984 | Checking the developing unit number <br> Description <br> Displays the developing unit number. <br> Purpose <br> To check the developing unit number. <br> Method <br> 1. Press the start key. The developing unit number is displayed. <br> Display <br> K Bescription <br> Completion <br> Press the stop key. The screen for selecting a maintenance item No. is displayed. |



## 1-3-2 Service mode

The machine is equipped with a maintenance function which can be used to maintain and service the machine.

## (1) Printing the service status page



| Service items | Description |
| :---: | :--- |
| Service Status | Printing a status page for service purpose <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br> Pescription <br> service cumulative. <br> Purpose <br> To acquire the current printing environmental parameters and cumulative information. <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br>  <br> Method <br> 1. Select [Service status]. <br> 2. Select [YES]. <br> Two pages will be printed. <br> Completion <br> Press the System Menu/Counter key. |
|  |  |



Figure 1-3-20


Figure 1-3-21

| Service items | Description |  |
| :---: | :---: | :---: |
|  | Detail of service status page |  |
| No. | Description | Supplement |
| (1) | Firmware version | - |
| (2) | System date | - |
| (3) | Engine soft version | - |
| (4) | Engine boot version | - |
| (5) | Operation panel mask version | - |
| (6) | Machine serial number | - |
| (7) | Standard memory size | - |
| (8) | Optional memory size | - |
| (9) | Total memory size | - |
| (10) | Local time zone | - |
| (11) | Report output date | Day/Month/Year hour:minute |
| (12) | NTP server name | - |
| (13) | Presence or absence of the optional paper feeder | Paper feeder 1/Paper feeder 2/Not Installed |
| (14) | Presence or absence of the optional paper finisher | 500-Finisher/Not Installed |
| (15) | Presence or absence of the optional IC card authentication kit | Installed/Not Installed/Trial |
| (16) | The connection state of an optional USB keyboard | Connected/Not Connected |
| (17) | Displays setting of optional USB Keyboard | US-English/US English with Euro/German/ French |
| (18) | Presence or absence of optional UG-33 | Installed/Not Installed/Traial |
| (19) | Page of relation to the A4/Letter | - |
| (20) | Average coverage for total | Black/Cyan/Magenta/Yellow |
| (21) | Average coverage for copy | Black/Cyan/Magenta/Yellow |
| (22) | Average coverage for printer | Black/Cyan/Magenta/Yellow |
| (23) | Average coverage for fax | Black/Cyan/Magenta/Yellow |
| (24) | Cleared date and output date | - |
| (25) | Coverage on the final output page | - |
| (26) | Number of rings | 0 to 15 |
| (27) | Number of rings before automatic switching | 0 to 15 |
| (28) | Number of rings before connecting to answering machine | 0 to 15 |





## (2) Executing a service mode


(3) Description of service mode

| Service items | Description |
| :--- | :--- |
| Enable |  |
| Repaired Unit | Release the disconnection of the cassette and the document feeder. <br> Description <br> Restore the system control when the defective unit is replaced to enable the unit. <br> The menu is displayed only when the unit is detached for failure. <br> Purpose <br> Perform when the defective unit is replaced. <br> Method <br> 1. Enter the service menu. <br> 2. Select [Enable Repaired Unit]. <br> 3. Press [Start]. <br> Completion <br> The unit is automatically powered after execution. |
|  |  |
|  |  |


| Service items | Description |
| :---: | :---: |
| Maintenance | Reset the counter of the maintenance kit. <br> Description <br> Reset the kit counter when replacing the maintenance kit. <br> The menu is displayed only when replacing the maintenance kit. <br> Purpose <br> Perform when the maintenance kit is replaced. <br> Method <br> 1. Enter the service menu. <br> 2. Select [Maintenance]. <br> 3. Press [Start]. <br> Completion <br> Automatically completes when the confirmation display is shown. |
| Center line alighment | Alighment of the cassette and MP tray and duplex <br> Description <br> Perform settings for the center line adjustment. <br> Purpose <br> Perform if the alignment has not been obtained after the center line adjustment. <br> Method <br> 1. Enter the service menu. <br> 2. Select [Center Line Adjustment]. <br> 3. Press [Save]. <br> Completion <br> Press the Save key in the setting display. |
| Developer | Perform the toner installation of the developer unit. <br> Description <br> Perform the toner installation when the developer unit has been replaced. <br> Purpose <br> Perform when the developer unit is replaced. <br> Method <br> 1. Enter the service menu. <br> 2. Select [Developer unit]. <br> 3. Press [Start] in the confirmation display. <br> Completion <br> The toner installation is performed when power is turned on and off. |



| Service items | Description |
| :---: | :---: |
| FAX call Setting | FAX call setting <br> Description <br> Selects if a fax is to be connected to either a PBX or public switched telephone network <br> Selects the mode to connect an outside call when connected to a PBX. <br> Access code registration for connection to PSTN. <br> Purpose <br> To be executed as required. <br> Method <br> 1. Enter the Service Setting menu. <br> 2. Select [FAX Call Set.] using the cursor up/down keys. <br> 3. Press the start key. <br> Setting the connection to PBX/PSTN <br> 1. Select [Exchange Select.] using the cursor up/down keys. <br> 2. Press the start key. <br> 3. Select [PBX] or [PSTN] using the cursor up/down keys. <br> 4. Press the start key. The setting is set. <br> Setting for PBX <br> 1. Select [PBX Setting] using the cursor up/down keys. <br> 2. Press the start key. <br> 3. Select [Loop], [Flash] or [Earth] using the cursor up/down keys. <br> 4. Press the start key. The setting is set. <br> Setting access code to PSTN <br> 1. Select [Dial No. to PSTN] using the cursor up/down keys. <br> 2. Press the start key. <br> 3. Enter access code using the numeric keys. (0 to 9, 00 to 99) <br> 4. Press the start key. The setting is set. <br> Completion <br> Press the stop key. |


| Service items <br> Diagnostics | Perform a memory diagnostic <br> Description <br> Diagnose memory at power up (whether reading and writing are executable). <br> Purpose <br> Execute memory check in purpose of rectifying a defective memory device which may <br> possibly cause an unresolvable F call, locking, or abnormal images. <br> Method <br> 1. Enter the Service Setting menu. <br> 2. Select [Memory Diagnostics]. <br> 3. Press [Start]. <br> 4. Turn the main power switch off and on. Allow more than 5 seconds between Off and <br> On. |
| :--- | :--- |

## 1-4-1 Paper misfeed detection

## (1) Paper misfeed indication

When a paper misfeed occurs, the machine immediately stops printing and displays the paper misfeed message on the operation panel. To remove paper misfed in the machine, pull out the cassette, open the right cover.

## (2) Paper misfeed detection condition



E Right cover2
F Machine inside
G Duplex section
H Job separatot tray
J Bridge
K Document finsher
L DP original tray
M DP paper feed section
N DP feed section
P DP switchback section

## Paper jam location

Cassette1
B Cassette2
C Cassette3
D MP tray
.

Figure 1-4-1 Paper jam location

| Code | Contents | Conditions | Jam location* |
| :---: | :---: | :---: | :---: |
| 0000 | Initial jam | The power is turned on when a sensor in the conveying system is on. | - |
| 0100 | Secondary paper feed request time out | Secondary paper feed request given by the controller is unreachable. | F |
| 0101 | Waiting for process package to be ready | Process package won't be ready. | F |
| 0104 | Waiting for conveying package to be ready | Conveying package won't be ready. | F |
| 0106 | Paper feeding request for duplex printing time out | Paper feeding request for duplex printing given by the controller is unreachable. | F |
| 0107 | Waiting for fuser package to be ready | Fuser package won't be ready. | - |
| 0110 | Right cover open | The right cover is opened during printing. | - |
| 0111 | Front cover open | The front cover is opened during printing. | - |
| 0120 | Receiving a duplex paper feeding request while paper is empty | Paper feed request was received from the duplex section despite the absence of paper in the duplex section. | G |
| 0121 | Exceeding number of duplex pages circulated | The controller issued the duplex section a request for more pages than the duplex print cycle contains. | G |
| 0210 | Right lower cover open | The right lower cover is opened during printing. | - |
| 0501 | No paper feed from cassette 1 | The registration sensor (RS) does not turn on during paper feed from cassette 1. | A |
| 0502 | No paper feed from cassette 2 | PF feed sensor 1 (PFFS1) does not turn on during paper feed from cassette 2 (Retry 1 times). | B |
| 0503 | No paper feed from cassette 3 | PF feed sensor 2 (PFFS2) does not turn on during paper feed from cassette 3 (Retry 1 times). | C |
| 0508 | No paper feed from duplex section | The registration sensor (RS) does not turn on during paper feed from duplex section. | G |
| 0509 | No paper feed from MP tray | The registration sensor (RS) does not turn on during paper feed from MP tray. | D |
| 0511 | Multiple sheets in cassette 1 | The registration sensor (RS) does not turn off during paper feed from cassette 1. | A |
| 0512 | Multiple sheets in cassette 2 | PF feed sensor 1 (PFFS1) does not turn off during paper feed from cassette 2. | B |
| 0513 | Multiple sheets in cassette 3 | PF feed sensor 2 (PFFS2) does not turn off during paper feed from cassette 3. | C |
| 0518 | Multiple sheets in duplex section | The registration sensor (RS) does not turn off during paper feed from duplex section. | G |
| 0519 | Multiple sheets in MP tray | The registration sensor (RS) does not turn off during paper feed from MP tray. | D |

[^0]| Code | Contents | Conditions | Jam location* |
| :---: | :---: | :---: | :---: |
| 1403 | PF feed sensor 1 non arrival jam | PF feed sensor 1 (PFFS1) does not turn on during paper feed from cassette 3. | E |
| 1413 | PF feed sensor 1 stay jam | PF feed sensor 1 (PFFS1) does not turn off during paper feed from cassette 3. | E |
| 4002 | Registration sensor non arrival jam | The registration sensor (RS) does not turn on during paper feed from cassette 2. | E |
| 4003 |  | The registration sensor (RS) does not turn on during paper feed from cassette 3. | E |
| 4012 | Registration sensor stay jam | The registration sensor (RS) does not turn off during paper feed from cassette 2. | E |
| 4013 |  | The registration sensor (RS) does not turn off during paper feed from cassette 3. | E |
| 4201 | Eject sensor non arrival jam | The eject sensor (ES) does not turn on during paper feed from cassette 1. | F |
| 4202 |  | The eject sensor (ES) does not turn on during paper feed from cassette 2. | F |
| 4203 |  | The eject sensor (ES) does not turn on during paper feed from cassette 3. | F |
| 4208 |  | The eject sensor (ES) does not turn on during paper feed from duplex section. | F |
| 4209 |  | The eject sensor (ES) does not turn on during paper feed from MP tray. | F |
| 4211 | Eject sensor stay jam | The eject sensor (ES) does not turn off during paper feed from cassette 1. | F |
| 4212 |  | The eject sensor (ES) does not turn off during paper feed from cassette 2. | F |
| 4213 |  | The eject sensor (ES) does not turn off during paper feed from cassette 3. | F |
| 4218 |  | The eject sensor (ES) does not turn off during paper feed from duplex section. | F |
| 4219 |  | The eject sensor (ES) does not turn off during paper feed from MP tray. | F |
| 4301 | Duplex sensor non arrival jam | The duplex sensor (DUS) does not turn on during paper feed from cassette 1. | F |
| 4302 |  | The duplex sensor (DUS) does not turn on during paper feed from cassette 2. | F |
| 4303 |  | The duplex sensor (DUS) does not turn on during paper feed from cassette 3. | F |
| 4309 |  | The duplex sensor (DUS) does not turn on during paper feed from MP tray. | F |

*: Refer to figure 1-4-1 for paper jam location (see page 1-4-1).

| Code | Contents | Conditions | Jam location* |
| :---: | :---: | :---: | :---: |
| 4311 | Duplex sensor stay jam | The duplex sensor (DUS) does not turn off during paper feed from cassette 1. | G |
| 4312 |  | The duplex sensor (DUS) does not turn off during paper feed from cassette 2. | G |
| 4313 |  | The duplex sensor (DUS) does not turn off during paper feed from cassette 3. | G |
| 4319 |  | The duplex sensor (DUS) does not turn off during paper feed from MP tray. | G |
| 4901 | Bridge conveying sensor 1 non arrival jam | The bridge conveying sensor 1 (BRCS1) does not turn on during paper feed from cassette 1. | F |
| 4902 |  | The bridge conveying sensor 1 (BRCS1) does not turn on during paper feed from cassette 2. | F |
| 4903 |  | The bridge conveying sensor 1 (BRCS1) does not turn on during paper feed from cassette 3. | F |
| 4908 |  | The bridge conveying sensor 1 (BRCS1) does not turn on during paper feed from duplex section. | F |
| 4909 |  | The bridge conveying sensor 1 (BRCS1) does not turn on during paper feed from MP tray. | F |
| 4911 | Bridge conveying sensor 1 stay jam | The bridge conveying sensor 1 (BRCS1) does not turn off during paper feed from cassette 1. | J |
| 4912 |  | The bridge conveying sensor 1 (BRCS1) does not turn off during paper feed from cassette 2. | J |
| 4913 |  | The bridge conveying sensor 1 (BRCS1) does not turn off during paper feed from cassette 3. | J |
| 4918 |  | The bridge conveying sensor 1 (BRCS1) does not turn off during paper feed from duplex section. | J |
| 4919 |  | The bridge conveying sensor 1 (BRCS1) does not turn off during paper feed from MP tray. | J |
| 5001 | Bridge conveying sensor 3 non arrival jam | The bridge conveying sensor 3 (BRCS3) does not turn on during paper feed from cassette 1. | J |
| 5002 |  | The bridge conveying sensor 3 (BRCS3) does not turn on during paper feed from cassette 2. | J |
| 5003 |  | The bridge conveying sensor 3 (BRCS3) does not turn on during paper feed from cassette 3. | J |
| 5008 |  | The bridge conveying sensor 3 (BRCS3) does not turn on during paper feed from duplex section. | J |
| 5009 |  | The bridge conveying sensor 3 (BRCS3) does not turn on during paper feed from MP tray. | J |

*: Refer to figure 1-4-1 for paper jam location (see page 1-4-1).

| Code | Contents | Conditions | Jam location* |
| :---: | :---: | :---: | :---: |
| 5011 | Bridge conveying sensor 3 stay jam | The bridge conveying sensor 3 (BRCS3) does not turn off during paper feed from cassette 1. | $J$ |
| 5012 |  | The bridge conveying sensor 3 (BRCS3) does not turn off during paper feed from cassette 2. | J |
| 5013 |  | The bridge conveying sensor 3 (BRCS3) does not turn off during paper feed from cassette 3. | J |
| 5018 |  | The bridge conveying sensor 3 (BRCS3) does not turn off during paper feed from duplex section. | J |
| 5019 |  | The bridge conveying sensor 3 (BRCS3) does not turn off during paper feed from MP tray. | J |
| 6023 | Staple cover open | The staple cover is opened during operation. | K |
| 6043 | DF top cover open | The DF top cover is opened during operation. | K |
| 6103 | DF paper conveying sensor non arrival jam | The paper conveying sensor (PCS) does not turned on even if a specified time has elapsed after the machine eject signal was received. | $J$ |
| 6113 | DF paper conveying sensor stay jam | The paper conveying sensor (PCS) does not turn off within specified time of its turning on. | K |
| 6123 | DF paper conveying sensor remaining jam | The paper conveying sensor (PCS) does turned on when the power is turned on or cover close. | K |
| 6413 | DF eject paper sensor stay jam | The eject paper sensor (EPS) does not turn off within specified time of its turning on. | K |
| 6423 | DF eject paper sensor remaining jam | The eject paper sensor (EPS) does turned on when the power is turned on or cover close. | K |
| 6803 | Front adjustment plate operation ON error | The adjustment sensor 1 (ADS1) does turned on when job is executed. | K |
| 6813 | Front adjustment plate operation OFF error | The adjustment sensor 1 (ADS1) does turned off when job is executed. | K |
| 6903 | Rear adjustment plate operation ON error | The adjustment sensor 2 (ADS2) does turned on when job is executed. | K |
| 6913 | Rear adjustment plate operation OFF error | The adjustment sensor 2 (ADS2) does turned off when job is executed. | K |
| 7013 | Staple operation error | The next staple hasn't head-poked for the next copy to bind after a predetermined interval while clinching has commenced. | K |
| 7023 | Staple initial operation error | Head-poking has not been accomplished after 10 attempts in the initialization at power up or closing the cover. | K |
| 7913 | Sequence error 1 (operation prohibited) | Operation commenced in the state the finisher is prohibited to operate. | K |
| 7923 | Sequence error 2 (initialoperation error) | A request for maintenance mode has occurred in the state the finisher is prohibited to operate or has commenced operation. | K |

*: Refer to figure 1-4-1 for paper jam location (see page 1-4-1).

| Code | Contents | Conditions | Jam location* |
| :---: | :---: | :---: | :---: |
| 7933 | Sequence error 3 (Error in the reception of backup data) | A backup data command has been received in the state the operation has initiated. | K |
| 7943 | Sequence error 4 (standby) | Start of operation has been received in the state of prohibiting to stand by. | K |
| 7953 | Sequence error 5 <br> (Error in between copies) | An illegal inter-page or inter-copy interval has occurred. | K |
| 7963 | Sequence error 6 | The finisher does not deliver the eject-complete command in 15 seconds after the bridge eject sensor is turned off. | K |
| 9000 | No original feed | The DP paper feed sensor (DPPFS) does not turn on within specified time during the first sheet feeding (Retry 5 times). | L |
| 9001 | DP original conveying jam | DP timing sensor (DPTS) turns off within the specified time since the sensor turns on. | N |
| 9004 | DP original switchback jam | During duplex switchback scanning, the DP registration sensor (DPRS) does not turn on within specified time of the DP timing sensor (DPTS) turning off. | P |
| 9010 | DP open | The DP is opened during original feeding. Sensor in the conveying system is on when the power is turned on or cover close. | - |
| 9011 | DP top cover open | The DP top cover is opened during original feeding. | - |
| 9110 | DP paper feed sensor stay jam | The DP paper feed sensor (DPPFS) or DP registration sensor (DPRS) does not turn off within specified time of the DP timing sensor (DPTS) turning on. | N |
| 9200 | DP registration sensor non arrival jam | The DP registration sensor (DPRS) does not turn on within specified time of the DP paper feed sensor (DPPFS) turning on. | M |
| 9400 | DP timing sensor non arrival jam | The DP timing sensor (DPTS) does not turn on within specified time of the DP registration sensor (DPRS) turning on (Retry 5 times). | M |
| 9410 | DP timing sensor stay jam | The DP timing sensor (DPTS) does not turned off within specified time its turning on. | N |

*: Refer to figure 1-4-1 for paper jam location (see page 1-4-1).

## 1-4-2 Self-diagnostic function

## (1) Self-diagnostic function

This machine is equipped with self-diagnostic function. When a problem is detected, the machine stops printing and display an error message on the operation panel. An error message consists of a message prompting a contact to service personnel and a four-digit error code indicating the type of the error.

## (2) Self diagnostic codes

If the part causing the problem was not supplied, use the unit including the part for replacement.

| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 0030 | FAX control PWB system error <br> Processing with the fax software was disabled due to a hardware problem. | Defective FAX control PWB. | Replace the fax control PWB and check for correct operation. . |
| 0060 | Engine PWB type error | Defective engine sub PCB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| 0070 | FAX control PWB incompatible detection error Abnormal detection of FAX control PWB incompatibility In the initial communication with the FAX control PWB, any normal communication command is not transmitted. | Defective FAX software. | Install the fax software. |
|  |  | Defective FAX control PWB. | Replace the fax control PWB and check for correct operation.. |
| 0100 | Backup memory device error | Defective flash memory. | Replace the main PWB and check for correct operation (see page 1-5-34). |
|  |  | Defective main PWB. |  |
| 0120 | MAC address data error For data in which the MAC address is invalid. | Defective flash memory. | Replace the main PWB and check for correct operation (see page 1-5-34). |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| 0130 | Backup memory read/write error (main PWB) | Defective flash memory. | Replace the main PWB and check for correct operation (see page 1-5-34). |
|  |  | Defective main PWB. |  |
| 0140 | Backup memory data error (main PWB) | Defective flash memory. | Replace the main PWB and check for correct operation (see page 1-5-34). |
|  |  | Defective main PWB. |  |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 0150 | Backup memory read/write error (engine PWB) <br> Detecting engine PWB EEPROM communication error. | Improper installation engine PWB EEPROM | Check the installation of the EEPROM and remedy if necessary. |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
|  |  | Device damage of EEPROM. | Contact the Service Administrative Division. |
| 0160 | Backup memory data error (engine PWB) | Defective flash memory | Replace the engine PWB and check for correct operation (see page 1-5-35). |
|  |  | Defective engine PWB. |  |
| 0170 | Billing counting error A checksum error is detected in the main and engine backup memories for the billing counters. | Data damage of EEPROM. | Contact the Service Administrative Division. |
|  |  | Defective PWB. | Replace the main PWB or the engine PWB and check for correct operation (see page 1-5-34, 1-5-35). |
| 0180 | Machine number mismatch Machine number of main and engine does not match. | Data damage of EEPROM. | Contact the Service Administrative Division. |
| 0320 | I/O CPU communication error <br> A communication error is detected 10 times in succession. | Defective PWB. | Replace the main PWB or the engine PWB and check for correct operation.(see page 1-5-34,1-5-35) |
| 0630 | DMA error DMA transmission of image data does not complete within the specified period of time. | Poor contact in the connector terminals. | Check the connection the signal cable for CIS and the main PWB, and the continuity across the connector terminals. Repair or replace if necessary. |
|  |  | Defective main PWB. | Replace the main PWB and check for correct operation (see page 1-5-34). |
| 0800 | Image processing error JAM010x is detected twice. | Defective main PWB. | Replace the main PWB and check for correct operation(see page 1-5-34). |
| 0830 | FAX control PWB flash program area checksum error A checksum error occurred with the program of the FAX control PWB. | Defective FAX software. | Install the fax software. |
|  |  | Defective FAX control PWB. | Replace the FAX control PWB. |
| 0840 | Faults of RTC <br> The time is judged to go back based on the comparison of the RTC time and the current time or five years or more have passed. | The battery is disconnected from the main PWB. | Check visually and remedy if necessary |
|  |  | Defective main PWB. | Replace the main PWB and check for correct operation (see page 1-5-34). |


| Code | Contents | Causes | $\begin{array}{c}\text { Check procedures/ } \\ \text { corrective measures }\end{array}$ |
| :---: | :--- | :--- | :--- |
| $\mathbf{0 8 7 0}$ | $\begin{array}{l}\text { FAX control PWB to main } \\ \text { PWB high capacity data } \\ \text { transfer error } \\ \text { High-capacity data transfer } \\ \text { between the FAX control PWB } \\ \text { and the main PWB of the } \\ \text { machine was not normally } \\ \text { performed even if the data } \\ \text { transfer was retried the speci- } \\ \text { fied times. }\end{array}$ | $\begin{array}{l}\text { Improper installa- } \\ \text { tion FAX control } \\ \text { PWB. }\end{array}$ | $\begin{array}{l}\text { Reinstall the FAX control PWB. } \\ \text { Defective FAX con- } \\ \text { trol PWB or main }\end{array}$ | \(\left.\begin{array}{l}Replace the FAX control PWB or main PWB <br>

and check for correct operation (see page 1- <br>
5-34 ).\end{array}\right\}\)

| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 1020 | PF lift motor error (paper feeder) After cassette 2 is inserted, PF lift sensor 1 does not turn on within 15 s . This error is detected four times successively. | Defective bottom plate elevation mechanism in the cassette. | Check to see if the bottom plate can move smoothly and repair it if any problem is found. |
|  |  | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> PF lift motor 1 and PF main PWB (YC4) |
|  |  | Defective drive transmission system of the PF lift motor 1. | Check if the gears rotate smoothly. If not, grease the bushes and gears. Check for broken gears and replace if any. |
|  |  | Defective PF lift motor 1. | Replace the PF lift motor 1. |
|  |  | Defective PF main PWB. | Replace the PF main PWB (Refer to the service manual for the paper feeder). |
| 1030 | PF lift motor error (paper feeder) After cassette 3 is inserted, PF lift sensor 2 does not turn on within 15 s . This error is detected four times successively. | Defective bottom plate elevation mechanism in the cassette. | Check to see if the bottom plate can move smoothly and repair it if any problem is found. |
|  |  | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> PF lift motor 2 and PF main PWB (YC7) |
|  |  | Defective drive transmission system of the PF lift motor 2. | Check if the gears rotate smoothly. If not, grease the bushes and gears. Check for broken gears and replace if any. |
|  |  | Defective PF lift motor 2. | Replace the PF lift motor 2. |
|  |  | Defective PF main PWB. | Replace the PF main PWB (Refer to the service manual for the paper feeder). |
| 1800 | Paper feeder communication error <br> A communication error is detected 10 times in succession. | Improper installation paper feeder. | Follow installation instruction carefully again. |
|  |  | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> PF main PWB (YC3) and engine PWB (YC20) |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
|  |  | Defective PF main PWB. | Replace the PF main PWB (Refer to the service manual for the paper feeder). |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 1900 | Paper feeder EEPROM error When writing the data, the write data and the read data is not continuously in agreement 5 times. | Defective PF main PWB. | Replace the PF main PWB (Refer to the service manual for the paper feeder). |
|  |  | Device damage of EEPROM. | Contact the Service Administrative Division. |
| 2000 | Main motor steady-state error <br> Stable OFF is detected for 1 s continuously after main motor stabilized. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Main motor and engine PWB (YC16) |
|  |  | Defective drive transmission system of the main motor. | Check if the rollers and gears rotate smoothly. If not, grease the bushes and gears. Check for broken gears and replace if any. |
|  |  | Defective main motor. | Replace the main motor. |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| 2010 | Main motor drive error The main motor is not stabilized within 2 s after driving starts. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. Main motor and engine PWB (YC16) |
|  |  | Defective drive transmission system of the main motor. | Check if the rollers and gears rotate smoothly. If not, grease the bushes and gears. Check for broken gears and replace if any. |
|  |  | Defective main motor. | Replace the main motor. |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| 2600 | PF drive motor error (paper feeder) When the PF drive motor is driven, error signal is detected continuously for 2 s . | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> PF drive motor and PF main PWB (YC2) |
|  |  | Defective drive transmission system of the PF drive motor. | Check if the rollers and gears rotate smoothly. If not, grease the bushes and gears. Check for broken gears and replace if any. |
|  |  | Defective PF drive motor. | Replace the PF drive motor. |
|  |  | Defective PF main PWB. | Replace the PF main PWB (Refer to the service manual for the paper feeder). |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 3100 | ISU home position error The home position is not correct when the power is turned on or at the start of copying using the table. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Home position sensor and engine PWB (YC13) |
|  |  | Defective home position sensor. | Replace the home position sensor. |
|  |  | Defective ISU motor. | Replace the ISU motor. |
|  |  | Defective CCD PWB. | Replace the image scanner unit (see page 1-5-24). |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| 3200 | Exposure lamp error <br> The peak count during CCD turned on does not count up for 300 seconds . <br> When the white standard data at the time of an initial is lower than a rated value. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> LED PWB and main PWB (YC112) CCD PWB and main PWB (YC113) |
|  |  | Defective exposure lamp. | Replace the image scanner unit (see page 1-5-24). |
|  |  | Defective CCD PWB. |  |
|  |  | Defective main PWB. | Replace the main PWB and check for correct operation (see page 1-5-34). |
| 3500 | Communication error between scanner and ASIC When the lead backing value is different. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> CCD PWB and main PWB (YC113) |
|  |  | Defective CCD PWB. | Replace the image scanner unit (see page 1-5-24). |
|  |  | Defective main PWB. | Replace the main PWB and check for correct operation (see page 1-5-34). |
| 3600 | Scanner sequence error | Defective main PWB or engine PWB. | Replace the main PWB or the engine PWB and check for correct operation (see page 1-5-34 or 1-5-35). |
| 4000 | Polygon motor synchronization error <br> The polygon motor is not stabilized within 10 s after driving starts. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Laser scanner unit and engine PWB (YC11) |
|  |  | Defective polygon motor. | Replace the laser scanner unit (see page 1-5-23). |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 4010 | Polygon motor steady-state error <br> Stable OFF is detected for 1 s continuously after polygon motor stabilized. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Laser scanner unit and engine PWB (YC11) |
|  |  | Defective polygon motor. | Replace the laser scanner unit (see page 1-5-23). |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| 4100 | BD initialization error $B D$ is not detected within 1 s after polygon motor stabilized. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> BD PWB and APC PWB (YC1) <br> APC PWB (YC2) and main PWB (YC103) |
|  |  | Defective APC PWB. | Replace the laser scanner unit (see page 1-5-23). |
|  |  | Defective BD PWB. |  |
|  |  | Defective main PWB. | Replace the main PWB and check for correct operation (see page 1-5-34). |
| 4700 | VIDEO ASIC device error | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Main PWB (YC105) and engine PWB (YC17) |
|  |  | Defective main PWB or engine PWB. | Replace the main PWB or the engine PWB and check for correct operation (see page 1-5-34, 1-5-35). |
| 6000 | Broken fuser heater wire <br> The detected temperature of fuser thermistor does not reach the specified temperature (ready indication temperature) after the fuser heater has been turned on continuously for 60 s in warming up. The fusing temperature at 5.6 seconds and 16 seconds since fuser temperature control has occurred differs by $43^{\circ} \mathrm{C} / 109.4^{\circ} \mathrm{F}$ or less. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Fuser heater and power source PWB (YC102) <br> Fuser unit and engine PWB (YC7) |
|  |  | Deformed connector pin. | See page 1-4-15. |
|  |  | Defective triac. | See page 1-4-15. |
|  |  | Fuser thermostat triggered. | Reinsert the fuser unit (see page 1-5-21). |
|  |  | Broken fuser heater wire. |  |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 6020 | Abnormally high fuser thermistor temperature The fuser thermistor detects a temperature higher than $230^{\circ} \mathrm{C} / 446^{\circ} \mathrm{F}$ continuously for 40 ms . <br> High fuser temperature signal detects a temperature of $255^{\circ} \mathrm{C} / 491^{\circ} \mathrm{F}$ continuously for 40 ms . | Deformed connector pin. | See page 1-4-15. |
|  |  | Defective triac. | See page 1-4-15. |
|  |  | Shorted fuser thermistor. | Replace the fuser unit (see page 1-5-21). |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| 6030 | Broken fuser thermistor wire <br> A/D value of the fuser thermistor exceeds 251 bit continuously for 5.6 s during warming up. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Fuser heater and power source PWB (YC102) <br> Fuser unit and engine PWB (YC7) |
|  |  | Deformed connector pin. | See page 1-4-15. |
|  |  | Defective triac. | See page 1-4-15. |
|  |  | Defective fuser thermistor | Replace the fuser unit (see page 1-5-21). |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| 6050 | Abnormally low fuser thermistor temperature As the stable temperature has reached the second time, the decrease in the fuser thermistor temperature of $60^{\circ} \mathrm{C} / 140^{\circ} \mathrm{F}$ or greater is detected for one second. | Deformed connector pin. | See page 1-4-15. |
|  |  | Defective triac. | See page 1-4-15. |
|  |  | Defective fuser thermistor. | Replace the fuser unit (see page 1-5-21). |
|  |  | Defective fuser heater. |  |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 6000/ <br> 6020/ <br> 6030/ <br> 6050 <br> Com- <br> bined | Broken fuser heater wire Abnormally high fuser thermistor temperature Broken fuser thermistor wire <br> Abnormally low fuser thermistor temperature | Deformed connector pin. | If the I/F connector pins of the fuser unit and the main unit are deformed owing to foreign matters, such as paper dusts, replace the connectors or the units including the connectors. |
|  |  | Defective triac. | Remove the power cord and check that the resistance between terminals T1 and T2 of the triac TRA51 is of several Mega-Ohms and not shorted (see figure 1-4-2). If failed, replace the power source PWB (see page 1-5-35). |
|  |  |  | Power source PWB <br> Figure 1-4-2 |
| 6400 | Zero-cross signal error While fuser heater control is performed, the zero-cross signal is not input within 3 s . | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Power source PWB (YC4) and engine PWB (YC21) |
|  |  | Defective power source PWB or engine PWB. | Replace the power source PWB or the engine PWB and check for correct operation (see page 1-5-35). |
| 7800 | Broken external thermistor wire <br> The thermistor output value is 0.3 V or less. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Temperature sensor and engine PWB (YC21) |
|  |  | Defective temperature sensor. | Replace the temperature sensor. |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 7810 | Short-circuited external thermistor wire The thermistor output value is 3 V or more. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Temperature sensor and engine PWB (YC21) |
|  |  | Defective temperature sensor. | Replace the temperature sensor. |
| 7900 | Drum unit EEPROM error <br> No response is issued from the device in reading/writing for 5 ms or more and this problem is repeated five times successively. Mismatch of reading data from two locations occurs eight times successively. Mismatch between writing data and reading data occurs eight times successively. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Drum unit and engine PWB (YC15) |
|  |  | Defective drum unit. | Replace the drum unit (see 1-5-19). |
| 7910 | Developer unit EEPROM error <br> No response is issued from the device in reading/writing for 5 ms or more and this problem is repeated five times successively. Mismatch of reading data from two locations occurs eight times successively. Mismatch between writing data and reading data occurs eight times successively. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. Developer unit and engine PWB (YC12 |
|  |  | Defective developer unit. | Replace the developer unit (see 1-5-16). |
| 8030 | Tray upper limit detection problem (document finisher) <br> When the tray elevation motor raises a tray, the ON status of the tray upper limit sensor is detected. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Tray upper limit sensor and DF main PWB (CN5) <br> Paper surface sensor $1 / 2$ and DF main PWB (CN6) |
|  |  | Defective tray upper limit sensor, paper surface sensor 1/2. | Replace the sensor. |
|  |  | Defective DF main PWB. | Replace the DF main PWB and check for correct operation. |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 8040 | Belt problem (document finisher) <br> The belt sensor does not turn on/off within specified time of the belt solenoid turning on. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Belt sensor and DF main PWB (CN10) <br> Belt solenoid and DF main PWB (CN21) |
|  |  | Defective belt sensor. | Replace the belt sensor. |
|  |  | Defective belt solenoid. | Replace the belt solenoid. |
|  |  | Defective DF main PWB. | Replace the DF main PWB and check for correct operation. |
| 8140 | Tray elevation motor problem (document finisher) The tray low limit sensor or paper surface sensor $1 / 2$ cannot be detected to be on within 10 s since the tray elevation motor is activated. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Tray elevation motor and DF main PWB (CN12) |
|  |  | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Tray lower limit sensor, and DF main PWB (CN5) <br> Paper surface sensor $1 / 2$ and DF main PWB (CN6) |
|  |  | The tray elevation motor malfunctions. | Replace the tray elevation motor. |
|  |  | Defective tray lower limit sensor, paper surface sensor 1/2. | Replace the sensor. |
|  |  | Defective DF main PWB. | Replace the DF main PWB and check for correct operation. |
| 8210 | Stapler problem (document finisher) Jam 7012 or 7023 is indicated. | Defective connector cable of staple or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. |
|  |  | The stapler is blocked with a staple. | Remove the stapler cartridge, and check the cartridge and the stapling section of the stapler. |
|  |  | The stapler is broken. | Replace the stapler and check for correct operation. |
|  |  | Defective DF main PWB. | Replace the DF main PWB and check for correct operation. |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 8320 | Adjustment motor 2 problem (document finisher) The adjustment sensor 2 does not turn on/off within specified time of the adjustment motor 2 turning on. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Adjustment motor 2 and DF main PWB (CN18) <br> Adjustment sensor 2 and DF main PWB (CN7) |
|  |  | Defective adjustment sensor 2 | Replace the adjustment sensor 2. |
|  |  | Defective adjustment motor 2. | Replace the adjustment motor 2. |
|  |  | Defective DF main PWB. | Replace the DF main PWB and check for correct operation. |
| 8330 | Adjustment motor 1 problem (document finisher) The adjustment sensor 1 does not turn on/off within specified time of the adjustment motor 1 turning on. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Adjustment motor 1 and DF main PWB (CN18) <br> Adjustment sensor 1 and DF main PWB (CN7) |
|  |  | Defective adjustment sensor 1. | Replace the adjustment sensor 1. |
|  |  | Defective adjustment motor 1. | Replace the adjustment motor 1. |
|  |  | Defective DF main PWB. | Replace the DF main PWB and check for correct operation. |
| 8350 | Roller motor problem (document finisher) <br> The roller sensor does not turn on/off within specified time of the roller motor turning on. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Roller motor and DF main PWB (CN2O) <br> Roller sensor and DF main PWB (CN11) |
|  |  | Defective roller sensor. | Replace the roller sensor. |
|  |  | Defective roller motor. | Replace the roller motor. |
|  |  | Defective DF main PWB. | Replace the DF main PWB and check for correct operation. |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 8360 | Slide motor problem (document finisher) <br> The slide sensor does not turn on/off within specified time of the slide motor turning on. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Slide motor and DF main PWB (CN14) <br> Slide sensor and DF main PWB (CN22) |
|  |  | Defective slide sensor. | Replace the slide sensor. |
|  |  | Defective slide motor. | Replace the slide motor. |
|  |  | Defective DF main PWB. | Replace the DF main PWB and check for correct operation. |
| 8460 | EEPROM problem (document finisher) <br> Reading from or writing to EEPROM cannot be performed. | Defective EEPROM or DF main PWB. | Replace the DF main PWB and check for correct operation. |
| 8800 | Document finisher communication error A communication error is detected 10 times in succession. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Engine PWB (YC19) and DF relay PWB (YC2) <br> DF relay PWB (YC3) and DF main PWB (CN1) |
|  |  | Defective DF main PWB. | Replace the DF main PWB and check for correct operation. |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| 8830 | Bridge communication error (document finisher) A communication error is detected 10 times in succession. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Engine PWB (YC19) and DF relay PWB (YC2) <br> DF relay PWB (YC4) and bridge PWB (YC5) |
|  |  | Defective bridge PWB. | Replace the bridge PWB and check for correct operation. |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |


| Code | Contents | Causes | Check procedures/ corrective measures |
| :---: | :---: | :---: | :---: |
| 8990 | Document finisher communication error | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. |
|  |  | Defective DF main PWB. | Replace the DF main PWB and check for correct operation. |
|  |  | Defective bridge PWB. | Replace the bridge PWB and check for correct operation. |
| 9000 | Document processor communication error A communication error is detected 10 times in succession. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> DP main PWB and engine PWB (YC18) |
|  |  | Defective DP main PWB. | Replace the DP main PWB and check for correct operation (see page 1-5-32). |
| 9060 | DP EEPROM error <br> Read and write data does not match. <br> Data in the specified area of the backup memory does not match the specified values. | Defective DP main PWB. | Replace the DP main PWB and check for correct operation (see page 1-5-32). |
|  |  | Device damage of EEPROM. | Contact the Service Administrative Division. |
| 9500 |  |  | Contact the Service Administrative Division. |
| 9510 |  |  |  |
| 9520 |  |  |  |
| 9530 |  |  | Contact the Service Administrative Division. |
| 9540 |  |  |  |
| 9550 |  |  |  |
| F000 | Main PWB - operation panel PWB communication error | Defective main PWB. | Turn the main power switch off/on to restart the machine. If the error is not resolved, replace main PWB (see page 1-5-34). |
|  |  | Defective operation panel PWB. | Replace the operation panel PWB and check for correct operation. |
| F010 | Main PWB checksum error | Defective main PWB. | Turn the main power switch off/on to restart the machine. If the error is not resolved, replace main PWB (see page 1-5-34). |
| F011 |  |  |  |
| F012 |  |  |  |
| F013 |  |  |  |
| F040 | Main PWB - print engine communication error | Defective main PWB. | Turn the main power switch off/on to restart the machine. If the error is not resolved, replace main PWB (see page 1-5-34). |
|  |  | Defective engine PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| F050 | Print engine ROM checksum error | Defective engine PWB. | Turn the main power switch off/on to restart the machine. If the error is not resolved, replace engine PWB (see page 1-5-35). |

## 1-4-3 Image formation problems

If the part causing the problem was not supplied, use the unit including the part for replacement.
(1) No image appears (entirely white).
(2) No image appears (entirely black).


See page 1-4-22
(6) Black streaks are printed vertically.

See page 1-4-22
(7) Streaks are printed horizontally.
(3) Image is too light.

See page 1-4-23
(8) One side of the print image is darker than the other.
(4) The background is colored.


See page 1-4-23
(9) Spots are
printed.



See page 1-4-24
(11) The leading edge of the image is consistently misaligned with the original.


See page 1-4-24
(12)The leading edge of the image is sporadically misaligned with the original.


See page 1-4-24
(13)Paper is wrinkled.

(16)Fusing is loose. (17)Image is out of
(18)Image center does not align with the original center.


See page 1-4-27

See page 1-4-25 focus.


See page 1-4-27


See page 1-4-26


See page 1-4-26

(5) White streaks are printed vertically.


See page 1-4-23
(10)Image is blurred.

See page 1-4-25
(15)Part of image is missing.


See page 1-4-26
(1) No image appears (entirely white).

| Print example | Causes |  | Check procedures/corrective measures |
| :---: | :---: | :---: | :---: |
|  | Defective transfer bias output. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> High voltage PWB and engine PWB (YC10) |
|  |  | Defective high voltage PWB. | Replace the high voltage PWB (see page 1-5-37). |
|  |  | Defective engine PWB. | Replace the engine PWB (see page 1-5-35). |
|  | Defective developer bias output. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> High voltage PWB and engine PWB (YC10) |
|  |  | Defective high voltage PWB. | Replace the high voltage PWB (see page 1-5-37). |
|  |  | Defective engine PWB. | Replace the engine PWB (see page 1-5-35). |
|  | No LSU laser is output. | Defective laser scanner unit. | Replace the laser scanner unit (see page 1-5-23). |
|  |  | Defective main PWB. | Replace the main PWB (see page 1-5-34). |

## (2) No image appears (entirely black).

| Print example | Causes |  | Check procedures/corrective measures |
| :---: | :---: | :---: | :---: |
|  | No main charging. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> High voltage PWB and engine PWB (YC10) |
|  |  | Defective charger roller unit. | Replace the charger roller unit (see page 1-5-19). |
|  |  | Defective high voltage PWB. | Replace the high voltage PWB (see page 1-5-37). |
|  |  | Defective engine PWB. | Replace the engine PWB (see page 1-5-35). |
|  | Exposure lamp fails to light. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> LED PWB and main PWB (YC112) CCD PWB and main PWB (YC113) |
|  |  | Defective CCD PWB. | Replace the image scanner unit (see page 1-5-24). |
|  |  | Defective main PWB. | Replace the main PWB (see page 1-5-34). |

(3) Image is too light.

| Print example | Causes |  | Check procedures/corrective measures |
| :---: | :---: | :---: | :---: |
|  | Defective transfer charger output. | Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> High voltage PWB and engine PWB (YC10) |
|  |  | Defective high voltage PWB. | Replace the high voltage PWB (see page 1-5-37). |
|  |  | Defective engine PWB. | Replace the engine PWB (see page 1-5-35). |
|  | Insufficient toner. |  | If the display shows the message requesting toner replenishment, replace the container. |
|  | Deteriorated toner. |  | Perform the drum refresh operation. |
|  |  |  | Perform the gradation adjustment in a system menu. |

(4) The background is colored.

| Print example | Causes |  | Check procedures/corrective measures |
| :--- | :--- | :--- | :--- |
|  | Defective <br> main <br> charger out- <br> put. | Defective connector cable <br> or poor contact in the con- <br> nector. | Reinsert the connector. Also check for conti- <br> nuity within the connector cable. If none, <br> replace the cable. <br> High voltage PWB and engine PWB (YC10) |
|  |  | Defective high voltage <br> PWB. | Replace the high voltage PWB <br> (see page 1-5-37). |
|  | Defective engine PWB. | Replace the engine PWB (see page 1-5-35). |  |
|  |  | Deteriorated toner. | Perform the drum refresh operation. |
|  |  |  |  |

(5) White streaks are printed vertically.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :--- | :--- |
|  Foreign matter in the devel- <br> oper unit.Check if the magnetic brush is formed uniformly. Replace <br> the developer unit if any foreign matter (see page 1-5-16). |  |  |
|  | Dirty shading plate. | Clean the shading plate. |
|  | Adhesion of soiling to transfer <br> roller. | Clean the transfer roller. Replace the transfer roller if it is <br> extremely dirty (see page 1-5-20). |
|  | Dirty LSU dust shield glass. | Perform the LSU dust shield glass cleaning. |

(6) Black streaks are printed vertically.

| Print example | Causes | Check procedures/corrective measures |
| :--- | :--- | :--- |
|  | Dirty contact glass. | Clean the contact glass. |
|  | Dirty slit glass. | Clean the slit glass. |
|  | Dirty or flawed drum. | Perform the drum refresh operation. <br> Flawed drum. Replace the drum unit (see page 1-5-19). |
|  | Deformed or worn cleaning <br> blade in the drum unit. | Replace the drum unit (see page 1-5-19). |
|  | Defective transfer roller. | Replace the transfer roller (see page 1-5-20). |
|  | Dirty scanner mirror. | Clean the scanner mirror. |

## (7) Streaks are printed horizontally.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
|  | Dirty or flawed drum. | Perform the drum refresh operation. <br> Flawed drum. Replace the drum unit (see page 1-5-19). |
|  | Dirty developer section. | Clean any part contaminated with toner in the developer section. |
|  | Poor contact of grounding terminal of drum unit. | Check the installation of the drum unit. If it operates incorrectly, replace it (see page 1-5-19). |

(8) One side of the print image is darker than the other.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :--- | :--- |
|  | Defective exposure lamp. | Replace the LED PWB (see page 1-5-27). |

(9) Spots are printed.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
|  | Dirty contact glass. | Clean the contact glass. |
|  | Dirty or flawed drum. | Perform the drum refresh operation. <br> Flawed drum. Replace the drum unit (see page 1-5-19). |
|  | Deformed or worn cleaning blade in the drum unit. | Replace the drum unit (see page 1-5-19). |
|  | Flawed developer roller. | Replace the developer unit (see page 1-5-16). |
|  | Dirty heat roller and press roller. | Clean the heat roller and press roller. |

(10) Image is blurred.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
|  | Scanner moves erratically. | Check if there is any foreign matter on the front and rear scanner rails. If any, remove it. |
|  | Deformed press roller. | Replace the fuse unit (see page 1-5-21). |
|  | Paper conveying section drive problem. | Check the gears and belts and, if necessary, grease them. |

(11) The leading edge of the image is consistently misaligned with the original.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
|  | Misadjusted leading edge registration. | Run maintenance mode U034 to readjust the leading edge registration (see page 1-3-20). |
|  | Misadjusted scanner leading edge registration. | Run maintenance mode U066 to readjust the scanner leading edge registration (see page 1-3-29). |

(12) The leading edge of the image is sporadically misaligned with the original.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :--- | :--- |
| $\square$ | Paper feed clutch, registra- <br> tion clutch or duplex clutch <br> operating incorrectly. | Check the installation of the clutch. If it operates incor- <br> rectly, replace it. |

(13) Paper is wrinkled.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
|  | Paper curled. | Check the paper storage conditions. |
|  | Paper damp. | Check the paper storage conditions. |
|  | Defective pressure springs. | Replace the fuser unit (see page 1-5-21). |

(14) Offset occurs.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
|  | Deformed or worn cleaning blade in the drum unit. | Replace the drum unit (see page 1-5-19). |
|  | Defective fuser unit. | Replace the fuser unit (see page 1-5-21). |
|  | Wrong types of paper. | Check if the paper meets specifications. Replace paper. |

(15) Part of image is missing.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
|  | Paper damp. | Check the paper storage conditions. |
|  | Paper creased. | Replace the paper. |
|  | Drum condensation. | Perform the drum refresh operation. |
|  | Dirty or flawed drum. | Perform the drum refresh operation. <br> Flawed drum. Replace the drum unit (see page 1-5-19). |
|  | Dirty transfer roller. | Clean the transfer roller. Replace the transfer roller if it is extremely dirty (see page 1-5-20). |

(16) Fusing is loose.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
|  | Wrong types of paper. | Check if the paper meets specifications, replace paper. |
|  | Flawed heat roller or press roller. | Replace the fuser unit (see page 1-5-21). |
|  | Defective pressure springs. |  |
|  | Defective fuser heater. |  |

(17) Image is out of focus.

| Print example | Causes | Check procedures/corrective measures |
| :--- | :--- | :--- |
|  | Defective image scanning <br> unit. | Replace the image scanning unit (see page 1-5-24). |
|  | Drum condensation. | Perform the drum refresh operation. |

(18) Image center does not align with the original center.

| Print example | Causes | Check procedures/corrective measures |
| :---: | :--- | :--- |
|  | Misadjusted image center <br> line. | Run maintenance item U034 to readjust the center line of <br> image printing (see page 1-3-20). |
|  | Misadjusted scanner center <br> line. | Run maintenance item U067 to readjust the scanner lead- <br> ing edge registration (see page 1-3-30). |
|  | Original is not placed cor- <br> rectly. | Place the original correctly. |

## 1-4-4 Electric problems

If the part causing the problem was not supplied, use the unit including the part for replacement. Troubleshooting to each failure must be in the order of the numbered symptoms.

| Problem | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
| (1) <br> The machine does not operate when the main power switch is turned on | 1. No electricity at the power outlet. | Measure the input voltage. |
|  | 2. The power cord is not plugged in properly. | Check the contact between the power plug and the outlet. |
|  | 3. Broken power cord. | Check for continuity. If none, replace the cord. |
|  | 4. Defective main power switch. | Check for continuity across the contacts. If none, replace the power switch. |
|  | 5. Defective interlock switch. | Check for continuity across the contacts of interlock switch. If none, replace the power source PWB (see page 1-5-35). |
|  | 6. Defective power source PWB. | Replace the power source PWB (see page 1-5-35). |
| (2) Eject motor does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Eject motor and engine PWB (YC6) |
|  | 2. Defective drive transmission system. | Check if the rollers and gears rotate smoothly. If not, grease the bushes and gears. Check for broken gears and replace if any. |
|  | 3. Defective motor. | Replace the eject motor. |
|  | 4. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| (3) <br> Power source fan motor does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Power source fan motor and main PWB (YC22) |
|  | 2. Defective motor. | Replace the power source fan motor. |
|  | 3. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| (4) Eject fan motor does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Eject fan motor and engine PWB (YC4) |
|  | 2. Defective motor. | Replace the eject fan motor. |
|  | 3. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |


| Problem | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
| (5) <br> Controller fan motor does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. Controller fan motor and main PWB (YC41) |
|  | 2. Defective motor. | Replace the controller fan motor. |
|  | 3. Defective PWB. | Replace the main PWB and check for correct operation (see page 1-5-34). |
| (6) ISU motor does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. ISU motor and engine PWB (YC14) |
|  | 2. Defective drive transmission system. | Check if the rollers and gears rotate smoothly. If not, grease the bushes and gears. Check for broken gears and replace if any. |
|  | 3. Defective motor. | Replace the ISU motor. |
|  | 4. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| (7) <br> Paper feed clutch does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. Paper feed clutch and engine PWB (YC1) |
|  | 2. Defective clutch. | Replace the paper feed clutch. |
|  | 3. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| (8) <br> Registration clutch does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. Registration clutch and engine PWB (YC1) |
|  | 2. Defective clutch. | Replace the registration clutch. |
|  | 3. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| (9) <br> Duplex clutch does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Duplex clutch and engine PWB (YC1) |
|  | 2. Defective clutch. | Replace the duplex clutch. |
|  | 3. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| (10) <br> MP solenoid does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. MP solenoid and engine PWB (YC1) |
|  | 2. Defective solenoid. | Replace the MP solenoid. |
|  | 3. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |


| Problem | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
| (11) <br> Feedshift solenoid does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Feedshift solenoid and engine PWB (YC5) |
|  | 2. Defective solenoid. | Replace the Feedshift solenoid. |
|  | 3. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| (12) <br> The message requesting paper to be loaded is shown when paper is present on the cassette. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Paper sensor and engine PWB (YC2) |
|  | 2. Deformed actuator of the paper sensor. | Check visually and replace if necessary. |
|  | 3. Defective paper sensor. | Replace the cassette PWB. |
|  | 4. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| (13) <br> The message requesting paper to be loaded is shown when paper is present on the MP tray. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. MP paper sensor and engine PWB (YC3) |
|  | 2. Deformed actuator of the MP paper sensor. | Check visually and replace if necessary. |
|  | 3. Defective MP paper sensor. | Replace the MP paper sensor. |
|  | 4. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| (14) <br> The size of paper on the cassette is not displayed correctly. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> Paper size width switch and engine PWB (YC2) <br> Paper size length switch and engine PWB (YC2) |
|  | 2. Defective cassette size switch. | Replace the paper size width switch or paper size length switch. |
|  | 3. Defective PWB. | Replace the engine PWB and check for correct operation (see page 1-5-35). |
| (15) <br> A paper jam in the paper feed, paper conveying or eject section is indicated when the main power switch is turned on. | 1. A piece of paper torn from paper is caught around registration sensor, duplex sensor, feed sensor or eject sensor. | Check visually and remove it, if any. |
|  | 2. Defective sensor. | Replace the registration sensor, duplex sensor, feed sensor or eject sensor. |


| Problem | Causes | Check procedures/corrective measures |
| :--- | :--- | :--- |
| (16) <br> A message indicat- <br> ing cover open is <br> displayed when the <br> front cover or right <br> cover is closed. | 1. Deformed actuator of <br> the interlock switch. | 2. Defective interlock <br> switch. |


| Problem | Causes | Check procedures/corrective measures |
| :---: | :---: | :---: |
| (21) <br> DP paper feed clutch does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> DP paper feed clutch and DP main PWB (YC8) DP main PWB (YC1) and engine PWB (YC18) |
|  | 2. Defective clutch. | Replace the DP paper feed clutch. |
|  | 3. Defective PWB. | Replace the DP main PWB or engine PWB and check for correct operation (see page 1-5-32,1-5-35). |
| (22) <br> DP registration clutch does not operate. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> DP registration clutch and DP main PWB (YC8) <br> DP main PWB (YC1) and engine PWB (YC18) |
|  | 2. Defective clutch. | Replace the DP registration clutch. |
|  | 3. Defective PWB. | Replace the DP main PWB or engine PWB and check for correct operation (see page 1-5-32,1-5-35). |
| (23) <br> An original jams when the main power switch is turned on. | 1. A piece of paper torn from an original is caught around the DP paper feed sensor, DP registration sensor or DP timing sensor. | Check visually and remove it, if any. |
|  | 2. Defective sensor. | Replace the DP paper feed sensor, DP registration sensor or DP timing sensor. |
| (24) <br> A message indicating cover open is displayed when the DP top cover is closed. | 1. Defective connector cable or poor contact in the connector. | Reinsert the connector. Also check for continuity within the connector cable. If none, replace the cable. <br> DP open/close sensor and DP main PWB (YC5) <br> DP main PWB (YC1) and engine PWB (YC18) |
|  | 2. Defective DP open/ close sensor. | Replace the DP open/close sensor. |

## 1-4-5 Mechanical problems

If the part causing the problem was not supplied, use the unit including the part for replacement.

| Problem | Causes/check procedures | Corrective measures |
| :---: | :---: | :---: |
| (1) <br> No primary paper feed. | Check if the surfaces of the following rollers are dirty with paper powder. <br> Pickup roller <br> Paper feed roller <br> MP paper feed roller | Clean with isopropyl alcohol. |
|  | Check if the following rollers is deformed. <br> Pickup roller <br> Paper feed roller <br> MP paper feed roller | Check visually and replace any deformed (see page 1-5-10, 1-5-11). |
|  | Defective paper feed clutch installation. | Check visually and remedy if necessary. |
| (2) <br> No secondary paper feed. | Check if the surfaces of the following rollers are dirty with paper powder. <br> Upper registration roller Lower registration roller | Clean with isopropyl alcohol. |
|  | Defective registration clutch installation. | Check visually and remedy if necessary. |
| (3) Skewed paper feed. | Paper width guide in a cassette installed incorrectly. | Check the paper width guide visually and remedy or replace if necessary. |
| (4) <br> Multiple sheets of paper are fed. | Check if the paper is excessively curled. | Change the paper. |
|  | Paper is loaded incorrectly. | Load the paper correctly. |
|  | Check if the retard roller is worn. | Replace the retard roller if it is worn (see page 1-5-10). |
| (5) Paper jams. | Check if the paper is excessively curled. | Change the paper. |
|  | Check if the contact between the upper and lower registration rollers is correct. | Check visually and remedy if necessary. |
|  | Check if the heat roller or press roller is extremely dirty or deformed. | Check visually and replace the fuser unit (see page 1-5-21). |
| (6) <br> Toner drops on the paper conveying path | Check if the drum unit or developer unit is extremely dirty. | Clean the drum unit or developer unit. |
| (7) Abnormal noise is heard. | Check if the rollers, pulleys and gears operate smoothly. | Grease the bushes and gears. |
|  | Check if the following clutches are installed correctly. <br> Paper feed clutch Registration clutch Duplex clutch | Check visually and remedy if necessary. |


| Problem | Causes/check procedures | Corrective measures |
| :---: | :---: | :---: |
| (8) <br> No primary original feed. | Check if the surfaces of the following pulleys are dirty with paper powder. <br> DP forwarding pulley <br> DP paper feed roller | Clean with isopropyl alcohol. |
|  | Check if the following pulleys is deformed. <br> DP forwarding pulley <br> DP paper feed roller | Check visually and replace any deformed (see page 1-5-30). |
| (9) <br> Multiple sheets of original are fed. | Original is not correctly set. | Set the original correctly. |
|  | Check if the DP separation pulley is worn. | Replace the DP separation pulley if it is worn (see page 1-5-30). |
| (10) <br> Originals jam. | Originals outside the specifications are used. | Use only originals conforming to the specifications. |
|  | Check if the surfaces of the following pulleys are dirty with paper powder. <br> DP forwarding pulley <br> DP paper feed roller | Clean with isopropyl alcohol. |
|  | Check if the contact between the registration roller and registration pulley is correct. | Check visually and remedy if necessary. |
|  | Check if the contact between the conveying roller and conveying pulley is correct. | Check visually and remedy if necessary. |
|  | Check if the contact between the eject roller and eject pulley is correct. | Check visually and remedy if necessary. |
|  | Check if the contact between the switchback roller and switchback pulley is correct. | Check visually and remedy if necessary. |

## 1-4-6 Send error code

This section describes the scanning errors and descriptions, preventive actions, as well as corrective actions. Error codes not described here could fall within software errors.
If such an error is encountered, turn power off then on, and advise the service representative.
(1) Scan to SMB error codes

| Code | Contents | Check procedures/corrective measures |
| :---: | :--- | :--- |
| 1101 | Host destined does not exist on the net- <br> work. | 1. Confirm destined host. <br> 2. Confirm device's network parameters. <br> 3. Confirm the network parameters the device is con- <br> nected. |
| 1102 | Login to the host has failed. | 1. Confirm user name and passowrd. <br> 2. Confirm the network parameters the device is con- <br> nected. <br> 3. Check the host if the folder is properly shared. |
| 1103 | Destined host, folder, and/or file names <br> are invalid. | 1. Check illegal characters are not contained within <br> these names. |
|  |  | 2. Check the name of the folder and files conform with <br> the naming syntax. |
|  |  | 3. Confirm destined host and folder. |

(2) Scan to FTP error codes

| Code | Contents | Check procedures/corrective measures |
| :---: | :---: | :---: |
| 1101 | FTP server does not exist on the network. | 1. Check the FTP server name. <br> 2. Confirm device's network parameters. <br> 3. Confirm the network parameters the device is connected. |
| 1102 | Login to the FTP server has failed. | 1. Confirm user name and passowrd. <br> 2. Check the FTP server name. |
| 1103 | Destined folder is invalid. | 1. Check illegal characters are not contained within these names. <br> 2. Check the FTP server name. |
| 1105 | FTP protocol is not enabled. | 1. Confirm device's FTP protocols. |
| 1131 | Initializing TLS has failed. | 1. Confirm device's security parameters. |
| 1132 | TLS negotiation has failed. | 1. Confirm device's security parameters. <br> 2. Check the FTP server name. |
| 2101 | Access to the FTP server has failed. | 1. Check the FTP server name. <br> 2. Confirm that the LAN cable is properly connected to the device. <br> 3. Check the FTP port number. <br> 4. Confirm device's network parameters. <br> 5. Confirm the network parameters the device is connected. <br> 6. Check the FTP server name. |
| 2102 | Access to the FTP server has failed. (Connection timeout) | 1. Check the FTP server name. <br> 2. Check the FTP port number. <br> 3. Confirm device's network parameters. <br> 4. Confirm the network parameters the device is connected. <br> 5. Check the FTP server name. |
| 2201 | Connection with the FTP server has failed. | 1. Confirm device's network parameters. <br> 2. Confirm the network parameters the device is connected. <br> 3. Confirm destined folder. <br> 4. Check the FTP server name. |
| 2202 | Connection with the FTP server has failed. <br> (Timeout) | 1. Confirm device's network parameters. <br> 2. Confirm the network parameters the device is connected. |
| 2231 | Connection with the FTP server has failed. <br> (FTPS communication) | 1. Confirm device's network parameters. <br> 2. Confirm the network parameters the device is connected. |
| 3101 | FTP server responded with an error. | 1. Confirm device's network parameters. <br> 2. Confirm the network parameters the device is connected. <br> 3. Check the FTP server. |

## (3) Scan to E-mail error codes

| Code | Contents | Check procedures/corrective measures |
| :---: | :---: | :---: |
| 1101 | SMTP/POP3 server does not exist on the network. | 1. Check the SMTP/POP3 server name. <br> 2. Confirm device's network parameters. <br> 3. Confirm the network parameters the device is connected. |
| 1102 | Login to the SMTP/POP3 server has failed. | 1. Confirm user name and passowrd. <br> 2. Check the SMTP/POP3 server. |
| 1104 | The domain the destinede address belongs is prohibited by scanning restriction. | 1. Confirm device's SMTP parameters. |
| 1105 | SMTP protocol is not enabled. | 1. Confirm device's SMTP protocols. |
| 1106 | Sender's address is not specified. | 1. Confirm device's SMTP protocols. |
| 2101 | Connection to the SMTP/POP3 server has failed. | 1. Check the SMTP/POP3 server name. <br> 2. Confirm that the LAN cable is properly connected to the device. <br> 3. Check the SMTP/POP3 port number. <br> 4. Confirm device's network parameters. <br> 5. Confirm the network parameters the device is connected. <br> 6. Check the SMTP/POP3 server. |
| 2102 | Connection to the SMTP/POP3 server has failed. <br> (Connection timeout) | 1. Check the SMTP/POP3 server name. <br> 2. Check the SMTP/POP3 port number. <br> 3. Confirm device's network parameters. <br> 4. Confirm the network parameters the device is connected. <br> 5. Check the SMTP/POP3 server. |
| 2201 | Connection to the SMTP/POP3 server has failed. | 1. Confirm device's network parameters. <br> 2. Confirm the network parameters the device is connected. |
| 2202 | Connection to the SMTP/POP3 server has failed. <br> (Timeout) | 1. Confirm device's network parameters. <br> 2. Confirm the network parameters the device is connected. |
| 2204 | The size of scanning exceeded its limit. | 1. Confirm device's network parameters. |
| 3101 | SMTP/POP3 server responded with an error. | 1. Confirm device's network parameters. <br> 2. Confirm the network parameters the device is connected. <br> 3. Check the SMTP/POP3 server. |
| 3201 | No SMTP authentication is found. | 1. Check the SMTP server. <br> 2. The device supports SMTP authentication services including CRAM-MD5, DIGEST-MD5, PLAIN and LOGIN. |

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## 1-5-1 Precautions for assembly and disassembly

## (1) Precautions

Before starting disassembly, press the Power key on the operation panel to off. Make sure that the Power lamp is off before turning off the main power switch. Unplug the power cable from the wall outlet.
When the fax kit is installed, be sure to disconnect the modular code before starting disassembly.
When handling PWBs (printed wiring boards), do not touch parts with bare hands.
The PWBs are susceptible to static charge.
Do not touch any PWB containing ICs with bare hands or any object prone to static charge.
When removing the hook of the connector, be sure to release the hook.
Take care not to get the cables caught.
To reassemble the parts, use the original screws. If the types and the sizes of screws are not known, refer to the PARTS LIST.

## (2) Drum unit

Note the following when handling or storing the drum unit.
When removing the drum unit, never expose the drum surface to strong direct light.
Keep the drum unit at an ambient temperature between $-20^{\circ} \mathrm{C} /-4^{\circ} \mathrm{F}$ and $40^{\circ} \mathrm{C} / 104^{\circ} \mathrm{F}$ and at a relative humidity not higher than $85 \%$ RH. Avoid abrupt changes in temperature and humidity.
Avoid exposure to any substance which is harmful to or may affect the quality of the drum unit.
Do not touch the drum surface with any object. Should it be touched by hands or stained with oil, clean it.

## (3) Toner

Store the toner container in a cool, dark place.
Avoid direct light and high humidity.

## (4) How to tell a genuine Kyocera Mita toner container

As a means of brand protection, the Kyocera Mita toner container utilizes an optical security technology to enable visual validation. A validation viewer is required to accomplish this.

Hold the validation viewer over the left side part of the brand protection seal on the toner container. Through each window of the validation viewer, the left side part of the seal should be seen as follows:

A black-colored band when seen through the left side window ( )

A shiny or gold-colored band when seen through the right side window ( - $_{-\infty}^{-\quad \text { ) }) ~}$

The above will reveal that the toner container is a genuine Kyocera Mita branded toner container, otherwise, it is a counterfeit.


Figure 1-5-1
The brand protection seal has an incision as shown below to prohibit reuse.


Figure 1-5-2

## 1-5-2 Outer covers

## (1) Detaching and refitting the front cover

## Procedure

1. Remove the cassette.
(See page 1-5-10)
2. Open the front cover.


Figure 1-5-3
3. Unhitch the straps by squeezing the hooks inward as shown.


Figure 1-5-4
4. Remove two fulcrum axes of the front cover.
5. Remove the front cover.


Figure 1-5-5

## (2) Detaching and refitting the rear cover

## Procedure

1. Remove the power cord. If the document feeder is installed, remove its interface connector.
2. Remove two screws of the DP interface connector and then remove the DP interface connector.
(See page 1-5-29)
3. Remove the controller box cover.
4. Remove six screws.
5. Pull the rear cover upwards and then release three hooks.
6. Remove the rear cover.


Figure 1-5-6

## (3) Detaching and refitting the inner tray

## Procedure

1. Release the lock lever and then remove the job separator tray.


Figure 1-5-7
2. Remove the cassette.
(See page 1-5-10)
3. Open the front cover.(See page 1-5-3)
4. Remove two screws.
5. Release three hooks A.
6. Pull the left lower cover upwards and then release nine hooks B.
7. Remove the left lower cover.


Figure 1-5-8
8. Release two hooks of the front upper cover.
9. Tilt the front upper cover forward.


Figure 1-5-9
10. Remove the inner tray.


Figure 1-5-10

## (4) Detaching and refitting the eject rear cover

## Procedure

1. Release the hook by using a flat screwdriver and then remove the tray left cover.


Flat screwdriver


Figure 1-5-11
2. Release the hook of the left upper cover at the rear side.
3. Pull the left upper cover upwards and then release three hooks.
4. Remove the left upper cover.

ATTENTION: At the time of replace the left upper cover, confirm the position of the scaner lock lever .


Figure 1-5-12
5. Remove the eject upper cover while supporting the rear tray cover.


Figure 1-5-13
6. Remove the rear tray cover.


Figure 1-5-14

## 1-5-3 Paper feed section

## (1) Detaching and refitting the primary paper feed unit

## Procedure

1. Remove the cassette.


Figure 1-5-15
2. Release the feed lever (yellow) and then remove the primary feed unit.
3. Check or replace the primary paper feed unit and refit all the removed parts.


Figure 1-5-16

## (2) Detaching and refitting the MP paper feed roller and MP separation pad

## Procedure

1. Open the right cover 1.


Figure 1-5-17
2. While squeezing the holder inward, remove the MP feed roller.


Figure 1-5-18
3. Tilt the MP separation pad forward and then remove it upwards.
4. Check or replace the MP paper feed roller and MP separation pad and refit all the removed parts.


Figure 1-5-19
(3) Detaching and refitting the registration roller

## Procedure

1. Open the right cover 1 (See page 1-5-11).
2. Remove the conveyning unit. (See page 1-5-39)
3. Release four hooks and then remove the feed guide A from the conveying unit.

Figure 1-5-20
4. Release eight hooks and then remove the duplex conveying guide from the conveying unit.



Figure 1-5-21
5. Remove a spring in the middle at the back of the conveying unit.
6. Remove the transfer roller unit. (See page 1-5-20)
7. Remove two springs at the front and back of the registration roller.
8. Remove the cap and gear.
9. Slide and remove the registration roller.
10. Check or replace the registration roller and refit all the removed parts.

Figure 1-5-22


Figure 1-5-23

## (4) Detaching and refitting the registration cleaner

## Procedure

1. Open the right cover 1. (See page 1-5-11)
2. Open the front cover. (See page 1-5-3)
3. Open the developing cover.
(See page 1-5-17)
4. Set the cleaner lever (yellow) up and draw the registration cleaner frontward.
5. Check or replace the registration cleaner and refit all the removed parts.


Figure 1-5-24

## (5) Detaching and refitting the MP tray

## Procedure

1. Open the MP tray.
2. Release two fulcrums of the MP tray by using a flat screwdriver.
3. Pull two straps upwards to remove.
4. Remove the MP tray.


Figure 1-5-25

## 1-5-4 Developing section

## (1) Detaching and refitting the developing unit

## Procedure

1. Open the front cover. (See page 1-5-3)
2. Release the lock lever and then remove the waste toner box.


Figure 1-5-26
3. Release the toner container lever (blue) and then remove the toner container.


Figure 1-5-27
4. Release the lock lever (yellow).


Figure 1-5-28
5. Release the lock lever (yellow) of the developing cover to open.


Figure 1-5-29
6. Release the lock lever (yellow) and then remove the developing unit.
7. Check or replace the developing unit and refit all the removed parts.


Figure 1-5-30

## 1-5-5 Drum section

## (1) Detaching and refitting the drum unit

## Procedure

1. Open the front cover. (See page 1-5-3)
2. Release the waste toner box.
(See page 1-5-16)
3. Release the lock lever and then open the developing cover.
(See page 1-5-17)
4. Open the right cover 1.
(See page1-5-11)
5. Release the lock lever (yellow) and then remove the drum unit.
6. Check or replace the drum unit and refit all the removed parts.


Figure 1-5-31

## (2) Detaching and refitting the chager roller unit

## Procedure

1. Remove the drum unit.
(See page 1-5-19)
2. Release the lock lever and then remove the chager roller unit.
3. Check or replace the chager roller unit and refit all the removed parts.


Figure 1-5-32

## 1-5-6 Transfer/separation section

## (1) Detaching and refitting the transfer roller unit

## Procedure

1. Open the right cover 1.
(See page 1-5-11)
2. Release two lock levers (yellow) and then remove the transfer roller unit.
3. Check or replace the transfer roller unit and refit all the removed parts.

CAUTION: Inserting the transfer roller unit in place until it click in, when refitting the transfer roller unit.


Figure 1-5-33

## 1-5-7 Fuser section

## (1) Detaching and refitting the fuser unit

## Procedure

1. Open the right cover 1.
(See page 1-5-11)
2. Cause two knobs (yellow).
3. Release the lock lever (blue) and then remove the fuser unit.
4. Check or replace the fuser unit and refit all the removed parts.


Figure 1-5-34

## 1-5-8 Drive section

## (1) Detaching and refitting the main motor

## Procedure

1. Remove the rear cover.
(See page 1-5-5)
2. Remove the connector from the engine PWB.
3. Remove the wire from the hook.
4. Remove four screws and then remove the main motor.


Figure 1-5-35

## (2) Detaching and refitting the drive unit

## Procedure

1. Remove the rear cover.
(See page 1-5-5)
2. Remove the connector from the engine PWB.
3. Remove five screws and then remove the drive unit.
4. Check or replace the drive unit and refit all the removed parts.


Figure 1-5-36

## 1-5-9 Optical section

## (1) Detaching and refitting the laser scanner unit

## Procedure

1. Remove the rear cover and inner tray.(See page 1-5-5,1-5-6)
2. Remove the connector.
3. Remove the screw and then remove the power source fan motor.


Figure 1-5-37
4. Remove the connector.
5. Remove four screws and then remove the laser scanner unit.
6. Check or replace the laser scanner unit and refit all the removed parts.


Figure 1-5-38

## (2) Detaching and refitting the image scanner unit

## Procedure

1. Remove the DP or original cover. (See page 1-5-29)
2. Remove two screws and then remove the scanner right cover.

CAUTION: To reinstall the rscanner right cover, position it close to the platen.


Figure 1-5-39
3. Remove the platen.


Figure 1-5-40
4. Remove four screws and then remove the scanner cover.


Figure 1-5-41
5. Remove the FFC from the connector.
6. Remove four screws and then remove the image scanner unit.


Figure 1-5-42

## Refitting the ISU

7. When re-installation, fix the image scanner unit by matching to the scale of a former position.

When exchange, decide the fix position of ISU by the following.

The right and left of machine: Confirm the number marked (a) and then match the line (c) of ISU to the positioning line (b) of same number on frame side.
(Line (c) is the one which is marked with the appropriate number.)

The rear and front of machine: Match the edge (e) of ISU to the positioning line (d) on frame side.

8. Fix the ISU as before with four screws.
9. Check or replace the image scanner unit and refit all the removed parts.

Figure 1-5-43

## (3) Detaching and refitting the LED unit

## Procedure

1. Remove the DP or original cover. (See page 1-5-29)
2. Remove the sanner right cover and platen.(See page 1-5-24)
3. Remove the ISU front cover.


Figure 1-5-44
4. Remove two screws and then remove the ISU rear cover.


Figure 1-5-45
5. Move the exposure unit to the cutting lack part.
6. Release the hook and then remove the FFC cover.


Figure 1-5-46
7. Remove the FFC from the connector.
8. Remove two screws and then remove the LED unit.
9. Check or replace the LED unit and refit all the removed parts.


Figure 1-5-47

## 1-5-10 Document processer

## (1) Detaching and refitting the document processer

## Procedure

1. Remove the restriction parts.
2. Open the document processer on vertically.


Figure 1-5-48
3. Remove two screws and then remove the DP interface connector.
4. Pull the document processer upwards out.


Figure 1-5-49

## (2) Detaching and refitting the DP paper feed roller and DP separation pulley

## Procedure

1. Open the DP top cover.


Figure 1-5-50
2. Pull the DP paper feed lever (yellow) down and then open it.
3. Knock the DP paper feed roller down forward.


Figure 1-5-51
4. Release the hook and then remove DP separation pulley cover.

Figure 1-5-52
5. Raise the DP separation pulley and remove it by pulling upward.
6. Check or replace the DP paper feed roller and DP separation pulley and refit all the removed parts.


Figure 1-5-53

## (3) Detaching and refitting the DP main PWB

## Procedure

1. Open the document processer.
2. Release three hooks of the DP rear cover.


Figure 1-5-54
3. Release two hooks of the DP rear cover and then remove it.


Figure 1-5-55
4. Remove all connectors from DP main PWB.
5. Remove five clamps and then remove the waires from holder.
6. Remove two screws and then remove the holder.


Figure 1-5-56
7. Remove six screws and then remove the DP main PWB.
8. Check or replace the DP main PWB and refit all the removed parts.

CAUTION: When replacing the DP main PWB, remove the EEPROM from the DP main PWB that has been removed and then reattach it to the new DP main PWB.


Figure 1-5-57

## 1-5-11 PWBs

## (1) Detaching and refitting the main PWB

## Procedure

1. Remove the rear cover.
(See page 1-5-5)
2. Remove the left lower cover.
(See page 1-5-6)
3. Remove the connector.
4. Remove the wire from the clamp.
5. Remove eleven screws and then remove the controller box.


Figure 1-5-58
6. Remove all connectors for the main PWB.
7. Remove seven screws and then remove the main PWB.
8. Check or replace the main PWB and refit all the removed parts.

CAUTION: When replacing the main board, perform a re-setup in maintenance mode with reference to "1-6-2 Remarks on PWB replacement (See page 1-6-3)".


Figure 1-5-59

## (2) Detaching and refitting the engine PWB

## Procedure

1. Remove the rear cover.
(See page 1-5-5)
2. Remove all conectors from the engine PWB.
3. Remove four screws and then remove the engin PWB.
4. Check or replace the engine PWB and refit all the removed parts.

CAUTION: When replacing the engine PWB, remove the EEPROM (U12) from the engine PWB that has been removed and then reattach it to the new engine PWB.


Figure 1-5-60

## (3) Detaching and refitting the power source PWB

## Procedure

1. Remove the rear cover and inner tray.(See page 1-5-5,1-5-6)
2. Remove the power source fan motor.(See page 1-5-23)
3. Remove all connecters from the power source PWB.
4. Remove four screws and then remove the power source PWB.
5. Check or replace the power source PWB and refit all the removed parts.


Figure 1-5-61

## (4) Detaching and refitting the operation panel PWB main

## Procedure

1. Remove the language sheets. (See page 1-5-38)
2. Remove two screws.


Figure 1-5-62
3. Remove three connectors from the operation panel PWB main.
4. Remove the operation panel upper unit.


Figure 1-5-63
5. Remove four FFCs from the operatioon panel PWB main.
6. Remove four screws and then remove the operation panel PWB main.
7. Check or replace the operation panel PWB main and refit all the removed parts.


Figure 1-5-64

## (5) Detaching and refitting the high voltage PWB

## Procedure

1. Remove the rear cover, inner tray and eject rear cover.
(See page 1-5-5,1-5-6 and 1-5-8)
2. Remove the FFC from the high voltage PWB.
3. Remove four screws and then remove the high voltage PWB.
4. Check or replace the high voltage PWB and refit all the removed parts.


Figure 1-5-65

## 1-5-12 Others

## (1) Detaching and refitting the language sheet

## Procedure

1. Remove the upper cover by using a pen.
2. Remove the LCD cover.
3. Remove two operation panel covers
4. Remove two language sheets.
5. Check or replace the language sheet and refit all the removed parts.


Figure 1-5-66

## (2) Detaching and refitting the conveying unit

## Procedure

1. Remove the MP tray.(See page 1-5-15)
2. Remove the right cover 1.
(See page 1-5-11)


Figure 1-5-67
3. Remove two screws and then remove two straps.


Figure 1-5-68
4. Remove the stop ring from the rear side of conveying unit and then remove the link $F$.
5. To similar, remove the stop ring from the rear side of conveying unit and then remove the link $R$.


Figure 1-5-69
6. Rotate the wire cover.
7. Remove the connector.
8. Rotate the fulcrum axis and slide it forward.
9. Pull the right cover 1 backward and then remove it.


Figure 1-5-70

## (3) Detaching and refitting the eject fan motor

## Procedure

1. Remove the rear cover.
(See page 1-5-5)
2. Remove the connector and then remove two wires from three hooks respectively.
3. Remove two screws and then remove the eject fan motor.


Figure 1-5-71

## (4) Direction of installing the principal fan motors

When detaching or refitting the fan moter,be careful of the airflow direction (intake or exhaust).


Figure 1-5-72

## 1-6-1 Upgrading the firmware

Follow the procedure to upgrade the firmware below.

```
* Main PWB (CTRL)
* Engine PWB (ENGN)
* DP main PWB (DP)
* PF main PWB (PF)
* DF main PWB (DF)
* Bridge PWB (AK)
* Engine IO PWB (IO)
```


## Preparation

Extract the file that has the download firmware and put them in the USB Memory.

NOTE: To improve Firmware Upgrade speed, a separate SKIP file can be added to the USB Memory Stick with the Firmware Upgrade package. The Skip file will allow ONLY the Firmware that has been Upgraded to a New Version to load, skipping duplicate Firmware Levels.

## Procedure

1. Turn ON the main power switch and confirm if the screen shows "Ready to print" then, turn OFF the main power switch.
2. Insert USB memory that has the firmware in the USB memory slot.
3. Turn ON the main power switch.
4. About 50 seconds later, "Farmware Update" will be displayed (this shows to start the download).
5. Display the software that now upgrading.

$$
\begin{aligned}
& \mathrm{CTRL} \rightarrow \mathrm{DP} \rightarrow \mathrm{PF} \rightarrow \mathrm{DF} \rightarrow \mathrm{AK} \rightarrow \mathrm{IO} \\
& \rightarrow \mathrm{ENGN} \rightarrow \mathrm{FAX} \rightarrow \mathrm{OPT} \rightarrow \mathrm{DIC} \rightarrow \\
& \mathrm{PANL}
\end{aligned}
$$



Figure 1-6-1

SAMPLE:
=================

Firmware Update
CTRL
xxx\%

The first line: Display shown while updating it The second line: Display that shows update object The third line: The progress of the update is displayed with \%.

## Caution:

Never turn off the power switch or remove the USB flash device during upgrading.
6. Display the completion of the upgrade.
7. ROM version is confirmed by the content of the display.
8. Turn OFF the main power switch and remove the USB memory.

## Emergency-UPDATE

If the device is accidentally switched off and upgrading was incomplete, upgrade becomes impossible from a USB flash device.
In that case, retry upgrading after recovering the software by following the procedure below.

## Preparation

The CF memory card must be formatted in FAT or FAT32 in advance.
Extract the main firmware to download from the file.
Rename the file which was extracted from the archive. [DL_CTRL.2MW] to [KM_EMRG.2MW]
Copy the all extracted files to the root of the CF memory.

## Procedure

1. Turn the main power switch off.
2. Install the CF memory card which contains the firmware onto the main PWB.
3. Turn the main power switch on.
4. Rewriting of the PWB software will start for restoration.
The memory and attention LEDs will be blinking.
5. Only the Memory LED will be blinking when rewriting is successful.
*: Only the Attention LED will be blinking when rewriting is failed.
6. Turn the main power switch off.
7. Wait for several seconds and then remove the CF memory from the main PWB.
8. Extract the firmware to download from the archive and copy to the root of the USB flash device.
NOTE: Deletes the "ES_SKIP.on" file When it is contained directly under the USB memory.


Figure 1-6-2
9. Insert the USB flash device in which the firmware was copied into the slot on the machine.
10. Perform steps 3 to 8 on the previous page.
11. Turn the main power switch on.
12. Perform maintenance item U000 (Print a maintenance report) to check that the version of ROM U109 has been upgraded.

## 1-6-2 Remarks on PWB replacement

## (1) Engine PWB

NOTE: When replacing the PWB, remove the EEPROM from the PWB and then reattach it to the new PWB.


Figure 1-6-3

## (2) DP main PWB

NOTE: When replacing the PWB, remove the EEPROM from the PWB and then reattach it to the new PWB.


Figure 1-6-4

## (3) Main PWB

NOTE:The following operations are required when replacing the main board.

1. Execute maintenance mode U 004 to resolve machine number mismatch that appears after replacing the main board.
2. Adjust the scanner image.
(1)Input the value in the auto scanner adjustment chart by using the maintenance mode U425.
(2)Execute the maintenance mode U411 with the auto scanner adjustment chart.
(3)Execute [Halftone adjustment] from the system menu
3. Reactivate the license for optional products if any were installed.
(1)Reactivate ID CARD AUTHENTICATION KIT B).
(2)Register an ID card again by using the maintenance mode U222.
4. Import data if any was exported from the machine before replacing the main board by using the maintenance mode U917. (The export and import is also available via KM-Net Viewer)
5. Register the initial user settings and FAX settings from the system menu or command center.
6. Execute the maintenance mode as below if necessary.

| No. | Main machine related maintenance modes | No. | Fax related maintenance modes |
| :---: | :--- | :--- | :--- |
| U250 | Checking/clearing the maintenance cycle | U603 | Setting user data 1 |
| U251 | Checking/clearing the maintenance counter | U604 | Setting user data 2 |
| U253 | Switching between double and single counts | U610 | Setting system 1 |
| U260 | Selecting the timing for copy counting | U611 | Setting system 2 |
| U326 | Setting the black line cleaning indication | U612 | Setting system 3 |
| U341 | Specific paper feed location setting for printing <br> function | U615 | Setting system 6 |
| U343 | Switching between duplex/simplex copy mode | U625 | Setting the transmission system 1 |
| U345 | Setting the value for maintenance due indica- <br> tion | U695 | FAX function customize |
| U402 | Adjusting margins of image printing |  |  |
| U403 | Adjusting margins for scanning an original on <br> the contact glass |  |  |
| U404 | Adjusting margins for scanning an original from <br> the DP |  |  |
| U407 | Adjusting the leading edge registration for |  |  |
| U425 | Semory image printing |  |  |
| U429 | Setting the target |  |  |
| U432 | Setting the offset for the color balance |  |  |
| U470 | Setting the JPEG compression ratio |  |  |

## 2-1-1 Paper feed/conveying section

Paper feed/conveying section consists of the paper feed unit that feeds paper from the cassette and the MP tray paper feed unit that feeds paper from the MP tray, and the paper conveying section that conveys the fed paper to the transfer/separation section.

## (1) Cassette paper feed section

The cassette can contain 500 sheets. The sheet from the cassette is pulled out by rotation of the pickup roller and sent to the paper conveying section by rotation of the paper feed roller. Also the retard roller prevents multiple feeding of paper.


Figure 2-1-1 Cassette paper feed section

1. Pickup roller
2. Paper length guide
3. Paper feed roller
4. Bottom plate
5. Feed holder
6. Lift work plate
7. Retard roller
8. Cassette base
9. Retard holder
10. Actuator (paper sensor)


Figure 2-1-2 Cassette paper feed section block diagram

## (2) MP tray paper feed section

The MP tray can contain 100 sheets. Feeding from the MP tray is performed by the rotation of the MP paper feed roller. Also, function of the MP separation pad prevents paper from multiple feeding.


Figure 2-1-3 MP tray paper feed section

1. MP paper feed roller
2. Actuator(MP paper feed sensor)
3. MP separation pad
4. MP (multi purpose)tray
5. MP bottom plate
6. MP tray extension


Figure 2-1-4 MP tray paper feed section block diagram

## (3) Conveying section

The conveying section conveys paper to the transfer/separation section as paper feeding from the cassette or MP tray, or as paper refeeding for duplex printing. Paper by feeding is conveyed by the paper feed roller to the position where the registration sensor (RS) is turned on, and then sent to the transfer/separation section by the right registration roller and left registration roller.


Figure 2-1-5 Conveying section

1. Left registration roller
2. Registration cleaner
3. Right registration roller
4. Registration guide
5. Actuator (registration sensor)


Figure 2-1-6 Paper conveying section block diagram

## 2-1-2 Drum section

The drum section consists of the drum, the charger roller unit, and the cleaning unit, and the drum surface is uniformly charged in preparation for formation of residual image by laser beam.
After transfer is complete, toner remaining on the drum surface is chipped off with the cleaning blade and is collected to the waste toner box with the drum screw. The cleaning lamp (CL) consists of LEDs and removes residual charge on the drum before main charging.


Figure 2-1-7 Drum section

1. Drum
2. Cleaning roller
3. Charger roller
4. Scraper
5. Charger cleaning roller
6. Sweep roller
7. Charger case
8. Drum frame
9. Cleaning blade
10. Cleaning lamp (CL)


Figure 2-1-8 Drum section block diagram

## 2-1-3 Developing section

The developing unit consists of the developing roller that forms the magnetic brush, the developing blade and the developing screws that agitate the toner.Also, the toner sensor (TS) checks whether or not toner remains in the developing unit.


Figure 2-1-9 Developing section

1. Developing roller
2. Developing screw A
3. Developing screw B
4. Developing blade
5. Magnet blade
6. Developer case
7. Upper developer cover
8. Toner container


Figure 2-1-10 Developing section block diagram

## 2-1-4 Optical section

The optical section consists of the image scanner section for scanning and the laser scanner section for printing.

## (1) Image scanner section

The original image is illuminated by the exposure lamp (EL) and scanned by the CCD image sensor in the CCD PWB (CCDPWB) via the three mirrors and ISU lens, the reflected light being converted to an electrical signal.
If a document processor is used, the image scanner unit stops at the position of the DP contact glass and scans sequentially one row of the image on the original in synchronization with the moving timing of the original in the sub scan direction by driving the DP.


Figure 2-1-11 Scanner unit

1. Platen
2. Original size indicator plate
3. DP contact glass
4. ISU frame
5. ISU motor (ISUM)
6. ISU wire


Figure 2-1-12 Image scanner unit (ISU)

1. The first mirror frame
2. Exposure lamp (EL)
3. Exposure lens
4. Reflector
5. Mirror A
6. The second mirror frame
7. Mirror B
8. Mirror C
9. ISU lens
10. CCD PWB (CCDPWB)
11. Scanner cover


Figure 2-1-13 Scanner unit block diagram

## (2) Laser scanner section

The charged surface of the drum is then scanned by the laser beam from the laser scanner unit. The laser beam is dispersed as the polygon motor (PM) revolves to reflect the laser beam over the drum. Various lenses and mirror are housed in the laser scanner unit, adjust the diameter of the laser beam, and focalize it at the drum surface. Also the LSU cleaning motor (LSUCM) is activated to conduct automatically cleaning of the LSU dust shield glass.


Figure 2-1-14 Laser scanner unit (LSU)

1. Polygon motor (PM)
2. f $\theta$ main lens
3. f $\theta$ sub lens
4. LSU dust shield glass


Figure 2-1-15 Laser scanner unit block diagram

## 2-1-5 Transfer/Separation section

The transfer and separation section consists mainly of the transfer roller, separation electrode and drum separation claws.
A high voltage generated by the high voltage PWB (HVPWB) is applied to the transfer roller for transfer charging.
Paper after transfer is separated from the drum by applying separation charging that is output from the high voltage PWB (HVPWB) to the separation electrode.


Figure 2-1-16 Transfer/Separation section

1. Drum
2. Separation needle
3. Transfer roller
4. Drum separation claws
5. Paper chute guide


Figure 2-1-17 Transfer/Separation section block diagram

## 2-1-6 Fuser section

The paper sent from the transfer/separation section is interleaved between the heat roller and the press roller. The heat roller is heated by the fuser heater ( FH ), and the toner is fused by heat and pressure and fixed onto the paper because the press roller is pressed by the fuser press spring. The surface temperature of heat roller is detected by the fuser thermistor (FTH) and controlled by the engine PWB (EPWB). If the fuser section shows extremely high temperature, the power line will be shut off and the fuser heater $(\mathrm{FH})$ is forced to turn off.


Figure 2-1-18 Fuser section

1. Heat roller
2. Fuser heater 1(FH1)
3. Fuser heater 2(FH2)
4. Press roller
5. Upper fuser frame
6. Fuser paper guide
7. Fuser thermistor (FTH)
8. Fuser thermostat (FTS)
9. Separators
10. Eject roller
11. Eject pulley
12. Actuater(eject sensor)


Figure 2-1-19 Fuser section block diagram

## 2-1-7 Eject/Feedshift section

The paper eject/feedshift section consists of the conveying path which sends the paper that has passed the fuser section to the inner tray, the job separator tray or the duplex conveying section.


Figure 2-1-20 Eject/Feedshift section

1. Eject roller
2. Eject pulley
3. Eject roller
4. Eject pulley
5. Feedshift guide
6. Actuator (paper full sensor)
7. Actuator (job paper full sensor)
8. Actuator (job eject paper sensor)


Figure 2-1-21 Eject/Feed shift section block diagram

## 2-1-8 Duplex conveying section

The duplex conveying section consists of conveying path which sends the paper sent from the eject/feedshift section to the paper feed/conveying section when duplex printing.


Figure 2-1-22 Duplex conveying section

| 1. Right cover 1 | 4. Duplex feed roller B |
| :--- | :--- |
| 2. Duplex feed roller A | 5. Duplex feed pulley B |
| 3. Duplex feed pulley A | 6. Actuater(duplex sensor) |



Figure 2-1-23 Duplex conveying section block diagram

## 2-1-9 Document processor

## (1) Original feed section

The original feed section consists of the parts shown in figure. An original placed on the original tray is conveyed to the original conveying section. Original is fed by the rotation of the DP forwarding pulley and DP paper feed roller.


Figure 2-1-24 Original feed section

1. DP forwarding pulley
2. DP paper feed roller
3. DP feed holder
4. DP separation pulley
5. Front separation pad
6. Actuator (DP original sensor)
7. PF stopper
8. Original tray


Figure 2-1-25 Original feed section block diagram

## (2) Original conveying section

The original conveying section consists of the parts shown in figure. A conveyed original is scanned by the optical section (CCD) of main machine when it passes through the slit glass of main machine.


Figure 2-1-26 Original conveying section

1. DP top cover
2. DP registration roller
3. DP registration pulley
4. Conveying roller
5. Conveying pulley
6. Eject roller
7. Eject pulley
8. Actuator (DP paper feed sensor)
9. Actuator (DP registration sensor)
10. Actuator (DP timing sensor)
11. Switchback guide
12. Reading guide
13. Slit glass


Figure 2-1-27 Original conveying section block diagram

## (3) Original switchback/eject sections

The original switchback/eject sections consists of the parts shown in figure. An original of which scanning is complete is ejected to the original eject table by the eject roller. In the case of duplex switchback scanning, an original is conveyed temporarily to the switchback tray and conveyed again to the original conveying section by the switchback roller.


Figure 2-1-28 Original switchback/eject sections

1. Feedshift guide
2. Switchback pulley
3. Eject roller
4. Original eject table
5. Eject pulley
6. Switchback tray
7. Switchback roller


Figure 2-1-29 Original switchback/eject sections block diagram

## 2-2-1 Electrical parts layout

## (1) PWBs



Figure 2-2-1 PWBs

1. Main PWB (MPWB) ............................. Controls the software such as the print data processing and provides the interface with computers.
2. Engine PWB (EPWB) Controls printer hardware such as high voltage/bias output control, paper conveying system control, and fuser temperature control, etc.
3. High voltage PWB (HVPWB)

Generates main charging, developing bias, transfer bias.
4. Power source PWB (PSPWB)

After full-wave rectification of AC power source input, switching for converting to 24 V DC for output. Controls the fuser heater.
5. Power source PWB sub (PSPWB-S) .... 5V output control when standing by.
6. Operation panel PWB main (OPPWB-M) Consists the LCD, LED indicators and key switches.
7. Operation panel PWB left (OPPWB-L) $\qquad$ Consists the LED indicators and key switches.
8. Operation panel PWB right
(OPPWB-R) $\qquad$ Consists the LED indicators and key switches.
9. LCD PWB (LCDPWB).

Controls the LCD display.

| 10. LCD relay PWB (LCDRPWB) . | Consists of wiring relay circuit between operation panel PWB main and LCD PWB. |
| :---: | :---: |
| 11. CCD PWB (CCDPWB) | Reads the image of originals. |
| 12. APC PWB (APCPWB) | Generates and controls the laser beam. |
| 13. BD PWB (PDPWB) | Controls horizontal synchronizing timing of laser beam. |
| 14. Drum PWB (DRPWB) | Relays wirings from electrical components on the drum unit. Drum individual information in EEPROM storage. |
| 15. Drum relay PWB (DRRPWB) | Consists of wiring relay circuit between engine PWB and the drum unit. |
| 16. Developing PWB (DEVPWB) | Relays wirings from electrical components on the developing unit. Developing individual information in EEPROM storage. |
| 17. Developing relay PWB (DEVRPWB) | Consists of wiring relay circuit between engine PWB and the developer unit. |
| 18. Relay PWB (RYPWB) *1 | Consists of wiring relay circuit between main PWB and power source PWB. |
| 19. RFID PWB (RFPWB).. | Reads the container information. |

*1: Excluding 120V ACmodel

List of correspondences of PWB names

| No. | Name used in service manual | Name used in parts list |
| :---: | :--- | :--- |
| 1 | Main PWB (MPWB) | PARTS PWB MAIN ASSY SP <br> PARTS PWB MAIN ASSY SP EU |
| 2 | Engine PWB (EPWB) | PARTS PWB ENGINE ASSY SP |
| 3 | High voltage PWB (HVPWB) | PARTS HVU SP |
| 4 | Power source PWB (PSPWB) | PARTS LVU MAIN 120 SP <br> PARTS LVU MAIN 200 SP |
| 5 | Power source PWB sub(PSPWB-S) | PARTS LVU SUB 100 SP <br> PARTS LVU SUB 200 SP |
| 6 | Operation panel PWB main(OPPWB-M) | PARTS PWB PANEL MAIN ASSY SP <br> PARTS OPERATION UNIT SP |
| 7 | Operation panel PWB left(OPPWB-L) | PARTS OPERATION UNIT SP |
| 8 | Operation panel PWB right(OPPWB-R) |  |
| 9 | LCD PWB (LCDPWB) |  |
| 10 | LCD relay PWB (LCDRPWB) | PARTS ISU |
| 11 | CCD PWB (CCDPWB) | LK-475 |
| 12 | APC PWB (APCPWB) |  |
| 13 | BD PWB (BDPWB) | DK-475 <br> MK-475/MAINTENANCE KIT <br> MK-477/MAINTENANCE KIT <br> MK-479/MAINTENANCE KIT |
| 14 | Drum PWB (DRPWB) | PARTS PWB DRUM CONNECT ASSY SP |
| 15 | Drum relay PWB (DRRPWB) | DV-475 <br> MK-475/MAINTENANCE KIT <br> MK-477/MAINTENANCE KIT <br> MK-479/MAINTENANCE KIT |
| 16 | Developing PWB (DEVPWB) | PARTS PWB DEVE CONNECT ASSY SP |
| 17 | Developing relay PWB (DEVRPWB) | PARTS LVU MAIN 200 SP |
| 18 | Relay PWB (RYPWB) | RFID PWB (RFPWB) |

## (2) Switches and sensors



Figure 2-2-2 Switches and sensors

1. Home position sensor (HPS) ................ Detects the ISU in the home position.
2. Original detection switch (ODSW) ........ Operates the original size detection sensor.
3. Original size sensor (OSS) ................... Detects the size of the original.
4. Front cover switch (FCSW) ................... Detects the opening and closing of the front cover.
5. Right cover switch (RCSW) .................. Detects the opening and closing of the right cover.
6. Feed sensor (FS) ................................. Detects a paper misfeed in the vertical conveying section.
7. MP paper sensor (MPPS) ..................... Detects the presence of paper on the MP tray.
8. Registration sensor (RS)...................... Controls the secondary paper feed start timing.
9. Duplex sensor (DUS) ........................... Detects a paper jam in the duplex section.
10. Eject sensor (ES)................................. Detects a paper misfeed in the fuser or eject section.
11. Paper full sensor (PFS)......................... Detects the paper full in the inner tray.
12. Job paper full sensor (JPFS) ................ Detects the paper full in the job separator tray.
13. Paper sensor 1 (PS1) .......................... Detects the presence of paper in the cassette.
14. Paper sensor 2 (PS2) ........................... Detects the presence of paper in the cassette.
15. Lift sensor (LS)..................................... Detects the top limit of the bottom plate.
16. Paper size width switch (PWSW).......... Detects the width of paper in the cassette.
17. Paper size length switch (PLSW) ......... Detects the length of paper in the cassette.
18. Toner container lock sensor (TCLS) ..... Detects the lock of toner in the toner container.
19. Main power switch (MSW) .................... Turns ON/OFF the AC power source.
20. Interlock switch (ILSW) ......................... Shuts off 24 V DC power line when the front cover is opened.
21. Cassette heater switch (CHSW) ........... Turns ON/OFF the cassette heater power source.
22. Bridge detection switch (BRDSW) ........ Detects the presence of bridge.
23. Job eject papersensor (JEPS) .............. Detects the presence of paper in the job separator.
24. Temperature sensor (TEMS)................. Detects the temperature and absolute humidity in the machine.
25. Toner sensor (TS) ................................. Detects the amount of toner remaining in the toner container.
26. Waste toner sensor (WTS).................... Detects when the waste toner box is full.
27. Fuser thermistor (FTH) ......................... Detects the heat roller temperature.
28. Toner container switch (TCSW)

Detects the presence of toner container.

## (3) Motors



Figure 2-2-3 Motors

1. Main motor (MM)
.
M) .. $\qquad$
Drives the paper feed section and conveying section.
2. ISU motor (ISUM) M). $\qquad$ Drives the ISU.
3. Polygon motor (PM)

Drives the polygon mirror.
4. Eject motor (EM)

Drives the fuser section and eject section.
5. Lift motor (LM).

Operates the bottom plate.
6. Eject fan motor (EFM)

Cools the fuser and eject sections.
7. Controller fan motor (CONFM)

Cools the controller section.
8. Power source fan motor (PSFM) $\qquad$ Cools the power source PWB and the laser scanner unit.

## (4) Others



Figure 2-2-4 Others

1. Paper feed clutch (PFCL) ..................... Primary paper feed from cassette.
2. Registration clutch (RCL)..................... Controls the secondary paper feed.
3. Duplex clutch (DUCL) .......................... Controls the drive of the duplex feed roller.
4. MP solenoid (MPSOL) ......................... Controls the MP bottom plate.
5. Feedshift solenoid (FSSOL).................. Operates the feedshift guide.
6. Exposure lamp (EL)

Exposes originals.
7. Cleaning lamp (CL)

Eliminates the residual electrostatic charge on the drum.
8. Waste toner lamp (WTL) ...................... Lights at the brimmer of the toner box.
9. Fuser heater 1 (FH1) ............................ Heats the heat roller.
10. Fuser heater 2 (FH2) ............................ Heats the heat roller.
11. Fuser thermostat (FTS)......................... Prevents overheating of the heat roller.
12. Cassette heater (CH) ............................ Dehumidifies the cassette section.

## (5) Document processor (PWBs and sensors)



Figure 2-2-5 Document processor

1. DP main PWB (DPMPWB) $\qquad$ Consists the motor and clutch driver circuit and wiring relay circuit.
2. DP original size width sensor (DPOWS)

Detects the width of the original.
3. DP LED PWB (DPLEDPWB) ................ Display the presence of the original.
4. DP original sensor (DPOS).................. Detects the presence of an original.
5. DP original size length sensor (DPOLS)

Detects the length of the original.
6. DP paper feed sensor (DPPFS)

Detects a paper misfeed.
7. DP registration sensor (DPRS)

Controls the secondary paper feed start timing.
8. DP timing sensor (DPTS)..................... Detects the original scanning timing.
9. DP open/close sensor (DPOCS)........... Detects the opening/closing of the DP.
10. DP switchback sensor (DPSBS)........... Detects the switchback guide in the home position.
11. DP interlock switch (DPILSW) .............. Shuts off 24 V DC power line when the dp top coveris opened.

## List of correspondences of PWB names

| No. | Name used in service manual | Name used in parts list |
| :---: | :--- | :--- |
| 1 | DP main PWB (DPMPWB) | PARTS PWB DRIVE ASSY SP |

## (6) Document processor (Motors and clutches)



Figure 2-2-6 Document processor

1. DP paper feed motor (DPPFM) $\qquad$ Drives the original feed section.
2. DP switchback motor (DPSBM)

Drives the original switchback section.
3. DP paper feed clutch (DPPFCL)........... Controls the drive of the DP forwarding pulley and DP paper feed roller.
4. DP registration clutch (DPRCL) ............ Controls the secondary paper feed.

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## 2-3-1 Main PWB



Figure 2-3-1 Main PWB silk-screen diagram

| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC100 | 1 | VBUS | 0 | 5 V DC | 5 V DC power output |
| Connected to operathion panel PWB main(USB) | 2 | DATA- | I/O | LVDS | USB data signal |
|  | 3 | DATA+ | 1/O | LVDS | USB data signal |
|  | 4 |  | - | - | Not used |
|  | 5 | GND | - | - | Ground |
| YC101 | 1 | NC | - |  | Not used |
| Connected to operation panel PWB main (contorol) | 2 | GND | - | - | Ground |
|  | 3 | $\begin{aligned} & \text { PANEL_STAT } \\ & \text { US } \end{aligned}$ | 1 | 0/3.3 V DC | Operation panel status signal |
|  | 4 | INT_POWER KEY | 1 | 0/3.3 V DC | Power key: On/Off |
|  | 5 | $\begin{aligned} & \text { PANEL_RESE } \\ & \text { T } \end{aligned}$ | 0 | 0/3.3 V DC | OPPWB-M reset signal |
|  | 6 | AUDIO | 0 | Analog | Voice output signal |
|  | 7 | LIGHTOFF_P OWERON | $\bigcirc$ | 0/3.3 V DC | Sleep return signal 1 |
|  | 8 | SHUTDOWN | 0 | 0/3.3 V DC | 24 V down signal |
|  | 9 | LED_PROCE SSING_N | $\bigcirc$ | 0/3.3 V DC | Processing LED control signal |
|  | 10 | LED_ATTENT <br> ION | 0 | 0/3.3 V DC | Attention LED control signal |
|  | 11 | LED_MEMOR Y | 0 | 0/3.3 V DC | Memory LED control signal |
|  | 12 | SUSPEND_P ower | 0 | 5 V DC | 5 V DC power output to OPPWB-M |
|  | 13 | $\begin{aligned} & \text { ENERGY_SA } \\ & \text { VE } \end{aligned}$ | 0 | 0/3.3 V DC | Energy save signal |
|  | 14 | $\begin{aligned} & \text { BEEP_POWE } \\ & \text { RON } \end{aligned}$ | 0 | 0/3.3 V DC | Sleep return signal 0 |
| YC102 | 1 | 5V2 | 0 | 5 V DC | 5 V DC power output to OPPWB-M |
| Connected to operation panel PWB main(power source) | 2 | 5V2 | 0 | 5 V DC | 5 V DC power output to OPPWB-M |
|  | 3 | GND | - | - | Ground |
|  | 4 | GND | - | - | Ground |


| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC103 | 1 | +3.3V4 | 0 | 3.3 V DC | $3.3 \vee$ DC power output to BDPWB |
| Connected to APC PWB | 2 | GND | - | - | Ground |
|  | 3 | BDN | 1 | 0/3.3 V DC(pulse) | Horizontal synchronizing signal |
|  | 4 | GND | - | - | Ground |
|  | 5 | VCONT | 0 | Analog | Laser control signal |
|  | 6 | ENBN | 0 | 0/3.3 V DC | Laser output permission signal |
|  | 7 | SH | 0 | 0/3.3 V DC | Sample/hold signal |
|  | 8 | VDOP | 0 | LVDS | Video data signal (+) |
|  | 9 | VDON | 0 | LVDS | Video data signal (-) |
|  | 10 | +5VIL | O | 5 V DC | 5 V DC power output to APCPWB (By way of ILSW) |
| YC105 | 1 | SLEEPOFF | 1 | 0/3.3 V DC | Sleep Off signal |
| Connected to engine PWB | 2 | ENG_HLD | 0 | 0/3.3 V DC | Engine hold signal |
|  | 3 | SCAN_HLD | 0 | 0/3.3 V DC | Scan hold signal |
|  | 4 | LIGHT_SLEEP | $\bigcirc$ | $0 / 3.3 \vee$ DC | Light sleep shift signal |
|  | 5 | 24V4 | 1 | 24 V DC | 24 V DC power input from EPWB |
|  | 6 | 24V4 | 1 | 24 V DC | 24 V DC power input from EPWB |
|  | 7 | 5 V 4 | 1 | 5 V DC | 5 V DC power input from EPWB |
|  | 8 | 3.3 V 0 | 1 | 3.3 V DC | $3.3 \vee \mathrm{DC}$ power input from EPWB |
|  | 9 | 3.3 V 4 | 1 | 3.3 V DC | 3.3 V DC power input from EPWB |
|  | 10 | 3.3 V 4 | 1 | 3.3 V DC | 3.3 V DC power input from EPWB |
|  | 11 | 24VDOWN | 1 | 0/3.3 V DC | 24 V down signal |
|  | 12 | GND | - | - | Ground |
|  | 13 | GND | - | - | Ground |
|  | 14 | GND | - | - | Ground |
|  | 15 | GND | - | - | Ground |
|  | 16 | GND | - | - | Ground |
|  | 17 | HYP_SCL | 1 | 0/3.3 V DC(pulse) | Clock signal |
|  | 18 | HYP_SDA | 1 | 0/3.3 V DC(pulse) | Data signal |
|  | 19 | HYP_INT | $\bigcirc$ | 0/3.3 V DC | Interrupt sijgnal |
|  | 20 | AQUA_CLK | 1 | 0/3.3 V DC(pulse) | Clock signal |
|  | 21 | AQUA_SO | 0 | 0/3.3 V DC(pulse) | Serial communication data signal output |
|  | 22 | AQUA_SI | 1 | 0/3.3 V DC(pulse) | Serial communication data signal intput |
|  | 23 | AQUA_SEL | 1 | 0/3.3 V DC | Select signal |
|  | 24 | AQUA_RDY | $\bigcirc$ | 0/3.3 V DC | Ready signal |
|  | 25 | PVSYNC | 1 | 0/3.3 V DC(pulse) | Vertical synchronizing signal |


| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC105 | 26 | OVSYNCMON | $\bigcirc$ | 0/3.3 V DC | Sub-scanning monitor signal |
| Connected to engine PWB | 27 | PAGEST | 1 | $0 / 3.3 \mathrm{~V}$ DC | Sub-scanning standard signal |
|  | 28 | EME_CLK | 0 | 0/3.3 V DC(pulse) | Clock signal |
|  | 29 | EME_SO | $\bigcirc$ | 0/3.3 V DC(pulse) | Serial communication data signal output |
|  | 30 | EME_SI | 1 | 0/3.3 V DC(pulse) | Serial communication data signal intput |
|  | 31 | EME_BSY | 1 | 0/3.3 V DC | Busy signal |
|  | 32 | EME_DIR | 1 | $0 / 3.3 \mathrm{~V}$ DC | Communication direction change signal |
|  | 33 | EME_IRN | 1 | 0/3.3 V DC | Interrupt signal |
|  | 34 | 5V4IL | - | DC5 V | 5 V DC power input from EPWB |
|  | 35 | BDN | $\bigcirc$ | 0/3.3 V DC(pulse) | Horizontal synchronizing signal |
|  | 36 | VCONT | 1 | Analog | Leser control signal |
|  | 37 | OUTPEN | 1 | 0/3.3 V DC | Laser output permission signal |
|  | 38 | N.C. | - |  | Not used |
| YC106 *1 | 1 | GND | - | - | Ground <br> relay drive signal <br> 5 V DC power input from RYPWB |
| Connected to relay PWB | 2 | RLYREM | 0 | $0 / 5 \text { V DC }$ |  |
|  |  |  |  | 5 V DC |  |
| YC107 | 1 | VBUS | 0 | 5 V DC | 5 V DC power output |
| Connected to USB-HOST | 2 | DATA- | I/O | LVDS | USB data signal |
|  | 3 | DATA+ | I/O | LVDS | USB data signal |
|  | 4 |  | - | - | Not used |
|  | 5 | GND | - |  | Ground |
| YC112 | 1 | +24V4 | 0 | 24 V DC | 24 V DC power output to LEDPWB |
| Connected to exposure lamp (LED PWB) | 2 | +24V4 | 0 | 24 V DC | 24 V DC power output to LEDPWB |
|  | 3 | POW | 0 | $0 / 3.3 \vee$ DC | LED driver: On/Off |
|  | 4 | PWM | 0 | 0/3.3 V DC | PWM signal |
|  | 5 | PGND |  | - | Ground |
|  | 6 | SGND | - |  | Ground |
|  | 7 | VSET | 0 | Analog | Analog voltage |
|  | 8 | SCL | 0 | 0/3.3 V DC(pulse) | Clock signal |
|  | 9 | SDA | I/O | 0/3.3 V DC(pulse) | Data signal |
|  | 10 | FAIL | 1 | 0/3.3 V DC | Error signal |
|  | 11 | 5V4 | O | 5 V DC | 5 V DC power output to LEDPWB |

[^1]| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC113 | 1 | CCDPWR | 0 | 12 V DC | 12 V DC power output to CCDPWB |
| Connected to CCD PWB | 2 | CCDPWR | 0 | 12 V DC | 12 V DC power output to CCDPWB |
|  | 3 | +5V4 | 0 | 5 V DC | 5 V DC power output to CCDPWB |
|  | 4 | +5V4 | 0 | 5 V DC | 5 V DC power output to CCDPWB |
|  | 5 | +5V4 | 0 | 5 V DC | 5 V DC power output to CCDPWB |
|  | 6 | +3.3V4 | 0 | 3.3 V DC | 3.3 V DC power output to CCDPWB |
|  | 7 | CCD_SH | 0 | 0/3.3 V DC | Shift gate signal |
|  | 8 | GND | - |  | Ground |
|  | 9 | RS | 0 | 0/3.3 V DC | Reset signal |
|  | 10 | GND | - | - | Ground |
|  | 11 | CP | 0 | 0/3.3 V DC | Clamping signal |
|  | 12 | GND | - | - | Ground |
|  | 13 | CCDCLK1 | O | 0/3.3 V DC(pulse) | Clock signal |
|  | 14 | GND | - | - | Ground |
|  | 15 | OS1(B) | 1 | Analog | CCD Image output signal(B) |
|  | 16 | GND | - | - | Ground |
|  | 17 | OS2(G) | 1 | Analog | CCD Image output signal(G) |
|  | 18 | GND | - | - | Ground |
|  | 19 | OS3(R) | 1 | Analog | CCD Image output signal(R) |
| YC115 | 1 | DEEPSLEEPN | 0 | 0/3.3 V DC | Sleep signal: On/Off |
| Connected topowersourcePWB | 2 | GND | - | - | Ground |
|  | 3 | GND | - |  | Ground |
|  | 4 | GND | - | - | Ground |
|  | 5 | GND | - | - | Ground |
|  | 6 | GND | - | - | Ground |
|  | 7 | GND | - | - | Ground |
|  | 8 | GND | - | - | Ground |
|  | 9 | 5V2 | 1 | 5 V DC | 5 V DC power input from PSPWB |
|  | 10 | 5V2 | 1 | 5 V DC | $5 \vee D C$ power input from PSPWB |
|  | 11 | 5V2 | 1 | 5 V DC | $5 \vee D C$ power input from PSPWB |
|  | 12 | 5 V 2 | 1 | 5 V DC | 5 V DC power input from PSPWB |
|  | 13 | 5V2 | 1 | 5 V DC | 5 V DC power input from PSPWB |
|  | 14 | 5V2 | 1 | 5 V DC | 5 V DC power input from PSPWB |
|  | 15 | 5 V 2 | 1 | 5 V DC | 5 V DC power input from PSPWB |


| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC118 <br> Connected to <br> powersource <br> PWB sub | $\begin{aligned} & 1 \\ & 2 \\ & 3 \end{aligned}$ | AUTODOWN <br> GND $5 \mathrm{~V} 0$ | $\mathrm{O}$ I | $0 / 3.3 \mathrm{~V} \mathrm{DC}$ $5 \text { V DC }$ | Auto down signal <br> Ground <br> 5 V DC power input from PSPWB-S |
| YC41 <br> Connected to controller fan motor | $\begin{aligned} & 1 \\ & 2 \\ & 3 \end{aligned}$ | $+24 \mathrm{~V} 1$ <br> CONTFANDR <br> N N.C. | $\begin{aligned} & \mathrm{O} \\ & \mathrm{O} \end{aligned}$ | $\begin{aligned} & 24 \mathrm{~V} \text { DC } \\ & 0 / 24 \mathrm{~V} D C \end{aligned}$ | 24 V DC power output to CONFM CONFM: On/Off <br> Not used |

## 2-3-2 Engine PWB



Figure 2-3-2 Engine PWB silk-screen diagram

| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC1 | 1 | FEED_CL_RE |  |  |  |
| Connected to paper feed clutch, registration clutch, duplex clutch, MP solenoid and lift motor | 2 3 <br> 4 <br> 5 <br> 6 <br> 7 <br> 8 <br> 9 <br> 10 | 24V4 <br> REG_CL_RE <br> M <br> 24V4 <br> DU_CL_REM <br> 24V4 <br> 24V4 <br> MPF_SOL_R <br> EM <br> LMOT_REM <br> 24V4 | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | 24 V DC <br> $0 / 24$ V DC <br> 24 V DC <br> $0 / 24$ V DC <br> 24 V DC <br> 24 V DC <br> $0 / 24$ V DC <br> $0 / 24$ V DC <br> 24 V DC | 24V DC power output to PFCL RCL: On/Off <br> 24V DC power output to RCL <br> DUCL: On/Off <br> 24V DC power output to DUCL <br> 24V DC power output to MPSOL <br> MPSOL: On/Off <br> LM: On/Off <br> 24V DC power output to LM |
| YC2 | 1 | 3.3VLED | 0 | 3.3V DC | 3.3V DC power output to LS |
| Connected to lift sensor, registration sensor, paper sensor1, 2, paper size length switch and paper size width switch | 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 | GND <br> LIFTFULL <br> 3.3VLED <br> GND <br> RESIST <br> 3.3VLED <br> GND <br> PAPEMP1 <br> 3.3VLED <br> GND <br> PAPEMP2 <br> PAPLSIZE3 <br> PAPLSIZE2 <br> GND <br> PAPLSIZE1 <br> PAPWSIZE1 <br> GND | $\begin{gathered} - \\ 1 \\ 0 \\ - \\ 1 \\ 0 \\ - \\ 1 \\ 0 \\ - \\ 1 \\ 1 \\ 1 \\ - \\ 1 \\ 1 \end{gathered}$ | $0 / 3.3 \vee D C$ <br> 3.3V DC <br> $0 / 3.3 \vee$ DC <br> 3.3V DC <br> $0 / 3.3 \vee$ DC <br> 3.3 V DC <br> $0 / 3.3 \vee D C$ <br> $0 / 3.3 \vee$ DC <br> $0 / 3.3$ V DC <br> $0 / 3.3 \vee$ DC <br> $0 / 3.3$ V DC | Ground <br> LS: On/Off <br> 3.3V DC power output to RS <br> Ground <br> RS: On/Off <br> 3.3V DC power output to PS1 <br> Ground <br> PS1: On/Off <br> 3.3V DC power output to PS2 <br> Ground <br> PS2: On/Off <br> PLSW: On/Off <br> PLSW: On/Off <br> Ground <br> PLSW: On/Off <br> PWSW: On/Off <br> Ground |


| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC3 | 1 | 3.3VLED | 0 | 3.3 V DC | 3.3 V DC power output to DUS |
| Connected to duplex sensor, MP paper sensor and feed sensor | 2 | GND | - | - | Ground |
|  | 3 | DU_REG | 1 | 0/3.3 V DC | DUS: On/Off |
|  | 4 | 3.3VLEDDS | O | 3.3 V DC | 3.3 V DC power output to MPPS |
|  | 5 | GND | - | - | Ground |
|  | 6 | MPF_EMPTY | 1 | 0/3.3 V DC | MPPS: On/Off |
|  | 7 | 3.3VLED | O | 3.3 V DC | 3.3 V DC power output to FS |
|  | 8 | GND | - | - | Ground |
|  | 9 | PAPER_JAM | 1 | 0/3.3 V DC | FS: On/Off |
| YC4 | 2 | $\begin{aligned} & \hline 24 \mathrm{~V} 4 \\ & \text { EJECT_FAN_ } \\ & \text { REM } \end{aligned}$ | $\begin{aligned} & \mathrm{O} \\ & 0 \end{aligned}$ | $\begin{aligned} & 24 \mathrm{~V} \text { DC } \\ & 0 / 24 \mathrm{~V} D C \end{aligned}$ | 24 V DC power output to EFM EFM: On/Off |
| Connected to eject fan motor |  |  |  |  |  |
| YC5 | 123 | $\begin{aligned} & \text { EJE_SOL_PUL } \\ & +24 \mathrm{~V} 4 \\ & \text { EJE_SOL_RE } \\ & \text { TURN } \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 0 / 24 \vee D C \\ & 24 \vee D C \\ & 0 / 24 \vee D C \end{aligned}$ | FSSOL: On(Pressurizing)/Off <br> 24 V DC power output to FSSOL <br> FSSOL: On(Release)/Off |
| Connected to feedshift solenoid |  |  |  |  |  |
| YC6 | 1 | EJECT A | 0 | 0/24 V DC(pulse) | EM drive control signal |
| Connected to eject motor,job paper full sensor, paper full sensor and eject sensor | 2 | EJECT B | 0 | 0/24 V DC(pulse) | EM drive control signal |
|  | 3 | EJECT /B | $\bigcirc$ | 0/24 V DC(pulse) | EM drive control signal |
|  | 4 |  | 0 | 0/24 V DC(pulse) | EM drive control signal |
|  | 5 | 3.3VLED | - | 3.3 V DC | 3.3 V DC power output to JPFS |
|  | 6 | GND | - |  | Ground |
|  | 7 | $\begin{aligned} & \text { EJE_FULL_U } \\ & \text { PPER } \end{aligned}$ | 1 | 0/3.3 V DC | JPFS: On/Off |
|  | 8 | 3.3VLED | O | $3.3 \vee \mathrm{DC}$ | 3.3 V DC power output to PFS |
|  | 9 10 | GND | - | - | Ground |
|  | 10 | EJE_FULL_D OWNER | 1 | 0/3.3 V DC | PFS: On/Off |
|  | 11 | $\begin{aligned} & \text { GND } \\ & \text { FUSER_JAM } \end{aligned}$ | 0 | 3.3 V DC | $3.3 \vee \mathrm{DC}$ power output to ES |
|  | 1 |  | - |  | Ground |
|  | $\begin{aligned} & 12 \\ & 13 \end{aligned}$ |  |  | 0/3.3 V DC | ES: On/Off |
| YC7 | 1 | 3.3V4 | 0 | 3.3 V DC | 3.3 V DC power output to FTH |
| Connected to | 2 | GND | - | - | Ground |
| fuser | 3 | TH1 | 1 | Analog | FTH Detection voltage |
| thermistor |  | TH2 |  |  | FTH Detection voltage |


| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC8 | 1 | BRSET | 1 | 0/3.3 V DC | BRDSW: On/Off |
| Connected to bridge detection switch | 2 | GND | - | - | Ground |
| YC9 | 1 | 24VIL1 | 0 | 24 V DC | 24 V DC power output to RCSW <br> (By way of FCSW) |
| Connected to right cover switch | 2 | 24VIL2 | 1 | 24 V DC | 24 V DC power input from RCSW |
| YC10 | 1 | 24VIL | 0 | 24 V DC | 24 V DC poiwer output to HVPWB |
| Connected to high voltage PWB | 2 | 24 VIL | 0 | 24 V DC | 24 V DC power output to HVPWB |
|  | 3 | MC_CLK | $\bigcirc$ | 0/3.3 V DC(pulse) | Charging AC clock signals |
|  | 4 | MC_ACCNT | 0 | Analog | Charging AC output control signal |
|  | 5 | MC_DCCNT | $\bigcirc$ | Analog | Charging DC output control signal |
|  | 6 | MC_ISENS | 1 | Analog | Charging output current detection signal |
|  | 7 | DC_REM | $\bigcirc$ | $0 / 3.3 \vee$ DC | Charging DC/Transfer DC output : On/Off |
|  | 8 | TRA_CNT | 0 | Analog | Transfer DC output control signal |
|  | 9 | SEP_REM | $\bigcirc$ | 0/3.3 V DC | Separation DC output: On/Off |
|  | 10 | SEP_SEL | 0 | Analog | Separation DC output shift signal |
|  | 11 | DLP_CLK | 0 | 0/3.3 V DC(pulse) | Developing AC clock signal |
|  | 12 | DLP_CNT | 0 | Analog | Developing DC output shift signal |
|  | 13 | GND | - |  | Ground |
|  | 14 | GND | - | - | Ground |
| YC11 | 1 | 24V4 | 0 | 24 V DC | 24 V DC power output to PM |
| Connected to polygon motor | 2 | GND | - | - | Ground |
|  | 3 | POL_REM | $\bigcirc$ | 0/3.3 V DC | PM: On/Off |
|  | 4 | POL_READY | 1 | 0/3.3 V DC | PM ready signal |
|  |  | POL_CLK |  | 0/3.3 V DC(pulse) | PM clock |


| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC12 | 1 |  |  |  | Ground |
| Connected to developing relay PWB,RFID PWB,toner sensor,toner container lock sensor and toner container switch |  | DLP_SDA <br> DLP_SCL <br> 3.3V4 <br> GND <br> RFID_SDA <br> RFID_SCL <br> 3.3V4 <br> 3.3V4 <br> TON_EMP <br> GND <br> 3.3VLED <br> GND <br> CON_LOCK <br> TCONSET <br> GND | I/O <br> O <br> 0 <br> I/O <br> 0 <br> 0 <br> O <br> I <br> - <br> 0 <br> - <br> I <br> I | $0 / 3.3 \vee D C($ pulse $0 / 3.3 \vee D C$ (pulse) $3.3 \vee D C$ - $0 / 3.3 \vee D C($ pulse) $0 / 3.3 \vee D C$ (pulse) $3.3 \vee D C$ $3.3 \vee D C$ $0 / 3.3 \vee D C$ - $3.3 \vee D C$ - $0 / 3.3 \vee D C$ $0 / 3.3 \vee D C$ - | DEVPWB EEPROM data signal DEVPWB EEPROM clock signal <br> 3.3 V DC power output to DEVPWB <br> Ground <br> RFPWB EEPROM data signal <br> RFPWB EEPROM clock signal <br> 3.3 V DC power output to RFPWB <br> 3.3 V DC power output to TS <br> TS: On/Off <br> Ground <br> 3.3 V DC power output to TCLS <br> Ground <br> TCLS: On/Off <br> TCSW: On/Off <br> Ground |
| YC13 | 1 | 3.3VLED | 0 | 3.3 V DC | 3.3 V DC power output to HPS |
| Connected to home position sensor,origin al detection switch and original size sensor | $2$ | GND <br> SCA_HP <br> 3.3VLED <br> GND <br> SCA_COVER <br> GND <br> SCA_SIZE <br> 5V4 | $\begin{aligned} & 1 \\ & 0 \end{aligned}$ | $0 / 3.3 \vee D C$ <br> 3.3 V DC <br> $0 / 3.3 \vee D C$ <br> $0 / 3.3 \vee D C$ <br> 5 V DC | Ground <br> HPS: On/Off <br> 3.3 V DC power output to ODSW <br> Ground <br> ODSW: On/Off <br> Ground <br> OSS: On/Off <br> 5 V DC power output to OSS |
| YC14 | 1 | SCANNER B1 | 0 | 0/24 V DC(pulse) | ISUM drive control signal |
| Connected to ISU motor | $2$ | SCANNER A2 SCANNER B2 SCANNER A1 | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $0 / 24$ V DC(pulse) <br> 0/24 V DC(pulse) <br> $0 / 24$ V DC(pulse) | ISUM drive control signal ISUM drive control signal ISUM drive control signal |


| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC15 |  |  | O |  | 3.3V DC power output to DRPWB |
| Connected to drum relay PWB | $\begin{aligned} & 2 \\ & 3 \\ & 4 \\ & 5 \\ & 6 \\ & 7 \\ & 8 \\ & 9 \end{aligned}$ | DRUM_SDA <br> DRUM_SCL <br> GND <br> WT_LED <br> WT_SENS <br> 3.3VLED <br> ERASE <br> 24V4 | $\begin{gathered} 1 / 0 \\ 0 \\ - \\ 0 \\ 1 \\ 0 \\ 0 \\ 0 \end{gathered}$ | $\begin{aligned} & 0 / 3.3 \vee D C(\text { pulse) } \\ & 0 / 3.3 \vee D C(\text { pulse) } \\ & - \\ & 0 / 3.3 \vee D C \\ & \text { Analog } \\ & 3.3 V D C \\ & 0 / 24 \vee D C \\ & 24 \vee D C \end{aligned}$ | DRPWB EEPROM data signal <br> DRPWB EEPROM clock signal <br> Ground <br> WTL: On/Off <br> WTS detection signal <br> 3.3V DC power output to WTS <br> CL: On/Off <br> 24 V DC power output to CL |
| YC16 | 1 | MAIN_DIR | 0 | 0/3.3 V DC | MM drive shift signal |
| Connected to main motor | $\begin{aligned} & 2 \\ & 3 \\ & 4 \\ & 5 \\ & 6 \end{aligned}$ | MAIN_READY <br> MAIN_CLK <br> MAIN_REM <br> GND <br> 24VIL2 | । | $0 / 3.3 \vee D C$ <br> 0/3.3 V DC(pulse) <br> $0 / 24$ V DC <br> 24 V DC | MM ready signal <br> MM clock signal <br> MM: On/Off <br> Ground <br> 24 V DC power output to MM |
| YC18 | 1 | GND | - | - | Ground |
| Connected to DP main PWB | $\begin{gathered} 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 8 \\ 9 \\ 10 \\ 11 \end{gathered}$ | GND <br> 24V4 <br> 24 V 4 <br> DP_CLK <br> DP_SO <br> DP_SEL <br> DP_SI <br> DP_RDY <br> DP_TMG <br> DP_OPEN | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 1 \\ & 1 \\ & 1 \end{aligned}$ $1$ | 24 V DC <br> 24 V DC <br> 0/3.3 V DC(pulse) <br> 0/3.3 V DC(pulse) <br> $0 / 3.3$ V DC <br> 0/3.3 V DC(pulse) <br> $0 / 3.3$ V DC <br> $0 / 3.3 \vee$ DC <br> $0 / 3.3 \vee$ DC | Ground <br> 24V DC power output to DP <br> 24V DC power output to DP <br> DP clock signal <br> Serial communication data signal <br> DP select signal <br> Serial communication data signal <br> DP ready signal <br> DPTS: On/Off <br> DPOCS: On/Off |


| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC19 | 1 | EH_CLK | 0 | 0/3.3 V DC(pulse) | Document finisher clock signal |
| Connected to document finsher | 2 |  | 1 | 0/3.3 V DC(pulse) | Serial communication data signal |
|  | 3 | EH_SO | $\bigcirc$ | 0/3.3 V DC(pulse) | Serial communication data signal |
|  |  | BR_SEL | $\bigcirc$ | $0 / 3.3 \vee D C$ | Bridge unit select signal |
|  | 5 | DF_SEL | $\bigcirc$ | 0/3.3 V DC | Document finisher select signal |
|  | 5 | DF_RDY | 1 | 0/3.3 V DC | Document finisher ready signal |
|  | 8 | DF_SET | $\bigcirc$ | 0/3.3 V DC | Document finisher set signal |
|  |  | 3.3V4 | 0 | 3.3 V DC | 3.3 V DC power output to DF |
|  | 910 | 3.3 V 4 | 0 | 3.3 V DC | 3.3 V DC power output to DF |
|  |  | $\begin{aligned} & \text { GND } \\ & \text { GND } \end{aligned}$ | - |  | Ground |
|  | 11 |  | - |  | Ground |
| YC20 | 1 | EH_CLK | 0 | 0/3.3 V DC(pulse) | Paper feeder clock signal |
| Connected to paper feeder |  | EH_SI | 1 | 0/3.3 V DC(pulse) | Serial communication data signal |
|  | 3 |  | $\bigcirc$ | 0/3.3 V DC(pulse) | Serial communication data signal |
|  | 3 | PF_SEL | 0 | 0/3.3 V DC | Paper feeder select signal |
|  | 4 | PF_RDY | 1 | $0 / 3.3 \vee$ DC | Paper feeder ready signal |
|  | 6 | PF_SET | $\bigcirc$ | 0/3.3 V DC | Paper feeder set signal |
|  | 7 | PF_PAUSE | 0 | 0/3.3 V DC | Paper feeder control signal |
|  | 89 | 24 V 4 | 0 | 24 V DC | 24 V DC power output to paper feeder |
|  |  | 3.3 V 0 | 0 | 3.3 V DC | 3.3 V DC power output to paper feeder |
|  | 10 | 3.3V4 | 0 | 3.3 V DC | 3.3 V DC power output to paper feeder |
|  |  | $\begin{aligned} & \text { GND } \\ & \text { GND } \end{aligned}$ | - | - | Ground |
|  | 12 |  |  |  | Ground |
| YC21 | 1 | GND | - | - | Ground |
| Connected to power source PWB and temperature sensor |  | HUM_DATA | 1 | Analog | TEMS detection voltage(Humidity) |
|  | 3 | HUM_CLK2 | $\bigcirc$ | 0/3.3 V DC(pulse) | TEMS clock sijgnal |
|  | 4 | HUM_CLK1 | 0 | 0/3.3 V DC(pulse) | TEMS clock sijgnal |
|  | 5 | $\begin{aligned} & \text { TEM_DATA } \\ & 3.3 \mathrm{~V} 4 \end{aligned}$ | 1 | Analog | TEMS detection voltage(Temperature) |
|  | 6 |  | 0 | 3.3 V DC | 3.3 V DC power output to TEMS |
|  | 7 | $\begin{aligned} & \text { ILVCC } \\ & \text { LIGHTSLEEP } \end{aligned}$ | 0 | 3.3 V DC | 3.3 V DC power output to PSPWB |
|  |  |  | 0 | 0/3.3 V DC | CH: On/Off |
|  | 8 | SHREM <br> MHREM <br> RELAYREM <br> ZCROSS <br> LVUSEL | $\bigcirc$ | 0/3.3 V DC | FH2: On/Off |
|  | 10 |  | 0 | 0/3.3 V DC | FH1: On/Off |
|  | 11 |  | 0 | 0/3.3 V DC | Power relay signal: On/Off |
|  | 12 |  | 1 | 0/3.3 V DC(pulse) | Zero-cross signal |
|  | 13 |  | O | 0/3.3 V DC | Destination selection signal |



## 2-3-3 Power source PWB



Figure 2-3-3 Main PWB silk-screen diagram

| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| TB | TB1 | LIVE | 1 | $\begin{aligned} & \hline 120 \mathrm{~V} \mathrm{AC} \\ & 220-240 \mathrm{~V} \mathrm{AC} \end{aligned}$ | AC power input |
| Connected to AC inlet and main power switch | TB2 | NEUTRAL | 1 | $\begin{aligned} & 120 \mathrm{~V} \mathrm{AC} \\ & 220-240 \mathrm{~V} \mathrm{AC} \end{aligned}$ | AC power input |
|  | TB3 | LIVE(SW) | 0 | $\begin{aligned} & 120 \mathrm{~V} \mathrm{AC} \\ & 220-240 \mathrm{~V} \mathrm{AC} \end{aligned}$ | AC power output to MSW |
|  | TB4 | LIVE(SW) | 1 | $\begin{aligned} & 120 \mathrm{~V} \mathrm{AC} \\ & 220-240 \mathrm{~V} \mathrm{AC} \end{aligned}$ | AC power input from MSW |
| YC1 | 1 | $+5 \mathrm{~V} 2$ | 0 | 5 V DC | 5 V DC power output to MPWB |
| Connected to main PWB | 2 | $+5 \mathrm{~V} 2$ | 0 | 5 V DC | 5 V DC power output to MPWB |
|  | 3 | +5V2 | 0 | 5 V DC | 5 V DC power output to MPWB |
|  | 4 | +5V2 | 0 | 5 V DC | 5 V DC power output to MPWB |
|  | 5 | $+5 \mathrm{~V} 2$ | 0 | 5 V DC | 5 V DC power output to MPWB |
|  | 6 | $+5 \mathrm{~V} 2$ | 0 | 5 V DC | 5 V DC power output to MPWB |
|  | 7 | $+5 \mathrm{~V} 2$ | 0 | 5 V DC | 5 V DC power output to MPWB |
|  | 8 | GND | - | - | Ground |
|  | 9 | GND | - | - | Ground |
|  | 10 | GND | - | - | Ground |
|  | 11 | GND | - | - | Ground |
|  | 12 | GND | - | - | Ground |
|  | 13 | GND | - | - | Ground |
|  | 14 | GND | - - |  | Ground |
|  | 15 | SLEEP | 1 | 0/3.3 V DC | Sleep signal: On/Off |
| YC2 | 1 | +24V2 | 0 |  | 24 V DC power output to EPWB |
| Connected to engine PWB | 2 | +24V2 | 0 | $24 \text { V DC }$ | 24 V DC power output to EPWB Ground |
|  | 3 | GND | - |  |  |
|  | 4 | GND |  |  | Ground |
|  | 5 | +24VIL2 | 0 | 24 V DC | 24 V DC power output to EPWB |
|  | 6 | GND | - | - | Ground |
|  | 7 | GND | - | - | Ground |
|  | 8 | GND | - | - | Ground |
|  | 9 | GND | - | - | Ground |
|  | 10 | +24VIL1 | 0 | 24 V DC | 24 V DC power output to EPWB |
|  | 11 | +24VIL1 | 0 | 24 V DC | 24 V DC power output to EPWB |
|  | 12 | +24VIL1 | 0 | 24 V DC | 24 V DC power output to EPWB |


| Connector | Pin | Signal | 1/0 | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC3 <br> Connected to front cover switch | $\begin{aligned} & 2 \\ & 3 \\ & 4 \end{aligned}$ | ILVCC <br> 24 V 2 <br> NC <br> 24VIL1 | $\begin{aligned} & 0 \\ & 1 \\ & - \\ & 0 \end{aligned}$ | $\begin{aligned} & 3.3 \text { V DC } \\ & 24 \mathrm{~V} D C \\ & - \\ & 24 \mathrm{~V} D C \end{aligned}$ | 3.3 V DC power output to FCSW <br> 24 V DC power input from FCSW <br> Not used <br> 24 V DC power output to FCSW |
| YC4 <br> Connected to <br> engine PWB | $\begin{aligned} & 1 \\ & 2 \\ & 3 \\ & 4 \\ & 5 \\ & 6 \\ & 7 \end{aligned}$ | SELECT <br> zCROSS <br> RELAYREM <br> MHREM <br> SHREM <br> CHREM <br> ILVCC | $\begin{aligned} & \hline 1 \\ & 0 \end{aligned}$ | $0 / 3.3 \vee D C$ $0 / 3.3 \vee D C($ pulse $)$ $0 / 3.3 \vee D C$ $0 / 3.3 \vee D C$ $0 / 3.3 \vee D C$ $0 / 3.3 \vee D C$ $3.3 \vee D C$ | Destination selection signal <br> Zero-cross signal <br> Power relay signal: On/Off <br> FH1: On/Off <br> FH2: On/Off <br> CH: On/Off <br> 3.3 V DC power input from MPWB |
| $\square$ <br> Connected to paper feeder and cassette heater | $\begin{aligned} & 1 \\ & 2 \\ & 3 \\ & 4 \\ & 5 \\ & 6 \end{aligned}$ | LIVE <br> LIVE <br> NC <br> NC <br> NEUTRAL <br> NEUTRAL | 0 <br> 0 <br> - <br> - <br> 0 <br> 0 | $\begin{aligned} & 120 \mathrm{~V} \mathrm{AC} \\ & 220-240 \mathrm{~V} \mathrm{AC} \\ & 120 \mathrm{~V} \mathrm{AC} \\ & 220-240 \mathrm{~V} \mathrm{AC} \\ & - \\ & - \\ & 120 \mathrm{~V} \mathrm{AC} \\ & 220-240 \mathrm{~V} \mathrm{AC} \\ & 120 \mathrm{~V} \mathrm{AC} \\ & 220-240 \mathrm{~V} \mathrm{AC} \end{aligned}$ | AC power output to PFCH <br> AC power output to CH <br> Not used <br> Not used <br> AC power output to PFCH <br> AC power output to CH |
| YC6 <br> Connected to <br> cassette <br> heater switch | $\begin{aligned} & 2 \\ & 3 \end{aligned}$ | $\begin{aligned} & \mathrm{CH} \_\mathrm{SW} \\ & \mathrm{NC} \\ & \mathrm{CH}+\mathrm{COM} \end{aligned}$ | $0$ | $\begin{aligned} & \hline 120 \mathrm{~V} \mathrm{AC} \\ & 220-240 \mathrm{~V} \mathrm{AC} \\ & - \\ & 120 \mathrm{~V} \mathrm{AC} \\ & 220-240 \mathrm{~V} \mathrm{AC} \end{aligned}$ | AC power output to CHSW <br> Not used <br> AC power input from CHSW |
| YC7 <br> Connected to fuser unit | $\begin{aligned} & 1 \\ & 2 \\ & 3 \end{aligned}$ | MHEATER <br> SHEATER <br> H_LIVE | $0$ <br> 0 <br> 0 | $0 / 120$ V AC <br> $0 / 220-240$ V AC <br> $0 / 120$ V AC <br> 0/220-240 V AC <br> 100V AC | FH1: On/Off <br> FH2: On/Off <br> AC power output to $\mathrm{FH} 1,2$ |


*2: Excluding 120V AC model

## 2-3-4 Operation panel PWB main



Figure 2-3-4 Operation panel PWB main silk-screen diagram

| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC1 | 1 | 5V2 | I | 5 V DC | 5 V DC power intput from MPWB |
| Connected to main PWB | 2 | 5 V 2 | 1 | $5 \vee D C$ | 5 V DC power input from MPWB |
|  | 3 | GND | - | - | Ground |
|  | 4 | GND | - | - | Ground |
| YC2 | 1 | VBUS | 1 | 5 V DC | 5 V DC power input |
| Connected to main PWB | 2 | DN | I/O | LVDS | USB data signal |
|  | 3 | DP | I/O | LVDS | USB data signal |
|  | 4 | ID | - | - | Not used |
|  | 5 | GND | - | - | Ground |
| YC3 | 1 | GND | - | - | Ground |
| Connected to main PWB | 2 | $\begin{aligned} & \text { SECOND_TR } \\ & \text { AY_SW } \end{aligned}$ | 1 | $0 / 3.3 \vee$ DC | JEPS: On/Off |
|  | 3 | BEEP_POWE RON | 1 | 0/3.3 V DC | Sleep return signal 0 |
|  | 4 | $\begin{aligned} & \text { ENERGY_SA } \\ & \text { VE } \end{aligned}$ | 1 | 0/3.3 V DC | Energy save signal |
|  | 5 | SUSPEND_P ower | 1 | 3.3 V DC | $3.3 \vee$ DC power input from MPWB |
|  | 6 | LED_MEMOR Y | 1 | 0/3.3 V DC | Memory LED control signal |
|  | 7 | LED_ATTENT ION | 1 | $0 / 3.3 \vee D C$ | Attention LED control signal |
|  | 8 | LED_PROCE SSING_N | 1 | 0/3.3 V DC | Processing LED control signal |
|  | 9 | SHUTDOWN | 1 | 0/3.3 V DC | 24 V down signal |
|  | 10 | LIGHTOFF_P OWERON | 1 | $0 / 3.3 \vee D C$ | Sleep return signal 1 |
|  | 11 | AUDIO | 1 | Analog | Voice output signal |
|  | 12 | PANEL_RESE $\mathrm{T}$ | 1 | 0/3.3 V DC | Reset signal |
|  | 13 | INT_POWER KEY | O | $0 / 3.3 \vee D C$ | Power key: On/Off |
|  | 14 | PANEL_STAT US | 0 | $0 / 3.3 \vee D C$ | Operation panel status signal |
|  | 15 | GND | - | - | Ground |


| Connector | Pin | Signal | 1/0 | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC4 | 1 | GND | - | - | Ground |
| Connected to LCD relay PWB | 2 | GND | - | - | Ground |
|  | 3 | CK | 0 | 0/3.3 V DC(pulse) | Clock signal |
|  | 4 | GND | - | - | Ground |
|  | 5 | GND | - | - | Ground |
|  | 6 | SC | 0 | 0/3.3 V DC | LCD Control signal |
|  | 7 | R0 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 8 | R1 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 9 | R2 | $\bigcirc$ | 0/3.3 V DC | LCD Control signal |
|  | 10 | GND | - | - | Ground |
|  | 11 | R3 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 12 | R4 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 13 | R5 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 14 | GND | - | - | Ground |
|  | 15 | G1 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 16 | G1 | $\bigcirc$ | 0/3.3 V DC | LCD Control signal |
|  | 17 | G2 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 18 | GND | - | - | Ground |
|  | 19 | G3 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 20 | G4 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 21 | G5 | $\bigcirc$ | 0/3.3 V DC | LCD Control signal |
|  | 22 | GND | - | - | Ground |
|  | 23 | B0 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 24 | B1 | $\bigcirc$ | 0/3.3 V DC | LCD Control signal |
|  | 25 | B2 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 26 | GND | - | - | Ground |
|  | 27 | B3 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 28 | B4 | 0 | 0/3.3 V DC | LCD Control signal |
|  | 29 | B5 | $\bigcirc$ | 0/3.3 V DC | LCD Control signal |
|  | 30 | GND | - | - | Ground |
|  | 31 | H_SYNC | 0 | 0/3.3 V DC(pulse) | Horizontal synchronizing signal |
|  | 32 | GND | - | - | Ground |
|  | 33 | V_SYNC | 0 | 0/3.3 V DC(pulse) | Vertical synchronizing signal |
|  | 34 | GND | - | - | Ground |
|  | 35 | ENB | 0 | 0/3.3 V DC | LCD enable signal |
|  | 36 | CM | 0 | 0/3.3 V DC | LCD mode switch signal |
|  | 37 | 3.3 V | 0 | 3.3 V DC | 3.3 V DC power output to LCDRPWB |


| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC4 | 38 | 3.3 V | 0 | 3.3 V DC | 3.3 V DC power output to LCDRPWB |
| Connected to | 39 | 3.3 V | 0 | 3.3 V DC | 3.3 V DC power output to LCDRPWB |
| LCD relay PWB | 40 | 3.3 V | 0 | 3.3 V DC | $3.3 \vee$ DC power output to LCDRPWB |
| YC9 | 1 | A_LED | 0 | 0/3.3 V DC | Memory LED control signal |
| Connected to operation panel PWB left | 2 | M_LED | 0 | $0 / 3.3 \vee$ DC | Attention LED control signal |
|  | 3 | P_LED | $\bigcirc$ | 0/3.3 V DC | Processing LED control signal |
|  | 4 | KEY4 | 1 | 0/3.3 V DC(pulse) | Operation panel key scan return signal 4 |
|  | 5 | INT_POWER KEY_N | $\bigcirc$ | 0/5 V DC | Power key: On/Off |
|  | 6 | KEY3 | 1 | 0/3.3 V DC(pulse) | Operation panel key scan return signal 3 |
|  | 7 | KEY2 | 1 | 0/3.3 V DC(pulse) | Operation panel key scan return signal 2 |
|  | 8 | KEY1 | 1 | 0/3.3 V DC(pulse) | Operation panel key scan return signal 1 |
|  | 9 | LED1 | $\bigcirc$ | 0/3.3 V DC(pulse) | Operation panel LED display drive signal 1 |
|  | 10 | 3.3V0 | 0 | 3.3 V DC | 3.3 V DC power output to OPPWB-L |
|  | 11 | LEDO | $\bigcirc$ | 0/3.3 V DC(pulse) | Operation panel LED display drive signal $0$ |
|  | 12 | KEYO | 1 | 0/3.3 V DC(pulse) | Operation panel key scan return signal 0 |
|  | 13 | SCAN4 | 0 | 0/3.3 V DC(pulse) | Scan signal 4 |
|  | 14 | SCAN3 | 0 | 0/3.3 V DC(pulse) | Scan signal 3 |
|  | 15 | SCAN2 | 0 | 0/3.3 V DC(pulse) | Scan signal 2 |
|  | 16 | SCAN1 | 0 | 0/3.3 V DC(pulse) | Scan signal 1 |
|  | 17 | SCANO | $\bigcirc$ | 0/3.3 V DC(pulse) | Scan signal 0 |
|  | 18 | GND | - |  | Ground |


| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC10 | 1 | S_LED | 0 | 0/3.3 V DC | Memory LED contorol signal |
| Connected to operation panel PWB right | 2 | LED4 | $\bigcirc$ | 0/3.3 V DC(pulse) | Operation panel LED display drive signal 4 |
|  | 3 | LED2 | 0 | 0/3.3 V DC(pulse) | Operation panel LED display drive signal 2 |
|  | 4 | KEY5 | 1 | 0/3.3 V DC(pulse) | Operation panel key scan return signal 5 |
|  | 5 | SCAN3 | $\bigcirc$ | 0/3.3 V DC(pulse) | Scan signal 3 |
|  | 6 | SCAN2 | $\bigcirc$ | 0/3.3 V DC(pulse) | Scan signal 2 |
|  | 7 | SCAN1 | $\bigcirc$ | 0/3.3 V DC(pulse) | Scan signal 1 |
|  | 8 | KEY7 | 1 | 0/3.3 V DC(pulse) | Operation panel key scan return signal 7 |
|  | 9 | LED3 | $\bigcirc$ | 0/3.3 V DC(pulse) | Operation panel LED display drive signal 3 |
|  | 10 | KEY6 | 1 | 0/3.3 V DC(pulse) | Operation panel key scan return signal 6 |
|  | 11 | SCANO | $\bigcirc$ | 0/3.3 V DC(pulse) | Scan signal 0 |
|  | 12 | GND | - | - | Ground |
| YC11 |  | $\begin{aligned} & \text { VO2 } \\ & \text { VO1 } \end{aligned}$ | $\begin{aligned} & \mathrm{O} \\ & \mathrm{O} \end{aligned}$ | Analog <br> Analog | Speaker sound signal (+) <br> Speaker sound signal (-) |
| Connected to the speaker | 2 |  |  |  |  |
| YC15 | 1 | GND | - | - | Ground |
| Connected to LCD relay PWB | 3 | SCK | O | 0/3.3 V DC(pulse) | Clock signal |
|  |  | SDI | 0 | 0/3.3 V DC(pulse) | Serial communication data signal |
|  | 3 | SPC_CS1N | $\bigcirc$ | 0/3.3 V DC | LCD control signal |
|  | 5 | SHUT | 0 | 0/3.3 V DC | LCD control signal |
|  | 6 | LCD_RESB | $\bigcirc$ | 0/3.3 V DC | LCD control signal |
|  | 7 | Y1(T) | 1 | Analog | Touch panel $\mathrm{Y}+$ Positional signal |
|  | 8 | X2(L) | 1 | Analog | Touch panel $\mathrm{X}+$ Positional signal |
|  | 910 | Y2(B) | 1 | Analog | Touch panel Y-Positional signal |
|  |  | $\begin{array}{\|l} \mathrm{X} 1(\mathrm{R}) \\ \mathrm{LED} \_A(+) \\ \text { LED_C(-) } \end{array}$ | 1 | Analog | Touch panel X-Positional signal |
|  | 10 |  | $\bigcirc$ | $0 / 3.3 \vee$ DC | LED control signal |
|  | 12 |  | 1 | 0/3.3 V DC | LED control signal |

## 2-3-5 DP main PWB



Figure 2-3-5 DP main PWB silk-screen diagram

| Connector | Pin | Signal | I/O | Voltage | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YC1 | 1 | FG |  | - | Ground |
| Connected to engine PWB | 2 | ENG_TMG | 0 | $0 / 3.3 \vee D C$ | DPTS: On/Off |
|  | 3 | ENG_RDY | $\bigcirc$ | $0 / 3.3 \vee$ DC | Ready signal |
|  | 4 | ENG_SEL | 1 | 0/3.3 V DC | Select signal |
|  | 5 | ENG_CLK | 1 | 0/3.3 V DC(pulse) | Clock signal |
|  | 6 | ENG_SI | 1 | 0/3.3 V DC(pulse) | Serial communication data signal |
|  | 7 | ENG_SO | $\bigcirc$ | 0/3.3 V DC(pulse) | Serial communication data signal |
|  | 8 | ENG_OPEN | 0 | 0/3.3 V DC | DPOCS: On/Off |
|  | 9 | NC | - | - | Not used |
|  | 10 | GND | - | - | Ground |
|  | 11 | GND | - | - | Ground |
|  | 12 | GND | - | - | Ground |
|  | 13 | NC | - | - | Not used |
|  | 14 | +24V | 0 | 24 V DC | 24 V DC power input from EPWB |
|  | 15 | $+24 \mathrm{~V}$ | 0 | 24 V DC | 24 V DC power input from EPWB |
|  | 16 | +24V | 0 | 24 V DC | 24 V DC power input from EPWB |
| YC2 | 1 | ANODE | 0 | 3.3 V DC | 3.3 V DC power output to DPOLS |
| Connected to DP original size length sensor | 2 | $\begin{aligned} & \text { GND } \\ & \text { LS_SW } \end{aligned}$ | - | $0 / 3.3 \vee D C$ | Ground DPOLS: On/Off |
|  |  |  |  |  |  |
| YC3 | 1 | ANODE <br> GND <br> SET_SW | 0-I | $\begin{aligned} & 3.3 V D C \\ & - \\ & 0 / 3.3 V D C \end{aligned}$ | 3.3 V DC power output to DPOS <br> Ground <br> DPOS: On/Off |
| Connected to | 23 |  |  |  |  |
| DP original sensor |  |  |  |  |  |
| YC4 | $\begin{aligned} & 1 \\ & 2 \\ & 3 \\ & 4 \end{aligned}$ | WID1 | 1 | $0 / 3.3 \vee D C$ | DPOWS: On/Off Ground |
| Connected to DP original size width sensor |  | GND | - |  |  |
|  |  |  | 1 | 0/3.3 V DC | DPOWS: On/Off |
|  |  | WID3 | 1 | $0 / 3.3 \vee$ DC | DPOWS: On/Off |



## 2-4-1 Appendixes

## (1) Maintenance kits

| Maintenance part name |  | Parts No. | Alternative <br> part No. |
| :--- | :--- | :---: | :---: |
| Name used in service | Name used in parts list |  | 1702 K37USO |
| MK-477/MAINTENANCE KIT | MK-477/MAINTENANCE KIT | - | - |
| Primary paper feed unit | PRIMARY FEED UNIT | - | - |
| MP separation pad | SEPARATION PAD | - | - |
| MP paper feed roller | MPF ROLLER | - | - |
| Registration cleaner | REGIST CLEANER | - | - |
| Transfer roller unit | TR-475 | - | - |
| Drum unit | DK-475 | - | - |
| Developerunit | DV-475 | - | - |
| Fuser unit | FK-475(U) | - | - |
| MK-475/MAINTENANCE KIT | MK-475/MAINTENANCE KIT | - | - |
| Primary paper feed unit | PRIMARY FEED UNIT | - | - |
| MP separation pad | SEPARATION PAD | - | - |
| MP paper feed roller | MPF ROLLER | - | - |
| Registration cleaner | REGIST CLEANER | - | - |
| Transfer roller unit | TR-475 | - | - |
| Drum unit | DK-475 | - | - |
| Developier unit | DV-475 | - | - |
| Fuser unit | FK-475(E) | - | - |
| MK-479/MAINTENANCE KIT | MK-479/MAINTENANCE KIT | - | - |
| Primary paper feed unit | PRIMARY FEED UNIT | - | - |
| MP separation pad | SEPARATION PAD | - | - |
| MP paper feed roller | MPF ROLLER | - | - |
| Registration cleaner | REGIST CLEANER | - | - |
| Transfer roller unit | TR-475 | - | - |
| Drum unit | DK-475 | - | - |
| Developer unit |  |  | - |
| Fuser unit |  |  | - |
| MK-470/MAINTENANCE KIT | MK-470/MAINTENANCE KIT | - | - |
| DP papar feed roller | FEED ROLLER (DP) | - | - |
| DP separation pulley cover | RETARD GUIDE (DP) | - | - |
| DP separation pulley | RETARD ROLLER (DP) | - | - |

## (2) Repetitive defects gauge

$\qquad$
37.5 mm/1 1/2" Chager roller
$46.5 \mathrm{~mm} / 1$ 13/16" Right/Left registration roller 49.5 mm/1 15/16" Transfer roller
$\qquad$ $\longleftarrow 63 \mathrm{~mm} / 2$ 1/2" Developing roller
$\qquad$
$78.5 \mathrm{~mm} / 3$ 1/16" Heat roller/Press roller
_— $94 \mathrm{~mm} / 3$ 11/16" Drum

## (3) Firmware environment commands

The printer maintains a number of printing parameters in its memory. There parameters may be changed permanently with the FRPO (Firmware RePrOgram) commands.
This section provides information on how to use the FRPO command and its parameters using examples.

## Using FRPO commands for reprogramming firmware

The current settings of the FRPO parameters are listed as optional values on the service status page.

Note: Before changing any FRPO parameter, print out a service status page, so you will know the parameter values before the changes are made. To return FRPO parameters to their factory default values, send the FRPO INIT (FRPO-INITialize) command.(!R! FRPO INIT; EXIT;)

The FRPO command is sent to the printer in the following sequence:
!R! FRPO parameter, value; EXIT;
Example: Changing emulation mode to PC-PR201/65A
!R! FRPO P1, 11; EXIT;

FRPO parameters

| Item | FRPO | Setting values | Factory setting |
| :---: | :---: | :---: | :---: |
| Default pattern resolution | B8 | $\begin{aligned} & 0: 300 \mathrm{dpi} \\ & 1: 600 \mathrm{dpi} \end{aligned}$ | 0 |
| Copy count | C0 | Number of copies to print:1-999 | 1 |
| Page orientation | C1 | 0: Portrait <br> 1: Landscape | 0 |
| Default font No. * | $\begin{aligned} & \mathrm{C} 2 \\ & \mathrm{C} 3 \\ & \mathrm{C} 5 \end{aligned}$ | Middle two digits of power-up font Last two digits of power-up font First two digits of power-up font | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ |
| PCL font switch | C8 | 0:HP compatibility mode (Characters higher than 127 are not printed.) <br> 32:Conventional mode (Characters higher than 127 are printed. Supported symbol sets: ISO60 Norway [00D], ISO-15 Italian [00I], ISO-11 Sweden [00S], ISO-6 ASCII [00U], ISO-4 U.K. [01E], ISO-69 France [01F], ISO-21 Germany [01G], ISO-17 Spain [02S], Symbol [19M]a) | 0 |
| Print density | D4 | Number from 1 (Light) to 5 (Dark) | 3 |
| Total host buffer size | H8 | 0 to 99 in units of the size defined by FRPO S5 | 5 |
| Form feed time-out value | H9 | Value in units of 5 seconds (0 to 99). | 6 |
| Reduce ratio | J0 | $\begin{aligned} & \text { 0: } 100 \% \\ & \text { 5: } 70 \% \\ & \text { 6: } 81 \% \\ & \text { 7: } 86 \% \\ & \text { 8: } 94 \% \\ & \text { 9: } 98 \% \end{aligned}$ | 0 |


| Item | FRPO | Setting values | Factory setting |
| :---: | :---: | :---: | :---: |
| KIR mode | N0 | $\begin{aligned} & \text { 0: Off } \\ & \text { 2: On } \end{aligned}$ | 2 |
| Duplex binding | N4 | 0: Off <br> 1: Long edge <br> 2: Short edge | 0 |
| Sleep timer time-out time | N5 | 1 to 240 minutes [0: Off] | 15 |
| Ecoprint level | N6 | $\begin{aligned} & \text { 0: Off } \\ & \text { 2: On } \end{aligned}$ | 0 |
| Default emulation mode | P1 | $\begin{aligned} & \text { 6: PCL } 6 \\ & \text { 9: KPDL } \end{aligned}$ | 9(U.S.A) <br> or 6(Euro and other) |
| Carriage-return action * | P2 | 0 : Ignores 0x0d <br> 1: Carriage-return <br> 2: Carriage-return+linefeed | 1 |
| Linefeed action * | P3 | 0 : Ignores 0x0d <br> 1: Linefeed <br> 2: Linefeed+carriage-return | 1 |
| Automatic emulation sensing (For KPDL3) | P4 | 0 : AES disabled <br> 1: AES enabled | 1(U.S.A) <br> or O(Euro and other) |
| Automatic emulation switching trigger <br> (For KPDL3) | P7 | 0: Page eject commands <br> 1: None <br> 2: Page eject and prescribe EXIT <br> 3: Prescribe EXIT <br> 4: Formfeed (^L) <br> 6: Page eject, prescribe EXIT and formfeed <br> 10: Page eject commands; if AES fails, resolves to KPDL | $\begin{gathered} 11 \text { (U.S.A) } \\ \text { or } \\ \text { 10(Euro and } \\ \text { other) } \end{gathered}$ |
| Command recognition character | P9 | ASCII code of 33 to 126 | 82 (R) |


| Item | FRPO | Setting values | Factory <br> setting |
| :--- | :---: | :---: | :---: |
| Default stacker | RO | 1 (inner tray) | 1 |
|  |  | 3 |  |
|  |  | 5 |  |


| Default paper size | R2 | 0: Size of the default paper cassette (See R4.) <br> 1: Monarch (3-7/8 $\times 7-1 / 2$ inches) <br> 2: Business (4-1/8 $\times 9-1 / 2$ inches) <br> 3: International DL ( $11 \times 22 \mathrm{~cm}$ ) <br> 4: International C5 ( $16.2 \times 22.9 \mathrm{~cm}$ ) <br> 5: Executive ( $7-1 / 4 \times 10-1 / 2$ inches) <br> 6: US Letter ( $8-1 / 2 \times 11$ inches) <br> 7: US Legal ( $8-1 / 2 \times 14$ inches) <br> 8: A4 ( $21.0 \times 29.7 \mathrm{~cm}$ ) <br> 9: JIS B5 ( $18.2 \times 25.7 \mathrm{~cm}$ ) <br> 10: A3 ( $29.7^{\prime} 42 \mathrm{~cm}$ ) <br> 11: B4 (25.7' 36.4 cm ) <br> 12: US Ledger ( 11 ' 17 inches) <br> 13: ISO A5 <br> 14: A6 (10.5 $\times 14.8 \mathrm{~cm}$ ) <br> 15: JIS B6 (12.8 $\times 18.2 \mathrm{~cm})$ <br> 16: Commercial \#9 (3-7/8 $\times 8-7 / 8$ inches) <br> 17: Commercial \#6 (3-5/8 $\times 6-1 / 2$ inches) <br> 18: ISO B5 ( $17.6 \times 25 \mathrm{~cm}$ ) <br> 19: Custom ( $11.7 \times 17.7$ inches) <br> 30: C4 (22.9' 32.4 cm ) <br> 31: Hagaki $(10 \times 14.8 \mathrm{~cm})$ <br> 32: Ofuku-hagaki $(14.8 \times 20 \mathrm{~cm})$ <br> 33: Officio II <br> 39: 8K <br> 40: 16K <br> 42: $8.5 \times 13.5$ inches <br> 50: Statement <br> 51: Folio <br> 52: Youkei 2 <br> 53: Youkei 4 | 0 |
| :---: | :---: | :---: | :---: |
| Default cassette | R4 | 0: MP tray <br> 1: Cassette 1 <br> 2: Cassette 2 <br> 3: Cassette 3 | 1 |


| Item | FRPO | Setting values | Factory setting |
| :---: | :---: | :---: | :---: |
| MP tray paper size | R7 | Same as the R2 values except: 0 | 6(U.S.A) <br> or 8(Euro and other) |
| A4/letter equation | S4 | $\begin{aligned} & \text { 0: Off } \\ & \text { 1: On } \end{aligned}$ | 1 |
| Host buffer size | S5 | $\begin{aligned} & \text { 0: } 10 \mathrm{kB}(\mathrm{x} \mathrm{H8}) \\ & \text { 1: } 100 \mathrm{kB}(\mathrm{x} \mathrm{H8}) \\ & \text { 2: } 1024 \mathrm{kB}(\mathrm{x} \mathrm{H8}) \end{aligned}$ | 1 |
| RAM disk size | S6 | 1 to 1024 MB | 400 |
| RAM disk mode | S7 | $\begin{aligned} & \text { 0: Off } \\ & \text { 1: On } \end{aligned}$ | 0 |
| Wide A4 | T6 | $\begin{aligned} & \text { 0: Off } \\ & \text { 1: On } \end{aligned}$ | 0 |
| Line spacing * | U0 | Lines per inch (integer value) | 6 |
| Line spacing * | U1 | Lines per inch (fraction value) | 0 |
| Character spacing * | U2 | Characters per inch (integer value) | 10 |
| Character spacing * | U3 | Characters per inch (fraction value) | 0 |
| Country code | U6 | 0: US-ASCII <br> 1: France <br> 2: Germany <br> 3: UK <br> 4: Denmark <br> 5: Sweden <br> 6: Italy <br> 7: Spain <br> 8: Japan <br> 9: US Legal <br> 10: IBM PC-850 (Multilingual) <br> 11: IBM PC-860 (Portuguese) <br> 12: IBM PC-863 (Canadian French) <br> 13: IBM PC-865 (Norwegian) <br> 14: Norway <br> 15: Denmark 2 <br> 16: Spain 2 <br> 17: Latin America <br> 21: US ASCII (U7 = 50 SET) <br> 77: HP Roman-8 (U7 = 52 SET) | 41 |
| Code set at power up in daisywheel emulation | U7 | 0 : Same as the default emulation mode (P1) <br> 1: IBM <br> 6: IBM PC-8 <br> 50: US ASCII (U6 = 21 SET) <br> 52: HP Roman-8 (U6 = 77 SET) | 53 |


| Item | FRPO | Setting values | Factory setting |
| :---: | :---: | :---: | :---: |
| Font pitch for fixed pitch scalable font | U8 | Integer value in cpi: 0 to 99 | 10 |
|  | U9 | Fraction value in 1/100 cpi: 0 to 99 | 0 |
| Font height for the default scalable font * | V0 | Integer value in 100 points: 0 to 9 | 0 |
|  | V1 | Integer value in points: 0 to 99 | 12 |
|  | V2 | Fraction value in $1 / 100$ points: $0,25,50,75$ | 0 |
| Default scalable font * | V3 | Name of typeface of up to 32 characters, enclosed with single or double quotation marks | Courier |


| Default weight | V9 |
| :--- | :--- |
| (courier and letter Gothic) Courier = darkness |  |
|  | Letter Gothic = darkness |
|  | 1: Courier = regular |
| Letter Gothic = darkness |  |
|  | 4: Courier = darkness |
| Letter Gothic = regular |  |
|  | 5: Courier = regular |
|  | Letter Gothic = regular |


| Item | FRPO | Setting values | Factory setting |
| :---: | :---: | :---: | :---: |
| Paper type for the MP tray | X0 | 1: Plain 1 | 1 |
|  |  | 2: Transparency |  |
|  |  | 3: Preprinted |  |
|  |  | 4: Label |  |
|  |  | 5: Bond |  |
|  |  | 6: Recycle |  |
|  |  | 7: Vellum |  |
|  |  | 9: Letterhead |  |
|  |  | 10: Color |  |
|  |  | 11: Prepunched |  |
|  |  | 12: Envelope |  |
|  |  | 13: Cardstock |  |
|  |  | 16: Thick |  |
|  |  | 17: High quality |  |
|  |  | 21: Custom1 |  |
|  |  | 22: Custom2 |  |
|  |  | 23: Custom3 |  |
|  |  | 24: Custom4 |  |
|  |  | 25: Custom5 |  |
|  |  | 26: Custom6 |  |
|  |  | 27: Custom7 |  |
|  |  | 28: Custom8 |  |


| Item | FRPO | Setting values | Factory setting |
| :---: | :---: | :---: | :---: |
| Paper type for paper cassettes 1 | X1 | 1: Plain | 1 |
|  |  | 3: Preprinted |  |
|  |  | 5: Bond |  |
|  |  | 6: Recycled |  |
|  |  | 9: Letterhead |  |
|  |  | 10: Color |  |
|  |  | 11: Prepunched |  |
|  |  | 17: High quality |  |
|  |  | 21: Custom1 |  |
|  |  | 22: Custom2 |  |
|  |  | 23: Custom3 |  |
|  |  | 24: Custom4 |  |
|  |  | 25: Custom5 |  |
|  |  | 26: Custom6 |  |
|  |  | 27: Custom7 |  |
|  |  | 28: Custom8 |  |


| Paper type for paper cassettes 2 to 4 | X2 | 1: Plain | 1 |
| :---: | :---: | :---: | :---: |
|  | X3 | 3: Preprinted |  |
|  |  | 5: Bond |  |
|  |  | 6: Recycled |  |
|  |  | 9: Letterhead |  |
|  |  | 10: Color |  |
|  |  | 11: Prepunched |  |
|  |  | 17: High quality |  |
|  |  | 21: Custom1 |  |
|  |  | 22: Custom2 |  |
|  |  | 23: Custom3 |  |
|  |  | 24: Custom4 |  |
|  |  | 25: Custom5 |  |
|  |  | 26: Custom6 |  |
|  |  | 27: Custom7 |  |
|  |  | 28: Custom8 |  |
| PCL paper source | X9 | 0 : Performs paper selection depending on media type. | 0 |
|  |  | 1: Performs paper selection depending on paper sources. |  |


| Item | FRPO | Setting values | Factory setting |
| :---: | :---: | :---: | :---: |
| Automatic continue for 'Press GO' | Y0 | $\begin{aligned} & \text { 0: Off } \\ & \text { 1: On } \end{aligned}$ | 0 |
| Automatic continue timer | Y1 | Number from 0 to 99 in increments of 5 seconds | $\begin{gathered} 6 \\ \text { (30 secons) } \end{gathered}$ |
| Error message for device error | Y3 | 0 : Not detect <br> 1: Detect | 0 |
| Duplex operation for specified paper type (Prepunched, Preprintedand Letterhead) | Y4 | $\begin{aligned} & \text { 0: Off } \\ & \text { 1: On } \end{aligned}$ | 0 |
| Default operation for PDF direct printing | Y5 | 0: Enlarges or reduces the image to fit in the current paper size. Loads paper from the current paper cassette. <br> 1: Through the image. Loads paper which is the same size as the image. <br> 2: Enlarges or reduces the image to fit in the current paper size. Loads Letter, A4 size paper depending on the image size. <br> 3: Through the image. Loads Letter, A4 size paper depending on the image size. <br> 8: Through the image. Loads paper from the current paper cassette. <br> 9: Through the image. Loads Letter, A4 size paper depending on the image size. <br> 10: Enlarges or reduces the image to fit in the current paper size. Loads Letter, A4 size paper depending on the imagesize. | 0 |
| e-MPS error | Y6 | 0:Does not print the error report and display the error message. <br> 1:Prints the error report. <br> 2:Displays the error message. <br> 3:Prints the error report and displays the error message. | 3 |

a. Characters higher than 127 are printed regardless of the C 8 value. However, setting C 8 to 0 does not print character code 160.

| Adjusting order | Item | Image | Description | Maintenance mode |  | Original | Page | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Item No. | Mode |  |  |  |
| 1 | Adjusting the magnification in the main scanning direction (printing adjustment) |  | Polygon motor speed adjustment | U053 | POLYGON | U053 test pattern | P.1-3-25 |  |
| 2 | Adjusting the magnification in the auxiliary scanning direction (printing adjustment) |  | Drive motor speed adjustment | U053 | MAIN | U053 test pattern | P.1-3-25 |  |
| 3 | Adjusting the center line of the MP tray (printing adjustment) |  | Adjusting the LSU print start timing | U034 | LSUOUT LEFT (MPT) | U034 test pattern | P.1-3-20 | To make an adjustment for duplex copying, select LSUOUT LEFT (DUPLEX). |
| 4 | Adjusting the center line of the cassettes (printing adjustment) |   <br> $\leftarrow$ $\vec{\prime}$ <br>   | Adjusting the LSU print start timing | U034 | LSUOUT LEFT (CASSETTE 1) LSUOUT LEFT (CASSETTE 2) LSUOUT LEFT (CASSETTE 3) | U034 test pattern | P.1-3-20 | Cassette 1: select Center (CASSETTE 1) <br> Cassette 2: select Center (CASSETTE 2) <br> Cassette 3: select Center (CASSETTE 3) |
| 5 | Adjusting the leading edge registration of the MP tray (printing adjustment) |  | Registration motor turning on timing (secondary paper feed start timing) | U034 | LSUOUT TOP MPT(L) LSUOUT TOP MPT(S) | U034 test pattern | P.1-3-20 | To make an adjustment for duplex copying, select LSUOUT TOP DUPLEX. <br> L: PAPER WIDTH 218mm or more <br> S: PAPER WIDTH less than 218 mm |
| 6 | Adjusting the leading edge registration of the cassette (printing adjustment) |  | Registration motor turning on timing (secondary paper feed start timing) | U034 | LSUOUT TOP CASSETTE(L) SUOUT TOP CASSETTE(S) | U034 test pattern | P.1-3-20 | L: PAPER WIDTH 218 mm or more S: PAPER WIDTH less than 218 mm |
| 7 | Adjusting the leading edge margin (printing adjustment) | $\star$ $\square$ <br> $\star$  <br>   | LSU illumination start timing | U402 | LESD | U402 test pattern | P.1-3-60 |  |
| 8 | Adjusting the trailing edge margin (printing adjustment) |  | LSU illumination end timing | U402 | TRAIL | U402 test pattern | P.1-3-60 |  |
| 9 | Adjusting the left and right margins (printing adjustment) |  | LSU illumination start/end timing | U402 | A MARGIN C MARGIN | U402 test pattern | P.1-3-60 |  |
| 10 | Adjusting magnification of the scanner in the main scanning direction (scanning adjustment) | $\square \square$ <br> $\square$ <br> $\square$ | Data processing | $\begin{aligned} & \hline \text { U065 } \\ & \text { U070 } \end{aligned}$ | Y SCAN ZOOM <br> Y SCAN ZOOM | Test chart | $\begin{aligned} & \text { P.1-3-27 } \\ & \text { P.1-3-33 } \end{aligned}$ | U065: For copying an original placed on the platen. <br> U070: For copying originals from the DP. |


| Adjusting order | Item | Image | Description | Maintenance mode |  | Original | Page | Remarks |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Item No. | Mode |  |  |  |
| 11 | Adjusting magnification of the scanner in the auxiliary scanning direction (scanning adjustment) |  | Original scanning speed | $\begin{aligned} & \hline \text { U065 } \\ & \text { U070 } \end{aligned}$ | X SCAN ZOOM <br> X SCAN ZOOM | Test chart | $\begin{aligned} & \hline \text { P.1-3-27 } \\ & \text { P.1-3-33 } \end{aligned}$ | U065: For copying an original placed on the platen. <br> U070: For copying originals from the DP. |
| 12 | Adjusting the center line (scanning adjustment) |  | Adjusting the original scan data (image adjustment) | U067 <br> U072 | FRONT ROTATE <br> FRONT BACK | Test chart | $\begin{aligned} & \text { P.1-3-30 } \\ & \text { P.1-3-36 } \end{aligned}$ | U067: For copying an original placed on the platen. <br> To make an adjustment for rotate copying, select ROTATE. <br> U072: For copying originals from the DP. <br> To make an adjustment for duplex copying, select BACK. |
| 13 | Adjusting the leading edge registration (scanning adjustment) |  | Original scan start timing | U066 <br> U071 | FRONT ROTATE <br> FRONT HEAD BACK HEAD | Test chart | $\begin{aligned} & \text { P.1-3-29 } \\ & \text { P.1-3-34 } \end{aligned}$ | U066: For copying an original placed on the platen. <br> To make an adjustment for trailing edge registration, select ROTATE. <br> U071: For copying originals from the DP. To make an adjustment for duplex copying, select BACK HEAD. |
| 14 | Adjusting the leading edge margin (scanning adjustment) |  | Adjusting the original scan data (image adjustment) | $\begin{aligned} & \text { U403 } \\ & \text { U404 } \end{aligned}$ | B MARGIN <br> B MARGIN | Test chart | $\begin{aligned} & \text { P.1-3-61 } \\ & \text { P.1-3-62 } \end{aligned}$ | U403: For copying an original placed on the contact glass U404: For copying originals from the DP. |
| 15 | Adjusting the trailing edge margin (scanning adjustment) |  | Adjusting the original scan data (image adjustment) | U403 <br> U404 | D MARGIN <br> D MARGIN | Test chart | $\begin{aligned} & \hline \text { P.1-3-61 } \\ & \text { P.1-3-62 } \end{aligned}$ | U403: For copying an original placed on the contact glass <br> U404: For copying originals from the DP. |
| 16 | Adjusting the left and right margins (scanning adjustment) |  | Adjusting the original scan data (image adjustment) | $\begin{aligned} & \hline \text { U403 } \\ & \text { U404 } \end{aligned}$ | A MARGIN C MARGIN A MARGIN C MARGIN | Test chart | $\begin{aligned} & \text { P.1-3-61 } \\ & \text { P.1-3-62 } \end{aligned}$ | U403: For copying an original placed on the contact glass U404: For copying originals from the DP. |

When maintenance item U411 (Automatic adjustment in the scanner) is run using the specified original (P/N 7505000005),
the following adjustments are automatically made:
Adjusting the scanner magnification (U065)
Adjusting the scanner leading edge registration (U066)
Adjusting the scanner center line (U067)
When maintenance item U411 (Automatic adjustment in the DP) is run using the specified original (P/N 302AC68243), the following adjustments are automatically made.
: When running this test chart, you first must clean the feed rollers with alcohol and ensure the DP width guides are correctly positioned against the original.
Adjusting the DP magnification (U070)
Adjusting the DP leading edge registration (U071)
Adjusting the DP center line (U072)

Image quality

| Item | Specifications |
| :--- | :--- |
| $100 \%$ magnification | Machine: $\pm 0.8 \%$ |
| Enlargement/reduction | Using DP: $\pm 1.5 \%$ |
|  | Machine: $\pm 1.0 \%$ |
| Lateral squareness | Using DP: $\pm 1.5 \%$ |
| Leading edge registration | Machine: $\pm 1.5 \mathrm{~mm} / 375 \mathrm{~mm}$ |
|  | Using DP: $\pm 2.5 \mathrm{~mm} / 375 \mathrm{~mm}$ |
|  | Cassette: $+1.0 /-1.5 \mathrm{~mm}$ |
|  | MP tray: $+1.0 /-1.5 \mathrm{~mm}$ |
| Skewed paper feed | Duppe: $+1.0 /-1.5 \mathrm{~mm}$ |
| (left-right difference) | Cassette: 1.5 mm or less |
| Lateral image shifting | MP tray: 1.5 mm or less |
|  | Duplex: 2.0 mm or less |
|  | Cassette: $\pm 2.0 \mathrm{~mm}$ |
|  | MP tray $: \pm 2.0 \mathrm{~mm}$ |
|  | Duplex: $\pm 3.0 \mathrm{~mm}$ |

## (5) Wiring diagram





## PF-470/471 <br> (Paper feeder) Installation Guide

## PF-470/471 PAPER FEEDER




## （ENG）

Fix Paper Width Guide
You can fix the paper width guide using the supplied retaining pins． Follow the steps below as necessary．
FR
Fixation du guide de largeur du papier
Vous pouvez fixer le guide de largeur du papier en utilisant les goupilles de fixation fournies
Suivez les étapes ci－dessous en fonction des besoins．
（Es）
Fijar la guía de anchura del papel
Puede fijar la guía de anchura del papel con los pernos de retén proporcionados．
Siga los pasos siguientes según sea necesario．
（DE）
Papierbreitenführung befestigen
Sie können die Papierbreitenführung mit den gelieferten Haltebolzen befestigen． Folgen Sie den Schritten unten falls notwendig．
（IT）
Fissare la guida di larghezza carta
Per fissare la guida di larghezza carta，utilizzare i perni di fissaggio forniti． Eseguire i seguenti punti come necessario．
（CN）
固定纸张宽度导板
您可以使用附带的定位销固定纸张宽度导板。
必要时执行如下步骤。
（TW）
固定紙張寬度導板
您可以使用隨附的定位卡楎固定紙張寬度導板。
如有必要，請執行以下步驟
KO
용지폭 가이드 고정
기기와 한께 제공된 핀으로 용지폭 가이드를 고정시킬 수 있습니다
필요하면 아래의 작업을 하십시오．
（JP）
用紙幅ガイドの固定
用紙幅がイドの固定


# DF-470/AK-470 (Document finisher) Installation Guide 

## DF-470 DOCUMENT FINISHER, AK-470 ATTACHMENT KIT

 forBlack \& White MFP 25/30
Color MFP 20/25



## FAX System(U) Installation Guide

FAX System(U)


ENG
The machine provides Quick Setup Wizard in System Menu to set the FAX Follow the instructions on the operation panel．

## （B）

máquina fornece o Assistente de Configuração Rápida no Menu de instruções no painel de operacão

## （c2）

$\checkmark$ systémové nabídce zařizení najdete Pruvodce rychlým nastavením，pomocí podle pokynů na provozním panelu

## （DE）

Die Maschine bietet den Schnelleinstieg Wizard im Systemmenü an，um das Fax einzustellen：Folgen Sie den Anweisungen auf dem Bedienfeld．

## （01）

Maskinen indeholder en Guide til hurtig opsætning i System menuen til indstilling af faxen．Fglg anvisningerne på betjeningspanelet．

（Es）
La máquina dispone del Asistente de configuración rápida en el Menú Sistema para configurar el fax．Siga las instrucciones del panel de controles


FI
Laiteen Järjestelmä－valikossa on ohjattu pika－asennustoiminto faksin asetusta varten．Noudata käyttöpaneelin ohjeita．


## （FR）

＇＇appareil prévoit un Assistant de configuration rapide dans le menu système pour régler les paramètres du fax．Suivez les instructions sur le panneau de commande．



## （H0）

A rendszermenüben a gyorstelepitő varázsló lehetövé teszi a FAX beállítását．Kovesse a kezelöpulton megjelenő utasitásokat．

## （IT）

È possibile utilizzare la procedura uidata di installazione rapida reperibile nel Menu Sistema per la configurazione visualizzate sul pan llo coma

## （NL）

In het Systeemmenu van het apparaat bevindt zich de wizard Snel installeren om de fax in te stellen．Volg de instructies op het bedieningspaneel van de fax．

（बR）
「 $\rho$ ク́yopns Eүкатáøtaons oto MEvoú
 Ако入оиӨŋ́бтє тіऽ обпүікऽ тои


## HEB

המכשיר מספק אשף הגדרה מה＇רה בתפריט המערכת，להגדרת הפקו． פעל לפי ההוראות המופיעות בלוח המפעיל．

（PT）
A máquina proporciona o Assistente de Configuração Rápida no Menu do Sistema para definir o FAX．Siga as instruções no painel de funcionamento．
$\stackrel{\text { Menu Sistema } / \text { Contatore }}{ }$

（3）Impostazione FAX

®0
chipamentul are un expert de configurare rapidă în meniul Sistem pentru configurarea faxului．Urmați instrucțiunile din panoul de utilizare

RU
Аппарат позволяет запустить мастер быстрой установки из системного меню для настройки факса． Выполните инструкции на панели управления．
（P）
W menu systemowym urządzenia dostẹpny jest Przewodnik szybkie FAKSU，Wykonui intrukcawic funkcje uj instrukcje z panelu operacyjnego
（2）

（3）

Maskinen har en Hurtigoppsettveiviser i Systemmenyen til innstilling av faksen Følg veiledningen på betjeningspanelet．


## （No）

（sv）
askinen har en snabbstartguide i systemmenyn för att ställa in faxen：Följ nstruktionerna som anges på kontrollpanelen．
（TR）
Cihaz FAKS ayarlamak için Sistem Menüsünde Hızlı Kurulum Sihirbazı sunar．İşletim panosundaki talimatlar izleyin．

（ARA）

| يوفر الجهاز معالج الإعداد السريع في قانمة النظام <br> لإعداد الفاكس． اتبع التُعليمات الموجودة على لوحة التثئيل． |
| :---: |
|  |  |

（CN）
可通过机器系统莱单中的快速设置向导设置传真。请遵循操作面板上的指导说明。

## （iv）

可透過系統選單中的快速設定精靈進行体真設定。請依照操作面板上的指示說明。

## （K0）

기기의 시스템 메뉴에서 팩스를 설정할 수 있도록 빠른 설정 마법사를 작 패널에 표시된 지침응 따르십시오

## （J）

本機は，システムメニューに簡単セット アップウィザードを搭載しております面にしたがってファクスを設定してく ださい。



[^2]KYOCERA Document Solutions America, Inc.
Headquarters
225 Sand Road,
Fairfield, New Jersey 07004-0008, USA
Phone: +1-973-808-8444
Fax: +1-973-882-6000

Latin America
8240 NW 52nd Terrace Dawson Building, Suite 100
Miami, Florida 33166, USA
Phone: +1-305-421-6640
Fax: +1-305-421-6666

KYOCERA Document Solutions Canada, Ltd.
6120 Kestrel Rd., Mississauga, ON L5T 1S8,
Canada
Phone: +1-905-670-4425
Fax: +1-905-670-8116

KYOCERA Document Solutions
Mexico, S.A. de C.V.
Calle Arquimedes No. 130, 4 Piso, Colonia Polanco
Chapultepec, Delegacion Miguel Hidalgo,
Distrito Federal, C.P. 11560, México
Phone: +52-555-383-2741
Fax: +52-555-383-7804

KYOCERA Document Solutions Brazil, Ltda.
Av.Tambore,1180 Mod.B-09 CEP 06460-000
Tambore-Barueri-SP, Brazil
Phone: +55-11-4195-8496
Fax: +55-11-4195-6167

## KYOCERA Document Solutions

Australia Pty. Ltd.
Level 3, 6-10 Talavera Road North Ryde N.S.W, 2113, Australia
Phone: +61-2-9888-9999
Fax: +61-2-9888-9588

## KYOCERA Document Solutions <br> New Zealand Ltd.

1-3 Parkhead Place, Albany, Auckland 1330, New Zealand
Phone: +64-9-415-4517
Fax: +64-9-415-4597

KYOCERA Document Solutions Asia Limited
16/F.,Mita Centre, 552-566, Castle Peak Road
Tsuenwan, NT, Hong Kong
Phone: +852-2610-2181
Fax: +852-2610-2063

## KYOCERA Document Solutions

(Thailand) Corp., Ltd.
335 Ratchadapisek Road, Bangsue, Bangkok 10800,

## Thailand

Phone: +66-2-586-0333
Fax: +66-2-586-0278

## KYOCERA Document Solutions

Singapore Pte. Ltd.
12 Tai Seng Street \#04-01A,
Luxasia Building, Singapore 534118
Phone: +65-6741-8733
Fax: +65-6748-3788

## KYOCERA Document Solutions <br> Hong Kong Limited

16/F.,Mita Centre, 552-566, Castle Peak Road
Tsuenwan, NT, Hong Kong
Phone: +852-2429-7422
Fax: +852-2423-2159

## KYOCERA Document Solutions Taiwan Corporation

6F., No.37, Sec. 3, Minquan E. Rd., Zhongshan Dist., Taipei 104, Taiwan R.O.C.
Phone: +886-2-2507-6709
Fax: +886-2-2507-8432
KYOCERA Document Solutions Korea Co., Ltd.
18F, Kangnam bldg, 1321-1,
Seocho-Dong, Seocho-Gu, Seoul, Korea
Phone: +822-6933-4050
Fax: +822-747-0084

## KYOCERA Document Solutions

India Private Limited
First Floor, ORCHID CENTRE
Sector-53, Golf Course Road, Gurgaon 122 002,
India
Phone: +91-0124-4671000
Fax: +91-0124-4671001

KYOCERA Document Solutions Europe B.V.
Bloemlaan 4, 2132 NP Hoofddorp,
The Netherlands
Phone: +31-20-654-0000
Fax: +31-20-653-1256
KYOCERA Document Solutions Nederland B.V.
Beechavenue 25, 1119 RA Schiphol-Rijk,
The Netherlands
Phone: +31-20-5877200
Fax: +31-20-5877260
KYOCERA Document Solutions (U.K.) Limited
8 Beacontree Plaza,
Gillette Way Reading, Berkshire RG2 0BS,
United Kingdom
Phone: +44-118-931-1500
Fax: +44-118-931-1108
KYOCERA Document Solutions Italia S.p.A.
Via Verdi, 89/91 20063 Cernusco s/N.(MI),
Italy
Phone: +39-02-921791
Fax: +39-02-92179-600
KYOCERA Document Solutions Belgium N.V.
Sint-Martinusweg 199-201 1930 Zaventem,
Belgium
Phone: +32-2-7209270
Fax: +32-2-7208748
KYOCERA Document Solutions France S.A.S.
Espace Technologique de St Aubin
Route de l'Orme 91195 Gif-sur-Yvette CEDEX,
France
Phone: +33-1-69852600
Fax: +33-1-69853409
KYOCERA Document Solutions Espana, S.A.
Edificio Kyocera, Avda. de Manacor No.2,
28290 Las Matas (Madrid), Spain
Phone: +34-91-6318392
Fax: +34-91-6318219
KYOCERA Document Solutions Finland Oy
Atomitie 5C, 00370 Helsinki,
Finland
Phone: +358-9-47805200
Fax: +358-9-47805390

## KYOCERA Document Solutions

Europe B.V., Amsterdam (NL) Zürich Branch
Hohlstrasse 614, 8048 Zürich,
Switzerland
Phone: +41-44-9084949
Fax: +41-44-9084950

## KYOCERA Document Solutions

## Deutschland GmbH

Otto-Hahn-Strasse 12, 40670 Meerbusch, Germany
Phone: +49-2159-9180
Fax: +49-2159-918100
KYOCERA Document Solutions Austria GmbH
Eduard-Kittenberger-Gasse 95, 1230 Vienna,
Austria
Phone: +43-1-863380
Fax: +43-1-86338-400
KYOCERA Document Solutions Nordic AB
Esbogatan 16B 16475 Kista, Sweden
Phone: +46-8-546-550-00
Fax: +46-8-546-550-10
KYOCERA Document Solutions Norge NUF
Postboks 150 Oppsal, 0619 Oslo,
Norway
Phone: +47-22-62-73-00
Fax: +47-22-62-72-00

## KYOCERA Document Solutions Danmark A/S

Ejby Industrivej 60, DK-2600 Glostrup,
Denmark
Phone: +45-70223880
Fax: $+45-45765850$

## KYOCERA Document Solutions Portugal Lda.

Rua do Centro Cultural, 41 (Alvalade) 1700-106 Lisboa,
Portugal
Phone: +351-21-843-6780
Fax: +351-21-849-3312

## KYOCERA Document Solutions <br> South Africa (Pty) Ltd. <br> 49 Kyalami Boulevard, <br> Kyalami Business Park 1685 Midrand, South Africa <br> Phone: +27-11-540-2600 <br> Fax: +27-11-466-3050

KYOCERA Document Solutions Russia LLC
Botanichesky pereulok 5, Moscow, 129090,
Russia
Phone: +7(495)741-0004
Fax: +7(495)741-0018

## KYOCERA Document Solutions Middle East

Dubai Internet City, Bldg. 17,
Office 157 P.O. Box 500817, Dubai,
United Arab Emirates
Phone: +971-04-433-0412

## KYOCERA Document Solutions Inc.

2-28, 1-chome, Tamatsukuri, Chuo-ku
Osaka 540-8585, Japan
Phone: +81-6-6764-3555
http://www.kyoceradocumentsolutions.com


[^0]:    *: Refer to figure 1-4-1 for paper jam location (see page 1-4-1).

[^1]:    *1: Excluding 120V AC model

[^2]:    －シャステムメニュー／カウンター
    （2）简単セットアッブウイザート
    （3）ファクスのセットアッフ

